Stone Pine Cove Affordable Farmworker Housing Project

Draft Initial Study/ Mitigated Negative Declaration

AUGUST 2024

PREPARED FOR

City of Half Moon Bay

PREPARED BY

SWCA Environmental Consultants

STONE PINE COVE
AFFORDABLE FARMWORKER HOUSING PROJECT
DRAFT INITIAL STUDY/
MITIGATED NEGATIVE DECLARATION

Prepared for

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SWCA Project No. 82941

August 2024

CONTENTS

Environmental Factors Potentially Affected 1
Chapter 1. Introduction 3
1.1 Project Background 3
1.2 CEQA Statute and Guidelines 4
Chapter 2. Project Description 5
2.1 Project Overview 5
2.2 Project Location 5
2.3 Proposed Project 11
2.4 Requested Action and Required Permits 17
Chapter 3. Environmental Checklist and Responses 18
3.1 Aesthetics 18
3.2 Agriculture and Forestry Resources 28
3.3 Air Quality 31
3.4 Biological Resources 36
3.5 Cultural Resources 57
3.6 Energy 60
3.7 Geology and Soils 61
3.8 Greenhouse Gas Emissions 68
3.9 Hazards and Hazardous Materials 71
3.10 Hydrology and Water Quality 75
3.11 Land Use and Planning 88
3.12 Mineral Resources 94
3.13 Noise 95
3.14 Population and Housing 99
3.15 Public Services 100
3.16 Recreation 107
3.17 Traffic and Circulation 108
3.18 Tribal Cultural Resources 113
3.19 Utilities and Service Systems 114
3.20 Wildfire 121
3.21 Mandatory Findings of Significance 123
Chapter 4. Preparers of the Initial Study and Mitigated Negative Declaration 1
4.1 Lead Agency 1
4.2 Project Applicant(s) 1
4.3 Environmental Consultants (CEQA) 1

Appendices

Appendix A. Site Design Plans

Appendix B. Emergency Coastal Development Permit and Supporting Documents
- B1. Emergency Coastal Development Permit
- B2. City of Half Moon Bay Corporation Yard Upgrade Project Mitigation Monitoring and Reporting Plan
- B3. Emergency Coastal Development Application Supplemental Information

Appendix C. Arborist Report
- C1. Arborist Report (Leonardo Tuchman, Plant Health Care Arborist)
- C2. Heritage Tree Removals Letter Report (Kikuchi + Kankel Design Group)

Appendix D. Biological Evaluations
- D1. Biological Resources Report (H.T. Harvey & Associates)
- D2. Peer Review of the Biological Resources Report (SWCA Environmental Consultants)
- D3. Preliminary Delineation of Wetlands and Other Waters/Delineation of Coastal Zone Wetlands within California Coastal Commission Jurisdiction (H.T. Harvey & Associates)
- D4. Draft Frog/Snake Tunnel Design Proposal (Rana Resources)
- D5. Peer Review of the Biological Resources Report (Rana Resources)

Appendix E. Geotechnical Evaluations
- E1. Geotechnical Engineering Investigation (BAGG Engineers)
- E2. Geotechnical Review of Civil Drawings (BAGG Engineers)

Appendix F. Preliminary Stormwater Management Plan
- F1. Stormwater Management Plan (BKF Engineers)
- F2. Pilarcitos Creek Floodplain Study (BKF Engineers)
- F3. Stormwater Pollution Prevention Plan for Stone Pine Cove

Appendix G. Stone Pine Cove Transportation Impact Analysis *(*DKS Associates)

Figures

Figure 2-1. Project vicinity map. 6
Figure 2-2. Project location map. 7
Figure 2-3. Stone Pine Cove site plan. 9
Figure 2-4. Proposed parcels. 13
Figure 3.1-1. Western edge of the property looking southeast with the Pilarcitos Creek riparian vegetation in the background. 19
Figure 3.1-2. Western edge of the project site looking northeast at the impoundment, with SR-92 and the City's Corporation Yard in the background. 19
Figure 3.1-3. Looking southeast at the abandoned fertilizer injection/water treatment building to be removed; with the southeastern edge of parcel, wildlife fence, and Pilarcitos Creek riparian vegetation in the background. 20
Figure 3.1-4. View from the project site looking west down Stone Pine Drive and towards the Cypress Cove Townhomes. 20
Figure 3.1-5. View of story poles from Stone Pine Road looking southeast. 21
Figure 3.1-6. View of story poles from Highway 92 looking west with Corporation Yard in the foreground. 21
Figure 3.1-7. Simulation: Street level looking south towards existing Stone Pine Road with SR-92 to left. 23
Figure 3.1-8. Simulation: Street level from entry point, looking southeast. 23
Figure 3.1-9. Simulation: Manager's unit, looking southwest. 24
Figure 3.10-1. Drainage Management Areas with 100-year and 500-year flood levels. 80
Figure 3.10-2. Dam Inundation and Tsunami Hazard Zones 86
Figure 3.17-1. Traffic-calming improvements. 112

Tables

Table 2-1. Quantities of Cut and Fill During Project Construction 16
Table 2-2. Agency Permit Requirements 17
Table 3.1-1. Project Consistency with 2020 LCLUP Policies 26
Table 3.8-1. Consistency with GHG Requirements 69
Table 3.10-1. Drainage Management Areas 79
Table 3.11-1. 2023-2031 Regional Housing Need Allocations for the City of Half Moon Bay 89
Table 3.19-1. CCWD Water Supply and Demand Estimates for Normal Water Years 118
Table 3.19-2. CCWD Water Supply and Demand Estimates for Multiple Dry Years (million gallons) 118

Acronyms and Abbreviations

AB	Assembly Bill
APN	Assessor's Parcel Number
BAAQMD	Bay Area Air Quality Management District
BMP	best management practice
BRR	Biological Resources Report
CAL FIRE	California Department of Forestry and Fire Protection
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CCC	California Coastal Commission
CCR	California Code of Regulations
CCWD	Coastside County Water District
CDFW	California Department of Fish and Wildlife
CDOC	California Department of Conservation
CDP	Coastal Development Permit
CEQA	California Environmental Quality Act
CFPD	Coastside Fire Protection District
City	City of Half Moon Bay
CNDDB	California Natural Diversity Database
CO_2	carbon dioxide
County	County of San Mateo
CRHR	California Register of Historical Resources
CRLF	California red-legged frog
CUSD	Cabrillo Unified School District
CY	cubic yards
dbh	diameter at breast height
DPS	Distinct Population Segment
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
ESHA	Environmentally Sensitive Habitat Area
FEMA	Federal Emergency Management Agency
GHG	greenhouse gas

GIP	Green Infrastructure Plan
IS/MND	Initial Study/Mitigated Negative Declaration
LCP	Local Coastal Program
LCLUP	Local Coastal Land Use Plan
LID	Low Impact Development
MBTA	Migratory Bird Treaty Act
mgd	million gallons per day
MMRP	Mitigation Monitoring and Reporting Program
MRZ	Mineral Resource Zone
NAHC	Native American Heritage Commission
NO_X	nitrogen oxides
NPDES	National Pollution Discharge Elimination System
NRHP	National Register of Historic Places
NWIC	Northwest Information Center
OHWM	ordinary high-water mark
OS-R	Open Space Reserve
PERP	Statewide Portable Engine Registration Program
PG&E	Pacific Gas and Electric Company
PM_{10}	particulate matter 10 microns or less in diameter
$PM_{2.5}$	particulate matter 2.5 microns or less in diameter
POST	Peninsula Open Space Trust
PRC	California Public Resources Code
project	Stone Pine Cove Affordable Farmworker Housing Project
RHNA	Regional Housing Needs Assessment
ROG	reactive organic gases
RWQCB	Regional Water Quality Control Board
SAM	Sewer Authority Mid-Coastside
SamTrans	San Mateo County Transit District
SFGS	San Francisco garter snake
SFPUC	San Francisco Public Utilities Commission
Sheriff's Department	San Mateo County Sheriff's Department
SLF	Sacred Lands File
SMCWPPP	San Mateo Countywide Water Pollution Prevention Program
SO_X	sulfur oxides

SR-	State Route
SSC	Species of Special Concern
State	State of California
State Water Board	State Water Resources Control Board
SVP	Society of Vertebrate Paleontology
SWCA	SWCA Environmental Consultants
SWPPP	Stormwater Pollution Prevention Plan
TAC	toxic air contaminant
TPZ	tree protection zone
U-R	Urban Reserve
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VHFHSZ	Very High Fire Hazard Severity Zone
VMT	vehicle miles traveled
VOC	volatile organic compound
WUI	wildland urban interface
CH_4	methane
N_2O	nitrous oxide
SF_6	sulfur hexafluoride
HFC	Hydrofluorocarbon
PFC	Perfluorocarbon
HDPE	high-density polyethylene
DMA	drainage management area
SRA	State Responsibility Area

CITY OF HALF MOON BAY

CALIFORNIA ENVIRONMENTAL QUALITY ACT
INITIAL STUDY AND CHECKLIST

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "potentially significant impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Greenhouse Gas Emissions	☐ Public Services
☐ Agriculture and Forestry Resources	☐ Hazards and Hazardous Materials	☐ Recreation
☐ Air Quality	☐ Hydrology and Water Quality	☐ Transportation
☐ Biological Resources	☐ Land Use and Planning	☐ Tribal Cultural Resources
☐ Cultural Resources	☐ Mineral Resources	☐ Utilities and Service Systems
☐ Energy	☐ Noise	☐ Wildfire
☐ Geology and Soils	☐ Population and Housing	☐ Mandatory Findings of Significance

DETERMINATION (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (a) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (b) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENT IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature **Date**

Printed Name
John Doughty, Assistant City Manager

INITIAL STUDY CHECKLIST	
BACKGROUND	
PROPONENT NAME City of Half Moon Bay	**PHONE NUMBER** 650-726-8252
PROPONENT ADDRESS 501 Main Street Half Moon Bay, CA 94019	
AGENCY REQUIRING CHECKLIST City of Half Moon Bay Community Development Department	**DATE SUBMITTED** August 30, 2024
PROPOSAL NAME Stone Pine Cove Affordable Farmworker Housing Project	

CHAPTER 1. INTRODUCTION

1.1 Project Background

Project Title: Stone Pine Cove Affordable Farmworker Housing Project
Initial Study/Mitigated Negative Declaration

Lead Agency: City of Half Moon Bay
Community Development Department
501 Main Street
Half Moon Bay, CA 94019

City Staff Contact: John Doughty, Assistant City Manager
Ocoee Wilson, Associate Planner

jdoughty@hmbcity.com
owilson@hmbcity.com

Project Applicants: City of Half Moon Bay, Community Development Department and County of San Mateo

The subject of this Initial Study/Mitigated Negative Declaration (IS/MND) under the California Environmental Quality Act (CEQA) is the proposed Stone Pine Cove Affordable Farmworker Housing Project (project), which consists of the development of 46 affordable manufactured homes, one manager's unit, and one management office on an approximately 6.82 acre parcel , created by the proposed tentative parcel map from the original 20.33-acre parcel (Assessor's Parcel Number [APN] 056-260-180) at 880 Stone Pine Road, Half Moon Bay, San Mateo County, California. The property is currently owned by the City of Half Moon Bay (City) and the 6.82 acre parcel will be later conveyed to San Mateo County. The project would include site access, parking, landscaping, lighting, and utility improvements. The larger property currently contains the City's Corporation Yard facilities, several Environmentally Sensitive Habitat Areas (ESHAs), and a Conservation Trail Easement and would be divided into three parcels as part of the project. The project would be composed of the following improvements: grading, access roads and sidewalks, and installation of utilities to support 47 manufactured homes, and one management office; 117 parking stalls; 24,000 square feet of public open space providing a playground, hardscape area, and recreation lawn; and a community garden space. The project would also include a parcel map creating the following three parcels:

Proposed Parcel 1: 6.82 acres would include the affordable housing development;

Proposed Parcel 2: 7.51 acres would include the Corporation Yard and a wildlife corridor; and

Proposed Parcel 3: 6.00 acres would include the Pilarcitos Creek riparian corridor, buffer, and trail conservation easement.

Construction of the project commenced in May 2024 under an Emergency Coastal Development Permit (ECDP) (PD-23-090) with the first units scheduled for occupancy in February 2025. This IS/MND is prepared in conjunction with the required follow-up Coastal Development Permit and includes a description of the existing environmental setting of the project and the environmental effects that may result from construction and operation of the project.

1.2 CEQA Statute and Guidelines

According to CEQA Statute, Public Resources Code Section 21064.5:

> MITIGATED NEGATIVE DECLARATION
>
> "Mitigated negative declaration" means a negative declaration prepared for a project when the initial study has identified potentially significant effects on the environment, but (1) revisions in the project plans or proposals made by, or agreed to by, the applicant before the proposed negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur, and (2) there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment."

According to State of California (State) CEQA Guidelines Article 6. Negative Declaration Process:

> 15070. DECISION TO PREPARE A NEGATIVE OR MITIGATED NEGATIVE DECLARATION
>
> A public agency shall prepare or have prepared a proposed negative declaration or mitigated negative declaration for a project subject to CEQA when:
>
> (a) The initial study shows that there is no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment, or
>
> (b) The initial study identifies potentially significant effects, but:
>
> (1) Revisions in the project plans or proposals made by, or agreed to by the applicant before a proposed mitigated negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and
>
> (2) There is no substantial evidence, in light of the whole record before the agency, that the project as revised may have a significant effect on the environment.
>
> 15071. CONTENTS
>
> A Negative Declaration circulated for public review shall include:
>
> (a) A brief description of the project, including a commonly used name for the project, if any;
>
> (b) The location of the project, preferably shown on a map, and the name of the project proponent;
>
> (c) A proposed finding that the project will not have a significant effect on the environment;
>
> (d) An attached copy of the Initial Study documenting reasons to support the finding; and
>
> (e) Mitigation measures, if any, included in the project to avoid potentially significant effects

CHAPTER 2. PROJECT DESCRIPTION

2.1 Project Overview

The Stone Pine Cove Affordable Farmworker Housing Project (project) consists of development of 46 affordable manufactured homes, one manager's unit, and one management office on a 6.82-acre portion of a 20.33-acre parcel (Assessor's Parcel Number [APN] 056-260-180) under the ownership of the City of Half Moon Bay (City). The County of San Mateo (County) and the City are co-applicants for the proposed project. Site access, parking, landscaping, recreation, lighting, and utility improvements are also planned. The project would require approval of a Parcel Map to divide the subject parcel into three legal parcels.

2.2 Project Location

2.2.1 Regional Setting

The project site is located on the most westerly portion of 880 Stone Pine Road (APN 056-260-180). The site is located in the city of Half Moon Bay, San Mateo County, California. San Mateo County is situated along the central coast of California and encompasses approximately 554 square miles (including tidal waters) of the San Francisco Peninsula. The county's western border is on the Pacific Ocean and the eastern border is on the San Francisco Bay shoreline. San Mateo County is bounded by the city and county of San Francisco to the north and by Santa Cruz and Santa Clara Counties to the south and southeast, respectively.

The Santa Cruz Mountain Range traverses San Mateo County in a north–south direction, effectively dividing the county into two distinct regions: the Coastside and the Bayside. The Coastside is characterized by coastal terraces transitioning into the gently sloping foothills of the Santa Cruz Mountains. The Bayside is characterized by low-lying mudflats, marshes, artificial fill, and broad, flat alluvial plains. Farther west, this low-lying region transitions into the foothills of the Santa Cruz Mountains, increasing in slope to 15% to 30% near its crest. The city is situated along the Coastside, approximately 25 miles south of San Francisco, and encompasses approximately 6.4 square miles of land. It is bordered by the Pacific Ocean to the west, the Santa Cruz Mountains to the east, and unincorporated San Mateo County to the north and south. Figure 2-1 shows the project site location and regional vicinity.

2.2.2 Local Setting

The project site is part of a former garden nursery with a total acreage of 20.33 acres that will be divided into three parcels. The 20.33 acre existing parcel gently slopes from north to south and drains by overland flow to Pilarcitos Creek, which forms the southern edge of the parcel. The elevation varies from approximately 65 to 80 feet above mean sea level (MSL). The Pilarcitos Creek 500-year floodplain rises to approximately 76.8 MSL and corresponds to the southeastern edge of the proposed development (see Figure 3.10-1 in Section 3.10, *Hydrology and Water Quality*); no housing is proposed within the 500-year floodplain. Pilarcitos Creek flows into the Pacific Ocean approximately 1.5 miles west of the project site.

The project site, on the westernmost of the three proposed parcels, is bordered by SR-92 to the north, the City's Corporation Yard to the east, Pilarcitos Creek to the south, and townhomes and mobile homes to the west, as shown in Figure 2-2. There is a commercial center (Spanishtown) farther to the east, and open space areas and agricultural greenhouses are on the south side of Pilarcitos Creek southeast, east, and northeast of the project site. Further, there are open space areas north of SR-92 and the Hilltop Mobile Home Park to the northwest.

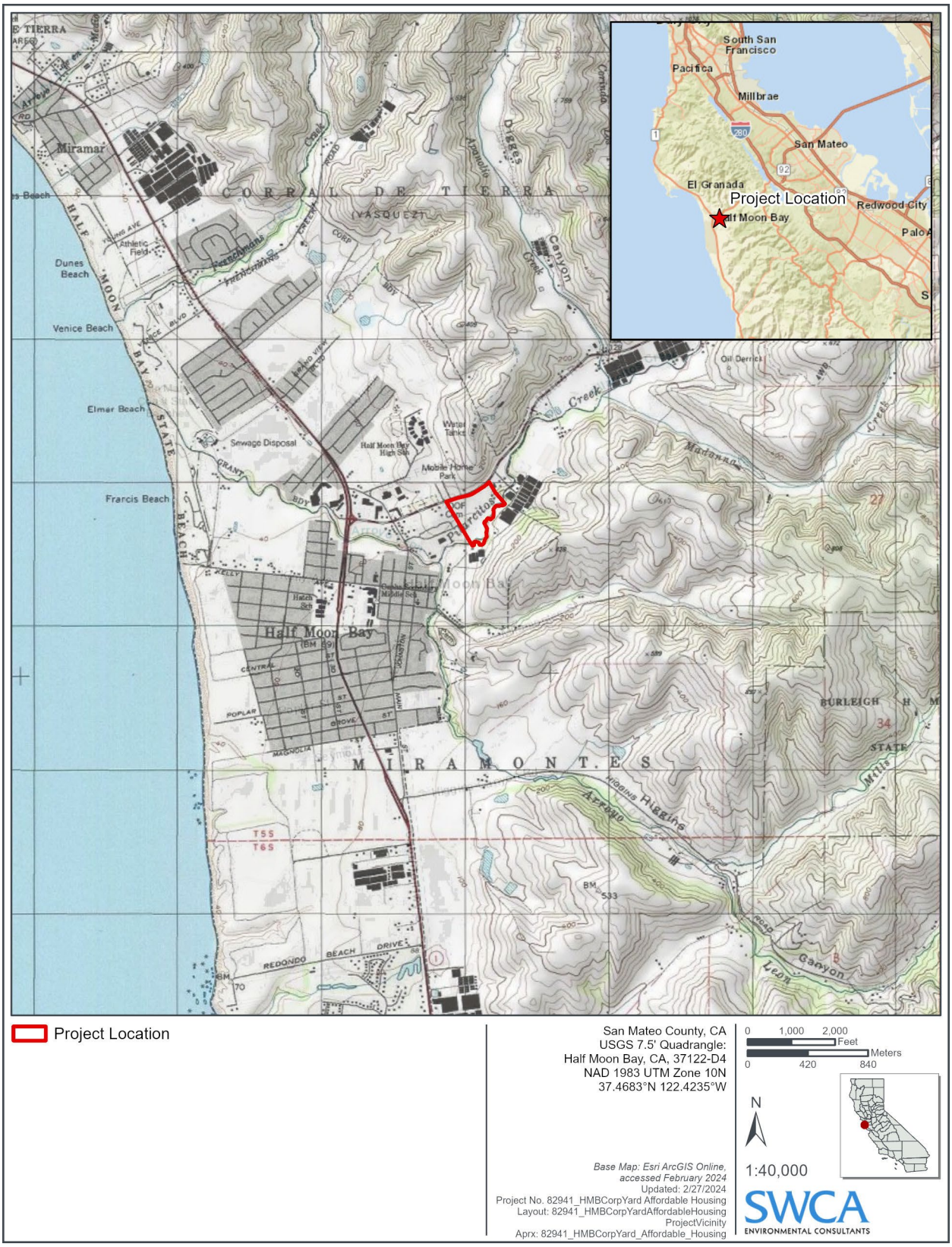

Figure 2-1. Project vicinity map.

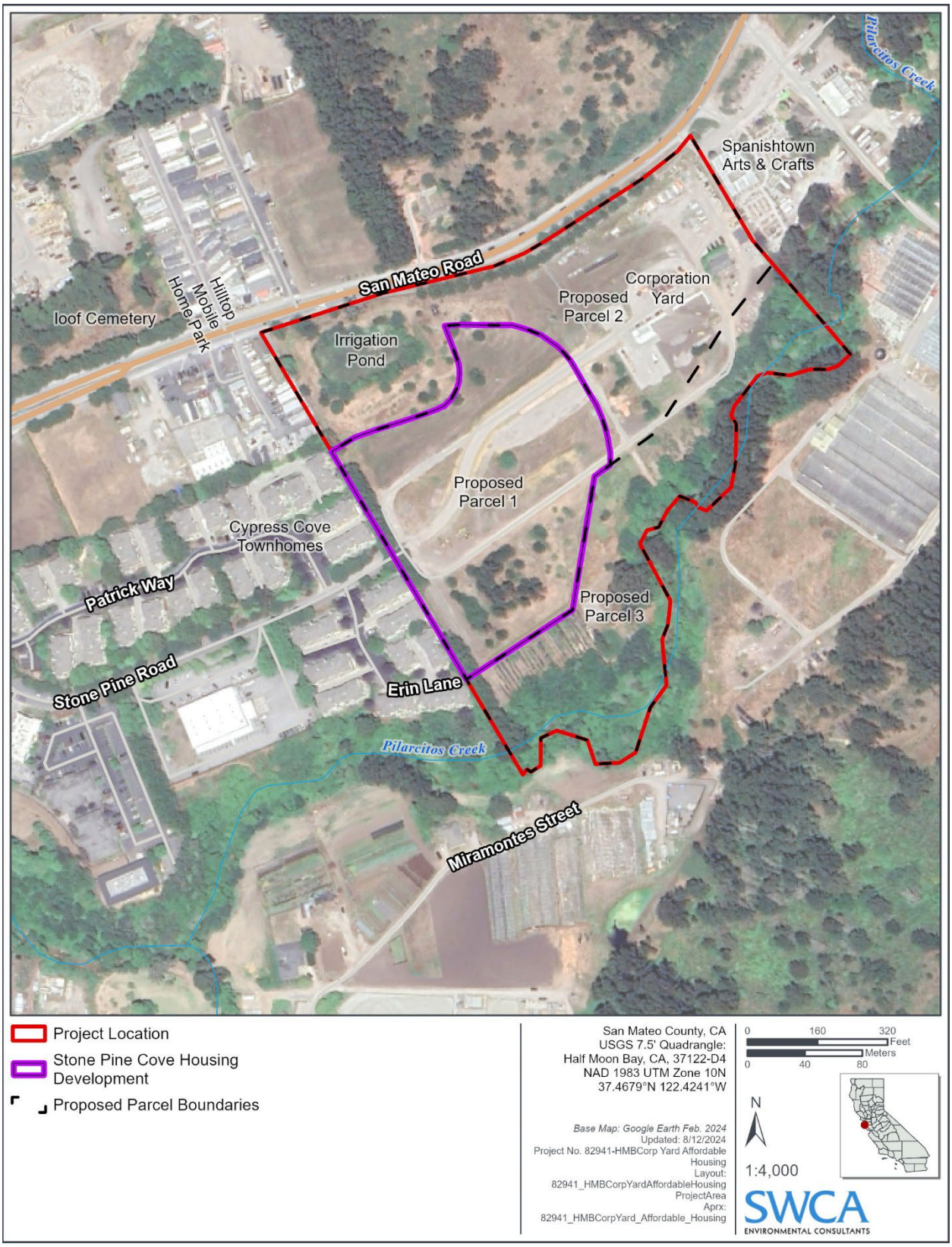

Figure 2-2. Project location map.

The project site is partially visible from SR-92; however, a roadside planting of Monterey cypress trees and the grade differential largely screens the property from passing motorists. The project site is accessed from Main Street and Stone Pine Road via SR-92. Stone Pine Road connects to Main Street approximately 0.25 mile west of the project site.

2.2.3 Existing Use and Facilities

Approximately 7.5 acres of the eastern end of the existing parcel is currently developed as the City's Corporation Yard. The Corporation Yard's primary function is staging and storage of materials, City vehicles and other equipment for ongoing maintenance of City parks, utilities and facilities. Facilities associated with the Corporation Yard include parking, storage, an access road, trash enclosure and an existing residence on-site that contains office space and restrooms. City vehicles include a dump truck for construction materials, a backhoe, tractor, lift and other small construction equipment. There are four to five solid waste truck trips every week. Trash and construction materials from City jobs are stored in the trash enclosure within the Corporation Yard. Intermittently stored construction materials include, but are not limited to, green waste, sand, gravel, asphalt grindings, and base rock that may be transferred between projects. The yard also acts as a laydown yard for City projects and occasionally for partner agencies. A paved asphalt drive provides access to the Corporation Yard from Stone Pine Road, traversing the parcel from west to east.

The northwest corner of the parcel holds an abandoned agricultural pond adjacent to the border with SR-92. There is an abandoned agricultural building in the southwest corner of the parcel which is proposed to be demolished as part of the project. The project is currently under construction consistent with the emergency coastal development permit approved in December 2023.

As shown in Figure 2-3, the project footprint would be located on approximately 5.62 acres of the 6.82-acre parcel of vacant land on the western edge of the parcel. Preliminary site design plans are included in Appendix A.

WILDLIFE CORRIDOR

The northwest corner of the larger 20.33-acre existing parcel includes an abandoned agricultural retention pond that has become naturalized with trees and low-lying vegetation. This pond has been identified as valuable habitat for wildlife. A wildlife corridor with permanent wildlife protection fencing was previously installed as part of the City of Half Moon Bay Corporation Yard Upgrade Project. The existing paved drive passes over the wildlife corridor and includes "at-grade" wildlife tunnels under the drive. The project would combine the agricultural pond and associated wildlife corridor into the 7.51-acre parcel that contains the Corporation Yard (Parcel 2 on Figure 2-4) which will be undisturbed by project construction and activities.

LAND USE AND ZONING

The City of Half Moon Bay is located in the Coastal Zone and is subject to the California Coastal Act of 1976, which requires every coastal city and county to have a Local Coastal Program (LCP) to plan for and regulate land use in the coastal zone. The *City of Half Moon Bay Local Coastal Land Use Plan* (2020 LCLUP), adopted by the City in 2020 and certified by the California Coastal Commission in 2021, implements California Coastal Act policies within the city.[1]

[1] City of Half Moon Bay. 2020. *City of Half Moon Bay Local Coastal Land Use Plan 2020 Comprehensive Update*. October 20. Available at https://www.half-moon-bay.ca.us/DocumentCenter/View/3784/Full-Combined-2020-HMB-LCLUP. Accessed March 20, 2024.



Figure 2-3. Stone Pine Cove site plan.

The 2020 LCLUP identifies affordable housing as a Local Priority Use in keeping with the California Coastal Commission (CCC) environmental justice policy approved in March 2019. The 2020 LCLUP also includes provisions that establish all farmworker housing as a Coastal Act Priority Use, in conformance with CCC policy.

Under the 2020 LCLUP, the project site is designated as Public Facilities and Institutions. This designation provides for "educational, governmental, agricultural, habitat restoration, and institutional uses, such as public schools, public works and utilities yards and maintenance buildings, community gardens, public hospitals, and quasi-public uses including churches, and healthcare uses such as hospitals, clinics, and assisted living facilities."[2] Per the 2020 LCLUP, farmworker housing is considered an agricultural use. Further, the Coastal Commission has confirmed that the LCLUP is the guiding document for development in the City of Half Moon Bay.

In addition to the 2020 LCLUP, the City is required to update its Housing Element in response to the State's Regional Housing Needs Assessment (RHNA) that occurs every 8 years. The third draft of the Cycle 6 Housing Element was released for a 7-day public review period on August 28, 2024, and will be submitted formally to HCD following the 7-day review for a 60-day review period. The Planning Commission and City Council will review HCD responses in Fall 2024, following the HCD 60-day review. The existing Cycle 5, *2015–2023 Housing Element* (2015) addressed housing needs for the period 2015 through 2023. The City released the *Public Review Draft 2023–2031 Housing Element* for review in March 2023 that addresses housing needs for 2023 through 2031.[3] Although the *2015-2023 Housing Element* is the controlling document under the California Environmental Quality Act (CEQA), the *Draft 2023-2031 Housing Element* contains the best available information and will be used going forward.[4] The project site is designated as a Housing Opportunity Site under the *Draft 2023–2031 Housing Element* for potential affordable housing development and the project is consistent with furthering the stated goals of the *Draft 2023–2031 Housing Element*.

The project site is owned by the City and located entirely within the City limits. Under the City's Municipal Code, existing zoning for the project site is Urban Reserve (U-R).[5] The purpose of the U-R and Open Space Reserve (OS-R) districts is to reserve land within the city to meet the future needs for urban development. In particular, the U-R zoning's purpose is:

> To reserve areas of open land for continuing agricultural, floricultural and horticultural uses until such uses are no longer economically feasible; to provide for the reservation of these lands until other areas in Half Moon Bay designated in the local coastal program and use plan and map and general plan for the expansion of urban uses have been substantially developed; and to reserve these lands until adequate public facilities are available to serve the ultimate use of the property.[6]

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[2] City of Half Moon Bay. 2020. *City of Half Moon Bay Local Coastal Land Use Plan 2020 Comprehensive Update*. October 20. Available at https://www.half-moon-bay.ca.us/DocumentCenter/View/3784/Full-Combined-2020-HMB-LCLUP. Accessed March 20, 2024.

[3] City of Half Moon Bay. 2023. *City of Half Moon Bay Draft Housing Element Update 2023-2031.* Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/5754/HMB-Housing-Plan---HCD-final. Accessed April 24, 2024.

[4] City of Half Moon Bay. 2015. *City of Half Moon Bay Housing Element Update 2015-2023.* Available at: https://www.hcd.ca.gov/housing-elements/docs/half-moon-bay-5th-adopted090515.pdf. Accessed April 24, 2024

[5] City of Half Moon Bay. 2015. Half Moon Bay Zoning Map. Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/129/Zoning-Map-PDF. Accessed March 20, 2024.

[6] City of Half Moon Bay. 2020. *Half Moon Bay Municipal Code, Chapter 18.11: Open Space Reserve and Urban Reserve Land Use.* Available at: https://www.codepublishing.com/CA/HalfMoonBay/html/HalfMoonBay18/HalfMoonBay1811.html#18.11. Accessed March 20, 2024.

Per the 2020 LCLUP, farmworker housing is considered an agricultural use. The Coastal Commission has confirmed that the LCLUP is the guiding document for development in the City of Half Moon Bay which provides for development consistent with the Public Facilities and Institutions designation.

The housing development project site is within 50 feet of the Pilarcitos Creek riparian zone at its closest point, approximately 1.2 miles east of the Pacific Ocean, and is in the California Coastal Zone. The California Coastal Zone was established by the California Coastal Act and is under the jurisdiction of the CCC. Chapter 3 of the California Coastal Act includes provisions that address the impact of development on public services, infrastructure, traffic, the environment, significant resources, and coastal access.

The entire city is in the coastal zone. In October 2020, the City adopted a new LCLUP,[7] which was certified by the CCC on April 15, 2021. The City's Zoning Ordinance, Subdivision Ordinance, and zoning map constitute the Local Coastal Implementation Plan (LCIP) for the City. The 2020 LCLUP and LCIP together constitute the City's LCP.

A CDP is required for the project. The City is the designated agency responsible for CDP review and conditional approval of projects within the City limits.

The City purchased the land from the Peninsula Open Space Trust (POST) in 2020. As part of the purchase agreement, POST required the City to set aside land for a future public walking trail, designate an unused portion of the property for some type of agricultural use such as a community garden, and preserve designated wetlands and wetland and riparian buffers on the site.[8] Per the 2020 LCLUP, farmworker housing is considered an agricultural use and therefore meets that aspect of the POST purchase requirement.[9] The conservation easement is currently protected by wildlife fencing and, under the project, the conservation easement and Pilarcitos Creek would be separated into Parcel 3. Development of a public walking trail is not a part of this project.

2.3 Proposed Project

2.3.1 Project Background

On March 29, 2022, the City approved an Initial Study/Mitigated Negative Declaration (IS/MND) for the City of Half Moon Bay Corporation Yard Upgrade Project, which is located on a portion of the existing 20.33-acre 880 Stone Pine Road parcel immediately east of the proposed project (see Figure 2-2). The biological and cultural surveys for the Corporation Yard Upgrade Project covered the entire parcel, including the portion where the current project is proposed.

The affordable farmworker housing project is being developed in response to an emergency. A mass shooting at two local farms on January 23, 2023, resulted in the displacement of 19 lower-income farmworker households, comprising 40 individuals, due to "red-tagging" of substandard and unsafe living conditions. Following this tragedy, San Mateo County established an Emergency Farmworker Housing

[7] City of Half Moon Bay 2020. *City of Half Moon Bay Local Coastal Land Use Plan 2020 Comprehensive Update*. October 20. Available at https://www.half-moon-bay.ca.us/DocumentCenter/View/3784/Full-Combined-2020-HMB-LCLUP. Accessed March 20, 2024.

[8] Leyden, Libby. 2020. City takes ownership of corporation yard. *Half Moon Bay Review* 11 March. Available at: https://www.hmbreview.com/news/city-takes-ownership-of-corporation-yard/article_37158c6e-63d7-11ea-98b6-c37c12716c3b.html. Accessed March 20, 2024.

[9] City of Half Moon Bay 2020. *City of Half Moon Bay Local Coastal Land Use Plan 2020 Comprehensive Update*. *Chapter 4. Agriculture.* October 20. Available at https://www.half-moon-bay.ca.us/DocumentCenter/View/3784/Full-Combined-2020-HMB-LCLUP. Accessed March 31, 2024.

Safety Task Force that has been inspecting farmworker housing on Coastside agricultural properties to ensure safe living conditions. The proposed project is intended to house the original 19 displaced households as well as other low- and lower-income farmworker households, including many of those identified by the Emergency Farmworker Housing Safety Task Force. The City issued an Emergency CDP for the proposed project on December 11, 2023. The Emergency CDP specifies that the project must comply with the 2020 LCLUP and that construction may proceed under the Mitigation Monitoring and Reporting Program (MMRP) from the Corporation Yard Upgrade Project. The Emergency CDP is included as Appendix B1 and the Corporation Yard Project MMRP is included as Appendix B2. The Emergency CDP included Conditions of Approval. These Conditions of Approval will be included as part of this CDP and may include minor modifications and clarifications. The Conditions will include incorporation of prior and new mitigation measures.

The County and City are co-applicants for the Coastal Development Permit (CDP) to entitle the affordable farmworker housing project on 880 Stone Pine Road, adjacent to the Corporation Yard in Half Moon Bay consistent with Section 18.20.040.E of the Municipal Code. The Emergency CDP included architectural and site review for the project, as well as a tree removal permit. The Conditions of Approval for the Emergency CDP incorporate all mitigation measures in the MMRP from the Corporation Yard Upgrade Project IS/MND.

The need for affordable farmworker housing is due to the shortage of existing farmworker housing in Half Moon Bay and the coastside, existing substandard housing conditions for farmworker households throughout the coastside, and the need for homeownership opportunities for low- and lower-income households in Half Moon Bay. Forty-six (46) of the units will be owner-occupied and available to low- and lower-income farmworker households. The manager's unit would be owned by the County and provided to the on-site management entity for use by the on-site manager. Twenty-eight units are being provided with assistance from the State of California (State) Joe Serna Jr. Farmworker Housing Grant Program.

2.3.2 Tentative Parcel Map

The project CDP includes a Tentative Parcel Map to create three distinct parcels from the existing 20.33-acre parcel as follows:

1. Stone Pine Cove Affordable Farmworker Housing development (6.82 acres)
2. City of Half Moon Bay--Corporation Yard, including a wildlife corridor (7.51 acres)
3. City of Half Moon Bay--Conservation easement held by POST (6.00 acres). This parcel includes the riparian buffer area surrounding Pilarcitos Creek, and includes a blanket easement for a future multi-use trail somewhere within the conservation easement (Figure 2-4; see Appendix A).

The County will, upon creation of a separate, legal parcel, purchase the proposed 6.82-acre parcel containing the Stone Pine Cove Affordable Farmworker Housing project from the City. San Mateo County will assume responsibility for management of the development in perpetuity.

2.3.3 Residential Development

As shown in the project site plan (see Figure 2-3), the project would place 47 off-site constructed manufactured homes, including 46 affordable homes for farmworkers and one manager's unit, and one management office on a proposed 6.82-acre parcel of the existing 20.33-acre parcel. Forty-six (46) out of the 47 residential units would be deed-restricted affordable units available exclusively for farmworker housing (see Appendix A), and one unit is to be reserved as the on-site manager residence. In addition,

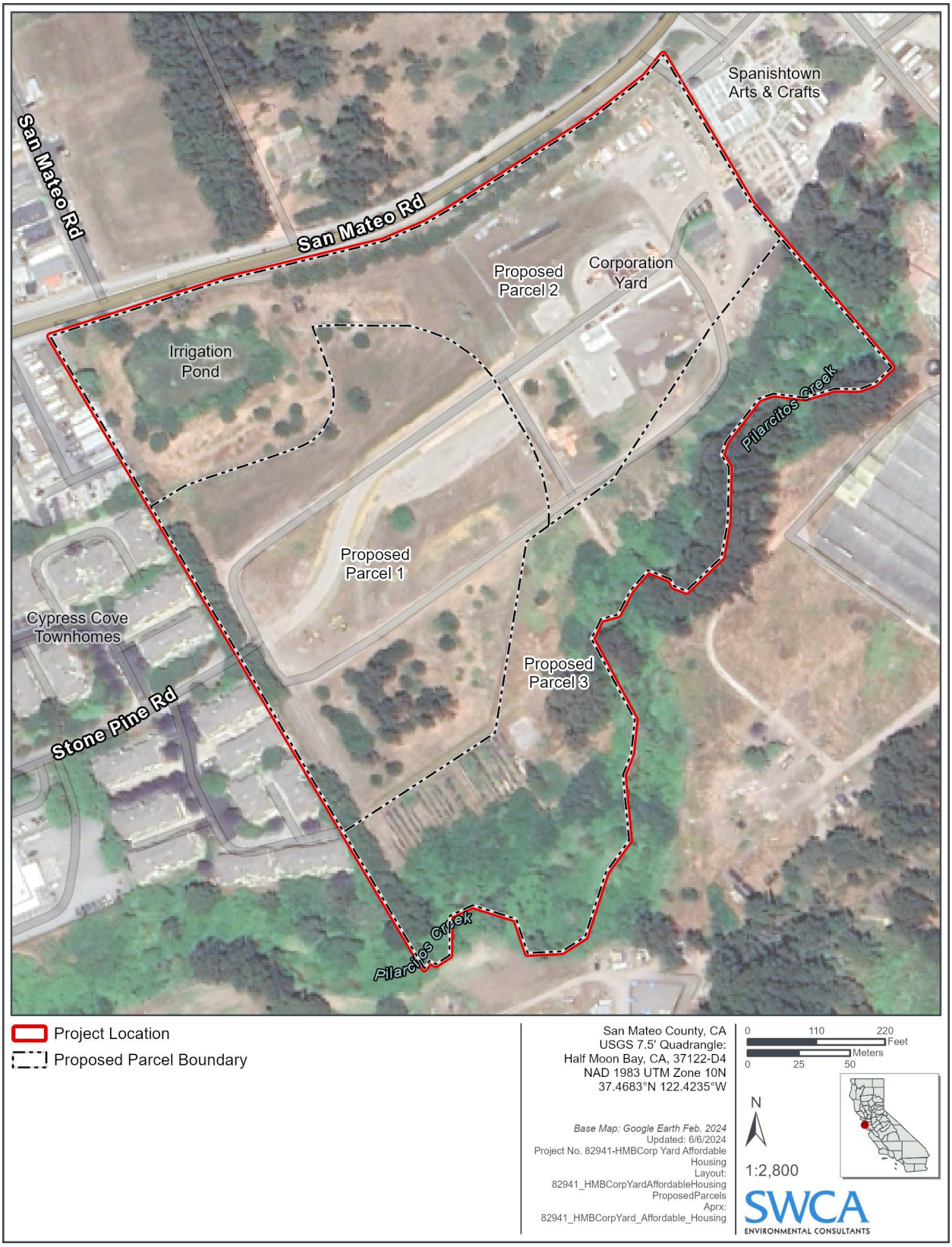

Figure 2-4. Proposed parcels.

there would be a separate management office. The 46 deed restricted units would be available for purchase.

The project consists of 47 single-story manufactured homes: 11 one-bedroom units, 24 two-bedroom units, and 12 three-bedroom units. Seven of the units would be ADA accessible. Residential amenities

would include approximately 24,000 square feet of public open space, providing a playground, sports court/hardscape area, community garden, and recreation lawn. Materials for manufactured homes include composition shingles, fiber concrete siding and trim with horizontal and vertical profiles and skirting that would match the siding; siding and skirting would be painted. A warm and complimentary color palette with accent trim is proposed for each home (Appendix B3).

2.3.4 Site Access, Parking, and Vehicle Circulation

Primary vehicle and emergency access to the project site would be provided by an existing 26-foot-wide drive, which is a private extension of Stone Pine Road. The primary (existing) access drive runs the entire length of the project site and provides access to the project via three new internal private driveways. The primary drive currently connects to the City's Corporation Yard at the eastern side of the parcel and would continue upon project completion. Emergency access to SR-92 is available through an easement along the eastern edge of the parcel. An emergency vehicle turnaround would be provided along the primary existing roadway (Stone Pine Road) before the entrance to the Corporation Yard. The residential housing would provide two parking spaces for each unit, resulting in 94 parking spaces. Each residence would be equipped with a dedicated exterior outlet for future installation of an EV charging unit. In addition, 23 visitor parking stalls are incorporated into the project, four of which would be Americans with Disabilities Act (ADA) accessible, and three would be EV spaces, one of which would be a van accessible EV space.

The project would implement traffic calming and pedestrian crossing improvements to Stone Pine Road from the junction with Main Street to the project boundary. Pedestrian and landscape improvements would be provided along the private drive (extension of Stone Pine Road) connecting to existing/new sidewalk on Stone Pine Road and to the on-site pedestrian network. Sidewalks in the proposed development would provide access to each residence, as well as public spaces including the community garden and neighborhood park. The Conditions of Approval for the Emergency CDP includes the following requirement which will also be applied in the follow-up CDP:

> SIDEWALK MAINTENANCE AND LIABILITY. It shall be the duty of the owner/operator to maintain all walkways within the project in a safe and non-dangerous condition. Walkway maintenance shall include removal and replacement of concrete to eliminate tripping hazards; and pruning and trimming of trees, shrubs, ground cover, and other landscaping impacting the safety of users.

2.3.5 Stormwater Improvements, Open Space and Landscaping

The project would result in a net increase of approximately 139,260 square feet, or 3.2 acres, of new impervious surface area, which includes the manufactured homes, parking areas, sidewalks, streets, and hardscape areas related to facilities (Appendix F1). The project would be required to comply with the *City of Half Moon Bay Green Infrastructure Plan* (GIP)[10] to control runoff. Permanent green infrastructure is anticipated to implement flow-through, planter-style stormwater channels that would filter contaminants

[10] City of Half Moon Bay. 2019. *City of Half Moon Bay Green Infrastructure Plan*. September. Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/2305/HalfMoonBayGIPlan09-2019Final1. Accessed March 20, 2024.

from stormwater runoff before entering the Pilarcitos Creek riparian zone and Conservation Trail Easement. The Conditions of Approval for the Emergency CDP include the following requirements for landscaping irrigation and drainage which will also be applied in the follow-up CDP:

> DRAINAGE PLAN. On-site drainage shall conform with the Drainage Plan dated November 28, 2023. Prior to the issuance of a grading permit, the permittee shall demonstrate that the grading plan is in substantial conformance with the Drainage Plan. Plans shall include supporting calculations for stormwater detention on the site for the additional run-off from a ten-year frequency storm of two-hour duration.
>
> WATER CONSERVATION IN LANDSCAPING. The permittee shall submit a final landscape and irrigation plan in substantial conformance with the Landscape Plan dated November 28, 2023 reflecting any revisions necessitated by the Conditions of Approval. The final irrigation plans shall be submitted and approved by the Community Development Director utilizing an Outdoor Water Efficiency Checklist that demonstrates compliance with the City's Water Conservation in Landscaping Ordinance (Chapter 13.04 of the City's Municipal Code).

The project would remove 106 existing trees; many of the trees to be removed on the project site are volunteer saplings of undesirable or invasive species. The removal of 12 trees meeting the description of heritage trees per the City's Municipal Code (Section 7.40.020), would occur as a result of the project. The heritage trees range in size from 12 to 16 inches diameter at breast height (dbh). Per the City's Municipal Code, the heritage trees would be replaced "on a one-for-one basis with a minimum size twenty-four-inch box specimen tree" (Section 7.40.060). The project proposes to plant approximately 69 new 24-inch box trees throughout the development, which satisfies the removal of heritage trees and includes a replacement ratio far in excess of the 1:1 required ratio. Additionally, the project would incorporate native plant landscaping near the picnic area, play area, and bioretention areas.

Lighting would consist of low-intensity fixtures that are shielded, down-cast, and concealed to the extent feasible. from public viewing areas and sensitive habitat. All lighting would be downward facing, shielded, and designed to reduce glare and spillover to adjacent neighborhoods and adjacent sensitive habitat. The Conditions of Approval for the Emergency CDP includes the following requirement for lighting which will also be applied in the follow-up CDP:

> LIGHTING. All exterior lighting shall be fully shielded so that no light source is visible from outside the property, except as otherwise expressly approved. The permittee shall install lighting per plans and submitted photometric lighting plan for all exterior light fixtures including lighting for parking lots, walkways, and open space areas. No floodlights are permitted on-site.

2.3.6 Utilities

The development of the residential community requires the installation of new utility services for water, wastewater, storm sewer, and electrical service. No natural gas lines would be included in the project. All new electrical service to the project will be installed underground originating from existing tie-ins from Stone Pine Road. Sanitary sewer and water lines will be tied into existing infrastructure on Stone Pine Road and extend through the project site to the east to service the Stone Pine Cove development. Stormwater drainage would be directed to three bioretention catch basins located on the perimeter of the development, to reduce sedimentation and contamination to Pilarcitos Creek from surface water run-off. The Conditions of Approval for the Emergency CDP includes the following requirements for utilities: which will also be applied in the follow-up CDP:

NATURAL GAS. There shall be no natural gas service to the project.

EVIDENCE OF WATER CONNECTION CAPACITY. Prior to the issuance of the Grading Permit, the permittee shall submit a letter from Coastside County Water District certifying that the subject site has an adequately sized water connection for domestic and fire service for this project and that a sufficient number of priority connections have been allocated to the project. The City agrees to provide a letter in advance to CCWD indicating the allocation of affordable and coastal priority water connections.

EVIDENCE OF SEWER CONNECTION CAPACITY. Prior to the issuance of the first building permit, the permittee shall obtain a "will serve" letter from the City of Half Moon Bay designating and transferring sewer capacity/connections to the project.

COASTSIDE COUNTY WATER DISTRICT. The project shall comply with all applicable regulations and requirements of the Coastside County Water District including for fire flow and include such requirements in plans. Water service shall not be in the same trench as other utilities.

STREET/PUBLIC RIGHT-OF-WAY CUTS FOR UTILITY CONNECTIONS. Any cuts for utility connections on Stone Pine Road that are less than twenty (20) feet apart shall be repaired with a single patch. Asphalt repair and overlay for public street cuts shall be by the City Standard Details. Three or more cuts in the pavement for utility connections will require a 2-inch thick asphalt concrete overlay on the existing pavement across the property frontage.

2.3.7 Construction

Project construction would involve tree removal, grubbing and grading of construction areas, trenching for new utilities (primarily electrical and water), paving road and parking areas, pouring concrete foundations for manufactured homes, installing GIP stormwater facilities, and landscaping. As noted previously, the project also includes traffic calming and pedestrian crossing improvements within Stone Pine Road west of the project site.

The existing ground surface would be grubbed and graded and would require excavation of approximately 3,550 cubic yards (CY) of cut and 3,930 CY of fill. Approximately 380 CY of fill would be imported to the project site. Cut and fill amounts for various activities are shown in Table 2-1.

Table 2-1. Quantities of Cut and Fill During Project Construction

Activity	Cut (CY)	Fill (CY)	Imported Fill (CY)
Site Work and Landscaping	1,620	3,930	380
Bioretention Area	650	0	0
Utility Trenching	1,280	0	0
Total	**3,550**	**3,930**	**380**

The project would require excavation of approximately 650 CY for the bioretention area, 1,280 CY of excavation for utility trenching, and 1,620 CY of cut and 3,930 CY of fill for site work and landscaping. Excavation depths would not exceed 3 feet for utility trenching. Cut and fill would be balanced on-site to the extent feasible. Approximately 380 CY of fill would be imported to the project site. Exported

materials from grubbing and tree removal would be hauled off-site for composting, disposal, or recycling. The project would generate approximately 550 round-trip haul truck trips for importation of fill and exported materials.

Construction activities would include equipment such as paver, dump truck, asphalt trucks, cement mixer, motor grader, scraper, bulldozer, backhoe, forklift, rubber-tired loader, motor grader, steel drum roller, water truck, and hand tools such as saws and hammers. Construction vehicles would also include construction worker vehicles and vendor deliveries. All construction vehicles would be parked on-site.

Construction of the project access, infrastructure and related open space improvements commenced on May 22, 2024, under the issuance and conditions of the Emergency CDP. Grading and site work is projected to be complete by the end of 2024 and the installation of manufactured homes will be completed by approximately March 2025. Construction hours would be limited to 8:00 a.m. to 6:00 p.m., Monday through Saturday, and no construction is anticipated on Sundays or holidays, except as expressly authorized by the City (City's Municipal Code Section 14.40.020).[11]

2.4 Requested Action and Required Permits

This IS/MND provides environmental information and analysis in compliance with CEQA, which is necessary for City decision-makers to be able to adequately consider the effects of the project. The City, as the CEQA lead agency, has approval authority and responsibility for considering the environmental effects of the project as a whole. Table 2-2 summarizes the permits and approvals required for the project. Once the project is complete, the parcel will be purchased by San Mateo County.

Table 2-2. Agency Permit Requirements

Agency	Approval/Permit Required
City of Half Moon Bay	Coastal Development Permit including TPM
City of Half Moon Bay	Adoption of IS/MND
City of Half Moon Bay	Approval of Final Parcel Map
City of Half Moon Bay	Record Final Parcel Map

[11] City of Half Moon Bay. 2021. Noise Restrictions. Available at: https://www.half-moon-bay.ca.us/210/Noise-Restrictions. Accessed March 20, 2024.

CHAPTER 3. ENVIRONMENTAL CHECKLIST AND RESPONSES

3.1 Aesthetics

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099, would the project:				
(a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
(b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
(c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (public views are those that are experienced from publicly accessible vantage points). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
(d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Environmental Evaluation

a. Would the project have a substantial adverse effect on a scenic vista?

A scenic vista generally provides focal views of objects, settings, or features of visual interest, or panoramic views of large geographic areas of scenic quality, from a fixed vantage point or linear corridor, such as a roadway or trail. A significant impact would occur if a project introduced incompatible scenic elements within a field of view containing a scenic vista or substantially block views of an existing scenic vista.

The project site is located on the south side of SR-92 as it enters the City. The project is partially visible from SR-92's eastern gateway to the city, where westbound SR-92 enters City limits. SR-92 within the City limits is identified as part of the Town Boulevard Scenic Corridor in the City's 2020 LCLUP Scenic and Visual Resources Element and provides a sweeping view of the ocean and town upon entering City limits. Eastbound, SR-92 provides scenic views of the hillsides and ridges of the coastal mountains.[12] The existing site is mostly undeveloped, with the access drive for the City's Corporation Yard and the remains of an existing agricultural building on the project site (Figures 3.1-1 through 3.1-4). Looking south from SR-92 provides views of the Pilarcitos Creek riparian corridor that are largely blocked by trees or commercial buildings (see Figure 3.1-3). The project site is topographically lower than the roadway by 25 to 45 feet and is heavily screened by the vegetation in the existing agricultural impoundment, a row of cypress trees on the project site's northern border and the Corporation Yard facilities (see Figure 3.1-2).

[12] City of Half Moon Bay. 2020. *Local Coastal Land Use Plan 2020 Comprehensive Update, Chapter 9: Scenic and Visual Resources*. Available at https://www.half-moon-bay.ca.us/DocumentCenter/View/3784/Full-Combined-2020-HMB-LCLUP. Accessed March 20, 2024.



Figure 3.1-1. Western edge of the property looking southeast with the Pilarcitos Creek riparian vegetation in the background.



Figure 3.1-2. Western edge of the project site looking northeast at the impoundment, with SR-92 and the City's Corporation Yard in the background.



Figure 3.1-3. Looking southeast at the abandoned fertilizer injection/water treatment building to be removed; with the southeastern edge of parcel, wildlife fence, and Pilarcitos Creek riparian vegetation in the background.



Figure 3.1-4. View from the project site looking west down Stone Pine Drive and towards the Cypress Cove Townhomes.



Figure 3.1-5. View of story poles from Stone Pine Road looking southeast.



Figure 3.1-6. View of story poles from Highway 92 looking west with Corporation Yard in the foreground.

The City erected story poles on January 26, 2024 and removed them on March 21, 2024 (Figures 3.1-5 and 3.1-6). The story poles depicted the size, massing, and height of a single manufactured unit in a few key locations on the project site. The story poles also indicate that units will have little to no visibility from Highway 92.

In addition, the new residences would be single-story and sited at least 270 feet from the roadway, which would reduce visual massing from the highway. Therefore, improvements to the project site would be lower in elevation than the road and would not block scenic views of the coastal hills or the town. There are also interrupted views of the Pilarcitos Creek riparian corridor from SR-92. These views are partially blocked by buildings in the existing Hilltop Mobile Home Park in the foreground west of the project site, vegetation in the agricultural impoundment and the row of cypress trees fronting the highway, and Corporation Yard facilities in the foreground east of the project site (Figures 3.1-5 and 3.1-6). The project would install manufactured homes that would be visually similar (size, dimensionally and height) to the homes at Hilltop Mobile Home Park. Manufactured homes would be single-story and materials would include composition shingles, fiber concrete siding and trim with horizontal and vertical siding, and skirting that would match the siding; siding and skirting would be painted. Therefore, visual effects of the project would be similar to existing conditions (Figures 3.1-7 through 3.1-10) and this impact would be less than significant.

b. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, within a scenic highway?

The project is adjacent to SR-92, which is an eligible scenic highway,[13] and approximately 0.43 mile east of SR-1, which is also an eligible scenic highway as it passes through the city.[14] The 2020 LCLUP identifies the need to protect "significant" views available along SR-92, including the "sweeping view of the ocean and town upon entering city limits."[15] The project is located on the south side of SR-92 (approximately 270 feet from edge of the pavement) as it enters the City limits. As discussed in Impact Discussion 3.1.a, the project site is largely screened by emergent vegetation and a row of cypress trees on its northern border and is lower in topographical elevation than the roadway by 25 to 45 feet (see Figure 3.1-2).

An arborist report was completed in August 2023 and a Tree Removal Summary was completed in October 2023 (Appendix C). The project would retain 46 existing trees located along the hedge row at the western property boundary and scattered along the south-facing slope on the northern edge (between the development and SR-92). The project would remove approximately 106 trees from the project site. The majority of these trees are small, volunteer saplings of undesirable or invasive species. Twelve of these trees are heritage trees per the City's Municipal Code Section 7.40.020. Eight of the heritage trees are Monterey pine (*Pinus radiata*), three are Monterey cypress (*Cupressus macrocarpa*), and one is a shining willow (*Salix lucida*). The trees would be replaced at a 1:1 ratio on the project site with a minimum size

[13] An eligible State Scenic Highway is one identified in Section 263 of the Streets and Highways Code and may be nominated by local governments. To be converted to a designated State Scenic Highway, the local government agency must develop a Corridor Protection Program and submit it to the California Department of Transportation (Caltrans).

[14] California Department of Transportation (Caltrans). 2024. Scenic Highways. Available at: https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways. Accessed March 20, 2024.

[15] City of Half Moon Bay. 2020. *Local Coastal Land Use Plan 2020 Comprehensive Update, Chapter 9: Scenic and Visual Resources.* Available at https://www.half-moon-bay.ca.us/DocumentCenter/View/3784/Full-Combined-2020-HMB-LCLUP. Accessed March 20, 2024.

24-inch box specimen tree. The project would plant approximately 69 new trees throughout the development (see Appendix C). No trees in the riparian corridor would be removed.



Figure 3.1-7. Simulation: Street level looking south towards existing Stone Pine Road with SR-92 to left.



Figure 3.1-8. Simulation: Street level from entry point, looking southeast.



Figure 3.1-9. Simulation: Manager's unit, looking southwest.



Figure 3.1-10. Simulation: Looking southwest with community garden on the right and SR-92 to the left in the distance.

There are no rock outcroppings, or historic buildings that are listed or eligible for listing (see Section 3.5, *Cultural Resources*), on or adjacent to the project site. Therefore, impacts to scenic resources within a scenic highway would be less than significant.

c. In non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

The project site is located in an urbanized area on the south side of SR-92 as it enters the city but is set down below the elevation of the roadway by 25 to 45 feet and is heavily screened by the impoundment and a row of cypress trees on the project site's northern border (see Figures 3.1-1 through 3.1-6). The project site is partially visible from SR-92's eastern gateway to the City where westbound SR-92 enters the City limits. SR-92 within the City limits is identified as part of the Town Boulevard Scenic Corridor in the City's 2020 LCLUP Scenic and Visual Resources Element and provides a sweeping view of the ocean and town upon entering City limits.[16] Select visual simulations representing various viewpoints of the proposed project are included for reference as Figures 3.1-7 through 3.1-10.

The project would be visually similar to the adjacent Hilltop Mobile Home Park, with single-story manufactured homes. Units on the project site will have enhanced architectural features including composition shingles, fiber concrete siding and trim with horizontal and vertical siding, and skirting that would match the siding (see Figures 3.1-7 through 3.1-10). The Conditions of Approval of the Emergency CDP are included as part of the project (and will be applied to the follow-up CDP) and include the following measures to ensure visual continuity and conformance to the 2020 LCLUP requirements:

> CONFORMANCE WITH THE APPROVED PLANS. All plans shall substantially conform to the project plan set dated November 28, 2023, submitted with the application, as may be modified by the Conditions of Approval. The Community Development Director and the City Engineer shall review and may approve any deviations from the approved plans that are determined minor. Any other proposed change shall be processed as part of the Follow-Up Coastal Development Permit and shall be subject to Planning Commission Review as required by Title 18. (Engineering and Planning)
>
> ON-SITE MANAGEMENT. The permittee shall obtain a qualified management company and provide on-site management in perpetuity for this community. The on-site management company shall be responsible for administering community policies and rules and for at least an annual inspection of each home to ensure safety and property maintenance. Inspections shall also be conducted following environmental occurrences such as earthquakes and extreme weather events to ensure structural integrity and safety. (Planning)
>
> FUTURE MODIFICATIONS TO HOMES. The manufactured homes must be maintained in accordance with original specifications. Routine maintenance is allowed but must be compliant with applicable codes. Additions are not permitted. Detached structures, such as arbors or sheds, may be permitted according to the community policies. (Planning)
>
> HOME DESIGN. Final elevations, floorplans, and a color board shall be submitted and approved by the Community Development Director prior to the issuance of the Building Permit and/or installation of any homes (compliance with this condition is not a

[16] City of Half Moon Bay. 2020. *Local Coastal Land Use Plan 2020 Comprehensive Update, Chapter 9: Scenic and Visual Resources*. Available at https://www.half-moon-bay.ca.us/DocumentCenter/View/3784/Full-Combined-2020-HMB-LCLUP. Accessed March 20, 2024.

prerequisite for issuance of the Grading Permit). Homes shall include architectural features including pitched roofs, quality horizontal and vertical siding shutters, wood steps, covered entrances, and shutters. Home foundations shall comply with the recommendations of the project geotechnical review prepared by BAGG Engineers dated August 23, 2023. (Building and Planning)

The project's consistency with 2020 LCLUP policies is shown in Table 3.1-1.

Table 3.1-1. Project Consistency with 2020 LCLUP Policies

LCLUP Policy	Consistency
Policy 9-5. Visual Impact Evaluation. Where any development is proposed within a scenic and visual resource area, including as designated on Figure 9-1, a site-specific visual impact evaluation shall be required and may include visual simulations, story poles, and/or other means of visual assessment as appropriate based on the type and location of development.	Consistent. Select visual simulations representing various viewpoints of the proposed project are included for reference and used to inform the City's Planning Department and Planning Commission. This section analyzes the visual impacts of the proposed project. The City erected story poles from January to March 2024, prior to the public hearing for the emergency CDP.
Policy 9-8. Land Divisions. Require land divisions, including lot line adjustments, to be designed in a manner that minimizes impacts to visual resources. Measures for minimizing visual impacts include the following: a. Clustering the building sites to minimize site disturbance and maximize open space; b. Prohibiting land divisions and adjustments that would create lots with insufficient space for development, including to avoid the need for fuel modification, without impacting visual resources; c. Requiring new land divisions to provide sufficient park and open space areas; d. Prohibiting creation of new building sites above the 160-foot contour line within City limits; e. Minimizing the length and impermeability of access roads and driveways; f. Using shared or abutting driveways to access development on adjacent lots, where appropriate; g. Reducing the maximum allowable density in steeply sloping and visually sensitive areas; and h. Revegetating graded building pad areas, if any, with native plants.	Consistent. The proposed project is clustered to avoid impacts to riparian and other vegetation to the extent possible. The project provides 24,000 square feet of park and open space areas and preserves the Conservation Easement and riparian vegetation. The project is below the 160-foot contour and minimizes access roads and driveways.
Policy 9-10. Fences, Walls and Landscaping. Ensure that fences, walls, and landscaping shall not block public views of or from scenic and visual resource areas including along scenic corridors, at parks and beaches, and other scenic public viewing areas through height restrictions and required landscape maintenance.	Consistent. Currently, a chain-link security fence, cypress trees, and other vegetation occur between the project site and SR-92. The project site is downslope by 25 to 45 feet from SR-92 and would not block views of scenic resources. Project residences would be painted in neutral earth-tone colors and have well-designed exterior lighting that reduces glare and offensive spillover. The new residences would be clustered adjacent to existing buildings, including residences in Cypress Cove Townhomes and Hilltop Mobile Home Park on the adjacent property to the west and northwest, respectively.

LCLUP Policy	Consistency
Policy 9-11. Landscape Screening. Prioritize avoidance of development impacts to scenic and visual resource areas through site planning and design alternatives over landscape screening. Landscape screening as mitigation of visual impacts shall not substitute for project alternatives including re-siting or reducing the height or bulk of structures, but may be used where appropriate to soften any unavoidable visual impacts of new development. Where permitted, landscape screening shall be comprised of native and drought tolerant species and shall be maintained such that scenic views are not blocked at maturity.	Consistent. The project has been designed to minimize impacts to scenic resources while providing needed affordable housing. The project site is currently largely visually screened from view from SR-92 by the vegetation in the agricultural impoundment and a row of cypress trees. The residences are situated downslope, between 25 and 45 feet lower than the roadway, and as far from SR-92 as possible while avoiding Environmentally Sensitive Habitat Areas (ESHAs). The residences would be painted with a warm palette of colors and have well-designed exterior lighting that reduces glare and offensive spillover. The new facilities would be clustered with existing residences in Cypress Cove Townhomes and Hilltop Mobile Home Park to the west and northwest. Existing vegetation on the hillside adjacent to SR-92 would not be touched. No additional screening is anticipated.
Policy 9-12. Town Boulevard Scenic Corridor. Require that new development in close proximity to or easily visible from the Town Boulevard scenic corridor, including Highways 1 and 92: a. Protects views of visual resource areas as seen from the Town Boulevard, including views to the ocean, upland slopes (i.e. minimizes intrusions into the ridgeline), and the historic Johnston House; b. Incorporates design standards such as screening of commercial parking areas and landscaping provisions; and c. Is visually compatible with the surrounding land and development.	Consistent. The project is downslope from SR-92 by 25 to 45 feet and would include the construction of 47 single-story manufactured homes. Surrounding development includes the City's Corporation Yard to the east, Hilltop Mobile Home Park to the northwest, Cypress Cove Townhomes to the west, and Pilarcitos Creek riparian area to the south. The project site is largely screened from view by the vegetation in the existing agricultural pond and a row of cypress trees and is visually compatible with existing development.
Policy 9-30. Dark Night Skies. Protect dark night skies as part of Half Moon Bay's scenic and visual character by preventing light pollution from development. Avoid impacts from exterior lighting on dark night skies, sensitive habitat areas, and agricultural operations by: a. Limiting exterior lighting to low-intensity fixtures that are shielded, down-cast, and concealed so that the light source is not directly visible from public viewing areas, with the exception of traffic lights, navigational lights, and other similar safety lighting	Consistent. The project would comply with all lighting requirements of the City's Municipal Code. Lighting would consist of low-intensity fixtures that are shielded, down-cast, and concealed to the extent feasible. from public viewing areas and sensitive habitat. The new facilities would be adjacent to existing residential development; therefore, the project would result in minimal changes in exterior lighting levels. All lighting would be downward facing, shielded, and designed to reduce glare and spillover and therefore would not impact adjacent sensitive habitat.
Policy 9-31. Lighting Plan Review. Require submittal of lighting plans with applications for new development, including subdivisions, for review of lighting characteristics.	Consistent. The lighting plans would be submitted to the City for review and approval.
Policy 9-32. Street Lighting. Street lighting design and fixtures shall abide by the following criteria: a. Provide enough lighting to meet safety standards; b. Utilize lower light poles as feasible; and c. Ensure that fixtures direct light down with no spillover beyond the roadway area they intend to illuminate.	Consistent. The following condition of approval was included in the Emergency CDP and will be included in the follow-up CDP: "All exterior lighting shall be fully shielded so that no light source is visible from outside the property, except as otherwise expressly approved. The permittee shall install lighting per plans and submit photometric lighting plan for all exterior light fixtures including lighting for parking lots, walkways, and open space areas. No floodlights are permitted on-site."

The project is located approximately 270 feet from SR-92, at a lower elevation and would be largely screened from view by the hillside and vegetation along SR-92. As shown in Table 3.1-1, the project would not conflict with 2020 LCLUP policies. Therefore, the project would not conflict with applicable zoning and other regulations governing scenic quality and this impact would be less than significant.

d. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

The proposed project would introduce additional sources of lighting and reflective surfaces to the project site. The project includes a variety of single-story manufactured homes in neutral colors (see Figures 3.1-7 through 3.1-10). New lighting sources would include outdoor street lighting and security lighting, indoor lighting, and light generated by vehicle headlights. Lighting would provide security and safety in parking areas, service passages, and common areas of the project. The project would be in compliance with 2020 LCLUP Policy 9.30, Dark Night Skies, "limiting exterior lighting to low-intensity fixtures that are shielded, down-cast, and concealed so that the light source is not directly visible from public viewing areas, with the exception of traffic lights, navigational lights, and other similar safety lighting." (Appendix A page JTC-4) The following condition of approval was included in the Emergency CDP (PDP-23-090 [2023]) and will be included in the follow-up CDP:

> LIGHTING. All exterior lighting shall be fully shielded so that no light source is visible from outside the property, except as otherwise expressly approved. The permittee shall install lighting per plans and submitted photometric lighting plan for all exterior light fixtures including lighting for parking lots, walkways, and open space areas. No floodlights are permitted on-site.

Therefore, the project would meet all requirements of the City's Municipal Code and would not add a substantial new source of light or glare, and operational impacts would be less than significant.

Construction impacts would be short term and temporary, lasting approximately 10 months. Nighttime construction is prohibited under City regulations; therefore, nighttime construction would not occur and temporary construction lighting would not be required. Therefore, no construction impacts related to light and glare would occur.

3.2 Agriculture and Forestry Resources

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
(a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☒	☐
(b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
(c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
(e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Environmental Evaluation

a. Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

A significant impact may occur if a project were to result in the conversion of state-designated agricultural land from agricultural use to another non-agricultural use. The California Department of Conservation (CDOC) Division of Land Protection lists Prime Farmland, Unique Farmland, and Farmland of Statewide Importance under the general category of "Important Farmland" in California.

The project area contains no land that is designated by the CDOC as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. The majority of the parcel is designated as Grazing Land, and the remainder of the parcel is designated as Other Land.[17] Therefore, the project would have no impact on the conversion of CDOC-designated farmland to non-agricultural uses.

Although the project site does not fall under the CDOC definition of Prime Farmland, a portion of the project site does fall under the four-part California Coastal Act definition (Section 30113) for Prime agricultural land.[18] However, the California Coastal Act specifies that:

> Conversions of agricultural land to non-agricultural uses around the periphery of urban areas may only occur where the viability of agriculture is severely limited or where conversion would complete a logical boundary and contribute to a stable urban limit. The conversion of other lands that are suitable for agricultural use is prohibited, unless (1) continued or renewed agricultural use is not feasible, or (2) such conversion would preserve prime agricultural land or appropriately concentrate development.[19]

The City's LCLUP also specifies that farmworker housing is an agricultural use. Active agricultural uses (growing nursery plants) were deemed non-viable by the previous owner and discontinued on the project site prior to the LCLUP update. In 2020 the LCLUP changed the land use designation from Urban

[17] California Department of Conservation (CDOC). 2018. San Mateo County Important Farmland Map. Available at: https://maps.conservation.ca.gov/dlrp/ciftimeseries/. Accessed March 27, 2024.

[18] City of Half Moon Bay. 2021. *Local Coastal Land Use Plan, Chapter 4: Agriculture.* Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/3759/Chapter-4-Agriculture. Accessed March 27, 2024.

[19] California Coastal Commission (CCC). 2017. *Agriculture in the Coastal Zone: An Informational Guide for the Permitting of Agricultural Development.* Available at: https://documents.coastal.ca.gov/assets/agriculture/Informational%20Guide%20for%20Agricultural%20Development%209.29.2017.pdf. Accessed March 27, 2024.

Reserve (U-R) to Public Facilities and Institutions; the 2020 LCLUP was certified by the CCC in April 2021. Under the Half Moon Bay Zoning Map, the project site is designated Urban Reserve (U-R), which allows for agricultural and other uses of the land until it is needed for urban development (see discussion in Section 3.11, *Land Use and Planning*).[20] Since the agricultural viability of the land has been shown to be severely limited, the LCLUP identifies farmworker housing as an agricultural use, and the land use designation for the parcel was changed under the 2020 LCLUP, the project would not conflict with the California Coastal Act policies regarding conversion of agricultural lands, and this impact would be less than significant.

b. Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

A significant impact may occur if a project were to result in the conversion of land zoned for agricultural use or under a Williamson Act contract from agricultural use to non-agricultural use. The Williamson Act of 1965 allows local governments to enter into agreements with local landowners with the purpose of trying to limit specific parcels of land to agricultural or other related open space use.

The project site is not zoned for agricultural use and is not subject to a Williamson Act contract. The current zoning is Urban Reserve (U-R) and the land use designation is Public Facilities and Institutions. The nearest land under Williamson Act contract is approximately 0.7 mile northeast of the project.[21] The nearest agricultural operations are in greenhouses southeast of Pilarcitos Creek, approximately 250 feet east of the project. Activities in the new residential neighborhood would be buffered from these areas by the riparian corridor and would have no impact on surrounding agricultural operations. Therefore, no impact with respect to land zoned for agricultural use or under a Williamson Act Contract would occur.

c. Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

"Forest land" is defined as land that "can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits." "Timberland" is defined as land "which is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees." Timberland zoned for Timber Production is defined as land that "is devoted to and used for growing and harvesting timber."

There is no land zoned for timber production within the City limits, although there are several Christmas tree farms in unincorporated San Mateo County sited in Planned Agriculture Districts. Twelve heritage trees would be removed as part of the project; some of these are scattered small cypress trees on the project site. In addition, there is a row of cypress trees planted adjacent to SR-92, which would not be impacted by the project. Although portions of the project site could meet the definition of forest land, these are within the riparian areas and would not be impacted by the project. The project site is not zoned

[20] City of Half Moon Bay. 2023. *Half Moon Bay Municipal Code, Chapter 18: Open Space and Urban Reserve Land Use (OS-R, U-R).* Available at: https://www.codepublishing.com/CA/HalfMoonBay/html/HalfMoonBay18/HalfMoonBay1811.html#18.11. Accessed March 27, 2024.

[21] California Department of Conservation (CDOC). 2022. California Williamson Act Enrollment Finder. Available at: https://maps.conservation.ca.gov/dlrp/WilliamsonAct/App/index.html. Accessed March 27, 2024.

for management of forest or timberland resources; therefore, the project would not conflict with zoning for, or cause the rezoning of, forest land, timberland, or timberland zoned Timberland Production, and no impact would occur.

d. Would the project result in the loss of forest land or conversion of forest land to non-forest use?

The project site is surrounded by undeveloped lands and urban uses and is not located on forest land (as discussed in Impact Discussion 3.2.c). Although portions of the project site could meet the definition of forest land, these are within the riparian areas and would not be impacted by the project; therefore, no impact related to the loss of forest land or conversion of forest land would occur.

e. Would the project involve other changes in the existing environment, which due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

A significant impact may occur if a project involves other changes to the existing environment that could result in the conversion of farmland to another non-agricultural use or conversion of forest land to non-forest use. As described in Impact Discussion 3.2.b, the project site is not currently zoned for agricultural. It is surrounded by the City's Corporation Yard, Pilarcitos Creek, undeveloped lands, agricultural greenhouses, SR-92, and urban uses. Neither the project site nor the surrounding parcels are utilized for agricultural uses or forest land. The closest land in agricultural production is located approximately 250 feet east of the project area and would be buffered from the project site by Pilarcitos Creek and the associated conservation easement. The riparian area surrounding Pilarcitos Creek may meet the definition of forest land; however, the riparian corridor would not be impacted by the project. With the exception of the riparian corridor, there is no forest land in the vicinity of the project site. Therefore, no impact related to conversion of farmland to a non-agricultural use or conversion of forest land to non-forest use would occur.

3.3 Air Quality

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:				
(a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
(b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
(c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
(d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☐	☒

Environmental Evaluation

The screening criteria established by the Bay Area Air Quality Management District (BAAQMD) have been relied upon to make the following significance determinations.

a. Would the project conflict with or obstruct implementation of the applicable air quality plan?

The project is located within the San Francisco Bay Area Air Basin under the jurisdiction of the BAAQMD.[22] The BAAQMD regulates air pollutant emissions, enforces regulations, administers permits governing stationary sources, inspects stationary sources, monitors air quality and meteorological conditions, and assists local governments in addressing climate change.

The BAAQMD *2017 Clean Air Plan*[23] was adopted in April 2017 and updated the *2010 Clean Air Plan*. The *2017 Clean Air Plan* includes strategies to reduce emissions of ozone precursors and emissions of fine particulate matter and Toxic Air Contaminants (TACs). The plan also provides a framework for long-term planning efforts to reduce greenhouse gas (GHG) emissions 40% below 1990 levels by 2030 and 80% below 1990 levels by 2050.

The BAAQMD has set thresholds of significance for criteria air pollutants and precursors and GHGs for construction-related impacts. If daily average emissions of construction-related criteria air pollutants or precursors would exceed any applicable Threshold of Significance listed in the 2022 *California Environmental Quality Act Air Quality Guidelines* (2022 CEQA Air Quality Guidelines), a project may have a significant impact under CEQA.[24] A project may have a significant impact where project-related emissions would exceed federal, state, or regional standards or thresholds, or where project-related emissions would substantially contribute to an existing or projected air quality violation.

Construction

The BAAQMD 2022 CEQA Air Quality Guidelines establish screening criteria for analyzing projects. If a project meets the screening criteria, then its air quality impacts may be considered less than significant. The project would construct up to 47 manufactured homes, including one manager's unit, and one management office, along with roads, sidewalks, utilities, open space, and park areas. The screening criteria Residential/Mobile Home Park category in the BAAQMD 2022 CEQA Air Quality Guidelines are 377 dwelling units (DU) for construction and 721 DU for operation. The screening criteria also include the following requirements for screening out construction-related impacts:

- All best management practices (BMPs) (see Table 5-2 in Chapter 5, Project-Level Air Quality Impacts, of the 2022 CEQA Air Quality Guidelines) are included in the project design and implemented during construction.
- Construction-related activities would not overlap with operational activities.
- Construction-related activities would not include:
    - demolition,

[22] California Air Resources Board (CARB). 2024. California Air Districts Map. Available at: https://ww2.arb.ca.gov/california-map-local-air-district-websites. Accessed April 4, 2024.

[23] BAAQMD. 2017. *2017 Clean Air Plan.* Available at: http://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf?la=en. Accessed April 4, 2024.

[24] Bay Area Air Quality Management District (BAAQMD). 2022. *California Environmental Quality Act Air Quality Guidelines.* Available at: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines. Accessed April 4, 2024.

- simultaneous occurrence of two or more construction phases (e.g., paving and building construction would occur simultaneously),
- extensive site preparation (e.g., grading, cut and fill, or earth movement),
- extensive material transport (e.g., soil import and export requiring a considerable amount of haul truck activity), or
- stationary sources (e.g., backup generators) subject to BAAQMD rules and regulations.

The project would meet all of the above conditions to fall under the screening criteria. The project would disturb a total of approximately 5.49 acres. Total cut and fill would be approximately 7,480 cubic yards (CY), with the majority of it balanced on-site and resulting in a net need to import approximately 380 CY of fill. There is one structure on site—the remains of an existing, approximately 10-foot by 60-foot fiberglass fertilizer injection/water treatment building—that will be dismantled and removed. In addition, there are the remains of a packed gravel loop access road that will be removed, and the gravel will be reused as appropriate.

As a condition of the Emergency CDP (see Appendix B1), project construction has complied with the dust control measures in the Corporation Yard Upgrade Project IS/MND MMRP. The BAAQMD has since issued new *2022 CEQA Air Quality Guidelines* with updated dust control measures. The project would comply with all measures required by the BAAQMD's *2022 CEQA Air Quality Guidelines*.[25] These measures shall be included in the construction contract and plans and would be the responsibility of the construction contractor. They include the following:

- B-1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, unpaved access roads) shall be watered two times per day.
- B-2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- B-3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- B-4. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.
- B-5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- B-6. All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 miles per hour.
- B-7. All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
- B-9. Publicly visible signs shall be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's General Air Pollution Complaints number shall also be visible to ensure compliance with applicable regulations.

California Air Resources Board (CARB) regulations also include the *Statewide Portable Equipment Registration Program* (PERP) for portable diesel engines that are 50 horsepower or greater. Under this

[25] Bay Area Air Quality Management District (BAAQMD). 2022. *2022 California Environmental Quality Act Air Quality Guidelines.* Available at: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines. Accessed April 4, 2024.

program, owners or operators of portable engines and other types of equipment register their units under the PERP in order to operate their equipment throughout California. the PERP requires phase-out of lower engine emission tiers and replacement with Tier 3 or Tier 4 standards on an established schedule.[26]

To reduce emissions, project applicants are required to comply with U.S. Environmental Protection Agency (USEPA) and CARB standards for off-road equipment, including DOORS and PERP registration requirements. Compliance with USEPA and CARB standards would reduce emissions of ozone precursors and particulate matter. As a result, the project would not conflict with any control measure provided in the *2017 Clean Air Plan*, or conflict with or obstruct the implementation of the *2017 Clean Air Plan*; therefore, construction impacts would be less than significant.

Operation

The BAAQMD's 2022 CEQA Air Quality Guidelines establish screening criteria for analyzing projects.[27] If a project meets the screening criteria, then its air quality impacts may be considered less than significant. The project would construct up to 46 affordable manufactured homes, one manager's unit, and one management office, along with roads, sidewalks, utilities, open space, and park areas. The screening criteria Residential/Mobile Home Park category in the BAAQMD's 2022 CEQA Air Quality Guidelines are 377 DU for construction and 721 DU for operation. The screening criteria also include the following requirements:

- Operational activities would not include stationary engines (e.g., backup generators) and industrial sources subject to BAAQMD rules and regulations.
- Operational activities would not overlap with construction-related activities.

Operation of the new neighborhood would not include stationary engines or industrial sources and would not overlap with construction-related activities. The project is smaller in scope when compared to the screening criteria for Residential/Mobile Home Park projects; therefore, operational impacts would be less than significant.

b. Would the project expose sensitive receptors to substantial pollutant concentrations?

Construction

The BAAQMD 2022 CEQA Air Quality Guidelines recommend assessment of risks and hazards on sensitive receptors within 1,000 feet of the project. Existing sensitive receptors within this radius include residences on Patrick Way, on Erin Lane, and at Hilltop Mobile Home Park. Construction of the project would generate emissions that could expose existing sensitive receptors to substantial pollutant concentrations.

However, as discussed under Impact Discussion 3.3.a, the project would not generate criteria air pollutants in excess of threshold levels. The project would install infrastructure (streets, driveways, utilities and open space/park) and place 47 new manufactured homes, and one management office. The project would be under the 377 DU screening threshold for construction emissions and would implement

[26] California Air Resources Board (CARB). 2024. *Statewide Portable Equipment Registration Program (PERP), Final Regulation Order: Regulation to Establish a Statewide Portable Equipment Registration Program.* Available at: https://ww2.arb.ca.gov/sites/default/files/2020-03/PERP_Reg_12.5.18R.pdf. Accessed April 19, 2024.

[27] Bay Area Air Quality Management District (BAAQMD). 2017. *California Environmental Quality Act Air Quality Guidelines.* Available at: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed September 8, 2021.

all BMPs required by the BAAQMD; therefore, the project would not produce construction emissions that would exceed the BAAQMD's recommended localized standards of significance for reactive organic gases (ROG), nitrogen oxides (NO_X), particulate matter with a diameter of 10 micrometers or less (PM_{10}), or particulate matter with a diameter of 2.5 micrometers or less ($PM_{2.5}$) during the construction phase.

Nearby residential receptors could be exposed to localized pollutants from construction of the project. Given the relatively small size of the project and the temporary nature of construction, the project would not generate substantial levels of air emissions. Sensitive receptors within 1,000 feet of the project would not be adversely affected based on implementation of standard City Conditions of Approval, requiring implementation of BAAQMD air quality BMPs. Since the project size is relatively small, potential construction impacts to sensitive receptors would be less than significant.

Operation

Project operations would generate volatile organic compounds (VOCs), NO_X, carbon monoxide, sulfur oxides (SO_X), PM_{10}, and $PM_{2.5}$ emissions from mobile sources, including vehicle trips, and area sources, including the use of consumer products, architectural coatings for repainting, and landscape maintenance equipment, water, waste, and energy sources. The screening threshold for operational emissions in Residential/Mobile Home Parks is 721 DU. Since the project would install up to 46 affordable manufactured homes, one manager's unit, and one management office, the project is far below the screening threshold, and operational emissions for all pollutants would be below BAAQMD significance thresholds. The project is likely to reduce vehicle miles traveled (VMT), as the project is located in the City's Town Center area and intended to allow agricultural workers of modest income to live relatively near to their workplaces rather than potentially commuting into Half Moon Bay from greater distances. The proposed project is located within walking distance of schools, retail and service opportunities, which will also tend to reduce VMT emissions from vehicles. Therefore, project operations would not be likely to expose sensitive receptors to substantial pollutant concentrations and this impact would be less than significant.

c. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

According to the BAAQMD's 2022 CEQA Air Quality Guidelines:

> No single project is sufficient in size to, by itself, result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's contribution to the cumulative impact is considerable, then the project's impact on air quality would be considered significant.[28]

A project would have a cumulative significant impact if the aggregate total of all past, present, and foreseeable future sources within a 1,000-foot radius (or beyond where appropriate) from the fence line of a source, or from the location of a receptor, plus the contribution from the project, exceeds the following:

- An excess cancer risk level of more than 100 in one million or a chronic hazard index greater than 10 for TACs, or

[28] Bay Area Air Quality Management District (BAAQMD). 2022. *California Environmental Quality Act Air Quality Guidelines.* Available at: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines. Accessed April 4, 2024.

- 0.8 micrograms per cubic meter annual average $PM_{2.5}$.[29]

Under the BAAQMD's 2022 CEQA Air Quality Guidelines, if a project meets the screening criteria in Section 4-1 of the 2022 CEQA Air Quality Guidelines, then the project would not result in the generation of criteria air pollutants and/or precursors that exceed the Thresholds of Significance.

The region is in nonattainment for federal and State of California (State) ozone standards, State PM_{10} standards, and federal and State $PM_{2.5}$ standards. Impacts related to construction and operation of the proposed project are addressed separately below.

Based on the size of the project, estimated unmitigated construction emissions for all pollutants are below BAAQMD significance thresholds. The construction-related screening size for mobile home parks is 377 DU. The operational screening size for mobile home parks is 721 DU. The project includes 47 DU and falls under the screening threshold for generating significant either construction or operational emissions. Therefore, project construction would have a less-than-significant impact.

As presented above, the project would not violate any air quality significance thresholds or contribute substantially to an existing or projected air quality violation. The impact is less than significant, and no mitigation is required. However, for all proposed projects, the BAAQMD recommends the implementation of BMPs, regardless of whether construction-related emissions exceed applicable thresholds of significance. As such, to ensure construction emission impacts are less than significant, the proposed project would apply the BMPs discussed in Impact Discussion 3.3.a during construction activities. Therefore, the project would not result in a cumulatively considerable net increase of any criteria pollutant, and this impact would be less than significant.

d. Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Odors are usually associated with industrial projects involving the use of chemicals, solvents, petroleum products, and other strong-smelling elements used in manufacturing processes, as well as sewage treatment facilities and landfills. The project would construct a new neighborhood of 47 manufactured homes. The project would not include any land uses typically associated with unpleasant odors and local nuisances (e.g., rendering facilities, dry cleaners). Therefore, no impact would occur.

3.4 Biological Resources

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐

[29] Bay Area Air Quality Management District (BAAQMD). 2022. *California Environmental Quality Act Air Quality Guidelines.* Available at: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines. Accessed April 4, 2024.

	Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(b)	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☒	☐	☐
(c)	Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
(d)	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
(e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
(f)	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Environmental Evaluation

The analysis of biological resources is based on the following documents completed for the Corporation Yard Upgrade Project (2022):

- *Biological Resources Report for 880 Stone Pine Road Project, Half Moon Bay, California* (BRR), H.T. Harvey & Associates (June 2021) (Appendix D1)
- *Biological Resources Report (BRR) Peer Review for the City of Half Moon Bay Corporation Yard Upgrade Project, Half Moon Bay, San Mateo County, California*, SWCA Environmental Consultants (SWCA) (November 2021) (Appendix D2)
- *Preliminary Delineation of Wetlands and Other Waters/Delineation of Coastal Zone Wetlands within California Coastal Commission Jurisdiction*, H.T. Harvey & Associates (October 2020) (Appendix D3)
- *Draft Frog and Snake Tunnel Design Proposal*, Rana Resources (November 2021) (Appendix D4)
- *Peer Review of H.T. Harvey & Associates Biological Resources Report for the City of Half Moon Bay Corporation Yard Upgrade Project*, Rana Resources (January 2022) (Appendix D5)

These reports, included in Appendix D, were conducted for the Corporation Yard Upgrade Project but included an analysis of the proposed project parcel as well.

a. Would the project have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

A significant impact would occur if a project were to remove or modify habitat for any species identified or designated as a candidate, sensitive, or special-status species in regional or local plans, policies, or regulations, or by the U.S. Fish and Wildlife Service (USFWS) or California Department of Fish and Wildlife (CDFW).

The project would construct a 47-unit manufactured housing community west of the existing Corporation Yard. The project is located on a marine terrace approximately 60 to 75 feet above mean sea level and approximately 1.2 miles east of the Pacific Ocean. The project site is relatively flat but drains generally to the southwest toward Pilarcitos Creek and the Pacific Ocean. The project site is bounded by Pilarcitos Creek to the south, which is a 13.5-mile perennial stream that flows from the western slopes of the Santa Cruz Mountains, through Pilarcitos Canyon, and discharges into the Pacific Ocean. The project site is the site of a former plant nursery, and there is some evidence of the former nursery still present at the project site, including several unused dilapidated buildings, areas with black ground plastic (adjacent to the riparian woodland along Pilarcitos Creek), several vaulted culverts, concrete-lined ditches, and irrigation pumps and pipes. A human-made impoundment is located in the northwest corner of the project site. Water was previously pumped into this impoundment from Pilarcitos Creek and used for nursery operations. The impoundment continues to hold water and extensive emergent vegetation and has been classified as a perennial freshwater marsh by H.T. Harvey in the BRR. The BRR was conducted for the Corporation Yard Upgrade Project for Parcels 1, 2, and 3 and included the parcel areas (see Figure 2-4) plus a 200-foot buffer area surrounding the project. The 2020 LCLUP was certified by the CCC on April 15, 2021.[30] This discussion includes information from the Corporation Yard Upgrade Project BRR as well as information from the 2020 LCLUP.

The Corporation Yard Upgrade Project included a fenced wildlife corridor, elevated road with wildlife tunnels, and new wildlife fencing around the existing impoundment designed to protect California red-legged frog (CRLF) (*Rana draytonii*) and San Francisco garter snake (SFGS) (*Thamnophis sirtalis tetrataenia*), which are known to travel between Pilarcitos Creek and the impoundment.

The project site consists of a mix of ruderal grassland and developed or landscaped areas. Riparian woodland, perennial freshwater marsh, and aquatic riverine habitats are adjacent to the project area, but these habitats were protected with wildlife fencing during the Corporation Yard Upgrade Project and are not located within the project area. No work would occur in these habitats. Habitats within and adjacent to the project area are described in more detail below:

- **Developed/Landscaped Habitat.** Developed/landscaped habitat includes areas where permanent structures and/or pavement have been placed along with planted landscaping. Such landscaping includes native Monterey pine and Monterey cypress trees. These trees have been previously planted as part of a landscape plan and do not naturally occur on-site and are therefore not considered sensitive species.
- **Ruderal.** The majority of the project site contains ruderal habitat. The most abundant species in the ruderal grassland are wild oat (*Avena* sp.), Italian rye grass (*Festuca perennis*), ripgut brome (*Bromus diandrus*), Italian thistle (*Carduus pycnocephalus*), bristly ox-tongue (*Helminthotheca echioides*), and Chile tarweed (*Madia sativa*). Additionally, there were scattered small patches of

[30] City of Half Moon Bay. 2020. *Local Coastal Land Use Plan 2020 Comprehensive Update.* Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/3784/Full-Combined-2020-HMB-LCLUP. Accessed April 8, 2024.

other facultative hydrophytic vegetation, including curly dock (*Rumex crispus*), poison hemlock (*Conium maculatum*), and bird's foot trefoil (*Lotus corniculatus*), all occurring in upland habitat positions and intermixed with upland grassland species. Similarly, scattered arroyo willow (*Salix lasiolepis*) and red alder (*Alnus rubra*) occur in the grassland in upland areas, and likely were able to establish due to irrigation, as no indicators of hydric soils or wetland hydrology occur in these areas.

- **Riparian Woodland.** Riparian woodland habitat is found outside of and adjacent to the south side of the project site along Pilarcitos Creek and around the perennial freshwater marsh habitat in the impoundment in the northwest corner. Trees observed in the riparian woodland habitat include arroyo willow, red willow (*Salix laevigata*), red alder, and blue gum eucalyptus (*Eucalyptus globulus*). The understory includes Himalayan blackberry (*Rubus armeniacus*), cape ivy (*Delairea odorata*), poison hemlock, common horsetail (*Equisetum arvense*), French broom (*Genista monspessulana*), hoary nettle (*Urtica dioica* ssp. *holosericea*), bristly ox-tongue, pampas grass (*Cortaderia jubata*), and Italian rye grass. The fencing for the wildlife corridor includes a 50-foot buffer for riparian woodland habitat and a 100-foot buffer for freshwater marsh habitat.
- **Aquatic Riverine.** Pilarcitos Creek flows outside the project area through the dense riparian woodland and provides unvegetated aquatic habitat.
- **Perennial Freshwater Marsh.** Perennial freshwater marsh is found outside the project area to the north. The dominant vegetation in the impoundment is freshwater marsh consisting of common cattail (*Typha latifolia*). Other species in the freshwater marsh vegetation include duckweed (*Lemna* sp.), rabbitsfoot grass (*Polypogon monspeliensis*), and tall flatsedge (*Cyperus eragrostis*). The wildlife corridor establishes a 100-buffer around the freshwater marsh habitat.

Desktop review identified 73 special-status plant species and 34 special-status wildlife species within 5 miles of the survey area (see Appendix D1 for details of the desktop review). Only one of the special-status plant species was determined to have a moderate to high potential to occur in the freshwater marsh habitat and dense riparian woodland—harlequin lotus (*Hosackia gracilis*; California Rare Plant Rank 4.2). The freshwater marsh vegetation in the impoundment and riparian woodland vegetation are separated by a wildlife fence and appropriate buffers and would not be impacted by the project.

Of the special-status wildlife species identified within 5 miles of the project area, there are eight species that could potentially occur in or adjacent to the project area:

- white-tailed kite (*Elanus leucurus*; State–Fully Protected [FP])
- steelhead – Central California Coast Distinct Population Segment (DPS) (*Oncorhynchus mykiss irideus*; Federal–Threatened [T])
- CRLF (Federal–T, State–Species of Special Concern [SSC])
- SFGS (Federal–Endangered [E], State–E)
- northwestern pond turtle (*Actinemys marmorata*; Federal–Proposed Threatened [PT], State–SSC)
- San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*; State–SSC)
- San Francisco common yellowthroat (*Geothlypis trichas sinuosa*; State–SSC)
- yellow warbler (*Setophaga petechia*; State–SSC)

Of these species, three species—CRLF, SFGS, and white-tailed kite—have the potential to be present within the project site. The remaining five species, if present, are expected to be located in Pilarcitos Creek, riparian habitat, or freshwater marsh habitat in the impoundment adjacent to the project site. Additional detail on the eight special-status species with potential to occur within or adjacent to the project area are provided below.

California Red-legged Frog

CRLF, a federally threatened species and CDFW SSC, occurs in various habitat types depending on its life cycle stage. Breeding areas include aquatic habitats, such as lagoons, streams, and natural and human-made ponds. The species prefers aquatic habitats with little or no flow, the presence of surface water to at least early June, surface water depths to approximately 2 feet, and the presence of emergent vegetation (e.g., cattails and bulrush). During periods of wet weather, some individuals may make overland dispersals through adjacent upland habitats of distances up to 1 mile. Upland habitats, including small mammal burrows and woody debris, can also be used as refuge during the summer if water is scarce or unavailable. CRLF typically travels between sites and is unaffected by topography and vegetation types during migration. Dispersal habitat makes it possible for CRLF to locate new breeding and non-breeding sites and is crucial for conservation of the species. CRLF adults and larvae have been found in a breeding pond in the vicinity of Pilarcitos Creek about 1.3 miles northwest of the project area as recently as 2016, CRLF adults were observed in Pilarcitos Creek about 0.5 mile west of the project area in 2006, and CRLF adults and juveniles were observed in the perennial freshwater marsh habitat in the impoundment within the project area in 2005. Due to the presence of juvenile frogs, it is likely there was active breeding in the perennial freshwater marsh habitat in the impoundment during the 2005 observation. Since 2005, no recent species-specific surveys of this species have been conducted in the project area.

Since CRLF were assumed to disperse through the upland habitat in the project area to move between the Pilarcitos Creek and the impoundment, the Corporation Yard Upgrade Project included a fenced wildlife corridor between Pilarcitos Creek and the impoundment, as well as a raised access road, which included frog/snake tunnels under the access road within the wildlife corridor to allow for safe movement and dispersal. These wildlife corridor and access road improvements prevent CRLF from dispersing across the project site.

Based on the above information and the new wildlife corridor, there is a low potential for CRLF to occur in the project area during the wet season (October 15–May 31) and the dry season (June 1–October 15). If present, CRLF could forage and disperse in Pilarcitos Creek and forage, disperse, or breed in the perennial freshwater marsh habitat in the impoundment. In addition, CRLF would utilize the wildlife corridor to disperse through the upland habitat adjacent to the project area to move between Pilarcitos Creek and the impoundment. As long as the fencing along the wildlife corridor is intact, it would control movement of CRLF and SFGS and keep them out of the project area. Mitigation Measures BIO-1 (worker awareness training) and BIO-2 (preconstruction surveys before start of work each morning) would be implemented to reduce any impacts to CRLF. Therefore, the implementation of Mitigation Measures BIO-1 and BIO-2 would reduce a potentially significant impact to CRLF to a less-than-significant level.

San Francisco Garter Snake

The historical range of SFGS, a federally and State endangered/fully protected species, is entirely within San Mateo County. The two main components of SFGS habitat are (1) wetlands supporting its prey species (e.g., CRLF, Pacific chorus frog [*Pseudacris regilla*]); and (2) surrounding uplands that are adjacent to waterways and support small mammal burrows used by the snakes for escape cover. SFGS inhabits various aquatic habitats, including reservoirs, freshwater marshes, creeks, drainage ditches, ponds, and lakes. Less ideal habitats can also be used by SFGS, such as ditches and other waterways or

floating algal or rush mats. Suitable breeding habitat includes shallow marshlands with an abundance of emergent vegetation. Grasslands and low ground cover are also an important upland habitat for this species, as they provide areas for thermoregulation and cover. Small mammal burrows are used by SFGS during hibernation. During the warm days of summer, most activity occurs during the morning and afternoon. Preferred nocturnal retreats are thought to be holes, especially mammal burrows, crevices, and surface objects.

SFGS has been documented within the region of the project as recently as 2008. Exact California Natural Diversity Database (CNDDB) locations of SFGS are suppressed because of concern about illegal collection of the species. However, there are two CNDDB records in the Half Moon Bay, California U.S. Geological Survey (USGS) 7.5-minute quadrangle, both associated with Pilarcitos Creek, with the closest one at approximately 0.5 mile downstream of the project area in 2004.[31] Because the primary prey species of the SFGS is the CRLF, an established population of CRLF in the perennial freshwater marsh habitat in the impoundment would elevate the likelihood that the snake could occur in the project area.

SFGS can move into upland habitats during summer to prey on amphibians aestivating in small mammal burrows. They could potentially forage on amphibians in Pilarcitos Creek and the impoundment and disperse and/or aestivate throughout the project area. The SFGS is, therefore, considered potentially present throughout the project area.

The fenced wildlife corridor required by the Corporation Yard Upgrade Project IS/MND was constructed in 2023 to protect the riparian corridor and the impoundment. The fenced wildlife corridor between Pilarcitos Creek and the impoundment, as well as the raised access road with frog/snake tunnels, would allow for safe movement and dispersal of SFGS through the wildlife tunnel and would likely prevent SFGS from accessing the project site. Therefore, impacts to SFGS would be less than significant.

White-Tailed Kite

White-tailed kite, a state-listed and fully protected species, is a common resident in the vicinity of the project area where open grassland, ruderal, or agricultural habitats are present. Large trees on and adjacent to the project area provide suitable nesting sites. The open habitats (e.g., ruderal grasslands, agricultural areas) within and adjacent to the project area provide potential foraging opportunities for this species. Although the developed nature and high levels of human disturbance within the project area make it less attractive to nesting kites, an individual was observed in the vicinity of the impoundment in 2014. Therefore, this species could potentially forage or nest in the project area.

White-tailed kite is protected while nesting by the Migratory Bird Treaty Act (MBTA) as well as by the California Fish and Game Code. Direct impacts to white-tailed kite nests could occur if a kite were to nest within or adjacent to the project area during construction, where the nest could be disturbed by noise, dust, or equipment. Mitigation Measure BIO-3, which requires a nesting bird survey for any construction performed during the nesting season (February 15–September 15), would be implemented to reduce any impacts to white-tailed kite. A nesting bird survey and compliance with the MBTA and California Fish and Game Code would reduce impacts to nesting birds to a less-than-significant level.

The remaining species could be located in the riparian habitat or within Pilarcitos Creek adjacent to the project area and therefore would not be directly impacted by the project. However, indirect impacts could occur from project activities, including, but not limited to, construction noise and sedimentation in Pilarcitos Creek.

[31] California Natural Diversity Database (CNDDB). 2021. Rarefind 5.0. California Department of Fish and Wildlife. Available at: from http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp. Accessed June 7, 2021, and other dates.

Steelhead – Central California Coast Distinct Population Segment

Steelhead in the Central California Coast DPS are federally threatened, and are winter-spawning steelhead, maturing in the ocean and spawning shortly after entering freshwater. Winter steelhead enter rivers and streams in the late fall and winter months when higher flows and associated lower water temperatures occur. Adult female steelhead will prepare a redd (or nest) in gravel-bottomed, fast-flowing, well-oxygenated rivers and streams. Preferred streams typically support dense canopy cover that provides shade, woody debris, and organic matter, and are usually free of rooted or aquatic vegetation. The length of the incubation period is dependent on water temperature. Fry emerge from the gravel and rear along the stream margins, moving gradually into pools and riffles as they grow larger. Young juveniles feed primarily on aquatic invertebrate drift.

Habitat conditions in Pilarcitos Creek adjacent to the project area are suitable to support freshwater migration of adult and juvenile Central California coast steelhead. Pilarcitos Creek does not support suitable habitat for spawning, rearing, or feeding during most times of the year due to the lack of channel complexity, gravels, or connectivity with an adjacent floodplain. As a result, steelhead are only expected to be present in this portion of Pilarcitos Creek during upstream and downstream migration, which occurs late fall into spring. Designated critical habitat for Central California Coast steelhead includes aquatic habitat within Pilarcitos Creek. Although Pilarcitos Creek would not be directly affected by project activities, water quality in the creek could be affected by runoff and sedimentation during construction and operation of the project. However, the project would be required to comply with San Mateo Countywide Pollution Prevention Program (SMCWPPP), discussed in Section 2.10, Hydrology and Water Quality. In addition, project construction would disturb more than 1 acre of land; therefore, it would be required to implement a Storm Water Pollution Prevention Plan (SWPPP) to control runoff during construction. The project would relocate the existing materials enclosure further from the creek (outside of the 50-foot riparian buffer zone) and upgrade it to meet current drainage and design requirements. In addition, Mitigation Measure BIO-4 would be implemented to reduce impacts and requires measures to protect surrounding habitat from runoff of stormwater and construction chemicals and debris. Therefore, the implementation of Mitigation Measure BIO-4 in addition to compliance with the SMCWPPP and SWPPP would reduce a potentially significant impact to Central California Coast steelhead to a less-than-significant level.

San Francisco Dusky-Footed Woodrat

San Francisco dusky-footed woodrat, a CDFW SSC, occurs in a variety of woodland and scrub habitats from the San Francisco Peninsula south to the Pajaro River in Monterey County. Woodrats prefer riparian and oak woodland forests with dense understory cover, or thick chaparral habitat. Dusky-footed woodrats build large, complex nests of sticks and other woody debris, which may be maintained by a series of occupants for several years. Woodrats are also very adept at making use of human-made structures, and can nest in electrical boxes, pipes, wooden pallets, and even portable storage containers. Woodrat nest densities increase with canopy density and with the presence of poison oak (*Toxicodendron diversilobum*). The breeding season for the dusky-footed woodrat begins in February and sometimes continues through September, with females bearing a single brood of one to four young per year.

A San Francisco dusky-footed woodrat nest was observed near Pilarcitos Creek over 3 miles east--northeast of the project area in 2007. The riparian forest adjacent to the project area provides suitable habitat for dusky-footed woodrats. Although no nests were observed in the riparian woodland habitat adjacent to the project area during the reconnaissance survey, this species could potentially nest, forage in, and disperse through the riparian habitat along Pilarcitos Creek and around the freshwater marsh habitat in the impoundment. If woodrat nests are present within riparian woodland habitat they may be disturbed by noise or dust resulting from nearby construction activities. Foraging woodrats would be

unlikely to enter the project site due to the wildlife corridor fencing. Therefore, impacts to San Francisco dusky-footed woodrat would be less than significant.

Northwestern Pond Turtle

Northwestern pond turtle, a federally proposed threatened species and CDFW SSC, occurs in ponds, streams, and other wetland habitats in the Pacific slope drainages of California. The central California population was historically present in most drainages on the Pacific slope. The perennial freshwater marsh habitat in the impoundment within the project area is too shallow, with emergent vegetation too thick, to be considered suitable aquatic foraging habitat for this species. The reach of Pilarcitos Creek adjacent to the project area is degraded due to surrounding development; however, suitable basking and foraging habitat for pond turtles is present in this area. Suitable nesting habitat for pond turtles is not present in the project area in upland areas adjacent to Pilarcitos Creek because the riparian habitat is too dense for nest construction and the adjacent upland grassland habitat is degraded and frequently disturbed due to the human use of the area. In addition, the nearest CNDDB recorded observations are over 4 miles from the project area in the area of the Crystal Springs Reservoir. Thus, there is some potential for pond turtles to be present adjacent to the project area, though they are likely present in low numbers and/or infrequently as dispersers, but not as resident turtles prone to breeding and nesting in the upland habitats adjacent to the creek. The perennial freshwater marsh habitat in the impoundment is too shallow, with emergent vegetation too thick, to be considered suitable aquatic foraging habitat for this species.

Northwestern pond turtle may be present in low numbers and/or infrequently as dispersers in the project area. The wildlife corridor and wildlife fencing along the riparian corridor of Pilarcitos Creek would prevent this species from dispersing into upland habitat within the project area. Furthermore, the proposed project would not directly impact the riparian vegetation surrounding either Pilarcitos Creek or the impoundment. Therefore, impacts to northwestern pond turtle are expected to be less than significant.

Yellow Warbler

In California, yellow warbler, a CDFW SSC, occupies wooded riparian habitats. This species prefers riparian corridors with an overstory of mature cottonwoods (*Populus* sp.) and sycamores (*Platanus occidentalis*), a midstory of box elder (*Acer negundo*) and willow (*Salix* spp.), and a substantial shrub understory, particularly in areas with more open space adjacent to the riparian habitat. Yellow warbler constructs open-cup nests in upright forks of shrubs or trees in dense willow thickets or other dense vegetation.

Yellow warbler is an uncommon to rare breeder in wooded riparian habitats, occurring primarily in association with alders and willows, in San Mateo County. Riparian woodlands in the county provide suitable nesting and foraging habitat for this species, but the species is scarce and local, being particularly scarce as a breeder on the immediate coast. Nevertheless, it is possible that one or two pairs could potentially breed in riparian habitat along Pilarcitos Creek and around the freshwater marsh, both of which are not within the project area. Otherwise, this species is expected to occur as a common migrant adjacent to the project area during the spring and fall.

Yellow warbler is protected while nesting by the MBTA and California Fish and Game Code. The project would not include Pilarcitos Creek, its surrounding riparian vegetation, or the freshwater marsh; therefore, this species would not be directly impacted by the project. Indirect impacts related to construction noise and disturbance could occur. Mitigation Measure BIO-3, which requires a nesting bird survey for any construction performed during the nesting season (February 15–September 15), would be implemented to reduce any indirect impacts. A nesting bird survey and compliance with the MBTA and California Fish and Game Code would reduce impacts to yellow warbler to a less-than-significant level.

San Francisco Common Yellowthroat

San Francisco common yellowthroat, a CDFW SSC, inhabits emergent vegetation and nests in fresh and brackish marshes and moist floodplain vegetation around the San Francisco Bay. Common yellowthroat will use small and isolated patches of habitat as long as groundwater is close enough to the surface to encourage the establishment of dense stands of rushes (*Scirpus* spp., *Juncus* spp.), cattails, willows, and other emergent vegetation.

Nesting San Francisco common yellowthroat has been recorded in the vicinity of the project area, and observations of individuals have been recorded within the Pilarcitos Creek riparian habitat less than 1 mile west of the project area as recently as 2017. The species may nest in taller vegetation within the impoundment adjacent to the project area and possibly in riparian habitat along Pilarcitos Creek.

San Francisco common yellowthroat is protected while nesting by the MBTA and California Fish and Game Code. The project would not include Pilarcitos Creek, its surrounding riparian vegetation, or the impoundment; therefore, this species would not be directly impacted by the project. Indirect impacts related to construction noise and disturbance could occur. Mitigation Measure BIO-3, which requires a nesting bird survey for any construction performed during the nesting season (February 15–September 15), will be implemented to reduce any direct impacts. A nesting bird survey and compliance with the MBTA and California Fish and Game Code would reduce impacts to San Francisco common yellowthroat to a less-than-significant level.

Other Species

In addition, the BRR determined that six special-status wildlife species have the potential to occur in the project area:

- monarch butterfly (*Danaus plexippus*)
- pallid bat (*Antrozous pallidus*)
- Townsend's big-eared bat (*Corynorhinus townsendii*)
- American peregrine falcon (*Falco peregrinus anatum*)
- northern harrier (*Circus cyaneus*)
- mountain lion (*Puma concolor*)

These species are expected to occur only as visitors, migrants, or transients and are not expected to reside, breed, occur in large numbers, or otherwise make substantial use of the project area. As a result, the project is expected to have a less-than-significant impact on these species.

Under the 2020 LCLUP ruderal areas may contain foraging habitat for migratory birds and raptor species.[32] Migratory birds and raptors are protected while nesting by the MBTA and California Fish and Game Code. Project construction would be short term, lasting approximately 13 months. Should nesting birds be identified, they would be protected by measures for nesting birds under Mitigation Measure BIO--3. Therefore, Mitigation Measure BIO-3 would mitigate potentially significant impacts to nesting birds to a less-than-significant level.

Additionally, while no large tree cavities or caves suitable for large maternity bat roosts were identified within the project area, individual bats may forage and roost in trees on-site. Tree removal proposed may

[32] City of Half Moon Bay. 2020. *Local Coastal Land Use Plan 2020 Comprehensive Update.* Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/3784/Full-Combined-2020-HMB-LCLUP. Accessed April 8, 2024.

cause disturbance, injury, or harm to individual roosting bats. Implementation of Mitigation Measure BIO--5, which requires preconstruction bat surveys, would ensure that impacts to roosting bats would be less than significant.

Mitigation Measures

The Corporation Yard Upgrade Project IS/MND identified the following mitigation measures. These measures are part of the Corporation Yard Upgrade Project MMRP (Appendix B2), have been included in the Emergency CDP, and will apply to the follow-up CDP. The project shall comply with all of the following MMRP measures that are relevant to the project:

BIO-1 The following mitigation measures shall be implemented during the project:

a. Prior to the start of the project, all construction crew members shall attend an environmental awareness training presented by a qualified biologist. A training brochure describing special-status species, project avoidance and minimization measures, key contacts, and potential consequences of impacts to special-status species and potentially jurisdictional features shall be distributed to the crew members during the training. Trainees shall sign an environmental training attendance sheet. These personnel shall be informed about the possible presence of all special-status species and habitats associated with the species identified here to be potentially present in the project area and that unlawful take of the animal or destruction of its habitat is a violation of the Federal Endangered Species Act and the California Endangered Species Act. Prior to construction activities, the qualified biologist shall instruct all construction personnel about (1) the description and status of the species; (2) the importance of their associated habitats; (3) the importance of keeping the wildlife corridor fencing intact; and (4) a list of measures being taken to reduce impacts on these species during project construction and implementation. A fact sheet conveying this information shall be prepared for distribution to the construction crew and anyone else who enters the project site.

b. Disturbance to vegetation shall be kept to the minimum necessary to complete the project activities. To minimize impacts to vegetation, a qualified biologist shall work with the contractor to designate the work area and any staging areas as well as delineate areas that shall be avoided with signage and tape. Areas that shall be avoided include Pilarcitos Creek, the impoundment, riparian habitat, and the wildlife corridor. Specifically, wildlife corridor fence includes the buffer of 50 feet outward from the limit of riparian vegetation along Pilarcitos Creek or 100 feet from the top of bank within Pilarcitos Creek (whichever is greater) and 100 feet outward from the impoundment. The identified buffer shall be clearly depicted on any construction plans. Work may nor occur within the wildlife corridor.

c. If any wildlife is encountered during project activities, said wildlife must be allowed to leave the work area unharmed. All listed wildlife species shall be allowed to leave the work area of their own accord and without harassment. Animals shall not be picked up or moved in any way. If non-listed and/or non-special-status wildlife does not leave the work area of their own accord, the qualified project biologist may relocate the wildlife outside of the project limits.

d. During project activities, all trash that may attract predators such as wrappers, cans, bottles, and food scraps shall be disposed of in solid, closed containers

(trash cans) and removed at the end of each working day from the entire construction site. Following construction, trash/construction debris shall be removed from work areas.

e. The area of disturbance shall be limited to the minimum necessary to complete the project. Project boundaries shall be clearly demarcated, and these areas shall be outside of sensitive areas.

f. No firearms shall be allowed on the project site, except for federal, state, or local law enforcement, or security guards. No pets shall be allowed on the project site during construction.

g. Project-related vehicles shall observe a 10 mile-per-hour speed limit in all project areas, except on City and County roads, and State highways; this is particularly important on rainy nights when California red-legged frogs are most active.

h. Nighttime construction shall be avoided.

BIO-2 The following measures shall be implemented to minimize impacts to special-status amphibians and reptiles:

a. The City will retain professional qualified biologists with experience monitoring for California red-legged frog and San Francisco garter snake to provide biological monitoring during all project construction activities that may result in take of any special-status species.

b. Prior to any ground disturbance in the impact area, a qualified wildlife biologist will inspect the wildlife fencing to ensure it is complete and without holes. This barrier shall be inspected regularly during construction and maintained and repaired as necessary to ensure that it is functional and is not a hazard to California red-legged frogs or San Francisco garter snakes on the outer side of the barrier.

c. Plastic mono-filament netting (erosion control matting), rolled erosion control products, or similar material shall not be used at the project site to prevent trapping California red-legged frogs, San Francisco garter snakes, or other species.

d. Within 24 hours of the planned start of project activities, a focused preconstruction survey for sensitive and listed species, including but not limited to California red-legged frog and San Francisco garter snake, shall be conducted by a qualified biologist within the impact area. The qualified biologist shall investigate all potential areas that could be used by the California red-legged frog and San Francisco garter snake for feeding, breeding, sheltering, movement, and other essential behaviors. This includes an adequate examination of mammal burrows. Construction activities shall not take place until the survey is completed.

e. Construction materials, including, but not limited to, wooden pallets, BMPs, equipment, or other materials, that are left on the ground for more than 24 hours shall be inspected before and during moving of the materials to prevent potential impacts to animals that may have utilized the materials as a temporary refuge. All construction pipes, culverts, or similar structures that are stored at a construction site for one or more overnight periods shall be either securely capped prior to storage or thoroughly inspected by the qualified biologist and/or the construction foreman/manager for animals before the pipe is subsequently

buried, capped, or otherwise used or moved in any way. If a California red-legged frog or San Francisco garter snake is discovered inside a pipe or culvert by the qualified biologist or construction foreman/manager, the protocol in Mitigation Measure BIO-2(g) shall be followed.

f. To prevent inadvertent entrapment of the California red-legged frog or San Francisco garter snake during construction, the qualified biologist and/or construction foreman/manager shall ensure that all excavated, steep-walled holes or trenches more than 1 foot deep are completely covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks and inspected by the qualified biologist. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals by the qualified biologist and/or construction foreman/manager. If at any time a trapped California red-legged frog or San Francisco garter snake is discovered by the qualified biologist or anyone else, the steps in Mitigation Measure BIO-2(i) shall be followed.

g. If a California red-legged frog or San Francisco garter snake, or any animal that construction personnel believes may be either of these species, is encountered during project construction, the following shall be followed:
    i. All work that could result in direct injury, disturbance, or harassment of the individual animal shall immediately cease;
    ii. The foreman and qualified biologist shall be immediately notified; and
    iii. The qualified biologist shall determine if the animal is a California red-legged frog or San Francisco garter snake and, if so, shall follow Mitigation Measure BIO-2h for California red-legged frog and Mitigation Measure BIO-2i for San Francisco garter snake.

h. If any California red-legged frogs are found during implementation of Mitigation Measures BIO-2(a), BIO-2(b), BIO-2(c), BIO-2(d), BIO-2(e), or BIO-2(f) the qualified biologist shall contact the USFWS to determine if moving any of the individuals is appropriate. In making this determination, the USFWS shall consider if an appropriate relocation site exists. If the USFWS approves moving animals, the City shall ensure that a permitted biologist holding a 10(a)(1)(A) permit for California red-legged frog (or as required by the project permits) is given sufficient time to move the animals from the impact area before ground disturbance is initiated. Only qualified and permitted biologists shall capture, handle, and move the California red-legged frog. The permitted biologist shall monitor any relocated frog until it is determined that it is not imperiled by predators or other dangers.

i. The qualified biologist shall monitor any individual San Francisco garter snake encountered within the impact area, but allow it to leave the impact area on its own. If the qualified biologist determines that the snake cannot leave on its own then the USFWS and CDFW shall be consulted to determine if the snake can be captured and relocated to appropriate habitat on the outside of the impact area. No San Francisco garter snakes shall be handled without explicit agency approval.

j. Planting of western mosquitofish (*Gambusia affinis*) within the impoundment shall be prohibited. Treatment of the impoundment for mosquito larvae by the Mosquito Abatement District will be conducted utilizing alternative treatments approved by the District (e.g., insect growth regulators).

k. The use of any pesticides in the impact area shall be utilized in such a manner to prevent primary or secondary poisoning of the California red-legged frog and/or San Francisco garter snake potentially present in the project area, and the depletion of food items on which they depend. All uses of such compounds shall observe label and other restrictions mandated by the USEPA, California Department of Food and Agriculture, and other appropriate federal and State regulations, as well as additional project-related restrictions deemed necessary by the USFWS and CDFW. Furthermore, pesticide use will be subject to documentation of compliance with the USEPA's Stipulated Injunction concerning the type used and buffer for application away from waterbodies and shall be rated for aquatic use by the California Department of Pesticide Regulation and have less-than-significant effects on California red-legged frog and San Francisco garter snake.

l. The use of herbicides shall not be permitted unless approved by CDP amendment. Future approval of herbicide use will be subject to documentation of compliance with the USEPA's Stipulated Injunction concerning the type used and buffer for application away from waterbodies and shall be rated for aquatic use by the California Department of Pesticide Regulation and have less-than-significant effects on California red-legged frog and San Francisco garter snake.

m. The use of rodenticides (i.e., anticoagulants) for controlling rodents, such as rats (*Rattus* spp.), house mice (*Mus musculus*), and California ground squirrels (*Spermophilus beecheyi*), shall be prohibited. If rodent control is required by the City, localized trapping efforts shall be conducted.

n. Regardless of the season, construction shall adhere to SMCWPPP BMPs, and no construction shall occur during and within 24 hours following a significant rain event (defined as greater than 0.25 inch in a 24-hour period). Following a significant rain event and the 24-hour drying-out period, a qualified biologist shall conduct a preconstruction survey for California red-legged frog and other sensitive species prior to the restart of any project activities.

o. The wildlife corridor fencing shall be maintained as a boundary to allow for safe wildlife movement between the impoundment and Pilarcitos Creek by funneling any dispersing wildlife through tunnels beneath the access road and providing a boundary along the riparian corridor of Pilarcitos Creek. The wildlife fencing, tunnel, and corridor shall be maintained over the lifetime of its use, and any portion that is observed to be broken or not functioning property shall be repaired immediately by the City.

p. The wildlife corridor shall be maintained and repaired annually or more frequently as needed. The tunnels beneath the access road shall be inspected to ensure that it is not blocked by vegetation or sediment. Vegetation fuels management within the wildlife corridor shall use low impact methods (such as goat grazing or using hand tools) on an annual basis. Any mechanical maintenance activities (including using hand tools for vegetation maintenance) within the wildlife corridor shall be closely monitored by an approved biologist.

BIO-3 The following measures shall be implemented to minimize impacts to nesting birds, as required by the MBTA and California Fish and Game Code:

a. If project activities, including, but not limited to, grubbing and grading, are conducted during nesting bird season (generally February 15 to September 15),

preconstruction nest surveys shall be conducted in and near the project (within 500 feet for large raptors and 300 feet for all other birds) by a qualified biologist within 7 days of the start of construction. If nesting birds are identified during the preconstruction survey, then the project shall be modified (i.e., a no-work exclusion buffer of appropriate size [to be determined by the qualified project biologist] shall be erected around active nests) and/or delayed as necessary to avoid impacts to the identified nests, eggs, and/or young. Disturbing active nests must be avoided until young birds have fledged.

b. If construction activities shall not be initiated until after the start of the nesting season, all potential nesting substrates (e.g., bushes, trees, grasses, and other vegetation) that are scheduled to be removed by the project shall be removed prior to the start of the nesting season (e.g., prior to February 15), to the extent feasible. This shall preclude the initiation of nests in this vegetation and prevent the potential delay of the project due to the presence of active nests in these substrates.

BIO-4 The following measures shall be implemented to minimize impacts to Pilarcitos Creek and riparian habitat in the vicinity of the project:

a. The project shall comply with the SMCWPPP, Municipal Regional Stormwater National Pollution Discharge Elimination System (NPDES) Permit and General Construction permit to prevent increases in peak flow, erosion, or reduction in water quality for downslope waters, which shall prevent stream downcutting, riparian bank erosion, or other downstream impacts.

b. All spoils, such as dirt, excavated material, debris, and construction-related materials, generated during project activities shall be placed where they cannot enter any drainage ditch, culvert inlet, or nearby vernal marshes. Spoils shall be covered or secured to prevent sediment from escaping. Once the spoil pile is no longer active, it shall be removed from the work area and disposed of lawfully at an appropriate facility.

c. All exposed soils in the work area resulting from project activities shall be stabilized immediately following the completion of work to prevent erosion. Erosion and sediment control BMPs, such as silt fences, straw hay bales, gravel or rock-lined drainages, water check bars, and broadcast straw, can be used. BMPs shall be made of certified weed-free materials. Straw wattles, if used, shall be made of biodegradable fabric (e.g., burlap) and free of monofilament netting. At no time shall silt-laden runoff be allowed to enter any drainages or other sensitive areas.

d. All fueling and maintenance of vehicles and other equipment and staging areas shall occur at least 100 feet from any drainages and other water features, including Pilarcitos Creek. Crew members shall ensure that contamination of habitat does not occur during such operations. Prior to the onset of work, the construction contractor shall prepare a plan to be approved by the City before construction begins to allow a prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

e. All exposed surfaces shall be wetted periodically to prevent significant dust.

f. All stockpiled soil shall be covered during periods of rain.

g. The following BMPs shall be implemented to limit the spread of invasive species into sensitive habitats:

i. All ground-disturbing equipment used adjacent to the riparian habitat shall be washed (including weeks, tracks, and undercarriages) at a legally operating equipment yard both before and after being used at the site;

ii. All applicable construction materials used on-site, such as straw wattles, mulch, and fill material, shall be certified weed free;

iii. The project shall follow the SMCWPPP and a SWPPP as per the NPDES *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Construction General Permit; Water Board Order No. 2009-0009-DWQ) if applicable;

iv. All disturbed soils shall be stabilized and planted with a native seed mix from a local source following construction;

v. If excavating, soil and vegetation removed from densely weed-infested areas (for example, dense poison hemlock infestations or cape ivy infestations) shall not be used in general soil stockpiles and shall not be redistributed as topsoil cover for the newly filled areas. All weed-infested soil shall be disposed of off-site at a landfill.

BIO-5 The following measures shall be implemented to minimize potential impacts to individual roosting bats:

a. Pre-construction Bat Survey. Prior to tree removal, a qualified bat biologist shall conduct a visual survey of the project area to identify if bats are roosting within trees within the project area. Roost sites shall be avoided during tree removal. If no roosting sites or bats are observed during the survey no further mitigation is necessary.

b. If roosting bats or indications of bat roosts are observed within project trees to be removed, tree removal shall be conducted under the supervision of a qualified bat biologist. During tree removal and where potential bat roosts were identified, a qualified bat biologist shall be present and tree removal shall begin with portions of the tree that do not provide suitable roost habitat (e.g., low limbs lacking forage). Trees shall be disassembled at a speed in coordination with the on-site qualified bat biologist that allows any roosting bats to vacate the tree.

b. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in the local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

The BRR completed for the project area identified the habitat within and immediately surrounding the project area as consisting of a mix of ruderal grassland, developed or landscaped areas, and non-native woodland. Riparian woodland, perennial freshwater marsh, and aquatic riverine habitats are adjacent to but outside of the project area. A fenced wildlife corridor that included all perennial freshwater marsh, aquatic riverine, and riparian woodland habitat was implemented as part of the Corporation Yard Upgrade Project.

The 2020 LCLUP has identified Environmentally Sensitive Habitat Areas (ESHA), which are defined as "any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments." The 2020 LCLUP mapping identified three ESHAs and one potential ESHA within and adjacent to the project site:

- The Central Coast Riparian Scrub adjacent to the project area in the riparian corridor adjacent to Pilarcitos Creek is identified as "California Red-legged Frog Upland, Foraging, and Dispersal Habitat and San Francisco Garter Snake Habitat (ESHA);"
- The emergent freshwater marsh adjacent to the project area in the impoundment is identified as "California Red-legged Frog Breeding Site (ESHA);"
- The aquatic habitat adjacent to the project area in Pilarcitos Creek is identified as "Final Critical Habitat for Steelhead Designated by National Marine Fisheries Service under the Federal Endangered Species Act (ESHA);" and
- The ruderal grassland within the project area is identified as "Potential San Francisco Garter Snake Habitat and/or California Red-legged Frog Upland, Foraging, and Dispersal Habitat (Potential ESHA)."

As discussed in the Corporation Yard Upgrade Project IS/MND, the former agricultural impoundment still contains water, likely a combination of groundwater and surface runoff, and has perennial freshwater marsh vegetation. The freshwater impoundment is surrounded by riparian vegetation. The freshwater marsh habitat in the impoundment has been identified as a known breeding site for CRLF; therefore, it has been identified as an ESHA under the 2020 LCLUP. As a result, the 2020 LCLUP requires that the project maintain a 100-foot buffer from the freshwater marsh/impoundment. As part of the improvements related to the Corporation Yard Upgrade Project, a chain-link fence delineating a wildlife corridor and the 100-foot buffer or to the property boundaries where the 100-foot buffer goes beyond the parcel limits was installed. The wildlife fencing includes aluminum or vinyl slates to prevent the frogs and other wildlife from leaving the protected area. Therefore, the proposed project would not disturb the freshwater marsh or riparian habitat associated with the freshwater marsh, and no impact to freshwater marsh habitat would occur.

Riparian woodland habitat is found adjacent to the south side of the project site along Pilarcitos Creek and around the impoundment in the northwest corner. Trees observed in the riparian woodland habitat include arroyo willow, red willow, red alder, and blue gum eucalyptus. The 2020 LCLUP has mapped this area as Central Coast Riparian Scrub. Riparian scrub can support a wide diversity of wildlife due to the availability of important features such as nesting sites, close proximity to water, escape and thermal cover, food, and dispersal corridors. As required by the 2020 LCLUP, the project would establish a 50 -foot buffer zone from the edge of the riparian vegetation, and Mitigation Measure BIO-2 requires that the buffer zone be clearly marked with signage and tape and that disturbance to vegetation be kept to a minimum. Therefore, the project would not directly impact riparian vegetation. The project would also be required to comply with the SMCWPPP and project SWPPP to prevent stormwater runoff from impacting adjacent areas. In addition, Mitigation Measure BIO-4 contains measures to ensure that no spoils, sedimentation, hazardous materials from fueling and maintenance of vehicles, or invasive plant materials enter the riparian areas. As a result, all impacts to riparian habitat would be reduced to a less-than-significant level.

The City has developed the City's GIP, which requires that stormwater runoff designs implement "more resilient, sustainable stormwater management which reduces runoff volumes, disperses runoff to vegetated areas, harvests and uses runoff where feasible, promotes infiltration and evapotranspiration, and

utilizes natural processes to detain and treat runoff."[33] Green infrastructure limits the discharge of pollutants to the storm drain system and promotes the infiltration of stormwater into the groundwater basin. Runoff from the project site drains toward Pilarcitos Creek. Project operations would be required to comply with the City's GIP and would direct stormwater runoff from the housing development through vegetated channels or swales prior to reaching the riparian habitat adjacent to Pilarcitos Creek. Therefore, compliance with the City's GIP, compliance with the SMCWPPP, and implementation of Mitigation Measures BIO-2 and BIO-4 would reduce potential impacts related to operational runoff into riparian habitat to a less-than-significant level.

Pilarcitos Creek is a perennial freshwater stream with a connection to groundwater that flows overland adjacent to the southern portion of the project area. In the 2020 LCLUP, Pilarcitos Creek is identified as a perennial stream with well-developed canopy and critical habitat for Central California Coast steelhead, known occupied habitat for CRLF and SFGS, and past nesting habitat for San Francisco common yellowthroat. As discussed above regarding the riparian habitat, the project would maintain a 50-foot buffer zone from the edge of the riparian habitat surrounding Pilarcitos Creek and would not directly impact the aquatic habitat. Potentially significant indirect impacts related to construction runoff would be reduced to a less-than-significant level by compliance with the City's GIP, compliance with the SMCWPPP, and implementation of Mitigation Measures BIO-2 and BIO-4. Therefore, impacts to aquatic habitat would be less than significant.

Non-native grassland may be considered a sensitive habitat if it is found to be especially valuable for its role in an ecosystem pursuant to the 2020 LCLUP. The project site is mapped as ruderal land in the 2020 LCLUP and is considered to have limited habitat value. Species that may be associated with ruderal habitat include foraging bats and migratory bird and raptors.[34] At the project site, the grassland may have provided a wildlife corridor for CRLF and SFGS between the freshwater marsh and Pilarcitos Creek. Therefore, the ruderal grassland is considered a potential ESHA. However, the Corporation Yard Upgrade Project constructed a fenced wildlife corridor to direct any potentially dispersing CRLF and SFGS from the freshwater marsh to Pilarcitos Creek. The wildlife corridor passes under the Corporation Yard access road through four frog/snake tunnels. The corridor includes a wildlife barrier fence along the southern boundary of Parcel 1 for the extent of the riparian buffer along Pilarcitos Creek (see Figure 2-3). Therefore, the project would not cause potentially significant impacts to the potential wildlife corridor in the upland grassland, and impacts to non-native grassland dispersal habitat would be less than significant.

Mitigation Measures

Implement Mitigation Measures BIO-2 and BIO-4.

c. Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

The wetland delineation conducted on June 12, 2020, by H.T. Harvey identified a total of 0.91 acre of potentially jurisdictional features as defined by the U.S. Army Corps of Engineers (USACE) and Regional Water Quality Control Board (RWQCB) in the project area. These included approximately 0.29 acre of Section 404 and Section 401 waters situated below the ordinary high-water mark (OHWM) line of Pilarcitos Creek, which forms the southeastern edge of the project property, but is outside the

[33] City of Half Moon Bay. 2019. *Green Infrastructure Plan*, pg. 87. Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/2305/HalfMoonBayGIPlan09-2019Final1. Accessed April 8, 2024.

[34] City of Half Moon Bay. 2020. *Local Coastal Land Use Plan 2020 Comprehensive Update.* Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/3784/Full-Combined-2020-HMB-LCLUP. Accessed April 8, 2024.

project area. Section 401 Waters of the State extend farther up to the top of the bank from Pilarcitos Creek, for an additional 0.24 acre. Sections 404 and 401 wetlands totaling approximately 0.38 acre are also present within the impoundment, which is perennially inundated and presently occupied by emergent freshwater marsh habitat. In addition, the wetland delineation identified a total of 3.52 acres of potentially jurisdictional one-parameter wetlands (having either [1] the presence of hydric soils, or [2] the presence of a predominance of wetland plants) potentially subject to jurisdiction of the CCC. This includes approximately 0.38 acre of perennial freshwater marsh, 0.29 acre of aquatic riverine, and 2.85 acres of riparian woodland. During the June 2020 wetland delineation, H.T. Harvey also determined that the willow–alder stands identified within the ruderal grassland habitat on-site were located on upland terraces and likely persisting due to a high groundwater table on-site and were therefore not determined to be potential CCC jurisdictional wetlands. As discussed under Impact Discussion 2.4.b, the fenced wildlife corridor includes a 50-foot buffer from riparian habitat and a 100-foot from perennial freshwater marsh habitat and would prevent any work or staging from occurring within the freshwater marsh habitat in the impoundment, riparian habitat, or aquatic riverine habitat. As required by the 2020 LCLUP, the wildlife corridor fence would maintain a 50-foot buffer zone from all riparian habitat and a 100-foot buffer zone from the impoundment. As a result, no direct impacts to these features would occur.

Stormwater runoff from excavation, grading, and construction activities could impact water quality in Pilarcitos Creek. Stormwater from the construction area would be unlikely to enter the freshwater marsh/impoundment, as the construction area drains away from this feature. Standard Conditions of Approval for all CDPs in the city include all stormwater quality BMPs required by the SMCWPPP (see Section 3.10, *Hydrology and Water Quality*). All construction activities would be required to implement BMPs to comply with the SMCWPPP and project SWPPP, which would prevent sediment-laden runoff and/or pollutants from entering the riparian area or Pilarcitos Creek. In addition, Mitigation Measure BIO-4, which would require management of exposed soils and vehicle fueling and maintenance, would further reduce these impacts to less than significant.

Mitigation Measures

Implement Mitigation Measure BIO-4.

d. Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

The grassland area of the project site may have provided dispersal habitat for CRLF and SFGS to move between Pilarcitos Creek and CRLF breeding habitat in the freshwater marsh. The Corporation Yard Upgrade Project included construction of a protected, fenced, minimum 50-foot-wide wildlife corridor, which included four frog/snake tunnels under the access road and ensured that dispersal habitat remains available and that these species are able to move between Pilarcitos Creek and the freshwater marsh safely. Therefore, construction of the proposed project would have a less-than-significant impact on native species wildlife corridors.

The project site contains suitable nesting and foraging habitat for avian species protected under the MBTA and California Fish and Game Code Sections 3511 and 3513. Although no nesting was observed during the BRR field survey due to the timing of the survey, avian species protected by the MBTA and California Fish and Game Code observed in the project area during the BRR field survey included American crow (*Corvus brachyrhynchos*), house finch (*Haemorhous mexicanus*), song sparrow (*Melospiza melodia*), Savannah sparrow (*Passerculus sandwichensis*), white-crowned sparrow (*Zonotrichia leucophrys*), and red-winged blackbird (*Agelaius phoeniceus*). The project has the potential

to impact potential eggs or young of avian species covered under the MBTA and California Fish and Game Code. The developed portion of the project area could be used for nesting by native species such as American crow, Anna's hummingbird (*Calypte anna*), California towhee (*Melozone crissalis*), bushtit (*Psaltriparus minimus*), and California scrub-jay (*Aphelocoma californica*). In addition, unused dilapidated structures present within the grassland and adjacent to the riparian habitat, may be attractive to other nesting and/or roosting bird species in the area, such as black phoebe (*Sayornis nigricans*). Further, the several Monterey pine and Monterey cypress trees around the west, east, and north perimeters of the project area may provide suitable nesting habitat for raptors, such as red-tailed hawks (*Buteo jamaicensis*). The riparian woodland provides suitable nesting habitat for a variety of common, resident bird species such as the California scrub-jay, American robin (*Turdus migratorius*), American crow, lesser goldfinch (*Spinus psaltria*), and bushtit. This riparian woodland is also used by numerous species of migratory birds, including black-headed grosbeak (*Pheucticus melanocephalus*), Wilson's warbler (*Cardellina pusilla*), and Swainson's thrush (*Catharus ustulatus*), that breed in this habitat but migrate south for winter. While potential nesting sites for migratory birds could be removed through removal of trees and vegetative ground cover on the project site, hundreds of acres of suitable nesting and foraging habitat are present near the project and would remain undisturbed by project activities. Furthermore, the project would plant approximately 69 new 24-inch box trees throughout the development to satisfy the removal of heritage trees. Therefore, suitable nesting habitat would remain within and in the vicinity of the project. If work occurs during avian nesting season, implementation of Mitigation Measure BIO-3, which requires nesting bird surveys and construction modifications if active nests are identified, would ensure that impacts to nesting birds would be less than significant.

An examination of trees and structures in the project area and surrounding 200-foot-wide buffer did not detect any large cavities that might provide suitable bat roosting habitat. Therefore, large roosting or maternity colonies of bats are not expected to occur in the project area. Individual bats may be attracted to riparian areas to roost in trees and forage over nearby water sources and grassland habitat within the project site. Tree removal proposed may cause disturbance, injury, or harm to individual roosting bats. Implementation of Mitigation Measure BIO-5, which requires pre-construction bat surveys, would ensure that impacts to roosting bats would be less than significant.

Mitigation Measures

Implement Mitigation Measures BIO-3 and BIO-5.

e. Would the project conflict with any local policies or ordinances protecting biological resources, such as tree preservation policy or ordinance?

The following analysis is based on the following documents (Appendix C):

- *880 Stone Pine Road HMB Lot Arborist Report*, Leonardo Tuchman, Plant Health Care Arborist (2023)
- *Stone Pine Road (880 Stone Pine Cove) Heritage Tree Removals Letter Report*, Kikuchi + Kankel Design Group (2023)

The project would have a significant impact if it would conflict with the City's Heritage Tree Ordinance under Chapter 7.40 of the City's Municipal Code[35] or the City's Coastal Resource Conservation

[35] City of Half Moon Bay. 2019. *Half Moon Bay Municipal Code, Chapter 7.40: Heritage Trees.* Available at: https://www.codepublishing.com/CA/HalfMoonBay/html/HalfMoonBay07/HalfMoonBay0740.html. Accessed April 9, 2024.

Standards under Chapter 18.38 of the City's Municipal Code.[36] Section 7.40.020 of the Heritage Tree Ordinance defines heritage trees as:

A. A tree located on public or private property, exclusive of eucalyptus, with a trunk diameter of 12 inches or more, or a circumference of at least 38 inches measured at 48 inches above ground level.

B. A tree or stand of trees so designated by resolution of the city council based on its finding of special historical, environmental or aesthetic value, including a resolution adopted under former Chapter 12.16.

To comply with Section 7.40.020 of the Heritage Tree Ordinance, the applicants conducted a tree survey by a certified arborist (Appendix C1). The project site includes 152 existing trees. Forty trees located in the existing hedgerow along the western boundary and six trees scattered along the south-facing slope on the northern edge of the development would not be impacted. The remaining 106 trees are generally located in dense clusters in the southwestern corner of the site and will be removed. Of these, only 12 specimens meet the definition of "heritage trees" per the Section 7.40.020 of the City's Municipal Code.

Eight of the heritage trees are Monterey pine, ranging in size from 12 to 15 inches dbh, with an average size of 13.4 inches; three of the heritage trees are Monterey cypress, ranging in size from 12 to 15 inches dbh with an average size of 13.3 inches; and the remaining heritage tree is a shining willow. This tree has numerous leaders emerging from its base with a range of 2 to 7 inches dbh and has the appearance of a large shrub. Due to the numerous basal leaders, this was considered a heritage tree per typical arboriculture conventions.

All of the trees within the disturbance envelope would be removed. No riparian trees would be impacted. Per the City's Municipal Code, heritage trees shall be replaced "on a one-for-one basis with a minimum size twenty-four-inch box specimen tree" (Section 7.40.060). The current Landscape Site Plan and Schematic Planting Plan (see Appendix A) proposes approximately 69 new 24-inch box trees to be installed throughout the new development, a ratio of nearly 6:1. Proposed replacement species may include Monterey cypress (as infill for portions of the existing hedge row), Catalina ironwood (*Lyonothamnus floribundus*), New Zealand Christmas tree (*Metrosideros excelsus*), and Chinese elm (*Ulmus parvifolia* "True Green"), though final species and locations are still to be determined.

Mitigation Measure BIO-6 includes the recommendations from the arborist report and requires that removal of trees be avoided or replaced where feasible. With implementation of Mitigation Measure BIO-6, impacts to heritage trees would be less than significant.

The Coastal Resource Conservation Standards in the 2020 LCLUP require any proposed project within 100 feet of a "sensitive habitat area" to prepare a biological report. Sensitive habitat is defined as sand dunes, marine habitats, sea cliffs, riparian areas, wetlands, rocky intertidal zones, coastal scrub, and habitats supporting rare and endangered species defined by the California Fish and Game Commission. The project site is mapped as having three ESHAs and one potential ESHA on the City's ESHA maps in the 2020 LCLUP (see Impact Discussion 3.4.b).[37] The BRR prepared for the Corporation Yard Upgrade Project, which covered the proposed project site, specified mitigation measures to protect potential sensitive species and habitats. The BRR mitigation measures have been incorporated into the mitigation

[36] City of Half Moon Bay. 2019. *Half Moon Bay Municipal Code, Chapter 18.38: Coastal Resource Conservation Standards.* Available at: https://www.codepublishing.com/CA/HalfMoonBay/html/HalfMoonBay18/HalfMoonBay1838.html#18.38. Accessed April 9, 2024.

[37] City of Half Moon Bay. 2020. *Local Coastal Land Use Plan 2020 Comprehensive Update, Chapter 6: Natural Resources; Figure 6-2. Environmentally Sensitive Habitat Areas.* Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/3784/Full-Combined-2020-HMB-LCLUP. Accessed April 9, 2024.

measures listed below. The project would include the construction of 46 manufactured homes, one manager's unit, and one management office while maintaining the fenced 100-foot buffer around the impoundment, a 50-foot buffer area from the riparian vegetation, and the protected wildlife corridor. Therefore, any impacts to ESHA would be less than significant with implementation of mitigation measures. As a result, the project complies with the 2020 LCLUP and Chapter 18.38 of the City's Municipal Code.

Mitigation Measures

BIO-6 The following measures shall be implemented to minimize impacts to heritage trees:

Pre-construction

a. A pre-construction meeting should be held to discuss tree protection measures and ensure all tree protection measures have been properly installed.

b. Any clearance pruning that is deemed necessary for construction shall be completed using the minimum dose necessary and shall be approved by the project arborist prior to pruning.

c. Tree protection zones (TPZ) shall be established and enforced to prevent soil compaction, grade change, and root damage. Three protection areas shall be established with five-foot-high chain link fencing mounted on 2-inch diameter galvanized iron posts, driven into the ground to a depth of at least 2 feet, at no more than a 10-foot spacing.
    i. The diameter of the TPZ shall be determined by the trunk diameter of the trees to be protected. For every 1 inch of trunk, the TPZ shall extend 1 foot. For example, a 10-inch diameter tree shall have a TPZ with a radius of 10 feet around the tree. In areas where this TPZ is greater than what construction can allow, the canopy dripline shall be the minimum radius for the TPZ.
    ii. For trees growing along the west perimeter of the property, TPZs can be combined to form one large TPZ for trees in this area. Additionally, fencing is not required on the west side of the trees as the property line fencing is already in place.

d. A "Warning: Do Not Enter" sign shall be prominently displayed on each tree protective fence.

e. A 4-inch layer of chip bark mulch shall be placed on top of the TPZ and enclosed within the tree protective fencing. This mulch shall only be moved for landscape plants to be installed after all excavation and soil compaction is completed.

f. Establish an area outside of the TPZs or on preexisting hardscape to store sediment and backfill. Ensure no flow paths lead to TPZs from sediment or backfill piles if present.

g. No material or equipment shall be stored or placed within the TPZ of preserved trees.

Construction

h. In areas where construction activity is to take place beneath the canopy of existing trees, such as a walking path, the TPZ shall be moved to the greatest distance possible from the subject tree while also allowing for construction to

proceed. Once construction in the subject area has occurred, the TPZ shall be moved back to its pre-established boundary.

i. The project arborist shall conduct site observations during any construction activity that is to take place beneath the canopy dripline of trees.

ii. Any excavation activity that is to take place in these areas is prohibited from using backhoes, tread tractors, or any other heavy vehicles. Methods permitted include hand digging, hydraulic or pneumatic air excavation.

i. No pruning should be performed on trees that have roots impacted by construction activity for at least one year following completion of this project other than necessary maintenance such as building clearance.

Post-construction

j. Project arborist should conduct monitoring twice a year from the date of project completion for no less than 2 years to ensure trees are in good condition.

f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

There are no Habitat Conservation Plans or Natural Community Conservation Plans that apply to the project; therefore, no impact would occur.

3.5 Cultural Resources

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☐	☒
(b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
(c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

Environmental Evaluation

SWCA conducted a cultural resources investigation in 2021 as part of the Corporation Yard Upgrade Project, which included the parcel for the proposed project, that included background research, a Native American Heritage Commission (NAHC) Sacred Lands File (SLF) search, and a field survey in support of the project; SWCA presented the findings of this investigation in a cultural resources memorandum.[38]

[38] 14 CCR Section 15064.5. September 17, 2021. Available at: https://casetext.com/regulation/california-code-of-regulations/title-14-natural-resources/division-6-resources-agency/chapter-3-guidelines-for-implementation-of-the-california-

In March 2024, SWCA also conducted an Extended Phase I archaeological field study for the proposed project to determine presence or absence of archaeological resources. This study included 15 exploratory trenches across the project parcel that were, on average, 2 feet wide, 10 feet long, and 7.5 feet deep. The back dirt from each trench was consistently hand-raked and examined for archaeological materials during excavation, and the base and trench side walls were also closely examined when possible. The information below is based on these memorandums. The conditions represented in the 2021 study have remained essentially the same; therefore, the conclusions from these memorandums are still valid.

a. Would the project cause a substantial adverse change in significance of a historical resource as defined in State CEQA Guidelines §15064.5?

A significant impact would occur if the project were to impact a historical resource defined as (1) a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (CRHR); (2) a resource included in a local register of historical resources, as defined in Section 5020.1(k) of the California Public Resources Code (PRC); or (3) any object, building, structure, site, area, place, record, or manuscript a lead agency determines to be historically significant.[39]

A review of the records received from the Northwest Information Center (NWIC) and historical maps suggest that there is one built environment resource within the project area. These resources were previously determined to be ineligible for inclusion in the National Register of Historic Places (NRHP) or CRHR, and survey confirmed that all three of these resources are located outside of the project area. Therefore, there are no resources that qualify as a historical resource pursuant to CEQA, the proposed project would not result in significant adverse impacts to historical resources, and no impact would occur.

b. Would the project cause a substantial adverse change in significance of an archaeological resource pursuant to State CEQA Guidelines §15064.5?

A significant adverse effect would occur if grading or excavation activities associated with a project were to disturb previously unknown archaeological resources. The project site is mapped as archaeologically sensitive on the 2020 LCLUP Archaeological Sensitivity Areas Map.[40] The NWIC-conducted records search indicated that there is one previously recorded archaeological resource within the project area, and several artifacts were found during the construction of the adjacent Corporation Yard Upgrade Project.

SWCA staff conducted an archaeological field study for the proposed project that consisted of a series of exploratory trenches between 1.6 and 2.9 meters (5.2–9.5 feet) in depth with an average of 7.5 feet deep. The back dirt from each trench was raked and examined for archaeological materials and none were discovered. Based on the results of the archaeological testing, the proposed project parcel does not appear to contain any large or substantial archaeological deposits or intact archaeological materials. Excavation for the project would have a maximum depth of 3 feet. As such, the project undertaking will not have an adverse effect on any known cultural resources, and no further archaeological study or identification efforts appear warranted at this time.

environmental-quality-act/article-5-preliminary-review-of-projects-and-conduct-of-initial-study/section-150645-determining-the-significance-of-impacts-to-archaeological-and-historical-resources. Accessed March 27, 2024.

[39] 14 CCR Section 15064.5. September 17, 2021. Available at: https://casetext.com/regulation/california-code-of-regulations/title-14-natural-resources/division-6-resources-agency/chapter-3-guidelines-for-implementation-of-the-california-environmental-quality-act/article-5-preliminary-review-of-projects-and-conduct-of-initial-study/section-150645-determining-the-significance-of-impacts-to-archaeological-and-historical-resources. Accessed March 27, 2024.

[40] City of Half Moon Bay. 2020. *Local Coastal Land Use Plan 2020 Comprehensive Update, Chapter 8: Cultural Resources; Figure 8-1. Archaeological Sensitivity Areas.* Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/3784/Full-Combined-2020-HMB-LCLUP. Accessed March 27, 2024.

Prior to the initiation of project activities, as required by the Emergency CDP conditions, an environmental awareness training will be presented by a qualified archaeologist (Mitigation Measure CUL-1). The training will detail the types of cultural resources that may be encountered, as well as procedures to occur in the event of accidental discovery. In addition, the Emergency CDP includes the following standard condition for accidental discoveries:

> **Standard Condition:** If subsurface historic or archaeological resources are uncovered during construction, all work shall stop, the applicant shall notify the Community Development Director and retain a qualified archaeologist to perform an archaeological reconnaissance and identify any mitigation measures required to protect archaeological resources. Subsurface investigation shall not resume until expressly authorized by the Director.

Potential impacts to archaeological resources would be considered less than significant with the implementation of the standard condition. Implementation of mitigation measure CUL-1 would further reduce this less-than-significant impact.

c. Would the project disturb any human remains, including those interred outside of formal cemeteries?

A significant adverse effect would occur if grading or excavation activities associated with a project were to disturb previously interred human remains.

The disposition of burials falls first under the general prohibition on disturbing or removing human remains under California Health and Safety Code Section 7050.5. More specifically, remains suspected to be Native American are treated under State CEQA Guidelines Section 15064.5, and PRC Section 5097.98 illustrates the process to be followed in the event that remains are discovered. If human remains are discovered during construction, no further disturbance to the site shall occur, and the County Coroner must be notified (CCR 15064.5 and PRC 5097.98).

The records search conducted for the project did not reveal any known Native American burial sites. The absence of Native American sacred places does not preclude their existence at the subsurface level. Project activities include grading and limited excavation to install the new utilities and road and slab foundations for new structures. Therefore, subsurface deposits related to this resource may be encountered during ground-disturbing activities. Environmental impacts may result from project discovery of unrecorded human remains during grading and excavation. Although not anticipated, it is possible that discoveries of human remains may occur during ground-disturbing activities associated with project construction. Disturbance of unanticipated human remains would be a potentially significant impact. In the event that previously undiscovered human remains are encountered during the project, the project would be required to implement the following standard City Condition of Approval that is applicable to all CDPs:

> **Standard Condition:** Pursuant to Section 7050.5 of the Health and Safety Code and Section 5097.94 of the Public Resources Code, in the event of the discovery of human remains during construction, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains. The County Coroner shall be notified and shall make a determination as to whether the remains are Native American. If the Coroner determines that the remains are not subject to his authority, he shall notify the California Native American Heritage Commission who shall attempt to identify descendants of the deceased Native American(s). If no satisfactory agreement can be reached as to the disposition of the remains pursuant to this State law, then the

permittee shall reinter the human remains, and items associated with Native American burials on the property in a location not subject to further subsurface disturbance.

Potential impacts to human remains would be considered less than significant with the implementation of the standard condition. Implementation of Mitigation Measure CUL-1 would further reduce this less-than-significant impact.

Mitigation Measures

There is one recorded archaeological resource in the project area. However, the Phase I archaeological investigation found no evidence of archaeological materials in the area. The following measure is provided to avoid and/or reduce impacts to a less-than-significant level in the event previously undiscovered or subsurface resources are encountered during project implementation.

CUL-1 Prior to the start of the project, all construction crew members will attend an environmental awareness training. This environmental awareness training will be conducted by a qualified archaeologist and will address cultural situations that may be encountered. An archaeologist will prepare an archaeological brochure to be distributed to the construction crew at the on-site environmental awareness training. The brochure will identify the types of cultural resources that may be encountered and the procedures to be followed in the event of accidental discovery.

3.6 Energy

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
(b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

Environmental Evaluation

a. Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Energy use during project construction would be short term and temporary. Construction of the project would require the use of construction equipment and worker vehicles that would use energy. There are no established thresholds of significance for construction-related energy use; therefore, energy use during construction activities was not estimated. As discussed in Section 3.8, *Greenhouse Gas Emissions*, the project includes BMPs, as required by the Emergency CDP and the BAAQMD, to reduce construction-related GHG emissions, which would also improve energy efficiency. In addition, as identified under Section 3.19, *Utilities and Service Systems*, the project will include a Waste Management Plan to recycle

at least 65% of all construction waste or demolition material.[41,42] Recycling construction waste would reduce the amount of energy used in the production of new materials.

Due to the relatively small scale and short duration of construction activities and the implementation of measures to reduce GHG emissions and recycle construction debris, construction of the project would not result in the wasteful, inefficient, or unnecessary consumption of energy resources, and construction impacts would be less than significant.

The project is located in the City's town center and intended to allow agricultural workers of modest income to live relatively near to their workplaces rather than potentially commuting into Half Moon Bay from greater distances. The project is located within walking distance of schools, retail, and service opportunities, which would likely reduce VMT and vehicle emissions. The manufactured homes would meet all requirements of the California Energy Code (Title 24) and the Green Building Standards Code (CALGreen—Title 24, Part 6. Therefore, project operations would not be likely to use energy wastefully or inefficiently and this impact would be less than significant.

b. Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

The project is located in the Town Center and includes sidewalks and connections to schools, jobs, and retail areas, which would reduce VMT over existing conditions. The development would meet all requirements of Title 24 including CALGreen. Energy use during project construction would be short term and temporary. Therefore, the project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency, and no impact would occur.

3.7 Geology and Soils

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
(i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
(ii) Strong seismic ground shaking?	☐	☐	☒	☐
(iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐

[41] County of San Mateo. 2024. Construction and Demolition. County of San Mateo Office of Sustainability. Available at: https://www.smcsustainability.org/waste-reduction/construction-demolition/. Accessed February 6, 2024.

[42] California Department of Resources Recycling and Recovery (CalRecycle). 2024. Construction and Demolition (C&D) Diversion Informational Guide. Available at: https://calrecycle.ca.gov/LGCentral/Library/CandDModel/. Accessed February 6, 2024.

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(iv) Landslides?	☐	☐	☐	☒
(b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
(c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
(d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
(e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
(f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

Environmental Evaluation

This section describes the potential impacts to the geology and soils of the project site with development of the proposed project. Potential effects are evaluated relative to important geologic features (Pilarcitos Creek) and the existing geology of the landscape. Impacts on the geology and soils of a site are usually addressed through an evaluation of the project-related subsurface changes to the existing environment, and the modifications that would alter the stability of the geologic or soil conditions. This section includes information from the following sources:

- *Geotechnical Engineering Investigation, SMC-HMB Farmworker Housing Project, 880 Stone Pine Road. Half Moon Bay. San Mateo County. California*, BAGG Engineers (August 23, 2023)[43] (Appendix E1)
- *Geotechnical Review of Civil Drawings, SMC-HMB Farmworker Housing Project, 880 Stone Pine Road, Half Moon Bay, California*, BAGG Engineers (October 25, 2023) (Appendix E2)

a. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

The project site is located in a seismically active region, and moderate to strong earthquakes can occur on numerous local faults. Surface rupture is defined as surface displacement that occurs along the surface

[43] BAGG Engineers. 2023. *Geotechnical Engineering Investigation, SMC-HMB Farmworker Housing Project, 880 Stone Pine Road, Half Moon Bay, San Mateo County. California*.

trace of the causative fault during an earthquake. The project site is approximately 2.5 miles east the San Gregorio-Seal Cove Fault Zone and 4.5 miles west the San Andreas Fault Zone.[44] No known active faults cross the project site, and the project site is not located within a currently designated Alquist-Priolo Earthquake Fault Zone.[45] Based on these considerations, the potential for surface rupture at the project site is considered low. The project would construct 47 manufactured homes, including 46 affordable homes for farmworkers and one manager's unit, for human habitation. Since the project is over 2 miles from the nearest known earthquake fault, the project would have no impacts related to rupture of a known earthquake fault.

ii. Strong seismic ground shaking?

The project site has experienced generally moderate-to-high levels of shaking during past earthquakes. The site's relatively close proximity to two active faults (2.5 miles from the San Gregorio-Seal Cove Fault and 4.5 miles from the San Andreas Fault Zone) means it would likely experience moderate to occasionally high ground shaking from future earthquakes. There is a 33% probability that the San Andreas Fault could generate a magnitude 6.7 earthquake in the next 30 years. The geotechnical analysis used an earthquake magnitude of 7.7 as obtained from the USGS Unified Hazard Tool, and a Peak Ground Acceleration of 0.89g obtained from the U.S. Seismic Design Maps by California's Office of Statewide Health Planning and Development (see Appendix E1).[46,47]

The proposed project will be designed and constructed in accordance with the 2022 California Building Code (CBC), as adopted in Section 14.04.020 (Building Code) of the City's Municipal Code. Among many seismic requirements, the California Building Code requires foundations and structures to be designed and constructed to withstand the ground motions (i.e., peak ground accelerations) that have a 10% chance of being exceeded in 50 years (equivalent to a 1/475 annual chance of being exceeded). The 2022 California Building Code and standard geotechnical engineering practice require identifying seismic design parameters to inform all earthwork requirements, foundation designs, retaining walls, and concrete/building material specifications. Seismic design parameters and recommendations for the project are described in the project-specific geotechnical site investigation and identified in Mitigation Measure GEO-1 (Appendices E1 and E2).[48]

While it is not possible to totally preclude damage to structures during major earthquakes, strict adherence to good engineering design and construction practices will help reduce the risk of damage. The 2022 California Building Code defines the minimum standards of good engineering practice.

The project would not create the potential for or exacerbate existing conditions related to seismic ground shaking over existing conditions. Compliance with the California Building Code and recommendations contained in the geotechnical investigation would ensure the project does not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking, and impacts would be less than significant.

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[44] California Department of Conservation (CDOC). 2021. California Earthquake Zones Application. Available at: https://www.conservation.ca.gov/cgs/geohazards/eq-zapp. Accessed March 27, 2024.

[45] California Department of Conservation (CDOC). 2021. California Earthquake Zones Application. Available at: https://www.conservation.ca.gov/cgs/geohazards/eq-zapp. Accessed March 27, 2024.

[46] U.S. Geological Survey (USGS). 2023. USGS Unified Hazard Tool. Available at: https://earthquake.usgs.gov/hazards/interactive/index.php. Accessed April 22, 2024.

[47] California Office of Statewide Health Planning and Development. 2023. U.S. Seismic Design Maps. Available at: https://seismicmaps.org/. Accessed April 22, 2024.

[48] BAGG Engineers. 2023. *Geotechnical Engineering Investigation, SMC-HMB Farmworker Housing Project, 880 Stone Pine Road, Half Moon Bay, San Mateo County, California.* Accessed April 22, 2024.

iii. Seismic-related ground failure, including liquefaction?

The project site is located in a Liquefaction Zone.[49] The geotechnical investigation for the project site (see Appendix E1) determined the site is generally underlain by non-uniform, interlayered clayey and sandy deposits with a groundwater depth of less than 20 feet below ground surface, which would be potentially liquefiable in the event of an earthquake. The geotechnical analysis estimated settlement from liquefaction of between 0.25 and 3 inches from a Magnitude 7.7 earthquake with groundwater at 9 feet below ground surface.

Lateral spreading is a potential hazard commonly associated with liquefaction. Lateral movement can range from a few inches to several feet and can cause significant structural damage. Lateral spreading generally arises where sloping terrain occurs with the presence of loose, saturated soils at shallow depths, particularly along riverbanks and shorelines. The geotechnical evaluation estimated the potential for lateral spreading toward Pilarcitos Creek at between 6 inches and 18 inches, increasing closer to Pilarcitos Creek.

As discussed above, the City/County would be required to comply with the 2022 CBC and the findings and recommendations of the geotechnical engineering investigation for the proposed project (see Appendix E1). Design and construction of the project in accordance with the 2022 CBC would be sufficient to ensure public exposure to risks related to seismic-related ground failure and liquefaction, would remain minimal. Therefore, this impact would be less than significant.

iv. Landslides?

The project site is essentially flat and has no landslide potential. No impact would occur.

b. Would the project result in substantial soil erosion or the loss of topsoil?

A significant impact would occur if a project would expose large areas to the erosional effects of wind or water. The project site slopes gently to the southeast toward Pilarcitos Creek and has a low-to-moderate erosion risk.[50] The area north of the existing Stone Pine Road extension slopes south at approximately 20%. The area south of the Stone Pine Road extension is essentially flat with slopes between 0% and 5%. Nine of the 47 units would be constructed north of the existing road.

Since the majority of the project work area is essentially flat, clearing, excavation, and grading activities at the project site are unlikely to result in significant short-term erosion impacts. Project grading, utility trenching, and construction would disturb approximately 5.62 acres of land. Construction would excavate approximately 3,550 CY of soil and require approximately 3,930 CY of fill. Approximately 380 CY of fill would need to be imported to meet the total fill requirement.

The project would be required to implement a County-approved Erosion and Sediment Control Plan (ESCP) and SWPPP, per the requirements of the San Francisco Bay RWQCB Municipal Regional Stormwater National Pollution Discharge Elimination System (NPDES) Permit and the SMCWPPP.[51] These plans would include construction-related pollution prevention measures and BMPs to control

[49] California Department of Conservation (CDOC). 2021. California Earthquake Zones Application. Available at: https://www.conservation.ca.gov/cgs/geohazards/eq-zapp. Accessed March 27, 2024.

[50] City of Half Moon Bay. 2014. *Plan Half Moon Bay. Existing Conditions, Trends and Opportunities Assessment Report*. Figure 5-10, Erosion Risk. Available at: https://www.half-moon-bay.ca.us/155/General-Plan. Accessed April 4, 2024.

[51] County of San Mateo. 2023c. *Erosion and Sediment Control Plan Requirements*. Available at: https://www.smcgov.org/planning/erosion-and-sediment-control-plan-requirements. Accessed April 4, 2024.

erosion and sedimentation impacts and stabilize disturbed bare-earth areas. Project construction would comply with the SMCWPPP, which would include BMPs to prevent stormwater erosion from leaving the site. BMPs would include, but not be limited to, fiber rolls, silt fences, and sedimentation basins designed to capture stormwater runoff (see Appendix A). Section 3.7, *Hydrology and Water Quality*, provides additional information about ESCP, SWPPP, and Municipal Regional Stormwater NPDES requirements and related permits.

Areas of the project site disturbed by grading during construction would be protected against erosion during rainfall events. The bare portions of cut and fill slopes would be planted with deep-rooted, fast-growing vegetation before winter and the rainy season. As described in the geotechnical investigation and the ESCP, the finished surface would be covered with appropriate erosion matting, hydro-seeded, or another BMP to prevent silt from entering storm drains during and after construction.

As required by the San Francisco RWQCB and the SMCWPPP, the project would implement BMPs to reduce erosion during construction. Since the total area of disturbance is more than 1 acre (approximately 5.62 acres), the City would be required to implement a SWPPP, according to the requirements of the San Francisco Bay RWQCB Municipal Regional Stormwater NPDES Permit and the SMCWPPP. The SWPPP would include BMPs to control erosion and sedimentation impacts and stabilize disturbed bare earth areas. Any bare earth areas would be reseeded prior to the end of construction. Section 3.10, *Hydrology and Water Quality*, provides additional information about the SWPPP and Municipal Regional Stormwater NPDES Permit requirements and related permits. A permit was received and the SWPP implemented in conjunction with the construction authorized under the ECDP.

The addition of approximately 139,260 square feet (3.2 acres) of new impervious surface area for Stone Pine Cove housing development could increase the stormwater runoff volume and rate compared with existing conditions, which could in turn accelerate soil erosion and loss of topsoil if stormwater were conveyed into Pilarcitos Creek. The City has developed the GIP, which requires construction projects to prioritize green infrastructure to capture stormwater. Stormwater from the project site flows overland to Pilarcitos Creek. Permanent green infrastructure is anticipated to implement flow-through, planter-style stormwater channels that would filter contaminants from stormwater runoff before entering the Pilarcitos Creek and meet the requirements of the GIP.[52] All disturbed areas would be reseeded and/or planted prior to the end of construction. The new drainages would be adequate to handle the additional volume of stormwater from the estimated 3.2 acres of new impervious surface area. Therefore, impacts resulting from water-related erosion would be less than significant.

c. Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

The work area of the project site is essentially flat, with slopes between 0% and 20%, and has no potential for landslide. The geotechnical study determined the site has the potential for lateral spreading during a major earthquake of 6 inches in the center of the site to 18 inches adjacent to Pilarcitos Creek. The site could endure seismic settlement of between 0.25 and 1.5 inches with some localized areas having up to 3 inches of settlement. The geotechnical investigation determined that, despite the liquefaction and lateral spreading potential, the underlying soils are generally capable of supporting the proposed project.[53] All new roads and structures would meet the requirements of the CBC and be engineered to meet

[52] City of Half Moon Bay. 2019. *City of Half Moon Bay Green Infrastructure Plan.* Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/2305/HalfMoonBayGIPlan09-2019Final1. Accessed April 16, 2024.

[53] BAGG Engineers. 2023. *Geotechnical Engineering Investigation. SMC-HMB Farmworker Housing Project. 880 Stone Pine Road. Half Moon Bay. California.*

requirements for seismic and geotechnical stability and would follow the directives in the geotechnical investigation. Therefore, this impact would be less than significant.

d. Would the project be located on expansive soil, as defined in Table 18 1 B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

According to the geotechnical investigation conducted for the project, the near-surface (upper 5 feet) of existing fill materials are moderately to highly expansive in nature. The project site is generally underlain by interlayered clayey and sandy soils; however, the depths of the sand layers, the thickness and consistency of each sandy layer, and the total amount of the sandy deposits with the explored depths are non-uniform and vary from one location to another. The geotechnical investigation determined that the sandy fill soil and upper native clay are generally suitable for use as structural fill, provided they are free of organic matter and are approved by a geotechnical engineer.[54]

The project would comply with the Uniform Building Code, have a geotechnical engineer on-site during foundation work, and include the recommendations from the geotechnical evaluation for the project and included in Mitigation Measure GEO-1 to avoid damage related to expansive soils. Therefore, this impact would be less than significant.

e. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

The project would be served by the City of Half Moon Bay sewer system and effluent would be treated at the Sewer Authority Mid-Coastside (SAM) Treatment Plant operated as a Joint Powers Authority. No septic tanks or alternative wastewater disposal systems are permitted or planned; therefore, no impact would occur.

f. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Geologic units from a geological map of the county were analyzed for their potential paleontological sensitivity. Paleontological sensitivity is defined as the potential for a geological unit to produce scientifically significant fossils. In *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources*,[55] the Society of Vertebrate Paleontology (SVP) defines four categories of paleontological sensitivity (potential) for rock units: high, low, undetermined, and no potential. No records searches or field surveys were conducted as part of the paleontological review. The project is located in the geologic units Qyf and Qmt, which are Pleistocene era and described as younger alluvial fan deposits and marine terrace deposits.[56] There have been no paleontological resources discovered in the project area, and the project would include only minor grading for roads, parking areas, and foundations; therefore, the project is unlikely to disturb a paleontological resource.

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[54] BAGG Engineers. 2023. *Geotechnical Engineering Investigation, SMC-HMB Farmworker Housing Project, 880 Stone Pine Road. Half Moon Bay. California.*

[55] Society of Vertebrate Paleontology (SVP). 2010. *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources*. SVP Impact Mitigation Guidelines Revision Committee. Available at: https://vertpaleo.org/wp-content/uploads/2021/01/SVP_Impact_Mitigation_Guidelines.pdf. Accessed April 16, 2024.

[56] U.S. Geological Survey (USGS). 1983. Geologic Map of San Mateo County, California. Available at: https://ngmdb.usgs.gov/Prodesc/proddesc_49.htm. Accessed April 1, 2024.

The 2020 LCLUP indicates that no paleontological resources of known significance have been identified in the City, and they are extremely limited in the entire county coastal zone.[57] The project has the potential to impact paleontological resources if the work affects sensitive, previously undisturbed surficial sediment or sedimentary rock. The potential for significant paleontological discovery and impact are anticipated to be low within the proposed work area because the project is on flat land and includes minor grading. In the unlikely event that a paleontological resource is discovered, the City would implement Mitigation Measure GEO-2. As a result, project activities would not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature, and impacts would be less than significant with mitigation.

Mitigation Measures

GEO-1 The following procedures shall be implemented during construction of the project:

In building pad, pavement, and flatwork areas:

a. Remove existing bushes, vegetation roots, and other debris from the proposed construction areas. Remove all organically-contaminated soils from the site and do not re-use as site fill except for use in landscaping areas only. Where trees are removed, the removal should include all major root systems down to 1 inch in size or less.

b. Excavate to the proposed subgrade elevations. Scarify the exposed surfaces to a depth of 6 to 8 inches. Thoroughly moisture condition the scarified surfaces to a moisture content that is at least 2% over optimum and re-compact as specified above. Further, over-excavate as necessary in any areas still containing weak, yielding, or pumping soils, as determined in the field by this office.

c. Place fill on the over-excavated surfaces and in the holes/depressions created by the above actions in uniformly moisture conditioned and compacted lifts not exceeding 8 inches in loose thickness. Rocks or cobbles larger than 4 inches in maximum dimensions should not be allowed to remain within the basement area, unless they can be crushed in-place by the construction equipment.

d. Existing sandy fill soil and upper native clay must be approved by BAGG Engineer's field representative before being used as fill.

e. Imported fill should be predominantly granular in nature and should be free of organics, debris, or rocks over 4 inches in size, and should be approved by the Geotechnical Engineer before importing to the site.

f. The Contractor must organize his work in such a manner that BAGG Engineers can observe and test the grading operations, including excavation, placement of fill and backfill, and compaction of subgrades.

Foundations:

g. Foundations and tie-downs for modular houses must follow the recommendations of the Geotechnical Engineering Investigation and approved by the Geotechnical Engineer prior to installation (Appendix E1).

[57] City of Half Moon Bay. 2020. *Local Coastal Land Use Plan 2020 Comprehensive Update, Chapter 8: Cultural Resources.* Available at https://www.half-moon-bay.ca.us/DocumentCenter/View/3784/Full-Combined-2020-HMB-LCLUP. Accessed April 1, 2024.

Retaining walls:

h. Retaining walls, if any, should be designed to resist lateral earth pressures from the adjoining soil and surcharge loads from adjacent structures as recommended in the Geotechnical Engineering Investigation and approved by the Geotechnical Engineer prior to construction.

i. All walls over 2 feet in height should be provided with a drainage blanket, impervious cap and drainage pipe behind the wall to reduce hydrostatic pressures. The drainage measures should meet the requirements identified in the Geotechnical Engineering Investigation.

GEO-2 In the unlikely event that a paleontological resource is discovered, the City shall comply with PRC Division 5, Chapter 1.7, Section 5097.5, and Division 20, Chapter 3, Section 30244, which prohibit the removal, without permission, of any paleontological site or feature from lands under the jurisdiction of the State or any County, City, district, authority, or public corporation, or any agency thereof. To be consistent with these PRC sections, in the event that paleontological resources are exposed during construction, work in the immediate vicinity of the find must stop until a qualified paleontologist can evaluate the significance of the find. Construction activities may continue in other areas. If the discovery proves significant under the provisions of CEQA, the paleontologist shall prescribe and the City shall implement additional measures, such as testing or data recovery, to avoid impacts to the resources.

3.8 Greenhouse Gas Emissions

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
(b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

Environmental Evaluation

a. Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

The project would have a significant impact on GHGs if it would "make a cumulatively considerable contribution to the significant cumulative climate impact resulting from GHG emissions globally."

GHGs are compounds in the earth's atmosphere that play a critical role in determining the earth's surface temperature. Specifically, these gases allow high-frequency solar radiation to enter the earth's atmosphere, but retain the low-frequency energy, which is radiated back from the earth to space, resulting in a warming of the atmosphere. This phenomenon is known as the greenhouse effect. Increased concentrations of GHGs in the earth's atmosphere are thought to be linked to global climate change, causing rising surface temperatures, melting icebergs and snowpack, rising sea levels, and the increasing

frequency and magnitude of severe weather. Global climate change is caused primarily by an increase in levels of GHG emissions in the atmosphere. The major GHGs are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs).[58] Forest fires, decomposition, industrial processes, landfills, and consumption of fossil fuels for power generation, transportation, heating, and cooking are the primary sources of GHG emissions.

The project is located in the Town Center, as identified in the 2020 LCLUP, which includes a walkable core area with a mix of uses. Policies for the Town Center are designed to ensure that new neighborhoods and mixed-use areas will generate less traffic, GHGs, energy and water demand, and other impacts than neighborhoods outside this area. For a project to have no significant impacts to GHG, it must include the following elements from the BAAQMD CEQA Air Quality Guidelines:

Table 3.8-1. Consistency with GHG Requirements

GHG Requirements[1]	Consistency
It must not include natural gas use or infrastructure	Consistent. The project, including all residential units, would be all-electric and would not extend natural gas infrastructure.
It must not include wasteful, inefficient, or unnecessary energy usage	Consistent. The project includes 47 manufactured homes, including 46 affordable homes for farmworkers and one manager's unit, that meet CALGreen building standards. It is located in the Town Center and would reduce VMTs by enabling residents to walk to schools, retail and business outlets. It does not have elements with wasteful or inefficient energy usage.
Vehicle-miles traveled (VMT) must be 15 percent below existing development or the lead agency's VMT targets	Consistent. The project is located in the Town Center and is intended to allow farmworkers to reside closer to their places of work instead of traveling in from other areas. In addition, the project is located close to schools, shopping, and business areas as well as transit in a walkable neighborhood and would reduce the need for residents to drive.
The project must include off-street electric vehicle charging spaces and comply with 2022 CALGreen Tier 2 requirements.[2]	Consistent. The project would provide 94 parking spaces, of which 47 (one per DU) would be electric vehicle (EV) capable. In addition, the project would provide three visitor parking stalls that are EV capable, for a total of 50 off-street EV charging spaces. The project would meet all required measures of the *2022 CALGreen Tier 2 Residential Measures*.

Source:

[1] Bay Area Air Quality Management District (BAAQMD). 2022. *California Environmental Quality Act Air Quality Guidelines, Chapter 5: Project-level Climate Impacts*. Available at: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa-guidelines-2022/ceqa-guidelines-chapter-6-project-climate-impacts_final-pdf.pdf?rev=ce3ba3fe9d39448f9c15bbabd8c36c7f&sc_lang=en. Accessed April 29, 2024.

[2] U.S. Housing and Community Development Department. 2023. *2022 CALGreen Tier 2 Residential Measures*. Available at: https://www.hcd.ca.gov/sites/default/files/docs/building-standards/CALGreen/hcd-shl-620b-new-0223.pdf. Accessed April 29, 2024.

As previously described in Impact Discussion 3.3.a, the BAAQMD has established screening thresholds for criteria pollutants for mobile home projects at 377 DU for construction emissions and 721 DU for operational emissions. Based on the size of the project, there would be minimal construction-related GHG emissions. Construction of the project would require the use of construction equipment and worker vehicles that would generate GHG emissions. The project is relatively small compared with the screening criteria and would result in approximately 5.62 acres of ground disturbance. To reduce emissions, the BAAQMD encourages all project applicants to use off-road vehicles and equipment that comply with

[58] Bay Area Air Quality Management District. 2022. *California Environmental Quality Act. Air Quality Guidelines.* Available at: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines. Accessed April 29, 2024.

Tier 3 or Tier 4 standards.[59,60] The project would comply with the following measures recommended by the BAAQMD 2022 CEQA Guidelines.[61]

- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to no more than 5 minutes (a 5-minute limit is required by the State airborne toxics control measure [Title 13, Sections 2449(d)(3) and 2485 of the California Code of Regulations]). Provide clear signage that posts this requirement for workers at the entrances to the site and develop an enforceable mechanism to monitor idling time to ensure compliance with this measure.
- Require all construction equipment is maintained and properly tuned in accordance with manufacturer's specifications. Equipment should be checked by a certified mechanic and determined to be running in proper condition prior to operation.

In addition, the project would implement the following BMP to further reduce construction-related GHG emissions, as required by CALGreen and Sections 9212 through 9217 of the City's Construction and Demolition Debris Ordinance.[62]

- At least 65% of all construction waste or demolition material shall be recycled.[63]

Compliance with the recommended BAAQMD measures combined with the size of the project would ensure that impacts related to GHGs are less than significant.

b. Would the project conflict with an applicable plan, policy or regulations adopted for the purpose of reducing the emissions of greenhouse gases?

The project is located in the City's Town Center and would comply with all requirements of the BAAQMD CEQA Air Quality Guidelines for GHGs, 2022 Title 24 including CALGreen, and the City's Construction and Demolition Debris Ordinance (Ordinance 14.50). Therefore, the project would not conflict with an applicable plan, policy, or regulation related to GHGs, and no impact would occur.

[59] The USEPA and CARB established emission standards for new engines found in off-road equipment. There are four tiers of emission standards, which become increasingly more stringent the higher the tier. Tier 3 and 4 emission standards are met through advanced engine design with no or minimal use of exhaust gas after combustion.

[60] Bay Area Air Quality Management District (BAAQMD). 2017. *2017 Clean Air Plan: Spare the Air, Cool the Climate.* Available at: https://www.baaqmd.gov/plans-and-climate/air-quality-plans/current-plans. Accessed February 7, 2024.

[61] Bay Area Air Quality Management District (BAAQMD). 2022. *California Environmental Quality Act Air Quality Guidelines, Chapter 6: Project-Level Climate Impacts.* Available at: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines. Accessed February 2, 2024.

[62] City of Half Moon Bay. 2024. *Half Moon Bay Municipal Code. Chapter 14.50. Requirement for Construction and Demolition Waste Recycling*. Available at: https://www.codepublishing.com/CA/HalfMoonBay/html/HalfMoonBay14/HalfMoonBay1450.html#14.50. Accessed July 25, 2024.

[63] California Department of Resources Recycling and Recovery (CalRecycle), 2024. *Construction & Demolition (C&D) Diversion Informational Guide.* Available at: https://calrecycle.ca.gov/LGCentral/Library/CandDModel/. Accessed April 29, 2024.

3.9 Hazards and Hazardous Materials

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
(b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
(c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
(d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
(e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
(f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
(g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

Environmental Evaluation

a. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

A significant impact may occur if a project would involve the use or disposal of hazardous materials as part of its routine operations or would have the potential to generate toxic or otherwise hazardous emissions that could adversely affect sensitive receptors.

Construction of the project would involve the transport, use, and disposal of potentially hazardous materials. These materials include paints, adhesives, surface coatings, cleaning agents, fuels, and oils that are typically associated with development of any construction project. As described in Chapter 2, *Project Description*, construction activities would be temporary, lasting approximately 13 months. These temporary construction activities involving the use, transport, storage, and disposal of hazardous materials would be conducted in compliance with all health and safety requirements, such as County and City General Plan policies, CCR Sections 337 through 340, Chapter 6.95 of California Health and Safety Code Article 1, and CCR Title 19, Public Safety, Division 2 (if required). Because the City and contractor would comply with applicable regulations and laws pertaining to the transport, storage, use, and disposal

of potentially hazardous materials, the exposure of the public, construction workers, and environment to hazardous materials would be less than significant.

The project includes the development of 47 manufactured homes including one manager's unit, and one management office. Operation of the proposed residences would involve the use and storage of small quantities of potentially hazardous materials such as cleaning solvents, paints, and pesticides for landscaping. Other household hazardous materials could include cleaning solvents, waxes, dyes, toners, paints, bleach, grease, and petroleum products that are typically associated with residential land uses. The project generally would not produce significant amounts of hazardous waste or use or transport hazardous waste beyond those materials typically used in single-family households. Overall, the use of household hazardous materials would be similar to the existing use of surrounding residences. Thus, the operation of the project would not create a significant hazard to the environment or public, and the impact would be less than significant.

b. Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

A significant impact may occur if a project could create an upset or accident condition involving hazardous materials. No hazardous contamination sites are located within 1 mile of the project site.[64, 65] Construction of the project would use small amounts of hazardous materials, such as diesel fuel. The BMPs implemented for the SMCWPPP (discussed further in Section 3.10, *Hydrology and Water Quality*) would contain minor spills during construction. During operation, the use of household hazardous materials would be minimal, in small quantities, and associated with routine maintenance, cleaning, and landscaping activities. Therefore, the project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment, and the impact would be less than significant.

c. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

A project-related significant adverse effect may occur if a project site is within 0.25 mile of an existing or proposed school site, and the project is projected to release hazardous emissions that would exceed regulatory thresholds and would pose a health hazard. The closest school is Half Moon Bay High School, located approximately 0.23-mile northwest of the project. As discussed under Impact Discussions 3.9.a and 3.9.b, the project would comply with applicable regulations and laws pertaining to the transport, storage, use, and disposal of potentially hazardous materials, and would not create a significant hazard to the public or the environment related to hazardous materials. Therefore, the project would not handle hazardous materials in a way that would emit hazardous emissions. Common handling of small amounts of materials such as vehicle fuel is unlikely to impact the high school located uphill of the project. Therefore, this impact would be less than significant.

[64] State Water Resources Control Board (State Water Board). 2024. GeoTracker. Available at: https://geotracker.waterboards.ca.gov/map/. Accessed April 5, 2024.

[65] California Department of Toxics Substances Control (DTSC). 2024. EnviroStor. Available at: https://www.envirostor.dtsc.ca.gov/public/map. Accessed April 5, 2024.

d. Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would it create a significant hazard to the public or the environment?

California Government Code Section 65962.5 requires various State agencies to compile lists of hazardous waste disposal facilities, unauthorized release from underground storage tanks, contaminated drinking water wells, and solid waste facilities from which there is known migration of hazardous waste, and to submit such information to the Secretary for Environmental Protection on at least an annual basis. In meeting the provisions in California Government Code Section 65962.5, commonly referred to as the "Cortese List," database resources such as EnviroStor and GeoTracker provide information regarding identified facilities. According to EnviroStor[66] and GeoTracker,[67] no hazardous contamination sites are located within 1 mile of the project site.

Since the project site is a former agricultural nursery, a Phase 2 investigation was performed in 2004 to determine if any residual organochlorine pesticides or metals were present on the project site from past agricultural operations.[68] Soil and groundwater from the property were tested for dieldrin, 4,4'-DDT, 4,4'-DDE, 4,4'-DDD, endosulfan sulfate, gamma chlordane (from pesticides use), and Total Volatile Organics (for fuel hydrocarbons). The results were compared to the *Screening for Environmental Site Concerns at Sites with Contaminated Soil and* Groundwater published by the RWQCB.[69] The Environmental Screening Levels developed by the RWQCB are conservative, risk-based levels that may indicate a concern for human health, but do not necessarily indicate a significant risk exists at the site. Levels of all of the above chemicals with the exception of Total Volatile Organics were detected, but none of levels in soil or water samples from the project site exceeded the RWQCB's Environmental Screening Levels. Therefore, the project would not create a significant hazard to the public or the environment, and no impact would occur.

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

The project site is not located within an airport land use plan or within 2 miles of a public airport. Therefore, the project would not result in a safety hazard for people using the project area, and no impact would occur.

[66] California Department of Toxics Substances Control (DTSC). 2024. EnviroStor. Available at: https://www.envirostor.dtsc.ca.gov/public/map. Accessed April 5, 2024.

[67] State Water Resources Control Board (State Water Board). 2024. GeoTracker. Available at: https://geotracker.waterboards.ca.gov/map/. Accessed April 5, 2024.

[68] Green Environment Inc. 2004. *Phase II Environmental Site Assessment Report, Nurseryman's Exchange Property, 325 San Mateo Road, Half Moon Bay California.*

[69] Regional Water Quality Control Board (RWQCB). 2003. *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater. Volume 2. Background Documentation for the Development of Tier 1 Environmental Screening Levels.* Available at: https://www.waterboards.ca.gov/rwqcb2/water_issues/programs/sitecleanup/esl/sfb%20rwqcb%20esls%20-%20vol.%202%20appendix%201%20(july%202003,%20updated%209.4.03).pdf. Accessed May 30, 2024.

f. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

A significant impact may occur if a project were to interfere with roadway operations used in conjunction with an emergency response plan or emergency evacuation plan or would generate sufficient traffic to create traffic congestion that would interfere with the execution of such a plan.

SR-1 and SR-92 provide the only evacuation routes into and out of the City, and the nearest emergency evacuation route to the project site is SR-92.[70] Construction of the proposed project would result in minimal amounts of traffic related to worker trips, delivery of materials, and disposal of excavated soils. The project would be constructed at the eastern end of Stone Pine Road, approximately 0.1 mile south of SR-92. Coastside Fire Protection District has determined that no secondary access is required for the project. An emergency access is available through the corporation yard to SR-92 through an easement. This emergency access can and will be made available to the community when required. Construction traffic would not impede public access or interfere with any adopted emergency response plan or emergency evacuation plan. Construction activities and staging would occur on the project parcel and would not affect the public right-of-way.

Therefore, the project would not impair the implementation of or physically interfere with an emergency response plan or emergency evacuation plan, and no impact would occur.

g. Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

A significant impact may occur if a project is located in proximity to wildland areas and would pose a potential fire hazard, which could affect persons or structures in the area in the event of a fire. The project is served by the Coastside Fire Protection District (CFPD). The Half Moon Bay Fire Station is approximately 1.2 miles southwest of the project area.

The project site is located adjacent to an established residential development and approximately 190 feet southwest of a Very High Fire Hazard Severity Zone (VHFHSZ).[71] According to the Association of Bay Area Governments (ABAG), the majority of the project area is also in the wildland urban interface (WUI) area.[72] The WUI is best described as an area where housing developments are interspersed in an area dominated by wildland vegetation subject to wildfire. As its name implies, this type of interface involves a mixing of rural and urban land uses in the same area.

However, the project site is located adjacent to a substantially developed area with existing infrastructure, including fire hydrants. Improvements for the project would include fire hydrants and fire access roads that comply with CFPD requirements. The project site is approximately 1.1 miles from a fire station and the project has been reviewed by CFPD staff and will be required to comply with CFPD requirements prior to building occupancy. Although the project could expose people or structures to the risk of wildland fire, it is an infill development project and will comply with all CFPD requirements to reduce risks; therefore, this impact would be less than significant.

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[70] City of Half Moon Bay. 2013. *Half Moon Bay Circulation Element.* Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/187/2013-Circulation-Element-PDF. Accessed April 5, 2024.

[71] California Department of Forestry and Fire Protection (CAL FIRE). 2024. Fire Hazard Severity Zone Viewer. Available at: https://osfm.fire.ca.gov/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones. Accessed April 5, 2024.

[72] Association of Bay Area Governments. 2020. Wildland-Urban Interface Fire Threat Interactive Map. Available at: https://mtc.maps.arcgis.com/home/item.html?id=d45bf08448354073a26675776f2d09cb. Accessed April 5, 2024.

3.10 Hydrology and Water Quality

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
(b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
(c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
(i) Result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
(ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	☐	☐	☒	☐
(iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
(iv) Impede or redirect flood flows?	☐	☐	☐	☒
(d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐
(e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

This section describes the potential impacts to the hydrology and water quality of the project site with development of the proposed project. Potential effects are evaluated relative to important hydrologic features (Pilarcitos Creek) and the existing soils and groundwater of the landscape. Impacts related to hydrology and water quality of a site are usually addressed through an evaluation of the project-related changes to the existing surface and groundwater features, and the modifications that would alter the surface runoff and surrounding hydrologic features. This section includes information from the following sources:

- *Preliminary Stormwater Management Plan, Stone Pine Cove, 880 Stone Pine Road, Half Moon Bay, California*, BKF Engineers (October 2023)[73] (Appendix F1)
- *Pilarcitos Creek Floodplain Study*, BKF Engineers (June 29, 2023) (Appendix F2)

[73] BKF Engineers. 2023. *Preliminary Stormwater Management Plan. Stone Pine Cove. 880 Stone Pine Road. Half Moon Bay. San Mateo County. California*. October 2023.

Environmental Evaluation

a. Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Activities associated with construction of the project could have a significant impact if they resulted in violation of waste discharge requirements under the San Francisco Bay RWQCB's Municipal Regional Stormwater NPDES Permit from contaminated runoff entering the stormwater system.

The SMCWPPP is a partnership of the City/County Association of Governments of San Mateo County, each incorporated city and town in the county, and the County, which share a common NPDES permit. The Municipal Regional Stormwater NPDES Permit was issued by the San Francisco Bay RWQCB[74] in compliance with the San Francisco Bay Basin Water Quality Control Plan[75] and the NPDES Program. Participating agencies (including the County and City) must comply with the provisions of the countywide permit by ensuring that new development and redevelopment mitigate, to the maximum extent practicable, water quality impacts from stormwater runoff during both construction and operational periods of projects.

Construction

Construction of the Stone Pine Cove Affordable Farmworker Housing development would be required to implement a SWPPP under the State Water Resources Control Board (State Water Board) Construction General Permit Order 2022-0057-DWQ,[76] Municipal Regional Stormwater NPDES Permit,[77] and SMCWPPP.[78] The SWPPP must include site-specific BMPs that are designed to prevent runoff from construction areas to reduce potential impacts to surface water quality during project construction. The SWPPP would also include design elements and BMPs for construction areas, such as fueling and equipment washing areas and trash and hazardous material storage areas. No construction would occur during major rain events, minimizing any chance of runoff from the site. Major rain events would be considered as a prediction of 0.25 inch or more in 24 hours. A permit was obtained and SWPPP implemented in conjunction with current site construction in conformance with NPDES Permit and conditions of approval for the ECDP.

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[74] San Francisco Regional Water Quality Control Board (RWQCB). 2022. *Municipal Regional Stormwater NPDES Permit.* California Regional Water Quality Control Board, San Francisco Bay Region. Order No. R2-2022-0018. NPDES Permit No. CAS612008. May 11. Available at: https://www.waterboards.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2022/R2-2022-0018.pdf. Accessed April 9, 2024.

[75] San Francisco Regional Water Quality Control Board (RWQCB). 2023. *San Francisco Bay Basin Water Quality Control Plan.* California Regional Water Quality Control Board, San Francisco Bay Region. Available at: https://www.waterboards.ca.gov/sanfranciscobay/basin_planning.html. Accessed April 9, 2024.

[76] California Water Boards. 2022. *Construction Stormwater Program Website*. Available at: https://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.html. Accessed April 9, 2024.

[77] San Francisco Regional Water Quality Control Board (RWQCB). 2022. *Municipal Regional Stormwater NPDES Permit.* California Regional Water Quality Control Board, San Francisco Bay Region. Order No. R2-2022-0018. NPDES Permit No. CAS612008. May 11. Available at: https://www.waterboards.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2022/R2-2022-0018.pdf. Accessed April 9, 2024.

[78] County of San Mateo. 2020. San Mateo Countywide Water Pollution Prevention Program: Construction. Available at: https://www.flowstobay.org/construction. Accessed April 9, 2024.

Construction of the Stone Pine Cove improvements would require excavation and grading for access roads, sidewalks, and parking areas, as well as utilities and pads for 47 manufactured homes including one manager's unit; one management office; a sports court; a play structure; a community garden; and recreation and picnic area. Excavation and grading could result in an increase in erosion and sedimentation from the project area into Pilarcitos Creek. Construction materials and construction waste, such as old asphalt and other debris, could enter Pilarcitos Creek. The freshwater marsh located in the northwest corner of the project site is upslope of construction areas and is fenced with a 100-foot buffer, therefore it would not be impacted. Construction activities associated with the project would require the presence of construction vehicles, heavy equipment and materials, and construction crews. In addition to stormwater runoff and potential resulting water quality and sedimentation impacts, there is the potential for hazardous materials, including petroleum products associated with diesel vehicle and equipment use and contaminants from paving materials, concrete mixing, pouring and washout, and sanitary facilities, to enter Pilarcitos Creek and contribute pollutants to Pilarcitos Creek that can affect water quality and may violate water quality standards if left uncontrolled. Construction activities for the project would last approximately 10 months including during the wet weather season from October 15 to June 15, however, grading would be completed by October 15th.

Under the Emergency CDP and with the follow-up CDP, the project must develop an erosion and sediment control plan, as required by the City, as follows:

> EROSION AND SEDIMENT CONTROL. An erosion and sediment control plan shall be submitted in conjunction with the Grading Permit that shows effective Best Management Practices (BMP) and erosion and sediment control measures for the site. Construction plans shall also include the "construction best management practices" plan sheet.

The project would also be required to comply with the Construction General Permit and SMCWPPP and to develop a SWPPP (see Appendix F1). The project would create approximately 139,260 square feet of new impervious surface. Stormwater BMPs under the SWPPP include, but are not limited to:

- Attach the SMCWPPP's construction BMP plan sheet to project plans and require the contractor to implement applicable BMPs on the plan sheet.
- Create temporary erosion controls to stabilize all denuded areas until permanent erosion controls are established.
- Perform clearing and earth-moving activities only during dry weather.
- Trap sediment on-site using BMPs, such as sediment basins or traps, earthen dikes or berms, silt fences, check dams, compost blankets or jute mats, covers for soil stockpiles, etc.
- Protect adjacent properties and undisturbed areas from construction impacts using vegetative buffer strips, sediment barriers, dikes, mulching, or other areas, as appropriate.
- Limit construction access routes and stabilize designated access points.
- Do not clean, fuel, or maintain vehicles on-site, except in a designated area where wash water is confined and treated.
- Store, handle, and dispose of construction materials/wastes properly to prevent contact with stormwater.
- Train and provide instruction to all employees/subcontractors regarding construction SWPPP BMPs.

- Control and prevent the discharge of all potential pollutants, including pavement cutting wastes, paints, concrete, petroleum products, chemicals, wash water or sediments, rinse water from architectural copper, and non-stormwater discharges to storm drains or watercourses.

Implementation of the SWPPP and compliance with the SMCWPPP, as required by law, would prevent construction of the project from violating any water quality standards or waste discharge requirements or otherwise substantially degrading surface water or groundwater quality, and would reduce potentially significant impacts to a less-than-significant level. Implementation of Mitigation Measure BIO-4 would further reduce these less-than-significant impacts.

Operation

The project would add approximately 139,260 square feet (3.2 acres) of impervious surface area to the 880 Stone Pine Road parcel. This additional impervious surface area would increase the stormwater runoff volume and rate compared with existing conditions, which could in turn accelerate soil erosion and loss of topsoil if stormwater were conveyed onto adjacent undeveloped land and/or into Pilarcitos Creek.

The project would be required to comply with the C.3 Regulated Projects Checklist, as required by the SMCWPPP. A C.3-regulated project is one that creates or replaces 10,000 or more square feet of impervious surface.

In addition, the project would be required to adhere to the City's Low Impact Development (LID) requirements. The City has developed the GIP, which requires construction projects to prioritize green infrastructure to capture stormwater.[79] Stormwater from the project site drains overland to Pilarcitos Creek.

As stated in the geotechnical report (see Appendix E1), groundwater was encountered in most of the borings on the project site at depths between 9 and 20 feet below ground surface. To mitigate any impacts to the groundwater table, the proposed project will use subdrains and lined bioretention planters. The subdrains will be passive in nature, remove potential built-up water pressure, and provide additional slope stability. Surface runoff intrusion will be limited by avoiding the use of infiltration basins and domestic/irrigation wells as part of this project. Stormwater runoff would be picked up by rolled curb and gutters along the private streets. Stormwater peak flows for the 25-year storm event will be maintained in the private street and gutter pan. A 12-inch high-density polyethylene (HDPE) culvert is proposed to facilitate drainage under the north access road spur. The culvert will capture the runoff from the northeast area of the project site and discharge it to a vegetated swale to the west of the road. The culvert is sized to provide adequate drainage for the 25-year storm event (see Appendix F1).

The project includes a comprehensive stormwater management system with three distinct drainage management areas (DMAs) based on stormwater flow patterns (see Appendix F1). Stormwater runoff on the project site would be collected by overland flow and directed away from buildings to three stormwater bioretention basins scattered throughout the project site. The required and provided bioretention square footage for each DMA is shown in Table 3.10-1. The bioretention basins would be designed to comply with the project's dual requirements of stormwater treatment and GIP requirements. [80]

[79] City of Half Moon Bay. 2019. *City of Half Moon Bay Green Infrastructure Plan.* Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/2305/HalfMoonBayGIPlan09-2019Final1. Accessed April 10, 2024.

[80] City of Half Moon Bay. 2019. *City of Half Moon Bay Green Infrastructure Plan.* Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/2305/HalfMoonBayGIPlan09-2019Final1. Accessed April 10, 2024.

Table 3.10-1. Drainage Management Areas

Drainage Management Areas	Contributing Impervious Area (square feet)	Pervious Area (square feet)	Bioretention Area Required (square feet)	Bioretention Area Provided (square feet)
DMA 1	136,675	238,390	4,590	4,600
DMA 2	19,140	2,975	556	660
DMA 3	10,045	7,520	305	350
Total	**165,860**	**248,885**	**5,451**	**5,610**

Source:

BKF Engineers. 2024. *Stormwater Management Plan. Stone Pine Cove. 880 Stone Pine Road. Half Moon Bay. San Mateo County. California*. February 2024.

Per the recommendations of the preliminary stormwater management plan, stormwater treatment for the proposed project will be comprised of 100% LID treatment methods in the form of bioretention areas. No mechanical treatment methods are proposed (see Appendix F1).[81]

DMA 1 contains runoff from the access road, tributary grass area north of the access road, private streets, sidewalk, driveways, and units located in the center of the project site. The runoff will be collected through concrete gutters, discharged to bioretention areas for treatment, and then discharged through the outlet structure to an existing rock outfall before ultimately flowing to Pilarcitos Creek. The bioretention area for DMA 1 is an expansion of the existing on-site bioretention area and will utilize the existing underdrains, outlet structure, and rock dissipater.

DMA 2 contains runoff from the private streets, sidewalk, driveways, and units located in the northern area of the project site. The runoff will be collected through concrete gutters, discharged to a bioretention area for treatment, and then discharged through the outlet structure to a rock outfall adjacent to the bioretention area. The treated water will flow across Stone Pine Road through a valley gutter and discharge to the bioretention area in DMA 1.

DMA 3 contains runoff from the private streets, sidewalk, driveways, and units located in the northeastern area of the project site. The runoff will be collected through concrete gutters, discharged to bioretention areas for treatment. The bioretention outlet structure discharges to a new catch basin that is connected to an existing 12-inch culvert. The existing culvert discharges to a swale that ultimately flows to Pilarcitos Creek, (Figure 3.10-1).

Compliance with the preliminary stormwater management plan and Municipal Regional Stormwater Permit and Planning Department requirements would reduce drainage and stormwater impacts to a less-than-significant level.

Erosion and sedimentation may temporarily increase post-construction because of soils that have been loosened and changes in drainage patterns. Construction of Stone Pine Cove could temporarily result in an increase in the levels of urban pollutants and litter entering Pilarcitos Creek. Pollutants in post-construction runoff from the project could include sediment and materials such as vehicle fuel, oils, and lubricants used in vehicles. However, the earth-moving aspects of the project are anticipated to be completed by October 15, which is the start of the rainy season. Therefore, the project site is anticipated to be stabilized by reseeding with native seeds prior to October 15. If the project earthmoving work is not

[81] BKF Engineers. 2024. *Stormwater Management Plan. Stone Pine Cove. 880 Stone Pine Road. Half Moon Bay. San Mateo County. California*. October.

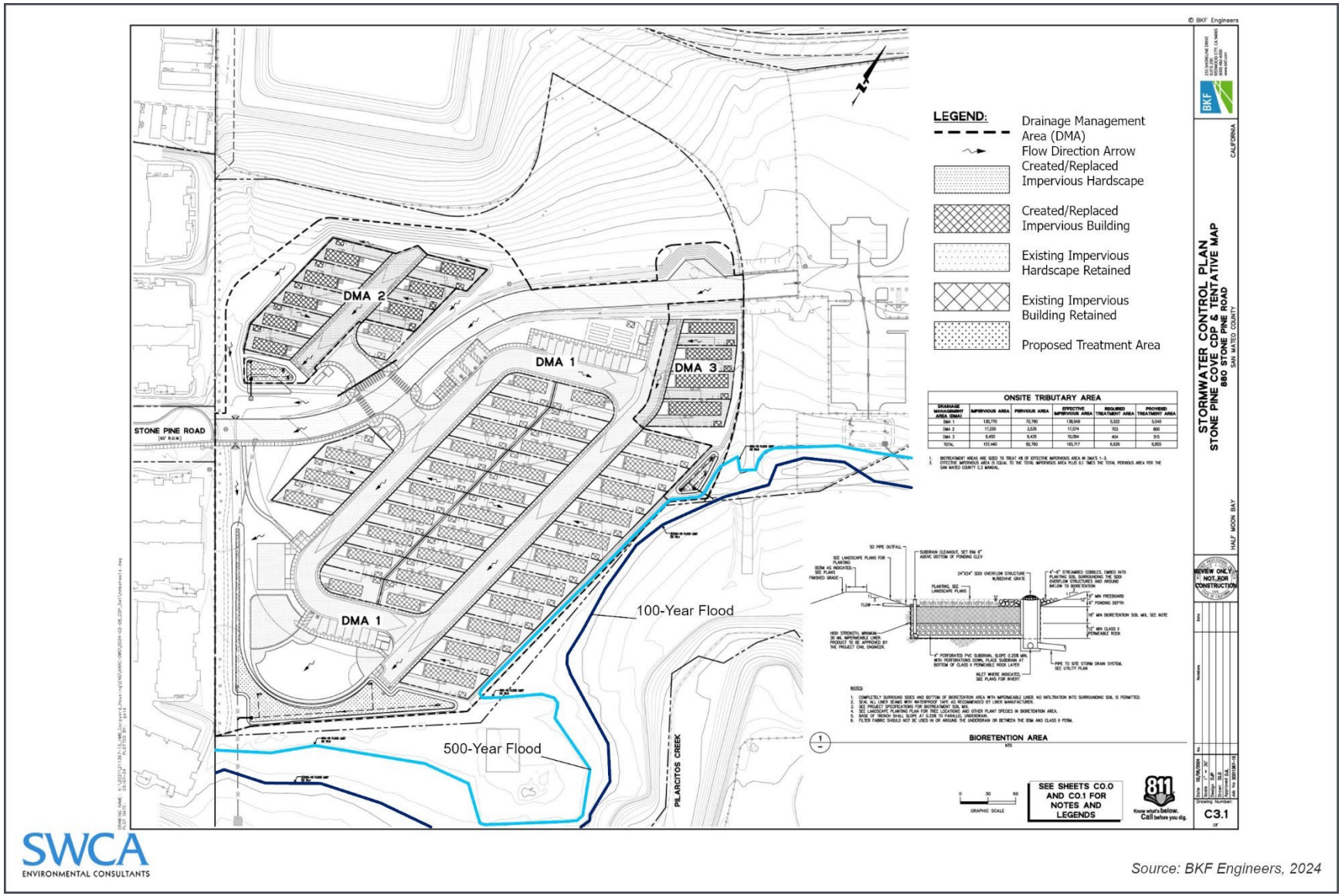

Figure 3.10-1. Drainage Management Areas with 100-year and 500-year flood levels.

completed and stabilized by October 15, the contractor would employ the required site-specific BMPs included in the SWPPP that are designed to prevent runoff from construction areas (see Appendix F3). Once complete, all areas of the project would be stabilized, revegetated, and landscaped to prevent uncontrolled runoff into Pilarcitos Creek. Therefore, post-construction runoff from the project would not result in a violation of any water quality standards or waste discharge requirements, and this impact would be less than significant.

The project would increase impervious surfaces on-site by approximately 139,260 square feet. Operation of the project would also involve activities that would generate new sources of pollutants on-site, such as pesticides, fertilizers, oils, grease, lubricants, and sediment in urban runoff. New impervious surfaces, including roads and parking lots, collect automobile-derived pollutants such as oils, greases, heavy metals, and rubber. During storm events, these pollutants would be transported into the proposed stormwater management system by surface runoff. An increase in point source and nonpoint source pollution could result from increases in development intensity that may directly impact water quality specific to site drainage patterns. Accordingly, disturbed soils, sedimentation, and contaminants that are mobilized by water flow may ultimately be conveyed south toward Pilarcitos Creek.

The project would also implement the site-specific recommendations included in the Preliminary Stormwater Management Plan (see Appendix F1).[82] The project would comply with the construction site controls, site design measures, source control regulations, and stormwater treatment measures outlined in the ESCP, SWPPP, Municipal Regional Stormwater Permit, and the recommendations within the geotechnical investigation (see Appendix E1) and stormwater management plan (see Appendix F1). With inclusion of the above-cited regulatory requirements, implementation of the project would not violate any water quality standards or waste discharge requirements, and impacts would be less than significant. Implementation of Mitigation Measure BIO-4 would further reduce less-than-significant construction impacts related to stormwater runoff.

b. Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

A potentially significant impact would occur if a project includes deep excavations resulting in the potential to interfere with groundwater movement, the withdrawal of groundwater, or paving of existing permeable surfaces important to groundwater recharge. The project would include minor excavation and grading (to a maximum depth of 3 feet) for roads, parking areas, utilities, and pads for manufactured buildings, which would not impact the groundwater table. No impact would occur from excavation.

Project construction would be served by the Coastside County Water District (CCWD) water supply system, as described in Section 3.11, *Utilities and Service Systems*. Project operation would result in some groundwater use due to the source of CCWD supplies. Fees have been paid to CCWD for unit water connections.

The project area is located within the State Water Board San Francisco Bay Hydrologic Region. The project area is underlain by an alluvial aquifer referred to as the Half Moon Bay Terrace groundwater basin. The portion of the groundwater basin in the vicinity of the Moss Beach Airport supplies limited water for domestic and municipal uses. There are no municipal wells in the project area. Most

[82] BKF Engineers. 2023. *Preliminary Stormwater Management Plan. Stone Pine Cove. 880 Stone Pine Road. Half Moon Bay. San Mateo County. California*. October 2023

groundwater recharge in the project area occurs locally from streams rather than from rainfall. Groundwater in the project area flows from east to west, discharging into the Pacific Ocean.[83,84]

As stated previously, the project would increase impervious surfaces on-site by approximately 139,260 square feet. Impervious surfaces prevent the infiltration of runoff into the underlying soil and can interfere with groundwater recharge. However, as noted in the geotechnical investigation, the project site groundwater is present at between 9 and 20 feet below ground surface through most of the area (see Appendix E1). [85] Ground and surface water flow to Pilarcitos Creek, which discharges to the Pacific Ocean approximately 1.8 miles northwest. Therefore, the project would not substantially interfere with groundwater recharge.

With implementation of the project, an approximately 1.9-acre portion of the site would remain pervious and continue to serve as groundwater recharge during storm events. The remaining impervious areas would be served by bioretention basins. Stormwater within the basins would be retained, and a major portion of the water would be discharged into a storm drain for eventual discharge to Pilarcitos Creek. Some stormwater within the bioretention basins would percolate to groundwater. Local recharge within the Half Moon Bay Terrace groundwater subbasin comes primarily from storm events.

As the project site is not identified as an important area for groundwater recharge, and because some of the runoff from the site would be retained in bioretention ponds that would facilitate recharge, a reduction in the amount of pervious area on-site would not substantially interfere with groundwater recharge. The impact on groundwater recharge would be less than significant.

c. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i. Result in substantial erosion or siltation on- or off-site?

Planned earthwork and grading activities on the project site would involve a total cut and fill of approximately 7,480 CY. The project site slopes gradually to the southwest to Pilarcitos Creek, and all project components would be required to implement erosion control measures as discussed under Impact Discussion 3.10.a.

Construction of the project would include implementation of SWPPP BMPs under the State Water Board General Construction Permit and SMCWPPP. In addition, the project would comply with Mitigation Measure BIO-4 to minimize impacts to Pilarcitos Creek. The existing impoundment in the northwest corner of the project area is upslope of the construction areas and would be protected during construction. As discussed under Impact Discussion 3.10.a, operational stormwater flows would continue to be directed to Pilarcitos Creek through new vegetated channels or swales. Operation of the project would result in an increase of impervious surface compared with existing conditions (approximately 139,260 square feet). This includes new streets, sidewalks, and pads for manufactured homes. The stormwater site design measures would include minimizing impervious surface areas through clustering of facilities, limiting

[83] California Department of Water Resources (DWR). 2024. Groundwater Basin Boundary Assessment Tool. Available at: https://gis.water.ca.gov/app/bbat/. Accessed April 10, 2024.

[84] California Department of Water Resources (DWR). 2014. *Bulletin 118 – Half Moon Bay Terrace Groundwater Basin*. Available at: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/2003-Basin-Descriptions/2_022_HalfMoonBayTerrace.pdf. Accessed April 10, 2024.

[85] BAGG Engineers. 2023. *Geotechnical Engineering Investigation. SMC-HMB Farmworker Housing Project. 880 Stone Pine Road. Half Moon Bay. San Mateo County. California*.

disturbance of natural waterbodies and drainage systems, conserving natural areas, and directing runoff from roofs, sidewalks, patios, driveways, and parking areas onto vegetation areas. Water from each DMA would be discharged to bioretention areas with 100% LID treatment methods for treatment, then would be discharged to Pilarcitos Creek through existing and new outlet structures with rock dissipators. Therefore, the project would not substantially alter the existing drainage pattern in a manner that would cause erosion. The project site would not alter the course of a stream or river. Therefore, the project would not substantially alter the existing drainage pattern of the site resulting in substantial erosion or siltation, and the impact would be less than significant.

ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

A significant impact may occur if a project results in increased runoff volumes during construction or operation of the project that would result in flooding conditions affecting the project site or nearby properties. Per the SMCWPPP C.3 Stormwater Handbook, "Projects that create and/or replace 10,000 square feet or more of impervious surface must comply with Provision C.3". Therefore, the proposed project is a Regulated Project and will comply with Provision C.3 of the Municipal Regional Stormwater Permit. Stormwater quality requirements under the Municipal Regional Stormwater Permit include source control and site design measures to retain and slowly release runoff so that post-development conditions do not exceed those of the predevelopment conditions for projects that create and/or replace 1 acre or more of impervious surface and creates an increase in total impervious surface from the pre-project condition.

As described in Impact Discussions 3.10.a and 3.10.b, the project would result in a relatively small increase in impervious surface area (approximately 139,260 square feet) and would construct new stormwater channels and bioretention basins adequate to contain runoff from a 25-year storm event. Overflow would be directed to Pilarcitos Creek through existing and new outfalls with rock dissipators (see Appendix F1). The project hydromodification measures would change the timing, peak discharge, and volume of runoff from the proposed site to not exceed the pre-development condition. Therefore, the project would not increase the rate or amount of surface runoff in a manner that would result in flooding, and the impact would be less than significant.

iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Stormwater from the project site flows overland to Pilarcitos Creek, which is in an area of minimal flood hazard. Federal Emergency Management Agency (FEMA) maps do not show a flood hazard zone outside the banks of Pilarcitos Creek downstream of the project.[86] A *Pilarcitos Creek Floodplain Study* delineated the 100-year and 500-year floodplains in the vicinity of the project and this information was integrated into the project design (see Figure 3.10-1; Appendix F2). In addition, there is no known history of flooding from Pilarcitos Creek on the project site.[87] As described in Impact Discussions 3.10.a and 3.10.b, the project would result in a relatively large increase in impervious surface area (approximately 139,260 square feet or 3.2 acres). This increase will be offset by the bioretention areas that will provide stormwater treatment and detention to limit the peak discharge to pre-development flow rates. Stormwater

[86] Federal Emergency Management Agency (FEMA). 2020. FEMA Flood Map Service Center. Available at: https://msc.fema.gov/portal/search?AddressQuery=909%20Grandview%20Boulevard%20Half%20Moon%20Bay%20CA#searchresultsanchor. Accessed April 26, 2024.

[87] Seeley, T. 2021. Director of Public Works, City of Half Moon Bay. Personal Communication, response to RFI #3 for the Corporation Yard Upgrade Project.

improvements would meet the requirements of the City's GIP and have capacity to contain runoff from the increase in impervious surface area. Therefore, the project would not increase the rate or amount of surface runoff in a manner that would exceed the capacity of the City's stormwater system, and the impact would be less than significant.

iv. Impede or redirect flood flows?

A significant impact may occur if a project were located in a flood hazard area and would impede or redirect flood flows. The project is not mapped in a flood hazard zone and is not located in an area with known localized flooding issues (see Appendix F2);[88] therefore, the project would not impede or redirect flood flows, and no impact would occur.

d. Would the project in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

The project is located in the dam inundation zone for Pilarcitos Dam.[89] In the event of a complete dam failure, flood waters would travel down Pilarcitos Creek, and the majority of the site could experience flooding up to 6 to 10 feet in depth.[90] The southeastern corner of the site could experience flooding up to approximately 15 feet in depth (Figure 3.10-2). It should be noted that during the January 2023 atmospheric river event the SFPUC (Owner) released water at the Pilarcitos Dam to prevent overtopping, and the project site did not experience any flooding. Pilarcitos Dam is owned by the City and County of San Francisco, certified by the Division of Safety of Dams, and in Satisfactory condition.[91] It is an earthen dam first built in 1866.[92] Although the downstream hazard is categorized as extremely high, the potential for a dam failure and breach is considered low based on the satisfactory rating. A large area of the city, including the wastewater treatment plant, is susceptible to flooding from a complete failure of Pilarcitos Dam. The Emergency CDP includes and the follow-up CDP will include as well the following statement:

> Evacuation Planning: The City's Emergency Preparation and Response Division is currently developing city-wide evacuation plans that cover various scenarios including tsunami, flooding, dam inundation, and wildfire events. The City will be working with the County to develop an emergency response and evacuation plan specific to the new neighborhood. Concurrently, the City will initiate emergency response planning for the Cypress Cove community and other potentially impacted areas. This will include

[88] Federal Emergency Management Agency (FEMA). 2020. FEMA Flood Map Service Center. Available at: https://msc.fema.gov/portal/search?AddressQuery=909%20Grandview%20Boulevard%20Half%20Moon%20Bay%20CA#searchresultsanchor. Accessed April 29, 2024.

[89] California Department of Water Resources (DWR). 2024. Dam Breach Inundation Map Web Publisher. California Department of Water Resources Division of Safety of Dams. Available at: https://fmds.water.ca.gov/webgis/?appid=dam_prototype_v2. Accessed April 29, 2024.

[90] The dam inundation modeling is based on a worst-case scenario including a complete dam failure when Pilarcitos Lake is at capacity.

[91] Satisfactory: No existing or potential dam safety deficiencies are recognized. Acceptable performance is expected under all loading conditions (static, hydrologic, seismic) in accordance with the minimum applicable federal or State regulatory criteria or tolerable risk guidelines.

[92] California Department of Water Resources (DWR). 2022. *Dams Within the Jurisdiction of the State of California. Dams Listed Alphabetically by Dam Name.* California Department of Water Resources Division of Safety of Dams. Available at: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/All-Programs/Division-of-Safety-of-Dams/Files/Publications/Dams-Within-Jurisdiction-of-the-State-of-California-Listed-Alphabetically-by-Name-September-2022.pdf. Accessed April 29, 2024.

planning for evacuation in the unlikely event of a catastrophic failure of the Pilarcitos Dam.

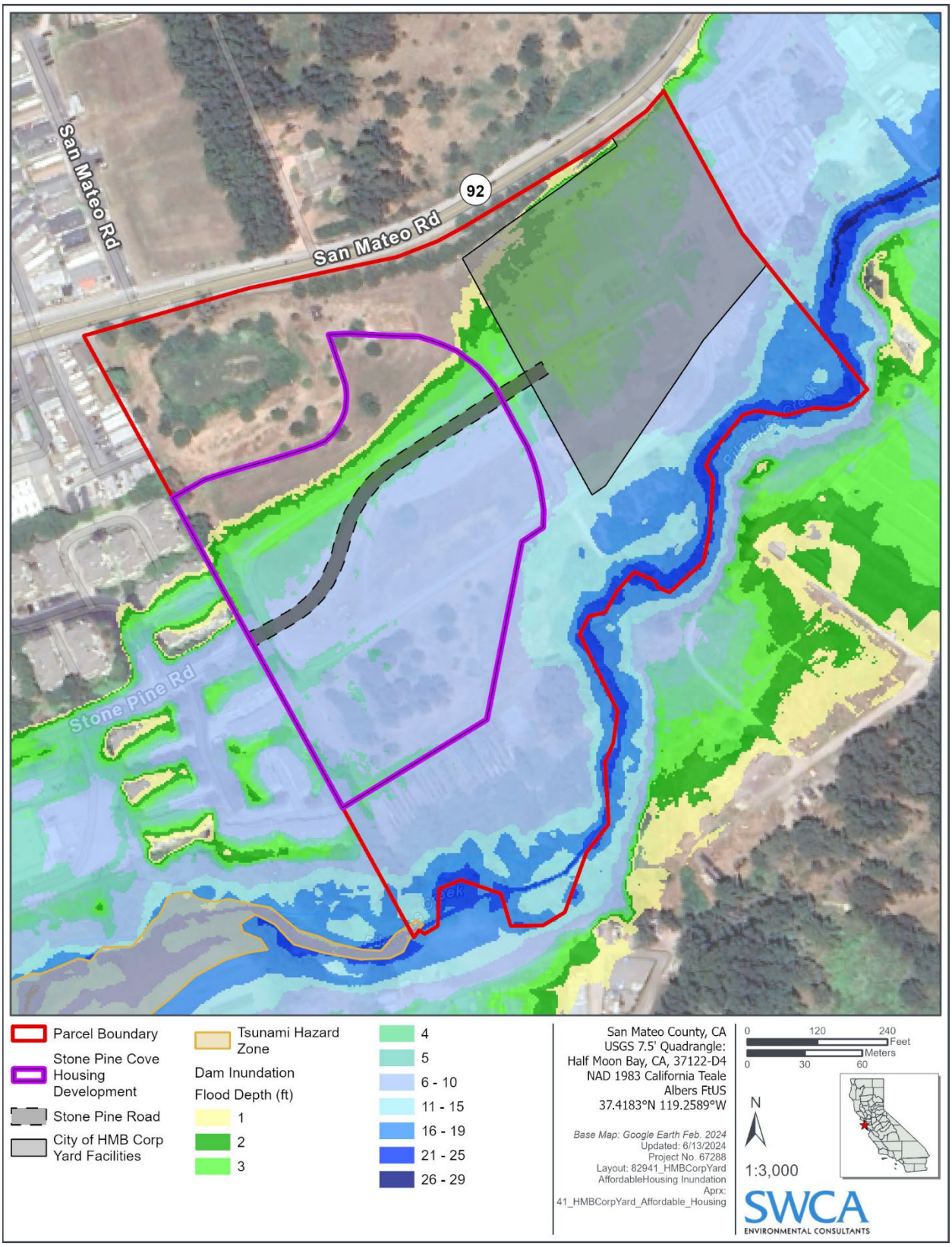

Figure 3.10-2. Dam Inundation and Tsunami Hazard Zones

If flooding from a dam failure were to occur, pollutants from the development could enter Pilarcitos Creek.[93] However, as the dam is maintained and the potential for a dam failure is considered low, this impact is less than significant.

The project is not located in a 100-year or 500-year flood hazard zone or a seiche zone (see Appendix F2). The project is approximately 1.2 miles from the Pacific Ocean. According to the CDOC San Mateo County Tsunami Hazard Areas viewer, tsunami floodwaters would travel up Pilarcitos Creek to within approximately 200 feet of the project site but would not enter the project site.[94] The project would construct a 47-unit manufactured home neighborhood. Therefore, the project would not risk the release of pollutants due to project inundation from a tsunami, and no impact related to seiche or tsunami would occur.

e. Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

The project is located in the Lower Pilarcitos Creek Subbasin of the Half Moon Bay Terrace groundwater basin. The Half Moon Bay Terrace groundwater basin does not have a sustainable groundwater management plan and is on the list of groundwater basins with low priority for developing such a plan.[95] The project would rely on municipal water sources for construction and operation and would not obstruct groundwater recharge. Therefore, the project would not conflict with or obstruct implementation of a sustainable groundwater management plan, and no impact would occur.

The project would abide by all requirements of the SMCWPPP, San Francisco Bay RWQCB Municipal Regional Stormwater NPDES Permit, and City's GIP.[96,97] The project would not conflict with the Water Quality Control Plan for the San Francisco Bay Basin because it would comply with all applicable requirements of both the Municipal Regional Stormwater NPDES Permit and the SMCWPPP permit, and no impact would occur.

Mitigation Measures

In order to further reduce less-than-significant impacts related to Impact Discussions 3.10.a and 3.10.c.i, the project shall comply with Mitigation Measure BIO-4 in Section 3.4, *Biological Resources*, to minimize impacts to wetlands and waters.

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[93] California Department of Water Resources (DWR). 2022. *Dams Within the Jurisdiction of the State of California. Dams Listed Alphabetically by Dam Name*. California Department of Water Resources Division of Safety of Dams. Available at: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/All-Programs/Division-of-Safety-of-Dams/Files/Publications/Dams-Within-Jurisdiction-of-the-State-of-California-Listed-Alphabetically-by-Name-September-2022.pdf. Accessed April 29, 2024.

[94] California Department of Conservation (CDOC). 2021. Tsunami Hazard Area Map: San Mateo County. Produced by California Geological Survey, California Governor's Office of Emergency Services, and AECOM. Available at: https://www.conservation.ca.gov/cgs/tsunami/maps/san-mateo. Accessed April 29, 2024.

[95] California Department of Water Resources (DWR). 2014. *Bulletin 118 – Half Moon Bay Terrace Groundwater Basin*. Available at: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/2003-Basin-Descriptions/2_022_HalfMoonBayTerrace.pdf. Accessed April 10, 2024.

[96] San Francisco Regional Water Quality Control Board (RWQCB). 2022. *Municipal Regional Stormwater NPDES Permit.* California Regional Water Quality Control Board, San Francisco Bay Region. Order No. R2-2022-0018. NPDES Permit No. CAS612008. May 11. Available at: https://www.waterboards.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2022/R2-2022-0018.pdf. Accessed April 9, 2024.

[97] City of Half Moon Bay. 2019. *City of Half Moon Bay Green Infrastructure Plan.* Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/2305/HalfMoonBayGIPlan09-2019Final1. Accessed April 29, 2024.

3.11 Land Use and Planning

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Physically divide an established community?	☐	☐	☐	☒
(b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

Environmental Evaluation

a. Would the project physically divide an established community?

The project site is bounded by residential units to the west and northwest, open space to the north, open space and greenhouse operations to the south and east, and the City's Corporation Yard to the northeast. The proposed housing development would be adjacent to and contiguous with the Cypress Cove Townhomes to the west and the Hilltop Mobile Home Park to the northwest. Therefore, the project would not divide an established community, and no impact would occur.

b. Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

A project would normally have a significant impact related to land use consistency if it would be inconsistent with the General Plan or its elements, a local coastal plan, or adopted environmental goals or policies, or if it would require a General Plan amendment or zone change.

The California Department of Housing and Community Development is responsible for forecasting and determining housing needs throughout the state on a regular cycle. The Regional Housing Needs Determination and Allocation process occurs every 8 years, and is a process designed to identify the total number of housing units that every local government in the state must plan to accommodate in their next Housing Element cycle. First the State determines how much housing at a variety of affordability levels is needed for each region in the state. The number of housing units are divided into four categories: extremely low/very-low income, low income, moderate income, and above-moderate income. Then regional governments develop a methodology to allocate those housing needs to local governments. The 6th cycle of the Regional Housing Needs Allocation (RHNA) was adopted by the State in 2020 and applies to the planning period 2023 through 2031.[98]

ABAG, the Council of Governments for the nine-county San Francisco Bay Area, is responsible for allocating the regional share of the RHNA among all cities, towns, and counties in the Bay Area region. During 2019 and 2020, ABAG developed a RHNA methodology with input from a committee of elected officials, city and county staff, and stakeholders (Housing Methodology Committee) and determined final

[98] California Department of Housing and Community Development (HCD). 2023. *Regional Housing Need Allocation (RHNA).* Available at: https://www.hcd.ca.gov/planning-and-community-development/regional-housing-needs-allocation. Accessed May 5, 2023.

RHNA allocations for each city and county.[99] The final allocations for the City are shown in Table 3.11-1.

Table 3.11-1. 2023-2031 Regional Housing Need Allocations for the City of Half Moon Bay

Income Requirement	Number of Residential Units
Very Low Income (< 50% of Area Meridian Income)	181
Low Income (50%–80% of Area Meridian Income)	104
Moderate Income (80%–120% of Area Meridian Income)	54
Above Moderate Income (>120% of Area Meridian Income)	141
Total	**480**

Source:

Association of Bay Area Governments (ABAG). 2021. *Final Regional Housing Needs Allocation (RHNA) Plan: San Francisco Bay Area, 2023-2031, Table 4: Final RHNA Allocations*.

The City is required to update its Housing Element every eight years to reflect the RHNA and State housing policy. The Housing Element must include an inventory of sufficient sites zoned for each income category of development. The existing *2015–2023 Housing Element* (2015), which was based on the 5th Cycle RHNA, addressed housing needs for the period 2015 through 2023. The City released the third *Public Review Draft 2023-2031 Housing Element* for review on August 28, 2024, that addresses housing needs for the period 2023 through 2031.[100] The Draft Housing Element is based on the 6th cycle RHNA, which applies to the planning period 2023 through 2031. The project site is designated as an affordable housing opportunity site under the *Draft 2023–2031 Housing Element*, but not under the existing *2015–2023 Housing Element*.[101] The 46 deed-restricted affordable units of the project would be exclusively available for purchase by low- and lower-income farmworker households (see Appendix B1).[102]

The project is designed to comply with all land use and zoning plans, policies, and regulations. It would construct an affordable housing project for farmworkers, which would be consistent with Cycle 5 and Draft Cycle 6 Housing Elements and the 2020 LCLUP.

The property is currently designated as Public Facilities and Institutions under the 2020 LCLUP, and is currently zoned as Urban Reserve (U-R). The Coastal Commission has confirmed that the LCLUP is the guiding document for development in the City of Half Moon Bay. Per the 2020 LCLUP, farmworker housing is considered agricultural use.[103] The project site is designated as a Housing Opportunity Site under the *3rd Draft 2023–2031 Housing Element* for potential affordable housing development and the project is consistent with furthering the stated goals of the 3rd Draft Cycle 6 Housing Element.

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[99] Association of Bay Area Governments (ABAG). 2021. *Draft Regional Housing Needs Allocation (RHNA) Plan: San Francisco Bay Area, 2023-2031.* Available at: https://abag.ca.gov/sites/default/files/documents/2021-05/ABAG_2023-2031_Draft_RHNA_Plan.pdf. Accessed June 4, 2024.

[100] City of Half Moon Bay. 2024. *Half Moon Bay Housing Element Update 2023-2031. Third Draft.* Available at: https://www.half-moon-bay.ca.us/775/Housing-Element-Update-2023-2031. Accessed August 29, 2024.

[101] City of Half Moon Bay. 2024. *Half Moon Bay Housing Element 2015-2023.* Available at: https://www.hcd.ca.gov/housing-elements/docs/half-moon-bay-5th-adopted090515.pdf. Accessed June 4, 2024.

[102] Association of Bay Area Governments (ABAG). 2021. *Final Regional Housing Needs Allocation (RHNA) Plan: San Francisco Bay Area, 2023-2031.* Available at: https://abag.ca.gov/sites/default/files/documents/2021-12/Final_RHNA_Allocation_Report_2023-2031-approved_0.pdf. Accessed July 4, 2024.

[103] City of Half Moon Bay. 2015. *City of Half Moon Bay Housing Element Update 2015-2023.* Available at: https://www.hcd.ca.gov/housing-elements/docs/half-moon-bay-5th-adopted090515.pdf. Accessed April 24, 2024.

The Urban Reserve (U-R) zoning is intended to "reserve land within the city to meet the future needs for urban development, consistent with the local coastal program land use plan and the general plan and its elements." The Public Facilities and Institutions designation includes educational, governmental, agricultural, habitat restoration, and institutional uses, such as public schools, public works and utilities yards and maintenance buildings, community gardens, public hospitals, and quasi-public uses such as churches, and healthcare uses such as hospitals, clinics, and assisted living facilities. The 2020 LCLUP recommends rezoning this property to Public/Quasi Public (P-S). Per CCC guidance, the 2020 LCLUP is the primary guiding land use document and takes precedence when there are inconsistencies between the 2020 LCLUP and the zoning code. Per the 2020 LCLUP, farmworker housing is considered an agricultural use. The proposed improvements to the City-owned property are consistent with the 2020 LCLUP land use designation and the Public/Quasi Public (P-S) zoning designation.

Project construction was implemented in March 2024 under an Emergency CDP. The project is an emergency response to a mass shooting on January 23, 2023, at two Coastside farms, which caused at least 19 lower-income farmworker households, comprising 40 individuals, to become homeless due to the "red-tagging" of substandard and unsafe housing, which included storage containers, recreational vehicles, and other non-habitable structures. These conditions precluded any ability for re-occupancy of this housing. Following this tragedy, the County established an Emergency Farmworker Housing Safety Task Force which has been inspecting housing on Coastside agricultural properties to ensure farmworker safety and safe living conditions. As of November 2023, the task force had inspected 90 farmworker housing units occupied by 268 farmworkers. The task force determined that units housing 68 farmworkers do not meet minimum safety standards and require corrective actions. The County anticipates that the task force will continue to identify substandard and unsafe housing units, creating an emergency need for additional affordable housing units for, potentially up to 130 farmworkers in addition to the 19 households displaced by the red-tagging of substandard and unsafe housing described above.

The project was reviewed for consistency with policies relating to the 2020 LCLUP, Draft 2023-2031 Housing Element, and City Zoning Ordinance (Title 18),[104] and the project was found to be consistent with City policies and development regulations.

The project is designed to comply with all land use and zoning plans, policies, and regulations. The project would include construction of an affordable housing project for farmworkers who are working on the coast, which is both a Coastal Act and Local Priority land use and would meet the intentions of the 3rd Draft 2023-2031 Housing Element, including Goal 3 and Policies 1A, 1B, and 1C and 2020 LCLUP Policies 2-3, 2-6, 2-8, 2-17, 4-1, and 4-4. The proposed project's 47 units are located on an identified Housing Opportunity site in the Town Center, which is compliant with 2020 LCLUP Policies 2-4 and 2-5. The project would assist the County in meeting a portion of its regional fair share of housing allocation for the 6th cycle of the RHNA. In particular:

- The project applicant has applied for and received an Emergency CDP, and will apply for a CDP, which complies with 2020 LCLUP Policy 2-11. The City issued the Emergency CDP on December 11, 2023.
- The project is designed to cluster buildings and provide minimal interference with visual character and a maximum amount of open space, meeting the requirements of Municipal Code Section 18.37.030 and 2020 LCLUP Policy 9-6. The project would undergo design review in compliance with Municipal Code Chapter 18.37 and Architectural, Landscape and Site Plan review under Municipal Code Chapter 14.37 and is designed to meet all visual resource

[104] City of Half Moon Bay. 2020. *Local Coastal Land Use Plan 2020 Comprehensive Update, Chapter 2: Development.* Available at https://www.half-moon-bay.ca.us/DocumentCenter/View/3784/Full-Combined-2020-HMB-LCLUP. Accessed November 15, 2021.

protection standards. Buildings are single story and sited as far from SR-92 as possible, which reduces visual impacts from the SR-92 scenic corridor. The project includes shielded, downward-facing lights that would be compliant with the Dark Night Skies 2020 LCLUP Policy 9-30 and would be subject to Draft Lighting Plan Review in compliance with 2020 LCLUP Policy 9-31 and the Emergency CDP Conditions of Approval.

- The project is subject to the City's growth management system, generally referred to as "Measure D." Measure D requires that one growth allocation per unit be secured prior to the issuance of a CDP. Allocations are limited each year to a number that would result in 1% population growth citywide with a 0.5% bonus allowed within a defined downtown area (the Downtown Half Moon Bay Redevelopment Survey Area). The project site is located within the defined downtown area and received 28 Measure D allocations for the downtown area that were not yet allocated as of May 23, 2023, the date when the State's Joe Serna Jr. Grant was awarded to the County for 28 manufactured housing units for farmworkers. No pending applications for allocations had been submitted at that time, and no applicants were denied allocations within the downtown area in 2023 as of the date of the application for an Emergency CDP. The remaining 19 required allocations will be issued prior to any approval of the follow-up CDP in 2024. Therefore, the project is in compliance with Chapter 17.06 of the City's Municipal Code and 2020 LCLUP Policies 2-16 and 2-17.
- The project received a grading permit under the Emergency CDP in compliance with 2020 LCLUP Policy 6-89 and grading began in May 2024. Grading for the project will be completed by October 15, 2024, and no grading would occur between October 15, 2024, and April 15, 2025, in compliance with 2020 LCLUP Policy 6-90. Prior to October 15, 2024, temporary erosion control measures would be put into place to minimize erosion and sedimentation during the remainder of project construction in compliance with 2020 LCLUP Policy 6-83.
- The project is designed to be energy efficient and shift away from fossil fuels. The project would provide one EV-capable parking space for each residence as well as three EV-capable parking spaces for guests. The development is all-electric, and no natural gas would be provided. Water, sewer, electric, and telecommunications would be extended to the project site and would be sized appropriately to serve the development. All structures would meet Title 24 including CALGreen building standards for energy efficiency. Landscaping would use drought-tolerant plants and be designed to conserve water. Therefore, the project would be compliant with 2020 LCLUP Policies 2-24, 2-77, and 5-55.
- A comprehensive biological resources evaluation of the entire 880 Stone Pine Road property was prepared for the Corporation Yard Upgrade Project. The BRR was circulated to resource agencies, including the USFWS, USACE, CCC, CDFW, and RWQCB, for a 45-day comment period specified by the LCP per Section 18.38.035.C of the City's Municipal Code. Comments received on the BRR were addressed and the study was incorporated into the IS/MND prepared for that development pursuant to CEQA. The IS/MND was adopted by the City and the Notice of Determination was posted with the County on March 30 and April 20, 2022. The BRR evaluated the wildlife conservation corridor designed for the Corporation Yard Upgrade Project. Therefore, the project is compliant with 2020 LCLUP Policy 6-8.
- The project would be clustered on-site in order to minimize tree removal; protect the existing wildlife corridor and adjacent ESHAs, including riparian and wetland vegetation; provide designated buffers for riparian and wetland ESHAs; and allow for open space uses, including trails. Open space areas would be planted with low-water-intensive and native species appropriate to the soils and climate. Therefore, the project would comply with Municipal Code Section 18.37.045 and 2020 LCLUP Policies 6-10, 6-15, 6-18, 6-41, 6-49, and 6-57.

- The mitigation measures from the Corporation Yard Upgrade Project IS/MND (PDP 21-053) are incorporated into this IS/MND and the Conditions of Approval for the proposed project and shall be complied with prior to and during construction. These include:
    - BIO-1: Environmental Awareness Training, minimizing disturbance, 10-mile-per-hour speed limit;
    - BIO-2: procedures to be followed if CRLF or SFGS are found on the project site;
    - BIO-3: measures to minimize impacts to nesting birds, including preconstruction nest surveys and nesting birds monitoring;
    - BIO-4: measures to minimize impacts from runoff into Pilarcitos Creek;
    - BIO-5: protection of heritage trees during construction;
    - BIO-6: measures to minimize impacts to roosting bats; and
    - BIO-7: measure to minimize impacts to San Francisco dusky-footed woodrat.

Therefore, the project is compliant with 2020 LCLUP Policies 6-63 and 6-64.

- All exterior lighting shall be fully shielded so that no light source is visible from outside the property, except as otherwise expressly approved. As required by the Emergency CDP Conditions of Approval, the permittee shall install lighting per plans and submitted photometric lighting plan for all exterior light fixtures, including lighting for parking lots, walkways, and open space areas. No floodlights would be permitted on-site. Therefore, the project would not increase illumination in adjacent ESHAs and would be compliant with 2020 LCLUP Policy 6-62.

- The project would be required to have a SWPPP during construction and would include an erosion and sediment control plan which shall be submitted in conjunction with the Grading Permit that shows effective BMP and erosion and sediment control measures for the project site. Construction plans shall also include the "construction best management practices" plan sheet. Therefore, the project would be in compliance with 2020 LCLUP Policies 6-78, 6-79, and 6-83. In addition, the SWPPP would include post-construction stormwater management in compliance with 2020 LCLUP Policy 6-84.

- The project includes an on-site drainage plan dated November 28, 2023. Prior to the issuance of a grading permit, the permittee shall demonstrate that the grading plan is in substantial conformance with the Drainage Plan. Plans shall include supporting calculations for stormwater detention on the site for the additional run-off from a 10-year frequency storm of 2-hour duration. In addition, the building plans shall specify that all copper building elements will be pre-patinated at the factory, or if patination will occur on the project site, the plans shall identify best management practices in conformance with the *San Mateo Countywide Water Pollution Prevention Program Requirements for Architectural Copper,* to the satisfaction of the City Engineer. The project would protect coastal water quality and include green infrastructure and natural stormwater management and treatment systems, as required by the County's stormwater management guidelines for C.3-regulated projects and GIP. The project is designed to comply with 2020 LCLUP Policies 3-44, 6-84, and 6-93 and Municipal Code Chapter 13.15.

- The project site is within the service area of the CCWD. The affordable farmworker housing units planned for the project site qualify as both a Local and Coastal Act priority use as described in the City's Municipal Code and 2020 LCLUP. The new manufactured homes will be affordable to low and lower-income households and qualify for affordable housing priority water connections. Because agriculture is a California Coastal Act priority land use, and because farmworker housing is considered to be an agricultural use, farmworker housing units are also eligible for California Coastal Act priority water connections. The CCWD estimates that 30 water connections will be needed for the Stone Pine Cove residential units and additional connections will be needed for landscaping. The applicant has secured connections directly from CCWD with

the City authorizing 15 units from California Coastal Act priority allocation and 15 connections from Local Priority Use allocation. An agreement has been executed with the CCWD to provide 30 water connections. The City has confirmed that adequate sewer capacity and connections exist for the proposed project. Therefore, the project complies with 2020 LCLUP Policies 3-6 and 3-14 and Chapters 18.05 and 18.35 of the City's Municipal Code.

- The project is located in a dam failure inundation zone for Pilarcitos Dam. A catastrophic failure of Pilarcitos Dam would inundate the project site along with a large portion of the rest of the city. The housing provided by the project is necessary to re-house existing farmworkers whose homes have been red-tagged and who face becoming homeless without the project. The dam is in satisfactory condition and well-maintained, and the likelihood of a catastrophic dam failure is very small.[105] As discussed in the Emergency CDP:

  > Evacuation Planning: The City's Emergency Preparation and Response Division is currently developing city-wide evacuation plans that cover various scenarios including tsunami, flooding, dam inundation, and wildfire events. The City will be working with the County to develop an emergency response and evacuation plan specific to the new neighborhood. Concurrently, the City will initiate emergency response planning for the Cypress Cove community and other potentially impacted areas. This will include planning for evacuation in the unlikely event of a catastrophic dam failure of the Pilarcitos Dam.

- The site is not mapped within a VHFHSZ per the California Department of Forestry and Fire Protection (CAL FIRE). Tree removals, including some eucalyptus trees, and new landscaping that will be irrigated and managed will put in place ongoing fuel load management and reduce wildland fire risk for this portion of the project site. The neighborhood design complies with the California Fire Code and the CFPD's standards for emergency vehicle access. Fire hydrants and water service will comply with the CCWD and CFPD's requirements. Therefore, the project is compliant with 2020 LCLUP Policies 7-64, 7-66, and 7-70.

- The project has completed a cultural resources investigation and would not impact historical, archaeological, or paleontological resources. Therefore, the project is compliant with 2020 LCLUP Policy 8-9.

- The project would provide affordable housing and it is likely that the growth rate over a 3-year period would not exceed 40 units per year. Therefore, the project would comply with LCP Policy 3.14a. In addition, the proposed project includes hydromodification features to ensure that post-project stormwater runoff does not exceed pre-project levels. The project would be consistent with these policies.

- The project site has dense clusters of trees in the southwestern corner of the site that will be removed. These trees are typically small, volunteer saplings of undesirable or invasive species. Of these, only 12 specimens meet the definition of a "heritage trees" per the City's Municipal Code (Section 7.40.020). Eight of the heritage trees are Monterey pine, ranging in size from 12 to 15 inches dbh, with an average size of 13.4 inches; three of the heritage trees are Monterey cypress, ranging in size from 12 to 15 inches dbh with an average size of 13.3 inches; and the remaining heritage tree is a shining willow. Per the City's Municipal Code, heritage trees shall be replaced "on a one-for-one basis with a minimum size twenty-four-inch box specimen tree" (Section

[105] California Department of Water Resources (DWR). 2022. *Dams Within the Jurisdiction of the State of California. Dams Listed Alphabetically by Dam Name*. California Department of Water Resources Division of Safety of Dams. Available at: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/All-Programs/Division-of-Safety-of-Dams/Files/Publications/Dams-Within-Jurisdiction-of-the-State-of-California-Listed-Alphabetically-by-Name-September-2022.pdf. Accessed April 29, 2024

7.40.060). The current Landscape Site Plan and Schematic Planting Plan (pages 18 through 25 of the design plans in Appendix A) propose approximately 69 new 24-inch box trees to be installed throughout the new development, a ratio of nearly 6:1. Proposed replacement species may include Monterey cypress (as infill for portions of the existing hedge row), Catalina ironwood, New Zealand Christmas tree, and Chinese elm, though final species and locations are still to be determined. The ultimate goal for all the proposed new plantings is for species and locations to be optimized for long-term success. All existing trees to be retained on the project site would be fenced during construction and provided with temporary irrigation. Therefore, the project is compliant with Chapter 4-70 of the City's Municipal Code.

As discussed above, the project is designed to comply with all land use and zoning plans, policies, and regulations. As discussed in Section 3.4, *Biological Resources*, the project would comply with policies related to ESHAs, special-status species, and heritage trees. Operationally, the project would assist the City in meeting a portion of State and local RHNA housing goals and would develop housing in the Town Center, which would decrease VMT and improve the jobs/housing balance for agriculture. Additionally, the project does not propose any other new, expanded, or modified land use in the project area and would not conflict with the existing and surrounding uses. Impacts related to traffic are discussed in Section 3.17, *Traffic and Circulation*. Therefore, the project would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect, and this impact would be less than significant.

3.12 Mineral Resources

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
(b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Environmental Evaluation

a. Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

A significant impact may occur if a project site is located in an area used or available for extraction of a regionally important mineral resource, if a project would convert an existing or future regionally important mineral extraction use to another use, or if a project would affect access to a site used or potentially available for regionally important mineral resource extraction.

The project is located in an area designated (zoned) by the State as Mineral Resource Zone (MRZ)-3 for aggregate mineral resources.[106] MRZ-3 is defined as an area containing mineral deposits, the significance

[106] California Department of Mines and Geology (CDMG). 1982. Mineral Resource Sectors. South San Francisco Bay Production-Consumption Region, Half Moon Bay Quadrangle, Special Report 143, Plate 2.3 and Plate 2.73. Available at: https://maps.conservation.ca.gov/cgs/informationwarehouse/index.html?map=mlc. Accessed April 16, 2024.

of which cannot be evaluated from available data. Neither the project site nor the surrounding area is identified as an area containing mineral deposits of statewide or regional significance. The closest identified aggregate resource section is at Pilarcitos Quarry, approximately 2.2 miles northeast, off SR-92. Therefore, no impacts to mineral resources of statewide or regional significance would occur.

b. Would the project result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

A significant impact would occur if a project were located in an area used or available for extraction of a locally important mineral resource and the project converted an existing or potential future locally important mineral extraction use to another use, or if a project affected access to a site in use or potentially available for locally important mineral resource extraction.

Neither the project site nor the surrounding area is identified as an area containing mineral deposits of local significance.[107] Therefore, no impacts to mineral resources of local significance would occur.

3.13 Noise

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
(b) Result in generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
(c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

[107] City of Half Moon Bay. 2014. *Plan Half Moon Bay. Existing Conditions, Trends, and Opportunities Assessment.* Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/174/HMB-Existing-Conditions-Report-PDF. Accessed April 16, 2024.

Environmental Evaluation

a. Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Construction

Noise impacts resulting from construction depend on the noise generated by various pieces of construction equipment, the timing and duration of noise-generating activities, and the distance between construction noise sources and noise-sensitive areas. Construction noise impacts primarily result when construction activities occur during noise-sensitive times of the day (e.g., early morning, evening, or nighttime hours), the construction occurs in areas immediately adjoining noise-sensitive land uses, or when construction lasts over extended periods of time.

The residential uses west of the project area represent the majority of the sensitive receptors in the vicinity of the project site. The nearest residences are on Patrick Lane and Erin Way and are approximately 40 feet from the project site.

The City has established restrictions limiting construction and similar noise-generating activities from 7:00 a.m. to 6:00 p.m., Monday through Friday; 8:00 a.m. to 6:00 p.m., Saturdays; and 10:00 a.m. to 6:00 p.m., Sundays and holidays. The City Engineer may approve exceptions to these hours, if necessary, to facilitate the orderly completion of work and minimize disruption to the community.[108] The project contractor would be required to comply with construction hour restrictions. Under the City's Municipal Code Section 9.23.010.E.3, "Movement of buildings, prefabricated structures or other large items which would cause extensive traffic disruption during non-curfew hours may be completed between 10:00 p.m. and 8:00 a.m."[109]

Construction activities would generate noise that would vary over the approximately 13-month construction period and would include equipment such as paver, dump truck, asphalt trucks, cement mixer, motor grader, scraper, bulldozer, backhoe, forklift, rubber-tired loader, motor grader, steel drum roller, water truck, and hand tools such as saws and hammers. Additionally, there would be secondary noise from construction worker vehicles and vendor deliveries. During construction, noise-generating activities would be limited to the allowable hours in the City's noise ordinance—8:00 a.m. to 6:00 p.m., Monday through Saturday—and no construction would be allowed on Sundays and holidays unless expressly authorized by the City. Construction-related mobilization and staging may commence no earlier than 7:00 a.m. and cease no later than 7:00 p.m. No nighttime construction would occur. Because construction noise would comply with local noise regulations, impacts related to construction noise would be less than significant. To the extent feasible, the project would implement the BMPs in Mitigation Measure NOI-1 to further reduce construction noise and further reduce this less-than-significant impact:

Implementation of Mitigation Measure NOI-1 would further reduce construction noise levels from the project site and minimize disruption and annoyance to neighboring residents. Implementation of these

[108] City of Half Moon Bay. 2019. *Half Moon Bay Municipal Code, Chapter 14.40: Hours of Construction.* Available at: https://www.codepublishing.com/CA/HalfMoonBay/#!/HalfMoonBay14/HalfMoonBay1440.html#14.40. Accessed April 21, 2021.

[109] City of Half Moon Bay. *Half Moon Bay Municipal Code, Chapter 9.23: Noise.* Available at: https://www.codepublishing.com/CA/HalfMoonBay/#!/HalfMoonBay14/HalfMoonBay1440.html#14.40. Accessed June 7, 2024.

measures, and recognizing that noise generated by construction activities would occur over a temporary period, would further reduce this less-than-significant impact from the temporary increase in ambient noise levels.

Operation

Operational noise from personal vehicles and sounds generated by residents living in a residential neighborhood would be similar in nature to the adjacent residential neighborhoods and would operate within the requirements of Chapter 9.23, Noise, of the City's Municipal Code. According to the Transportation Impact Analysis prepared for the project,[110] residential traffic would increase by approximately 7% compared to the proposed project. Therefore, the permanent noise level increase due to the project-generated traffic would be similar to the noise level of existing traffic at noise-sensitive receptors in the project vicinity. Therefore, the proposed project would not cause a substantial permanent noise level increase at the nearby noise-sensitive receptors. This impact is considered less than significant.

b. Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Construction activities (e.g., ground-disturbing activities, including movement of heavy construction equipment and hauling of debris and soil to and from the project site) may generate localized groundborne vibration and noise. Blasting or pile-driving activities would not occur during construction of the project. Generally, construction-related groundborne vibration is not expected to extend beyond 25 feet from the generating source. Construction activities include road construction, paving, leveling pads for manufactured homes, and installing manufactured homes. Construction equipment for the roadway could include a compactor machine (vibratory pad or drum roller). The closest sensitive receptors are residences approximately 40 feet from the western edge of the project area. Based on the distance of more than 25 feet to sensitive receptors, groundborne vibration from on-site construction is not anticipated for residences. Hauling of soils and debris could generate vibrations along local haul routes. The project is anticipated to require a total of approximately 550 round-trip trucks trips over the approximately 13-month construction period. The project would be required to adhere to the City Noise Ordinance as a standard condition of approval. Therefore, any annoyance to residents along local haul routes would be short term and temporary, and impacts related to groundborne noise or vibration would be less than significant.

Residential neighborhoods do not include significant sources of groundborne noise or vibration. No operational impacts would occur.

c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

The project is located approximately 4.3 miles from the nearest airport, Half Moon Bay Airport, a facility owned and operated by the County of San Mateo. There is an adopted Airport Land Use Compatibility Plan. The site is in excess of 2 miles from the Airport, not subject to Airport Land Use Commission (ALUC) review and therefore, no impact would occur.

[110] DKS Associates. 2023. *Stone Pine Cove Transportation Impact Analysis.* Prepared for the City of Half Moon Bay. November 2023.

Mitigation Measures

NOI-1 **Construction Noise Best Management Practices**. The noise impacts of construction equipment may be minimized through modification of the equipment, through the placement of equipment on the project site, and by imposing constraints on equipment operations. Construction equipment should be well-maintained and used judiciously to be as quiet as possible. The project proponent shall include the following best management practices in all contracts related to project construction activities near sensitive land uses:

a. Equip all internal combustion engine-driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.

b. Unnecessary idling of internal combustion engines should be strictly prohibited.

c. Locate stationary noise-generating equipment, such as air compressors or portable power generators, as far as possible from sensitive receptors as feasible. If equipment must be located near receptors, adequate muffling (with enclosures where feasible and appropriate) shall be used to reduce noise levels at the adjacent sensitive receptors. Any enclosure openings or venting shall face away from sensitive receptors.

d. Use "quiet" air compressors and other stationary noise sources where technology exists.

e. Establish construction staging areas at locations that will create the greatest distance between the construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction.

f. Locate material stockpiles, as well as maintenance/equipment staging and parking areas, as far as feasible from residential receptors.

g. Control noise from construction workers' radios to a point where they are not audible at existing residences bordering the project site.

h. Notify all adjacent business, residences, and other noise-sensitive land uses of the construction schedule, in writing, and provide a written schedule of "noisy" construction activities to the adjacent land uses and nearby residences.

i. Designate a "disturbance coordinator" who would be responsible for responding to any complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint (e.g., bad muffler) and will require that reasonable measures be implemented to correct the problem. Conspicuously post a telephone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule.

3.14 Population and Housing

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
(b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Environmental Evaluation

a. Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

City and County General Plans develop growth plans and projections for the areas in their jurisdiction. A significant impact would occur if a project included a General Plan amendment, which could result in an increase in population over that projected in the adopted General Plan, or if a project would induce substantial unplanned growth on the project site or surrounding area.

Construction job opportunities created as a result of the project are not expected to result in substantial population growth in the area. The work requirements of most construction projects are highly specialized so that construction workers remain at a job site only for the time frame during which their specific skills are needed. Additionally, the construction workers would likely be supplied from the region's labor pool. Construction workers would not be likely to relocate their household as a consequence of working on the project, and as such, significant housing or population impacts would not result from construction of the project. Therefore, there would be no construction-related population growth, and no impact would occur.

The project would construct a manufactured home community with 47 residences, which would include 11 one-bedroom units, 24 two-bedroom units, and 12 three-bedroom dwelling units. According to the U.S. Census Bureau, the average persons per household in the city between 2018 and 2022 was 2.67 persons/ household.[111] Using this number, the project would be expected to house up to approximately 126 residents.

The project is intended to house 19 households displaced from the aftermath of the January 2023 mass shooting which included displacement of these residents due to red-tagging of substandard and unsafe housing on the two farms, as well as other farmworker households currently living in substandard living conditions. The 19 households include a total of approximately 40 individuals, which is lower than U.S. Census statistical average (2.67×19=51) by 25%.[112] Therefore, the initial project population may be less than 126 residents. A majority of the displaced residents are currently residing in the city or surrounding

[111] U.S. Census Bureau. 2022. Quick Facts. Population estimates Half Moon Bay, CA. available at: https://datausa.io/profile/geo/half-moon-bay-ca. Accessed April 30, 2024.

[112] DKS. 2023. *Half Moon Bay Stone Pine Cove Transportation Impact Analysis.* Prepared for the City of Half Moon Bay. November 2023.

unincorporated area. We expect other new residents to also be from within city limits, many of which may very well be relocating from overcrowded homes.

According to the Draft 2023-2031 Housing Element:

> The LCLUP was recently comprehensively updated and adopted by City Council in 2020 and certified by the California Coastal Commission in April 2021. Because the City is located wholly within the Coastal Zone, the LCLUP serves as the City's General Plan Land Use Element. Therefore, in updating the LCLUP, which has a 2040 planning horizon, the City assumed that the LCLUP would need to provide adequate sites for at least two RHNA cycles. The City also assumed that RHNA would probably increase, but only to an extent that would fit within the City's residential growth limits certified by the Coastal Commission.

The City's Corporation Yard property is identified in the Cycle 6 Draft Housing Element Update as a Housing Opportunity Site for affordable housing with a capacity of up to 50 units.[113] The project would construct 47 manufactured units (46 deed-restricted affordable units and one manager's unit) and some of which will be replacement units for identified displaced households. Therefore, the population increase associated with implementation of the project would be considered planned growth and the project would not induce substantial unplanned population growth in the area, either directly or indirectly, and impacts would be less than significant.

The project is subject to Measure D, the City's growth management allocation system. Allocations are limited each year to a number that would result in a 1% population growth citywide, with a 0.5% bonus allowed within a defined downtown area. The project lies within that designated Measure D downtown area and 28 allocations were awarded during the 2023 Measure D allocation period prior the Emergency CDP and the State of California Joe Serna Jr. Grant. An additional 19 allocations were awarded as part of the 2024 Measure D allocation period. The project received a total of 47 Measure D allocations. No other downtown Measure D applicants were denied permits as a result of the proposed project in either 2023 or 2024.

b. Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

The project would construct new affordable housing in a vacant parcel and would not displace people or existing housing. Therefore, no impact would occur.

3.15 Public Services

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
(a) Fire protection?	☐	☐	☒	☐

[113] City of Half Moon Bay. 2024. *City of Half Moon Bay Housing Element – Revised HCD Draft May 31, 2024.* Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/6661/C_HMB_Housing-Resources. Accessed May 31, 2024.

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(b) Police protection?	☐	☐	☒	☐
(c) Schools?	☐	☐	☒	☐
(d) Parks?	☐	☐	☒	☐
(e) Other public facilities?	☐	☐	☒	☐

Environmental Evaluation

a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection?

The CFPD provides fire protection services for the site presently and would continue to serve the project. The majority of new residents of the project would likely already be living within the CFPD service area. The CFPD serves the City of Half Moon Bay and the unincorporated Coastside from south of Half Moon Bay to Montara. The District contracts with CalFire. CalFire also contracts with San Mateo County to provide fire protection services for the area located outside the CFPD boundaries which includes the communities of Montara, Moss Beach, Princeton, El Granada, and Miramar; and the surrounding unincorporated areas.

In addition to traditional fire service, the CFPD provides Advance Life Support, Cliff Rescue, Water Rescue, Confined Space Rescue, and Vehicle and Residential Lock-Out services. The CFPD responds to approximately 2,600 calls for service each year.[114] These incidents include medical aid, fires and fire alarms, water rescue, cliff rescue, traffic accidents, odor investigations, hazardous materials, and public service assists.[115]

Three fire stations operate within the CFPD, including Fire Station 40, located within the downtown area of the city of Half Moon Bay; Fire Station 41, located within the unincorporated area of El Granada; and Fire Station 44, located in the unincorporated area of Moss Beach. Fire Station 40 is located approximately 1.1 miles southwest of the project site and serves as the CFPD headquarters. Station 40 (Half Moon Bay) would provide initial fire and emergency medical service response to the project site, and Stations 41 (El Granada) and 44 (Moss Beach) would support the initial response, if needed.

As noted above, depending on what type of emergency is called in, the proposed project would primarily be served by Station 40 (Half Moon Bay), located approximately 1.1 miles southwest of the project site on Main Street. Station 40 would provide initial fire and emergency medical service response, and

[114] Coastside Fire Protection District. 2023. *2020 Annual Report*. Available at: https://www.coastsidefire.org/files/2f82a78c4/032421+tab+3+b.+2020+Coastside+Annual+Report.pdf. Accessed April 29, 2024.

[115] Coastside Fire Protection District. 2023. *2020 Annual Report*. Available at: https://www.coastsidefire.org/files/2f82a78c4/032421+tab+3+b.+2020+Coastside+Annual+Report.pdf. Accessed April 29, 2024.

Stations 41 and 44 would support the initial response. The CFPD's response time goal is to respond within 6 minutes 59 seconds of receiving the call. The average response time in the first quarter of 2022 was 4 minutes and 46 seconds for Station 40.[116] The proximity of Fire Station 40 to the project site indicates that the response times would likely meet established CFPD response time goals.

The CFPD has 32 paid positions, along with 11 volunteer firefighter positions. Paid positions include one Assistant Fire Chief, one Fire Marshall, one Deputy Fire Marshall, four Battalion Chiefs, and two administrative support positions. All stations are staffed with one Fire Captain and two Fire Apparatus Engineers, one of which is a paramedic to provide advance life support service. Shift personnel work a scheduled 3-day/72-hour workweek.[117]

The Half Moon Bay Volunteer Fire Department (Volunteer Fire Department) is a Volunteer Division of the CFPD. The Volunteer Fire Department is comprised of approximately 15 members and is under the direction of the Fire Chief. The number of volunteers reflects the current needs of the Volunteer Fire Department and is determined by the Chief of the Volunteer Division. The objectives of the Volunteer Fire Department are to operate within the boundaries of the CFPD as a supplemental force to the regular paid department, and to operate as a trained unit for both fire suppression and non-suppression situations.[118]

Construction

Construction of the proposed project would increase the potential for accidental on-site fires from sources such as the operation of mechanical equipment and use of flammable construction materials. In most cases, compliance with building and fire codes, including implementation of basic housekeeping procedures (including removal of fuel loads) by the construction contractors and work crews, would minimize these hazards. The impacts in this instance is primarily related to brush fire as there will not be laydown of building materials on-site given the manufactured homes will be built off-site.

Construction activities also have the potential to affect fire protection, such as emergency vehicle response times, by adding construction traffic to the street network and potentially by requiring partial lane closures during street improvements and utility installation.

CFPD Station 40 is located on the southern end of Main Street in Half Moon Bay, approximately 1.1 miles from the southern boundary of the proposed project site. Construction impacts would require partial lane closures and periodic road closures that would be temporary in nature. The contractor would be required to maintain emergency access to the City's Corporation Yard at all times. The road is a dead end road and the Corporation Yard is the only facility beyond the housing site. Therefore, project construction would not significantly impact emergency vehicle response times. Based on the above information, construction of the proposed project would not be expected to substantially increase fire risks or temporarily increase firefighting and emergency service response times. Therefore, potential impacts to fire services during construction would be less than significant.

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[116] San Mateo County Public Safety. 2022. *2022 Monthly Statistics Coastside Fire Protection District.* Available at: https://www.coastsidefire.org/files/54785369f/052522+tab+8+April+2022+Stats.pdf. Accessed June 6, 2024.

[117] Coastside Fire Protection District. 2023. *2020 Annual Report*. Available at: https://www.coastsidefire.org/files/2f82a78c4/032421+tab+3+b.+2020+Coastside+Annual+Report.pdf. Accessed April 29, 2024.

[118] Coastside Fire Protection District. 2023. Coastside Volunteer Firefighters. Available at: https://www.coastsidefire.org/coastside-volunteer-firefighters. Accessed April 30, 2024.

Operation

The project would develop 47 residential units on a 6.82-acre project site. Project implementation could result in a population increase at Stone Pine Cove of approximately 126 residents, resulting in an increase in demand for fire protection services relative to the population of the project vicinity.[119] However, some of those units are replacements for red-tagged units within the City; therefore, the number of new residents to the City is actually lower overall. Although there is not a direct proportional relationship between increases in land use activity and increases in demand for fire and emergency services, it is logical, to some extent, to anticipate that the number of calls for fire and emergency services would increase with implementation of the proposed project. The project has been reviewed and approved by the CFPD including the required provision of individual unit fire sprinklers. The neighborhood design complies with the California Fire Code and the CFPD's standards for emergency vehicle access. Fire hydrants and water service will comply with the CCWD and CFPD's requirements.[120,121]

The project site is not located within a mapped VHFHSZ; however, per the ABAG Hazard Viewer, the project site is located approximately 190 feet southwest of VHFHSZs.[122] Additionally, while the project site is not mapped within a hazardous fire area, there are open space areas to the west of the project site that extend into the foothills of the Santa Cruz Mountains. These areas are within High Fire Hazard Severity Zones and VHFHSZs. The project site could be vulnerable to these wildland fires, should they occur. The Emergency CDP includes a requirement for evacuation planning that include development of City-wide evacuation plans in response to wildfire. The City will be working with the County to develop an emergency response and evacuation plan specific to the new neighborhood. Concurrently, the City will initiate emergency response planning for the Cypress Cove community and other potentially impacted areas. This will include planning for evacuation in the event of wildfire.

The project would conform to the 2022 California Building Standards Code (CCR Title 24), which includes the California Fire Code. Furthermore, the project would comply with CFPD Code DI-005, Residential Sprinkler Systems, which requires the installation and maintenance of an automatic fire sprinkler system in all newly constructed residential buildings.[123] The project would also comply with all applicable California Fire Code requirements associated with adequate fire access, fire flows, and number of hydrants. Landscaping would be irrigated and maintained to reduce susceptibility to wildfires. The likelihood that a structural fire would expand into a wildland fire before it can be brought under control is therefore significantly reduced. Similarly, wildfires will be less able to burn these buildings because of the preventative measures in place.

The CFPD would have adequate response times to the project site and surrounding vicinity; no additional fire personnel or equipment would be necessary to serve the project. The project would not physically alter existing fire protection facilities, nor require the construction of new facilities. In addition, the

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[119] U.S. Census Bureau. 2022. Quick Facts. Population estimates Half Moon Bay, CA. available at: https://datausa.io/profile/geo/half-moon-bay-ca. Accessed April 30, 2024.

[120] California Building Standards Commission/Office of the State Fire Marshal. 2022. *California Fire Code 2022.* Available at: https://up.codes/viewer/california/ca-fire-code-2022. Accessed June 7, 2024.

[121] Coastside Fire Protection District. 2024. *Fire Prevention Bureau Standards.* Available at: https://www.coastsidefire.org/fire-prevention-bureau-standards. Accessed June 7, 2024.

[122] Metropolitan Transportation Commission (MTC)/Association of Bay Area Governments (ABAG). 2024. Hazard Viewer GIS Map. Available at: https://mtc.maps.arcgis.com/apps/webappviewer/index.html?id=4a6f3f1259df42eab29b35dfcd086fc8. Accessed April 29, 2024.

[123] Coastside Fire Protection District (CFPD). 2019. *DI-005. Residential Sprinkler Requirements, Standard Detail and Specification Manual.* Available at: https://www.coastsidefire.org/files/e37bce3b2/DI-005+Residential+Sprinkler+Requirements+050719rev.pdf. Accessed June 7, 2024.

project site is located within an urban, built-up area of San Mateo County with adequate response times and infrastructure; thus, the project would not significantly increase the demand for fire protection services. Therefore, buildout of the project site is not expected to increase exposure and vulnerability to wildfire hazard and the impacts would be less than significant.

Based on the above information, implementation of the project would not be expected to overload firefighting and emergency services to the extent that there would be a need for new, expanded, consolidated, or relocated fire facilities. Therefore, potential impacts to fire services would be less than significant, and no mitigation measures are required.

b. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for police protection?

Law enforcement services are provided citywide by the San Mateo County Sheriff's Department through a contract with the City. The contract includes staffing necessary to serve all properties and residents located within City limits. Staff a Captain which serves as the City designated Chief of Police Services, sergeants, and a minimum of two patrol deputies at any given time within City limits. City contract staff are part of the Coastside Patrol Bureau of the Sheriff's Department. City services are provided through the substation located at 537 Kelly Avenue, Half Moon Bay. Unincorporated services and support to the City are provided via a second substation is located at 500 California Avenue, Moss Beach.

Patrol services in the vicinity of the proposed project would be provided by the Coastside Patrol Bureau, based at the Half Moon Bay substation on Kelly Avenue, approximately 0.9 mile southeast of the project site. The Coastside Patrol Bureau is typically staffed with 27 full-time deputy sheriffs, four sergeants, and one captain. Under the current contract, the Captain is principally committed to the City (75-percent allocation). The Coastside Patrol Bureau is staffed with sufficient resources to respond on a 24-hour basis to any emergency. Additionally, two full-time community policing deputies are assigned to address the needs of the community, including both law enforcement and quality-of-life issues.[124] The Half Moon Bay substation's staffing and equipment inventory are adequate to meet the current demand for police protection services in the project area and would be considered adequate to serve the future needs of the project.[125]

The construction of 47 new housing units would provide housing for approximately 126 people, some of which may already be residents of the City. There would be an increased demand for police services in the project area. There is not a direct proportional relationship between increases in land use activity and increases in demand for police protection, and it is logical, to some extent, to anticipate that the number of calls for police response to home burglaries, vehicle burglaries, damage to vehicles, traffic-related incidents, and crimes against persons would increase with the increase in onsite activity and population and increased traffic on adjacent streets and arterials. However, many of the new residents are currently living in the San Mateo County Sheriff's service area, and would be achieving improved living conditions

[124] San Mateo County Sheriff's Department. 2023. Coastside Patrol Bureau. Available at: https://www.smcsheriff.com/patrol-services/coastside-patrol-bureau. Accessed April 7, 2023.

[125] Cheechov, R. Chief of Police Services. San Mateo County Sheriff's Office. 2024. Personal communication with Juliet Bolding, Associate Planner, SWCA Environmental Association. August 2, 2024.

and access, which may reduce the number of calls for service over current conditions.[126] Because a number of other factors also contribute to crime rates, such as police presence, crime prevention measures, and ongoing legislation and funding, the potential for increased crime rates is not necessarily directly proportional to increases in land use activity.

Although the project would increase the number of persons and level of activity on the project site, given the type of use and its similarity to the surrounding area, there is no indication that implementation of the proposed project would result in increased crime in surrounding neighborhoods, or that the design of the project would increase calls for service beyond that considered normal and appropriate within the area. Many of the new residents were living in substandard conditions, and although they did generate service calls, improved living conditions and access may reduce the number of calls from this population.[127] The project would not require new or altered public safety facilities. Therefore, project impacts on police services would be less than significant, and no mitigation measures are required.

c. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for schools?

The project area is served by the Cabrillo Unified School District (CUSD). A significant impact may occur if the CUSD could not adequately serve a project, and a new or physically altered school or schools would be necessary. The CUSD has four elementary schools, one middle school, one high school, one alternative high school, and an adult education program. Between 2017 and 2022, overall enrollment in the district declined by approximately 400 students.[128] Enrollment in the school district is expected to decline by an additional 122 students between 2023 and 2025.[129]

The project would construct 46 new affordable farmworker housing units and one manager's unit. Students would likely attend Alvin S. Hatch Elementary School, Cunha Intermediate School and Half Moon Bay High School. The project is likely to generate a minimal number of new students to the CUSD, because the majority of the households are expected to be from Half Moon Bay and its vicinity, and their children would likely be currently enrolled in CUSD schools. In addition, all three schools have room for additional students because of the steady decline at all schools in the Cabrillo Unified School District student population. Therefore, the addition of a minimal number of new students at this site would not cause a need for construction of new facilities, and this impact would be less than significant.

[126] Cheechov, R. Chief of Police Services. San Mateo County Sheriff's Office. 2024. Personal communication with Juliet Bolding, Associate Planner, SWCA Environmental Association. August 2, 2024.

[127] Cheechov, R. Chief of Police Services. San Mateo County Sheriff's Office. 2024. Personal communication with Juliet Bolding, Associate Planner, SWCA Environmental Association. August 2, 2024.

[128] Cabrillo Unified School District (CUSD). 2023. *Cabrillo Unified School District 2022-23 Third Interim Financial Report*. Available at: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://cdnsm5-ss10.sharpschool.com/UserFiles/Servers/Server_18664976/File/Business%20Services/3.a.1%202022-23_Third_Interim_Presentation_May_30_2023.pdf. Accessed April 30, 2024.

[129] Enrollment Projection Consultants. 2020. Enrollment Forecast Findings and Projections. October 31. Available at: https://www.cabrillo.k12.ca.us/UserFiles/Servers/Server_18664976/File/Budget%20Advisory/2020-21%20Forecast%20Demographer%20Report%20for%20CUSD%20for%20Board%20Meeting.pdf. Accessed April 21, 2024.

d. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for parks?

Parks and recreation facilities that could be used by the residents of the project include parks and trails operated by the City (Half Moon Bay Coastal Trail, Frenchman's Creek Park, Kehoe Park, Carter Park, Fernandez Park, Mac Dutra Plaza, Oak Avenue Park, Ocean View Park, Skate Park, and Smith Field), the County Parks Department (Pillar Point Bluff, Quarry Park, Mirada Surf, Moss Beach Park, Fitzgerald Marine Reserve, and Devil's Slide Trail are located between Half Moon Bay and Montara; and Tunitas Creek Beach, Memorial Park, Pescadero Creek Park, and Sam McDonald Park are located south of the City),[130] the California Department of Parks and Recreation (Half Moon Bay State Beach, including Dunes, Roosevelt, and Venice beaches; Montara State Beach and Gray Whale Cove State Beach to the north; and Burleigh H. Murray Ranch, Cowell Ranch State Beach, Año Nuevo State Park, and Big Basin Redwoods State Park to the south),[131] and the Midpeninsula Regional Open Space District (Purisima Creek Redwoods, Skyline Ridge, and La Honda Creek Preserves on or near the coast).[132]

The City completed a Parks Master Plan in January 2019. The Master Plan provides planning for a 15-year period (2018–2033). The City currently provides approximately 5 acres of developed parks per 1,000 residents, which includes pocket and neighborhood parks and community and special parks. It does not include trails, county parks, natural open spaces, or beaches in the project area. The recommended standard identified in Chapter 5, Coastal Access and Recreation, of the 2020 LCLUP and the draft General Plan Healthy Community Element is 5 acres per 1,000 people.[133]

The project would construct 47 manufactured homes, including 46 affordable homes for farmworkers and one manager's unit, that would provide housing for approximately 126 people, some of which may already be residents of the City. The project would include a neighborhood park with a play structure, hardscape sports court, picnic area and lawn totaling approximately 24,000 square feet of public open space. In addition, the project includes a community garden. The project would also provide a bicycle/pedestrian pathway connecting to a future trail in the Pilarcitos Creek Conservation Easement.

The addition of 47 housing units for approximately 126 residents on the project site represents an increase of approximately 1.13% in population in relation to the City's 2022 population of 11,176 residents. Assuming some of the residents of the new development are already residents of the City, this percentage would be less. The proposed public park meets the 5 acres per thousand population standard. In addition, the project includes private open space including a community garden for benefit of the residents. The project would not result in a substantial increase in the use or demand for neighborhood or regional parks and would include a neighborhood park onsite, therefore it would not represent a

[130] County of San Mateo Parks Department. 2021. County Parks by Location. Available at: https://parks.smcgov.org/county-parks. Accessed May 30, 2024.

[131] California Department of Parks and Recreation. 2024. Find a California State Park. Available at: https://www.parks.ca.gov/Find-a-Park. Accessed June 7, 2024.

[132] Mid-Peninsula Open Space Trust. 2024. Find an Open Space Preserve. Available at: https://www.openspace.org/preserves. Accessed June 7. 2024.

[133] City of Half Moon Bay. 2019. *Parks Master Plan.* Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/2161/Final-Master-Plan_12419v6. Accessed June 7, 2024.

substantial increase in the use of parks or other recreational facilities beyond the uses and demands contemplated by the City Parks Master Plan.

e. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for other public facilities?

A significant impact may occur if the project would result in the need for other new or improved public facilities. Other public facilities include the Half Moon Bay Library, which is part of the San Mateo County Libraries system. The Half Moon Bay Library, rebuilt in 2018, is a 22,000-square-foot facility that serves a 270-square-mile area. The new library provides both physical and digital collections from the San Mateo County Libraries system; technology services, including three-dimensional (3D) printing; free Wi-Fi hotspots; multilingual collections; literacy services; online high school; and space for community programs and events.[134]

Residential development in this area was anticipated in the 2020 LCLUP and City's Housing Element. There are no unique aspects of the project that would increase service demands beyond those anticipated in the 2020 LCLUP, or that would render the current service levels to be inadequate. No new library facilities to accommodate the project's service demands would be necessary. Therefore, this impact would be less than significant.

3.16 Recreation

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
(b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐

Environmental Evaluation

a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

A project would result in a significant impact to parks and recreation services if it would result in a significant increase in population from adding residential units. The project would construct 46 affordable manufactured farmworker homes and one manager's unit that would increase the City's population by up

[134] City of Half Moon Bay. 2024. Half Moon Bay Library. Available at: https://www.half-moon-bay.ca.us/322/Library. Accessed June 7, 2024.

to approximately 126 people; some of the residents of the new development would be existing residents of the City whose homes were re-tagged, and the majority would be existing Coastside residents so the number of new residents would likely be less. The project would also include a 24,000 square foot neighborhood park including a play structure, sports court, picnic area, lawn, and community garden. The project would also include a trail connection to a future Pilarcitos Creek trail in the adjacent Conservation Easement. These on-site recreational facilities would create opportunities for residents and would lessen use and demand of offsite parks or recreational facilities. The project would increase population by up to approximately 1.13%, which would not cause substantial physical deterioration of surrounding parks. Therefore, this impact would be less than significant.

b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

The project would include 24,000 square feet of neighborhood recreational facilities including a play structure, sports court, picnic area, lawn, and community garden. The project would also include a trail connection to a future Pilarcitos Creek trail in the adjacent Conservation Easement. Runoff from recreational area would be included in the project's GIP. The project would be required to maintain its recreational spaces, therefore the recreational areas would not have an adverse physical effect on the environment and this impact would be less than significant.

3.17 Traffic and Circulation

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☐	☒
(b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☐	☒
(c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
(d) Result in inadequate emergency access?	☐	☐	☐	☒

Environmental Evaluation

The impact analysis in this section is based on the *Stone Pine Cove Transportation Impact Analysis*, which was prepared for the project in November 2023 (Appendix G).[135]

[135] DKS Associates. 2023. *Stone Pine Cove Transportation Impact Analysis.* Prepared for the City of Half Moon Bay. November 2023.

REGIONAL AND LOCAL ACCESS

Regional access is provided by SR-1 and SR-92; SR-92 is located approximately 0.5 mile west of the project. SR-1 and SR-92 are the only roads that provide connections to other parts of the county. Local access is provided by Main Street and Stone Pine Road. Traffic on SR-1, SR-92, and Main Street can back up during peak hours, including rush hours on weekdays and tourist traffic on weekends.

PUBLIC TRANSIT

The project site is served by San Mateo County Transit District (SamTrans) Bus Routes 18, 117, and 294, which have stops approximately 0.3 to 0.4 mile northwest at SR-1 and SR-92, 0.54 mile southwest at the junction of Main Street and Kelly Avenue, and 0.47 mile northwest on SR-92 between Main Street and SR-1. The bus routes offer connections to Linda Mar in the city of Pacifica (via Bus Route 117) and Hillsdale Caltrain Station in the city of San Mateo (via Bus Route 294). Bus Route 18 is timed to provide service to students at Cunha Intermediate School and Half Moon Bay High School.[136]

PEDESTRIAN/BICYCLE TRANSIT

The City's existing multi-use trails—including the California Coastal Trail, Naomi Patridge Trail, and Pilarcitos Creek Trail—provide linkages that support coastal access for bicyclists and pedestrians. The project site is approximately 0.58 mile east of the Naomi Patridge Trail, which is a multi-use trail that parallels SR-1. The Naomi Patridge Trail is currently approximately 3.4 miles long and extends from Wavecrest Road in the south to Ruisseau Francais Avenue in the north on the west side, and from Ruisseau Francais Avenue to Roosevelt Boulevard on the east side. The nearest connection to the Naomi Patridge Trail is the Pilarcitos Creek Trail, approximately 0.58 mile west of the project site. Long term plans include extension of a Pilarcitos Creek Trail as a Class I multi-use trail from the California Coastal Trail in the west to John L. Carter Memorial Park in the east.[137,138] As discussed in Section 2.2.3, *Existing Use and Facilities*, as a condition of the City's purchase agreement with POST, the City agreed to seek grant funding and plan for development of a public access trail adjacent to Pilarcitos Creek from the project property to connect to Carter Park (see Figure 2-3).[139] The trail extension is intended to be a link in a larger regional Pilarcitos Creek Trail planned to extend easterly of this site and westerly of Carter Park.

In addition to the Naomi Patridge Trail, the project is approximately 1.3 miles east of the 11.5-mile California Coastal Trail, a paved, Class 1 multi-use path that extends from Seymour Bridge 4.7 miles north to Pillar Point Harbor. An additional, partially paved segment of the trail extends approximately 2 miles south from Seymour Bridge to the Ritz Carlton Hotel. In the south, the multi-use path connects to the Cowell-Purisima Coastal Trail, an additional 3.6-mile segment of the California Coastal Trail.[140]

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[136] San Mateo County Transit District (SamTrans). 2024. Schedule and Maps. Available at: https://www.samtrans.com/routes/117?center=-122.42805%7E37.46688&zoom=16.65. Accessed June 10, 2024.

[137] City of Half Moon Bay. 2020. *Local Coastal Land Use Plan 2020 Comprehensive Update, Chapter 2.3: Coastal Access and Recreation.* Available at https://www.half-moon-bay.ca.us/DocumentCenter/View/2337/Chapter-23-Coastal-Access-and-Recreation. Accessed June 10, 2024.

[138] City of Half Moon Bay. 2019. *City of Half Moon Bay Bicycle and Pedestrian Master Plan.* Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/2243/Bicycle-and-Pedestrian-Master-Plan-Final?bidId=. Accessed June 10, 2024.

[139] City of Half Moon Bay. 2020. *880 Stone Pine Purchase and Sale Agreement between Peninsula Open Space Trust and City of Half Moon Bay*.

[140] Peninsula Open Space Trust (POST). 2020. Cowell-Purisima Coastal Trail. Available at: https://openspacetrust.org/hike/cowell-purisima-trail/. Accessed October 18, 2021.

a. Would the project conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Under the 2019 revisions to the State CEQA Guidelines, changes to Levels of Service are no longer identified as an impact under CEQA. The new 2019 State CEQA Guidelines require analysis of impacts related to VMT as a result of a project. VMT is the amount and distance of automobile traffic attributable to a project. The project would construct 47 manufactured homes, 46 of which would be affordable units available for farmworkers and 1 which would be a manager's unit. While not required, the traffic consultant provided trip generation details as well as Levels of Service (LOS) analysis. The project is expected to generate an average of 356 trips per day, including 26 trips during the weekday morning peak hour, 43 trips during the weekday afternoon peak hour, and 32 trips on the weekend midday peak hour. The Transportation Impact Analysis determined that, consistent with the existing conditions, the intersections at Main Street/Stone Pine Road and Main Street/SR-92 will continue to operate acceptably during the weekday and weekend peak hours. Based on community input and assessment by the consultant, the City and County agreed and is conditioned in the ECDP to extend Stone Pine Road the sidewalk located on the south side of Stone Pine Road into the project. Additionally, conditions require traffic calming and improvements to two crosswalks to improve safety. The project is within 0.5 mile of transit stops. Therefore, operation of the project would not conflict with any plan, ordinance, or policy related to transportation, and no impact would occur.

Project construction would result in vehicle worker trips, haul trips, and vendor trips. The tree removal, cut and fill, and importation of materials would generate a total of about 550 haul trips over the approximately 13-month construction period. The increase in traffic as a result of worker vehicles and haul trips would negligibly increase traffic at nearby traffic intersections and roadway segments and would not conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness. In addition, haul and vendor trips would primarily occur during off-peak hours (9:00 a.m.–3:00 p.m.). Therefore, no impact would occur.

b. Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

State CEQA Guidelines Section 15064.3 includes criteria for analyzing transportation impacts. Under Section 15064.3(b)(2), for transportation projects:

- Transportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact.

The proposed project is intended to allow agricultural workers of modest income to live relatively near to their workplaces rather than potentially commuting into Half Moon Bay from greater distances. The proposed project is located within the City's Town Center area and within walking distance of retail and service opportunities, which will also tend to reduce VMT. It is also worth noting that the State Office of Planning and Research (OPR) published technical guidance on evaluating transportation impacts using VMT. The OPR guidance suggests that affordable housing projects in infill locations generally improve the jobs-housing match, in turn shortening commutes and reducing VMT. OPR guidance states that "[E]vidence supports a presumption of less than significant impact for a 100 percent affordable residential development (or the residential component of a mixed-use development) in infill locations."

In addition, this agricultural worker housing project was analyzed as part of the City's currently ongoing Housing Element update. In aggregate, the planned additional housing units, including those in this project, result in a Year 2040 citywide VMT per capita that is lower than 85% of the baseline VMT per

capita in the Coastside region. Although a threshold of significance has not been formally adopted, the Housing Element analysis supports the proposition that the project will have less-than-significant VMT impacts. Therefore, the project would be consistent with State CEQA Guidelines Section 15064.3, and no impact would occur.

c. Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The project does not include any design features that would increase hazards. Stone Pine Road has a sidewalk on the south side of the street, and existing pedestrian traffic from the north crosses the road at two intersections at either end of Patrick Way. The project would implement traffic-calming infrastructure on Stone Pine Road to protect pedestrian traffic. Both crosswalks would receive an illuminated crosswalk sign, yield line, and crosswalk stripe pavement markings. The intersection at the west end of Patrick Way, across from the Stone Pine Shopping Center, would receive an illuminated crosswalk sign with flashing beacons (Figure 3.17-1). In addition, the project would include Share-the-Road pavement markings for bicycle safety and a speed feedback messaging board. The implementation of traffic calming measures to enhance pedestrian and bicycle safety would decrease pedestrian hazards; therefore, the project would not substantially increase hazards, and this impact would be less than significant.

d. Would the project result in inadequate emergency access?

The project would be accessed via Main Street and Stone Pine Road. In addition, emergency access is available from SR-92 through a locked gate at Spanishtown. The internal roadways for the project would be built to CFPD requirements and as required by Section 506.1.4 of the City's Fire Code Ordinance. The project has been reviewed and approved by the CFPD. Therefore, the project does not have any elements that would result in inadequate emergency service, and no impact would occur.

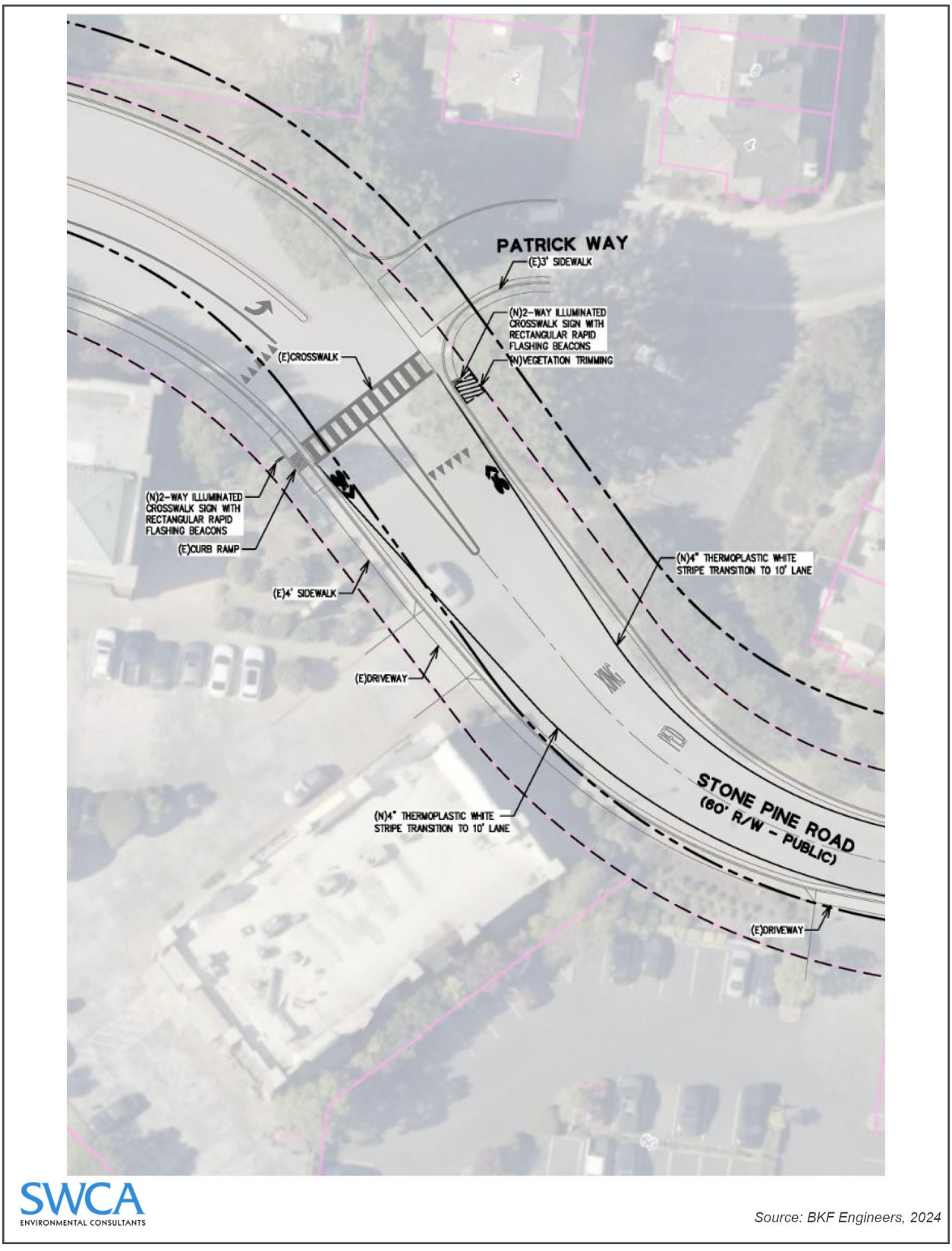

Figure 3.17-1. Traffic-calming improvements.

3.18 Tribal Cultural Resources

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
(i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☐	☐	☒
(ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☐	☒

Environmental Evaluation

a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?

ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

Tribal cultural resources are defined as sites, features, places, cultural landscapes, sacred places and objects with cultural value to a California Native American tribe that are either included or eligible for inclusion in the California Register of Historical Resources (CHRH) or included in a local register of historical resources, or a resource determined by the lead agency to be significant. Historical resources, unique archaeological resources, or non-unique archaeological resources may also be tribal cultural resources if they meet these criteria.

A request of the Native American Heritage Commission's Sacred Lands Files for the Corporation Yard Upgrade Project in August 2021 revealed one positive search result, with the Ohlone Indian Tribe identified as possibly being able to provide additional information. However, the Tribe did not have knowledge of any sacred lands on the project site. The NAHC also identified nine tribes potentially having interest in this project, and under Assembly Bill 52, these tribes were contacted by the City in 2021. Chairperson Zwierlein of the Amah Mutsun Tribal Band of Mission San Juan Bautista requested that cultural sensitivity training be provided to all employees prior to the initiation of work, but no tribal cultural resources were identified for the Corporation Yard Upgrade Project.

Under Assembly Bill (AB) 52, Native American correspondence and tribal consultation for the Stone Pine Cove Affordable Farmworker Housing Project was initiated by the City and will be completed prior to the public hearing. To date, there has been no response from tribal representatives regarding Assembly Bill (AB) 52 consultation, and there are no known tribal cultural resources within the project area. Additionally, tribal consultation was performed with the Corporation Yard IS/MND with no requests for consultation.

As discussed in Section 3.5 Cultural Resources, SWCA staff conducted an archaeological field study for the proposed project that consisted of a series of exploratory trenches. The study did not reveal evidence of any large or substantial archaeological deposits or intact archaeological materials. Therefore, the project will have no impact to tribal cultural resources.

3.19 Utilities and Service Systems

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
(b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
(c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
(d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
(e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

Environmental Evaluation

a. Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Water

The project includes an extension of a water line to serve the project site and will be sized to provide adequate pressure. The new manufactured homes will be affordable to lower-income households and qualify for affordable housing water connections. Agriculture is a California Coastal Act priority land use, and because farmworker housing is considered to be an agricultural use, farmworker housing units are also eligible for California Coastal Act priority water connections. The CCWD estimates that 30 water connections will be needed for the Stone Pine Cove residential units and additional connections will be needed for landscaping. The applicant has secured such connections directly from CCWD.

Water for project construction and operation is supplied by the CCWD, which obtains its water supply from four sources. Water contained in Pilarcitos Lake and Crystal Springs Reservoir is purchased from the San Francisco Public Utilities Commission (SFPUC), and local water supplies are drawn from Pilarcitos Well Field and the Denniston Project (well and surface water). The CCWD serves 18,890 people in a 14-square-mile area, which has an average demand of 1.32 million gallons per day (mgd).[141] The CCWD has an Individual Supply Guarantee of 2.175 mgd, or approximately 794 million gallons per year, from the SFPUC, and purchases an average of 511 million gallons per year. In addition to the water from the SFPUC, CCWD obtains approximately 256 million gallons per year, or 0.70 mgd, from local sources during a non-drought year.[142] In 2022 to 2023, per capita use in the district was approximately 42.5 and 70 gallons per capita per day for residential and gross per capita water uses, respectively.[143]

Construction

Construction activities would require a minimal amount of water for dust control and cement mixing. Water would be delivered to the project site by water truck.

Operation

The project would require a water supply for potable and fire water supply equal to 30 water connections (at 5/8 inch per connection). The City received a letter from the CCWD on May 22, 2024, approving those connections. Additional connections for irrigation water would be determined in the future. The CCWD has included capacity for the project in its Urban Water Master Plan and would not require additional water supply or treatment facilities to supply the project. Therefore, this impact would be less than significant.

[141] Bay Area Water Supply and Conservation Agency (BAWSCA). 2024. Coastside County Water District Service Area. Available at: http://bawsca.org/members/profiles/coastside. Accessed June 11, 2024.

[142] Coastside County Water District (CCWD). 2021. *2020 Urban Water Management Plan.* Available at: https://www.coastsidewater.org/reports_and_studies/2020-Urban-Water-Management-Plan.pdf. Accessed June 11, 2024.

[143] Bay Area Water Supply and Conservation Agency (BAWSCA). 2024. Per Capita Water Use. Available at: https://bawsca.org/water/use/percapita. Accessed June 11, 2024.

Wastewater

Wastewater collection is provided by the City of Half Moon Bay. Treatment is provided by the Sewer Authority Mind-Coastside (SAM) operating under a Joint Powers Authority, which receives average dry weather flow of approximately 1.5 mgd. The plant has capacity to treat up to 4 mgd in average dry weather flow and 15 mgd in peak wet weather flow (which includes infiltration of stormwater). The plant has not experienced flows that reached or exceeded maximum peak wet weather capacity since its expansion in the late 1990s.[144]

Construction

Construction of the project would produce minimal wastewater from construction crew use of portable toilets. Therefore, construction and operation of the project would produce a minimal permanent change in wastewater production, and the project would not result in the relocation or construction of new wastewater treatment facilities and this impact would be less than significant.

Operation

An existing sewer main is located on the property, and no new sewer mains are required. A private collection system will be installed within the project site to direct effluent to the existing sewer main. Residential sewage volumes are estimated at 90% of average daily water use. This equals 38.25 gallons per day per capita or a total of approximately 4,820 gallons per day for domestic use (approximately 0.3% of the average dry weather flow) for the project. There is adequate capacity in the collection system and treatment plant to serve the project. A maximum of 94 sewer capacity units would be required to supply sewer service to the project.[145] Available connections have been identified by the City and the project will pay applicable capacity fees.

Stormwater

The majority of the project site drains by overland flow to Pilarcitos Creek. There is an existing culvert running under the access road, connecting to a catch basin on the access road, and discharging to an existing lined bioretention area with an underdrain in the southwest corner of the project site. The bioretention overflow structure is routed to a rock dissipator outfall that discharges to Pilarcitos Creek (Appendix F1).

The project would construct a new neighborhood of 46 affordable manufactured homes, one manager's unit, and one management office. The project would include a total of 139,260 square feet of new impervious surface area, which would drain by overland flow toward Pilarcitos Creek, and drainage improvements that meet the requirements of the GIP[146] to prevent sediment-laden runoff to Pilarcitos Creek. Permanent green infrastructure is anticipated to implement flow-through, planter-style stormwater channels that would filter contaminants from stormwater runoff before being routed to the existing rock dissipator and entering the Pilarcitos Creek. The stormwater infrastructure would be adequate to contain runoff from a 25-year storm event (Appendix F1). Therefore, the construction of new storm drainage

[144] Sewer Authority Mid-Coastside (SAM). 2019. *Sewer System Management Plan.* Available at: https://samcleanswater.org/vertical/sites/%7B1307B359-C05A-436D-AC1C-9EB8D6FFB4A3%7D/uploads/Item_4D_Attachment_B_SSMP_2019(2).pdf. Accessed June 11, 2024.

[145] City of Half Moon Bay. 2023. *Community Development Director Review: Emergency Coastal Development Permit Issuance, PDP-23-090*. December 11. Available at: https://half-moon-bay.ca.us/DocumentCenter/View/6333/Emergency-CDP-Approval-880-Stone-Pine-Housing-Stone-Pine-Cove-Signed-12-11-2023. Accessed June 11, 2024.

[146] City of Half Moon Bay. 2019. *City of Half Moon Bay Green Infrastructure Plan*. September. Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/2305/HalfMoonBayGIPlan09-2019Final1. Accessed June 11, 2024.

facilities would not create a need for new stormwater facilities, and this impact would be less than significant.

The project would be required to implement a SWPPP under the SWRCB Construction General Permit Order 2022-0057-DWQ,[147] Municipal Regional Stormwater NPDES Permit[148] and the SMCWPPP.[149] The SWPPP must include site-specific BMPs that are designed to prevent runoff from construction areas to reduce potential impacts to surface water quality during project construction. The SWPPP would also include design elements and BMPs for construction areas, such as fueling and equipment washing areas, and trash and hazardous material storage areas. Therefore, construction impacts would be less than significant.

Gas and Electricity

The project is being developed as an all-electric project and no natural gas lines will be constructed to serve the units. The project would not supply natural gas to the development and would remove existing gas infrastructure; therefore, no impact related to natural gas use would occur.

The project would have new electrical demands for the manufactured homes and associated outdoor lighting. Pacific Gas and Electric Company (PG&E) would supply electricity services to the project site and the County will decide who will supply the electricity. The addition of 47 residences to the PG&E network would not require or result in the relocation or construction of new or expanded facilities; therefore, impacts to energy facilities would be less than significant.

Telecommunications

The project would extend new telecommunications infrastructure (likely provided by Comcast or other network provider) to the manufactured homes and manager's office. The addition of 47 residences to the Comcast network would not require or result in the relocation or construction of new or expanded facilities; therefore, impacts to telecommunications would be less than significant.

b. Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

As required by the California Department of Water Resources (DWR), CCWD has analyzed the long-term reliability and vulnerability of its water supplies and developed a combination of supply alternatives and conservation planning efforts to meet the water supply needs of its customers. CCWD has developed water supply estimates for normal year, single dry year, and multiple dry year scenarios. Table 2.19-1 shows the projected water balance for a normal dry year through 2045. Table 2.19-2 shows the water

[147] California Water Boards. 2022. *Construction Stormwater Program Website*. Available at: https://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.html. Accessed April 9, 2024.

[148] San Francisco Regional Water Quality Control Board (RWQCB). 2022. *Municipal Regional Stormwater NPDES Permit*. California Regional Water Quality Control Board, San Francisco Bay Region. Order No. R2-2022-0018. NPDES Permit No. CAS612008. May 11. Available at: https://www.waterboards.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2022/R2-2022-0018.pdf. Accessed June 11, 2024.

[149] County of San Mateo. 2020. San Mateo Countywide Water Pollution Prevention Program: Construction. Available at: https://www.flowstobay.org/construction. Accessed June 11, 2024.

balance for the first 5 years of a multiple dry year sequence under the *2020 Urban Water Management Plan*.[150]

As shown in Table 2.19-1, CCWD has adequate water supplies to meet a normal year demand. As shown in Table 2.19-2, CCWD's multiple dry year supplies are not adequate to meet projected multiple dry year demands. Significant supply shortfalls, ranging from 22% to 29% in the first year of the 5-year dry period to 53% to 59% in the fifth year of the 5-year dry period, are projected. This shortfall is primarily due to significant cutbacks in CCWD's supply from the SFPUC.

Table 3.19-1. CCWD Water Supply and Demand Estimates for Normal Water Years

Drought Year	Supply/Demand Totals[1]	2025	2030	2035	2040	2045
First Year	Supply Totals	767	760	752	741	741
	Demand Totals[2]	704	697	690	668	664
	Difference	*63*	*63*	*63*	*74*	*77*

[1] All numbers are in million gallons per year.

Source:

Coastside County Water District (CCWD). 2021. *2020 Urban Water Management Plan, Table 7-12: Normal Year Supply and Demand Comparison (DWR Table 7-2 Retail)*. Available at: https://www.coastsidewater.org/reports_and_studies/2020-Urban-Water-Management-Plan.pdf. Accessed June 11, 2024.

Table 3.19-2. CCWD Water Supply and Demand Estimates for Multiple Dry Years (million gallons)

Drought Year	Supply/Demand Totals[1,2]	2025	2030	2035	2040	2045
First Year	Supply Totals	533	529	522	518	471
	Demand Totals	704	697	690	668	664
	Difference	*-171*	*-168*	*-168*	*-150*	*-193*
Second Year	Supply Totals	416	409	405	401	398
	Demand Totals	704	697	690	668	664
	Difference	*-288*	*-288*	*-285*	*-267*	*-266*
Third Year	Supply Totals	376	369	365	361	358
	Demand Totals	704	697	690	668	664
	Difference	*-328*	*-328*	*-325*	*-307*	*-306*
Fourth Year	Supply Totals	348	341	337	301	290
	Demand Totals	704	697	690	668	664
	Difference	*-356*	*-356*	*-353*	*-367*	*-374*
Fifth Year	Supply Totals	331	324	298	284	273
	Demand Totals	704	697	690	668	664
	Difference	*-373*	*-373*	*-393*	*-384*	*-391*

[1] All numbers are in million gallons per year.

[2] CCWD's multiple dry year demands are assumed to be the same as CCWD's normal year demands.

Source:

Coastside County Water District (CCWD). 2021. *2020 Urban Water Management Plan, Table 7-18: Multiple Dry Year Supply and Demand Comparison (DWR Table 7-4 Retail)*. Available at: https://www.coastsidewater.org/reports_and_studies/2020-Urban-Water-Management-Plan.pdf. Accessed June 11, 2024.

[150] Coastside County Water District (CCWD). 2021. *2020 Urban Water Management Plan.* Available at: https://www.coastsidewater.org/reports_and_studies/2020-Urban-Water-Management-Plan.pdf. Accessed June 11, 2024.

In Table 2.19-2, CCWD's multiple dry year demands are assumed to be the same as CCWD's normal year demands. However, CCWD has developed a Water Shortage Contingency Plan that includes specific actions to reduce water consumption and losses. Specific actions are triggered by specific percent supply storages and include expanding public information campaigns, restricting landscape irrigation, implementing moratoriums on new connections, implementing drought rate structures or surcharges, increasing water waste patrols, and reducing system water loss. CCWD intends for its Water Shortage Contingency Plan to be an adaptive management plan so that it may assess response action effectiveness and adapt to foreseeable and unforeseeable events. CCWD assumes that under any given stage of water shortage, the identified actions would reduce the supply deficit up to and greater than a 50% shortage.

Construction activities would require a minimal amount of water for dust control and cement mixing. Water would be delivered to the project site by water truck.

CCWD included development of the 880 Stone Pine site in its *Urban Water Management Plan*. Existing operational activities and water use under the project would require approximately 5,355 gallons per day, or 1.95 million gallons of water per year, which is approximately 0.27% of the normal water demand from the CCWD supply.

The minimal change from existing water use, combined with the City's Water Shortage Contingency Plan, would ensure that impacts related to increased water demand would remain less than significant.

c. Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

As discussed under Impact Discussion 2.19.a, SAM receives average dry weather flow of approximately 1.5 mgd and has a wastewater treatment plant capacity of up to 4 mgd in average dry weather flow.[151] The project would result in a minimal increase of approximately 0.3% of the average dry weather flow in wastewater production; therefore, impacts related to increased wastewater production would be less than significant.

d. Would the project generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Solid waste pickup is provided to the project area through a City franchise agreement with Republic Services, which provides pickup of residential and commercial garbage, recyclable material, and organic waste, as well as motor oil, oil filters, and batteries. Republic Services also has drop-off locations for electronic waste and hazardous materials, including medications and paint.[152]

Solid waste goes to the Corinda Los Trancos Ox Mountain Sanitary Landfill for recycling, composting, and disposal. The landfill is permitted to receive 3,598 tons of waste per day and has an anticipated

[151] Sewer Authority Mid-Coastside (SAM). 2019. *Sewer System Management Plan.* Available at: https://samcleanswater.org/vertical/sites/%7B1307B359-C05A-436D-AC1C-9EB8D6FFB4A3%7D/uploads/Item_4D_Attachment_B_SSMP_2019(2).pdf. Accessed June 11, 2024.

[152] Republic Services. 2021. Republic Services of Half Moon Bay, CA. Available at: https://www.republicservices.com/municipality/half-moon-bay-ca. Accessed June 11, 2024.

closure date of 2034.[153,154] In the second quarter of 2019, the landfill received an average of 160,253 tons of solid waste (approximately 1,780 tons per day, or 49% of its permitted throughput).

Construction

Construction of the project would require clearing and grubbing, and soils excavation resulting in approximately 590 CY of debris to be hauled off-site for disposal over a 13-month period. This would weigh between 620 tons and 885 tons (between approximately 7.3 and 10.4 tons/day, or between 0.20% and 0.28% of Ox Mountain Landfill's permitted daily tonnage of 3,598 tons/day.[155,156] The project contractor would be required to prepare and submit a Construction and Demolition Waste Management Plan to the City for review and approval. Under the Waste Management Plan, the project contactor would be required to identify types and amounts of materials that could feasibly be reused, salvaged, or recycled and would note the procedures intended to be used. Given the units are being constructed off-site, the waste generated locally will be minimal. The Waste Management Plan must be approved by the City prior to project construction.[157] Therefore, impacts related to construction would be less than significant.

The Ox Mountain Landfill has a remaining capacity of approximately 45 million CY and is expected to operate until 2034.[158] The landfill would accept clean fill for daily cover and would have adequate capacity to serve the construction phase of the project because the construction phase of the project would be temporary and would generate a limited amount of solid waste. Development of the required Waste Management Plan would further reduce this less-than-significant impact.

Operation

The project would construct a new neighborhood of 47 manufactured homes, including 46 affordable homes for farmworkers and one manager's unit. On average, residences produce a maximum of approximately 12 pounds of solid waste per household per day. Therefore, the project would produce a maximum of 564 pounds of solid waste per day, which is less than 0.01% of its permitted throughput. Therefore, the project would not generate waste in excess of the capacity of local infrastructure. Residents would receive trash, recycling, and composting cans from Republic Services, the City's current solid waste collection provider, and Republic Services would provide separate containers for each type of

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[153] Asphalt or concrete construction debris is approximately 2,400 pounds per cubic yard. Dry earth construction debris is approximately 2,100 pounds per cubic yard. Reference: California Department of Resources Recycling and Recovery (CalRecycle). 2018. *Estimated Solid Waste Generation Rates.* Available at: https://www2.calrecycle.ca.gov/wastecharacterization/general/rates. Accessed June 11, 2024.

[154] California Department of Resources Recycling and Recovery (CalRecycle). 2024. SWIS Facility Detail. Corinda Los Trancos (Ox Mtn) (41-AA-0002). Available at: https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/1561?siteID=3223. Accessed June 11, 2024.

[155] Construction Debris, Wood, Uncompacted is estimated to weigh between 2,100 pounds and 3,000 pounds per cubic yard. Reference: California Department of Resources Recycling and Recovery (CalRecycle). 2018. *Calculations - Solid Waste Cleanup Program Weights and Volumes for Project Estimates.* Available at: https://www.calrecycle.ca.gov/swfacilities/cdi/tools/calculations. Accessed January 11, 2022.

[156] California Department of Resources Recycling and Recovery (CalRecycle). 2024. SWIS Facility Detail. Corinda Los Trancos (Ox Mtn) (41-AA-0002). Available at: https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/1561?siteID=3223. Accessed June 11, 2024.

[157] City of Half Moon Bay. 2019. *Half Moon Bay Municipal Code, Chapter 14.50: Requirement for Construction and Demolition Waste Recycling.* Available at: https://www.codepublishing.com/CA/HalfMoonBay/#!/HalfMoonBay14/HalfMoonBay1450.html#14.50. Accessed June 11, 2024.

[158] California Department of Resources Recycling and Recovery (CalRecycle). 2024. SWIS Facility Detail. Corinda Los Trancos (Ox Mtn) (41-AA-0002). Available at: https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/1561?siteID=3223. Accessed June 11, 2024.

waste. Therefore, the project would not impair the attainment of solid waste reduction goals, and operational impacts would be less than significant.

e. Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

The City would be required to comply with all federal, State, and local ordinances for water, energy, and waste reduction and management, including, but not limited to, Chapter 14.50, Requirement for Construction and Demolition Waste Recycling of the City's Municipal Code, the Waste Management Plan for construction debris, and the SMCWPPP. Residents would receive trash, recycling, and composting cans from Republic Services, and Republic Services would provide separate containers for each type of waste. Therefore, the project would comply with all federal, State, and local management and reduction statutes and regulations, and no impact would occur.

3.20 Wildfire

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
(a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
(b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐
(c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐
(d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

Environmental Evaluation

a. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

A significant impact may occur if a project is located in proximity to wildland areas and would pose a potential fire hazard, which could affect persons or structures in the area in the event of a fire. 880 Stone Pine is located on the eastern edge of the City limits adjacent to the coastal hills, approximately 400 feet west of VHFHSZ areas, and in a State Responsibility Area (SRA) to the east, northeast, and southeast that extends into the Sant Cruz Mountains to the east.[159] In addition, the project site and its surrounding area is

[159] California Department of Forestry and Fire Protection (CAL FIRE). 2007. *Fire Hazard Severity Zone Viewer*. Available at: https://osfm.fire.ca.gov/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones. Accessed June 11, 2024.

located in a WUI zone.[160] The project would develop a new neighborhood of 47 manufactured homes, including 46 affordable homes for farmworkers and one manager's unit. The project site is located adjacent to a substantially developed area with existing infrastructure, including fire hydrants. Improvements for the project would include fire hydrants and fire access roads that comply with CFPD requirements. The project site is approximately 1.1 miles from a fire station. The project has been reviewed by CFPD staff and will be required to comply with CFPD requirements and federal fire codes prior to building occupancy. Although the project could expose people or structures to a risk of wildland fire, it is an infill development project and will comply with all CFPD requirements to reduce risks; therefore, the project would not substantially impair an adopted emergency response plan or emergency evacuation plan, and this impact would be less than significant.

b. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

The project area is not located in a VHFHSZ but is located in a WUI and adjacent to VHFHSZ areas in an SRA.[161] The project site is relatively flat. The project would include the addition of roads, water service, sprinklers, and fire hydrants that would meet CFPD requirements, and the landscaped areas of the project would be irrigated. The project would not add any elements that would exacerbate wildfire risk due to slope, prevailing winds, or other factors; therefore, it would not expose project occupants to significant fire hazards, and this impact would be less than significant.

c. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

The project area is located on the eastern edge of the city, adjacent to the coastal hills. The project is not located in an identified VHFHSZ but is located in the WUI. The project would extend roads and utilities to serve the project site. All utilities would be undergrounded, which would reduce fire danger. New fire hydrants and sprinkler systems would meet the requirements of the National Fire Protection Association Code (NFPA) 13 (2013 edition) and CFPD. The project would be required to conform to all relevant Fire Prevention Bureau Standards:

- DI-005 Residential Sprinkler Requirements
- DI-007 Solar Photovoltaic Systems
- DI-013 Street Signs Addressing

[160] Association of Bay Area Governments (ABAG). 2024. Wildland-Urban Interface Fire Threat Interactive Map. Available at: https://mtc.maps.arcgis.com/home/webmap/viewer.html?useExisting=1&layers=d45bf08448354073a26675776f2d09cb&layerId=0. Accessed June 1, 2024.

[161] California Department of Forestry and Fire Protection (CAL FIRE). 2007. *Fire Hazard Severity Zone Viewer*. Available at: https://osfm.fire.ca.gov/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones. Accessed June 11, 2024.

- Fire Code Ordinance No. 2019-03 (including FPE-001 Standard Hydrants, FPE-002 Fire Lanes and F.D. Connections, No Parking Signs, PI-006 Requirements for Final Residential Review, R-001 Roads and Turnarounds, and R-003 Residential Driveways)[162]

The project does not include the installation or maintenance of new infrastructure that may exacerbate fire risk; therefore, impacts related to fire risk would be less than significant.

d. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

The project area is located on the eastern edge of the city, adjacent to the coastal hills. The project is located approximately 400 feet west of an identified VHFHSZ, and the parcel is also located in a WUI.[163] The project is located on relatively flat ground and is not located in a 100-year or 500-year flood zone or landslide hazard zone. Therefore, the project would not expose people or structures to significant risks as a result of post-fire instability, including downslope or downstream flooding or landslides, and no impact would occur.

3.21 Mandatory Findings of Significance

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
(b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
(c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

[162] Coastside Fire Protection District (CFPD). 2024. Fire Prevention Bureau Standards. Available at: https://www.coastsidefire.org/fire-prevention-bureau-standards. Accessed June 11, 2024.

[163] Association of Bay Area Governments (ABAG). 2024. Wildland-Urban Interface Fire Threat Interactive Map. Available at: https://mtc.maps.arcgis.com/home/webmap/viewer.html?useExisting=1&layers=d45bf08448354073a26675776f2d09cb&layerId=0. Accessed June 1, 2024.

Environmental Evaluation

a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

The project site is located on the eastern edge of the city adjacent to Pilarcitos Creek and SR-92 and includes a 47-unit manufactured home community. The land uses surrounding the work area consist of asphalted roadways, the Corporation Yard, residential communities, Pilarcitos Creek, agricultural operations, and undeveloped land. There are ESHAs adjacent to the project area and two potential special-status species (CRLF and SFGS) adjacent to the project footprint. Mitigation Measure BIO-1 would be implemented to protect plants and wildlife in the area, and Mitigation Measures BIO-2 through BIO-6 would be implemented to protect special-status wildlife, migrating reptiles and amphibians, wetlands, nesting birds, roosting bats, and heritage trees; therefore, the project would have a less-than-significant impact on biological resources. There are no known historic resources in the project area, and the City's Standard Conditions would protect previously undiscovered historical resources; therefore, the project would have no impact on historic resources. The project would have a less-than-significant impact on archaeological resources and human remains with implementation of Standard Conditions and Mitigation Measure CUL-1. The project would implement BAAQMD requirements to protect air quality, including dust and GHG emissions. As described in this IS/MND, the project would not degrade the quality of the environment, reduce or threaten any fish or wildlife species (endangered or otherwise), or eliminate important examples of the major periods of California history or pre-history. Therefore, impacts from the project would be less than significant with mitigation incorporated.

b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects?

The project would have less-than-significant construction impacts to aesthetics, air quality, biology, cultural resources, energy, geology and soils, GHGs, hazards, hydrology and water quality, noise, traffic, tribal cultural resources, and utilities. It would have less-than-significant operational impacts to aesthetics, agriculture, air quality, biological resources, energy, GHG emissions, hydrology and water quality, land use, population and housing, public services, recreation, transportation, utilities, and wildfire. Cumulative impacts are assessed for operational impacts as follows:

- **Aesthetics.** As described in Section 3.1, *Aesthetics*, operational impacts to scenic resources and the visual character of a public view would be limited to the view from SR-92, which is mostly blocked by cypress trees and the vegetation around the existing impoundment. Because of the placement of the new residences adjacent to Cypress Cove Townhomes and as downslope and far from SR-92 as possible to reduce visual massing, the use of neutral tone colors and materials, and planting of replacement trees on the property to screen facilities, project construction would not add to cumulatively considerable visual impacts.
- **Air Quality and GHG.** As described in Sections 3.2, *Air Quality*, and 3.8, *Greenhouse Gas Emissions*, according to the BAAQMD's CEQA Air Quality Guidelines, if a project's emissions levels exceed the identified significance thresholds for air quality and GHGs, the emissions would

be cumulatively considerable. Construction emissions for the project would not exceed BAAQMD thresholds of significance. Operationally, the project would result in an increase in traffic and air emissions from cars locally, however, the project is located in the Town Center and would decrease travel distances and VMT for new residents overall, thereby decreasing vehicle emissions. Therefore, construction and operational impacts would not be cumulatively considerable.

- **Biological Resources.** As described in Section 3.4, *Biological Resources*, the project could have potentially significant impacts to special-status species, ESHAs, and nesting birds. However, a biological monitor would be on-site during construction, and Mitigation Measures BIO-1 through BIO-6 would fully mitigate all potentially significant biological impacts from construction to a less-than-significant level. The existing wildlife corridor would protect CRLF and SFGS from both construction and operational impacts. Therefore, construction and operational impacts to biological resources would not contribute to cumulatively considerable impacts.
- **Cultural and Tribal Cultural Resources.** As described in Sections 3.5, *Cultural Resources*, and 3.18, *Tribal Cultural Resources*, the project area underwent an archaeological dig investigation and there is no indication of any significant tribal or cultural resources located in the project area. The proposed project would require the cessation of construction activities following the discovery of any previously unidentified cultural resource. The potential impacts remaining after cessation of proposed project activities would be negligible and would not contribute to an incremental impact. Therefore, the project would not cause impacts that could be cumulatively considerable.
- **Energy.** As described in Section 3.6, *Energy*, cumulative impacts to energy resources would occur if the proposed project would add to a substantial aggregation of impacts related to wasteful, inefficient, or unnecessary energy consumption or conflict with a State or local plan for renewable energy or efficiency. Projects in San Mateo County are required to comply with the BAAQMD and CALGreen to reduce construction-related GHG emissions, which also reduces energy use. In addition, all projects in San Mateo County are required to comply with the County's Waste Management Plan by recycling at least 65% of all construction waste or demolition material. The project would construct affordable housing in the Town Center, which would reduce VMT for new residents. Therefore, the project would not contribute to a cumulatively considerable impact on energy use.

  Geology and Soils. As described in Section 3.7, *Geology and Soils*, the project is located in a seismically active area and is susceptible to liquefaction, lateral spreading, and seismic settlement. The project site is also underlain by expansive soils. Seismic design parameters and recommendations for the project are described in the project-specific geotechnical site investigation and identified in Mitigation Measure GEO-1. Compliance with the California Building Code and recommendations contained in the geotechnical investigation would ensure the project does not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking, and impacts would be less than significant. Clearing, excavation, and grading activities at the project site are unlikely to result in significant short-term erosion impacts. The project would be required to implement a County-approved Erosion and Sediment Control Plan (ESCP) and SWPPP, which would include BMPs to prevent stormwater erosion from leaving the site. There is no indication of any paleontological resources located in the project area. The proposed project would require the cessation of construction activities following the discovery of any previously unidentified paleontological resource. The potential impacts remaining after cessation of proposed project activities would be negligible and would not contribute to an incremental impact. Therefore, the project would not cause impacts that could be cumulatively considerable.

- **Hydrology and Water Quality.** As described in Section 3.8, *Hydrology and Water Quality*, project construction could cause runoff to Pilarcitos Creek that could violate water quality standards and result in erosion or siltation. However, implementation of a SWPPP and compliance with the SMCWPPP BMPs, which is a standard Condition of Approval, would prevent contaminated stormwater runoff from construction from entering Pilarcitos Creek. The Project also includes a GIP including flow-through, planter-style stormwater channels that would filter contaminants from operational stormwater runoff before entering the Pilarcitos Creek and meet the requirements of the City's GIP. The project site could also be subject to inundation in the event of a dam failure of Pilarcitos Dam. However, a large part of downtown Half Moon Bay, including the SAM Wastewater Treatment Plant, would also be subject to flooding in the event of a dam failure, and the potential for dam failure is considered extremely low. Therefore, the project would not contribute to cumulative water quality impacts in Pilarcitos Creek.
- **Land Use.** As described in Section 3.11, *Land Use and Planning*, the project would construct a new affordable farmworker neighborhood for up to 126 residents. The development is planned growth under the 2020 LCLUP and 2023-2031 Draft Housing Element; therefore, the development of the project site would not have impacts that are cumulatively considerable.
- **Noise.** As described in Section 3.13, *Noise*, temporary noise impacts from project construction would be limited to the area of Stone Pine Road, the Hilltop Mobile Home Park, and Spanish Town, and construction hours would meet City requirements. Construction impacts would be short term and temporary, lasting approximately 13 months. Because of the temporary nature and short duration of project construction, project construction would not contribute to cumulatively considerable impacts.
- **Population and Housing.** As described in Section 3.14, *Population and Housing*, the project would provide necessary affordable farmworker housing for local agricultural workers. Development in the city would remain under the Measure D growth cap for 2023 and 2024; therefore, the project would not contribute to cumulatively considerable impacts.
- **Public Services.** As described in Section 3.15, *Public Services*, the project would introduce up to 126 residents to the housing development, although some may be existing residents of the city whose homes were red-tagged. All public services have adequate resources to serve the new development and the project would comply with Measure D; therefore, the project would not contribute to cumulatively considerable impacts
- **Recreation.** As described in Section 3.16, *Recreation*, the project would introduce up to 126 residents to the city. State and local recreation resources are adequate to serve the new development; therefore, the project would not contribute to cumulatively considerable impacts.
- **Traffic and Circulation.** As described in Section 3.17, *Traffic and Circulation*, the project would construct 47 new units in the Town Center of the city, which would reduce VMT for new residents. The project would add traffic-calming measures on Stone Pine Road to increase pedestrian and bicycle safety. Therefore, the project would not contribute to cumulatively considerable impacts.
- **Utilities and Service Systems.** Project construction would produce approximately 590 CY of debris to be hauled off-site for disposal. The project contractor would be required to identify types and amounts of materials that could feasibly be reused, salvaged, or recycled, and to note the procedures intended to be used. The Waste Management Plan must be approved by the City

prior to project construction.[164] Solid waste goes to the Ox Mountain Landfill for recycling, composting, and disposal, which is permitted to receive up to 3,598 tons of waste per day.[165] The total amount of construction waste (approximately 123 tons) from the project would be small, approximately 0.02% of the 608,086 tons received at the Ox Mountain Landfill in 2019.[166] In addition, the project would comply with the County's Waste Management Plan by recycling at least 65% of all construction waste or demolition material. Therefore, solid waste from project construction would not contribute to a cumulatively considerable impact. The project is part of the planned growth of the City, and the City and CCWD have adequate water and sewer connections available to serve the project. The project would implement required GIP stormwater measures and would not increase the rate of runoff into Pilarcitos Creek.

- **Wildfire.** The project area is approximately 400 feet west of VHFHSZ areas in an SRA and is located in a WUI zone. The project is an infill development project and would introduce people into an area susceptible to wildfires. However, the project will comply with all CFPD requirements to reduce risks and the City is currently developing citywide emergency response plans for wildfire as well as other emergencies. Many of the new residents currently live on farms which may also be in fire-prone areas. The project includes irrigated landscaping which would reduce fire risk. Therefore, the project would not contribute to a cumulatively considerable impact.

Given the small size of the project, its limited duration, and mitigation measures to reduce all potential impacts, the incremental construction effects of the proposed project would not contribute to a cumulatively considerable impact.

The project would have limited permanent impacts related to introducing 47 new residences into the Town Center area of the city. These would include stormwater runoff from an additional 139,260 square feet (3.2 acres) of impervious pavement. The project site is not in a flood hazard zone and there are no recorded flooding events in the project area. The project would include implementation of stormwater drainage that meets the requirements of the City's GIP and has adequate capacity to carry runoff from projected development of the project area. Therefore, the additional runoff would not contribute to a cumulatively considerable impact. Since the project is in the downtown core, introduction of up to 126 new residents would reduce VMT and vehicle emissions overall. The existing fenced wildlife corridor would protect special-status reptiles and amphibians from impacts related to the project. Therefore, the project would not contribute to a cumulatively considerable impact.

c. Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?

A significant impact may occur if a project has the potential to result in significant impacts, as discussed in the previous sections. The project would provide much needed affordable housing for farmworker families, which is of benefit to the City and community. As described throughout this environmental

[164] City of Half Moon Bay. 2019. *Half Moon Bay Municipal Code, Chapter 14.50: Requirement for Construction and Demolition Waste Recycling.* Available at: https://www.codepublishing.com/CA/HalfMoonBay/#!/HalfMoonBay14/HalfMoonBay1450.html#14.50. Accessed November 15, 2021.

[165] California Department of Resources Recycling and Recovery (CalRecycle). 2024. SWIS Facility Detail. Corinda Los Trancos (Ox Mtn) (41-AA-0002). Available at: https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/1561?siteID=3223. Accessed June 11, 2024.

[166] Contra Costa County. 2024. *Volume to Weight Conversion Table for Construction and Demolition Debris.* Available at: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.contracosta.ca.gov/DocumentCenter/View/49316/Volume-to-Weight-Conversion-Table?bidId=. Accessed August 20, 2024.

impact analysis, with implementation of mitigation measures (where applicable), the project would not result in any significant impacts. Therefore, the project would not have the potential to result in substantial adverse effects on human beings, and impacts would be less than significant with mitigation incorporated.

CHAPTER 4. PREPARERS OF THE INITIAL STUDY AND MITIGATED NEGATIVE DECLARATION

4.1 Lead Agency

City of Half Moon Bay
Community Development Department
501 Main Street
Half Moon Bay, California 94019

John Doughty, Assistant City Manager
Ocoee Wilson, Associate Planner

4.2 Project Applicant(s)

City of Half Moon Bay
501 Main Street
Half Moon Bay, California 94019

John Doughty, Assistant City Manager

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Redwood City, California 94063

Iliana Rodriguez, Assistant County Executive

_____

4.3 Environmental Consultants (CEQA)

SWCA Environmental Consultants
60 Stone Pine Road, Suite 201
Half Moon Bay, California 94019

Jessica Brinton-McBean, Project Manager/Biologist
Juliet Bolding, Associate Planner
Julie Barlow, Principal Planning Team Lead
Jack Meyer, Principal Geoarchaeologist
Reid Persing, Archaeologist
Christina Alonso, Archaeologist/Senior Project Manager
Erin Butts, GIS Specialist
Jaimie Jones, Project Technical Editor

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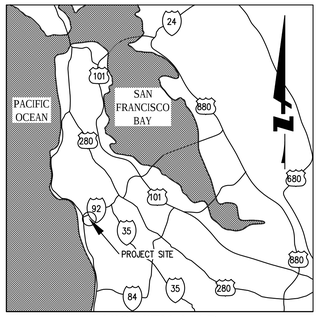
APPENDIX A

Project Design Plans

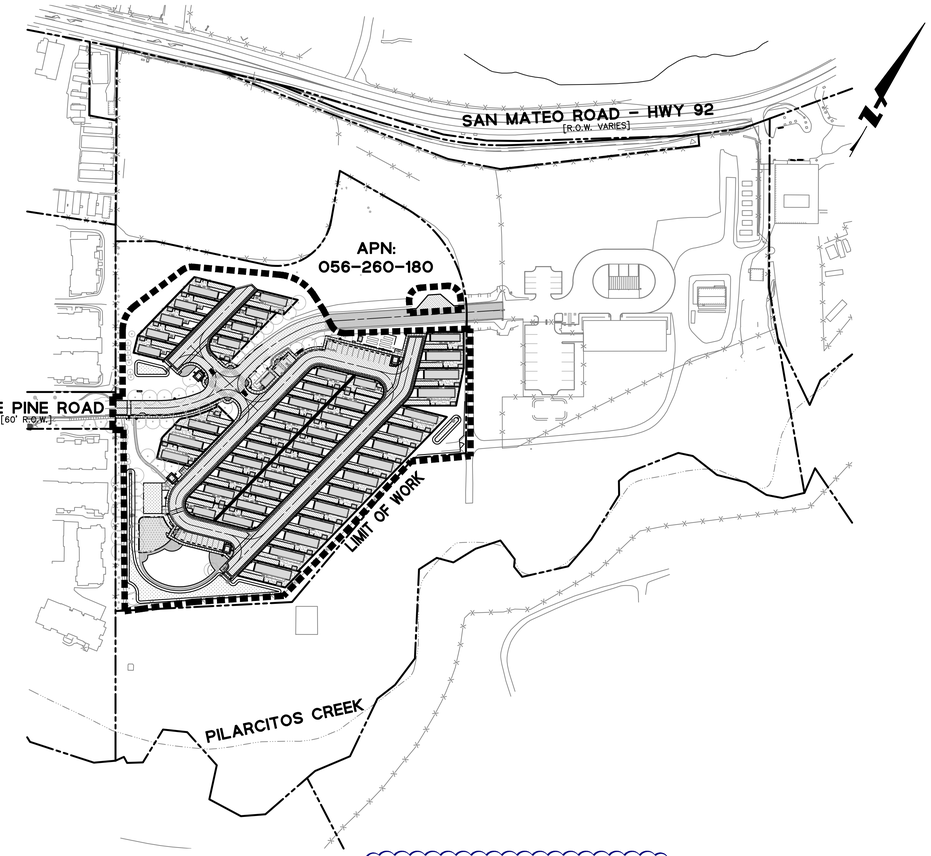
Stone Pine Cove Affordable Farmworker Housing

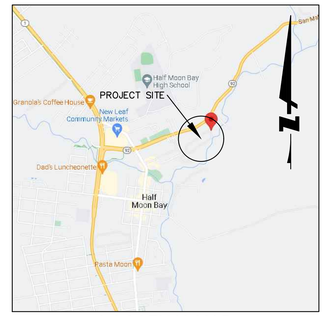
STONE PINE COVE
880 STONE PINE ROAD
HALF MOON BAY, CA

APN: 056-260-180



VICINITY MAP
N.T.S.





LOCATION MAP
N.T.S.

ABBREVIATIONS:

AB	AGGREGATE BASE
AC	ASPHALT CONCRETE
ACC	ACCESSIBLE
AD	AREA DRAIN
AL	AREA LIGHT
ARV	AIR RELEASE VALVE
ATD	ATRIUM DRAIN
BFPD	BACK FLOW PREVENTION DEVICE
BLDG	BUILDING
BO	BLOW OFF VALVE
BOT	BOTTOM OF TANK OR PIPE
BW	BOTTOM OF WALL ELEVATION
CATV	CABLE TELEVISION
CB	CATCH BASIN
CL	CENTER LINE
CIP	CAST IRON PIPE
CONC	CONCRETE
COR	CORNER
CUL	CULVERT
DDCV	DOUBLE DETECTOR CHECK VALVE
DI	DRAIN INLET
DIP	DUCTILE IRON PIPE
DN	DOCUMENT NUMBER
DS	ROOF DOWN SPOUT
DW	DOMESTIC WATER LINE
DWL	DRYWELL CATCH BASIN
DWY	DRIVEWAY
(E)	EXISTING
EG	EXISTING GRADE
ELEC	ELECTRICAL
EM	ELECTRICAL METER
EP	EDGE OF PAVEMENT
ESM	ELECTRIC SUB-METER
EV	ELECTRIC VAULT
EX. NO.	EXCEPTION NUMBER
FC	FACE OF CURB
FDC	FIRE DEPARTMENT CONNECTION
FF	FINISHED FLOOR ELEVATION
FG	FINISHED GROUND ELEVATION
FH	FIRE HYDRANT
FL	FLOW LINE ELEVATION
FM	FORCE MAIN LINE
FNC	FENCE
FS	FINISHED SURFACE ELEVATION
FW	FIRE WATER LINE
GB	GRADE BREAK
GM	GAS METER
GR	GRATE ELEVATION
GV	GATE VALVE
HDB	HEADERBOARD
HP	HIGH POINT
INV	INVERT ELEVATION
JT	JOINT TRENCH
JP	JOINT POLE
LD	LANDSCAPE DRAIN
LF	LINEAR FEET
LP	LOW POINT
MSB	METERING SWITCHBOARD
MON	MONUMENT
(N)	NEW
OH	OVERHEAD
PIV	POST INDICATOR VALVE
PKG	PARKING
POB	POINT OF BEGINNING
POC	POINT OF CONNECTION
(R#)	DENOTES RECORD DEISTANCE
(R3: #m)	DENOTES DISTANCE MATCHING RECORD
RET	RETAINING WALL
RIM	RIM ELEVATION
R/W	RIGHT-OF-WAY
S	SLOPE
SAP	SEE ARCHITECTURAL PLANS
SBD	STORM SUB DRAIN
SBDCO	STORM SUB DRAIN CLEANOUT
SD	STORM DRAIN
SDCO	STORM DRAIN CLEANOUT
SEP	SEE ELECTRICAL PLANS
SGR	SEE GEOTECHNICAL REPORT
SICB	SIDE INLET CATCH BASIN
SLB	STREET LIGHTING BOX
SLP	SEE LANDSCAPE PLANS
SPP	SEE PLUMBING PLANS
SS	SANITARY SEWER
SSCO	SANITARY SEWER CLEANOUT
SSP	SEE STRUCTURAL PLANS
TOB	TOP OF BANK/SLOPE
TOP	TOP OF TANK OR PIPE
TPOB	TRUE POINT OF BEGINNING
TRAN	TRANSFORMER
TW	TOP OF WALL ELEVATION
TYP	TYPICAL
UB	UTILITY BOX
VD	PIPE VERTICAL DROP
VG	VALLEY GUTTER
W	DOMESTIC WATER LINE
WM	WATER METER

LEGEND:

EXISTING	PROPOSED	
		BOUNDARY
		LIMIT OF WORK
X" SS	X" SS	SANITARY SEWER
X" SD	X" SD	SOLID STORM DRAIN
4" SBD	4" SBD	PERFORATED SUB DRAIN
FM	2" FM	FORCE MAIN
10" FW	10" FW	FIRE SERVICE
2" W	2" W	DOMESTIC WATER SERVICE
E	E	ELECTRIC
OH	OH	OVERHEAD WIRES
X	X	FENCE
○	○	CLEAN OUT TO GRADE
◉	◉	FOUND MONUMENT
⋈	⋈	DOUBLE DETECTOR CHECK VALVE
⋈	⋈	VALVE
▷	▷	THRUST BLOCK
◢	◢	BLOW OFF VALVE
◢	◢	AIR RELEASE VALVE
⊠	⊠	METER BOX
☼	☼	STREET LIGHT
•	•	DRAIN
■	■	ATRIUM DRAIN
▣	▣	CATCH BASIN
		FIRE HYDRANT
		FIRE DEPARTMENT CONNECTION
		BENCHMARK
		MANHOLE
		SIGN
		SPLASH BLOCK
	EB	ELECTRICAL BOX, SEE JOINT TRENCH PLANS
	C	CATV BOX, SEE JOINT TRENCH PLANS
	T	TELECOM BOX, SEE JOINT TRENCH PLANS
	2 / C9.1	DETAIL NUMBER / SHEET LOCATION

SHEET INDEX

CIVIL

SHEET NO.	DESCRIPTION
C0.0	TITLE SHEET
C0.1	NOTES
C0.2	CONDITIONS OF APPROVAL
C0.3	CONDITIONS OF APPROVAL
C1.1	EXISTING CONDITIONS
C1.2	DEMOLITION PLAN
C2.0	CIVIL SITE PLAN
C2.1	HORIZONTAL CONTROL PLAN
C3.0	OVERALL GRADING PLAN
C3.1	GRADING PLAN
C3.2	GRADING PLAN
C3.3	GRADING PLAN
C3.4	GRADING PLAN
C4.0	OVERALL UTILITY PLAN
C4.1	UTILITY PLAN
C4.2	UTILITY PLAN
C4.3	UTILITY PLAN
C4.4	UTILITY PLAN
C5.1	STORMWATER CONTROL PLAN
C6.1	FIRE ACCESS PLAN
C7.1	STAGING AND EROSION CONTROL PLAN
C7.2	STAGING AND EROSION CONTROL DETAILS
C7.3	BEST MANAGEMENT PRACTICES SHEET
C8.1	SITE SECTIONS
C9.1	CONSTRUCTION DETAILS
C9.2	CONSTRUCTION DETAILS
C9.3	CONSTRUCTION DETAILS
C9.4	CONSTRUCTION DETAILS
C9.5	CONSTRUCTION DETAILS

OFFSITE CIVIL

SHEET NO.	DESCRIPTION
OC1.0	EXISTING CONDITIONS AND DEMOLITION PLAN
OC2.0	CIVIL SITE PLAN
OC3.0	GRADING AND UTILITIES PLAN
OC4.0	EROSION CONTROL PLAN
OC4.1	EROSION CONTROL DETAILS
OC5.0	TRAFFIC CONTROL PLAN
OC6.0	DETAIL SHEET
OC6.1	DETAIL SHEET

LANDSCAPE

SHEET NO.	DESCRIPTION
L1.0	LANDSCAPE SITE PLAN
L1.01	TREE PROTECTION PLAN
L1.1	LANDSCAPE LAYOUT PLAN ENLARGEMENT
L1.2	LANDSCAPE LAYOUT PLAN ENLARGEMENT
L1.3	LANDSCAPE LAYOUT PLAN ENLARGEMENT
L1.4	LANDSCAPE LAYOUT PLAN ENLARGEMENT
L2.0	LANDSCAPE CONSTRUCTION DETAILS
L2.1	PLAY STRUCTURE PRELIMINARY PLAN & IMAGES
L3.0	IRRIGATION PLAN
3 L3.01	IRRIGATION SCHEDULE
L3.1	IRRIGATION PLAN ENLARGEMENT
L3.2	IRRIGATION PLAN ENLARGEMENT
L3.3	IRRIGATION PLAN ENLARGEMENT
L3.4	IRRIGATION PLAN ENLARGEMENT
L3.5	IRRIGATION PLAN DETAILS
L4.0	PLANTING PLAN
L4.1	PLANTING PLAN ENLARGEMENT
L4.2	PLANTING PLAN ENLARGEMENT
L4.3	PLANTING PLAN ENLARGEMENT
L4.4	PLANTING PLAN ENLARGEMENT
L4.5	PLANTING DETAILS

JOINT TRENCH & STREET LIGHTING

SHEET NO.	DESCRIPTION
JTC1	JOINT TRENCH SECTION
JTC2	STREET LIGHTING PLAN
JTC3	JT CONCEPTUAL COMPOSITE
JTC4	STREET LIGHTING PHOTOMETRICS

ELECTRICAL

SHEET NO.	DESCRIPTION
E1.00	SITE PLAN
E5.00	ONELINE DIAGRAM
E5.01	LOAD CALCULATIONS

IMPERVIOUS AREAS

TOTAL PROJECT AREA	299,112 SF (6.87 AC)
IMPERVIOUS AREAS:	
PRE-CONSTRUCTION	26,600 SF
POST-CONSTRUCTION	165,075 SF

3

DISTURBED AREA:

SLURRY SEAL AC	24,600 SF (0.56 AC)*
ONSITE DISTURBED AREA	234,910 SF (5.39 AC)
OFFSITE DISTURBED AREA	4,500 SF (0.10 AC)
TOTAL DISTURBED AREA	239,410 SF (5.50 AC)

*PAVEMENT MAINTENANCE/REPAVING WITH NO SUBGRADE DISTURBANCE IS EXCLUDED FROM DISTURBED AREA PER NPDES CONSTRUCTION GENERAL PERMIT.

WDID NO. 2 41C403470

EARTHWORK QUANTITIES

GROSS FIGURES		QUANTITY BREAKDOWN	
CUT	3,550 CUBIC YARDS	BIORETENTION AREA	
FILL	3,930 CUBIC YARDS	CUT	650 CUBIC YARDS
TOTAL	7,480 CUBIC YARDS	UTILITY TRENCHING	
BALANCE	380 CUBIC YARDS OF IMPORT	CUT	1,280 CUBIC YARDS
		SITE WORK AND LANDSCAPING	
		CUT	1,620 CUBIC YARDS
		FILL	3,930 CUBIC YARDS

EARTHWORK QUANTITIES SHOWN ARE FOR PLANNING PURPOSES ONLY. CONTRACTOR SHALL PERFORM THEIR OWN EARTHWORK QUANTITY CALCULATION, AND USE THEIR CALCULATION FOR BIDDING AND COST ESTIMATING PURPOSES.

COASTSIDE FIRE PROTECTION DISTRICT NOTES:

1. ALL MANUFACTURED HOMES SHALL BE PROVIDED WITH FIRE SPRINKLER SYSTEMS IN ACCORDANCE WITH CALIFORNIA CODE OF REGULATIONS, TITLE 25, SECTION 4302, AND NFPA13D.
2. SECONDARY EMERGENCY VEHICLE ACCESS SHALL BE PROVIDED TO THE SITE THROUGH THE SITE AS INDICATED IN THE FIRE ACCESS PLAN, SHEET C6.1. AN EASEMENT FOR THE EMERGENCY VEHICLE ACCESS SHALL BE OBTAINED AND RECORDED PRIOR TO OCCUPANCY OF ANY MANUFACTURED HOMES.
3. THE SUBDIVISION SHALL INCLUDE SIGNAGE AND ADDRESS NUMBERS POSTED AT EACH NEW BUILDING IN ACCORDANCE WITH COASTSIDE FIRE PROTECTION DISTRICT STANDARD DI-013.

3

CONDITIONS OF APPROVAL NOTE:

1. THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING ALL MEASURES NECESSARY FOR PROJECT COMPLIANCE WITH THE CONDITIONS OF APPROVAL, SEE SHEETS C0.2 AND C0.3 FOR CONDITIONS OF APPROVAL.

SOILS REPORT NOTES:

1. A PROJECT SOILS REPORT WHICH INCLUDES EXPLORATION OF SUBSURFACE CONDITIONS HAS BEEN PREPARED BY BAGG ENGINEERS, DATED AUGUST 23, 2023.
2. GROUNDWATER WAS ENCOUNTERED AT A DEPTH OF 9 FT. THE HIGHEST ANTICIPATED GROUNDWATER DEPTH IS LESS THAN 10 FT BELOW THE EXISTING GROUND SURFACE.
3. REFER TO THE REPORT FOR MORE DETAILED ASSESSMENT OF SUBSURFACE CONDITIONS
4. ALL WORK ONSITE SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS CONTAINED IN THE PROJECT SOILS REPORT AND AS DIRECTED IN THE FIELD BY THE PROJECT GEOTECHNICAL ENGINEER.

FLOOD PLAIN NOTES:

1. 100-YEAR AND 500-YEAR FLOOD ELEVATIONS ARE SHOWN PER PILARCITOS CREEK FLOODPLAIN STUDY BY BKF ENGINEERS, DATED JUNE 29, 2023.

HAUL ROUTE:

CONTRACTOR SHALL UTILIZE THE FOLLOWING HAUL ROUTE FOR IMPORTING/EXPORTING SOILS AND OTHER CONSTRUCTION MATERIALS:

- FROM JOB SITE, HEAD WEST ON STONE PINE RD TOWARDS MAIN ST.
- TURN RIGHT ONTO MAIN ST HEADING NORTH TOWARDS HWY 92.
- TURN RIGHT ONTO HWY 92.

ENGINEER'S STATEMENT

THIS SITE IMPROVEMENT PLAN SUBMITTAL HAS BEEN PREPARED UNDER MY DIRECTION.

Brian Scott — 05/16/2024

BRIAN K. SCOTT — DATE
PRINCIPAL
P.E. #61034
BKF ENGINEERS

REGISTERED PROFESSIONAL ENGINEER — BRIAN K. SCOTT — C 61034 — CIVIL — STATE OF CALIFORNIA

ENGINEER OF WORK

I HEREBY DECLARE THAT I AM THE CIVIL ENGINEER OF WORK FOR THIS PROJECT AND THAT I HAVE EXERCISED RESPONSIBLE CHARGE OVER THE DESIGN OF THIS PROJECT AS DEFINED IN SECTION 6703 OF THE STATE OF CALIFORNIA, BUSINESS PROFESSIONAL CODES, AND THAT THE DESIGN IS CONSISTENT WITH CURRENT STANDARDS.

Dale Leda — 05/16/2024

DALE LEDA — DATE
PROJECT MANAGER
P.E. #78436
BKF ENGINEERS

REGISTERED PROFESSIONAL ENGINEER — DALE J. LEDA — C 78436 — CIVIL — STATE OF CALIFORNIA

CONTACT INFORMATION:

PROJECT COORDINATOR:	CAPITAL PROGRAM MANAGEMENT, INC. 1851 HERITAGE LN, SUITE 210 SACRAMENTO, CA 95815 CONTACT: STEVEN MCGUCKIN STEVENM@CAPITALPM.COM (916) 553-4400
CIVIL:	BKF ENGINEERS 255 SHORELINE DR, SUITE 200 REDWOOD CITY, CA 94065 CONTACT: DALE LEDA DLEDA@BKF.COM (650) 482-6300
LANDSCAPE ARCHITECT:	KIKUCHI + KANKEL DESIGN GROUP 730 MILL ST, HALF MOON BAY, CA 94019 CONTACT: TOM CONROY TCONROY@KKDESIGNGROUP.COM (650) 726-7100
ELECTRICAL:	EMERALD CITY ENGINEERS, INC. 21705 HIGHWAY 99, LYNNWOOD, WA 98036 CONTACT: ADAM FRENCH AFRENCH@EMERALDCITYENG.COM (425) 741-1200
JOINT TRENCH:	MILLENIUM DESIGN AND CONSULTING, INC. P.O. BOX 737, ALAMO, CA 94507 CONTACT: KAHN SENIMANDRA KAHN@JOINTUTILITY.COM (510) 837-7602

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CALIFORNIA

TITLE SHEET
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY

HALF MOON BAY

REGISTERED PROFESSIONAL ENGINEER — DALE J. LEDA — C 78436 — CIVIL — STATE OF CALIFORNIA

No.	Revisions	Date
	BID SET	02/26/2024
	BUILDING PERMIT SET	02/29/2024
1	BID ADDENDUM 3	04/03/2024
2	BID ADDENDUM 4	04/12/2024
3	PERMIT RESUBMITTAL	05/16/2024

Date 05/16/2024
Scale NO SCALE
Design DJP
Drawn DLG
Approved DJL
Job No 2021367-15

Drawing Number:
CO.0
OF

PLANS HAVE BEEN REVIEWED AND APPROVED BY:

CITY ENGINEER — DATE

PLANS HAVE BEEN REVIEWED AND APPROVED BY:

COASTSIDE FIRE PROTECTION DISTRICT — DATE

PLANS HAVE BEEN REVIEWED AND APPROVED BY:

COASTSIDE COUNTY WATER DISTRICT — DATE

DRAWING NAME: K:\2021\2113367-15_HMB_Corpyard_Housing\ENG\vmbsheets.dwg
PLOT DATE: 05-16-24 PLOTTED BY: gald

DEVELOPMENT STANDARDS NOTES:

REQUIREMENTS PER CITY OF HALF MOON BAY MUNICIPAL CODE CHAPTER 18.17 FOR MOBILE HOME PARK DISTRICT:

1. ALL MOBILE HOME SPACES SHALL BE SERVED FROM INTERNAL PRIVATE ROADWAYS AND THERE SHALL BE NO DIRECT VEHICULAR ACCESS FROM A MOBILE HOME SPACE TO A PUBLIC STREET OR ALLEY. INTERNAL ROADS SHALL HAVE A CLEAR AND UNOBSTRUCTED ACCESS TO A PUBLIC STREET OR HIGHWAY.

2. WALKWAYS SHALL BE PROVIDED THROUGHOUT THE MOBILE HOME PARK TO PROVIDE SAFE AND CONVENIENT PEDESTRIAN ACCESS TO AMENITIES, OPEN SPACE AREAS, AND PUBLIC ROADWAYS. WALKWAYS SHALL COMPLY WITH APPLICABLE ACCESSIBILITY STANDARDS BUT IN NO CASE SHALL BE LESS THAN THREE FEET IN WIDTH. WALKWAYS SHALL BE PAVED AND SEPARATE FROM ROADWAYS AND DRIVEWAYS FOR AUTOMOBILES.

2. A LANDSCAPING PLAN AND LANDSCAPE MAINTENANCE PLAN FOR THE SETBACK AREAS FROM THE PROPERTY PERIMETER OF THE MOBILE HOME PARK SHALL BE SUBMITTED FOR CONSIDERATION WITH EACH PERMIT APPLICATION FOR DEVELOPMENT OR EXPANSION OF A MOBILE HOME PARK. LANDSCAPING SHALL BE USED AS A BUFFER BETWEEN MOBILE HOME SPACES AND ADJACENT PROPERTIES. SERVICE AREAS AND OUTDOOR STORAGE AREAS SHALL BE SCREENED FROM VIEW FROM PUBLIC STREETS.

3. NO PLANT SPECIES LISTED AS PROBLEMATIC AND/OR INVASIVE BY THE CALIFORNIA NATIVE PLANT SOCIETY, THE CALIFORNIA INVASIVE PLANT COUNCIL, OR AS MAY BE IDENTIFIED FROM TIME TO TIME BY THE STATE OF CALIFORNIA SHALL BE EMPLOYED IN ANY LANDSCAPING IN THE MOBILE HOME PARK. NO PLANT SPECIES LISTED AS A NOXIOUS WEED BY THE STATE OF CALIFORNIA OR THE U.S. FEDERAL GOVERNMENT SHALL BE UTILIZED. ONLY NATIVE PLANTS OF LOCAL STOCK AND/OR DROUGHT-TOLERANT NONINVASIVE PLANTS SHALL BE USED FOR LANDSCAPING.

4. ONE NONILLUMINATED OR INDIRECTLY ILLUMINATED DETACHED MONUMENT SIGN, IDENTIFYING THE NAME OF THE MOBILE HOME PARK, SHALL BE PERMITTED. SUCH SIGN SHALL BE CONSTRUCTED OF NATURAL MATERIAL SUCH AS WOOD AND SHALL NOT EXCEED A HEIGHT OF FOUR FEET OR AN AREA OF SIXTEEN SQUARE FEET. ANY SUCH SIGN SHALL BE INTEGRATED INTO THE LANDSCAPE DESIGN.

6. MOBILE HOME PARKS SHALL BE REQUIRED TO USE GARBAGE COLLECTION AND RECYCLING SERVICES. CENTRAL COLLECTION CONTAINERS SHALL BE PROVIDED AT CONVENIENT LOCATIONS WITHIN DECORATIVE FENCED OR WALLED ENCLOSURES.

7. THE DEVELOPMENT, REDEVELOPMENT, OR MODIFICATION OF MOBILE HOME PARKS SHALL BE UNDERTAKEN PURSUANT TO THE WATER QUALITY PROTECTION STANDARDS SPECIFIED IN SECTION 18.38.121.

8. PRIOR TO ISSUANCE OF ANY COASTAL DEVELOPMENT PERMIT OR USE PERMIT, THE APPLICANT SHALL RECEIVE PRELIMINARY APPROVAL OF PLANS BY THE HALF MOON BAY FIRE PROTECTION DISTRICT.

9. LIGHTING SHALL BE THE MINIMUM NECESSARY TO ILLUMINATE THE INTERNAL ROADS WITHOUT ADVERSE IMPACT ON ADJACENT PROPERTIES. LIGHT FIXTURES SHALL BE THE MINIMUM HEIGHT NEEDED FOR PUBLIC SAFETY, BUT SHALL NOT EXCEED FIFTEEN FEET IN HEIGHT, AND SHALL BE SHIELDED TO DOWNCAST LIGHT TO PREVENT GLARE ON ADJACENT PROPERTIES.

10. IN DEVELOPMENT OF NEW AND EXPANSION OF EXISTING MOBILE HOME PARKS, ALL NEW ELECTRICAL, TELEPHONE, CABLE TV, AND SIMILAR DISTRIBUTION LINES PROVIDING DIRECT SERVICE TO THE DEVELOPMENT, INCLUDING INDIVIDUAL SPACES, SHALL BE INSTALLED UNDERGROUND.

11. MOBILE HOME UNITS WITHIN MOBILE HOME PARKS SHALL BE LIMITED TO USE AS PERMANENT RESIDENCES. NO MOBILE HOME SHALL BE RENTED TO OR OCCUPIED BY ANY INDIVIDUAL OR GROUP OF INDIVIDUALS FOR A TERM LESS THAN THIRTY CONSECUTIVE DAYS.

CAUTION:

1. CONTRACTOR SHALL CONTACT UNDERGROUND SERVICE ALERT FOR LOCATION OF UNDERGROUND UTILITIES AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION – PHONE (800) 642–2444. CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES PRIOR TO BEGINNING ANY WORK ON THIS SITE.

GENERAL SITE NOTES:

1. CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING ON THIS WORK AND CONSIDER THE EXISTING CONDITIONS AND SITE CONSTRAINTS IN THE BID. CONTRACTOR SHALL BE IN THE POSSESSION OF AND FAMILIAR WITH ALL APPLICABLE GOVERNING AGENCIES STANDARD DETAILS AND SPECIFICATIONS PRIOR TO SUBMITTING A BID.

2. ALL WORK ON–SITE AND IN THE PUBLIC RIGHT–OF–WAY SHALL CONFORM TO ALL APPLICABLE GOVERNING AGENCIES STANDARD DETAILS & SPECIFICATIONS.

3. PRIOR TO BEGINNING WORK, AND AFTER INITIAL HORIZONTAL CONTROL STAKING, CONTRACTOR SHALL FIELD CHECK ALL ELEVATIONS MARKED WITH (E) AND REPORT ANY DISCREPANCIES GREATER THAN 0.05' TO PROJECT MANAGER.

4. DAMAGE TO ANY EXISTING SITE IMPROVEMENTS, UTILITIES AND/OR SERVICES TO REMAIN, SHALL BE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL REPAIR AND/OR REPLACE IN KIND.

5. CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE CLIENT, THE CONSULTING ENGINEER AND THE CITY/TOWN HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE CLIENT OR THE CONSULTING ENGINEER.

6. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT BY BAGG ENGINEERS, DATED AUGUST 23, 2023.

RECORD DRAWINGS:

1. THE CONTRACTOR SHALL KEEP UP–TO–DATE AND ACCURATE A COMPLETE RECORD SET OF PRINTS OF THE CONTRACT DRAWINGS SHOWING EVERY CHANGE FROM THE ORIGINAL DRAWINGS MADE DURING THE COURSE OF CONSTRUCTION INCLUDING EXACT FINAL LOCATION, ELEVATION, SIZES, MATERIALS, AND DESCRIPTION OF ALL WORK. RECORDS SHALL BE "REDLINED" ON A SET OF CONSTRUCTION PLAN DRAWINGS. A COMPLETE SET OF CORRECTED AND COMPLETED RECORD DRAWING PRINTS SHALL BE SUBMITTED TO THE CITY ENGINEER AND DEVELOPER'S CIVIL ENGINEER PRIOR TO FINAL ACCEPTANCE FOR REVIEW AND APPROVAL BY THE CITY ENGINEER.

STORM DRAIN MAINTENANCE NOTES:

PLEASE NOTE THAT REGULAR MAINTENANCE ON GRADING AND DRAINAGE STRUCTURES IS REQUIRED TO ENSURE FUNCTIONALITY THROUGHOUT THE LIFE OF THE PROPERTY. MAINTENANCE SHOULD INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:

1. THE CLEARING OF DEBRIS FROM THE STORMWATER BIORETETION AREAS, STORM DRAIN LINES, AND STORM DRAIN CATCH BASINS.

2. ROOF GUTTERS AND DOWNSPOUTS SHOULD BE CLEARED BEFORE THE BEGINNING OF EACH RAINY SEASON AND AS NEEDED THROUGHOUT THE WINTER MONTHS.

3. SURFACE GRADING MAY ALSO REQUIRE CONTINUED REFINEMENT, INCLUDING THE CLEARING AND RE–FINISHING OF VEGETATED SWALES AND SLOPES TO MINIMIZE PONDING, MAINTAIN POSITIVE DRAINAGE AWAY FROM IMPROVEMENTS AND PROTECT AGAINST EROSION.

4. GRADED SLOPES SHOULD BE MONITORED AND RE–VEGETATED AS NEEDED.

5. FINALLY, DRAINAGE SWALES AND CONCRETE VALLEY GUTTERS SHOULD BE CONTINUOUSLY MONITORED AND CLEARED OF LEAVES AND DIRT DEBRIS.

TREE/PLANT PROTECTION NOTES:

1. PRIOR TO BEGINNING CONSTRUCTION ON–SITE, CONTRACTOR SHALL IDENTIFY AND PROTECT EXISTING TREES AND PLANTS DESIGNATED AS TO REMAIN.

2. PROTECT EXISTING TREES TO REMAIN FROM SPILLED CHEMICALS, FUEL OIL, MOTOR OIL, GASOLINE AND ALL OTHER CHEMICALLY INJURIOUS MATERIAL; AS WELL AS FROM PUDDLING OR CONTINUOUSLY RUNNING WATER. SHOULD A SPILL OCCUR, STOP WORK IN THAT AREA AND CONTACT THE CITY/TOWN'S ENGINEER/INSPECTOR IMMEDIATELY. CONTRACTOR SHALL BE RESPONSIBLE TO MITIGATE DAMAGE FROM SPILLED MATERIAL AS WELL AS MATERIAL CLEAN UP.

3. CONTRACTOR SHALL BE RESPONSIBLE FOR ONGOING MAINTENANCE OF ALL TREES DESIGNATED TO REMAIN AND FOR MAINTENANCE OF RELOCATED TREES STOCKPILED DURING CONSTRUCTION. CONTRACTOR WILL BE REQUIRED TO REPLACE TREES THAT DIE DUE TO LACK OF MAINTENANCE.

4. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE ARBORIST REPORT BY WEST COAST ARBORISTS, INC., DATED AUGUST 21, 2023.

ARBORIST TREE PROTECTION NOTES:

THE FOLLOWING TREE PROTECTION MEASURES SHOULD BE APPLIED TO ALL TREES THAT ARE TO BE RETAINED:

1. PRE–CONSTRUCTION:
   - A. A PRE–CONSTRUCTION MEETING SHOULD BE HELD TO DISCUSS TREE PROTECTION MEASURES AND ENSURE ALL TREE PROTECTION MEASURES HAVE BEEN PROPERLY INSTALLED.
   - B. ANY CLEARANCE PRUNING THAT IS DEEMED NECESSARY FOR CONSTRUCTION SHALL BE COMPLETED USING THE MINIMAL DOSE NECESSARY AND SHALL BE APPROVED BY THE PROJECT ARBORIST PRIOR TO PRUNING.
   - C. TREE PROTECTION ZONES (TPZ) SHALL BE ESTABLISHED AND ENFORCED TO PREVENT SOIL COMPACTION, GRADE CHANGE, AND ROOT DAMAGE. TREE PROTECTION AREAS SHALL BE ESTABLISHED WITH FIVE–FOOT–HIGH CHAIN LINK FENCING MOUNTED ON 2–INCH DIAMETER GALVANIZED IRON POSTS, DRIVEN INTO THE GROUND TO A DEPTH OF AT LEAST 2–FEET, AT NO MORE THAN 10–FOOT SPACING.
     - C.1. THE DIAMETER OF THE TPZ SHALL BE DETERMINED BY THE TRUNK DIAMETER OF TREES TO BE PROTECTED. FOR EVERY 1 INCH OF TRUNK DIAMETER, THE TPZ SHALL EXTEND 1 FOOT. FOR EXAMPLE, A 10–INCH DIAMETER TREE SHALL HAVE A TPZ WITH A RADIUS OF 10–FEET AROUND THE TREE. IN AREAS WHERE THIS TPZ SIZE IS GREATER THAN WHAT CONSTRUCTION CAN ALLOW, THE CANOPY DRIPLINE SHALL BE THE MINIMUM RADIUS FOR THE TPZ.
     - C.2. FOR TREES GROWING ALONG THE EAST PERIMETER OF THE PROPERTY, TPZS CAN BE COMBINED TO FORM ONE LARGE TPZ FOR TREES IN THIS AREA. ADDITIONALLY, FENCING IS NOT REQUIRED ON THE WEST SIDE OF THE TREES AS THE PROPERTY LINE FENCING IS ALREADY IN PLACE.
   - D. A "WARNING: DO NOT ENTER' SIGN SHALL BE PROMINENTLY DISPLAYED ON EACH TREE PROTECTIVE FENCE.
   - E. A 4–INCH LAYER OF CHIP BARK MULCH SHALL BE PLACED ON TOP OF THE TPZ AND ENCLOSED WITHIN THE TREE PROTECTIVE FENCING. THIS MULCH SHALL ONLY BE MOVED FOR LANDSCAPE PLANTS TO BE INSTALLED AFTER ALL EXCAVATION AND SOIL COMPACTION WORK HAS BEEN COMPLETED.
   - F. ESTABLISH AN AREA OUTSIDE OF THE TPZS OR ON PREEXISTING HARDSCAPE TO STORE SEDIMENT AND BACKFILL. ENSURE NO FLOW PATHS LEAD TO TPZS FROM SEDIMENT OR BACKFILL PILES IF PRESENT.
   - G. NO MATERIAL OR EQUIPMENT SHALL BE STORED OR PLACED WITHIN THE TPZ OF PRESERVED TREES.
2. CONSTRUCTION:
   - A. IN AREAS WHERE CONSTRUCTION ACTIVITY IS TO TAKE PLACE BENEATH THE CANOPY OF EXISTING TREES, SUCH AS THE WALKING PATH, THE TPZ SHALL BE MOVED TO THE GREATEST DISTANCE POSSIBLE FROM THE SUBJECT TREE WHILE ALSO ALLOWING FOR CONSTRUCTION TO PROCEED. ONCE CONSTRUCTION IN THE SUBJECT AREA HAS OCCURRED, THE TPZ SHALL BE MOVED BACK TO THE PREESTABLISHED BOUNDARY.
     - A.1. PROJECT ARBORIST SHALL CONDUCT SITE OBSERVATIONS DURING ANY CONSTRUCTION ACTIVITY THAT IS TO TAKE PLACE BENEATH THE CANOPY DRIPLINE OF TREES.
     - A.2. ANY EXCAVATION ACTIVITY THAT IS TO TAKE PLACE IN THESE AREAS IS PROHIBITED FROM USING BACKHOES, TREAD TRACTORS, OR ANY OTHER HEAVY VEHICLES. METHODS PERMITTED INCLUDE HAND DIGGING, HYDRAULIC OR PNEUMATIC AIR EXCAVATION.
   - B. DURING EXCAVATION ACTIVITY, SHOULD ANY ROOTS BE ENCOUNTERED, ROOT PRUNING SHALL BE DONE WITH HAND TOOLS IN ORDER TO MAKE CLEAN CUTS THAT FACE THE EXCAVATED AREA.
     - B.1. ROOTS LARGER THAN 2.5 INCHES SHALL NOT BE CUT WITHOUT PROJECT ARBORIST PRIOR APPROVAL.
     - B.2. ROOTS LARGER THAN 2.5 INCHES THAT ARE CUT SHALL IMMEDIATELY SHADED AND KEPT MOIST WITH WET BURLAP OR SIMILAR MATERIAL UNTIL THEY CAN BE RECOVERED.
   - C. NO PRUNING SHOULD BE PERFORMED ON TREES THAT HAVE ROOTS IMPACTED BY CONSTRUCTION ACTIVITY FOR AT LEAST ONE YEAR FOLLOWING THE COMPLETION OF THIS PROJECT OTHER THAN NECESSARY MAINTENANCE SUCH AS BUILDING CLEARANCE.
3. POST CONSTRUCTION:
   - A. PROJECT ARBORIST SHOULD CONDUCT MONITORING TWICE A YEAR FROM THE DATE OF PROJECT COMPLETION FOR NO LESS THAN TWO YEARS TO ENSURE TREES ARE IN GOOD CONDITION.

HORIZONTAL CONTROL NOTES:

1. ALL DIMENSIONS ON THE PLANS ARE IN FEET OR DECIMALS THEREOF UNLESS SPECIFICALLY CALLED OUT AS FEET AND INCHES.

PAVEMENT SECTION:

1. SEE GEOTECHNICAL REPORT FOR ALL FLATWORK AND VEHICULAR PAVEMENT SECTIONS AND BASE REQUIREMENTS.

2. THE FINAL OR SURFACE LAYER OF ASPHALT CONCRETE SHALL NOT BE PLACED UNTIL ALL ON–SITE IMPROVEMENTS HAVE BEEN COMPLETED, INCLUDING ALL GRADING, AND ALL UNACCEPTABLE CONCRETE WORK HAS BEEN REMOVED AND REPLACED, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER AND/OR DEVELOPER'S CIVIL ENGINEER.

3. ALL PAVING SHALL BE IN CONFORMANCE WITH SECTION 26 "AGGREGATE BASE" AND SECTION 39 "ASPHALT CONCRETE" PER LATEST EDITION OF CALTRANS STANDARD SPECIFICATIONS.

SITE MAINTENANCE:

1. REMOVE ALL DIRT, GRAVEL, RUBBISH, REFUSE, AND GREEN WASTE FROM STREET PAVEMENT AND STORM DRAINS ADJOINING THE SITE. LIMIT CONSTRUCTION ACCESS POINTS FOR THE SITE AND PLACE STABILIZED CONSTRUCTION ENTRANCES AT THESE LOCATIONS. DO NOT DRIVE VEHICLES AND EQUIPMENT OFF THE PAVED OR GRAVELED AREAS DURING WET WEATHER.

2. SWEEP OR VACUUM THE STREET PAVEMENT AND SIDEWALKS ADJOINING THE PROJECT SITE AND THE ON–SITE PAVED AREAS ON A DAILY BASIS. SCRAPE CAKED–ON MUD AND DIRT FROM THESE AREAS BEFORE SWEEPING. CORNERS AND HARD TO REACH AREAS SHALL BE SWEPT MANUALLY.

3. CREATE A CONTAINED AND COVERED AREA ON THE SITE FOR THE STORAGE OF BAGS, CEMENT, PAINTS, OILS, FERTILIZERS, PESTICIDES, OR OTHER MATERIALS USED ON THE SITE THAT HAVE THE POTENTIAL OF BEING DISCHARGED INTO THE STORM DRAIN SYSTEM THROUGH EITHER BEING WIND–BLOWN OR IN THE EVENT OF A MATERIAL SPILL.

4. NEVER CLEAN MACHINERY, EQUIPMENT OR TOOLS INTO A STREET, GUTTER OR STORM DRAIN.

5. ENSURE THAT CEMENT TRUCKS, PAINTERS, OR STUCCO/PLASTER FINISHING CONTRACTORS DO NOT DISCHARGE WASH WATER FROM EQUIPMENT, TOOLS OR RINSE CONTAINERS INTO GUTTERS OR DRAINS.

NPDES REQUIREMENTS:

1. ALL CONSTRUCTION ON OFF–SITE OR ON–SITE IMPROVEMENTS SHALL ADHERE TO NPDES (NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM) BEST MANAGEMENT PRACTICES TO PREVENT DELETERIOUS MATERIALS OR POLLUTANTS FROM ENTERING THE CITY/TOWN OR COUNTY STORM DRAIN SYSTEMS.

2. ERODED SEDIMENTS AND OTHER POLLUTANTS MUST BE RETAINED ON–SITE AND MAY NOT BE TRANSPORTED FROM THE SITE VIA SHEET FLOW, SWALES, AREA DRAINS, NATURAL DRAINAGE COURSES, OR WIND.

3. STOCKPILES OF EARTH AND OTHER CONSTRUCTION RELATED MATERIALS MUST BE PROTECTED FROM BEING TRANSPORTED FROM THE SITE BY THE FORCES OF WIND OR WATER.

4. FUELS, OILS, SOLVENTS, AND OTHER TOXIC MATERIALS MUST BE STORED IN ACCORDANCE WITH THEIR LISTING AND ARE NOT TO CONTAMINATE THE SOIL AND SURFACE WATERS. ALL APPROVED STORAGE CONTAINERS ARE TO BE PROTECTED FROM THE WEATHER. SPILLS MUST BE CLEANED UP IMMEDIATELY AND DISPOSED OF IN A PROPER MANNER. SPILLS MAY NOT BE WASHED INTO THE DRAINAGE SYSTEM.

5. EXCESS OR WASTE CONCRETE MAY NOT BE WASHED INTO THE PUBLIC RIGHT–OF–WAY OR ANY OTHER DRAINAGE SYSTEM. PROVISIONS SHALL BE MADE TO RETAIN CONCRETE WASTES ON–SITE UNTIL THEY CAN BE DISPOSED OF AS SOLID WASTE.

6. TRASH AND CONSTRUCTION RELATED SOLID WASTES MUST BE DEPOSITED INTO A COVERED RECEPTACLE TO PREVENT CONTAMINATION AND DISPERSAL BY WIND.

7. SEDIMENTS AND OTHER MATERIALS MAY NOT BE TRACKED FROM THE SITE BY VEHICLE TRAFFIC. THE CONSTRUCTION ENTRANCE ROADWAYS MUST BE STABILIZED SO AS TO INHIBIT SEDIMENTS FROM BEING DEPOSITED INTO THE PUBLIC RIGHT–OF–WAY. ACCIDENTAL DEPOSITIONS MUST BE SWEPT UP IMMEDIATELY AND MAY NOT BE WASHED DOWN BY RAIN OR OTHER MEANS.

8. ANY SLOPES WITH DISTURBED SOILS OR DENUDED OF VEGETATION MUST BE STABILIZED SO AS TO INHIBIT EROSION BY WIND AND WATER.

9. CLEAN UP ALL SPILLS USING DRY METHODS.

10. SWEEP ALL GUTTERS AT THE END OF EACH WORKING DAY. GUTTERS SHALL BE KEPT CLEAN AFTER LEAVING CONSTRUCTION–SITE.

11. CALL 911 IN CASE OF A HAZARDOUS SPILL.

12. BMP'S AS OUTLINED IN, BUT NOT LIMITED TO, CALIFORNIA STORM WATER QUALITY TASK FORCE, SACRAMENTO, CALIFORNIA, JANUARY 2015, OR THE LATEST REVISED EDITION, MAY APPLY DURING THE CONSTRUCTION OF THIS PROJECT (ADDITIONAL MEASURES MAY BE REQUIRED IF DEEMED APPROPRIATE BY CITY/TOWN INSPECTORS).

13. UPON SATISFACTORY COMPLETION OF THE WORK, THE ENTIRE WORK SITE SHALL BE CLEANED BY THE CONTRACTOR AND LEFT WITH A SMOOTH AND NEATLY GRADED SURFACE FREE OF CONSTRUCTION WASTE, RUBBISH, AND DEBRIS OF ANY NATURE.

EROSION AND SEDIMENTATION CONTROL NOTES:

1. CONTRACTOR SHALL ASSUME THE CONCEPTS ON THE EROSION CONTROL PLAN, IF PROVIDED, ARE SCHEMATIC MINIMUM REQUIREMENTS, THE FULL EXTENT OF WHICH ARE TO BE DETERMINED BY THE CONTRACTOR. CONTRACTOR IS RESPONSIBLE FOR THE EXACT DESIGN AND EXTENT OF THE EROSION CONTROL SYSTEM SO THAT IT WORKS WITH THE CONTRACTOR'S INTENDED USE AND MANAGEMENT OF THE CONSTRUCTION–SITE.

2. ALL EROSION CONTROL FACILITIES SHALL BE INSPECTED BY THE CONTRACTOR AND REPAIRED, AS REQUIRED, AT THE CONCLUSION OF EACH WORKING DAY. THE CONTRACTOR SHALL INSPECT THE EROSION CONTROL FACILITIES AND MAKE NECESSARY REPAIRS PRIOR TO ANTICIPATED STORMS AND AT REASONABLE INTERVALS DURING STORMS OF EXTENDED DURATION. REPAIRS TO DAMAGED FACILITIES SHALL BE MADE IMMEDIATELY UPON DISCOVERY.

3. AS SOON AS PRACTICAL FOLLOWING EACH STORM, THE CONTRACTOR SHALL REMOVE ANY ACCUMULATION OF SILT OR DEBRIS FROM THE EROSION CONTROL SEDIMENT BASINS AND SHALL CLEAR THE OUTLET PIPES OF ANY BLOCKAGE.

4. STOCKPILED MATERIAL SHALL BE COVERED WITH VISQUEEN OR A TARPAULIN UNTIL THE MATERIAL IS REMOVED FROM THE SITE. ANY REMAINING BARE SOIL THAT EXISTS AFTER THE STOCKPILE HAS BEEN REMOVED SHALL BE COVERED UNTIL A NATURAL GROUND COVER IS ESTABLISHED OR IT MAY BE SEEDED OR PLANTED TO PROVIDE GROUND COVER.

5. PRIOR TO THE COMMENCEMENT OF ANY CLEARING, GRADING, OR EXCAVATION, THE CONTRACTOR SHALL VERIFY THAT THE CLIENT HAS SUBMITTED TO THE STATE WATER RESOURCES CONTROL BOARD A NOTICE OF INTENT (NOI) FOR COVERAGE UNDER THE STATE CONSTRUCTION STORM WATER GENERAL PERMIT, IF REQUIRED BY THE STATE. THE CONTRACTOR SHALL MAINTAIN A COPY OF THE NOI ON THE CONSTRUCTION–SITE.

6. NECESSARY MATERIALS SHALL BE AVAILABLE ON–SITE AND STOCKPILED AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF TEMPORARY DEVICES WHEN RAIN IS IMMINENT.

7. PROTECT ADJACENT PROPERTIES AND UNDISTURBED AREAS FROM CONSTRUCTION IMPACTS USING VEGETATIVE BUFFER STRIPS, SEDIMENT BARRIERS OR FILTERS, DIKES, MULCHING OR OTHER MEASURES AS APPROPRIATE.

8. CONTRACTOR SHALL MAINTAIN ADJACENT STREETS IN A NEAT, CLEAN, DUST FREE AND SANITARY CONDITION AND TO THE SATISFACTION OF THE CITY/TOWN INSPECTOR. THE ADJACENT STREET SHALL BE KEPT CLEAN OF DEBRIS, WITH DUST AND OTHER NUISANCE BEING CONTROLLED. DEVELOPER SHALL BE RESPONSIBLE FOR ANY CLEAN UP ON ADJACENT STREETS AFFECTED BY THEIR CONSTRUCTION, METHOD OF STREET CLEANING SHALL BE BY DRY SWEEPING OF ALL PAVED AREAS. NO STOCKPILING OF BUILDING MATERIALS WITHIN THE CITY/TOWN'S RIGHT–OF–WAY IS PERMITTED.

9. ALL EROSION CONTROL MATERIALS SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR UNLESS OTHERWISE NOTED.

10. PROTECT DOWN SLOPE DRAINAGE COURSES, STREAMS AND STORM DRAINS WITH ROCK FILLED SAND BAGS, TEMPORARY DRAINAGE SWALES, SILT FENCES, EARTH BERMS, STORM DRAIN INLET FILTERS AND/OR STRAW BALES USED ONLY IN CONJUNCTION WITH PROPERLY INSTALLED SILT FENCES.

SITE FENCE NOTES:

1. CONTRACTOR SHALL PROVIDE A CONSTRUCTION FENCE AROUND THE ENTIRE AREA OF DEMOLITION AND CONSTRUCTION, INCLUDING ALL STAGING, STORAGE, CONSTRUCTION OFFICE AND LAYDOWN AREAS.

2. CONSTRUCTION FENCE SHALL BE A MINIMUM OF A 6' HIGH GALVANIZED CHAIN LINK WITH GREEN WINDSCREEN FABRIC ON THE OUTSIDE OF THE FENCE.

3. CONSTRUCTION FENCE ADDRESSED IN THESE NOTES IS ONLY FOR VISUAL CONFORMANCE OF THIS CONSTRUCTION–SITE TO THE CITY/TOWN STANDARDS. CONTRACTOR MAY BE REQUIRED TO PROVIDE ADDITIONAL FENCING, BARRICADES OR OTHER SAFETY DEVICES TO KEEP THE SITE SECURE AND SAFE.

DUST CONTROL:

1. GRADING OR ANY OTHER OPERATIONS THAT CREATES DUST SHALL BE STOPPED IMMEDIATELY IF DUST AFFECTS ADJACENT PROPERTIES. THE CONTRACTOR SHALL PROVIDE SUFFICIENT DUST CONTROL FOR THE ENTIRE PROJECT SITE IN ACCORDANCE WITH THE PROJECT NPDES AT ALL TIMES. THE SITE SHALL BE WATERED (BY HAND OR TRUCK) AS NECESSARY TO PREVENT DUST NUISANCE. IN THE EVENT THAT THE CONTRACTOR NEGLECTS TO USE ADEQUATE MEASURES TO CONTROL DUST, THE CLIENT RESERVES THE RIGHT TO TAKE WHATEVER MEASURES ARE NECESSARY TO CONTROL DUST AND CHARGE THE COST TO THE CONTRACTOR.

2. ALL PUBLIC STREETS AND MEDIANS SOILED OR LITTERED DUE TO THIS CONSTRUCTION ACTIVITY SHALL BE CLEANED AND SWEPT ON A DAILY BASIS DURING THE WORK WEEK, OR AS OFTEN AS DEEMED NECESSARY BY THE CLIENT/INSPECTOR, OR TO THE SATISFACTION OF THE CITY/TOWN'S DEPARTMENT OF PUBLIC WORKS.

3. ALL TRUCKS HAULING SOIL, SAND, AND OTHER LOOSE MATERIALS SHALL BE COVERED WITH TARPAULINS OR OTHER EFFECTIVE COVERS.

4. WHEEL WASHERS SHALL BE INSTALLED AND USED TO CLEAN ALL TRUCKS AND EQUIPMENT LEAVING THE CONSTRUCTION SITE. IF WHEEL WASHERS CANNOT BE INSTALLED, TIRES OR TRACKS OF ALL TRUCKS AND EQUIPMENT SHALL BE WASHED OFF BEFORE LEAVING THE CONSTRUCTION SITE.

GENERAL UTILITY SYSTEM NOTES:

1. ALL TRENCHES SHALL BE BACKFILLED PER THE SPECIFICATIONS AND CITY STANDARD DETAIL UT–1 WITH APPROPRIATE TESTS BY THE GEOTECHNICAL ENGINEER TO VERIFY COMPACTION VALUES. (3)
2. CLEAN OUTS, CATCH BASINS AND AREA DRAINS ARE TO BE ACCURATELY LOCATED BY THEIR RELATIONSHIP TO THE BUILDING, FLATWORK, ROOF DRAINS, AND/OR CURB LAYOUT, NOT BY THE LENGTH OF PIPE SPECIFIED IN THE DRAWINGS (WHICH IS APPROXIMATE).
3. CONTRACTOR SHALL STAKE LOCATION OF ABOVE GROUND UTILITY EQUIPMENT (BACKFLOW PREVENTOR, SATELLITE DISH, TRANSFORMER, GAS METER, ETC.) AND MEET WITH CLIENT TO REVIEW LOCATION PRIOR TO INSTALLATION. PLANNING DEPARTMENT MUST SPECIFICALLY AGREE WITH LOCATION PRIOR TO PROCEEDING WITH THE INSTALLATION.
4. CONTRACTOR SHALL PREPARE AN ACCURATE COMPOSITE UTILITY PLAN THAT TAKES INTO ACCOUNT THE ACTUAL LOCATION OF EXISTING UTILITIES AS DETERMINED DURING THE DEMOLITION WORK. THE UTILITIES SHOWN ON THE CIVIL DRAWINGS, AND THE SITE POWER, CONDUITS AND LIGHTING SHOWN ON THE ELECTRICAL PLANS. THE FIRE SPRINKLER SYSTEM SHALL BE INCLUDED AS DESIGNED BY THE DESIGN/BUILD UNDERGROUND FIRE SPRINKLER CONTRACTOR.
5. CATHODIC PROTECTION MAY BE REQUIRED ON ALL METALLIC FITTINGS AND ASSEMBLIES THAT ARE IN CONTACT WITH THE SOIL. IF RECOMMENDED BY THE GEOTECHNICAL REPORT, CONTRACTOR IS RESPONSIBLE TO FULLY ENGINEER AND INSTALL THIS SYSTEM AND COORDINATE ANODE AND TEST STATION LOCATIONS WITH OWNER'S PROJECT MANAGER.
6. COMPLETE SYSTEMS: ALL UTILITY SYSTEMS ARE DELINEATED IN A SCHEMATIC MANNER ON THESE PLANS. CONTRACTOR IS TO PROVIDE ALL FITTINGS, ACCESSORIES AND WORK NECESSARY TO COMPLETE THE UTILITY SYSTEM SO THAT IT IS FULLY FUNCTIONING FOR THE PURPOSE INTENDED.
7. UNDERGROUND UTILITIES OR STRUCTURES ARE SHOWN IN THEIR APPROXIMATE LOCATIONS AND EXTENT BASED UPON RECORD INFORMATION. LOCATIONS MAY NOT HAVE BEEN VERIFIED IN THE FIELD AND NO GUARANTEE IS MADE TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CLIENT, BY ACCEPTING THESE PLANS OR PROCEEDING WITH IMPROVEMENTS PURSUANT THERETO, AGREES TO ASSUME LIABILITY AND TO HOLD UNDERSIGNED HARMLESS FOR ANY DAMAGES RESULTING FROM THE EXISTENCE OF UNDERGROUND UTILITIES OR STRUCTURES NOT REPORTED TO THE UNDERSIGNED; NOT INDICATED ON THE PUBLIC RECORDS EXAMINED, LOCATED AT VARIANCE WITH THOSE REPORTED OR SHOWN ON RECORDS EXAMINED.
8. CONTRACTOR SHALL VERIFY ALL EXISTING INVERT ELEVATIONS FOR STORM DRAIN AND SANITARY SEWER CONSTRUCTION PRIOR TO COMMENCEMENT OF ANY WORK. ALL WORK FOR STORM AND SANITARY SEWER INSTALLATION SHALL BEGIN AT THE DOWNSTREAM CONNECTION POINT. THIS WILL ALLOW FOR ANY NECESSARY ADJUSTMENTS TO BE MADE PRIOR TO THE INSTALLATION OF THE ENTIRE LINE. IF THE CONTRACTOR FAILS TO BEGIN AT THE DOWNSTREAM CONNECTION POINT AND WORKS UP STREAM, HE SHALL PROCEED AT HIS OWN RISK AND BE RESPONSIBLE FOR ANY ADJUSTMENTS NECESSARY. CONTRACTOR SHALL VERIFY LOCATION OF SANITARY SEWER LATERAL WITH OWNER PRIOR TO CONSTRUCTION.
9. EXISTING UTILITY CROSSINGS OF NEW PIPELINE ARE SHOWN ACCORDING TO THE BEST AVAILABLE INFORMATION. GAS, WATER AND SEWER SERVICE LATERALS ARE SHOWN ACCORDING TO THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL VERIFY THE TYPE, SIZE, LOCATION AND DEPTH OF ALL THE UTILITY CROSSING (BOTH MAINS AND LATERALS) ARE CORRECT AS SHOWN. NO GUARANTEE IS MADE THAT ALL EXISTING UTILITIES (BOTH MAINS AND LATERALS) ARE SHOWN. THE CONTRACTOR SHALL EXERCISE CAUTION WHEN EXCAVATING AND SHALL PROTECT ALL EXISTING UTILITIES (BOTH MAINS AND LATERALS) FROM DAMAGE DUE TO HIS OPERATION.
10. VERTICAL SEPARATION REQUIREMENTS:

    A MINIMUM

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ATTACHMENT 1
CONDITIONS OF APPROVAL
PDP-23-090
ISSUANCE DATE: December 11, 2023

A. The following Conditions apply to this project:

1. CONFORMANCE WITH THE APPROVED PLANS. All plans shall substantially conform to the project plan set dated November 28, 2023, submitted with the application, as may be modified by the conditions of approval. The Community Development Director and the City Engineer shall review and may approve any deviations from the approved plans that are determined minor. Any other proposed change shall be processed as part of the Follow-Up Coastal Development Permit and shall be subject to Planning Commission Review as required by Title 18. (Engineering and Planning)

2. CONFORMANCE WITH CONDITIONS OF APPROVAL. The Community Development Director shall review and may approve any deviation from the Conditions of Approval that is determined minor. Any other change shall be included in the Follow-Up Coastal Development Permit and shall be subject to Planning Commission Review. (Planning)

3. CONFORMANCE WITH THE MUNICIPAL CODE. No part of this approval shall be construed to permit a violation of any part of the Half Moon Bay Municipal Code. (Engineering and Planning)

4. FOLLOW-UP COASTAL DEVELOPMENT PERMIT. The permittee shall submit a Coastal Development Permit application within 60 calendar days of the issuance date of the Emergency Coastal Development Permit. (Planning)

5. ON-SITE MANAGEMENT. The permittee shall obtain a qualified management company and provide on-site management in perpetuity for this community. The on-site management company shall be responsible for administering community policies and rules and for at least an annual inspection of each home to ensure safety and property maintenance. Inspections shall also be conducted following environmental occurrences such as earthquakes and extreme weather events to ensure structural integrity and safety. (Planning)

6. AFFORDABILITY. The project is subject to approval of an affordable housing agreement between the City and San Mateo County. (CMO)

7. FUTURE MODIFICATIONS TO HOMES. The manufactured homes must be maintained in accordance with original specifications. Routine maintenance is allowed but must be compliant with applicable codes. Additions are not permitted. Detached structures, such as arbors or sheds, may be permitted according to the community policies. (Planning)

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8. CONSERVATION CORRIDOR. To comply with Mitigation Measure BIO-2.f. from the Corporation Yard Initial Study/Mitigated Negative Declaration, the conservation corridor established for the Corporation Yard improvement project (PDP 21-053) shall be maintained by the City of Half Moon Bay. The wildlife tunnels and exclusionary fencing shall be inspected at least annually to ensure that the tunnels maintain open passage and the fencing maintains a complete barrier for passage of special status species including the California red-legged frog and the San Francisco garter snake. (Public Works)

9. LIGHTING. All exterior lighting shall be fully shielded so that no light source is visible from outside the property, except as otherwise expressly approved. The permittee shall install lighting per plans and submitted photometric lighting plan for all exterior light fixtures including lighting for parking lots, walkways, and open space areas. No floodlights are permitted on-site. (Planning)

10. SIDEWALK MAINTENANCE AND LIABILITY. It shall be the duty of the owner/operator to maintain all walkways within the project in a safe and non-dangerous condition. Walkway maintenance shall include removal and replacement of concrete to eliminate tripping hazards; and pruning and trimming of trees, shrubs, ground cover, and other landscaping impacting the safety of users. (Engineering and Planning)

B. The following Conditions shall be fulfilled prior to issuance of the grading permit and/or building permit:

1. SIGNED CONDITIONS OF APPROVAL. The permittee shall submit a signed copy of the conditions of approval to the Planning Department. (Planning)

2. CONSTRUCTION PLANS. File Number PDP-23-090 and the Conditions of Approval for this project shall be provided on the cover page of the engineering permit application plan submittal. All plans, specifications, engineering calculations, diagrams, reports, and other data for the construction of the building and required improvements shall be submitted with the appropriate permit application to the City's Building and Engineering Divisions for review and approval. Computations and backup data will be considered a part of the required plans. Structural calculations and engineering calculations shall be prepared, wet-stamped, and signed by an engineer or architect licensed by the State of California. (Planning and Engineering)

3. UNDERGROUND UTILITIES/SERVICES. Electric, telecommunication, and cable and utility service to the property shall be through underground service connections only. No overhead utility lines are allowed. Show locations of all service connections: sanitary sewer, storm drain (if applicable), water (domestic and fire), cable television, telephone, and electrical. (Engineering)

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4. WATER CONSERVATION IN LANDSCAPING. The permittee shall submit a final landscape and irrigation plan in substantial conformance with the Landscape Plan dated November 28, 2023 reflecting any revisions necessitated by the Conditions of Approval. The final irrigation plans shall be submitted and approved by the Community Development Director utilizing an Outdoor Water Efficiency Checklist that demonstrates compliance with the City's Water Conservation in Landscaping Ordinance (Chapter 13.04 of the Municipal Code). (Planning)

5. SURVEY REQUIRED. The permittee shall include a baseline elevation datum point on, or close to the construction site, indicating the grade as consistent with the survey and grading plan included in the November 28, 2023 application submittal. (Building and Public Works)

6. HOME DESIGN. Final elevations, floorplans, and a color board shall be submitted and approved by the Community Development Director prior to the issuance of the Building Permit and/or installation of any homes (compliance with this condition is not a prerequisite for issuance of the Grading Permit). Homes shall include architectural features including pitched roofs, quality siding such as board and batten, shutters, wood steps, covered entrances, and shutters. Home foundations shall comply with the recommendations of the project geotechnical review prepared by BAGG Engineers dated August 23, 2023. (Building and Planning)

7. EVIDENCE OF WATER CONNECTION CAPACITY. Prior to the issuance of the Grading Permit, the permittee shall submit a letter from Coastside County Water District certifying that the subject site has an adequately sized water connection for domestic and fire service for this project and that a sufficient number of priority connections have been allocated to the project. The City agrees to provide a letter in advance to CCWD indicating the allocation of affordable and coastal priority water connections. (Building and Fire)

8. EVIDENCE OF SEWER CONNECTION CAPACITY. Prior to the issuance of the first building permit, the permittee shall obtain a "will serve" letter from the City of Half Moon Bay designating and transferring sewer capacity/connections to the project. (Public Works and Building)

9. LOT GRADING. This project requires the issuance of a grading permit. No on-site grading or site preparation, storage, or placement of construction materials, equipment, or vehicles shall take place prior to the issuance of a grading permit. Lot grading includes, but is not limited to, leveling, scraping, clearing, stockpiling of materials, or removal of lot surface area. (Engineering)

10. DRAINAGE PLAN. On-site drainage shall conform with the Drainage Plan dated November 28, 2023. Prior to the issuance of a grading permit, the permittee shall demonstrate that the grading plan is in substantial conformance with the Drainage Plan. Plans shall include supporting calculations for stormwater detention on the site for the additional run-off from a ten-year frequency storm of two-hour duration.

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11. COPPER BUILDING ELEMENTS. The building plans shall specify that all copper building elements will be pre-patinated at the factory, or if patination will occur on the site, the plans shall identify best management practices in conformance with the *San Mateo Countywide Water Pollution Prevention Program Requirements for Architectural Copper,* to the satisfaction of the City Engineer. (Engineering)

12. EROSION AND SEDIMENT CONTROL. An erosion and sediment control plan shall be submitted in conjunction with the Grading Permit that shows effective Best Management Practices (BMP) and erosion and sediment control measures for the site. Construction plans shall also include the "construction best management practices" plan sheet. (Engineering)

13. FIRE PROTECTION REQUIREMENTS. The permittee shall comply with all applicable fire and building codes and standards as may be identified and recommended by the Coastside Fire Protection District and include such requirements in plans. (Fire)

14. COASTSIDE COUNTY WATER DISTRICT. The project shall comply with all applicable regulations and requirements of the Coastside County Water District including for fire flow and include such requirements in plans. Water service shall not be in the same trench as other utilities. (Water District)

15. TREE PROTECTION REQUIREMENTS. To protect the trees on the site and surrounding area (excluding the trees approved for removal), the project shall conform to the approved tree protection plan. The following tree protection measures shall be implemented during construction:
   a. Prior to commencement of construction, construction fencing shall be placed around the drip line of all trees proposed for preservation.
   b. No grading or other construction shall occur within the drip line of any tree proposed for preservation except in conformance with a tree protection plan approved by the Community Development Director.
   c. No vehicle, equipment or materials shall be parked or stored within the drip line of any tree proposed for preservation. (Planning/Building)

16. NATURAL GAS. There shall be no natural gas service to the project.

C. The following conditions shall be implemented to the satisfaction of the Community Development Director prior to and during grading and construction:

1. ARCHAEOLOGY-DISCOVERY OF HUMAN REMAINS. Pursuant to Section 7050.5 of the Health and Safety Code, and Section 5097.94 of the Public Resources Code of the State of California, in the event of the discovery of human remains during construction, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains. The County Coroner shall be notified and shall make a determination as to whether the remains are Native American. If the Coroner determines that the remains are

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not subject to his authority, he shall notify the California Native American Heritage Commission who shall attempt to identify descendants of the deceased Native American(s). If no satisfactory agreement can be reached as to the disposition of the remains pursuant to this State law, then the permittee shall re-inter the human remains and items associated with Native American burials on the property in a location not subject to further subsurface disturbance. (Planning)

2. ARCHAEOLOGY-DISCOVERY OF RESOURCES. If subsurface historic or archaeological resources are uncovered during construction, all work shall stop, the applicant shall notify the Community Development Director and retain a qualified archaeologist to perform an archaeological reconnaissance and identify any mitigation measures required to protect archaeological resources. Subsurface excavation shall not resume until expressly authorized by the Director. (Building)

3. STREET/PUBLIC RIGHT-OF-WAY CUTS FOR UTILITY CONNECTIONS. Any cuts for utility connections on Stone Pine Road that are less than twenty (20) feet apart shall be repaired with a single patch. Asphalt repair and overlay for public street cuts shall be by the City Standard Details. Three or more cuts in the pavement for utility connections will require a 2-inch thick asphalt concrete overlay on the existing pavement across the property frontage. (Engineering)

4. CONSTRUCTION TRAILER(S). Temporary construction trailers are permitted as accessory uses in conjunction with the development of this site, subject to the following conditions:
   a. Any construction trailer placed on-site shall be used as a temporary construction office only.
   b. Neither sanitation facilities nor plumbed water is permitted within the trailer.
   c. Overnight inhabitance of the construction trailer is not permitted.
   d. No construction trailers are permitted on site prior to issuance of the site grading permit.
   e. Construction trailer(s) shall be removed prior to issuance of a certificate of occupancy for the last unit in the project. (Planning)

5. PROJECT STAGING - EQUIPMENT AND MATERIALS STORAGE. Equipment and material storage shall be located on site, and laydown shall be limited to the designated areas shown on Plans dated November 28, 2023. Construction equipment and materials shall not be stored within Stone Pine Road or the driveway serving the City Corporation Yard. Temporary laydown and storage may be made available, as necessary, within the City Corporation Yard. (Planning and Public Works)

6. SITE ACCESS AND PARKING. Construction vehicles/equipment and workers shall access the project site via Stone Pine Road. Construction vehicles/equipment shall observe a 15-mile-per-hour speed limit on Stone Pine Road, and workers shall abide by the posted speed limit (25 miles per hour). Parking for construction vehicles/equipment and worker vehicles shall be limited to the designated areas identified on Plans dated November 28, 2023. Worker

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parking shall be limited to construction staff, inspectors, and consultants and may occur from 7:00 AM to 7:00 PM Monday through Saturday. Except as otherwise approved by the Public Works Director, there shall be no vehicle parking on Sundays or holidays. (Engineering)

7. AIR QUALITY BEST MANAGEMENT PRACTICES. The project shall implement the following standard BAAQMD dust control measures during all phases of construction on the project site:
   - All active construction areas shall be watered twice daily or more often if necessary. Increased watering frequency shall be required whenever wind speeds exceed 15 miles per hour.
   - Pave, apply water three times daily, or apply non-toxic soil stabilizers on all unpaved access roads and parking and staging areas at construction sites.
   - Cover stockpiles of debris, soil, sand, and any other materials that can be windblown. Trucks transporting these materials shall be covered.
   - All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day or as often as necessary to keep them free of dust and debris associated with site construction. The use of dry power sweeping is prohibited.
   - Subsequent to clearing, grading, or excavating, exposed portions of the site shall be watered, landscaped, treated with soil stabilizers, or covered as soon as possible. Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas and previously graded areas inactive for 10 days or more.
   - Installation of sandbags or other erosion control measures to prevent silt runoff to public roadways.
   - Replanting of vegetation in disturbed areas as soon as possible after completion of construction.
   - Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes. Clear signage shall be provided for construction workers at all access points.
   - All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
   - Post a publicly visible sign with the telephone number and person to contact at the City of Half Moon Bay regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations. (Building)

8. HAZARDOUS MATERIALS. Any materials deemed hazardous by the San Mateo County Department of Health that are uncovered or discovered during the course of work under this permit shall be disposed of in accordance with the regulations of San Mateo County Department of Health. (Building)

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9. COMPLIANCE WITH STATE AND FEDERAL CODES. All structures shall be constructed and/or installed in compliance with the standards of the current applicable State and federal Codes including current California Title 24 and California Title 25, as well as local amendments. (Building)

10. COMPLETION OF UTILITIES. Any public utilities requiring relocation as part of the construction of the project shall be relocated at the permittee's expense. (Building)

11. CONSTRUCTION HOURS. Construction activities on the site shall be limited to the hours of 8:00 AM to 6:00 PM. Monday through Saturday. Construction-related staging and mobilization may commence no earlier than 7:00 AM and cease no later than 7:00 PM. No construction is allowed on Sundays and holidays, except as expressly authorized by the City Engineer in conformance with Section 14.40.020 of the Half Moon Bay Municipal Code. (Engineering)

12. NOTICE OF DISRUPTION. The permittee shall provide written notice to affected property and business owners and a copy of such notice to the City Engineer a minimum of two business days prior to any planned disruption of pedestrian or vehicular traffic, parking, or public service facilities. (Engineering)

D. The mitigation measures from the Corporation Yard Initial Study/Mitigated Negative Declaration (PDP 21-053) are incorporated into the conditions of approval and shall be complied with prior to and during construction:

BIO-1 The following general mitigation measures shall be implemented during the project:

a. Prior to the start of the project, all construction crew members shall attend an environmental awareness training presented by a qualified biologist. A training brochure describing special-status species, project avoidance and minimization measures, key contacts, and potential consequences of impacts to special-status species and potentially jurisdictional features shall be distributed to the crew members during the training. Trainees shall sign an environmental training attendance sheet. These personnel shall be informed about the possible presence of all special-status species and habitats associated with the species identified here to be potentially present in the project area and that unlawful take of the animal or destruction of its habitat is a violation of the Federal Endangered Species Act and the California Endangered Species Act. Prior to construction activities, the qualified biologist shall instruct all construction personnel about (1) the description and status of the species; (2) the importance of their associated habitats; and (3) a list of measures being taken to reduce impacts on these species during project construction and implementation. A fact sheet conveying this information shall be prepared for distribution to the construction crew and anyone else who enters the project site.
b. Disturbance to vegetation shall be kept to the minimum necessary to complete the project activities. To minimize impacts to vegetation, a qualified biologist shall work with the contractor to designate the work area and any staging areas as well as delineate areas that shall be avoided with signage and tape. Areas that shall be avoided include Pilarcitos Creek,

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the impoundment, riparian habitat, and the wildlife corridor. Specifically, the buffer shall be 50 feet outward from the limit of riparian vegetation along Pilarcitos Creek or 100 feet from the top of bank within Pilarcitos Creek (whichever is greater) and 100 feet outward from the impoundment. The identified buffer shall be clearly depicted on any construction plans. Work may occur within these buffer areas under the supervision of a qualified biologist, and shall be limited to removal of the existing materials enclosure and the existing fencing around the impoundment. In addition, prior to initial ground disturbance or vegetation removal, the limits of the identified buffer around the impoundment, associated riparian habitat, and annual grassland to be avoided shall be flagged or fenced.
c. If any wildlife is encountered during project activities, said wildlife must be allowed to leave the work area unharmed. All listed wildlife species shall be allowed to leave the work area of their own accord and without harassment. Animals shall not be picked up or moved in any way. If non-listed and/or non-special-status wildlife does not leave the work area of their own accord, the qualified project biologist may relocate the wildlife outside of the project limits.
d. During project activities, all trash that may attract predators such as wrappers, cans, bottles, and food scraps shall be disposed of in solid, closed containers (trash cans) and removed at the end of each working day from the entire construction site. Following construction, trash/construction debris shall be removed from work areas.
e. The area of disturbance shall be limited to the minimum necessary to complete the project. Project boundaries shall be clearly demarcated, and these areas shall be outside of sensitive areas.
f. No firearms shall be allowed on the project site, except for federal, state, or local law enforcement, or security guards.
g. Project-related vehicles shall observe a 10 mile-per-hour speed limit in all project areas, except on City and County roads, and state highways; this is particularly important on rainy nights when California red-legged frogs are most active.
h. Nighttime construction shall be avoided.

BIO-2 Minimize impacts to special-status amphibians and reptiles:

NOTE: The requirements of Mitigation Measure BIO-2 are addressed in that the conservation corridor has been established. The measure is included here for reference.

a. The permittee will retain professional qualified biologists with experience monitoring for California red-legged frog and San Francisco garter snake to provide biological monitoring during all project construction activities that may result in take of any special-status species.
b. A qualified biological monitor (or as required by project permits) shall be on-site during all project construction activities that may result in take of any special-status species. The qualified biologist shall be given the authority to freely communicate verbally, by telephone, electronic mail, or in writing at any time with construction personnel, any other person(s) at the project site, otherwise associated with the project, the USFWS, the CDFW, or their designated agents. The qualified biologist shall have oversight over implementation of all the conservation measures and shall have the authority and responsibility to stop project activities if they determine any of the associated requirements are not being fulfilled. If the qualified biologist exercises this authority, the USFWS and CDFW shall be notified by telephone and electronic mail within twenty-four (24) hours.

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CONDITIONS OF APPROVAL
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY CALIFORNIA
HALF MOON BAY

REGISTERED PROFESSIONAL ENGINEER
DALE J. LEZA
C 78436
CIVIL
STATE OF CALIFORNIA

No.	Revisions	Date
	BID SET	02/26/2024
	BUILDING PERMIT SET	02/29/2024
1	BID ADDENDUM 3	04/03/2024
2	BID ADDENDUM 4	04/12/2024
3	PERMIT RESUBMITTAL	05/16/2024

Date 05/16/2024
Scale NO SCALE
Design DJP
Drawn DLG
Approved DJL
Job No 20211367-15

Drawing Number:
C0.2
OF

DRAWING NAME: K:\2021\211367-15_HMB_Corpyard_Housing\ENG\hmbsheets.dwg
PLOT DATE: 05-16-24 PLOTTED BY: gold

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c. Construction materials, including, but not limited to, wooden pallets, BMPs, equipment, or other materials, that are left on the ground for more than 24 hours shall be inspected before and during moving of the materials to prevent potential impacts to animals that may have utilized the materials as a temporary refuge. All construction pipes, culverts, or similar structures that are stored at a construction site for one or more overnight periods shall be either securely capped prior to storage or thoroughly inspected by the qualified biologist and/or the construction foreman/manager for animals before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a California red-legged frog or San Francisco garter snake is discovered inside a pipe or culvert by the qualified biologist or construction foreman/manager, the protocol in Mitigation Measure BIO-2(h) shall be followed.

d. To prevent inadvertent entrapment of the California red-legged frog or San Francisco garter snake during construction, the qualified biologist and/or construction foreman/manager shall ensure that all excavated, steep-walled holes or trenches more than 1 foot deep are completely covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks and inspected by the qualified biologist. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals by the qualified biologist and/or construction foreman/manager. If at any time a trapped California red-legged frog or San Francisco garter snake is discovered by the qualified biologist or anyone else, the steps in Mitigation Measure BIO-2(h and i) shall be followed.

e. If a California red legged frog or San Francisco garter snake, or any animal that construction personnel believe may be either of these species, is encountered during project construction, the following shall be followed.
   i. All work that could result in direct injury, disturbance, or harassment of the individual animal shall immediately cease;
   ii. The foreman and qualified biologist shall be immediately notified; and
   iii. The qualified biologist shall determine if the animal is a California red-legged frog or San Francisco garter snake and, if so, shall follow Mitigation Measure BIO-2h for California red-legged frog and Mitigation Measure BIO- 2(i) for San Francisco garter snake.

f. If any California red-legged frogs are found during implementation of Mitigation Measures BIO-2(a), BIO-2(b), BIO-2(c), BIO-2(d), BIO-2(e), BIO-2(f), or BIO-2(g) the qualified biologist shall contact the USFWS to determine if moving any of the individuals is appropriate. In making this determination, the USFWS shall consider if an appropriate relocation site exists. If the USFWS approves moving animals, the City shall ensure that a permitted biologist holding a 10(a)(1)(A) permit for California red-legged frog (or as required by the project permits) is given sufficient time to move the animals from the impact area before ground disturbance is initiated. Only qualified and permitted biologists shall capture, handle, and move the California red-legged frog. The permitted biologist shall monitor any relocated frog until it is determined that it is not imperiled by predators or other dangers.

g. The qualified biologist shall monitor any individual San Francisco garter snake encountered within the impact area, but allow it to leave the impact area on its own. If

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the qualified biologist determines that the snake cannot leave on its own then the USFWS and CDFW shall be consulted to determine if the snake can be captured and relocated to appropriate habitat on the outside of the impact area. No San Francisco garter snakes shall be handled without explicit agency approval.

h. Planting of western mosquitofish (*Gambusia affinis*) within the impoundment shall be prohibited. Treatment of the impoundment for mosquito larvae by the Mosquito Abatement District will be conducted utilizing alternative treatments approved by the District (e.g., insect growth regulators).

i. The use of any pesticides in the impact area shall be utilized in such a manner to prevent primary or secondary poisoning of the California red-legged frog and/or San Francisco garter snake potentially present in the project area, and the depletion of food items on which they depend. All uses of such compounds shall observe label and other restrictions mandated by the USEPA, California Department of Food and Agriculture, and other appropriate state and federal regulations, as well as additional project-related restrictions deemed necessary by the USFWS and CDFW. Furthermore, pesticide use will be subject to documentation of compliance with the USEPA's Stipulated Injunction concerning the type used and buffer for application away from waterbodies and shall be rated for aquatic use by the California Department of Pesticide Regulation and have less-than-significant effects on California red-legged frog and San Francisco garter snake.

j. The use of herbicides shall not be permitted unless approved by CDP amendment. Future approval of herbicide use will be subject to documentation of compliance with the USEPA's Stipulated Injunction concerning the type used and buffer for application away from waterbodies and shall be rated for aquatic use by the California Department of Pesticide Regulation and have less-than-significant effects on California red-legged frog and San Francisco garter snake.

k. The use of rodenticides (i.e., anticoagulants) for controlling rodents, such as rats (*Rattus* spp.), house mice (*Mus musculus*), and California ground squirrels (*Spermophilus beecheyi*), shall be prohibited. If rodent control is required by the City, localized trapping efforts shall be conducted.

l. Construction activities (e.g., grubbing, grading) shall occur during dry weather conditions only, and to the extent feasible, during the dry season (June 1 to October 15) to facilitate avoidance of California red-legged frog and San Francisco garter snake.

m. Regardless of the season, construction shall adhere to SMCWPPP BMPs, and no construction shall occur during and within 24 hours following a significant rain event (defined as greater than 0.25 inch in a 24-hour period). Following a significant rain event and the 24-hour drying-out period, a qualified biologist shall conduct a preconstruction survey for California red-legged frog and other sensitive species prior to the restart of any project activities.

n. A wildlife corridor shall be constructed as part of the Project and would funnel any potentially dispersing California red-legged frog or San Francisco garter snake into a culvert tunnel beneath the access road and limit the potential for traffic accessing the Corporation Yard to impact California red-legged frog or San Francisco garter snake. The wildlife corridor would also include a fence line along the riparian buffer of Pilarcitos Creek, which would further ensure that individual California red-legged frog and San

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Francisco garter snake would utilize the wildlife corridor to safely travel between the agricultural pond and the creek. The riparian buffer fencing would prevent California red-legged frog or San Francisco garter snake from entering the upland, trafficked portions of the property, where they could be injured or killed or trapped in upland habitat where they could be easily predated. The wildlife corridor design considered the life history aspects of both California red-legged frog and San Francisco garter snake to provide a safe and suitable movement corridor without any further management actions required.

o. The wildlife corridor fencing shall be maintained as a boundary to allow for safe wildlife movement between the impoundment and Pilarcitos Creek by funneling any dispersing wildlife through tunnels beneath the access road and providing a boundary along the riparian corridor of Pilarcitos Creek. The wildlife fencing, tunnel, and corridor shall be maintained over the lifetime of its use, and any portion that is observed to be broken or not functioning properly shall be repaired immediately by the City.

p. A temporary material may be used for the wildlife fencing, such as ERTEC or similar material, during construction of the project and for up to 1 year after construction is complete. If a temporary material is used for the fencing, it shall be inspected weekly by the City staff for any needed repairs. After 1 year the temporary fencing should be either replaced with a permanent wildlife fencing (e.g., chain-link fencing with vinyl slats) or reassessed for efficacy by a qualified biologist.

q. Installation of the wildlife corridor and associated fencing should take place during dry weather conditions to ensure that no dispersing California red-legged frogs or San Francisco garter snakes are trapped in upland areas.

r. The wildlife corridor shall be maintained and repaired annually or more frequently as needed. The tunnels beneath the access road shall be inspected to ensure that it is not blocked by vegetation or sediment. Vegetation fuels management within the wildlife corridor shall use low impact methods (such as goat grazing or using hand tools) on an annual basis. Any mechanical maintenance activities (including using hand tools for vegetation maintenance) within the wildlife corridor shall be closely monitored by an approved biologist.

BIO-3 Minimize impacts to Pilarcitos Creek and riparian habitat:

a. The project shall comply with the SMCWPPP, Municipal Regional Stormwater National Pollution Discharge Elimination System (NPDES) Permit and General Construction permit to prevent increases in peak flow, erosion, or reduction in water quality for downslope waters, which shall prevent stream downcutting, riparian bank erosion, or other downstream impacts.

b. All spoils, such as dirt, excavated material, debris, and construction-related materials, generated during project activities shall be placed where they cannot enter any drainage ditch, culvert inlet, or nearby vernal marshes. Spoils shall be covered or secured to prevent sediment from escaping. Once the spoil pile is no longer active, it shall be removed from the work area and disposed of lawfully at an appropriate facility.

c. All exposed soils in the work area resulting from project activities shall be stabilized immediately following the completion of work to prevent erosion. Erosion and sediment control BMPs, such as silt fences, straw hay bales, gravel or rock-lined drainages, water

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check bars, and broadcast straw, can be used. BMPs shall be made of certified weed-free materials. Straw wattles, if used, shall be made of biodegradable fabric (e.g., burlap) and free of monofilament netting. At no time shall silt-laden runoff be allowed to enter any drainages or other sensitive areas.

d. All fueling and maintenance of vehicles and other equipment and staging areas shall occur at least 100 feet from any drainages and other water features, including Pilarcitos Creek. Crew members shall ensure that contamination of habitat does not occur during such operations. Prior to the onset of work, the construction contractor shall prepare a plan to be approved by the City before construction begins to allow a prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

e. All exposed surfaces shall be wetted periodically to prevent significant dust.

f. All stockpiled soil shall be covered during periods of rain.

g. The following BMPs shall be implemented to limit the spread of invasive species into sensitive habitats:
   iv. All ground-disturbing equipment used adjacent to the riparian habitat shall be washed (including weeks, tracks, and undercarriages) at a legally operating equipment yard both before and after being used at the site;
   v. All applicable construction materials used on-site, such as straw wattles, mulch, and fill material, shall be certified weed free;
   vi. The project shall follow the SMCWPPP and a SWPPP as per the NPDES *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Construction General Permit; Water Board Order No. 2009-0009-DWQ) if applicable;
   vii. All disturbed soils shall be stabilized and planted with a native seed mix from a local source following construction;
   viii. If excavating, soil and vegetation removed from densely weed-infested areas (for example, dense poison hemlock infestations or cape ivy infestations) shall not be used in general soil stockpiles and shall not be redistributed as topsoil cover for the newly filled areas. All weed-infested soil shall be disposed of off-site at a landfill.

BIO-4. Minimize impacts to nesting birds, as required by the Federal Migratory Bird Treaty Act:

a. If project activities, including, but not limited to, grubbing and grading, are conducted during nesting bird season (generally February 15 to September 15), preconstruction nest surveys shall be conducted in and near the project (within 500 feet for large raptors and 300 feet for all other birds) by a qualified biologist within 7 days of the start of construction. If nesting birds are identified during the preconstruction survey, then the project shall be modified (i.e., a no-work exclusion buffer of appropriate size [to be determined by the qualified project biologist] shall be erected around active nests) and/or delayed as necessary to avoid impacts to the identified nests, eggs, and/or young. Disturbing active nests must be avoided until young birds have fledged.

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b. Construction activities shall not be initiated until after the start of the nesting season, all potential nesting substrates (e.g., bushes, trees, grasses, and other vegetation) that are scheduled to be removed by the project shall be removed prior to the start of the nesting season (e.g., prior to February 15), to the extent feasible. This shall preclude the initiation of nests in this vegetation and prevent the potential delay of the project due to the presence of active nests in these substrates.

BIO-5. Minimize impacts to heritage trees:

NOTE: The requirements of Mitigation Measure BIO-5 are replaced by the landscape and tree replacement plan. The measure is included here for reference.

a. During detailed design of the project, removal of trees protected by the City heritage tree ordinance shall be avoided and minimized to the extent feasible. If tree removal is necessary, it is recommended that a certified arborist conduct a tree survey to determine the number and health of heritage trees within the developed habitat of the project area. Where removal of trees cannot be avoided, the City shall comply with the standards of the City heritage tree ordinance, including the planting of replacement trees where feasible and approval from the City Manager.

BIO-6. Minimize impacts to roosting bats:

a. Pre-Construction Bat Survey. Prior to tree removal, a qualified bat biologist shall conduct a visual survey of the project area to identify if bats are roosting within trees within the project area. Roost sites shall be avoided during tree removal. If no roosting sites or bats are observed during the survey no further mitigation is necessary.

   i. If roosting bats or indications of bat roosts are observed within project trees to be removed, tree removal shall be conducted under the supervision of a qualified bat biologist. During tree removal and where potential bat roosts were identified, a qualified bat biologist shall be present and tree removal shall begin with portions of the tree that do not provide suitable roost habitat (e.g., low limbs lacking forage). Trees shall be disassembled at a speed in coordination with the on-site qualified bat biologist that allows any roosting bats to vacate the tree.

BIO-7. Minimize impacts to dusky-footed woodrat:

a. Focused surveys for San Francisco dusky-footed woodrat nests within the riparian habitat associated with Pilarcitos Creek and the marsh habitat shall be conducted within 7 days of the start of construction. If no nests are found, then no further mitigation shall be warranted. If nests are found, then Mitigation Measures b and c shall be implemented.

b. Dusky-footed woodrats are year-round residents. Therefore, avoidance mitigation is limited to designing the project to avoid direct impacts on woodrat nests to the extent feasible. Ideally, a minimum 10-foot buffer should be maintained between project construction activities and each nest to avoid disturbance. In some situations, a smaller buffer may be allowed if in the opinion of the qualified biologist removing the nest would be a greater impact than that anticipated due to project activities. If nests are observed within riparian habitat and this habitat shall be avoided by the project, high-visibility

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fencing shall be installed around these woodrat nests to keep workers, construction equipment, and construction materials out of the area where the nests are located.

c. If avoidance of occupied nests is not feasible, the woodrats shall be evicted from their nests prior to the removal of the nests and onset of ground-disturbing activities to avoid injury or mortality of the woodrats. A qualified biologist shall disturb the woodrat nest to the degree that all woodrats leave the nest and seek refuge outside of the project activity area. Subsequently, the nest sticks shall be relocated; these materials shall be piled at the base of a nearby tree or shrub outside of the impact area. The spacing between relocated nests shall not be less than 20 feet, unless a qualified biologist has determined that the habitat can support higher densities of nests.

CUL-1. Implement an environmental awareness training program:
Prior to the start of the project, all construction crew members will attend an environmental awareness training. This environmental awareness training will be conducted by a qualified archaeologist and will address cultural situations that may be encountered. An archaeologist will prepare an archaeological brochure to be distributed to the construction crew at the on-site environmental awareness training. The brochure will identify the types of cultural resources that may be encountered and the procedures to be followed in the event of accidental discovery.

CUL-2. Implement a cultural resources monitoring plan:
The project will develop and implement a cultural resources monitoring plan (CRMP) for all ground-disturbing activities. The CRMP shall include provisions for stop-work by the archaeologist, ownership and proper handling of archaeological resources upon and following discovery, reporting format and frequency, and a project specific communications plan will need to be completed prior to start of work.

GEO-1. Avoid and/or reduce impacts to unknown paleontological resources:
In the unlikely event that a paleontological resource is discovered, the project applicants shall comply with PRC Division 5, Chapter 1.7, Section 5097.5, and Division 20, Chapter 3, Section 30244, which prohibit the removal, without permission, of any paleontological site or feature from lands under the jurisdiction of the state or any city, county, district, authority, or public corporation, or any agency thereof. To be consistent with these PRC Sections, in the event that paleontological resources are exposed during construction, work in the immediate vicinity of the find must stop until a qualified paleontologist can evaluate the significance of the find. Construction activities may continue in other areas. If the discovery proves significant under the provisions of CEQA, the paleontologist shall prescribe, and the project Applicants shall implement, additional measures such as testing or data recovery to avoid impacts to the resources.

E. The following conditions shall be implemented to the satisfaction of the Community Development Director prior to issuance of the first occupancy permit:

1. EXTERIOR COLORS AND MATERIALS. Exterior building colors and materials shall be in conformance with the approved architectural plans and color palette. (Planning)

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2. DISPLAY OF STREET ADDRESS. Prior to issuance of a Certificate of Occupancy, the residential dwelling shall display a street address (or unit number) per Fire District requirements. (Fire/Building)

3. COMMUNITY POLICIES. The permittee shall prepare community policies and rules for the ongoing operation of the project including, but not limited to parking, refuse pick-up/removal, on-site storage, and keeping of pets. The on-site manager will be responsible for education, administration, and enforcement. Covenants are subject to review and approval by the City Engineer and Community Development Director prior to occupancy of the first unit. (Planning)

4. EMERGENCY RESPONSE PLAN. The permittee shall, in conjunction with the City Emergency Response staff, prepare an emergency response plan covering evacuation planning for the residents of Stone Pine Cove in the unlikely failure of the Pilarcitos Dam as well as any other potential natural disaster which may affect the project site. (City Manager's Office)

5. LANDSCAPING AND TREE REPLACEMENTS. The landscape plan, including irrigation and planting, shall be installed per approved plans. Tree removals approved according to the approved plans shall be replaced by at least one 24-inch box specimen tree for every heritage tree removed. (Planning)

6. TRAFFIC CALMING. The permittee shall complete traffic calming improvements on Stone Pine Road. Traffic calming improvements shall include:
   A. Crosswalk improvements at West Patrick Way, including the addition of pedestrian-activated flashing beacons
   B. A new high visibility crosswalk at East Patrick Way, including new curb ramps, signage, and striping
   C. Speed feedback signs (eastbound and westbound)
   D. Lane striping to narrow travel lanes
   E. Tree trimming near West Patrick Way, to improve intersection visibility (Engineering)

F. Validity and Expiration of Permits

1. EFFECTIVE DATE. This Emergency Coastal Development Permit allows property development necessary to address an emergency and is effective immediately upon signature by the Half Moon Bay Community Development Director. The permit is not subject to appeal; however, per California Code of Regulations §13569 "Dispute Resolution for Local Permit Processing Procedures" parts C and D, an interested person may request the Coastal Commission executive director to review the local government permitting process and determinations. (Planning)

2. ACCURACY OF APPLICATION MATERIALS. The applicant shall be responsible for the completeness and accuracy of all forms and material submitted for this application. Any

BKF Engineers
255 SHORELINE DRIVE
SUITE 200
REDWOOD CITY, CA 94065
(650) 482-6300
www.bkf.com

CONDITIONS OF APPROVAL
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY CALIFORNIA

HALF MOON BAY

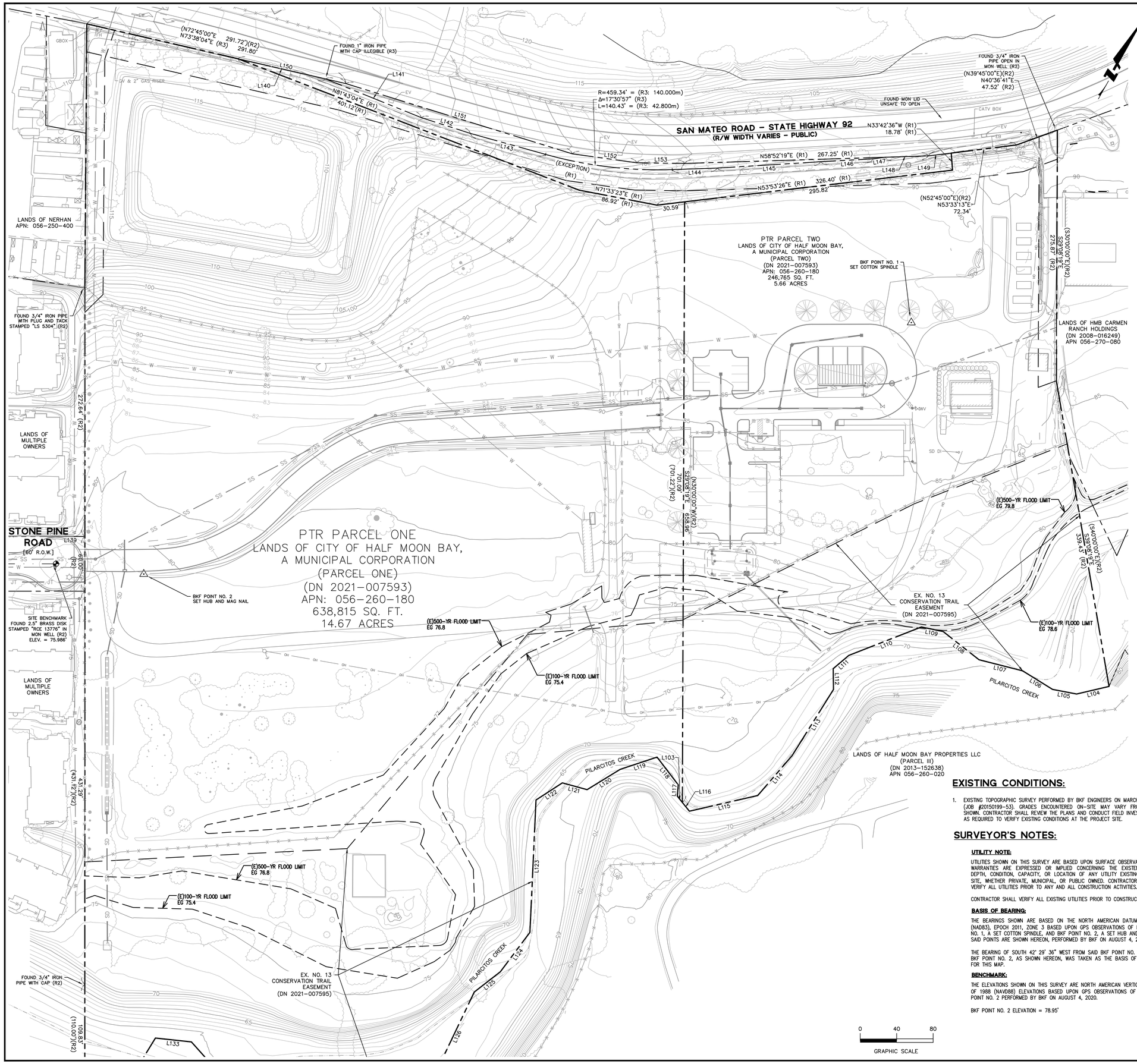
REGISTERED PROFESSIONAL ENGINEER
DALE J. LEZA
C 78436
CIVIL
STATE OF CALIFORNIA

No.	Revisions	Date
	BID SET	02/26/2024
	BUILDING PERMIT SET	02/29/2024
1	BID ADDENDUM 3	04/03/2024
2	BID ADDENDUM 4	04/12/2024
3	PERMIT RESUBMITTAL	05/16/2024

Date 05/16/2024
Scale NO SCALE
Design DJP
Drawn DLG
Approved DJL
Job No 20211367-15

Drawing Number:
CO.3
OF

DRAWING NAME: K:\2021\211367-15_HMB_Corpyard_Housing\ENG\hmbsheets.dwg
PLOT DATE: 05-16-24 PLOTTED BY: gold



LINE TABLE		
LINE NO.	DIRECTION	LENGTH
L103	N68°00'29"W	8.90'
L104	S47°25'02"W	36.52'
L105	S71°31'17"W	26.85'
L106	N87°28'52"W	38.62'
L107	S74°52'52"W	49.37'
L108	N81°09'28"W	50.08'
L109	S72°32'08"W	24.33'
L110	S39°14'12"W	85.57'
L111	S20°14'46"W	22.43'
L112	S30°07'13"E	22.83'
L113	S02°39'36"W	85.73'
L114	S11°24'28"W	57.62'
L115	S47°43'04"W	76.92'
L116	N68°00'29"W	12.29'
L117	N24°18'13"W	12.34'
L118	N66°42'59"W	38.40'
L119	S42°15'35"W	42.60'
L120	S29°04'36"W	42.58'
L121	S75°58'13"W	28.14'
L122	S27°39'47"W	34.46'
L123	S26°43'24"E	145.40'
L124	S07°30'40"W	54.02'
L125	S22°45'40"W	36.27'
L126	S03°51'49"E	104.20'
L127	S37°46'25"W	61.71'
L128	S19°33'41"W	107.45'
L129	S56°13'06"W	40.18'
L130	S88°49'22"W	58.28'
L131	N17°07'56"W	56.88'
L132	N71°05'20"W	72.28'
L133	S66°47'43"W	39.70'
L134	S02°07'42"W	62.88'
L135	S58°53'58"W	25.72'
L136	N57°38'51"W	11.15'
L137	S36°00'41"W	15.01'
L138	S29°20'59"E	30.00'
L139	N60°39'01"E	31.63'
L140	N73°38'04"E	98.77'
L141	N82°41'18"E	113.17'
L142	N78°26'58"E	56.56'
L143	N76°15'07"E	85.66'
L144	N58°44'09"E	49.57'
L145	N57°07'31"E	113.58'
L146	N57°32'14"E	57.76'
L147	N52°28'49"E	12.50'
L148	N58°52'19"E	47.99'
L149	N53°33'13"E	25.26'
L150	N73°38'04"E	121.87'
L151	N77°53'28"E	259.68'
L152	N68°33'21"E	71.61'
L153	N61°25'06"E	52.50'

RECORD LINE TABLE	
RECORD DIRECTION	RECORD LENGTH
(S46°33'28"W)(R2)	(36.53')(R2)
(S70°39'43"W)(R2)	(26.86')(R2)
(N88°20'26"W)(R2)	(38.63')(R2)
(S74°01'18"W)(R2)	(49.39')(R2)
(N82°01'02"W)(R2)	(50.10')(R2)
(S71°40'34"W)(R2)	(24.34')(R2)
(S38°22'38"W)(R2)	(85.60')(R2)
(S19°23'12"W)(R2)	(22.44')(R2)
(S30°58'47"E)(R2)	(22.84')(R2)
(S01°48'02"W)(R2)	(85.76')(R2)
(S10°32'54"W)(R2)	(57.64')(R2)
(S46°51'30"W)(R2)	(76.95')(R2)
(N68°52'03"W)(R2)	(12.22')(R2)
(N68°52'03"W)(R2)	(8.98')(R2)
(N25°09'47"W)(R2)	(12.34')(R2)
(N67°34'33"W)(R2)	(38.41')(R2)
(S41°24'01"W)(R2)	(42.61')(R2)
(S28°13'02"W)(R2)	(42.59')(R2)
(S75°06'39"W)(R2)	(28.15')(R2)
(S26°48'13"W)(R2)	(34.47')(R2)
(S27°34'58"E)(R2)	(145.45')(R2)
(S06°39'06"W)(R2)	(54.04')(R2)
(S21°54'06"W)(R2)	(36.28')(R2)
(S04°43'23"E)(R2)	(104.24')(R2)
(S36°54'51"W)(R2)	(61.73')(R2)
(S18°42'07"W)(R2)	(107.49')(R2)
(S55°21'32"W)(R2)	(40.19')(R2)
(S87°57'48"W)(R2)	(58.30')(R2)
(N17°59'30"W)(R2)	(56.90')(R2)
(N71°56'54"W)(R2)	(72.31')(R2)
(S65°56'09"W)(R2)	(39.71')(R2)
(S01°16'08"W)(R2)	(62.90')(R2)
(S58°02'24"W)(R2)	(25.73')(R2)
(N58°30'25"W)(R2)	(11.15')(R2)
(S35°09'07"W)(R2)	(15.02')(R2)
(S30°12'40"E)(R2)	(30.00')(R2)
(N59°47'20"E)(R2)	(31.50')(R2)
(N53°33'13"E)(R1)(R3)	(25.26')(R1)
(N58°52'19"E)(R1)(R3)	(R3: 14.628m) = 47.99'
(S52°28'49"W)(R3)	(R3: 3.811m) = 12.50'
(S57°32'14"W)(R3)	(R3: 17.604m) = 57.76'
(N57°07'31"E)(R3)	(R3: 34.616m) = 113.58'
(S58°44'09"W)(R3)	(R3: 15.108m) = 49.57'
(S76°15'07"W)(R3)	(R3: 26.108m) = 85.66'
(S78°26'58"W)(R3)	(R3: 17.237m) = 56.56'
(S82°41'18"W)(R3)	(R3: 34.491m) = 113.17'
(N73°38'04"E)(R3)	(R3: 30.104m) = 98.77'
(N73°38'04"E)(R1) (N72°45'00"E)(R2)	(121.88')(R1)
(N77°53'28"E)(R1) (N77°00'00"E)(R2)	(259.67')(R1) (260.04')(R2)
(N68°33'21"E)(R1) (N67°45'00"E)(R2)	(71.61')(R1) (71.28')(R2)
(N61°25'06"E)(R1) (N60°30'00"E)(R2)	(52.50')(R1) (52.80')(R1)

EXISTING CONDITIONS:

1. EXISTING TOPOGRAPHIC SURVEY PERFORMED BY BKF ENGINEERS ON MARCH 18, 2021 (JOB #20150199-53). GRADES ENCOUNTERED ON-SITE MAY VARY FROM THOSE SHOWN. CONTRACTOR SHALL REVIEW THE PLANS AND CONDUCT FIELD INVESTIGATIONS AS REQUIRED TO VERIFY EXISTING CONDITIONS AT THE PROJECT SITE.

SURVEYOR'S NOTES:

UTILITY NOTE:

UTILITIES SHOWN ON THIS SURVEY ARE BASED UPON SURFACE OBSERVATIONS. NO WARRANTIES ARE EXPRESSED OR IMPLIED CONCERNING THE EXISTENCE, SIZE, DEPTH, CONDITION, CAPACITY, OR LOCATION OF ANY UTILITY EXISTING ON THE SITE, WHETHER PRIVATE, MUNICIPAL, OR PUBLIC OWNED. CONTRACTOR(S) SHALL VERIFY ALL UTILITIES PRIOR TO ANY AND ALL CONSTRUCTION ACTIVITIES.

CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION

BASIS OF BEARING:

THE BEARINGS SHOWN ARE BASED ON THE NORTH AMERICAN DATUM OF 1983 (NAD83), EPOCH 2011, ZONE 3 BASED UPON GPS OBSERVATIONS OF BKF POINT NO. 1, A SET COTTON SPINDLE, AND BKF POINT NO. 2, A SET HUB AND TACK AS SAID POINTS ARE SHOWN HEREON, PERFORMED BY BKF ON AUGUST 4, 2020.

THE BEARING OF SOUTH 42° 29' 36" WEST FROM SAID BKF POINT NO. 1 TO SAID BKF POINT NO. 2, AS SHOWN HEREON, WAS TAKEN AS THE BASIS OF BEARINGS FOR THIS MAP.

BENCHMARK:

THE ELEVATIONS SHOWN ON THIS SURVEY ARE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) ELEVATIONS BASED UPON GPS OBSERVATIONS OF SAID BKF POINT NO. 2 PERFORMED BY BKF ON AUGUST 4, 2020.

BKF POINT NO. 2 ELEVATION = 78.95'

SURVEYORS STATEMENT

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION, IN CONFORMANCE WITH THE REQUIREMENTS OF THE PROFESSIONAL LAND SURVEYORS' ACT.

02/26/2024

DAVID JUNGMANN, PLS 9267

PROFESSIONAL LAND SURVEYOR · DAVID C. JUNGMANN · No. 9267 · STATE OF CALIFORNIA

RECORD REFERENCES

(R1) GRANT DEED RECORDED OCTOBER 1, 2009 AS DOCUMENT NUMBER 2009-131257, OFFICIAL RECORDS OF SAN MATEO COUNTY.
(R2) RECORD OF SURVEY RECORDED APRIL 5, 2005 IN BOOK 27 OF LLS MAPS AT PAGE 40, OFFICIAL RECORDS OF SAN MATEO COUNTY.
(R3) RECORD OF SURVEY NO. 2460 RECORDED OCTOBER 10, 2013 IN BOOK 38 OF LLS MAPS AT PAGES 99-102OFFICIAL RECORDS OF SAN MATEO COUNTY.

SURVEYOR'S NOTE

RECORD DISTANCES PER (R3) ARE GRID DISTANCES IN METERS. (R3: #m) DENOTES DISTANCE MATCHING RECORD CONVERTED FROM GRID METERS TO GROUND U.S. SURVEY FEET. TO OBTAIN GROUND DISTANCES IN METERS, MULTIPLY (R3) GRID DISTANCES BY 1.000059093, AS STATED ON (R3). TO OBTAIN GROUND DISTANCES IN U.S. SURVEY FEET, MULTIPLY GROUND DISTANCES IN METERS BY THE CONVERSION FACTOR OF (3937/1200).

0 40 80
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SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

No.	Revisions	Date
	BID SET	02/26/2024
	BUILDING PERMIT SET	02/29/2024
1	BID ADDENDUM 3	04/03/2024
2	BID ADDENDUM 4	04/12/2024
3	PERMIT RESUBMITTAL	05/16/2024

Date 05/16/2024
Scale 1" = 40'
Design DJP
Drawn DLG
Approved DJL
Job No. 20211367-15

Drawing Number:
C1.1
OF

DRAWING NAME: K:\2021\211367-15_HMB_Coryard_Housing\ENG\hmbsheets.dwg
PLOT DATE: 05-16-24 PLOTTED BY: gold

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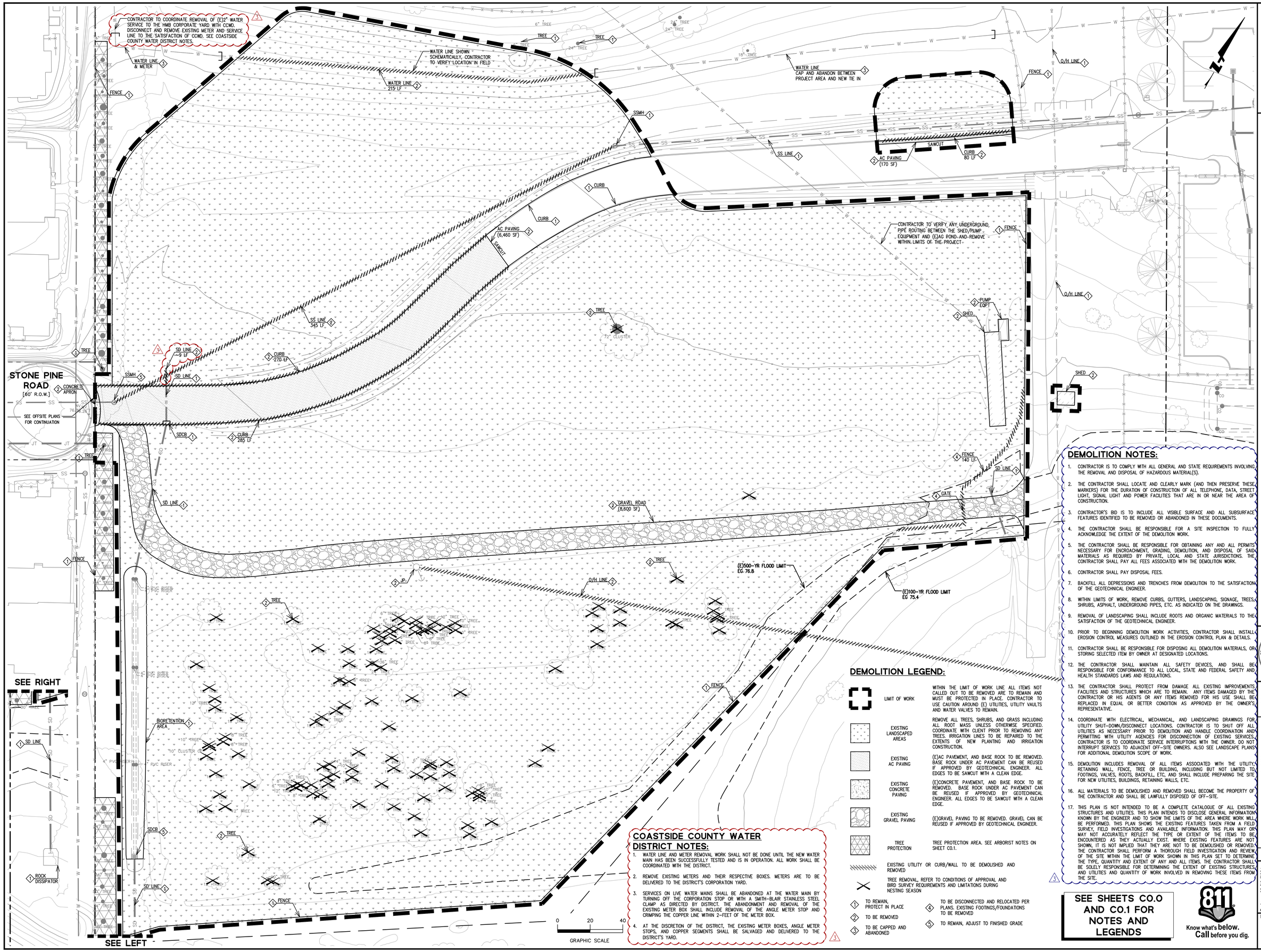

DEMOLITION NOTES:

1. CONTRACTOR IS TO COMPLY WITH ALL GENERAL AND STATE REQUIREMENTS INVOLVING THE REMOVAL AND DISPOSAL OF HAZARDOUS MATERIAL(S).
2. THE CONTRACTOR SHALL LOCATE AND CLEARLY MARK (AND THEN PRESERVE THESE MARKERS) FOR THE DURATION OF CONSTRUCTION OF ALL TELEPHONE, DATA, STREET LIGHT, SIGNAL LIGHT AND POWER FACILITIES THAT ARE IN OR NEAR THE AREA OF CONSTRUCTION.
3. CONTRACTOR'S BID IS TO INCLUDE ALL VISIBLE SURFACE AND ALL SUBSURFACE FEATURES IDENTIFIED TO BE REMOVED OR ABANDONED IN THESE DOCUMENTS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR A SITE INSPECTION TO FULLY ACKNOWLEDGE THE EXTENT OF THE DEMOLITION WORK.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY AND ALL PERMITS NECESSARY FOR ENCROACHMENT, GRADING, DEMOLITION, AND DISPOSAL OF SAID MATERIALS AS REQUIRED BY PRIVATE, LOCAL AND STATE JURISDICTIONS. THE CONTRACTOR SHALL PAY ALL FEES ASSOCIATED WITH THE DEMOLITION WORK.
6. CONTRACTOR SHALL PAY DISPOSAL FEES.
7. BACKFILL ALL DEPRESSIONS AND TRENCHES FROM DEMOLITION TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER.
8. WITHIN LIMITS OF WORK, REMOVE CURBS, GUTTERS, LANDSCAPING, SIGNAGE, TREES, SHRUBS, ASPHALT, UNDERGROUND PIPES, ETC. AS INDICATED ON THE DRAWINGS.
9. REMOVAL OF LANDSCAPING SHALL INCLUDE ROOTS AND ORGANIC MATERIALS TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER.
10. PRIOR TO BEGINNING DEMOLITION WORK ACTIVITIES, CONTRACTOR SHALL INSTALL EROSION CONTROL MEASURES OUTLINED IN THE EROSION CONTROL PLAN & DETAILS.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSING ALL DEMOLITION MATERIALS, OR STORING SELECTED ITEM BY OWNER AT DESIGNATED LOCATIONS.
12. THE CONTRACTOR SHALL MAINTAIN ALL SAFETY DEVICES, AND SHALL BE RESPONSIBLE FOR CONFORMANCE TO ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS LAWS AND REGULATIONS.
13. THE CONTRACTOR SHALL PROTECT FROM DAMAGE ALL EXISTING IMPROVEMENTS, FACILITIES AND STRUCTURES WHICH ARE TO REMAIN. ANY ITEMS DAMAGED BY THE CONTRACTOR OR HIS AGENTS OR ANY ITEMS REMOVED FOR HIS USE SHALL BE REPLACED IN EQUAL OR BETTER CONDITION AS APPROVED BY THE OWNER'S REPRESENTATIVE.
14. COORDINATE WITH ELECTRICAL, MECHANICAL, AND LANDSCAPING DRAWINGS FOR UTILITY SHUT-DOWN/DISCONNECT LOCATIONS. CONTRACTOR IS TO SHUT OFF ALL UTILITIES AS NECESSARY PRIOR TO DEMOLITION AND HANDLE COORDINATION AND PERMITTING WITH UTILITY AGENCIES FOR DISCONNECTION OF EXISTING SERVICES. CONTRACTOR IS TO COORDINATE SERVICE INTERRUPTIONS WITH THE OWNER. DO NOT INTERRUPT SERVICES TO ADJACENT OFF-SITE OWNERS. ALSO SEE LANDSCAPE PLANS FOR ADDITIONAL DEMOLITION SCOPE OF WORK.
15. DEMOLITION INCLUDES REMOVAL OF ALL ITEMS ASSOCIATED WITH THE UTILITY, RETAINING WALL, FENCE, TREE OR BUILDING, INCLUDING BUT NOT LIMITED TO, FOOTINGS, VALVES, ROOTS, BACKFILL, ETC, AND SHALL INCLUDE PREPARING THE SITE FOR NEW UTILITIES, BUILDINGS, RETAINING WALLS, ETC.
16. ALL MATERIALS TO BE DEMOLISHED AND REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE LAWFULLY DISPOSED OF OFF-SITE.
17. THIS PLAN IS NOT INTENDED TO BE A COMPLETE CATALOGUE OF ALL EXISTING STRUCTURES AND UTILITIES. THIS PLAN INTENDS TO DISCLOSE GENERAL INFORMATION KNOWN BY THE ENGINEER AND TO SHOW THE LIMITS OF THE AREA WHERE WORK WILL BE PERFORMED. THIS PLAN SHOWS THE EXISTING FEATURES TAKEN FROM A FIELD SURVEY, FIELD INVESTIGATIONS AND AVAILABLE INFORMATION. THIS PLAN MAY OR MAY NOT ACCURATELY REFLECT THE TYPE OR EXTENT OF THE ITEMS TO BE ENCOUNTERED AS THEY ACTUALLY EXIST. WHERE EXISTING FEATURES ARE NOT SHOWN, IT IS NOT IMPLIED THAT THEY ARE NOT TO BE DEMOLISHED OR REMOVED. THE CONTRACTOR SHALL PERFORM A THOROUGH FIELD INVESTIGATION AND REVIEW OF THE SITE WITHIN THE LIMIT OF WORK SHOWN IN THIS PLAN SET TO DETERMINE THE TYPE, QUANTITY AND EXTENT OF ANY AND ALL ITEMS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR DETERMINING THE EXTENT OF EXISTING STRUCTURES, AND UTILITIES AND QUANTITY OF WORK INVOLVED IN REMOVING THESE ITEMS FROM THE SITE.

DEMOLITION LEGEND:

- LIMIT OF WORK — WITHIN THE LIMIT OF WORK LINE ALL ITEMS NOT CALLED OUT TO BE REMOVED ARE TO REMAIN AND MUST BE PROTECTED IN PLACE. CONTRACTOR TO USE CAUTION AROUND (E) UTILITIES, UTILITY VAULTS AND WATER VALVES TO REMAIN.
- EXISTING LANDSCAPED AREAS — REMOVE ALL TREES, SHRUBS, AND GRASS INCLUDING ALL ROOT MASS UNLESS OTHERWISE SPECIFIED. COORDINATE WITH CLIENT PRIOR TO REMOVING ANY TREES. IRRIGATION LINES TO BE REPAIRED TO THE EXTENTS OF NEW PLANTING AND IRRIGATION CONSTRUCTION.
- EXISTING AC PAVING — (E)AC PAVEMENT, AND BASE ROCK TO BE REMOVED. BASE ROCK UNDER AC PAVEMENT CAN BE REUSED IF APPROVED BY GEOTECHNICAL ENGINEER. ALL EDGES TO BE SAWCUT WITH A CLEAN EDGE.
- EXISTING CONCRETE PAVING — (E)CONCRETE PAVEMENT, AND BASE ROCK TO BE REMOVED. BASE ROCK UNDER AC PAVEMENT CAN BE REUSED IF APPROVED BY GEOTECHNICAL ENGINEER. ALL EDGES TO BE SAWCUT WITH A CLEAN EDGE.
- EXISTING GRAVEL PAVING — (E)GRAVEL PAVING TO BE REMOVED. GRAVEL CAN BE REUSED IF APPROVED BY GEOTECHNICAL ENGINEER.
- TREE PROTECTION — TREE PROTECTION AREA. SEE ARBORIST NOTES ON SHEET C0.1.
- EXISTING UTILITY OR CURB/WALL TO BE DEMOLISHED AND REMOVED
- TREE REMOVAL. REFER TO CONDITIONS OF APPROVAL AND BIRD SURVEY REQUIREMENTS AND LIMITATIONS DURING NESTING SEASON

1. TO REMAIN, PROTECT IN PLACE
2. TO BE REMOVED
3. TO BE CAPPED AND ABANDONED
4. TO BE DISCONNECTED AND RELOCATED PER PLANS. EXISTING FOOTINGS/FOUNDATIONS TO BE REMOVED
5. TO REMAIN, ADJUST TO FINISHED GRADE

COASTSIDE COUNTY WATER DISTRICT NOTES:

1. WATER LINE AND METER REMOVAL WORK SHALL NOT BE DONE UNTIL THE NEW WATER MAIN HAS BEEN SUCCESSFULLY TESTED AND IS IN OPERATION. ALL WORK SHALL BE COORDINATED WITH THE DISTRICT.
2. REMOVE EXISTING METERS AND THEIR RESPECTIVE BOXES. METERS ARE TO BE DELIVERED TO THE DISTRICT'S CORPORATION YARD.
3. SERVICES ON LIVE WATER MAINS SHALL BE ABANDONED AT THE WATER MAIN BY TURNING OFF THE CORPORATION STOP OR WITH A SMITH-BLAIR STAINLESS STEEL CLAMP AS DIRECTED BY DISTRICT. THE ABANDONMENT AND REMOVAL OF THE EXISTING METER BOX SHALL INCLUDE REMOVAL OF THE ANGLE METER STOP AND CRIMPING THE COPPER LINE WITHIN 2-FEET OF THE METER BOX.
4. AT THE DISCRETION OF THE DISTRICT, THE EXISTING METER BOXES, ANGLE METER STOPS, AND COPPER SEGMENTS SHALL BE SALVAGED AND DELIVERED TO THE DISTRICT'S YARD.

SEE SHEETS C0.0 AND C0.1 FOR NOTES AND LEGENDS

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HALF MOON BAY

REGISTERED PROFESSIONAL ENGINEER — DALE J. LUTZ — C 78436 — CIVIL — STATE OF CALIFORNIA

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Drawn DLG
Approved DJL
Job No 20211367-15

Drawing Number:
C1.2
OF

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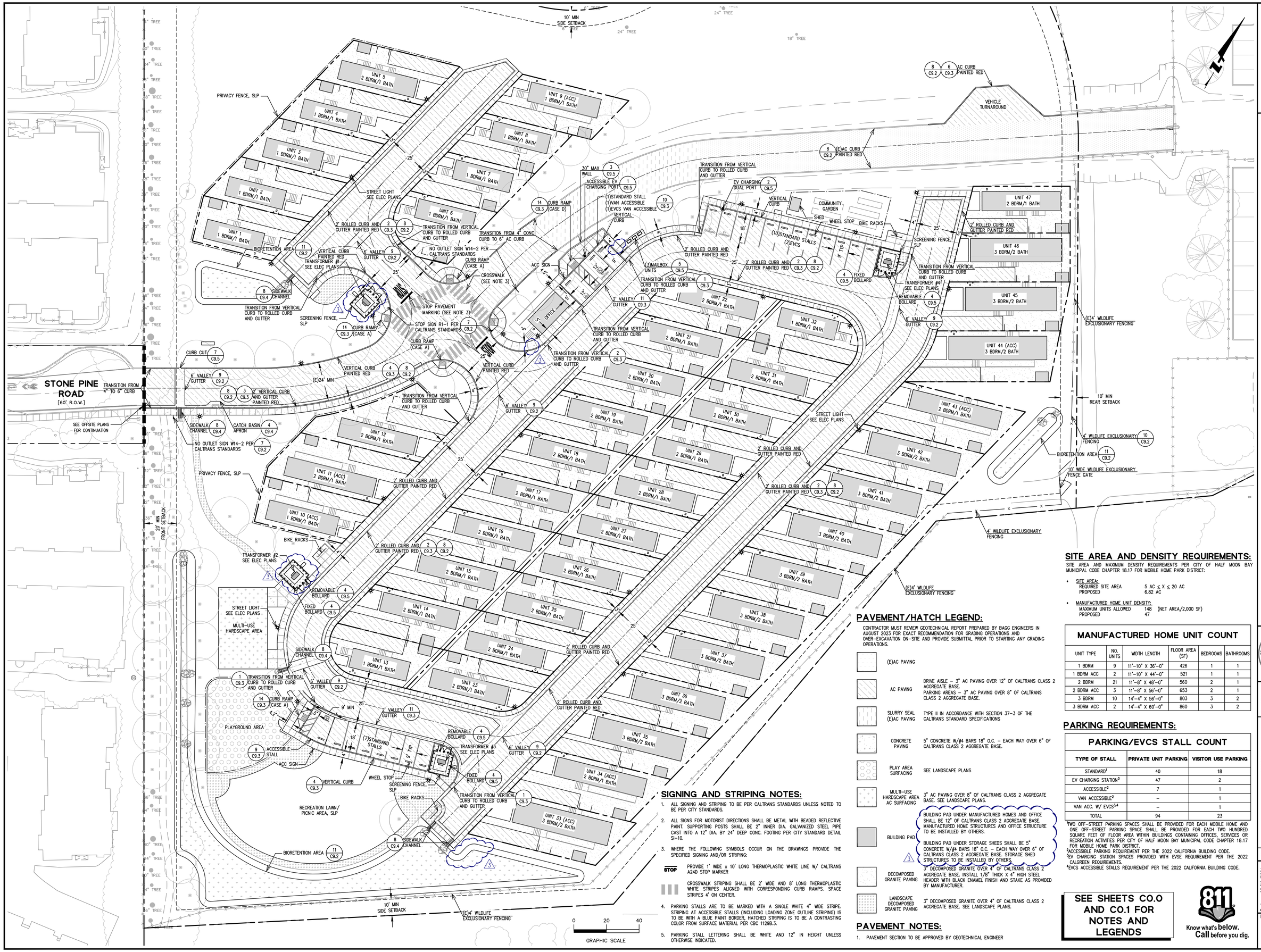
PLOT DATE: 05-16-24 PLOTTED BY: gald



SIGNING AND STRIPING NOTES:

1. ALL SIGNING AND STRIPING TO BE PER CALTRANS STANDARDS UNLESS NOTED TO BE PER CITY STANDARDS.
2. ALL SIGNS FOR MOTORIST DIRECTIONS SHALL BE METAL WITH BEADED REFLECTIVE PAINT. SUPPORTING POSTS SHALL BE 2" INNER DIA. GALVANIZED STEEL, PIPE CAST INTO A 12" DIA. BY 24" DEEP CONC. FOOTING PER CITY STANDARD DETAIL SI-10.
3. WHERE THE FOLLOWING SYMBOLS OCCUR ON THE DRAWINGS PROVIDE THE SPECIFIED SIGNING AND/OR STRIPING:

   STOP — PROVIDE 1' WIDE x 10' LONG THERMOPLASTIC WHITE LINE W/ CALTRANS A24D STOP MARKER

   CROSSWALK STRIPING SHALL BE 2' WIDE AND 8' LONG THERMOPLASTIC WHITE STRIPES ALIGNED WITH CORRESPONDING CURB RAMPS. SPACE STRIPES 4' ON CENTER.
4. PARKING STALLS ARE TO BE MARKED WITH A SINGLE WHITE 4" WIDE STRIPE. STRIPING AT ACCESSIBLE STALLS (INCLUDING LOADING ZONE OUTLINE STRIPING) IS TO BE WITH A BLUE PAINT BORDER, HATCHED STRIPING IS TO BE A CONTRASTING COLOR FROM SURFACE MATERIAL PER CBC 1129B.3.
5. PARKING STALL LETTERING SHALL BE WHITE AND 12" IN HEIGHT UNLESS OTHERWISE INDICATED.

PAVEMENT/HATCH LEGEND:

CONTRACTOR MUST REVIEW GEOTECHNICAL REPORT PREPARED BY BAGG ENGINEERS IN AUGUST 2023 FOR EXACT RECOMMENDATION FOR GRADING OPERATIONS AND OVER-EXCAVATION ON-SITE AND PROVIDE SUBMITTAL PRIOR TO STARTING ANY GRADING OPERATIONS.

(E)AC PAVING	
AC PAVING	DRIVE AISLE – 3" AC PAVING OVER 12" OF CALTRANS CLASS 2 AGGREGATE BASE. PARKING AREAS – 3" AC PAVING OVER 8" OF CALTRANS CLASS 2 AGGREGATE BASE.
SLURRY SEAL (E)AC PAVING	TYPE II IN ACCORDANCE WITH SECTION 37-3 OF THE CALTRANS STANDARD SPECIFICATIONS
CONCRETE PAVING	5" CONCRETE W/#4 BARS 18" O.C. – EACH WAY OVER 6" OF CALTRANS CLASS 2 AGGREGATE BASE.
PLAY AREA SURFACING	SEE LANDSCAPE PLANS
MULTI-USE HARDSCAPE AREA AC SURFACING	3" AC PAVING OVER 8" OF CALTRANS CLASS 2 AGGREGATE BASE. SEE LANDSCAPE PLANS.
BUILDING PAD	BUILDING PAD UNDER MANUFACTURED HOMES AND OFFICE SHALL BE 12" OF CALTRANS CLASS 2 AGGREGATE BASE. MANUFACTURED HOME STRUCTURES AND OFFICE STRUCTURE TO BE INSTALLED BY OTHERS. BUILDING PAD UNDER STORAGE SHEDS SHALL BE 5" CONCRETE W/#4 BARS 18" O.C. – EACH WAY OVER 6" OF CALTRANS CLASS 2 AGGREGATE BASE. STORAGE SHED STRUCTURES TO BE INSTALLED BY OTHERS.
DECOMPOSED GRANITE PAVING	3" DECOMPOSED GRANITE OVER 4" OF CALTRANS CLASS 2 AGGREGATE BASE. INSTALL 1/8" THICK X 4" HIGH STEEL HEADER WITH BLACK ENAMEL FINISH AND STAKE AS PROVIDED BY MANUFACTURER.
LANDSCAPE DECOMPOSED GRANITE PAVING	3" DECOMPOSED GRANITE OVER 4" OF CALTRANS CLASS 2 AGGREGATE BASE. SEE LANDSCAPE PLANS.

PAVEMENT NOTES:

1. PAVEMENT SECTION TO BE APPROVED BY GEOTECHNICAL ENGINEER

SITE AREA AND DENSITY REQUIREMENTS:

SITE AREA AND MAXIMUM DENSITY REQUIREMENTS PER CITY OF HALF MOON BAY MUNICIPAL CODE CHAPTER 18.17 FOR MOBILE HOME PARK DISTRICT:

- SITE AREA:
  - REQUIRED SITE AREA: 5 AC ≤ X ≤ 20 AC
  - PROPOSED: 6.82 AC
- MANUFACTURED HOME UNIT DENSITY:
  - MAXIMUM UNITS ALLOWED: 148 (NET AREA/2,000 SF)
  - PROPOSED: 47

MANUFACTURED HOME UNIT COUNT

UNIT TYPE	NO. UNITS	WIDTH LENGTH	FLOOR AREA (SF)	BEDROOMS	BATHROOMS
1 BDRM	9	11'-10" X 36'-0"	426	1	1
1 BDRM ACC	2	11'-10" X 44'-0"	521	1	1
2 BDRM	21	11'-8" X 48'-0"	560	2	1
2 BDRM ACC	3	11'-8" X 56'-0"	653	2	1
3 BDRM	10	14'-4" X 56'-0"	803	3	2
3 BDRM ACC	2	14'-4" X 60'-0"	860	3	2

PARKING REQUIREMENTS:

PARKING/EVCS STALL COUNT

TYPE OF STALL	PRIVATE UNIT PARKING	VISITOR USE PARKING
STANDARD[1]	40	18
EV CHARGING STATION[3]	47	2
ACCESSIBLE[2]	7	1
VAN ACCESSIBLE[2]	–	1
VAN ACC. W/ EVCS[3,4]	–	1
TOTAL	94	23

[1]TWO OFF-STREET PARKING SPACES SHALL BE PROVIDED FOR EACH MOBILE HOME AND ONE OFF-STREET PARKING SPACE SHALL BE PROVIDED FOR EACH TWO HUNDRED SQUARE FEET OF FLOOR AREA WITHIN BUILDINGS CONTAINING OFFICES, SERVICES OR RECREATION ACTIVITIES PER CITY OF HALF MOON BAY MUNICIPAL CODE CHAPTER 18.17 FOR MOBILE HOME PARK DISTRICT.
[2]ACCESSIBLE PARKING REQUIREMENT PER THE 2022 CALIFORNIA BUILDING CODE.
[3]EV CHARGING STATION SPACES PROVIDED WITH EVSE REQUIREMENT PER THE 2022 CALGREEN REQUIREMENTS.
[4]EVCS ACCESSIBLE STALLS REQUIREMENT PER THE 2022 CALIFORNIA BUILDING CODE.

SEE SHEETS C0.0 AND C0.1 FOR NOTES AND LEGENDS

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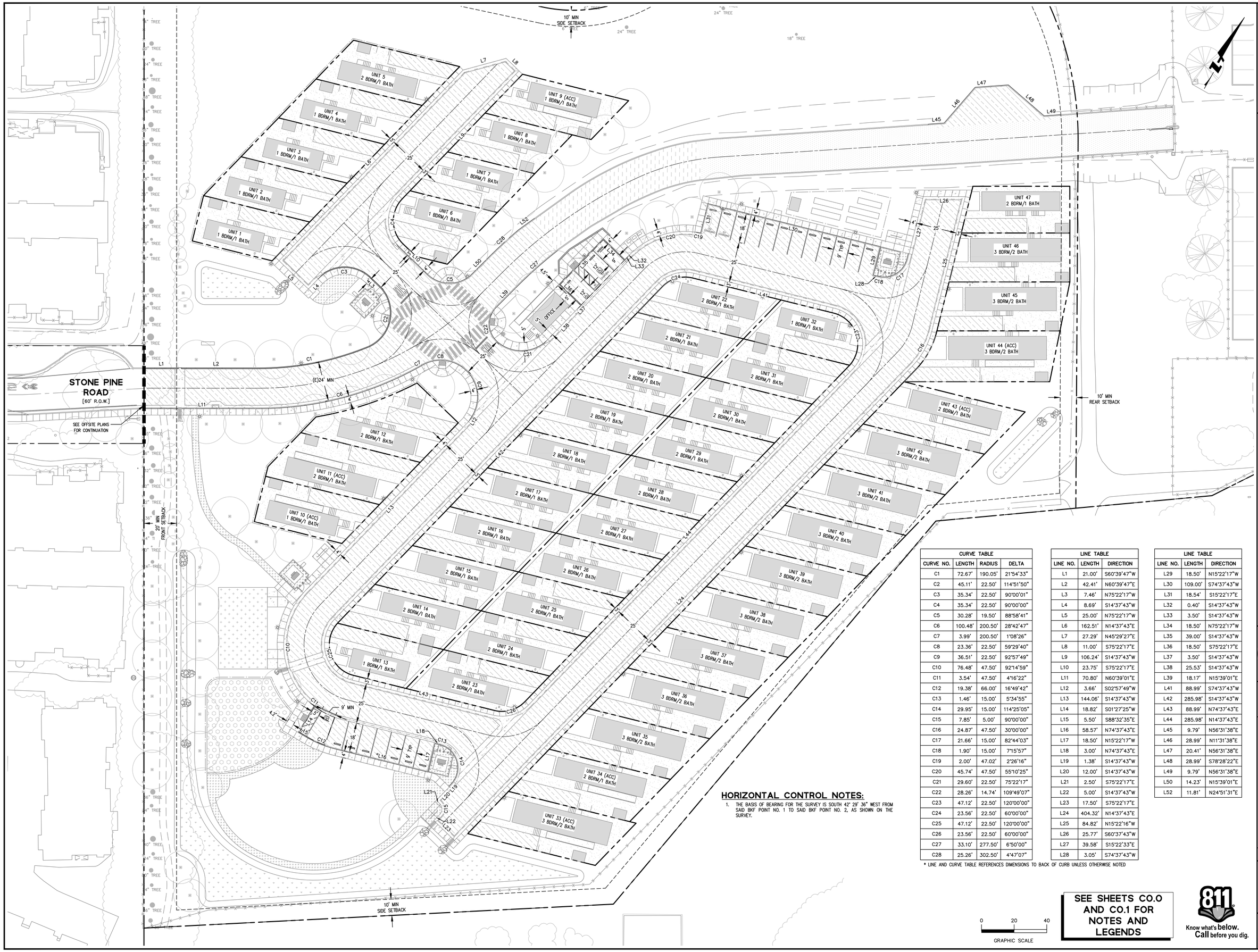

HORIZONTAL CONTROL NOTES:

1. THE BASIS OF BEARING FOR THE SURVEY IS SOUTH 42° 29' 36" WEST FROM SAID BKF POINT NO. 1 TO SAID BKF POINT NO. 2, AS SHOWN ON THE SURVEY.

CURVE TABLE			
CURVE NO.	LENGTH	RADIUS	DELTA
C1	72.67'	190.05'	21°54'33"
C2	45.11'	22.50'	114°51'50"
C3	35.34'	22.50'	90°00'01"
C4	35.34'	22.50'	90°00'00"
C5	30.28'	19.50'	88°58'41"
C6	100.48'	200.50'	28°42'47"
C7	3.99'	200.50'	1°08'26"
C8	23.36'	22.50'	59°29'40"
C9	36.51'	22.50'	92°57'49"
C10	76.48'	47.50'	92°14'59"
C11	3.54'	47.50'	4°16'22"
C12	19.38'	66.00'	16°49'42"
C13	1.46'	15.00'	5°34'55"
C14	29.95'	15.00'	114°25'05"
C15	7.85'	5.00'	90°00'00"
C16	24.87'	47.50'	30°00'00"
C17	21.66'	15.00'	82°44'03"
C18	1.90'	15.00'	7°15'57"
C19	2.00'	47.02'	2°26'16"
C20	45.74'	47.50'	55°10'25"
C21	29.60'	22.50'	75°22'17"
C22	28.26'	14.74'	109°49'07"
C23	47.12'	22.50'	120°00'00"
C24	23.56'	22.50'	60°00'00"
C25	47.12'	22.50'	120°00'00"
C26	23.56'	22.50'	60°00'00"
C27	33.10'	277.50'	6°50'00"
C28	25.26'	302.50'	4°47'07"

LINE TABLE		
LINE NO.	LENGTH	DIRECTION
L1	21.00'	S60°39'47"W
L2	42.41'	N60°39'47"E
L3	7.46'	N75°22'17"W
L4	8.69'	S14°37'43"W
L5	25.00'	N75°22'17"W
L6	162.51'	N14°37'43"E
L7	27.29'	N45°29'27"E
L8	11.00'	S75°22'17"E
L9	106.24'	S14°37'43"W
L10	23.75'	S75°22'17"E
L11	70.80'	N60°39'01"E
L12	3.66'	S02°57'49"W
L13	144.06'	S14°37'43"W
L14	18.82'	S01°27'25"W
L15	5.50'	S88°32'35"E
L16	58.57'	N74°37'43"E
L17	18.50'	N15°22'17"W
L18	3.00'	N74°37'43"E
L19	1.38'	S14°37'43"W
L20	12.00'	S14°37'43"W
L21	2.50'	S75°22'17"E
L22	5.00'	S14°37'43"W
L23	17.50'	S75°22'17"E
L24	404.32'	N14°37'43"E
L25	84.82'	N15°22'16"W
L26	25.77'	S60°37'43"W
L27	39.58'	S15°22'33"E
L28	3.05'	S74°37'43"W

LINE TABLE		
LINE NO.	LENGTH	DIRECTION
L29	18.50'	N15°22'17"W
L30	109.00'	S74°37'43"W
L31	18.54'	S15°22'17"E
L32	0.40'	S14°37'43"W
L33	3.50'	S14°37'43"W
L34	18.50'	N75°22'17"W
L35	39.00'	S14°37'43"W
L36	18.50'	S75°22'17"E
L37	3.50'	S14°37'43"W
L38	25.53'	S14°37'43"W
L39	18.17'	N15°39'01"E
L41	88.99'	S74°37'43"W
L42	285.98'	S14°37'43"W
L43	88.99'	N74°37'43"E
L44	285.98'	N14°37'43"E
L45	9.79'	N56°31'38"E
L46	28.99'	N11°31'38"E
L47	20.41'	N56°31'38"E
L48	28.99'	S78°28'22"E
L49	9.79'	N56°31'38"E
L50	14.23'	N15°39'01"E
L52	11.81'	N24°51'31"E

* LINE AND CURVE TABLE REFERENCES DIMENSIONS TO BACK OF CURB UNLESS OTHERWISE NOTED

0 20 40
GRAPHIC SCALE

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OVERALL GRADING PLAN
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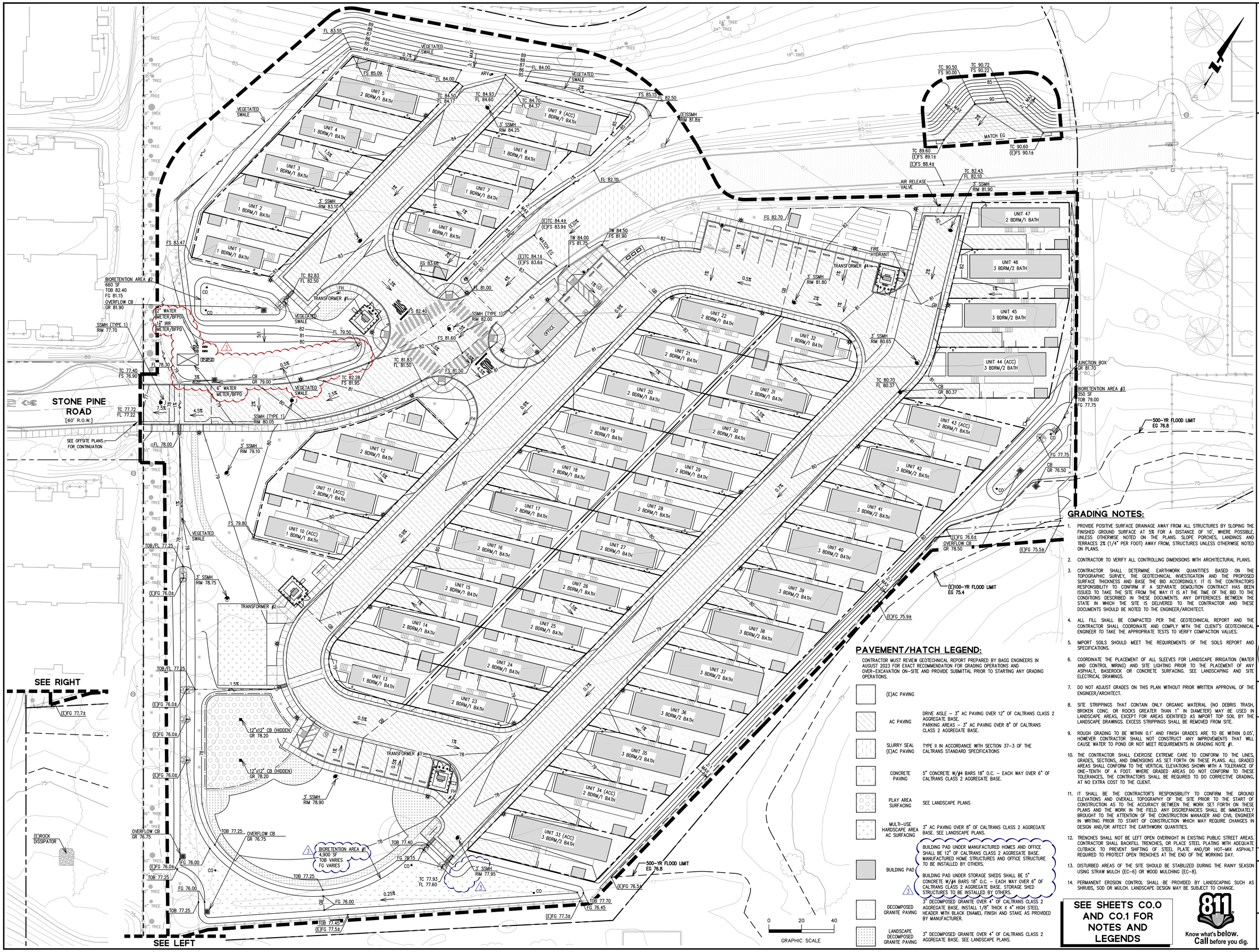

GRADING NOTES:

1. PROVIDE POSITIVE SURFACE DRAINAGE AWAY FROM ALL STRUCTURES BY SLOPING THE FINISHED GROUND SURFACE AT 5% FOR A DISTANCE OF 10', WHERE POSSIBLE, UNLESS OTHERWISE NOTED ON THE PLANS. SLOPE PORCHES, LANDINGS AND TERRACES 2% (1/4" PER FOOT) AWAY FROM, STRUCTURES UNLESS OTHERWISE NOTED ON PLANS.
2. CONTRACTOR TO VERIFY ALL CONTROLLING DIMENSIONS WITH ARCHITECTURAL PLANS.
3. CONTRACTOR SHALL DETERMINE EARTHWORK QUANTITIES BASED ON THE TOPOGRAPHIC SURVEY, THE GEOTECHNICAL INVESTIGATION AND THE PROPOSED SURFACE THICKNESS AND BASE THE BID ACCORDINGLY. IT IS THE CONTRACTORS RESPONSIBILITY TO CONFIRM IF A SEPARATE DEMOLITION CONTRACT HAS BEEN ISSUED TO TAKE THE SITE FROM THE WAY IT IS AT THE TIME OF THE BID TO THE CONDITIONS DESCRIBED IN THESE DOCUMENTS. ANY DIFFERENCES BETWEEN THE STATE IN WHICH THE SITE IS DELIVERED TO THE CONTRACTOR AND THESE DOCUMENTS SHOULD BE NOTED TO THE ENGINEER/ARCHITECT.
4. ALL FILL SHALL BE COMPACTED PER THE GEOTECHNICAL REPORT AND THE CONTRACTOR SHALL COORDINATE AND COMPLY WITH THE CLIENT'S GEOTECHNICAL ENGINEER TO TAKE THE APPROPRIATE TESTS TO VERIFY COMPACTION VALUES.
5. IMPORT SOILS SHOULD MEET THE REQUIREMENTS OF THE SOILS REPORT AND SPECIFICATIONS.
6. COORDINATE THE PLACEMENT OF ALL SLEEVES FOR LANDSCAPE IRRIGATION (WATER AND CONTROL WIRING) AND SITE LIGHTING PRIOR TO THE PLACEMENT OF ANY ASPHALT, BASEROCK OR CONCRETE SURFACING. SEE LANDSCAPING AND SITE ELECTRICAL DRAWINGS.
7. DO NOT ADJUST GRADES ON THIS PLAN WITHOUT PRIOR WRITTEN APPROVAL OF THE ENGINEER/ARCHITECT.
8. SITE STRIPPINGS THAT CONTAIN ONLY ORGANIC MATERIAL (NO DEBRIS TRASH, BROKEN CONC. OR ROCKS GREATER THAN 1" IN DIAMETER) MAY BE USED IN LANDSCAPE AREAS, EXCEPT FOR AREAS IDENTIFIED AS IMPORT TOP SOIL BY THE LANDSCAPE DRAWINGS. EXCESS STRIPPINGS SHALL BE REMOVED FROM SITE.
9. ROUGH GRADING TO BE WITHIN 0.1' AND FINISH GRADES ARE TO BE WITHIN 0.05', HOWEVER CONTRACTOR SHALL NOT CONSTRUCT ANY IMPROVEMENTS THAT WILL CAUSE WATER TO POND OR NOT MEET REQUIREMENTS IN GRADING NOTE #1.
10. THE CONTRACTOR SHALL EXERCISE EXTREME CARE TO CONFORM TO THE LINES, GRADES, SECTIONS, AND DIMENSIONS AS SET FORTH ON THESE PLANS. ALL GRADED AREAS SHALL CONFORM TO THE VERTICAL ELEVATIONS SHOWN WITH A TOLERANCE OF ONE-TENTH OF A FOOT. WHERE GRADED AREAS DO NOT CONFORM TO THESE TOLERANCES, THE CONTRACTORS SHALL BE REQUIRED TO DO CORRECTIVE GRADING, AT NO EXTRA COST TO THE CLIENT.
11. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM THE GROUND ELEVATIONS AND OVERALL TOPOGRAPHY OF THE SITE PRIOR TO THE START OF CONSTRUCTION AS TO THE ACCURACY BETWEEN THE WORK SET FORTH ON THESE PLANS AND THE WORK IN THE FIELD. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND CIVIL ENGINEER IN WRITING PRIOR TO START OF CONSTRUCTION WHICH MAY REQUIRE CHANGES IN DESIGN AND/OR AFFECT THE EARTHWORK QUANTITIES.
12. TRENCHES SHALL NOT BE LEFT OPEN OVERNIGHT IN EXISTING PUBLIC STREET AREAS. CONTRACTOR SHALL BACKFILL TRENCHES, OR PLACE STEEL PLATING WITH ADEQUATE OUTBACK TO PREVENT SHIFTING OF STEEL PLATE AND/OR HOT-MIX ASPHALT REQUIRED TO PROTECT OPEN TRENCHES AT THE END OF THE WORKING DAY.
13. DISTURBED AREAS OF THE SITE SHOULD BE STABILIZED DURING THE RAINY SEASON USING STRAW MULCH (EC-6) OR WOOD MULCHING (EC-8).
14. PERMANENT EROSION CONTROL SHALL BE PROVIDED BY LANDSCAPING SUCH AS SHRUBS, SOD OR MULCH. LANDSCAPE DESIGN MAY BE SUBJECT TO CHANGE.

PAVEMENT/HATCH LEGEND:

CONTRACTOR MUST REVIEW GEOTECHNICAL REPORT PREPARED BY BAGG ENGINEERS IN AUGUST 2023 FOR EXACT RECOMMENDATION FOR GRADING OPERATIONS AND OVER-EXCAVATION ON-SITE AND PROVIDE SUBMITTAL PRIOR TO STARTING ANY GRADING OPERATIONS.

(E)AC PAVING	
AC PAVING	DRIVE AISLE – 3" AC PAVING OVER 12" OF CALTRANS CLASS 2 AGGREGATE BASE. PARKING AREAS – 3" AC PAVING OVER 8" OF CALTRANS CLASS 2 AGGREGATE BASE.
SLURRY SEAL (E)AC PAVING	TYPE II IN ACCORDANCE WITH SECTION 37-3 OF THE CALTRANS STANDARD SPECIFICATIONS
CONCRETE PAVING	5" CONCRETE W/#4 BARS 18" O.C. – EACH WAY OVER 6" OF CALTRANS CLASS 2 AGGREGATE BASE.
PLAY AREA SURFACING	SEE LANDSCAPE PLANS
MULTI-USE HARDSCAPE AREA AC SURFACING	3" AC PAVING OVER 8" OF CALTRANS CLASS 2 AGGREGATE BASE. SEE LANDSCAPE PLANS.
BUILDING PAD	BUILDING PAD UNDER MANUFACTURED HOMES AND OFFICE SHALL BE 12" OF CALTRANS CLASS 2 AGGREGATE BASE. MANUFACTURED HOME STRUCTURES AND OFFICE STRUCTURE TO BE INSTALLED BY OTHERS. BUILDING PAD UNDER STORAGE SHEDS SHALL BE 5" CONCRETE W/#4 BARS 18" O.C. – EACH WAY OVER 6" OF CALTRANS CLASS 2 AGGREGATE BASE. STORAGE SHED STRUCTURES TO BE INSTALLED BY OTHERS.
DECOMPOSED GRANITE PAVING	3" DECOMPOSED GRANITE OVER 4" OF CALTRANS CLASS 2 AGGREGATE BASE. INSTALL 1/8" THICK X 4" HIGH STEEL HEADER WITH BLACK ENAMEL FINISH AND STAKE AS PROVIDED BY MANUFACTURER.
LANDSCAPE DECOMPOSED GRANITE PAVING	3" DECOMPOSED GRANITE OVER 4" OF CALTRANS CLASS 2 AGGREGATE BASE. SEE LANDSCAPE PLANS.

SEE SHEETS C0.0 AND C0.1 FOR NOTES AND LEGENDS

Know what's below. Call before you dig.

REGISTERED PROFESSIONAL ENGINEER
DALE J. LEEA
C 78436
CIVIL
STATE OF CALIFORNIA

No.	Revisions	Date
	BID SET	02/29/2024
	BUILDING PERMIT SET	02/29/2024
1	BID ADDENDUM 3	04/03/2024
2	BID ADDENDUM 4	04/12/2024
3	PERMIT RESUBMITTAL	05/16/2024

Date 05/16/2024
Scale 1" = 20'
Design DJP
Drawn DLG
Approved DJL
Job No. 20211367-15

Drawing Number:
C3.0
OF

DRAWING NAME: K:\2021\211367-15_HMB_Corpyard_Housing\ENG\hmbsheets.dwg
PLOT DATE: 05-16-24 PLOTTED BY: gold

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GRADING PLAN
STONE PINE COVE
880 STONE PINE ROAD

HALF MOON BAY | SAN MATEO COUNTY | CALIFORNIA

Revisions	No.	Date
BID SET	02	02/26/2024
BUILDING PERMIT SET	03	02/29/2024
BID ADDENDUM 3	04	04/03/2024
BID ADDENDUM 4	05	04/12/2024
PERMIT RESUBMITTAL	06	05/16/2024

Date 05/16/2024
Scale 1" = 10'
Design DJP
Drawn DLG
Approved DJL
Job No 202113S7-15

Drawing Number: C3.1
OF

GRAPHIC SCALE 0 10 20

SEE SHEET C3.2

SEE LEFT

SEE RIGHT

SEE SHEET C3.3

STONE PINE ROAD
[60' R.O.W.]

CONFORM LIMIT

PRIVACY FENCE, SLP

VEGETATED SWALE

TRASH ENCL

SHED

UNIT 1 (ACC)
2 BDRM/1 BATH
FF = 83.12
PAD = 80.62

UNIT 2
1 BDRM/1 BATH
FF = 86.97
PAD = 83.97

UNIT 3
1 BDRM/1 BATH
PAD = 86.80
PAD = 84.30

UNIT 4
1 BDRM/1 BATH
FF = 87.13
PAD = 84.63

UNIT 5
2 BDRM/1 BATH
FF = 87.46
PAD = 84.96

UNIT 6
1 BDRM/1 BATH
FF = 88.17
PAD = 84.17

UNIT 7
BDRM/1 BATH
FF = 87.08
PAD = 84.58

UNIT 8
1 BDRM/1 BATH
FF = 87.20
PAD = 84.70

UNIT 9 (ACC)
1 BDRM/1 BATH
FF = 87.30
PAD = 84.80

UNIT 10
2 BDRM/1 BATH
FF = 87.63
PAD = 84.93

UNIT 11
2 BDRM/1 BATH
FF = 87.76
PAD = 85.06

UNIT 12
2 BDRM/1 BATH
FF = 83.40
PAD = 80.90

UNIT 13
2 BDRM/1 BATH
FF = 83.53
PAD = 81.03

UNIT 14
2 BDRM/1 BATH
FF = 83.64
PAD = 81.14

UNIT 15
2 BDRM/1 BATH
FF = 83.76
PAD = 81.26

UNIT 16
2 BDRM/1 BATH
FF = 83.86
PAD = 81.36

UNIT 17
2 BDRM/1 BATH
FF = 83.96
PAD = 81.46

UNIT 18
2 BDRM/1 BATH
FF = 83.85
PAD = 81.35

UNIT 19
2 BDRM/1 BATH
FF = 84.14
PAD = 81.64

UNIT 20
2 BDRM/1 BATH
FF = 84.43
PAD = 81.93

UNIT 21
2 BDRM/1 BATH
FF = 84.53
PAD = 82.03

UNIT 22
2 BDRM/1 BATH
FF = 84.63
PAD = 82.13

UNIT

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GRADING PLAN
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

SEE SHEET C3.1

SEE SHEET C3.4

STREET LIGHT SPLICE BOX, SEE JOINT TRENCH PLANS

UNIT 9 (ACC) 1 BDRM/1 BATH FF = 87.30 PAD = 84.80

UNIT 8 1 BDRM/1 BATH FF = 87.20 PAD = 84.70

UNIT 22 2 BDRM/1 BATH FF = 84.63 PAD = 82.13

UNIT 21 2 BDRM/1 BATH FF = 84.72 PAD = 82.22

UNIT 20 2 BDRM/1 BATH FF = 84.43 PAD = 81.93

UNIT 19 2 BDRM/1 BATH FF = 84.14 PAD = 81.64

UNIT 18 2 BDRM/1 BATH FF = 83.85 PAD = 81.35

UNIT 17 2 BDRM/1 BATH FF = 83.56 PAD = 81.06

OFFICE FF = 84.00 PAD = 81.50

UNIT 32 1 BDRM/1 BATH FF = 84.10 PAD = 81.60

UNIT 31 2 BDRM/1 BATH FF = 83.62 PAD = 81.12

UNIT 30 2 BDRM/1 BATH FF = 83.39 PAD = 80.89

UNIT 29 2 BDRM/1 BATH FF = 83.16 PAD = 80.66

UNIT 28 2 BDRM/1 BATH FF = 82.93 PAD = 80.43

UNIT 47 2 BDRM/1 BATH FF = 85.50 PAD = 83.00

UNIT 46 3 BDRM/2 BATH FF = 85.00 PAD = 82.50

UNIT 45 3 BDRM/2 BATH FF = 84.40 PAD = 81.90

UNIT 44 (ACC) 3 BDRM/2 BATH FF = 84.15 PAD = 81.65

UNIT 43 (ACC) 2 BDRM/1 BATH FF = 83.98 PAD = 81.46

UNIT 42 3 BDRM/2 BATH FF = 83.74 PAD = 81.24

UNIT 41 3 BDRM/2 BATH FF = 83.50 PAD = 81.00

SHED FS 84.66
SHED FS 84.80
SHED FS 85.74
SHED FS 82.45
SHED FS 82.20
SHED FS 81.50
SHED FS 81.12
SHED FS 82.06
SHED FS 80.89
SHED FS 81.76
SHED FS 80.66
SHED FS 81.47
SHED FS 80.42
SHED FS 81.18
SHED FS 82.56
SHED FS 81.98
SHED FS 81.73
SHED FS 81.63
SHED FS 81.41
SHED FS 81.17

TRASH ENCL.

(2)FIXED BOLLARDS C9.5

(3)REMOVABLE BOLLARDS C9.5

FIXED BOLLARDS C9.5

EV CHARGING

NO PARKING

FIRE HYDRANT

TRANSFORMER #4

AIR RELEASE VALVE

3" SSMH RIM 81.90

3" SSMH RIM 81.80

3" SSMH RIM 80.65

SSMH RIM 81.75
16-INV 8" PVC (N'LY)
04-INV 8" PVC (S'LY)

(E)SSMH RIM 81.8±

ROLLED CURB CB GR 80.37

JUNCTION BOX GR 81.70

CB GR 76.50

SBDCO RIM 78.50

SBDCO RIM 78.50

OVERFLOW CB GR 78.50

VEGETATED SWALE

BIORETENTION AREA #3
350 SF
TOB 79.00
FG 77.75

TOB/FL 79.00

MATCH EG AT (E)FENCE

RELOCATE 145 LF (E)WILDLIFE CORRIDOR FENCE

RELOCATE (E)WILDLIFE CORRIDOR FENCE GATE

500-YR FLOOD LIMIT
EG 76.8

CONFORM LIMIT

MATCH EG

GROUND

AC

RIDGE

(E)FG 83.5±

(E)FG 84.0±

(E)FG 83.0±

(E)FS 88.4±

(E)FS 90.1±

(E)FS 89.1±

0 10 20
GRAPHIC SCALE

REGISTERED PROFESSIONAL ENGINEER
DALE J. LEA
C 78436
CIVIL
STATE OF CALIFORNIA

No.	Revisions	Date
	BID SET	02/26/2024
	BUILDING PERMIT SET	02/29/2024
1	BID ADDENDUM 3	04/03/2024
2	BID ADDENDUM 4	04/12/2024
3	PERMIT RESUBMITTAL	05/16/2024

Date 05/16/2024
Scale 1" = 10'
Design DJP
Drawn DLG
Approved DJL
Job No 20211367-15

Drawing Number:
C3.2
OF

DRAWING NAME: K:\2021\211367-15_HMB_Corpyard_Housing\ENG\hmbsheets.dwg
PLOT DATE: 05-16-24
PLOTTED BY: gald

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GRADING PLAN
STONE PINE COVE
880 STONE PINE ROAD

SAN MATEO COUNTY

CALIFORNIA

HALF MOON BAY

Revisions	No.	Date
BID SET	02	02/26/2024
BUILDING PERMIT SET	01	02/29/2024
BID ADDENDUM 3	3	04/03/2024
BID ADDENDUM 4	4	04/12/2024
PERMIT RESUBMITTAL	5	05/16/2024

Date	05/16/2024
Scale	1" = 10'
Design	DJP
Drawn	DLG
Approved	DJL
Job No	2021357-15

Drawing Number: **C3.3** OF

GRAPHIC SCALE 0 10 20

SEE SHEET C3.4

SEE SHEET C3.1

SEE LEFT

SEE RIGHT

500-YR FLOOD LIMIT MATCH EG 76.8 AT (E)FENCE

(E)100-YR FLOOD LIMIT EG 75.4±

(E)ROCK DISSIPATOR

BIORETENTION AREA #1 TOB 78.25 TOB VARIES FG VARIES

PRIVACY FENCE, SIP

VEGETATED SWALE

TRANSFORMER #1

TRANSFORMER #2

STREET LIGHT SPLICE BOX, SEE JOINT TRENCH PLANS

(3)REMOVABLE BOLLARDS

(2)FIXED BOLLARDS

SSMH RIM 78.11
70.43 INV 6" CLAY (E,LY)
70.33 INV 8" CLAY (S,LY)
RIM NOT (E)VCL

DRAWING NAME: K:\2021\2113571-15_HMB_Corporate_Housing\ENG\hmbsheets.dwg
PLOT DATE: 05-16-24 PLOTTED By: gold

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GRADING PLAN
STONE PINE COVE
880 STONE PINE ROAD

HALF MOON BAY | SAN MATEO COUNTY | CALIFORNIA

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No.	Revisions	Date
1	BID SET	02/26/2024
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3	BID ADDENDUM 3	04/03/2024
4	BID ADDENDUM 4	04/12/2024
5	PERMIT RESUBMITTAL	05/16/2024

Date 05/16/2024
Scale 1" = 10'
Design DJP
Drawn DLG
Approved DJL
Job No 202113S7-15

Drawing Number: C3.4
OF

GRAPHIC SCALE 0 10 20

SEE SHEET C3.2

SEE SHEET C3.3

PLATON CREEK

RELOCATE 145 LF (E)WILDLIFE CORRIDOR FENCE

RELOCATE (E)WILDLIFE CORRIDOR FENCE GATE

500-YR FLOOD LIMIT EG 78.8

(E)100-YR FLOOD LIMIT EG 75.4

MATCH EG AT (E)FENCE

MATCH 500-YR FLOOD LIMIT AT (E)FENCE

STREET LIGHT SPLICE BOX SEE JOINT TRENCH PLANS

SBDOD RIM 78.50

SBDOD RIM 77.15

DB DR 78.50

(E)FG 74.0±

(E)FG 75.5±

(E)FG 76.6±

(E)FG 75.9±

(E)FG 76.5±

(E)FG 76.4±

(E)FG 77.3±

TOB 77.65

UNIT 41 3 BDRM/2 BATH FF = 82.50 PAD = 81.00

UNIT 40 3 BDRM/2 BATH FF = 82.25 PAD = 80.75

UNIT 39 3 BDRM/2 BATH FF = 82.00 PAD = 80.50

UNIT 38 3 BDRM/2 BATH FF = 82.25 PAD = 80.25

UNIT 37 3 BDRM/2 BATH FF = 82.50 PAD = 80.00

UNIT 36 3 BDRM/2 BATH FF = 82.25 PAD = 79.76

UNIT 35 3 BDRM/2 BATH FF = 82.01 PAD = 79.51

UNIT 34 (ACC) 2 BDRM/2 BATH FF = 81.82 PAD = 79.26

UNIT 33 (ACC) 3 BDRM/2 BATH FF = 81.57 PAD = 79.07

UNIT 32 2 BDRM/2 BATH FF = 81.32 PAD = 78.83

UNIT 31 2 BDRM/2 BATH FF = 81.07 PAD = 78.58

UNIT 30 2 BDRM/2 BATH FF = 80.85 PAD = 78.35

UNIT 29 2 BDRM/1 BATH FF = 83.16 PAD = 80.66

UNIT 28 2 BDRM/1 BATH FF = 83.02 PAD = 80.42

UNIT 27 2 BDRM/1 BATH FF = 82.69 PAD = 80.19

UNIT 26 2 BDRM/1 BATH FF = 82.45 PAD = 79.95

UNIT 25 2 BDRM/1 BATH FF = 82.22 PAD = 79.72

UNIT 24 2 BDRM/1 BATH FF = 81.99 PAD = 79.49

UNIT 17 2 BDRM/1 BATH FF = 83.56 PAD = 81.06

UNIT 1 2 BDRM/1 BATH FF = 83.74 PAD = 81.24

TRASH ENCL

SHED

(2)FIXED BOLLARDS

(2)REMOVABLE BOLLARDS

DRAWING NAME: K:\2021\2113S7-15_HMB_Corpyrd_Housing\ENG\hmbsheets.dwg
PLOT DATE: 05-16-24 PLOTTED BY: gold

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OVERALL UTILITY PLAN
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

STONE PINE ROAD
[60' R.O.W.]

SEE RIGHT

SEE LEFT

BIORETENTION AREA #2
660 SF
TOB 82.40
FG 81.15
OVERFLOW CB
GR 81.90
4" INV IN 78.65
6" INV OUT 78.65
SSMH (TYPE 1)
RIM 77.70
INV 70.6±
ADJUST (E)SSMH RIM TO GRADE AND TIE IN PROPOSED SS LINES. CONTRACTOR TO VERIFY INVERT PRIOR TO CONSTRUCTION.
2" WATER METER/BFPD
1" IRR METER/BFPD
SLP FOR IRR LAYOUT
CB
GR 79.00
8" INV IN 77.33
(E)12" INV OUT 77.2±
6" WATER METER/BFPD
20' MINIMUM WIDTH P.U.E.
SSMH (TYPE 1)
RIM 80.05
INV 71.32
JOINT TRENCH (ELEC, COMM/CATV)
SEE OFFSITE PLANS FOR CONTINUATION
3" SSMH
RIM 79.10
INV 71.12
SDR RIM 78.77
72.62 INV 12" PVC (NW'LY)
72.58 INV 12" PVC (SE'LY)
SSMH RIM 78.11
70.43 INV 6" CLAY (E'LY)
70.33 INV 6" CLAY (S'LY)
RIM NOT LEVEL
ARV
3" SSMH
RIM 84.25
INV 76.22
3" SSMH
RIM 83.10
INV 73.93
JOINT TRENCH (ELEC, COMM/CATV)
FH
TRANSFORMER #1
SIDEWALK CHANNEL
FL 82.50
10' P.U.E.
12"x12" HDPE SD=L=75' S=2%
6" PVC SD S=2.0%
6" PVC SD=L=30' S=1%
12"x12" CB (HIDDEN)
GR 78.20
INV 76.30
DW INV 77.50
SS TOP 72.05
SSMH (TYPE 1)
RIM 82.00
INV 72.38
JOINT TRENCH (ELEC, COMM/CATV)
TIE INTO (E)SSMH
RIM 81.84
INV 74.1±
TIE SS LINE INTO (E)SSMH. CONTRACTOR TO VERIFY INVERT AND LOCATION PRIOR TO CONSTRUCTION.
TIE INTO (E)2" WATER LINE TO SERVE CORPORATION YARD. CONTRACTOR TO VERIFY INVERT AND LOCATION PRIOR TO CONSTRUCTION.
10" P.U.E.
SSMH RIM 87.94
NO DIP INFORMATION
AIR RELEASE VALVE
JOINT TRENCH (ELEC, COMM/CATV)
3" SSMH
RIM 81.90
INV 78.61
FIRE HYDRANT
TRANSFORMER #4
3" SSMH
RIM 81.80
INV 77.01
3" SSMH
RIM 80.65
INV 77.71
JUNCTION BOX
GR 81.70
(2)8" INV IN 77.81
(2)8" INV OUT 77.81
BIORETENTION AREA #3
350 SF
TOB 79.00
FG 77.75
CB
GR 80.37
(2)8" INV 78.20
(2)8" PVC SD=L=78' S=0.5%
500-YR FLOOD LIMIT
EG 76.8
CB
GR 76.50
6" INV IN 75.00
(E)12" INV OUT 75.00
OVERFLOW CB
GR 78.50
4" INV IN 75.25
6" INV OUT 75.25
(E)100-YR FLOOD LIMIT
EG 75.4
JOINT TRENCH (ELEC, COMM/CATV)
3" SSMH
RIM 78.75
INV 71.81
TRANSFORMER #2
6" PVC SD=L=108' S=2.5%
6" PVC SD=L=30' S=1%
12"x12" CB (HIDDEN)
GR 78.20
INV 76.30
6" PVC SD=L=30' S=1%
12"x12" CB (HIDDEN)
GR 78.20
INV 76.30
TRANSFORMER #3
3" SSMH
RIM 78.90
INV 72.96
SIDEWALK CHANNEL
FL 77.50
OVERFLOW CB
GR 76.75
4" INV IN 73.5±
12" INV OUT 73.5±
OVERFLOW CB
GR 76.75
4" INV IN 73.40
6" INV OUT 73.40
BIORETENTION AREA #1
4,900 SF
TOB VARIES
FG VARIES
3" SSMH
RIM 77.95
INV 73.72
(E)ROCK DISSIPATOR
INV 72.9±
TIE INTO (E)12" SD
INV 73.3±
4" PCV SBD; S=0.25% MIN
500-YR FLOOD LIMIT
EG 76.8
OFFICE
UNIT 1 1 BDRM/1 BATH
UNIT 2 1 BDRM/1 BATH
UNIT 3 1 BDRM/1 BATH
UNIT 4 1 BDRM/1 BATH
UNIT 5 2 BDRM/1 BATH
UNIT 6 1 BDRM/1 BATH
UNIT 7 1 BDRM/1 BATH
UNIT 8 1 BDRM/1 BATH
UNIT 9 (ACC) 1 BDRM/1 BATH
UNIT 10 (ACC) 1 BDRM/1 BATH
UNIT 11 (ACC) 2 BDRM/1 BATH
UNIT 12 2 BDRM/1 BATH
UNIT 13 1 BDRM/1 BATH
UNIT 14 2 BDRM/1 BATH
UNIT 15 2 BDRM/1 BATH
UNIT 16 2 BDRM/1 BATH
UNIT 17 2 BDRM/1 BATH
UNIT 18 2 BDRM/1 BATH
UNIT 19 2 BDRM/1 BATH
UNIT 20 2 BDRM/1 BATH
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UNIT 22 2 BDRM/1 BATH
UNIT 23 2 BDRM/1 BATH
UNIT 24 2 BDRM/1 BATH
UNIT 25 2 BDRM/1 BATH
UNIT 26 2 BDRM/1 BATH
UNIT 27 2 BDRM/1 BATH
UNIT 28 2 BDRM/1 BATH
UNIT 29 2 BDRM/1 BATH
UNIT 30 2 BDRM/1 BATH
UNIT 31 2 BDRM/1 BATH
UNIT 32 1 BDRM/1 BATH
UNIT 33 (ACC) 3 BDRM/2 BATH
UNIT 34 (ACC) 2 BDRM/1 BATH
UNIT 35 3 BDRM/2 BATH
UNIT 36 3 BDRM/2 BATH
UNIT 37 3 BDRM/2 BATH
UNIT 38 3 BDRM/2 BATH
UNIT 39 3 BDRM/2 BATH
UNIT 40 3 BDRM/2 BATH
UNIT 41 3 BDRM/2 BATH
UNIT 42 3 BDRM/2 BATH
UNIT 43 (ACC) 2 BDRM/1 BATH
UNIT 44 (ACC) 3 BDRM/2 BATH
UNIT 45 3 BDRM/2 BATH
UNIT 46 3 BDRM/2 BATH
UNIT 47 2 BDRM/1 BATH

0 20 40
GRAPHIC SCALE

UTILITY LEGEND:

X" SD	STORM DRAIN LATL
X" SBD	STORM SUB-DRAIN LATL
X" SS	SANITARY SEWER LATL
X" DW	DOMESTIC WATER LATL
E	UNDERGROUND ELECTRICAL SERVICE LATL
	JOINT TRENCH

UTILITY TRENCH NOTES:

1. ANY UTILITY TRENCHING SHALL COMPLY WITH CITY STANDARD DETAIL UT-1. 3

DRY UTILITY NOTES:

1. SEE JOINT TRENCH PLANS FOR ELECTRICAL ROUTING DETAILING.
2. SEE LIGHTING PLANS FOR STREET LIGHT AND STREET LIGHT BOX DETAILING.
3. CONTRACTOR TO PROVIDE TRANSFORMER AND METERING SWITCHBOARD HOUSEKEEPING PADS PER LATEST PG&E GREENBOOK STANDARDS. SEE JOINT TRENCH PLANS FOR DETAILS.
4. THE UNIT PEDESTAL METERS SHALL BE LOCATED TOWARDS THE FRONT OF THE UNIT PAD ON THE SIDE OPPOSITE OF THE DRIVEWAY PER LATEST PG&E GREENBOOK STANDARDS. CONNECTIONS FROM THE PEDESTAL METER TO THE HOUSING UNITS TO BE COMPLETED BY OTHERS.
5. CONTRACTOR TO PROVIDE 200 AMP RESIDENTIAL ELECTRIC METERING PEDESTAL AT EACH UNIT PER THE LATEST PG&E GREENBOOK STANDARD SECTION 8. CONTRACTOR TO PROVIDE ELECTRIC METER, WIRING AND ANY OTHER REQUIRED FURNISHING. SEE PLANS FOR METER LOCATIONS.
6. ELECTRIC, TELECOMMUNICATION, CABLE AND UTILITY SERVICE TO THE PROPERTY SHALL BE THROUGH UNDERGROUND SERVICE CONNECTION ONLY.

SANITARY SEWER NOTES:

1. SANITARY SEWER MAINS WITH LESS THAN 3' OF COVER SHALL BE INSTALLED WITH CDF TRENCH BACKFILL. REFER TO SPECIFICATIONS.
2. SANITARY SEWER SYSTEMS INCLUDING MAINS, MANHOLES, AND LATERALS SHALL BE TESTED PER CITY'S STANDARD DESIGN GUIDELINES FOR PUBLIC WORKS CONSTRUCTION 2016.
3. SANITARY SEWER CONNECTIONS TO THE HOUSING UNITS TO BE COMPLETED BY OTHERS.
4. ALL JOINTS SHALL BE TRADITIONAL BELL AND SPIGOT JOINTS. NO GLUE JOINTS ARE ALLOWED.
5. REFER TO PROJECT MANUAL SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
6. ALL PROPOSED SANITARY SEWER INFRASTRUCTURE, OTHER THAN THE 8" SEWER MAIN THAT RUNS DOWN THE ACCESS ROAD TO THE CORPORATION YARD, SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER.

STORM DRAIN NOTES:

1. PRIVATE STORM DRAIN LINE 4-INCH THROUGH 12-INCH WITH A MINIMUM OF TWO (2) FEET OF COVER IN NON-TRAFFIC AREAS SHALL BE POLYVINYL CHLORIDE (PVC) SDR 35 WHITE PIPE AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION D 3034-73 WITH GASKETED BELL AND SPIGOT JOINTS. ALL DIRECTION CHANGES SHALL BE MADE WITH WYE CONNECTIONS, 22.5° ELBOWS, 45° ELBOWS OR LONG SWEEP ELBOWS, 90° ELBOWS AND TEE's ARE PROHIBITED. REFER TO PROJECT MANUAL FOR ADDITIONAL REQUIREMENTS.
2. PRIVATE STORM DRAIN LINE 6-INCH THROUGH 12-INCH WITH LESS THAN THREE (3) FEET OF COVER IN VEHICULAR TRAFFIC AREAS SHALL BE POLYVINYL CHLORIDE (PVC) C900, RATED FOR 150 PSI CLASS PIPE. PROVIDE AND INSTALL "STORM DRAIN" MARKER TAPE FOR THE ENTIRE LENGTH OF PIPE TRENCH IN ACCORDANCE WITH CITY/TOWN STANDARDS. ALL DIRECTION CHANGES SHALL BE MADE WITH WYE CONNECTIONS, OBTUSE ELBOWS OR LONG SWEEP ELBOWS, 90° ELBOWS AND TEE's ARE PROHIBITED. REFER TO PROJECT MANUAL FOR ADDITIONAL REQUIREMENTS.
3. ALL AREA DRAINS AND CATCH BASINS GRATES WITHIN PEDESTRIAN ACCESSIBLE AREAS SHALL MEET ADA REQUIREMENTS.
4. ALL TRENCHES SHALL BE BACK FILLED PER THE SPECIFICATIONS WITH APPROPRIATE TESTS BY THE GEOTECHNICAL ENGINEER TO VERIFY COMPACTION VALUES.
5. FOR GRAVITY FLOW SYSTEMS CONTRACTOR SHALL VERIFY (POTHOLE IF NECESSARY) SIZE, MATERIAL, LOCATION AND DEPTH OF ALL SYSTEMS THAT ARE TO BE CONNECTED TO OR CROSSED PRIOR TO THE TRENCHING OR INSTALLATION OF ANY GRAVITY FLOW SYSTEM.
6. ALL DOWN SPOUTS SHALL DISCHARGE DIRECTLY ON TO ADJACENT IMPERVIOUS SURFACES OR SPLASH BLOCKS UNLESS OTHERWISE NOTED ON PLANS.
7. ALL PROPOSED STORM DRAIN INFRASTRUCTURE SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER.

DOMESTIC WATER SYSTEM NOTES:

1. WATER SYSTEM CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE COASTSIDE COUNTY WATER DISTRICT DOCUMENT TITLED "STANDARD SPECIFICATIONS AND STANDARD DRAWINGS, MAY 2018, LATEST REVISION."
2. INSTALLATION SHALL CONFORM TO THE CCWD STANDARD DRAWINGS INCLUDED IN THESE IMPROVEMENT PLANS AND OTHER CCWD STANDARD DRAWINGS.
3. WATER METER BOXES SHALL NOT BE LOCATED IN DRIVEWAY AREAS OR WITHIN 3 FEET HORIZONTAL AND 1 FOOT VERTICAL OF OTHER UTILITIES INCLUDING ELECTRICAL, GAS, TELEPHONED, AND CABLE TV.
4. WATER LINES ARE SHOWN SCHEMATICALLY, CONTRACTOR SHALL IDENTIFY EACH ANGLE AND/OR BEND THAT MAY BE REQUIRED TO ACCOMPLISH THE INTENDED DESIGN
5. DOMESTIC AND FIRE WATER CONNECTIONS TO THE HOUSING UNITS TO BE COMPLETED BY OTHERS.
6. REFER TO PROJECT MANUAL SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

SEE SHEETS CO.0 AND CO.1 FOR NOTES AND LEGENDS

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C 78436
CIVIL
STATE OF CALIFORNIA

No.	Revisions	Date
	BID SET	02/26/2024
1	BUILDING PERMIT SET	02/29/2024
2	BID ADDENDUM 3	04/03/2024
3	BID ADDENDUM 4	04/12/2024
4	PERMIT RESUBMITTAL	05/16/2024

Date 05/16/2024
Scale 1" = 20'
Design DJP
Drawn DLG
Approved DJL
Job No 20211367-15

Drawing Number:
C4.0
OF

DRAWING NAME: K:\2021\2111367-15_HMB_Corpyard_Housing\ENG\hmbsheets.dwg
PLOT DATE: 05-16-24
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UTILITY PLAN
STONE PINE COVE
880 STONE PINE ROAD

HALF MOON BAY | SAN MATEO COUNTY | CALIFORNIA

No.	Revisions	Date
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Approved DJL
Job No 20211367-15

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OF

GRAPHIC SCALE 0 10 20

SEE SHEET C4.2

SEE LEFT

SEE RIGHT

SEE SHEET C4.3

STONE PINE ROAD [60' R.O.W.]

PRIVACY FENCE, SLP

APPROX 30' WIDE SWINGING GATE

SEE OFFSITE PLANS FOR CONTINUATION

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SEE SHEET C4.4

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SAN MATEO COUNTY

UTILITY PLAN
STONE PINE COVE
880 STONE PINE ROAD

HALF MOON BAY

PROFESSIONAL ENGINEER — DAVID J. KOY — No. 78,167 — STATE OF CALIFORNIA — CIVIL

Revisions	No.	Date
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BID ADDENDUM 4	4	04/12/2024
PERMIT RESUBMITTAL	5	05/16/2024

Job No 2021137-15
Approved DJL
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Design DJP
Scale 1" = 10'
Date 05/16/2024

Drawing Number: **C4.3**
OF

GRAPHIC SCALE 0 10 20

SEE SHEET C4.4

SEE SHEET C4.1

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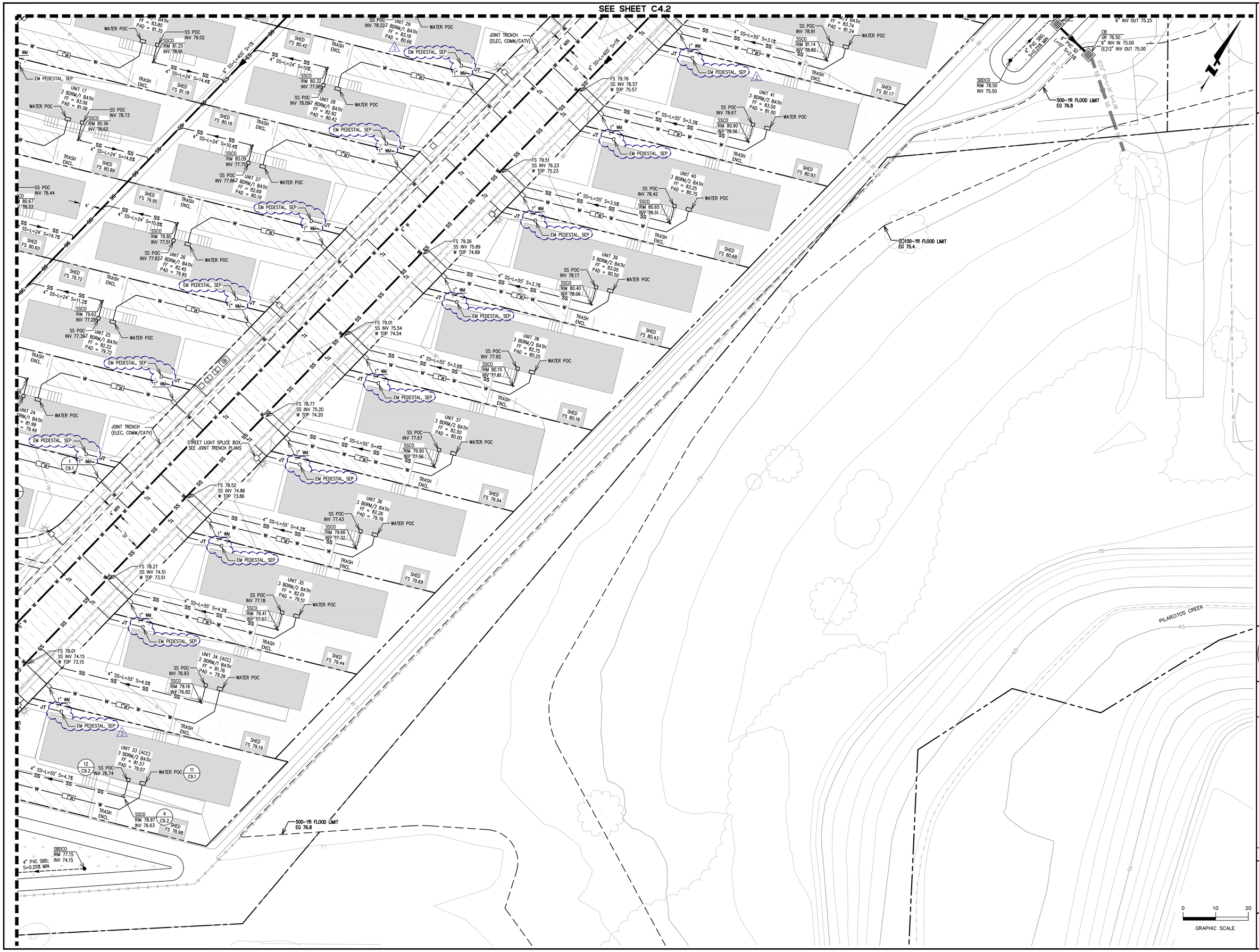
SEE SHEET C4.2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UNIT 28 BDRM/1 BATH FF = 82.92 PAD = 80.42
UNIT 27 BDRM/1 BATH FF = 82.69 PAD = 80.19
UNIT 26 BDRM/1 BATH FF = 82.45 PAD = 79.95
UNIT 25 BDRM/1 BATH FF = 82.22 PAD = 79.72
UNIT 24 BDRM/1 BATH = 81.99 = 79.49
UNIT 29 BDRM/1 BATH FF = 83.16 PAD = 80.66
UNIT 41 3 BDRM/2 BATH FF = 83.50 PAD = 81.00
UNIT 40 3 BDRM/2 BATH FF = 83.25 PAD = 80.75
UNIT 39 3 BDRM/2 BATH FF = 83.00 PAD = 80.50
UNIT 38 3 BDRM/2 BATH FF = 82.75 PAD = 80.25
UNIT 37 3 BDRM/2 BATH FF = 82.50 PAD = 80.00
UNIT 36 3 BDRM/2 BATH FF = 82.26 PAD = 79.76
UNIT 35 3 BDRM/2 BATH FF = 82.01 PAD = 79.51
UNIT 34 (ACC) 2 BDRM/1 BATH FF = 81.76 PAD = 79.26
UNIT 33 (ACC) 3 BDRM/2 BATH FF = 81.57 PAD = 79.07
WATER POC
SS POC INV 79.02
SSCO RIM 81.25 INV 78.91
SS POC INV 78.73
SSCO RIM 80.96 INV 78.62
SS POC INV 78.44
SSCO RIM 80.67 INV 78.33
SS POC INV 78.22
SSCO RIM 80.32 INV 77.98
SS POC INV 78.09
SSCO RIM 80.09 INV 77.75
SS POC INV 77.86
SSCO RIM 79.85 INV 77.51
SS POC INV 77.62
SSCO RIM 79.62 INV 77.28
SS POC INV 77.39
SSCO RIM 79.39 INV 77.05
SS POC INV 77.43
SSCO RIM 79.66 INV 77.32
SS POC INV 77.18
SSCO RIM 79.41 INV 77.07
SS POC INV 76.93
SSCO RIM 79.16 INV 76.82
SS POC INV 76.74
SSCO RIM 78.97 INV 76.63
SS POC INV 77.67
SSCO RIM 79.90 INV 77.56
SS POC INV 77.92
SSCO RIM 80.15 INV 77.81
SS POC INV 78.17
SSCO RIM 80.40 INV 78.06
SS POC INV 78.42
SSCO RIM 80.65 INV 78.31
SS POC INV 78.67
SSCO RIM 80.90 INV 78.56
SS POC INV 78.91
SSCO RIM 81.14 INV 78.80
SS POC INV 79.16
SSCO RIM 81.39 INV 79.05
SS POC INV 79.41
SSCO RIM 81.64 INV 79.30
SS POC INV 79.66
SSCO RIM 81.89 INV 79.55
SS POC INV

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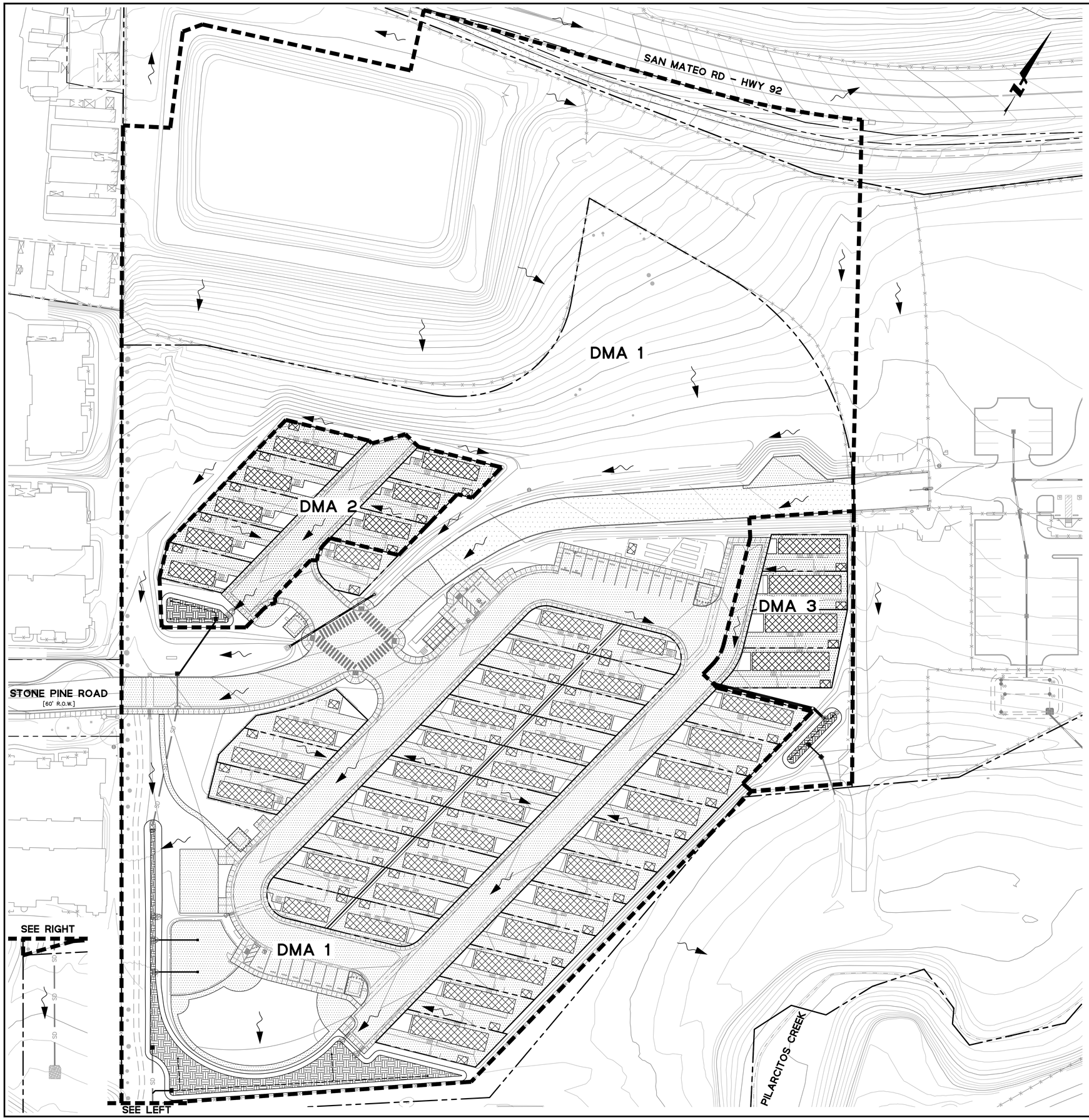

LEGEND:

- DMA BOUNDARY
- FLOW DIRECTION ARROW
- CREATED/REPLACED IMPERVIOUS HARDSCAPE
- CREATED/REPLACED IMPERVIOUS BUILDING
- EXISTING IMPERVIOUS HARDSCAPE RETAINED
- EXISTING IMPERVIOUS BUILDING RETAINED
- PROPOSED TREATMENT AREA

ONSITE TRIBUTARY AREA

DRAINAGE MANAGEMENT AREA (DMA)	IMPERVIOUS AREA	PERVIOUS AREA	EFFECTIVE IMPERVIOUS AREA	REQUIRED TREATMENT AREA	PROVIDED TREATMENT AREA
DMA 1	135,890	239,175	159,808	4,570	4,900
DMA 2	19,140	2,975	19,438	556	660
DMA 3	10,045	7,520	10,797	309	350
TOTAL	165,075	249,670	190,042	5,435	5,910

3

1. THE SIZE OF THE BIORETENTION AREA CALCULATED USING THE COMBINATION FLOW AND VOLUME DESIGN BASIS AS DESCRIBED IN THE SAN MATEO COUNTY C.3 REGULATED PROJECT GUIDE. SEE THE STORMWATER MANAGEMENT PLAN FOR COMBINATION FLOW CALCULATION WORKSHEETS.
2. EFFECTIVE IMPERVIOUS AREA IS EQUAL TO THE TOTAL IMPERVIOUS ARE PLUS 0.1 TIMES THE TOTAL PERVIOUS AREA PER THE SAN MATEO COUNTY C.3 REGULATED PROJECTS GUIDE.

0 30 60
GRAPHIC SCALE

SEE SHEETS CO.0 AND CO.1 FOR NOTES AND LEGENDS

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STORMWATER CONTROL PLAN
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SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

REGISTERED PROFESSIONAL ENGINEER
DALE J. LEA
C 78436
CIVIL
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Job No 20211367-15

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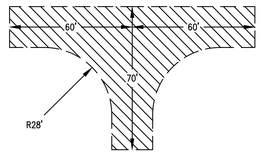
COASTSIDE FIRE PROTECTION DISTRICT NOTES:

1. ALL MANUFACTURED HOMES SHALL BE PROVIDED WITH FIRE SPRINKLER SYSTEMS IN ACCORDANCE WITH CALIFORNIA CODE OF REGULATIONS, TITLE 25, SECTION 4302, AND NFPA13D.
2. SECONDARY EMERGENCY VEHICLE ACCESS SHALL BE PROVIDED TO THE SITE THROUGH THE SITE AS INDICATED IN THE FIRE ACCESS PLAN. AN EASEMENT FOR THE EMERGENCY VEHICLE ACCESS SHALL BE OBTAINED AND RECORDED PRIOR TO OCCUPANCY OF ANY MANUFACTURED HOMES.
3. THE SUBDIVISION SHALL INCLUDE SIGNAGE AND ADDRESS NUMBERS POSTED AT EACH NEW BUILDING IN ACCORDANCE WITH COASTSIDE FIRE PROTECTION DISTRICT STANDARD DI-013.

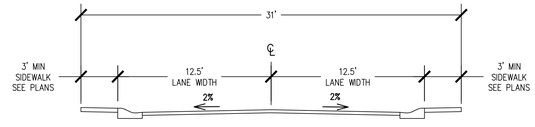
LEGEND:

- PROPOSED FIRE TRUCK ACCESS ROUTE (20' MIN WIDTH, 15'-6" MIN VERTICAL CLEARANCE)
- EMERGENCY VEHICLE ACCESS THROUGH CORPORATE YARD
- NO PARKING IN FIRE LANE RED STRIPING
- FIRE HYDRANT

FIRE TRUCK TURNAROUND:



FIRE TRUCK TURNAROUND PER CA FIRE CODE APPENDIX D. ALL CURBS ALONG FIRE TRUCK TURNAROUNDS SHALL BE RED PAINTED AND MARKED WITH WHITE CURB LETTERING "NO PARKING. FIRE LANE" AT NO LESS THAN 25-FT INTERVALS.



PRIVATE ROAD SECTION

SCALE 1" = 5'

0 40 80

GRAPHIC SCALE

SEE SHEETS CO.0 AND CO.1 FOR NOTES AND LEGENDS

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880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

REGISTERED PROFESSIONAL ENGINEER
KYLE J. LEDA
C 78436
CIVIL
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	BID SET	02/26/2024
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1	BID ADDENDUM 3	04/03/2024
2	BID ADDENDUM 4	04/12/2024
3	PERMIT RESUBMITTAL	05/16/2024

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Scale 1" = 40'
Design DJP
Drawn DLG
Approved DJL
Job No 20211367-15

Drawing Number:
C6.1
OF

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PLOTTED BY: gold

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STAGING AND EROSION CONTROL PLAN
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

TREE PROTECTION (TYPICAL)
FIBER ROLLS (SE-5)
DIVERSION SWALE
LOCATION OF PROPOSED ROAD
SEDIMENT BASIN (SE-2)
(LOCATED WHERE PROPOSED BIORETENTION AREAS ARE LOCATED)
800± SF
TOP OF BANK 82.3
BASE 81.3
FIBER ROLLS (SE-5)
(LOCATED AT TOP OF PROPOSED BIO AREA)
STABILIZED CONSTRUCTION ENTRANCE (TC-1)
VEHICLE/EQUIPMENT WASHOUT PIT (NS-8)
CONTRACTOR PARKING AREA
(3)JOB TRAILERS
TOILETS
GRAVEL BAG BERM (SE-6)
SILT FENCE (SE-1)
CONSERVATION CORRIDOR, SEE CDP COA A8, SHEET C0.2
3 C7.2 STOCKPILE MANAGEMENT (WM-3)
OVERLAP SILT FENCE 10LF
STONE PINE ROAD [60' R.O.W.]
1 C7.2 GRAVEL BAG BERM (SE-6)
7 C7.2 STORM DRAIN INLET PROTECTION (SE-10)
2 C7.2 VEHICLE/EQUIPMENT WASHOUT PIT (NS-8)
6 C7.2 FIBER ROLLS (SE-5)
4 C7.2 STABILIZED CONSTRUCTION ENTRANCE (TC-1)
LOCATION OF PROPOSED ROAD
FIBER ROLLS (SE-5) (LOCATED AT TOP OF PROPOSED SLOPE)
DIVERSION SWALE
SILT FENCE (SE-1) 5 C7.2
FIBER ROLLS (SE-5) (LOCATED AT TOP OF PROPOSED BIO AREA)
SEDIMENT BASIN (SE-2)
(LOCATED WHERE PROPOSED BIORETENTION AREAS ARE LOCATED)
5,540± SF
TOP OF BANK 77.0
BASE 76.0
SILT FENCE (SE-1)

CONSTRUCTION STAGING NOTES:

1. EQUIPMENT AND MATERIAL STORAGE SHALL BE LOCATED ON SITE, AND LAYDOWN SHALL BE LIMITED TO THE DESIGNATED AREAS SHOWN ON PLANS.
2. CONSTRUCTION EQUIPMENT AND MATERIALS SHALL NOT BE STORED WITHIN STONE PINE ROAD OR THE DRIVEWAY SERVING THE CITY CORPORATION YARD. TEMPORARY LAYDOWN AND STORAGE MAY BE MADE AVAILABLE, AS NECESSARY, WITHIN THE CITY CORPORATION YARD.
3. CONSTRUCTION VEHICLES/EQUIPMENT AND WORKERS SHALL ACCESS THE PROJECT SITE VIA STONE PINE ROAD.
4. CONSTRUCTION VEHICLES/EQUIPMENT SHALL OBSERVE A 15-MILE-PER-HOUR SPEED LIMIT ON STONE PINE ROAD, AND WORKERS SHALL ABIDE BY THE POSTED SPEED LIMIT (25 MILES PER HOUR).
5. PARKING FOR CONSTRUCTION VEHICLES/EQUIPMENT AND WORKER VEHICLES SHALL BE LIMITED TO THE DESIGNATED AREAS IDENTIFIED ON PLANS. WORKER PARKING SHALL BE LIMITED TO CONSTRUCTION STAFF, INSPECTORS, AND CONSULTANTS AND MAY OCCUR FROM 7:00 AM TO 7:00 PM MONDAY THROUGH SATURDAY. EXCEPT AS OTHERWISE APPROVED BY THE PUBLIC WORKS DIRECTOR, THERE SHALL BE NO VEHICLE PARKING ON SUNDAYS OR HOLIDAYS.

PERMANENT EROSION/SEDIMENT CONTROLS:

1. CONTRACTOR SHALL PROVIDE POST-CONSTRUCTION PERMANENT EROSION/SEDIMENT CONTROL THROUGHOUT THE SITE IN THE FORM OF FINISH LANDSCAPING.
2. PERMANENT EROSION CONTROLS SHOULD CONSIST OF VEGETATION OR OTHER MEANS OF STABILIZING ALL DISTURBED AREAS OF THE SITE. SUITABLE EROSION CONTROLS INCLUDE TURF, SHRUBS, ESTABLISHED HYDROSEEDING, MULCH, BARK, AND OTHER GROUNDCOVERS.
3. ALL DISTURBED GROUND SURFACES SHALL BE STABILIZED UPON COMPLETION OF CONSTRUCTION ACTIVITIES.
4. FINAL LANDSCAPING PLAN TO BE DEVELOPED IN COORDINATION WITH THE PROJECT ARCHITECT AND TO BE CONSISTENT WITH EXISTING LANDSCAPING AND TREES TO REMAIN, AND MEET THE APPROVAL OF THE PROJECT ARBORIST.
5. LANDSCAPING PROPOSED SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH THE CALIFORNIA MODEL WATER EFFICIENT LANDSCAPE ORDINANCE.
6. DISTURBED AREAS OF THE SITE SHOULD BE STABILIZED DURING THE RAINY SEASON USING STRAW MULCH (EC-6) OR WOOD MULCHING (EC-8).
7. PERMANENT EROSION CONTROL SHALL BE PROVIDED BY LANDSCAPING SUCH AS SHRUBS, SOD OR MULCH. LANDSCAPE DESIGN MAY BE SUBJECT TO CHANGE.

EROSION CONTROL LEGEND:

- TREE PROTECTION (TYP.) SEE ARBORIST NOTES
- STABILIZED CONSTRUCTION ENTRANCE/EXIT
- VEHICLE/EQUIPMENT WASHOUT PIT
- STOCKPILE COVERING
- CONTRACTOR PARKING AREA
- SEDIMENT BASIN
- GRAVEL BAG BERM
- FIBER ROLL
- SILT FENCE
- INLET PROTECTION

0 20 40
GRAPHIC SCALE

SEE SHEETS C0.0 AND C0.1 FOR NOTES AND LEGENDS

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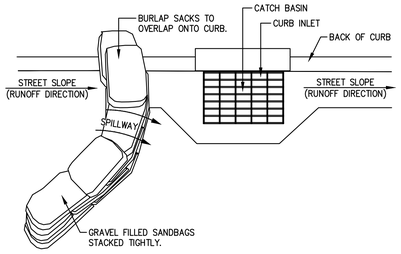
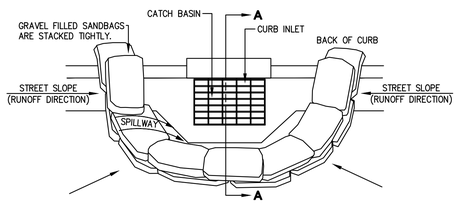


PLAN VIEW

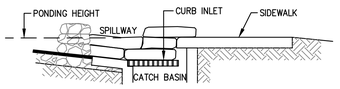
NOTES:

1. PLACE CURB TYPE SEDIMENT BARRIERS ON GENTLY SLOPING STREETS, WHERE WATER CAN POND AND ALLOW SEDIMENT TO SEPARATE FROM RUNOFF.
2. SANDBAGS OF EITHER BURLAP OR WOVEN GEOTEXTILE FABRIC, ARE FILLED WITH GRAVEL, LAYERED AND PACKED TIGHTLY.
3. LEAVE ONE SANDBAG GAP IN THE TOP ROW TO PROVIDE A SPILLWAY OVERFLOW. TOP OF SPILLWAY SHALL BE LOWER THAN TOP OF CURB.
4. INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT, SEDIMENT AND GRAVEL MUST BE REMOVED FROM THE TRAVELED WAY IMMEDIATELY.

CURB INLET SEDIMENT BARRIER - CONTINUOUS GRADE



PLAN VIEW



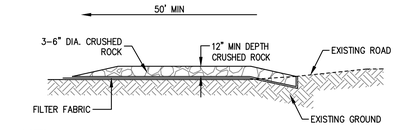
SECTION A-A

CURB INLET SEDIMENT BARRIER - SUMP

NOTES:

1. PLACE CURB TYPE SEDIMENT BARRIERS ON GENTLY SLOPING STREETS, WHERE WATER CAN POND AND ALLOW SEDIMENT TO SEPARATE FROM RUNOFF.
2. SANDBAGS OF EITHER BURLAP OR WOVEN GEOTEXTILE FABRIC, ARE FILLED WITH GRAVEL, LAYERED AND PACKED TIGHTLY.
3. LEAVE ONE SANDBAG GAP IN THE TOP ROW TO PROVIDE A SPILLWAY OVERFLOW.
4. INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT, SEDIMENT AND GRAVEL MUST BE REMOVED FROM THE TRAVELED WAY IMMEDIATELY.

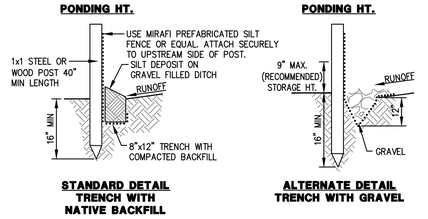
7 — INLET PROTECTION
NTS

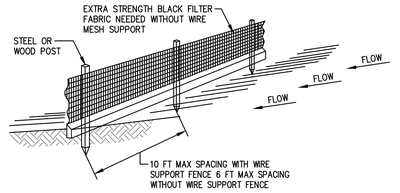


NOTES:

1. PROVIDE A FANNED STABILIZED CONSTRUCTION ENTRANCE TO ACCOMMODATE THE TURNING RADIUS OF CONSTRUCTION EQUIPMENT ON AND OFF THE PUBLIC STREET.
2. INSTALL ALONG NEW DWY CORRIDOR FOR THE FULL PROPOSED WIDTH.

4 — STABILIZED CONSTRUCTION ENTRANCE
NTS

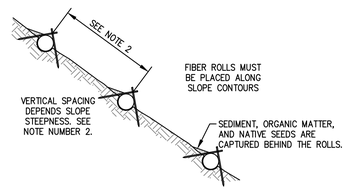


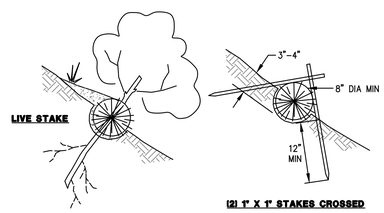


NOTES:

1. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.
2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
3. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.

5 — SILT FENCE
NTS

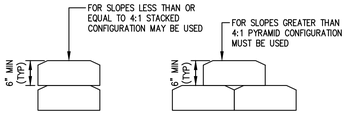




NOTES:

1. FIBER ROLL INSTALLATION REQUIRES THE PLACEMENT AND SECURE STAKING OF THE ROLL IN A TRENCH, 3" TO 4" DEEP, DUG ON CONTOUR. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND ROLL.
1. VERTICAL SPACING FOR SLOPE INSTALLATIONS:
   SLOPE OF 2:1 OR GREATER = 10 FEET APART
   SLOPE BETWEEN 4:1 AND 2:1 = 15 FEET APART
   SLOPE OF 4:1 OR FLATTER = 20 FEET APART
2. INSPECT AND REPAIR FIBER ROLLS AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.
3. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.

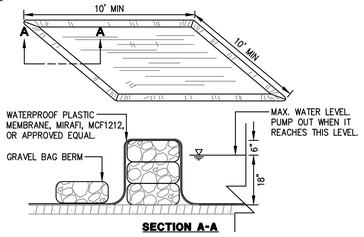
6 — FIBER ROLL
NTS



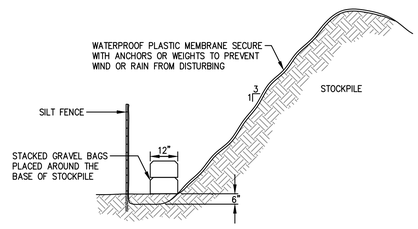
NOTES:

1. INSTALL AT LOCATIONS AS SHOWN ON EROSION CONTROL PLAN, AND IN ADDITION, PROTECT ALL EXISTING AND PROPOSED STORM DRAIN STRUCTURES WITH GRAVEL BAGS.

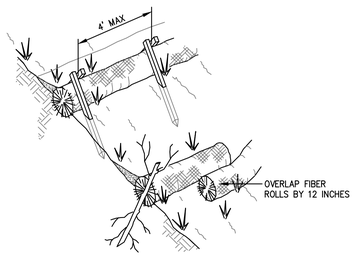
1 — GRAVEL BAG BERM
NTS



2 — VEHICLE/EQUIPMENT WASHOUT PIT
NTS



3 — STOCKPILE COVERING
NTS



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REGISTERED PROFESSIONAL ENGINEER — DALE J. LUTZ — C 78438 — CIVIL — STATE OF CALIFORNIA

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Job No 20211367-15

Drawing Number:
C7.2
OF

DRAWING NAME: K:\2021\211367-15_HMB_Corpyard_Housing\ENG\hmbsheets.dwg
PLOT DATE: 05-16-24
PLOTTED BY: gold

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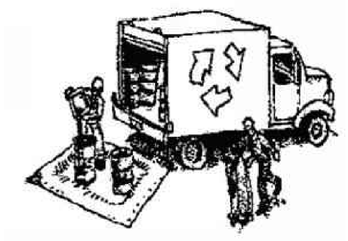
Water Pollution Prevention Program
Clean Water. Healthy Community.

Construction Best Management Practices (BMPs)

Construction projects are required to implement the stormwater best management practices (BMP) on this page, as they apply to your project, all year long.

Materials & Waste Management



Non-Hazardous Materials

- ❑ Berm and cover stockpiles of sand, dirt or other construction material with tarps when rain is forecast or if not actively being used within 14 days.
- ❑ Use (but don't overuse) reclaimed water for dust control.

Hazardous Materials

- ❑ Label all hazardous materials and hazardous wastes (such as pesticides, paints, thinners, solvents, fuel, oil, and antifreeze) in accordance with city, county, state and federal regulations.
- ❑ Store hazardous materials and wastes in water tight containers, store in appropriate secondary containment, and cover them at the end of every work day or during wet weather or when rain is forecast.
- ❑ Follow manufacturer's application instructions for hazardous materials and be careful not to use more than necessary. Do not apply chemicals outdoors when rain is forecast within 24 hours.
- ❑ Arrange for appropriate disposal of all hazardous wastes.

Waste Management

- ❑ Cover waste disposal containers securely with tarps at the end of every work day and during wet weather.
- ❑ Check waste disposal containers frequently for leaks and to make sure they are not overfilled. Never hose down a dumpster on the construction site.
- ❑ Clean or replace portable toilets, and inspect them frequently for leaks and spills.
- ❑ Dispose of all wastes and debris properly. Recycle materials and wastes that can be recycled (such as asphalt, concrete, aggregate base materials, wood, gyp board, pipe, etc.)
- ❑ Dispose of liquid residues from paints, thinners, solvents, glues, and cleaning fluids as hazardous waste.

Construction Entrances and Perimeter

- ❑ Establish and maintain effective perimeter controls and stabilize all construction entrances and exits to sufficiently control erosion and sediment discharges from site and tracking off site.
- ❑ Sweep or vacuum any street tracking immediately and secure sediment source to prevent further tracking. Never hose down streets to clean up tracking.

Equipment Management & Spill Control



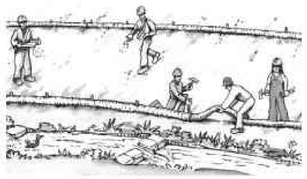
Maintenance and Parking

- ❑ Designate an area, fitted with appropriate BMPs, for vehicle and equipment parking and storage.
- ❑ Perform major maintenance, repair jobs, and vehicle and equipment washing off site.
- ❑ If refueling or vehicle maintenance must be done onsite, work in a bermed area away from storm drains and over a drip pan or drop cloths big enough to collect fluids. Recycle or dispose of fluids as hazardous waste.
- ❑ If vehicle or equipment cleaning must be done onsite, clean with water only in a bermed area that will not allow rinse water to run into gutters, streets, storm drains, or surface waters.
- ❑ Do not clean vehicle or equipment onsite using soaps, solvents, degreasers, or steam cleaning equipment.

Spill Prevention and Control

- ❑ Keep spill cleanup materials (e.g., rags, absorbents and cat litter) available at the construction site at all times.
- ❑ Inspect vehicles and equipment frequently for and repair leaks promptly. Use drip pans to catch leaks until repairs are made.
- ❑ Clean up spills or leaks immediately and dispose of cleanup materials properly.
- ❑ Do not hose down surfaces where fluids have spilled. Use dry cleanup methods (absorbent materials, cat litter, and/or rags).
- ❑ Sweep up spilled dry materials immediately. Do not try to wash them away with water, or bury them.
- ❑ Clean up spills on dirt areas by digging up and properly disposing of contaminated soil.
- ❑ Report significant spills immediately. You are required by law to report all significant releases of hazardous materials, including oil. To report a spill: 1) Dial 911 or your local emergency response number, 2) Call the Governor's Office of Emergency Services Warning Center, (800) 852-7550 (24 hours).

Earthmoving



- ❑ Schedule grading and excavation work during dry weather.
- ❑ Stabilize all denuded areas, install and maintain temporary erosion controls (such as erosion control fabric or bonded fiber matrix) until vegetation is established.
- ❑ Remove existing vegetation only when absolutely necessary, and seed or plant vegetation for erosion control on slopes or where construction is not immediately planned.
- ❑ Prevent sediment from migrating offsite and protect storm drain inlets, gutters, ditches, and drainage courses by installing and maintaining appropriate BMPs, such as fiber rolls, silt fences, sediment basins, gravel bags, berms, etc.
- ❑ Keep excavated soil on site and transfer it to dump trucks on site, not in the streets.

Contaminated Soils

- ❑ If any of the following conditions are observed, test for contamination and contact the Regional Water Quality Control Board:
  - Unusual soil conditions, discoloration, or odor.
  - Abandoned underground tanks.
  - Abandoned wells
  - Buried barrels, debris, or trash.

Paving/Asphalt Work



- ❑ Avoid paving and seal coating in wet weather or when rain is forecast, to prevent materials that have not cured from contacting stormwater runoff.
- ❑ Cover storm drain inlets and manholes when applying seal coat, tack coat, slurry seal, fog seal, etc.
- ❑ Collect and recycle or appropriately dispose of excess abrasive gravel or sand. Do NOT sweep or wash it into gutters.
- ❑ Do not use water to wash down fresh asphalt concrete pavement.

Sawcutting & Asphalt/Concrete Removal

- ❑ Protect nearby storm drain inlets when saw cutting. Use filter fabric, catch basin inlet filters, or gravel bags to keep slurry out of the storm drain system.
- ❑ Shovel, abosorb, or vacuum saw-cut slurry and dispose of all waste as soon as you are finished in one location or at the end of each work day (whichever is sooner!).
- ❑ If sawcut slurry enters a catch basin, clean it up immediately.

Concrete, Grout & Mortar Application



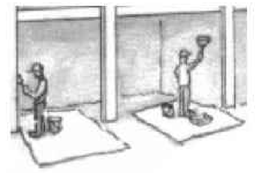
- ❑ Store concrete, grout, and mortar away from storm drains or waterways, and on pallets under cover to protect them from rain, runoff, and wind.
- ❑ Wash out concrete equipment/trucks offsite or in a designated washout area, where the water will flow into a temporary waste pit, and in a manner that will prevent leaching into the underlying soil or onto surrounding areas. Let concrete harden and dispose of as garbage.
- ❑ When washing exposed aggregate, prevent washwater from entering storm drains. Block any inlets and vacuum gutters, hose washwater onto dirt areas, or drain onto a bermed surface to be pumped and disposed of properly.

Landscaping



- ❑ Protect stockpiled landscaping materials from wind and rain by storing them under tarps all year-round.
- ❑ Stack bagged material on pallets and under cover.
- ❑ Discontinue application of any erodible landscape material within 2 days before a forecast rain event or during wet weather.

Painting & Paint Removal



Painting Cleanup and Removal

- ❑ Never clean brushes or rinse paint containers into a street, gutter, storm drain, or stream.
- ❑ For water-based paints, paint out brushes to the extent possible, and rinse into a drain that goes to the sanitary sewer. Never pour paint down a storm drain.
- ❑ For oil-based paints, paint out brushes to the extent possible and clean with thinner or solvent in a proper container. Filter and reuse thinners and solvents. Dispose of excess liquids as hazardous waste.
- ❑ Paint chips and dust from non-hazardous dry stripping and sand blasting may be swept up or collected in plastic drop cloths and disposed of as trash.
- ❑ Chemical paint stripping residue and chips and dust from marine paints or paints containing lead, mercury, or tributyltin must be disposed of as hazardous waste. Lead based paint removal requires a state-certified contractor.

Dewatering



- ❑ Discharges of groundwater or captured runoff from dewatering operations must be properly managed and disposed. When possible send dewatering discharge to landscaped area or sanitary sewer. If discharging to the sanitary sewer call your local wastewater treatment plant.
- ❑ Divert run-on water from offsite away from all disturbed areas.
- ❑ When dewatering, notify and obtain approval from the local municipality before discharging water to a street gutter or storm drain. Filtration or diversion through a basin, tank, or sediment trap may be required.
- ❑ In areas of known or suspected contamination, call your local agency to determine whether the ground water must be tested. Pumped groundwater may need to be collected and hauled off-site for treatment and proper disposal.

Storm drain polluters may be liable for fines of up to $10,000 per day!

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REGISTERED PROFESSIONAL ENGINEER
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Approved DJL
Job No 20211367-15

Drawing Number:
C7.3
OF

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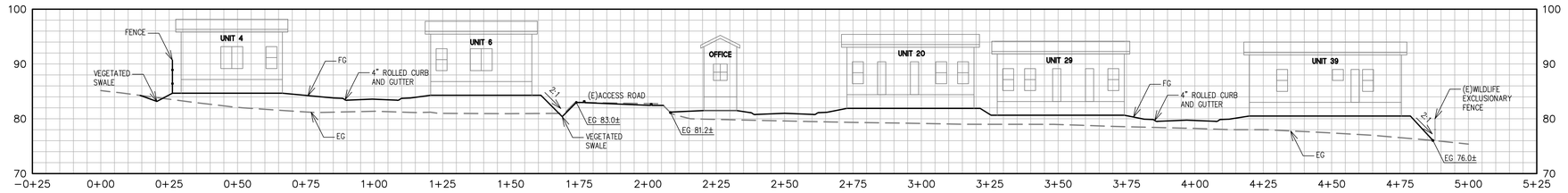
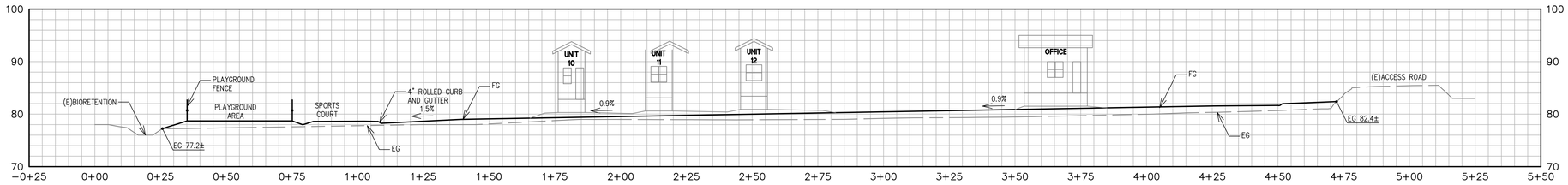


SECTION A–A

SCALE: 1:20 HORIZONTAL
1:10 VERTICAL



SECTION B–B

SCALE: 1:20 HORIZONTAL
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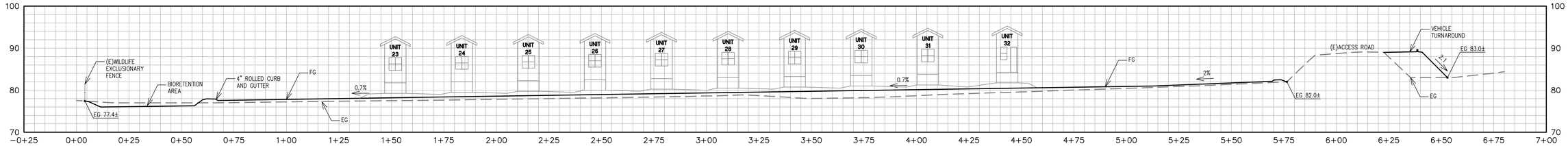

SECTION C–C

SCALE: 1:20 HORIZONTAL
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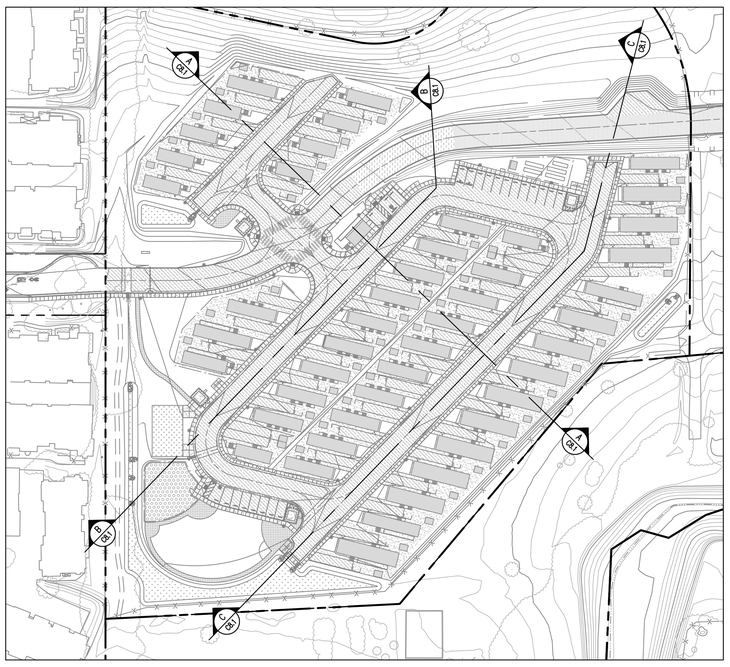

SITE SECTION KEYMAP

N.T.S.

0 20 40
GRAPHIC SCALE

SEE SHEETS C0.0 AND C0.1 FOR NOTES AND LEGENDS

811 Know what's below. Call before you dig.

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Drawn DLG
Approved DJL
Job No 20211367-15

Drawing Number:
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OF

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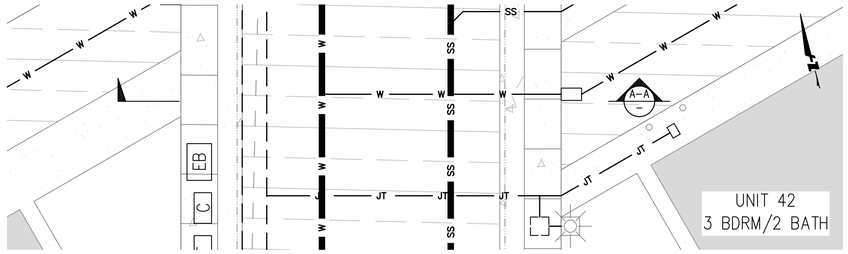
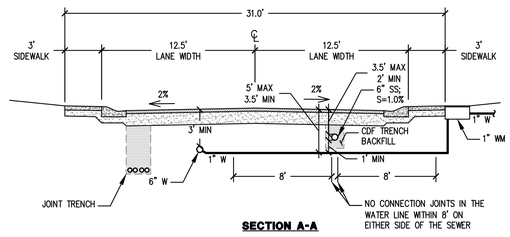
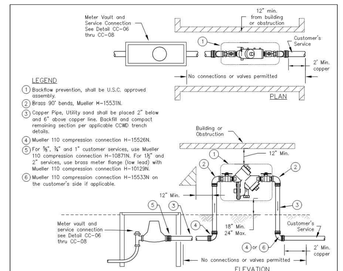




SECTION A-A

10 — SHALLOW SEWER/WATER CROSSING

1" = 5'



LEGEND

1. Backflow prevention, shall be U.S.C. approved assembly.
2. Brass 90° bends, Mueller H-15533N.
3. Copper Pipe, Utility sand shall be placed 2" below and 6" above copper line. Backfill and compact remaining section per applicable CCMD trench details.
4. Mueller 110 compression connection H-15526N.
5. For ¾", 1" and 1" customer services, use Mueller 110 compression connection H-10837N. For 1½" and 2" services, use brass meter flange (low lead) with Mueller 110 compression connection H-15529N.
6. Mueller 110 compression connection H-15533N on the customer's side if applicable.

REQUIREMENTS

1. A backflow prevention assembly must be installed on Non-Single Family Residential services and Single Family Residential service connections that have an auxiliary water supply, a cross connection, or a risk of backflow or contamination.
2. All reduced pressure backflow assemblies shall be installed on the customer's property adjacent to the meter. Pressure reducing valves on the District pipelines will not be permitted.
3. Contractor shall furnish all labor, equipment, and material to connect water service to the customer line.
4. Any enclosure used for backflow assembly shall be approved by the District.
5. Backflow assembly shall be tested and certified by the District approved tester prior to being put in service.
6. Vertical installations are allowed but require District approval prior to design and installation.

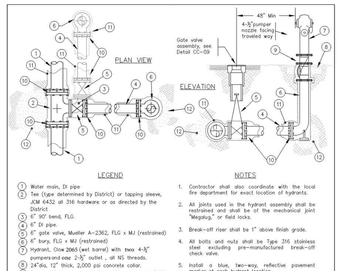
REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLY (UP TO 2")

REV. 05/2018

COASTSIDE COUNTY WATER DISTRICT, 766 MAIN STREET, HALF MOON BAY, CA | Approved by: David Dickson, General Manager | STD. NO. CC-18

7 — CC-18 BACKFLOW PREVENTER(UP TO 2")

NTS



LEGEND

1. Water main, DI pipe.
2. Tee (type determined by District) or tapping sleeve, JCM 6432 or 316 hardware or as directed by the District.
3. 6" 90° bend, FLG.
4. 6" DI pipe.
5. 6" gate valve, Mueller A-2362, FLG x MJ (restrained)
6. 6" bury, FLG x MJ (restrained)
7. Hydrant, Clow 2065 (wet barrel) with two 4-½" pumper and one 2-½" outlet , all NS threads.
8. 24"dia, 12" thick, 2,000 psi concrete collar.
9. Break-off check valve, Clow Valve model LB400 (note that length of unit is 20"). Install concrete collar (8) to allow removal of stainless steel bolts securing break-off riser. Notice soil shall then placed on top of the collar to within 1" of the bottom of break-off riser.
10. 6" mechanical joint restraint, EBAA Iron, "Megalug" Series 1100 for DI.
11. Encase DI fire hydrant lateral in V-Bio enhanced polyethylene film.
12. Thrust block (kicker) per CC-22

NOTES

1. Contractor shall also coordinate with the local fire department for exact location of hydrants.
2. All joints used in the hydrant assembly shall be restrained and shall be of the mechanical joint "Megalug," or field locks.
3. Break-off riser shall be 1" above finish grade.
4. All bolts and nuts shall be Type 316 stainless steel excluding pre-manufactured break-off check valve.
5. Install a blue, two-way, reflective pavement marker at each hydrant location.
6. New fire hydrant assembly shall be pressure tested and disinfected per section 33 14 13.
7. New fire hydrant shall be factory painted "safety yellow." All metal above the concrete collar shall also be factory painted "safety yellow."
8. **HYDRANT SUPPLY PIPE SHALL BE LISTED AND APPROVED FOR FIRE PROTECTION SERVICE FOR UNDERGROUND PIPE. PIPE SHALL BE BURIED A MINIMUM OF 30 INCH BELOW GRADE (36 INCH IF THE PIPE PASSES UNDER A ROAD OR IS SUBJECT TO HEAVY LOADS).**
9. **INSTALLER OF HYDRANTS WILL FOLLOW COASTSIDE FIRE STANDARD HYDRANT FPS-001.**

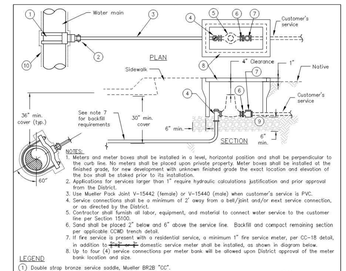
FIRE HYDRANT ASSEMBLY

REV. 09/11/2019
REV. 05/2018

COASTSIDE COUNTY WATER DISTRICT, 766 MAIN STREET, HALF MOON BAY, CA | Approved by: David Dickson, General Manager | STD. NO. CC-12

4 — CC-12 FIRE HYDRANT

NTS



NOTES:

1. Meters and meter boxes shall be installed in a level, horizontal position and shall be perpendicular to the curb line. No meters shall be placed upon private property. Meter boxes shall be installed at the finished grade, for new development with unknown finished grade the exact location and elevation of the box shall be staked prior to its installation.
2. Applications for services larger than 1" require hydraulic calculations justification and prior approval from the District.
3. Use Mueller Pack Joint V-15442 (female) or V-15440 (male) when customer's service is PVC.
4. Service connections shall be a minimum of 2' away from a bell/joint end/or next service connection, or as directed by the District.
5. Contractor shall furnish all labor, equipment, and material to connect ~~3/4"~~ 1" domestic service meter shall be installed, as shown in diagram below.
6. Sand shall be placed 2" below and 6" above the service line. Backfill and compact remaining section per applicable CCMD trench detail.
7. If fire service is present with a residential service, a minimum 1" fire service meter, per CC-18 detail, in addition to 1" or 2" domestic service meter shall be installed, as shown in diagram below.
8. Up to four (4) service connections per meter bank will be allowed upon District approval of the meter bank location and size.

LEGEND

1. Double strap bronze service saddle, Mueller BR2B "CC".
2. ~~3/4"~~ 1" corporation stop, Mueller B-25008N.
3. ~~3/4"~~ 1" dia. Type K soft copper pipe. Unions or couplings not permitted.
4. ~~3/4"~~ 1" compression ball angle meter valve, Mueller B-24258N.
5. ~~3/4"~~ 1" meter (furnished by District).
6. Insulated meter coupling, Mueller H-10879N.
7. ~~3/4"~~ 1" meter check valve Mueller H-14243N.
8. Meter box, ~~Christy No. B3 for 3/4" meter~~ and No. B16 for 1", cover shall be purchased from the District, H-20 traffic rated box and H-20 cover with 1@ probe hole shall be provided in traffic areas and where directed by the District. See detail CC-08 for meter box clearances.
9. ¾" drain rock per Section 31 80 00 of the District's standard specifications, shall be mechanically compacted.
10. Encase DIP in V-Bio enhanced polyethylene.

~~3/4"~~ OR 1" SERVICE CONNECTION

REV. 09/2019
REV. 05/2018

COASTSIDE COUNTY WATER DISTRICT, 766 MAIN STREET, HALF MOON BAY, CA | Approved by: David Dickson, General Manager | STD. NO. CC-06

1 — CC-06 1" SERVICE CONNECTION

NTS

PLAN VIEW

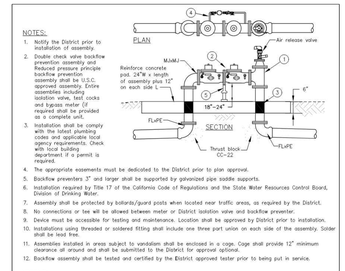
SECTION VIEW

NOTES:

1. LOT WATER SERVICE OUTLET TO BE INSTALLED PER TITLE 25 HOUSING AND COMMUNITY DEVELOPMENT, CHAPTER 2, SECTIONS 1274 & 1308.

11 — LOT WATER SERVICE OUTLET

NTS



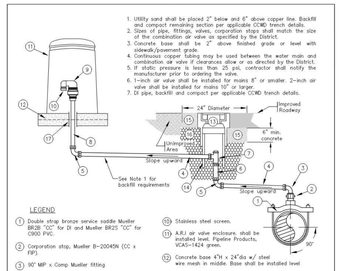
DOUBLE CHECK BACKFLOW ASSEMBLY & REDUCED PRESSURE BACKFLOW DEVICE

REV. 05/2018

COASTSIDE COUNTY WATER DISTRICT, 766 MAIN STREET, HALF MOON BAY, CA | Approved by: David Dickson, General Manager | STD. NO. CC-20

8 — CC-20 DOUBLE CHECK BACKFLOW

NTS



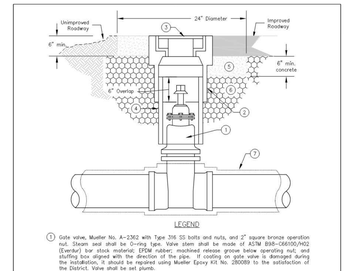
1" or 2" COMBINATION AIR VALVE

REV. 05/2018

COASTSIDE COUNTY WATER DISTRICT, 766 MAIN STREET, HALF MOON BAY, CA | Approved by: David Dickson, General Manager | STD. NO. CC-16

5 — CC-16 COMBINATION AIR VALVE

NTS



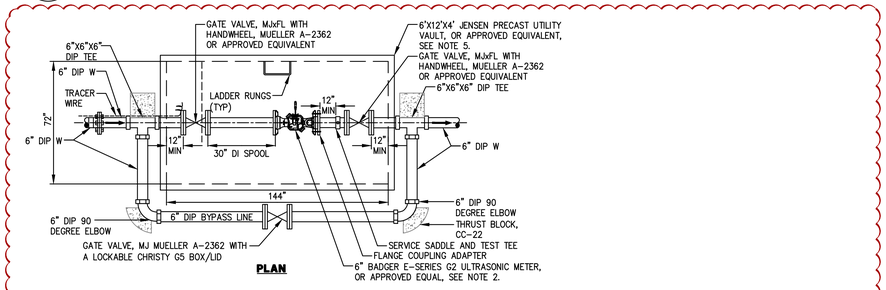
GATE VALVE ASSEMBLY

REV. 05/2018

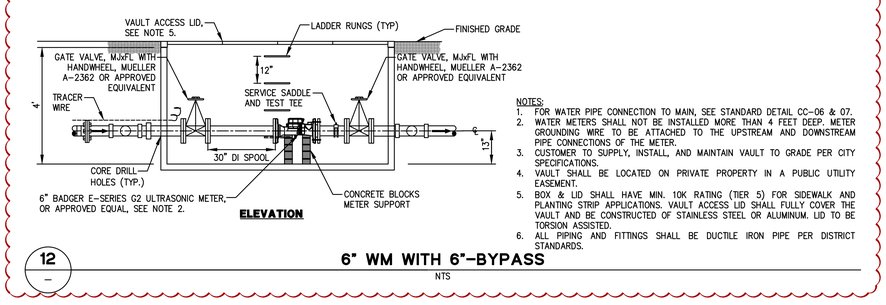
COASTSIDE COUNTY WATER DISTRICT, 766 MAIN STREET, HALF MOON BAY, CA | Approved by: David Dickson, General Manager | STD. NO. CC-09

2 — CC-09 GATE VALVE

NTS



PLAN



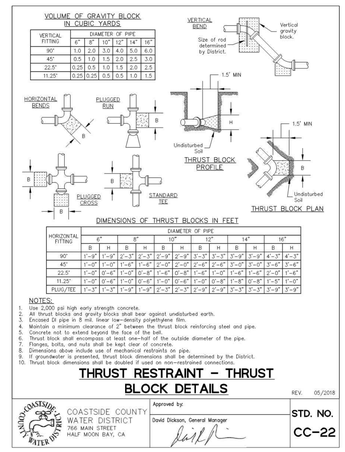
ELEVATION

NOTES:

1. FOR WATER PIPE CONNECTION TO MAIN, SEE STANDARD DETAIL CC-06 & 07.
2. WATER METERS SHALL NOT BE INSTALLED MORE THAN 4 FEET DEEP. METER GROUNDING WIRE TO BE ATTACHED TO THE UPSTREAM AND DOWNSTREAM PIPE CONNECTIONS OF THE METER.
3. CUSTOMER TO SUPPLY, INSTALL, AND MAINTAIN VAULT TO GRADE PER CITY SPECIFICATIONS.
4. VAULT SHALL BE LOCATED ON PRIVATE PROPERTY IN A PUBLIC UTILITY EASEMENT.
5. BOX & LID SHALL HAVE MIN. 10K RATING (TIER 5) FOR SIDEWALK AND PLANTING STRIP APPLICATIONS. VAULT ACCESS LID SHALL FULLY COVER THE VAULT AND BE CONSTRUCTED OF STAINLESS STEEL OR ALUMINUM. LID TO BE TORSION ASSISTED.
6. ALL PIPING AND FITTINGS SHALL BE DUCTILE IRON PIPE PER DISTRICT STANDARDS.

12 — 6" WM WITH 6"-BYPASS

NTS



VOLUME OF GRAVITY BLOCK IN CUBIC YARDS

VERTICAL FITTING	DIAMETER OF PIPE 6"	8"	10"	12"	14"	16"
90°	1.0	2.0	3.0	4.0	5.0	6.0
45°	0.5	1.0	1.5	2.0	2.5	3.0
22.5°	0.25	0.5	1.0	1.5	2.0	2.5
11.25°	0.25	0.25	0.5	0.5	1.0	1.5

DIMENSIONS OF THRUST BLOCKS IN FEET

HORIZONTAL FITTING	DIAMETER OF PIPE 6" B	H	8" B	H	10" B	H	12" B	H	14" B	H	16" B	H
90°	1'-0"	1'-0"	2'-0"	2'-0"	2'-0"	2'-0"	3'-0"	3'-0"	4'-0"	4'-0"		
45°	1'-0"	1'-0"	1'-6"	1'-6"	2'-0"	2'-0"	2'-6"	2'-6"	3'-0"	3'-0"	3'-6"	3'-6"
22.5°	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	2'-0"	1'-0"
11.25°	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-8"	0'-8"	1'-5"	1'-0"
PLUG/TEE	1'-3"	1'-3"	1'-9"	1'-9"	2'-3"	2'-3"	2'-9"	2'-9"	3'-3"	3'-3"	3'-9"	3'-9"

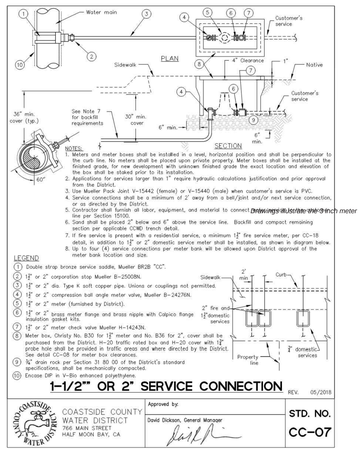
THRUST RESTRAINT – THRUST BLOCK DETAILS

REV. 05/2018

COASTSIDE COUNTY WATER DISTRICT, 766 MAIN STREET, HALF MOON BAY, CA | Approved by: David Dickson, General Manager | STD. NO. CC-22

9 — CC-22 THRUST BLOCKS

NTS



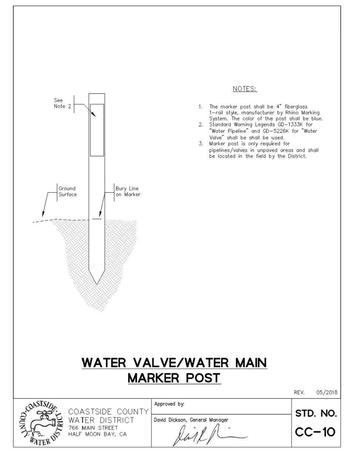
1-1/2" OR 2" SERVICE CONNECTION

REV. 05/2018

COASTSIDE COUNTY WATER DISTRICT, 766 MAIN STREET, HALF MOON BAY, CA | Approved by: David Dickson, General Manager | STD. NO. CC-07

6 — CC-07 1½" OR 2" SERVICE CONNECTION

NTS



NOTES:

1. The marker post shall be 4" fiberglass with a 2" square bronze operation nut. Locking System: The color of the post shall be blue.
2. Standard Warning Legends GD-1333K for "Water Pipeline" and GD-5229K for "Water Valve", shall be shall be used.
3. Marker post is only required for pipelines/valves in unpaved areas and shall be located in the field by the District.

WATER VALVE/WATER MAIN MARKER POST

REV. 05/2018

COASTSIDE COUNTY WATER DISTRICT, 766 MAIN STREET, HALF MOON BAY, CA | Approved by: David Dickson, General Manager | STD. NO. CC-10

3 — CC-10 WATER MARKER POST

NTS

BKF Engineers
255 SHORELINE DRIVE
SUITE 200
REDWOOD CITY, CA 94065
650.482.6300
www.bkf.com

CONSTRUCTION DETAILS
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

REGISTERED PROFESSIONAL ENGINEER — DALE J. LEZA — C 78436 — CIVIL — STATE OF CALIFORNIA

No.	Revisions	Date
	BID SET	02/26/2024
	BUILDING PERMIT SET	02/29/2024
1	BID ADDENDUM 3	04/03/2024
2	BID ADDENDUM 4	04/12/2024
3	PERMIT RESUBMITTAL	05/16/2024

Date 05/16/2024
Scale AS SHOWN
Design DJP
Drawn DLG
Approved DJL
Job No. 20211367-15

Drawing Number: C9.1 OF

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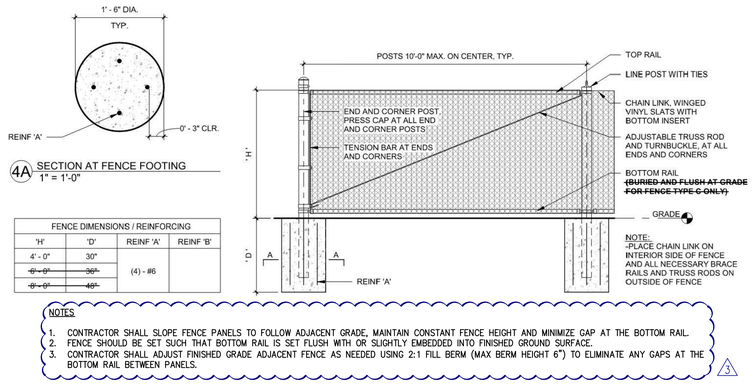


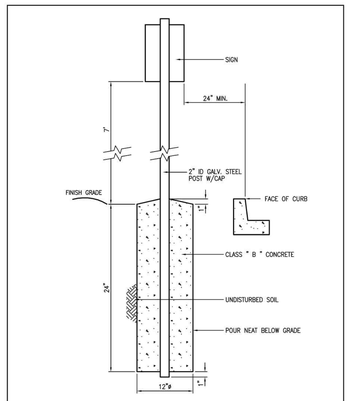
4A SECTION AT FENCE FOOTING
1" = 1'-0"

FENCE DIMENSIONS / REINFORCING			
'H'	'D'	REINF 'A'	REINF 'B'
4' - 0"	30"	(4) - #6	
~~6' - 0"~~	~~36"~~		
~~8' - 0"~~	~~48"~~		

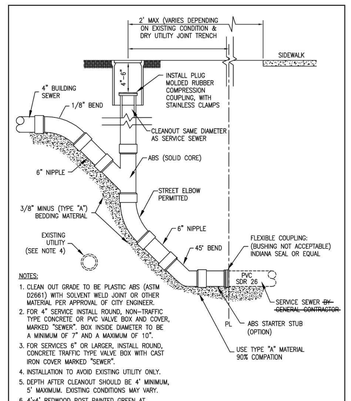
NOTES

1. CONTRACTOR SHALL SLOPE FENCE PANELS TO FOLLOW ADJACENT GRADE, MAINTAIN CONSTANT FENCE HEIGHT AND MINIMIZE GAP AT THE BOTTOM RAIL.
2. FENCE SHOULD BE SET SUCH THAT BOTTOM RAIL IS SET FLUSH WITH OR SLIGHTLY EMBEDDED INTO FINISHED GROUND SURFACE.
3. CONTRACTOR SHALL ADJUST FINISHED GRADE ADJACENT FENCE AS NEEDED USING 2:1 FILL BERM (MAX BERM HEIGHT 6") TO ELIMINATE ANY GAPS AT THE BOTTOM RAIL BETWEEN PANELS. 3

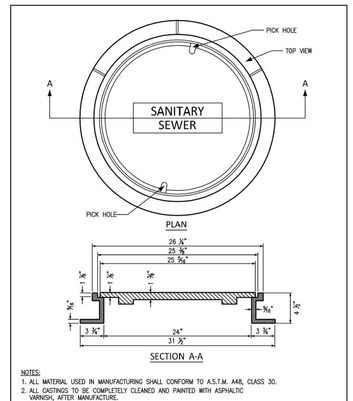
10 — **WILDLIFE EXCLUSIONARY CHAINLINK FENCE**
NTS



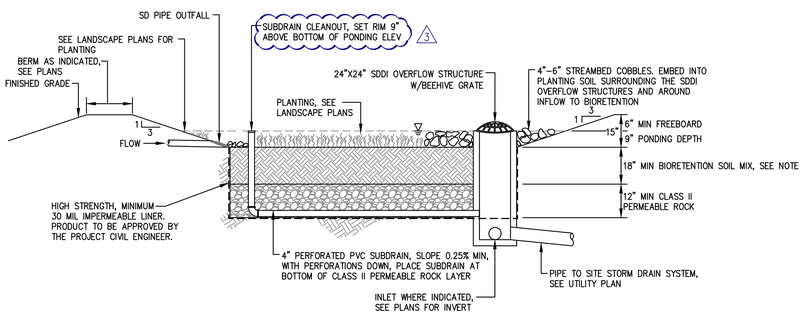
7 — **SI-10 TRAFFIC SIGN**
NTS



4 — **SS-8 SANITARY DRAIN CLEANOUT**
NTS



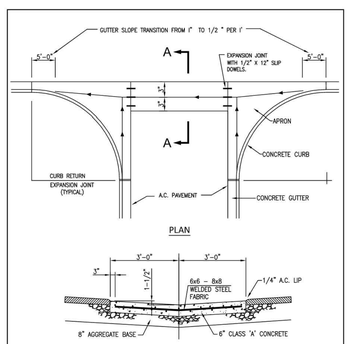
1 — **SS-2 SSMH COVER**
NTS



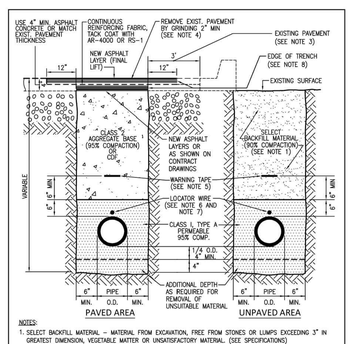
NOTES:

1. COMPLETELY SURROUND SIDES AND BOTTOM OF BIORETENTION AREA WITH IMPERMEABLE LINER. NO INFILTRATION INTO SURROUNDING SOIL IS PERMITTED.
2. SEAL ALL LINER SEAMS WITH WATERPROOF TAPE AS RECOMMENDED BY LINER MANUFACTURER.
3. SEE PROJECT SPECIFICATIONS FOR BIOTREATMENT SOIL MIX.
4. SEE LANDSCAPE PLANTING PLAN FOR TREE LOCATIONS AND OTHER PLANT SPECIES IN BIORETENTION AREA.
5. BASE OF TRENCH SHALL SLOPE AT 0.25% TO PARALLEL UNDERDRAIN.
6. FILTER FABRIC SHOULD NOT BE USED IN OR AROUND THE UNDERDRAIN OR BETWEEN THE BSM AND CLASS II PERM.

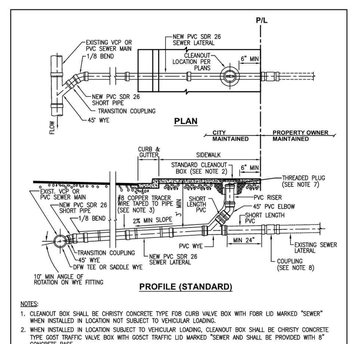
11 — **BIORETENTION AREA**
NTS



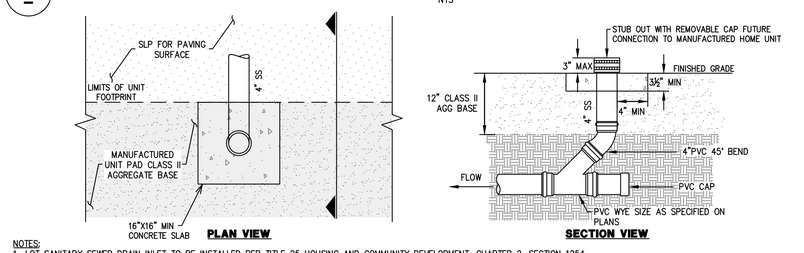
8 — **SI-11 RED CURB PAINTING**
NTS



5 — **SS-11 SEWER TEE**
NTS



2 — **SS-3 TYPE 1 SSMH**
NTS



NOTES:
1. LOT SANITARY SEWER DRAIN INLET TO BE INSTALLED PER TITLE 25 HOUSING AND COMMUNITY DEVELOPMENT, CHAPTER 2, SECTION 1254.

12 — **SANITARY SEWER LOT DRAIN INLET**
NTS

9 — **SI-1 VALLEY OR CROSS GUTTERS**
NTS

6 — **UT-1 UTILITY TRENCH**
NTS

3 — **SS-7 SS LATERAL CONNECTION**
NTS

BKF Engineers
255 SHORELINE DRIVE
SUITE 200
REDWOOD CITY, CA 94065
(650) 482-6300
www.bkf.com

CALIFORNIA

CONSTRUCTION DETAILS
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY

HALF MOON BAY

REGISTERED PROFESSIONAL ENGINEER DALE J. LEGA C 78436 CIVIL STATE OF CALIFORNIA

No.	Revisions	Date
	BID SET	02/26/2024
1	BUILDING PERMIT SET	03/29/2024
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4	PERMIT RESUBMITTAL	05/16/2024

Date 05/16/2024
Scale AS SHOWN
Design DJP
Drawn DLG
Approved DJL
Job No 20211367-15

Drawing Number:
C9.2
OF

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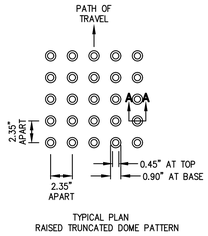
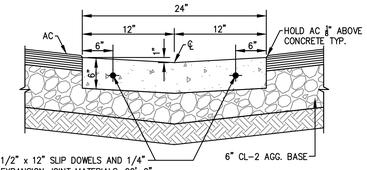


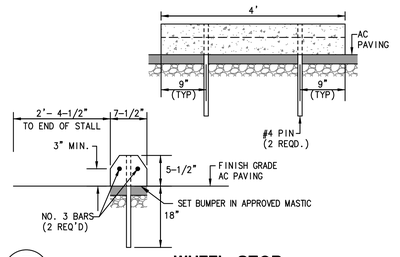
NOTES:

1. CAST IN PLACE DETECTABLE/TACTILE WARNING SURFACE TILES SHALL BE VITRIFIED POLYMER COMPOSITE WITH ALUMINUM OXIDE CAST-IN-PLACE TILES BY ARMOR-TILE, OR APPROVED EQUAL. EXISTING ENGINEERED AND FIELD TESTED PRODUCTS, WHICH HAVE BEEN IN SUCCESSFUL SERVICE FOR A PERIOD OF THREE YEARS ARE SUBJECT TO COMPLIANCE WITH SPECIFIED TILES, AND MAY BE INCORPORATED IN THE WORK IF THEY MEET OR EXCEED THE TEST CRITERIA AND CHARACTERISTICS OF THE ABOVE SPECIFIED TILE. COLOR SHALL BE YELLOW (CONFORMING TO FEDERAL STANDARD 595A, COLOR NO. 33538). SUBMIT PRODUCT DATA FOR APPROVAL. INSTALL PER MANUFACTURER'S SPECIFICATION.
2. THE EDGE OF THE DETECTABLE WARNING SURFACE NEAREST THE STREET SHALL BE BETWEEN 6" AND 8" FROM THE GUTTER FLOWLINE.

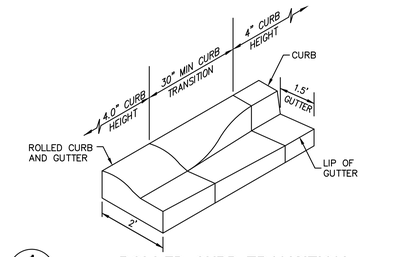
12 – DETECTABLE WARNING SURFACE
NTS



11 – VALLEY GUTTER SECTION
NTS



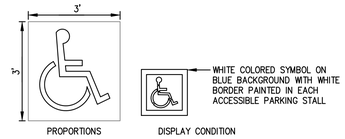
7 – WHEEL STOP
NTS



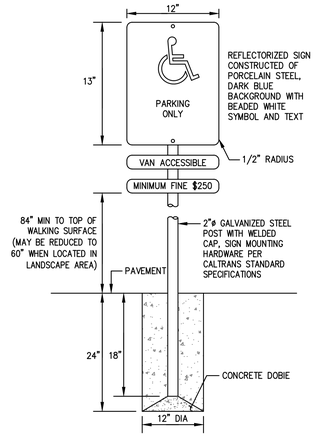
1 – ROLLED CURB TRANSITION
NTS

NOTES:

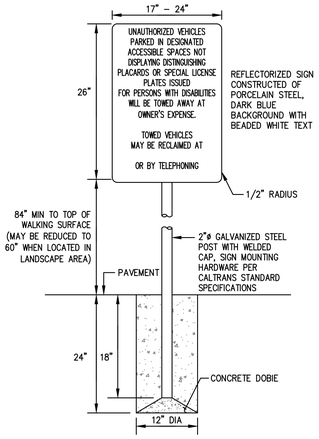
1. EACH PARKING SPACE RESERVED FOR PERSONS WITH DISABILITIES SHALL BE IDENTIFIED BY A REFLECTORIZED SIGN PERMANENTLY POSTED IMMEDIATELY ADJACENT TO AND VISIBLE FROM EACH STALL OR SPACE, CONSISTING OF A PROFILE VIEW OF A WHEELCHAIR OCCUPANT IN WHITE ON DARK BLUE BACKGROUND. THE SIGN SHALL NOT BE SMALLER THAN 70 SQUARE INCHES IN AREA AND WHEN IN A PATH OF TRAVEL, SHALL BE POSTED AT A MINIMUM HEIGHT OF 84 INCHES FROM THE BOTTOM OF THE SIGN TO THE PARKING SPACE FINISHED GRADE. SIGNS MAY ALSO BE CENTERED ON THE WALL AT THE INTERIOR OF THE PARKING SPACE AT A MINIMUM HEIGHT OF 60 INCHES FROM THE PARKING SPACE FINISHED GRADE, GROUND, OR SIDEWALK.
2. AN ADDITIONAL SIGN SHALL ALSO BE POSTED IN A CONSPICUOUS PLACE, AT EACH ENTRANCE TO THE OFF- STREET PARKING FACILITY, OR IMMEDIATELY ADJACENT TO AND VISIBLE FROM EACH STALL. THE SIGN SHALL NOT BE LESS THAN 17 INCHES X 22 INCHES IN SIZE, LETTERING NOT LESS THAN 1 INCH IN HEIGHT, WHICH CLEARLY AND CONSPICUOUSLY STATES THE FOLLOWING:
3. "UNAUTHORIZED VEHICLES PARKED IN DESIGNATED ACCESSIBLE SPACES NOT DISPLAYING DISTINGUISHING PLACARDS OR SPECIAL LICENSE PLATES ISSUED FOR PERSONS WITH DISABILITIES WILL BE TOWED AWAY AT OWNER'S EXPENSE. TOWED VEHICLES MAY BE RECLAIMED AT _____"
4. CONTRACTOR SHALL COORDINATE LOCATION OF SIGN WITH TRUSTEE'S REPRESENTATIVE.
5. VAN STALLS SHALL BE DESIGNATED BY AN ADDITIONAL SIGN STATING "VAN ACCESSIBLE" MOUNTED BELOW THE REFLECTORIZED SIGN.



INTERNATIONAL SYMBOL OF ACCESSIBILITY
DETAIL 'A'

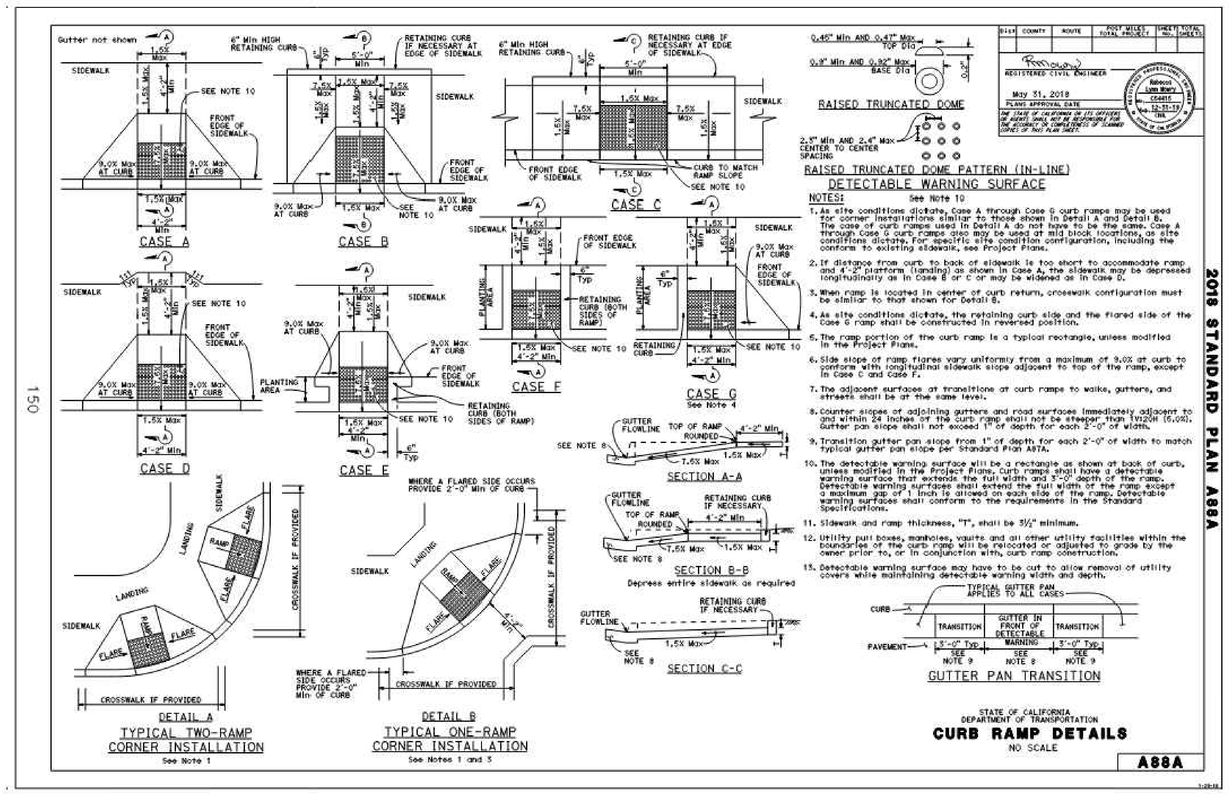


ACCESSIBILITY SIGN
DETAIL 'C-1'

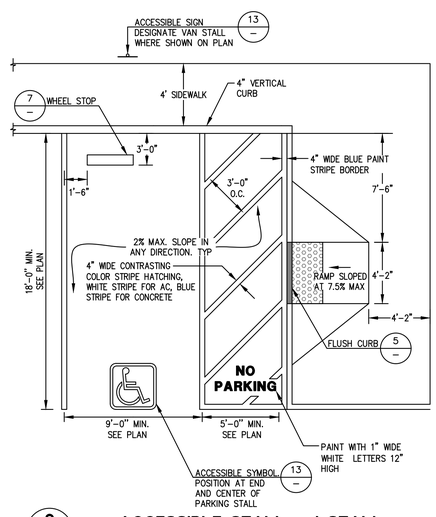


ACCESSIBILITY TOW AWAY SIGN
DETAIL 'C-2'

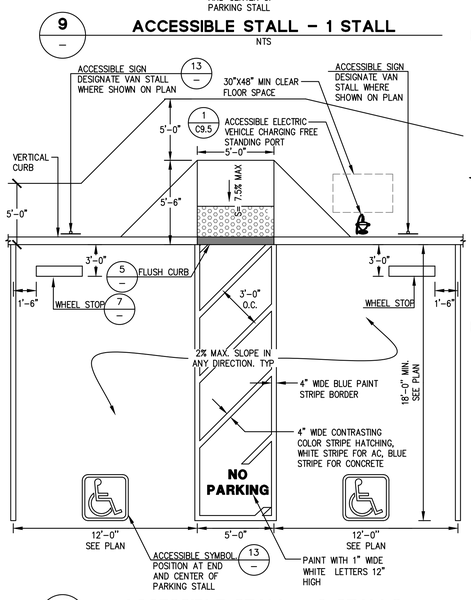
13 – ACCESSIBLE PARKING STALL SIGNAGE
NTS



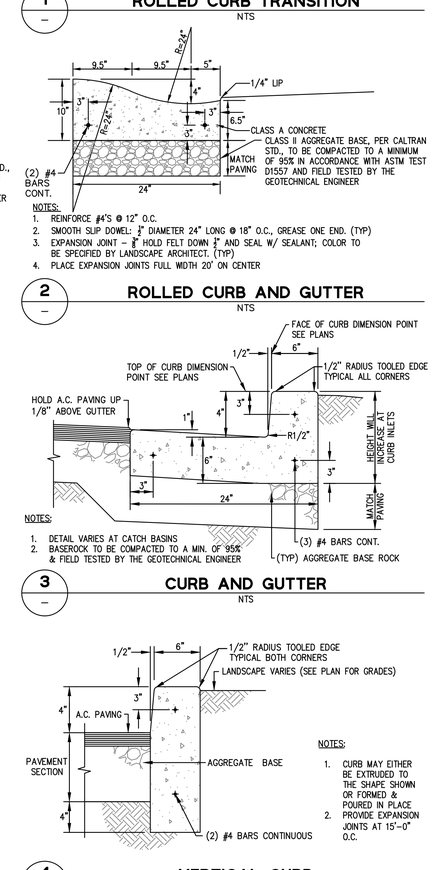
14 – CURB RAMP – CALTRANS STANDARD PLAN A88A
NTS



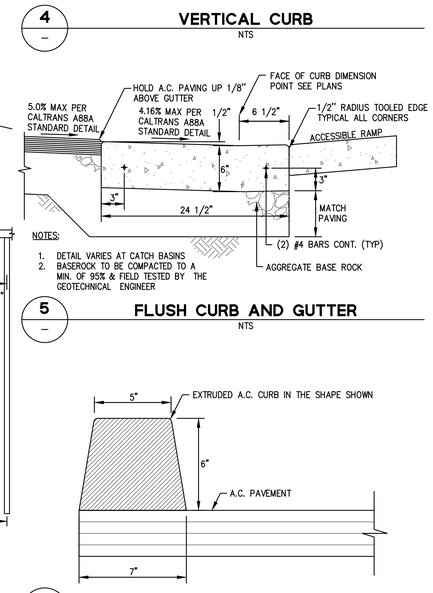
9 – ACCESSIBLE STALL – 1 STALL
NTS



10 – ACCESSIBLE STALL – 2 STALLS
NTS



2 – ROLLED CURB AND GUTTER
NTS



8 – CONCRETE PAVING
NTS

3 – CURB AND GUTTER
NTS

4 – VERTICAL CURB
NTS

5 – FLUSH CURB AND GUTTER
NTS

6 – AC CURB
NTS

BKF Engineers
255 SHORELINE DRIVE
SUITE 200
REDWOOD CITY, CA 94065
650.482.6300
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STONE PINE COVE
880 STONE PINE ROAD
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HALF MOON BAY
CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
DALE J. TITZ
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CIVIL
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No.	Revisions	Date
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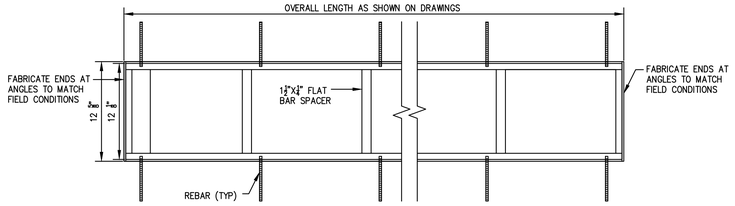
3	PERMIT RESUBMITTAL	05/16/2024

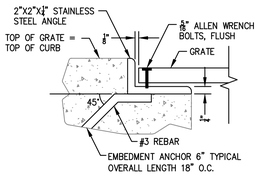
Date 05/16/2024
Scale AS SHOWN
Design DJP
Drawn DLG
Approved DJL
Job No 20211367-15

Drawing Number:
C9.3
OF

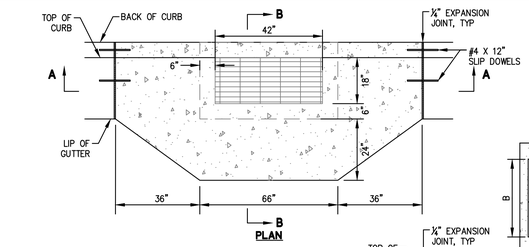
DRAWING NAME: K:\2021\211367-15_HMB_Corpyard_Housing\ENG\hmbsheets.dwg
PLOT DATE: 05-16-24 PLOTTED BY: gold



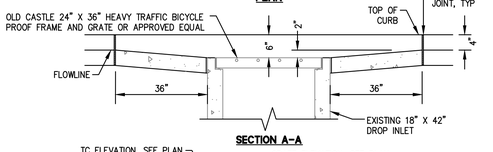
TRENCH GRATE FRAME - PLAN



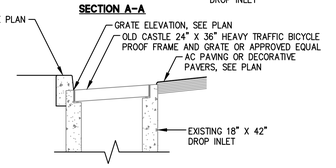
DETAIL A



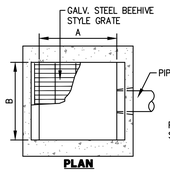
PLAN



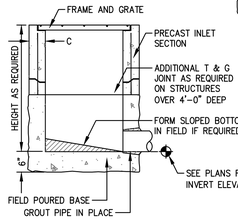
SECTION A-A



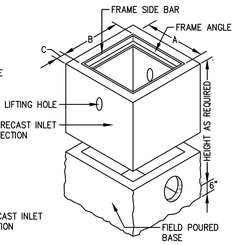
SECTION B-B



PLAN



TYPICAL SECTION

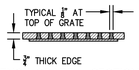


ISOMETRIC

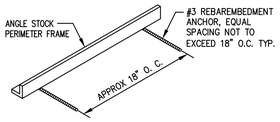
DROP INLET/JUNCTION BOX TABLE

MODEL*	A	B	C
1212CB	12"	12"	4"
2424CB	24"	24"	6"
3636CB	36"	36"	6"

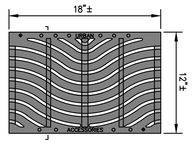
*INLET SHALL BE OLDCASTLE PRECAST DRAINAGE INLET STORM DRAIN, OR APPROVED EQUIVALENT.



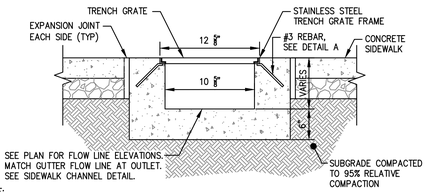
TRENCH GRATE - SECTION AA



TRENCH GRATE FRAME - ISOMETRIC



TRENCH GRATE - PLAN



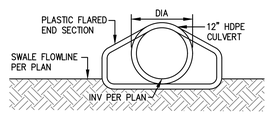
TRENCH DRAIN SECTION

NOTE:

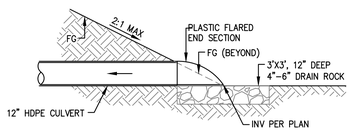
1. MAXIMUM GRATE HOLE WIDTH (OPEN) ½ INCH. GRATE SIZE 12"X18". CAST IRON "URBAN ACCESSORIES" TRENCH GRATE AND STAINLESS STEEL GRADE 304L FRAME. TITLE WAVE MODEL OR APPROVED EQUAL.
2. USE ADA COMPLIANT GRATE IN ADA ACCESSIBLE AREAS. TYPICAL FOR ALL GRATES.

6 – SIDEWALK CHANNEL GRATE

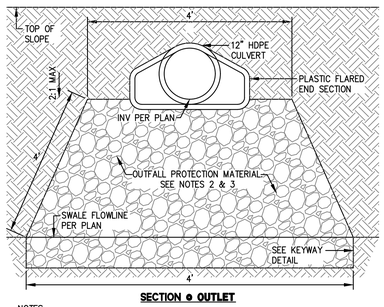
NTS



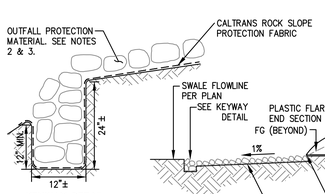
SECTION @ INLET



PROFILE @ INLET



SECTION @ OUTLET



KEYWAY DETAIL

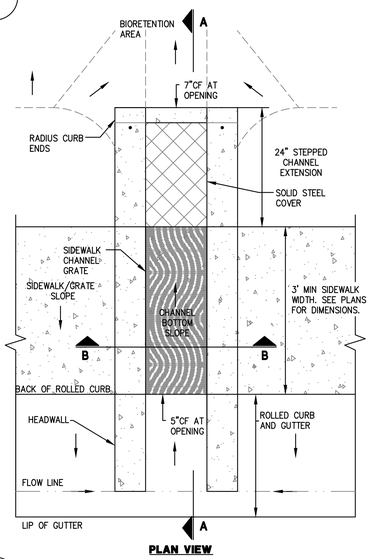
PROFILE @ OUTLET

NOTES:

1. ALL HEADWALLS SHALL BE PLASTIC AND CONSTRUCTED IN CONFORMANCE WITH CALTRANS STANDARD PLAN D94A AND SECTION 70-5.02 OF THE CALTRANS STANDARD SPECIFICATIONS, 2022.
2. AREA OF ROCK RIP-RAP OUTFALL/EROSION PROTECTION IN ACCORDANCE WITH FEDERAL HIGHWAY ADMINISTRATION (FHWA) HEC-14.
3. OUTFALL PROTECTION MATERIAL:
   - CALTRANS ROCK SLOPE PROTECTION FABRIC WITH NO. 2 BACKING CONFORMING TO SECTION 72 OF THE CALTRANS STANDARD SPECIFICATIONS.
   - CALTRANS NO. 2 TO BE 4"-6" SIZE ANGULAR ROCK (25 LBS, TYP.) BROWN TO DARK BROWN/BLACK IN COLOR.

7 – FLARED END SECTION

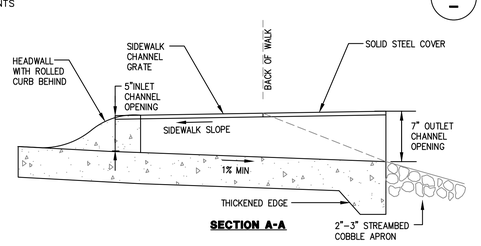
NTS



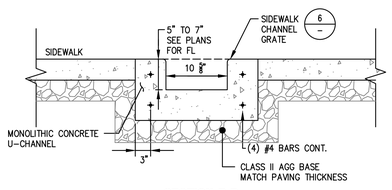
PLAN VIEW

8 – SIDEWALK CHANNEL - ROLLED CURB

NTS



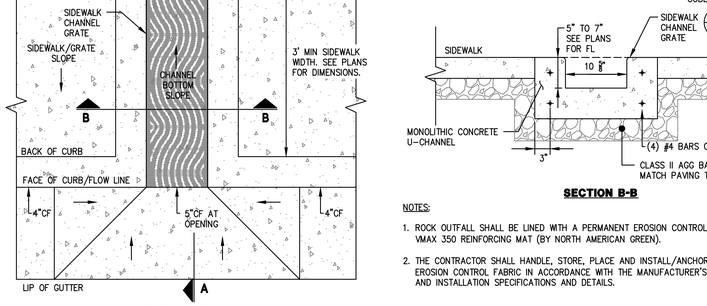
SECTION A-A



SECTION B-B

5 – SIDEWALK CHANNEL - VERTICAL CURB

NTS



ISOMETRIC VIEW

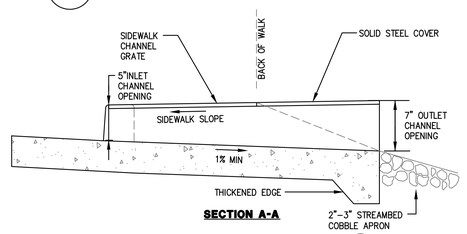
NOTES:

1. ROCK OUTFALL SHALL BE LINED WITH A PERMANENT EROSION CONTROL FABRIC SUCH AS VMAX 350 REINFORCING MAT (BY NORTH AMERICAN GREEN).
2. THE CONTRACTOR SHALL HANDLE, STORE, PLACE AND INSTALL/ANCHOR THE PERMANENT EROSION CONTROL FABRIC IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND INSTALLATION SPECIFICATIONS AND DETAILS.

PLAN VIEW

4 – CATCH BASIN APRON

NTS



SECTION A-A

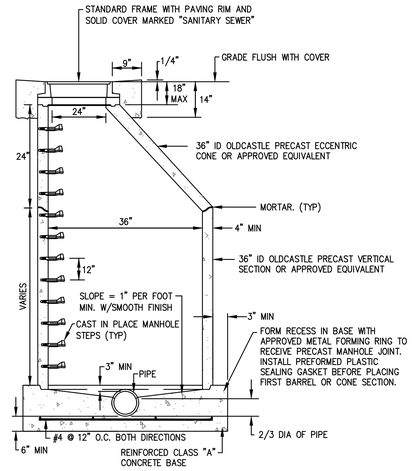
SECTION B-B

NOTES:

1. ROCK OUTFALL SHALL BE LINED WITH A PERMANENT EROSION CONTROL FABRIC SUCH AS VMAX 350 REINFORCING MAT (BY NORTH AMERICAN GREEN).
2. THE CONTRACTOR SHALL HANDLE, STORE, PLACE AND INSTALL/ANCHOR THE PERMANENT EROSION CONTROL FABRIC IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND INSTALLATION SPECIFICATIONS AND DETAILS.

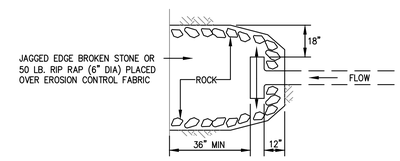
1 – CATCH BASIN

NTS

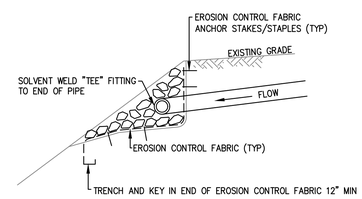


2 – 3' MANHOLE

NTS



PLAN



SECTION

3 – ROCK DISSIPATOR

NTS

BKF
255 SHORELINE DRIVE
SUITE 200
REDWOOD CITY, CA 94065
(650) 482-6300
www.bkf.com

CALIFORNIA

CONSTRUCTION DETAILS
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880 STONE PINE ROAD
SAN MATEO COUNTY

HALF MOON BAY

REGISTERED PROFESSIONAL ENGINEER DALE J. LEER C 78436 CIVIL STATE OF CALIFORNIA

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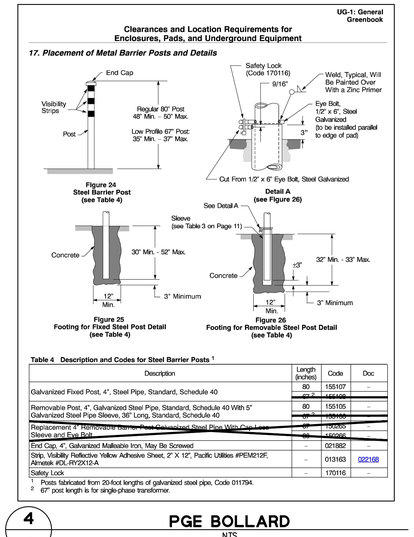
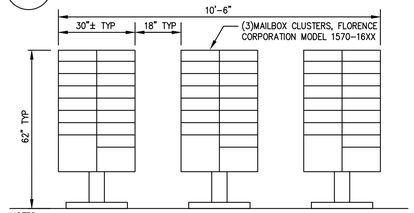
Drawing Number:
C9.4
OF

DRAWING NAME: K:\2021\2211367-15_HMB_Corpyard_Housing\ENG\hmbsheets.dwg
PLOT DATE: 05-16-24 PLOTTED BY: gold

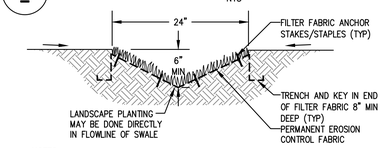


4 – PGE BOLLARD
NTS



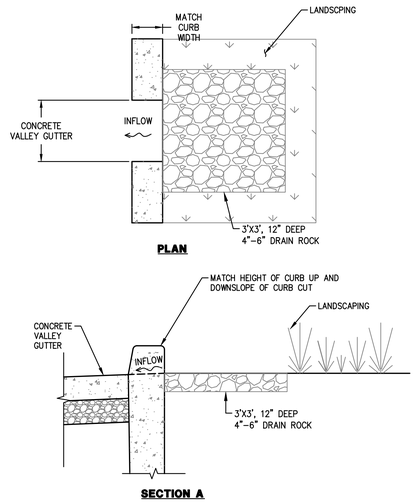
NOTES:
1. INSTALL MAILBOXES PER MANUFACTURERS RECOMMENDATIONS.
2. COLOR SHALL BE BLACK.

5 – MAILBOXES
NTS

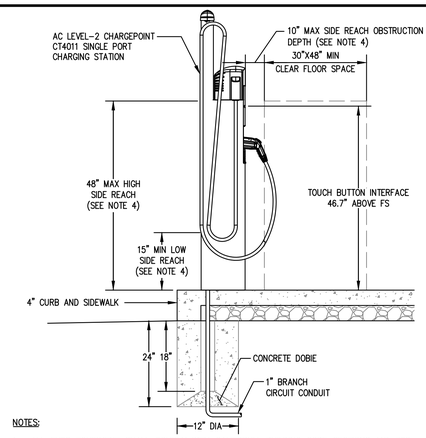


NOTES:
1. ALL GRASS SWALES SHALL BE LINED WITH A PERMANENT EROSION CONTROL FABRIC SUCH AS VMAX SC250 OR EQUIVALENT.
2. THE CONTRACTOR SHALL HANDLE, STORE, PLACE AND INSTALL/ANCHOR THE PERMANENT EROSION CONTROL FABRIC IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND INSTALLATION SPECIFICATIONS AND DETAILS.
3. THE CONTRACTOR SHALL INSPECT, MAINTAIN AND REPAIR VEGETATED SWALE DIMENSIONS, SLOPE AND EROSION CONTROL FABRIC IN ACCORDANCE WITH THE EROSION CONTROL PLAN NOTES AND RECOMMENDATIONS.

6 – VEGETATED SWALE
NTS

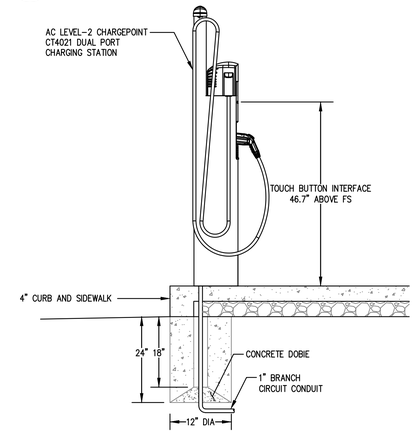


7 – CURB CUT
NTS



NOTES:
1. ALL EVCS EQUIPMENT SHALL COMPLY WITH CALIFORNIA BUILDING CODE SECTIONS 11B–308 AND 11B–309.
2. THE CLEAR FLOOR SPACE SHALL BE 30 INCHES MINIMUM BY 48 INCHES MINIMUM. CLEAR FLOOR SPACE SHALL BE POSITIONED FOR EITHER FORWARD OR PARALLEL APPROACH TO THE CHARGERS.
3. VEHICLE SPACES, ACCESS AISLES SERVING EVCS SHALL PROVIDE A VERTICAL CLEARANCE OF 98 INCHES MINIMUM. WHERE PROVIDED, OVERHEAD CABLE MANAGEMENT SYSTEMS SHALL NOT OBSTRUCT REQUIRED VERTICAL CLEARANCE.
4. THE HIGH SIDE REACH SHALL BE 48 INCHES MAXIMUM AND THE LOW SIDE REACH SHALL BE 15 INCHES MINIMUM FOR OPERABLE PARTS ABOVE THE FINISHED SURFACE. AN OBSTRUCTION SHALL BE PERMITTED BETWEEN THE CLEAR FLOOR SPACE AND THE CHARGER IF THE DEPTH OF THE OBSTRUCTION IS 10 INCHES MAXIMUM OR LESS.

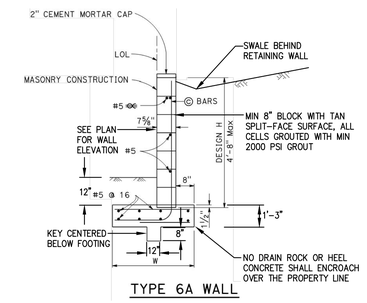
1 – ACCESSIBLE EVCS
NTS



2–WAY CHARGING CONFIGURATION

NOTES:
1. REFER TO ACCESSIBLE EVCS DETAIL FOR REQUIRED MOUNTING HEIGHTS AND CLEARANCES FOR ACCESSIBLE CHARGERS
2. SEE PLANS FOR FREE–STANDING CHARGER LOCATIONS.

2 – FREE–STANDING EVCS DUAL PORTS
NTS



TYPE 6A WALL

TYPE 6A WALL – TABLE OF REINFORCING STEEL, DIMENSIONS AND DATA

DESIGN H	3'–4"	4'–0"	4'–8"	5'–4"	6'–0"
W	3'–2"	3'–6"	3'–10"	4'–2"	4'–6"
© BARS	NONE	NONE	NONE	#5 @ 16	#5 @ 16
© BARS	NONE	NONE	NONE	#5 @ 16	#5 @ 16
© BARS	#5 @ 16	#5 @ 16	#6 @ 16	NONE	NONE
© BARS	#5 @ 16	#5 @ 16	#5 @ 16	#5 @ 16	#6 @ 16
Ser: B', qo	3.1, 0.3	3.5, 0.3	3.8, 0.4	4.0, 0.4	4.3, 0.4
Str: B', qo	3.1, 0.8	3.4, 0.9	3.6, 0.9	3.9, 0.9	4.1, 1.0
Ext I: B', qo	2.1, 2.0	2.3, 2.0	2.5, 2.0	2.8, 1.9	3.0, 1.9

3 – RETAINING WALL
NTS

255 SHORELINE DRIVE
SUITE 200
REDWOOD CITY, CA 94065
(650) 482-6300
www.bkf.com

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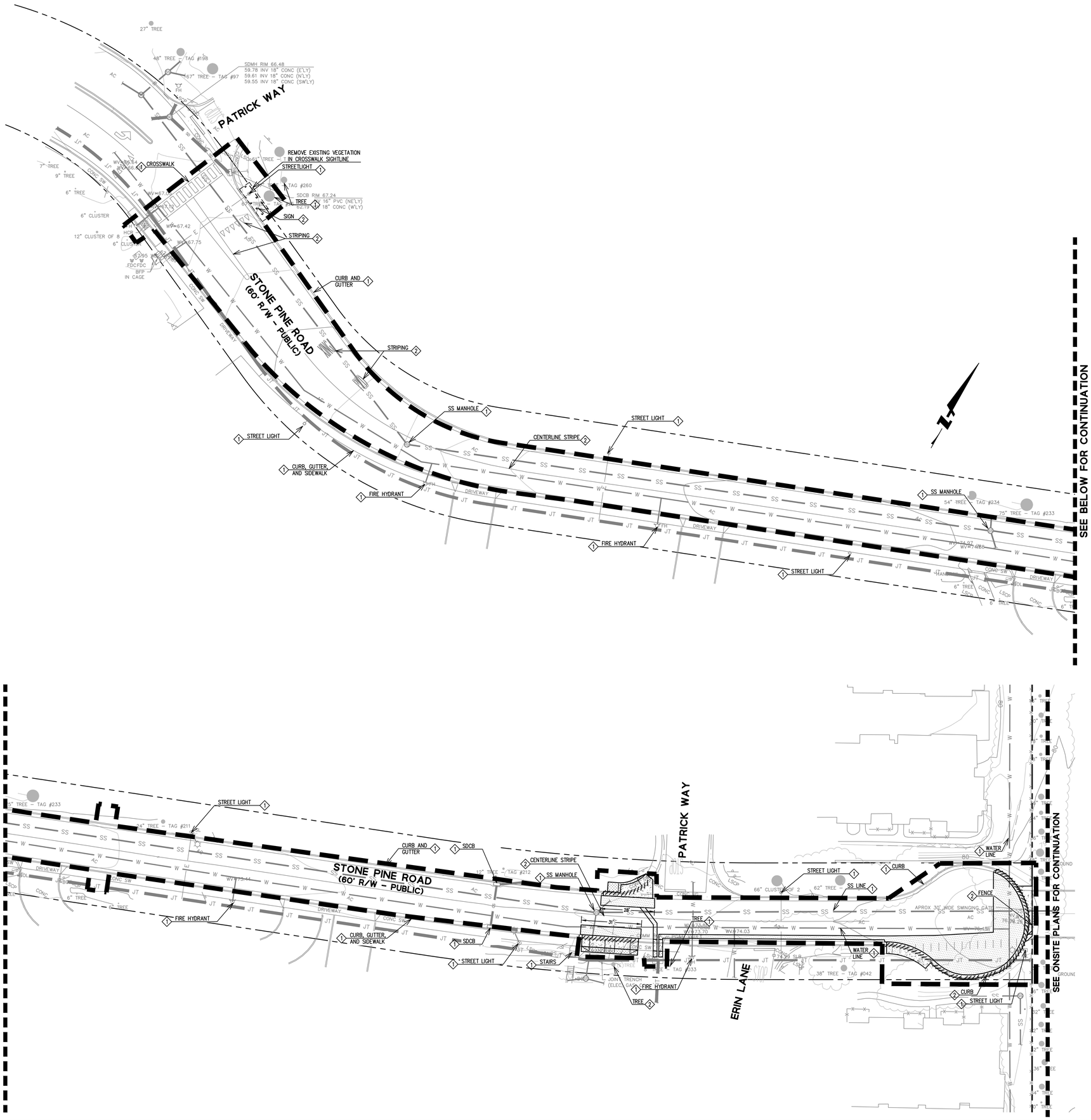
Approved DJL
Job No 20211367-15

Drawing Number:
C9.5
OF

DRAWING NAME: K:\2021\211367-15_HMB_Corpyard_Housing\ENG\hmbsheets.dwg
PLOT DATE: 05-16-24 PLOTTED BY: gold



EXISTING CONDITIONS:

1. EXISTING TOPOGRAPHIC SURVEY PERFORMED BY BKF ENGINEERS ON MARCH 18, 2021 (JOB #20150199-53). GRADES ENCOUNTERED ON-SITE MAY VARY FROM THOSE SHOWN. CONTRACTOR SHALL REVIEW THE PLANS AND CONDUCT FIELD INVESTIGATIONS AS REQUIRED TO VERIFY EXISTING CONDITIONS AT THE PROJECT SITE.

SURVEYOR'S NOTES:

UTILITY NOTE:

UTILITIES SHOWN ON THIS SURVEY ARE BASED UPON SURFACE OBSERVATIONS. NO WARRANTIES ARE EXPRESSED OR IMPLIED CONCERNING THE EXISTENCE, SIZE, DEPTH, CONDITION, CAPACITY, OR LOCATION OF ANY UTILITY EXISTING ON THE SITE, WHETHER PRIVATE, MUNICIPAL, OR PUBLIC OWNED. CONTRACTOR(S) SHALL VERIFY ALL UTILITIES PRIOR TO ANY AND ALL CONSTRUCTION ACTIVITIES.

CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION

BASIS OF BEARING:

THE BEARINGS SHOWN ARE BASED ON THE NORTH AMERICAN DATUM OF 1983 (NAD83), EPOCH 2011, ZONE 3 BASED UPON GPS OBSERVATIONS OF BKF POINT NO. 1, A SET COTTON SPINDLE, AND BKF POINT NO. 2, A SET HUB AND TACK AS SAID POINTS ARE SHOWN HEREON, PERFORMED BY BKF ON AUGUST 4, 2020.

THE BEARING OF SOUTH 42° 29' 36" WEST FROM SAID BKF POINT NO. 1 TO SAID BKF POINT NO. 2, AS SHOWN HEREON, WAS TAKEN AS THE BASIS OF BEARINGS FOR THIS MAP.

BENCHMARK:

THE ELEVATIONS SHOWN ON THIS SURVEY ARE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) ELEVATIONS BASED UPON GPS OBSERVATIONS OF SAID BKF POINT NO. 2 PERFORMED BY BKF ON AUGUST 4, 2020.

BKF POINT NO. 2 ELEVATION = 78.95'

RECORD REFERENCES

(R1) GRANT DEED RECORDED OCTOBER 1, 2009 AS DOCUMENT NUMBER 2009-131257, OFFICIAL RECORDS OF SAN MATEO COUNTY.
(R2) RECORD OF SURVEY RECORDED APRIL 5, 2005 IN BOOK 27 OF LLS MAPS AT PAGE 40, OFFICIAL RECORDS OF SAN MATEO COUNTY.
(R3) RECORD OF SURVEY NO. 2460 RECORDED OCTOBER 10, 2013 IN BOOK 38 OF LLS MAPS AT PAGES 99-102OFFICIAL RECORDS OF SAN MATEO COUNTY.

SURVEYOR'S NOTE

RECORD DISTANCES PER (R3) ARE GRID DISTANCES IN METERS. (R3: ⌀m) DENOTES DISTANCE MATCHING RECORD CONVERTED FROM GRID METERS TO GROUND U.S. SURVEY FEET. TO OBTAIN GROUND DISTANCES IN METERS, MULTIPLY (R3) GRID DISTANCES BY 1.000059093, AS STATED ON (R3). TO OBTAIN GROUND DISTANCES IN U.S. SURVEY FEET, MULTIPLY GROUND DISTANCES IN METERS BY THE CONVERSION FACTOR OF (3937/1200).

DEMOLITION NOTES:

1. CONTRACTOR IS TO COMPLY WITH ALL GENERAL AND STATE REQUIREMENTS INVOLVING THE REMOVAL AND DISPOSAL OF HAZARDOUS MATERIAL(S).
2. THE CONTRACTOR SHALL LOCATE AND CLEARLY MARK (AND THEN PRESERVE THESE MARKERS) FOR THE DURATION OF CONSTRUCTION OF ALL TELEPHONE, DATA, STREET LIGHT, SIGNAL LIGHT AND POWER FACILITIES THAT ARE IN OR NEAR THE AREA OF CONSTRUCTION.
3. CONTRACTOR'S BID IS TO INCLUDE ALL VISIBLE SURFACE AND ALL SUBSURFACE FEATURES IDENTIFIED TO BE REMOVED OR ABANDONED IN THESE DOCUMENTS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR A SITE INSPECTION TO FULLY ACKNOWLEDGE THE EXTENT OF THE DEMOLITION WORK.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY AND ALL PERMITS NECESSARY FOR ENCROACHMENT, GRADING, DEMOLITION, AND DISPOSAL OF SAID MATERIALS AS REQUIRED BY PRIVATE, LOCAL AND STATE JURISDICTIONS. THE CONTRACTOR SHALL PAY ALL FEES ASSOCIATED WITH THE DEMOLITION WORK.
6. CONTRACTOR SHALL PAY DISPOSAL FEES.
7. BACKFILL ALL DEPRESSIONS AND TRENCHES FROM DEMOLITION TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER.
8. WITHIN LIMITS OF WORK, REMOVE CURBS, GUTTERS, LANDSCAPING, SIGNAGE, TREES, SHRUBS, ASPHALT, UNDERGROUND PIPES, ETC. AS INDICATED ON THE DRAWINGS.
9. REMOVAL OF LANDSCAPING SHALL INCLUDE ROOTS AND ORGANIC MATERIALS TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER.
10. PRIOR TO BEGINNING DEMOLITION WORK ACTIVITIES, CONTRACTOR SHALL INSTALL EROSION CONTROL MEASURES OUTLINED IN THE EROSION CONTROL PLAN & DETAILS.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSING ALL DEMOLITION MATERIALS, OR STORING SELECTED ITEM BY OWNER AT DESIGNATED LOCATIONS.
12. THE CONTRACTOR SHALL MAINTAIN ALL SAFETY DEVICES, AND SHALL BE RESPONSIBLE FOR CONFORMANCE TO ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS LAWS AND REGULATIONS.
13. THE CONTRACTOR SHALL PROTECT FROM DAMAGE ALL EXISTING IMPROVEMENTS FACILITIES AND STRUCTURES WHICH ARE TO REMAIN. ANY ITEMS DAMAGED BY THE CONTRACTOR OR HIS AGENTS OR ANY ITEMS REMOVED FOR HIS USE SHALL BE REPLACED IN EQUAL OR BETTER CONDITION AS APPROVED BY THE ARCHITECT OR OWNER'S REPRESENTATIVE.
14. COORDINATE WITH ELECTRICAL, MECHANICAL, LANDSCAPING AND ARCHITECTURAL DRAWINGS FOR UTILITY SHUT-DOWN/DISCONNECT LOCATIONS. CONTRACTOR IS TO SHUT OFF ALL UTILITIES AS NECESSARY PRIOR TO DEMOLITION. CONTRACTOR IS TO COORDINATE SERVICE INTERRUPTIONS WITH THE OWNER. DO NOT INTERRUPT SERVICES TO ADJACENT OFF-SITE OWNERS. ALSO SEE ARCHITECTURAL PLANS FOR ADDITIONAL DEMOLITION SCOPE OF WORK.
15. DEMOLITION INCLUDES REMOVAL OF ALL ITEMS ASSOCIATED WITH THE UTILITY, RETAINING WALL, FENCE, TREE OR BUILDING, INCLUDING BUT NOT LIMITED TO FOOTINGS, VALVES, ROOTS, BACKFILL, ETC, AND SHALL INCLUDE PREPARING THE SITE FOR NEW UTILITIES, BUILDINGS, RETAINING WALLS, ETC.
16. ALL MATERIALS TO BE DEMOLISHED AND REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE LAWFULLY DISPOSED OF OFF-SITE.
17. THIS PLAN IS NOT INTENDED TO BE A COMPLETE CATALOGUE OF ALL EXISTING STRUCTURES AND UTILITIES. THIS PLAN INTENDS TO DISCLOSE GENERAL INFORMATION KNOWN BY THE ENGINEER AND TO SHOW THE LIMITS OF THE AREA WHERE WORK WILL BE PERFORMED. THIS PLAN SHOWS THE EXISTING FEATURES TAKEN FROM A FIELD SURVEY, FIELD INVESTIGATIONS AND AVAILABLE INFORMATION. THIS PLAN MAY OR MAY NOT ACCURATELY REFLECT THE TYPE OR EXTENT OF THE ITEMS TO BE ENCOUNTERED AS THEY ACTUALLY EXIST. WHERE EXISTING FEATURES ARE NOT SHOWN, IT IS NOT IMPLIED THAT THEY ARE NOT TO BE DEMOLISHED OR REMOVED. THE CONTRACTOR SHALL PERFORM A THOROUGH FIELD INVESTIGATION AND REVIEW OF THE SITE WITHIN THE LIMIT OF WORK SHOWN IN THIS PLAN SET TO DETERMINE THE TYPE, QUANTITY AND EXTENT OF ANY AND ALL ITEMS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR DETERMINING THE EXTENT OF EXISTING STRUCTURES AND UTILITIES AND QUANTITY OF WORK INVOLVED IN REMOVING THESE ITEMS FROM THE SITE.

DEMOLITION LEGEND:

LIMIT OF WORK	WITHIN THE LIMIT OF WORK LINE ALL ITEMS NOT CALLED OUT TO BE REMOVED ARE TO REMAIN AND MUST BE PROTECTED IN PLACE. CONTRACTOR TO USE CAUTION AROUND (E) UTILITIES, UTILITY VAULTS AND WATER VALVES TO REMAIN.
EXISTING LANDSCAPED AREAS	REMOVE ALL TREES, SHRUBS, AND GRASS INCLUDING ALL ROOT MASS UNLESS OTHERWISE SPECIFIED. COORDINATE WITH CLIENT PRIOR TO REMOVING ANY TREES. IRRIGATION LINES TO BE REPAIRED TO THE EXTENTS OF NEW PLANTING AND IRRIGATION CONSTRUCTION.
EXISTING AC PAVING	(E)AC PAVEMENT, AND BASE ROCK TO BE REMOVED. BASE ROCK UNDER AC PAVEMENT CAN BE REUSED IF APPROVED BY GEOTECHNICAL ENGINEER. ALL EDGES TO BE SAWCUT WITH A CLEAN EDGE.
EXISTING CONCRETE PAVING	(E)CONCRETE PAVEMENT, AND BASE ROCK TO BE REMOVED. BASE ROCK UNDER AC PAVEMENT CAN BE REUSED IF APPROVED BY GEOTECHNICAL ENGINEER. ALL EDGES TO BE SAWCUT WITH A CLEAN EDGE.
	EXISTING UTILITY OR CURB/WALL TO BE DEMOLISHED AND REMOVED
1	TO REMAIN, PROTECT IN PLACE
2	TO BE REMOVED

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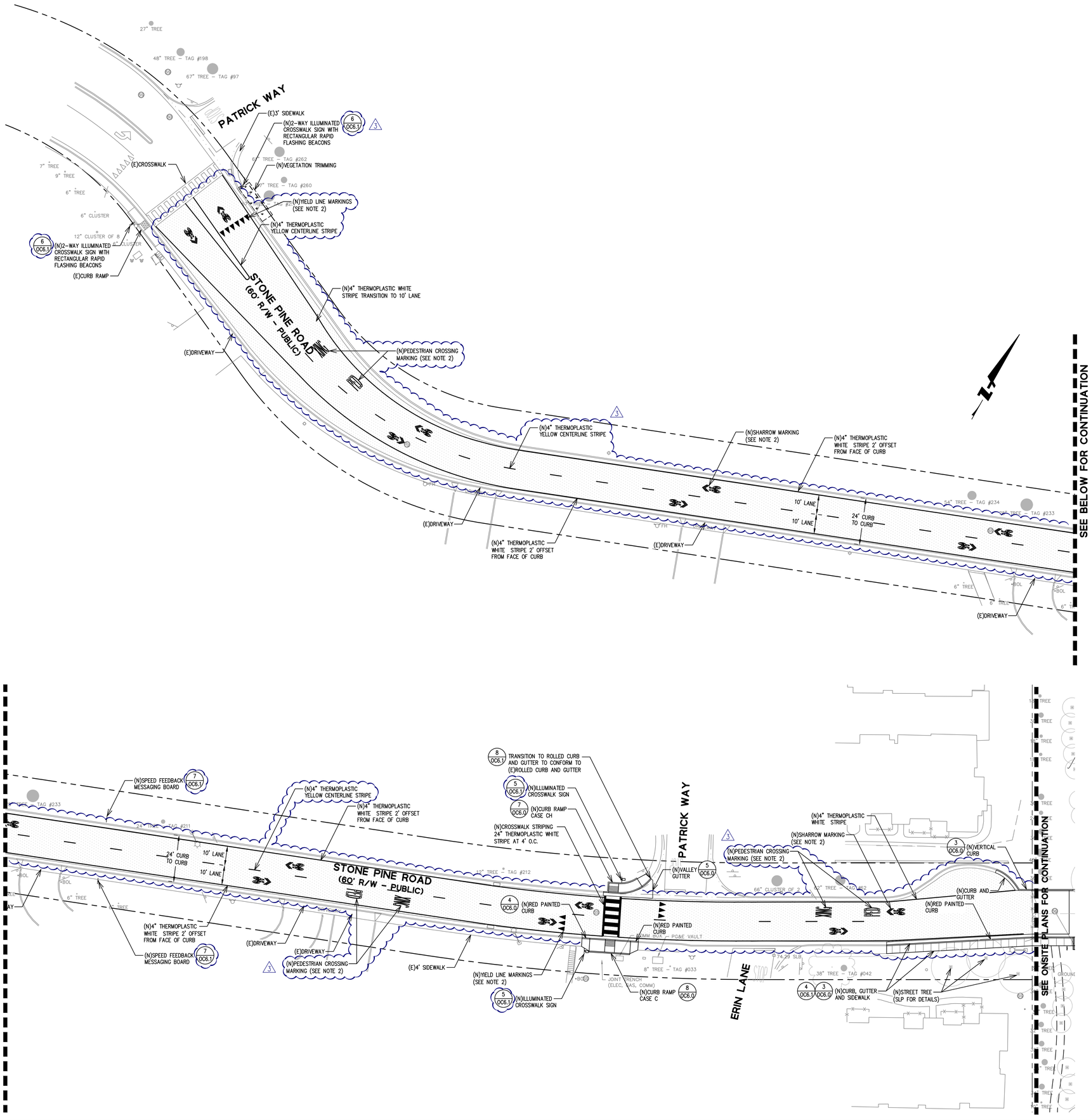

SIGNING AND STRIPING NOTES:

1. ALL SIGNING AND STRIPING TO BE PER CALTRANS STANDARDS UNLESS NOTED TO BE PER CITY STANDARDS OR MUTCD STANDARDS.
2. WHERE THE FOLLOWING SYMBOLS OCCUR ON THE DRAWINGS PROVIDE THE SPECIFIED SIGNING AND/OR STRIPING:

▼▼▼ PROVIDE THERMOPLASTIC YIELD LINE MARKINGS PER 2014 MUTCD STANDARD SECTION 3B.16.

LADDER CROSSWALK PER CALTRANS STANDARD A24F AND COMPLIANT WITH 2014 MUTCD STANDARDS AND SPACING. STRIPING SHALL BE 2' WIDE AND 8' LONG THERMOPLASTIC WHITE STRIPES ALIGNED WITH CORRESPONDING CURB RAMPS. SPACE STRIPES 4' ON CENTER.

PROVIDE THERMOPLASTIC SHARED LANE MARKINGS PER 2014 MUTCD STANDARD SECTION 9C.06 FROM MAIN STREET TO STONE PINE COVE PROJECT PROPERTY LINE AT 150-FT O.C. AND IN THE CENTER OF DRIVING LANES.

XING XING PROVIDE THERMOPLASTIC PEDESTRIAN CROSSING MARKINGS PER 2014 MUTCD STANDARD SECTION 3B.18.

SLURRY SEAL NOTES:

1. SLURRY SEAL TO OCCUR AFTER ALL GRADING, UTILITY, AND PAVEMENT IMPROVEMENTS ARE COMPLETED AND PRIOR TO ANY STRIPING IMPROVEMENTS.
2. SLURRY SEAL TO EXTEND ALONG STONE PINE ROAD FROM THE PROJECT SITE TO THE EASTERN EDGE OF THE CROSSWALK AT THE WESTERN PATRICK WAY/STONE PINE ROAD INTERSECTION.

3 SLURRY SEAL AC — TYPE II IN ACCORDANCE WITH SECTION 37-3 OF THE CALTRANS STANDARD SPECIFICATIONS.

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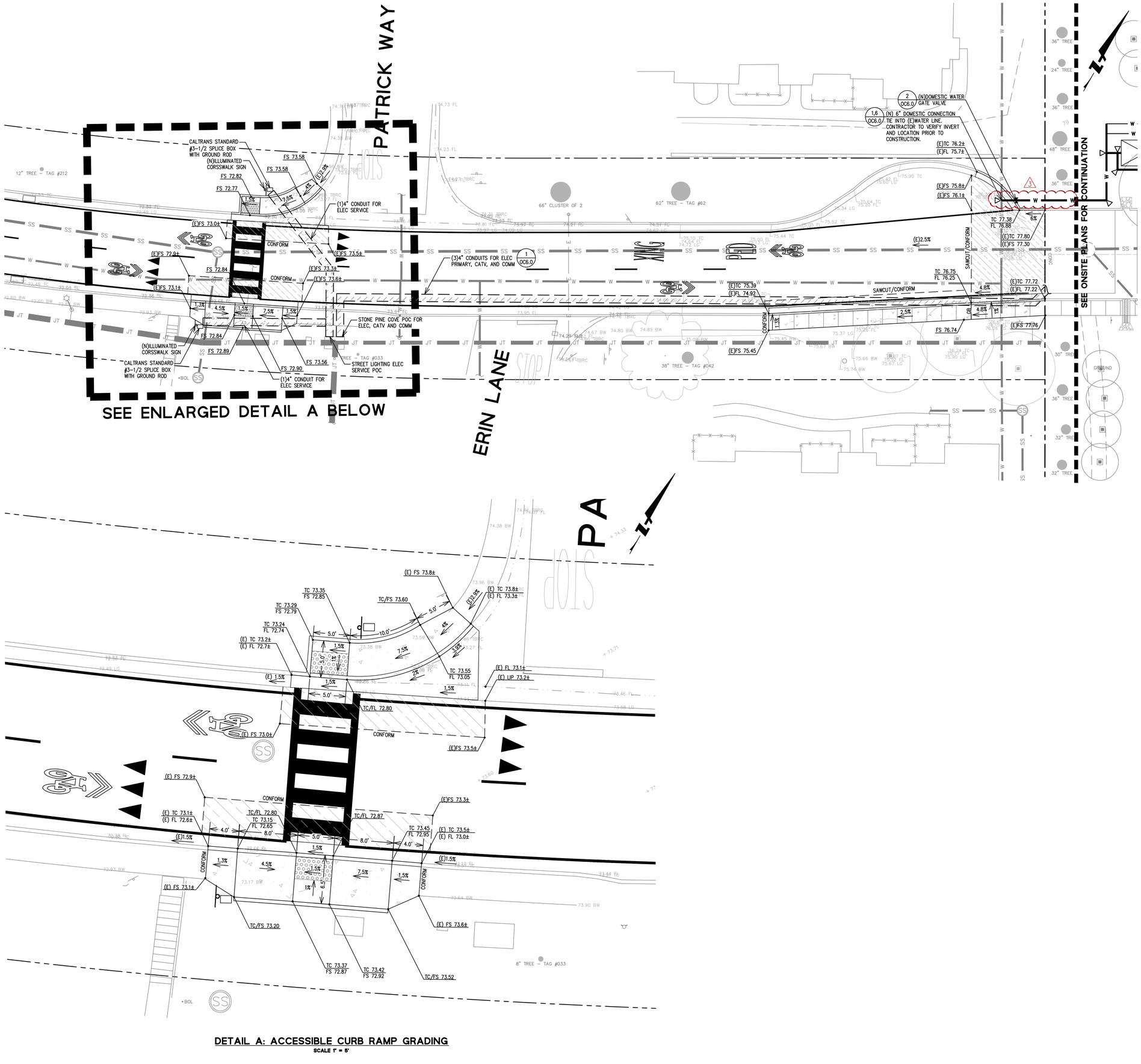

DETAIL A: ACCESSIBLE CURB RAMP GRADING

SCALE 1" = 5'

GRADING NOTES:

1. PROVIDE POSITIVE SURFACE DRAINAGE AWAY FROM ALL STRUCTURES BY SLOPING THE FINISHED GROUND SURFACE AT 5% FOR A DISTANCE OF 10', WHERE POSSIBLE, UNLESS OTHERWISE NOTED ON THE PLANS.
2. CONTRACTOR TO VERIFY ALL CONTROLLING DIMENSIONS PRIOR TO CONSTRUCTION.
3. CONTRACTOR SHALL DETERMINE EARTHWORK QUANTITIES BASED ON THE TOPOGRAPHIC SURVEY, THE GEOTECHNICAL INVESTIGATION AND THE PROPOSED SURFACE THICKNESS AND BASE THE BID ACCORDINGLY. IT IS THE CONTRACTORS RESPONSIBILITY TO CONFIRM IF A SEPARATE DEMOLITION CONTRACT HAS BEEN ISSUED TO TAKE THE SITE FROM THE WAY IT IS AT THE TIME OF THE BID TO THE CONDITIONS DESCRIBED IN THESE DOCUMENTS. ANY DIFFERENCES BETWEEN THE STATE IN WHICH THE SITE IS DELIVERED TO THE CONTRACTOR AND THESE DOCUMENTS SHOULD BE NOTED TO THE ENGINEER/ARCHITECT.
4. ALL FILL SHALL BE COMPACTED PER THE GEOTECHNICAL REPORT AND THE CONTRACTOR SHALL COORDINATE AND COMPLY WITH THE CITY INSPECTOR TO TAKE THE APPROPRIATE TESTS TO VERIFY COMPACTION VALUES.
5. IMPORT SOILS SHOULD MEET THE REQUIREMENTS OF THE SOILS REPORT AND SPECIFICATIONS.
6. COORDINATE THE PLACEMENT OF ALL SLEEVES FOR LANDSCAPE IRRIGATION (WATER AND CONTROL WIRING) AND SITE LIGHTING PRIOR TO THE PLACEMENT OF ANY ASPHALT, BASEROCK OR CONCRETE SURFACING. SEE LANDSCAPING AND SITE ELECTRICAL DRAWINGS.
7. DO NOT ADJUST GRADES ON THIS PLAN WITHOUT PRIOR WRITTEN APPROVAL OF THE ENGINEER/ARCHITECT.
8. SITE STRIPPINGS THAT CONTAIN ONLY ORGANIC MATERIAL (NO DEBRIS TRASH, BROKEN CONC. OR ROCKS GREATER THAN 1" IN DIAMETER) MAY BE USED IN LANDSCAPE AREAS, EXCEPT FOR AREAS IDENTIFIED AS IMPORT TOP SOIL BY THE LANDSCAPE DRAWINGS. EXCESS STRIPPINGS SHALL BE REMOVED FROM SITE.
9. ROUGH GRADING TO BE WITHIN 0.1' AND FINISH GRADES ARE TO BE WITHIN 0.05', HOWEVER CONTRACTOR SHALL NOT CONSTRUCT ANY IMPROVEMENTS THAT WILL CAUSE WATER TO POND OR NOT MEET REQUIREMENTS IN GRADING NOTE #1.
10. THE CONTRACTOR SHALL EXERCISE EXTREME CARE TO CONFORM TO THE LINES, GRADES, SECTIONS, AND DIMENSIONS AS SET FORTH ON THESE PLANS. ALL GRADED AREAS SHALL CONFORM TO THE VERTICAL ELEVATIONS SHOWN WITH A TOLERANCE OF ONE-TENTH OF A FOOT. WHERE GRADED AREAS DO NOT CONFORM TO THESE TOLERANCES, THE CONTRACTORS SHALL BE REQUIRED TO DO CORRECTIVE GRADING, AT NO EXTRA COST TO THE CLIENT.
11. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM THE GROUND ELEVATIONS AND OVERALL TOPOGRAPHY OF THE SITE PRIOR TO THE START OF CONSTRUCTION AS TO THE ACCURACY BETWEEN THE WORK SET FORTH ON THESE PLANS AND THE WORK IN THE FIELD. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND CIVIL ENGINEER IN WRITING PRIOR TO START OF CONSTRUCTION WHICH MAY REQUIRE CHANGES IN DESIGN AND/OR AFFECT THE EARTHWORK QUANTITIES.
12. TRENCHES SHALL NOT BE LEFT OPEN OVERNIGHT IN EXISTING PUBLIC STREET AREAS. CONTRACTOR SHALL BACKFILL TRENCHES, OR PLACE STEEL PLATING WITH ADEQUATE CUTBACK TO PREVENT SHIFTING OF STEEL PLATE AND/OR HOT-MIX ASPHALT REQUIRED TO PROTECT OPEN TRENCHES AT THE END OF THE WORKING DAY.
13. DISTURBED AREAS OF THE SITE SHOULD BE STABILIZED DURING THE RAINY SEASON USING STRAW MULCH (EC-6) OR WOOD MULCHING (EC-8).
14. PERMANENT EROSION CONTROL SHALL BE PROVIDED BY LANDSCAPING SUCH AS SHRUBS, SOD OR MULCH. LANDSCAPE DESIGN MAY BE SUBJECT TO CHANGE.

PAVEMENT/HATCH LEGEND:

SEE GEOTECHNICAL REPORT FOR EXACT RECOMMENDATION FOR GRADING OPERATIONS AND OVEREXCAVATION ON-SITE.

	AC PAVING	3" AC PAVING OVER 12" OF CALTRANS CLASS 2 AGGREGATE BASE.
	CONCRETE PAVING	4" CONCRETE OVER 4" OF CALTRANS CLASS 2 AGGREGATE BASE

PAVEMENT NOTES:

1. PAVEMENT SECTION TO BE PER CITY OF HALF MOON BAY STANDARD DETAILS
2. COLOR AND FINISH OF CONCRETE TO BE PER CITY OF HALF MOON BAY STANDARD DETAILS.

UTILITY CONNECTION ROAD CUT NOTES:

1. STREET CUTS FOR UTILITY CONNECTIONS THAT ARE LESS THAN TWENTY (20) FEET APART SHALL BE REPAIRED WITH A SINGLE PATCH.
2. ASPHALT REPAIR AND OVERLAY SHALL BE IN ACCORDANCE WITH THE CITY STANDARD DETAILS.
3. TWO OR MORE STREET CUTS IN THE FRONTAGE ROAD FOR UTILITY CONNECTIONS WILL REQUIRE A SINGLE 2-INCH-THICK ASPHALT CONCRETE OVERLAY PATCH ON EXISTING PAVEMENT ACROSS THE PROPERTY FRONTAGE.

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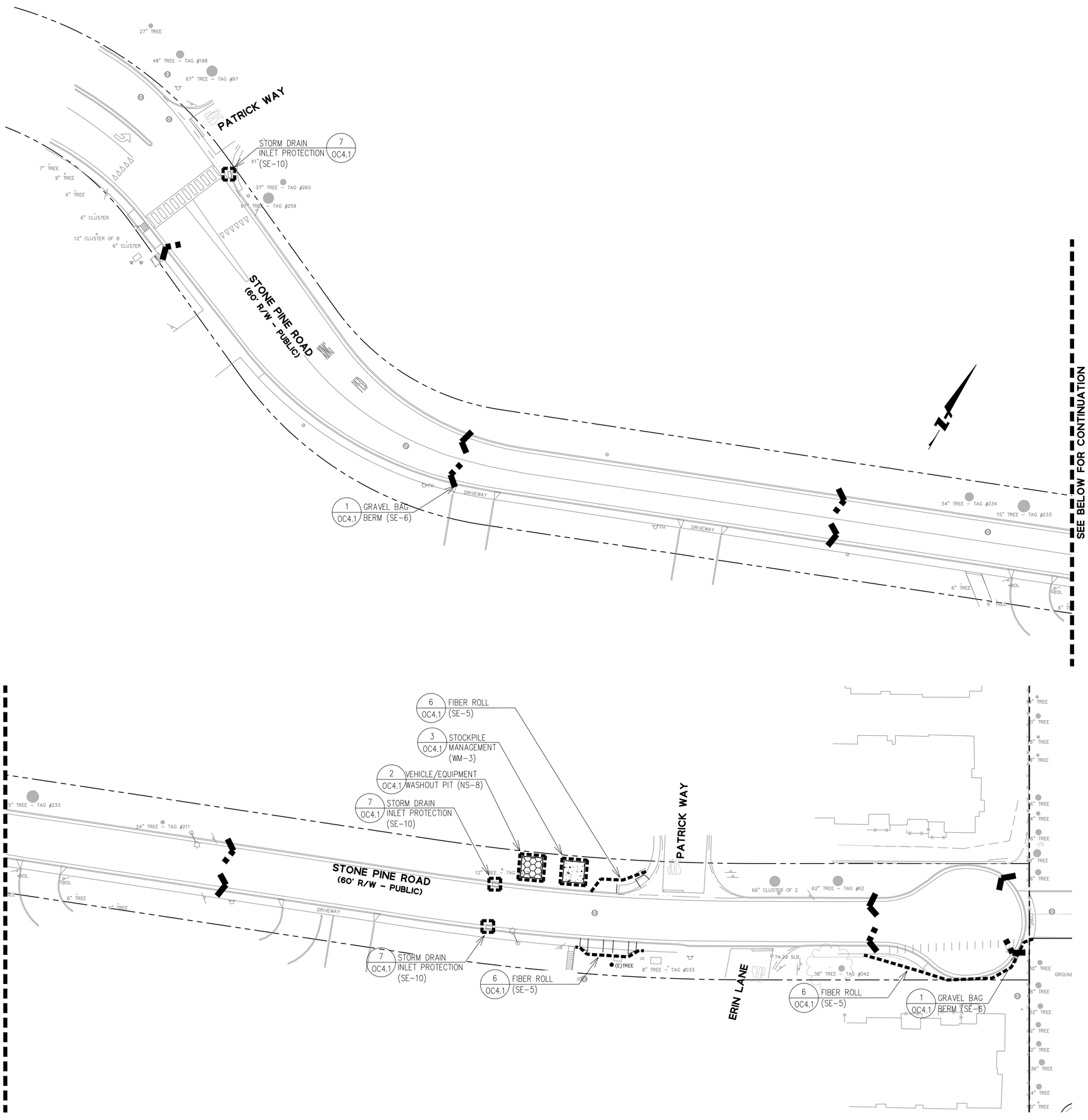

PERMANENT EROSION/SEDIMENT CONTROLS:

1. CONTRACTOR SHALL PROVIDE POST-CONSTRUCTION PERMANENT EROSION/SEDIMENT CONTROL THROUGHOUT THE SITE IN THE FORM OF FINISH LANDSCAPING.
2. PERMANENT EROSION CONTROLS SHOULD CONSIST OF VEGETATION OR OTHER MEANS OF STABILIZING ALL DISTURBED AREAS OF THE SITE. SUITABLE EROSION CONTROLS INCLUDE TURF, SHRUBS, ESTABLISHED HYDROSEEDING, MULCH, BARK, AND OTHER GROUNDCOVERS.
3. ALL DISTURBED GROUND SURFACES SHALL BE STABILIZED UPON COMPLETION OF CONSTRUCTION ACTIVITIES.
4. FINAL LANDSCAPING PLAN TO BE DEVELOPED IN COORDINATION WITH THE PROJECT ARCHITECT AND TO BE CONSISTENT WITH EXISTING LANDSCAPING AND TREES TO REMAIN, AND MEET THE APPROVAL OF THE PROJECT ARBORIST.
5. LANDSCAPING PROPOSED SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH THE CALIFORNIA MODEL WATER EFFICIENT LANDSCAPE ORDINANCE.
6. DISTURBED AREAS OF THE SITE SHOULD BE STABILIZED DURING THE RAINY SEASON USING STRAW MULCH (EC-6) OR WOOD MULCHING (EC-8).
7. PERMANENT EROSION CONTROL SHALL BE PROVIDED BY LANDSCAPING SUCH AS SHRUBS, SOD OR MULCH. LANDSCAPE DESIGN MAY BE SUBJECT TO CHANGE.

EROSION CONTROL LEGEND:

- VEHICLE/EQUIPMENT WASHOUT PIT
- STOCKPILE COVERING
- GRAVEL BAG BERM
- FIBER ROLL
- INLET PROTECTION

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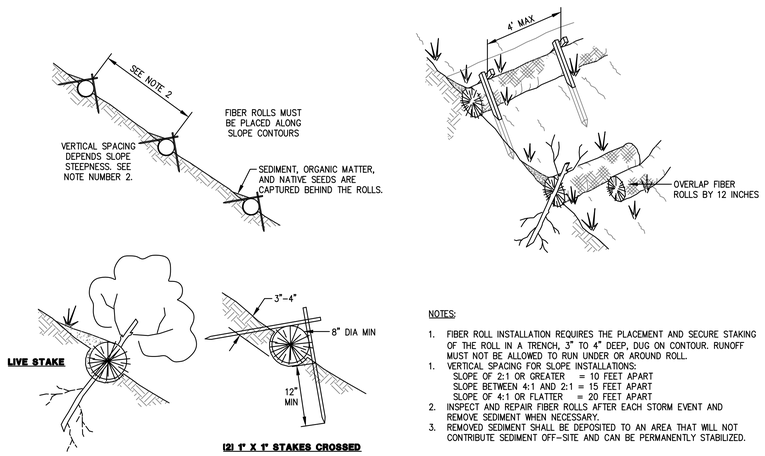
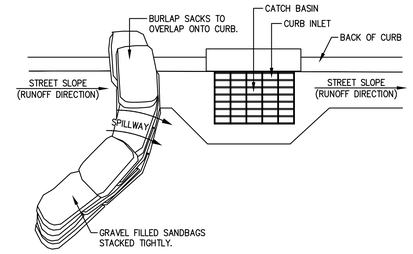


NOTES:

1. FIBER ROLL INSTALLATION REQUIRES THE PLACEMENT AND SECURE STAKING OF THE ROLL IN A TRENCH, 3" TO 4" DEEP, DUG ON CONTOUR. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND ROLL.
1. VERTICAL SPACING FOR SLOPE INSTALLATIONS:
   SLOPE OF 2:1 OR GREATER = 10 FEET APART
   SLOPE BETWEEN 4:1 AND 2:1 = 15 FEET APART
   SLOPE OF 4:1 OR FLATTER = 20 FEET APART
2. INSPECT AND REPAIR FIBER ROLLS AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.
3. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.

6 — **FIBER ROLL**
NTS

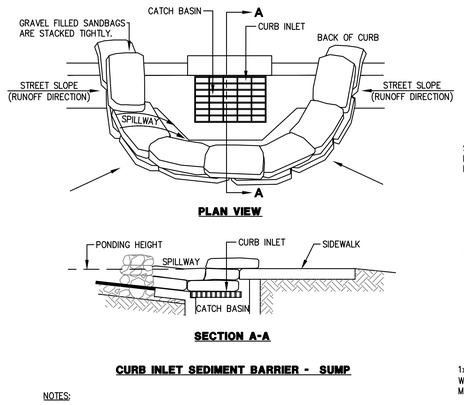


PLAN VIEW

NOTES:

1. PLACE CURB TYPE SEDIMENT BARRIERS ON GENTLY SLOPING STREETS, WHERE WATER CAN POND AND ALLOW SEDIMENT TO SEPARATE FROM RUNOFF.
2. SANDBAGS OF EITHER BURLAP OR WOVEN GEOTEXTILE FABRIC, ARE FILLED WITH GRAVEL, LAYERED AND PACKED TIGHTLY.
3. LEAVE ONE SANDBAG GAP IN THE TOP ROW TO PROVIDE A SPILLWAY OVERFLOW. TOP OF SPILLWAY SHALL BE LOWER THAN TOP OF CURB.
4. INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT, SEDIMENT AND GRAVEL MUST BE REMOVED FROM THE TRAVELED WAY IMMEDIATELY.

CURB INLET SEDIMENT BARRIER - CONTINUOUS GRADE



PLAN VIEW

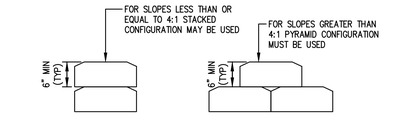
SECTION A-A

CURB INLET SEDIMENT BARRIER - SUMP

NOTES:

1. PLACE CURB TYPE SEDIMENT BARRIERS ON GENTLY SLOPING STREETS, WHERE WATER CAN POND AND ALLOW SEDIMENT TO SEPARATE FROM RUNOFF.
2. SANDBAGS OF EITHER BURLAP OR WOVEN GEOTEXTILE FABRIC, ARE FILLED WITH GRAVEL, LAYERED AND PACKED TIGHTLY.
3. LEAVE ONE SANDBAG GAP IN THE TOP ROW TO PROVIDE A SPILLWAY OVERFLOW.
4. INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT, SEDIMENT AND GRAVEL MUST BE REMOVED FROM THE TRAVELED WAY IMMEDIATELY.

7 — **INLET PROTECTION**
NTS

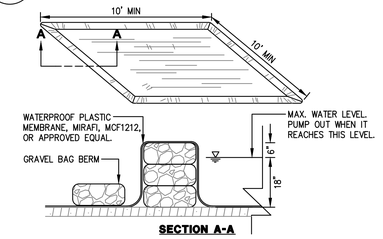


STACKED **PYRAMID**

NOTES:

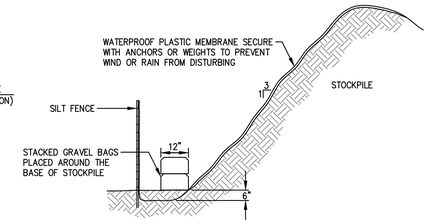
1. INSTALL AT LOCATIONS AS SHOWN ON EROSION CONTROL PLAN, AND IN ADDITION, PROTECT ALL EXISTING AND PROPOSED STORM DRAIN STRUCTURES WITH GRAVEL BAGS.

1 — **GRAVEL BAG BERM**
NTS

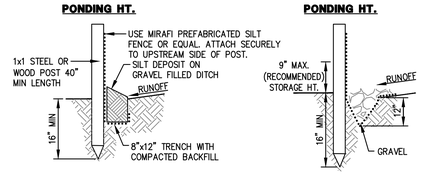


SECTION A-A

2 — **VEHICLE/EQUIPMENT WASHOUT PIT**
NTS

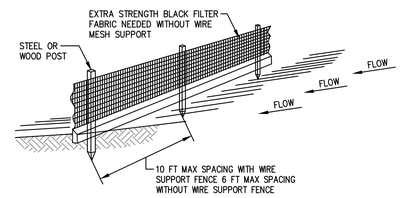


3 — **STOCKPILE COVERING**
NTS



STANDARD DETAIL TRENCH WITH NATIVE BACKFILL

ALTERNATE DETAIL TRENCH WITH GRAVEL



NOTES:

1. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.
2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
3. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.

5 — **SILT FENCE**
NTS

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DATE 2.17.24
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Approved DJL
Job No 20211367-15

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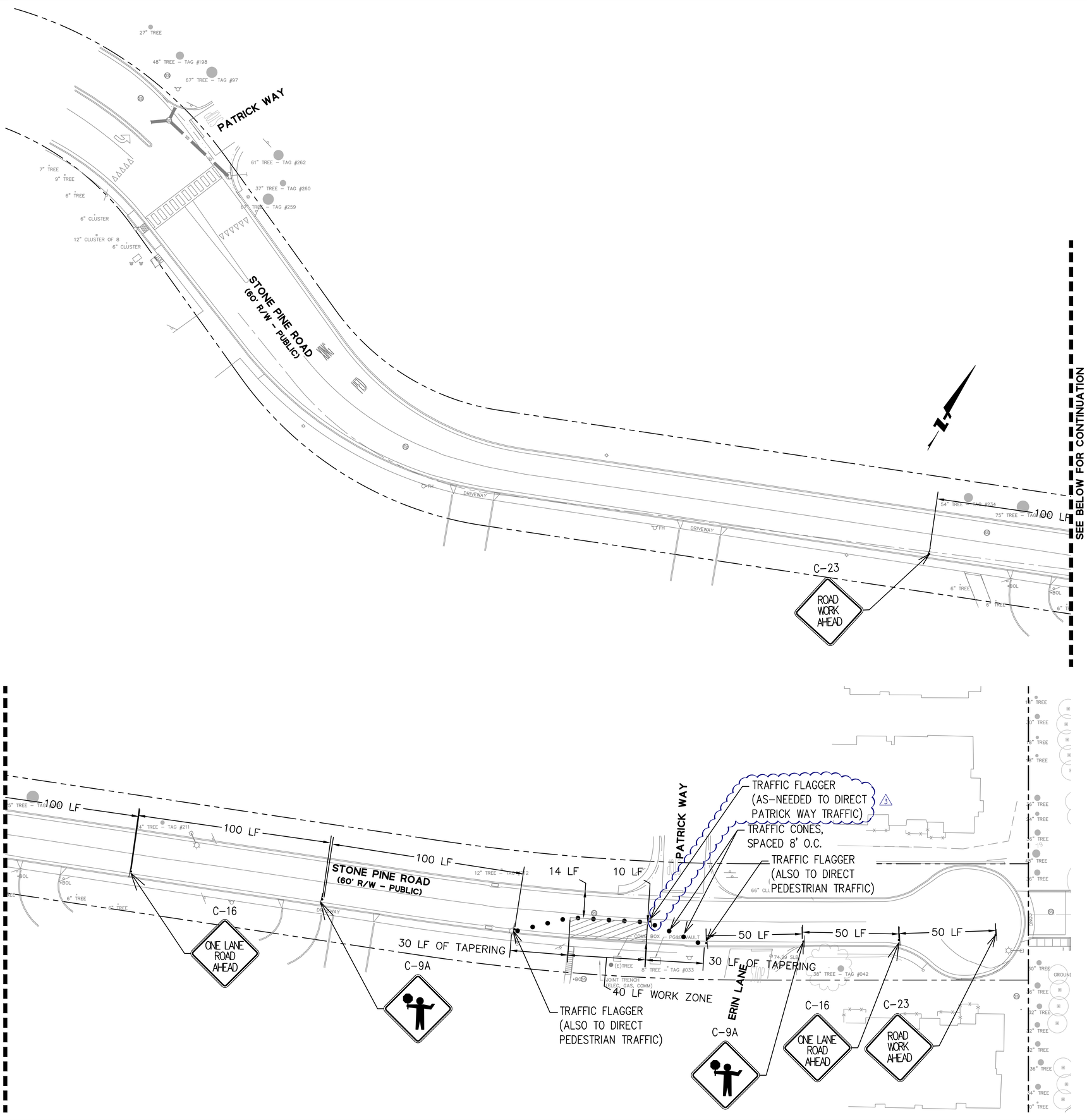

TRAFFIC CONTROL NOTES:

1. TYPICAL TRAFFIC CONTROL PLAN IS BASED ON FIGURE 6H-10 "LANE CLOSURE ON A TWO LANE ROAD USING FLAGGERS" IN THE CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
2. TRAFFIC CONTROL MEASURES SHALL BE ADJUSTED TO PROVIDE ADEQUATE WORK SPACE FOR EACH STAGE OF THE ROAD WORK SHOWN IN THESE PLANS.
3. A MINIMUM SINGLE LANE ACCESS TO DRIVEWAYS/LOTS SHALL BE MAINTAINED AT ALL TIMES BY PHASING WORK. ADDITIONAL FLAGGERS MAY BE NEEDED AT DRIVEWAYS WITH HEAVY TRAFFIC.
4. NO STREETS SHALL BE CLOSED WITHOUT AUTHORIZATION FROM CITY ENGINEER.
5. TEMPORARY CONSTRUCTION TRAFFIC CONTROL SIGNS REFERENCE THE CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES UNLESS OTHERWISE NOTED.
6. AT LEAST ONE PERSON SHALL BE ASSIGNED TO PROVIDE FULL MAINTENANCE OF TRAFFIC CONTROL DEVICES FOR LANE CLOSURE UNLESS, OTHERWISE DIRECTED BY THE ENGINEER.
7. ALL CONES USED FOR LANE CLOSURES DURING THE HOURS OF DARKNESS SHALL BE FITTED WITH RETROREFLECTIVE BANDS (OR SLEEVES).
8. ADVANCED ROADWAY SIGNS SHALL BE PLACED AS SHOWN IN ADVANCE OF THE BEGINNING OF CONSTRUCTION ZONE.
9. THE CONTRACTOR/ENGINEER MAY MODIFY THE TRAFFIC CONTROL SHEET TCP-1 TO ACCOMMODATE CONSTRUCTION WORK DURING THE APPLICATION OF AN ENCROACHMENT PERMIT TO THE SATISFACTION OF THE CITY ENGINEER.

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Notes for Figure ~~6H-10~~ 6H-10(CA) and 6H-10A(CA) —Typical Application 10
Lane Closure on a Two-Lane Road Using Flaggers

Option:
1. For low-volume (Refer to Part 5, Section 5A.01) situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger, positioned to be visible to road users approaching from both directions, may be used (see Chapter 6E).
2. The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short-duration operations.
3. Flashing warning lights and/or flags may be used to call attention to the advance warning signs. A BE PREPARED TO STOP sign may be added to the sign series.

Guidance:
4. *The buffer space should be extended so that the two-way traffic taper is placed before a horizontal (or crest vertical) curve to provide adequate sight distance for the flagger and a queue of stopped vehicles.*

Standard:
5. At night, flagger stations shall be illuminated, except in emergencies.

Guidance:
6. *When used, the BE PREPARED TO STOP sign should be located ~~between~~ after the Flagger sign and the ONE LANE ROAD sign.*
7. *When a grade crossing exists within or upstream of the transition area and it is anticipated that queues resulting from the lane closure might extend through the grade crossing, the TTC zone should be extended so that the transition area precedes the grade crossing.*
8. *When a grade crossing equipped with active warning devices exists within the activity area, provisions should be made for keeping flaggers informed as to the activation status of these warning devices.*
9. *When a grade crossing exists within the activity area, drivers operating on the left-hand side of the normal center line should be provided with comparable warning devices as for drivers operating on the right-hand side of the normal center line.*
10. *Early coordination with the railroad company or light rail transit agency should occur before work starts.*

Option:
11. A flagger or a uniformed law enforcement officer may be used at the grade crossing to minimize the probability that vehicles are stopped within 15 feet of the grade crossing, measured from both sides of the outside rails.

Support:
12. For State highways, see Caltrans' Standard Plan T13. See Section 1A.11 for information regarding this publication.
13. If portable transverse rumble strips are used for flagging operations, refer to Section 6F.87.

Chapter 6H – Typical Applications
Part 6 – Temporary Traffic Control November 7, 2014

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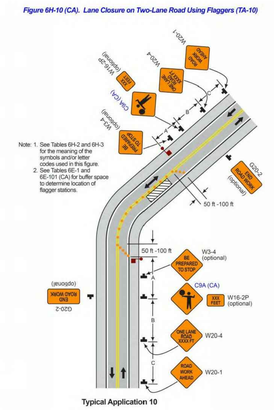
Figure 6H-10 (CA). Lane Closure on Two-Lane Road Using Flaggers (TA-10)



Chapter 6H – Typical Applications
Part 6 – Temporary Traffic Control November 7, 2014

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Drawing Number:
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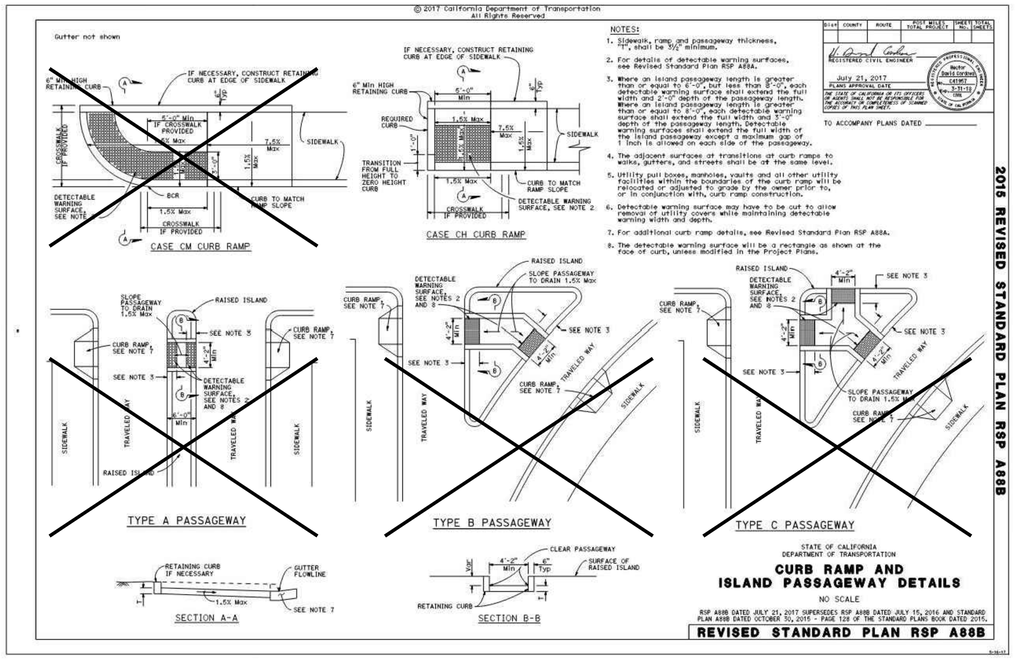
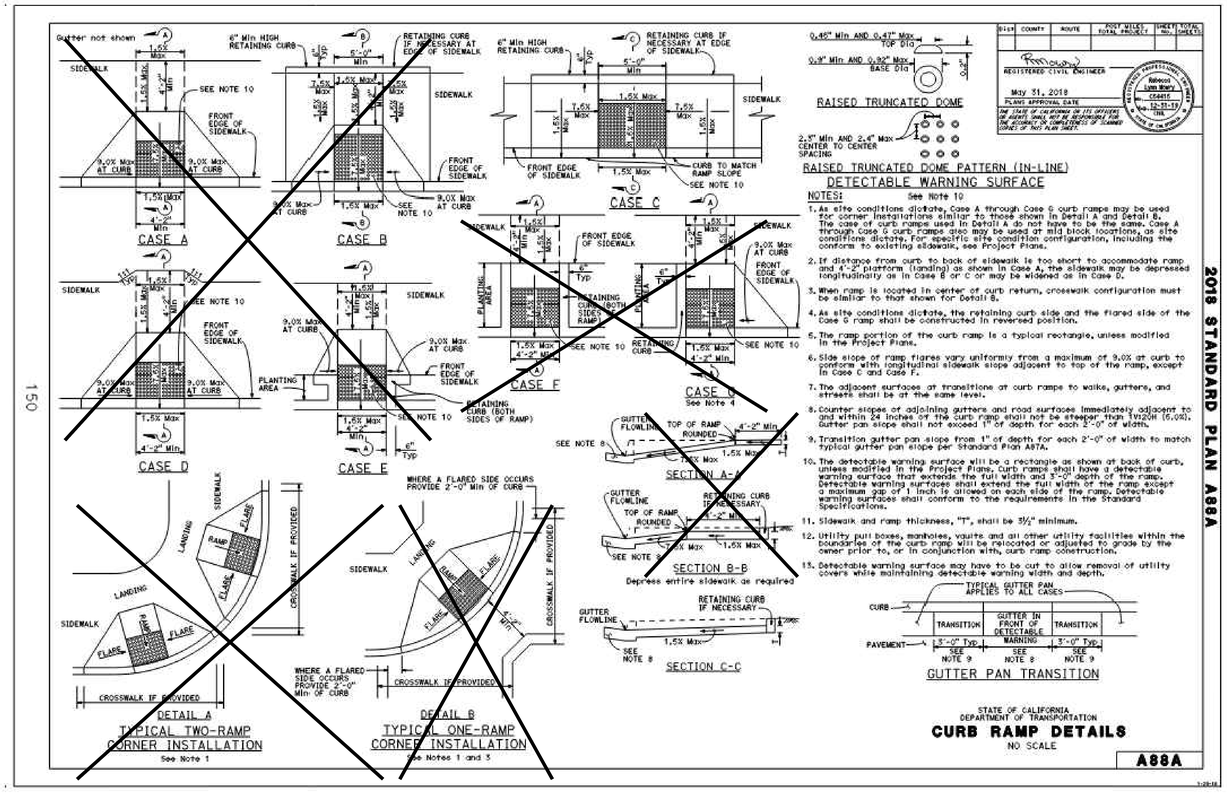
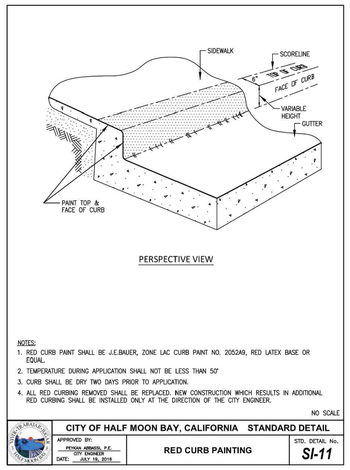


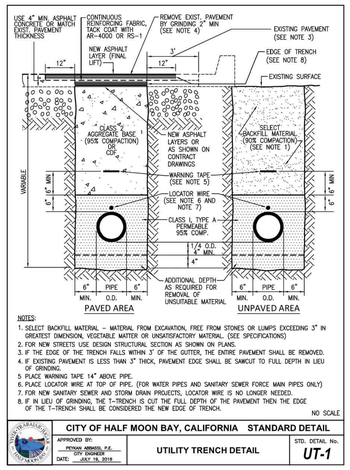
7 — CURB RAMP CASE CH – CALTRANS STANDARD PLAN A88B
NTS



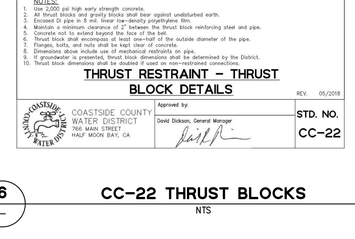
8 — CURB RAMP – CALTRANS STANDARD PLAN A88B
NTS



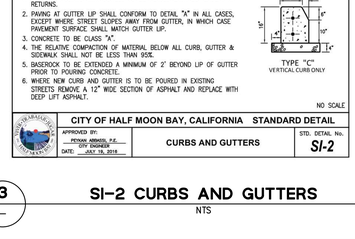
4 — SI-11 RED CURB PAINTING
NTS



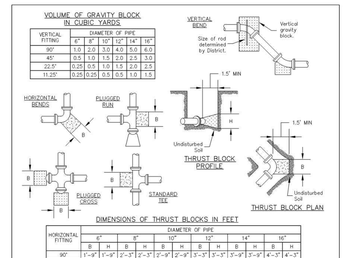
1 — UT-1 UTILITY TRENCH
NTS



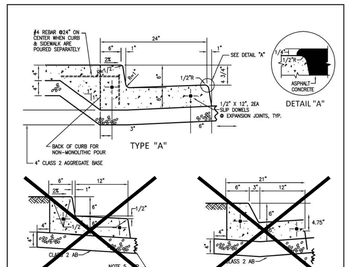
5 — SI-1 VALLEY OR CROSS GUTTERS
NTS



2 — CC-09 GATE VALVE
NTS



6 — CC-22 THRUST BLOCKS
NTS



3 — SI-2 CURBS AND GUTTERS
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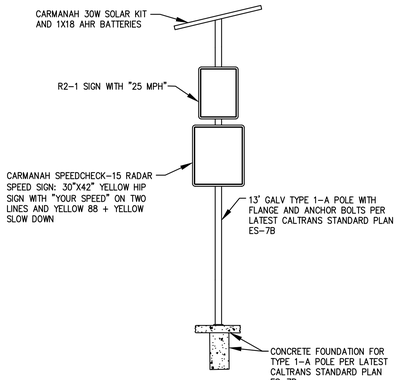
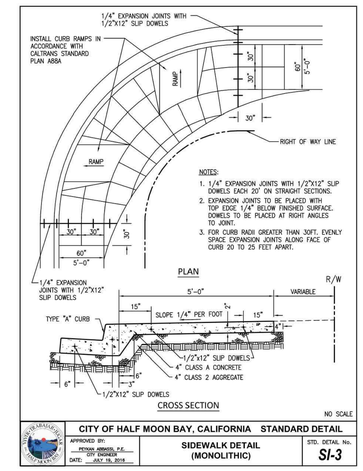
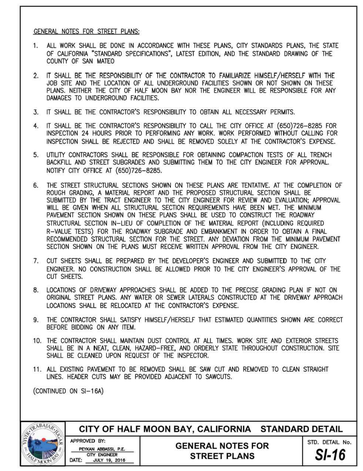


7 — SPEED FEEDBACK MESSAGING BOARD
NTS



4 — SI-3 SIDEWALK
NTS



1 — SI-16 STREET PLAN NOTES
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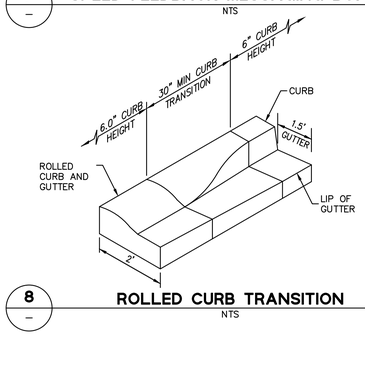

8 — ROLLED CURB TRANSITION
NTS

5 — CROSSWALK SIGNAGE STONE PINE RD & ERIN LANE
NTS

2 — SI-16A STREET PLAN NOTES
NTS

6 — CROSSWALK SIGNAGE STONE PINE RD & PATRICK WAY
NTS

3 — SI-18 CURB AND GUTTER RECONSTRUCTION
NTS

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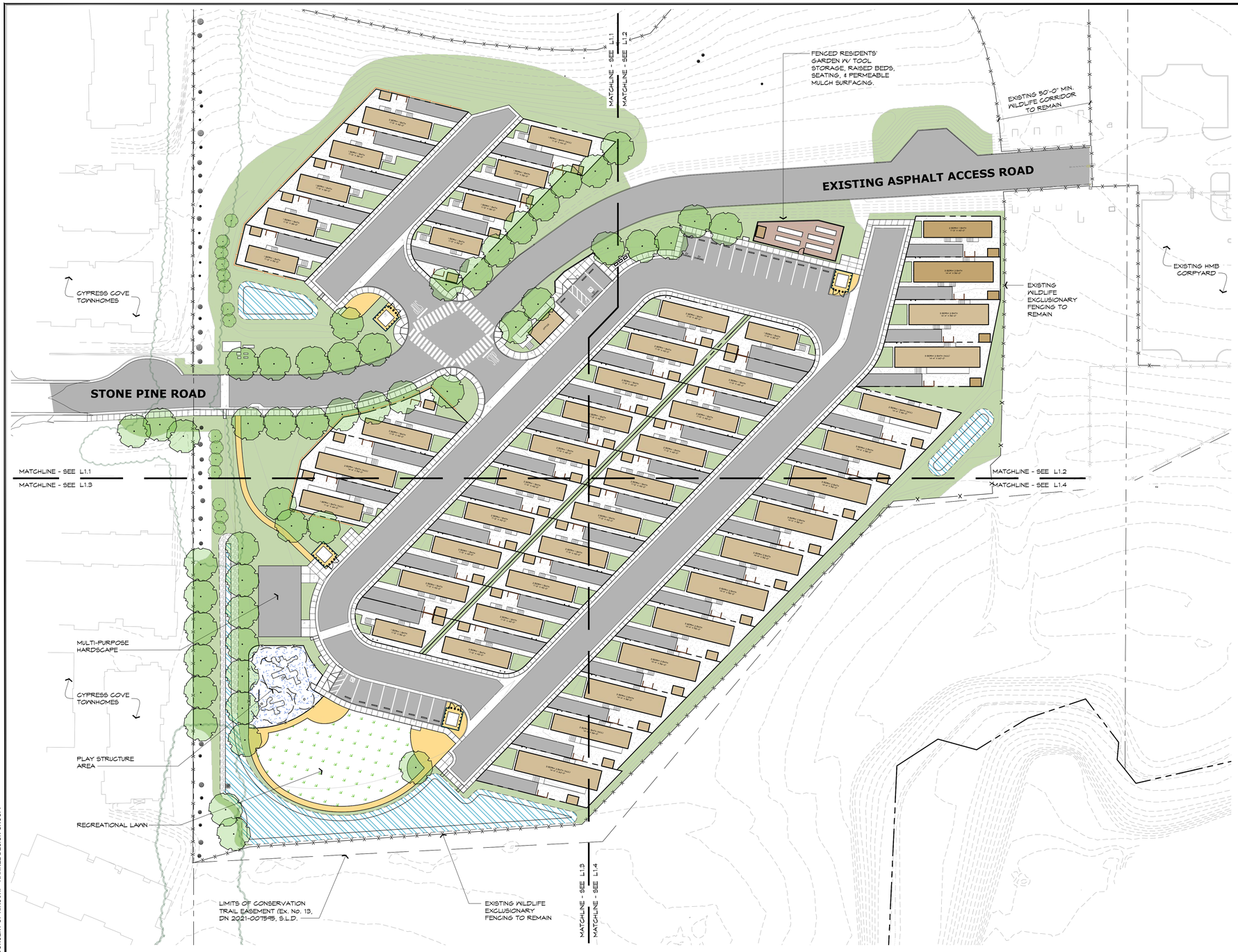

LANDSCAPE LEGEND

- PERMEABLE PEDESTRIAN PAVING: 3" DECOMPOSED GRANITE OVER 4" MIN. CLASS II BASEROCK. (A L2.0)
- RECREATIONAL LAWN: SEE PLANTING PLAN
- MULCH SURFACING: 3" THICK WOOD CHIPS OVER FILTER FABRIC PER SPECS
- PLAY AREA SURFACING: RESILIENT RUBBERIZED PLAY SURFACING PER SPECS (B-C L2.0)
- LANDSCAPE AREA: NEW SEED OR SHRUB PLANTING AREA SHOWN FOR CONTEXT. SEE PLANTING PLAN FOR MORE INFORMATION.
- NEW TREES: SEE PLANTING PLAN FOR MORE INFORMATION. 24" BOX MINIMUM SIZE. SEE TREE NOTES BELOW.
- SPLIT RAIL FENCING (E L2.0)
- HDR HEADERBOARD (A L2.0)
- PA PLANTING AREA
- INDICATES ALIGNMENT BETWEEN ELEMENTS
- ASPHALT PAVING PER CIVIL DRAWINGS
- CONCRETE PAVING PER CIVIL DRAWINGS
- GRAVEL PAVING PER CIVIL DRAWINGS
- BIOTREATMENT AREA PER CIVIL DRAWINGS

LANDSCAPE NOTES

- CONTRACTOR SHALL VERIFY ALL DIMENSIONS, DISTANCES & LOCATIONS PRIOR TO COMMENCING WORK. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE LANDSCAPE ARCHITECT OF ANY DISCREPANCIES.
- ALL WORK SHALL CONFORM TO LOCAL BUILDING CODES & ORDINANCES. ALL REQUIRED PERMITS AND NOTIFICATIONS FOR CONSTRUCTION SHALL BE OBTAINED FROM THE CITY OF HALF MOON BAY PRIOR TO COMMENCEMENT OF ANY WORK. ALL WORK SHALL BE INSPECTED BY RESPECTIVE AGENCIES AS REQUIRED BY CONSTRUCTION PERMITS.
- CONTRACTOR SHALL PROTECT ALL EXISTING TREES & ROOT SYSTEMS. NO TRENCHES FOR ANY PURPOSE SHALL BE MACHINE DUG WITHIN DRIPLINES OF EXISTING TREES. TRENCHES WITHIN DRIPLINES OF EXISTING VEGETATION & TREES TO REMAIN SHALL BE HAND DUG. NO ROOTS GREATER THAN 1"Ø SHALL BE CUT. ALL ROOTS BETWEEN 1/2" & 1"Ø SHALL BE CLEANLY CUT AND DRESSED.
- CONTRACTOR SHALL OBTAIN AND ADHERE TO GUIDELINES SET FORTH IN THE ARBORIST'S REPORT AS PREPARED BY WEST COAST ARBORIST INC, DATED 08/21/2023.
- CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT 48 HOURS IN ADVANCE TO ARRANGE FOR FIELD REVIEW OF ALL PAVING AND PATH LAYOUTS.
- PAVING SCORE LINES, WHEN NOT DIMENSIONED, SHALL BE LOCATED PER PLAN, ALIGNED AS INDICATED, AND SPACED EQUALLY. NOTIFY LANDSCAPE ARCHITECT OF ANY DISCREPANCIES PRIOR TO LAYING REBAR.
- NO CONSTRUCTION MATERIAL, EQUIPMENT, PORTABLE TOILETS, TRASH CONTAINERS, OR DEBRIS SHALL BE PLACED IN THE PUBLIC RIGHT-OF-WAY.
- A TRASH CONTAINER SHALL BE MAINTAINED ON SITE AT ALL TIMES AND DEBRIS ON SITE WHICH COULD OTHERWISE BLOW AWAY, SHALL BE REGULARLY COLLECTED AND PLACED IN THE CONTAINER.
- ALL CONSTRUCTION DEBRIS (WOOD SCRAPS AND OTHER DEBRIS, WHICH CANNOT BLOW AWAY) SHALL BE PILED WITHIN THE PROPERTY LINES OF THE PROJECT IN A NEAT AND SAFE MANNER.
- HOURS OF CONSTRUCTION: THE HOURS OF CONSTRUCTION SHALL BE LIMITED TO 7:00 A.M. TO 5:00 P.M. MONDAY THROUGH FRIDAY; WITH SPECIAL REQUEST, 8:00 A.M. TO 6:00 P.M. SATURDAY. ALL INTERNAL COMBUSTION ENGINE-DRIVEN EQUIPMENT SHALL BE FITTED WITH MUFFLERS THAT ARE IN GOOD CONDITION.
- SPILL CLEANUP: ANY TOXIC MATERIAL SPILL WITHIN THE CONSTRUCTION AREA SHALL BE PROPERLY CLEANED, REMOVED AND DISPOSED OF PER CITY STANDARDS.
- DISCOVERY OF ARCHAEOLOGICAL RESOURCES: IF HISTORIC OR ARCHAEOLOGICAL RESOURCES ARE UNCOVERED DURING GRADING ACTIVITIES, ALL WORK SHALL IMMEDIATELY STOP AND THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE CITY TO RETAIN A QUALIFIED ARCHAEOLOGIST. AT THE CITY'S EXPENSE, THE QUALIFIED ARCHAEOLOGIST WILL PERFORM AN ARCHAEOLOGICAL SURVEY AND DEVELOP MITIGATION MEASURES TO PROTECT ARCHAEOLOGICAL MATERIALS.
- SEE GENERAL REQUIREMENTS, GENERAL CONDITIONS & SPECIFICATIONS FOR OTHER REQUIREMENTS.
- SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

TREE NOTES

EXISTING HERITAGE TREES TO BE REMOVED:	12	SEE TREE PROTECTION PLAN, SHEET L1.01, FOR COMPLETE LIST OF TREES TO BE REMOVED
REPLACEMENT TREES REQUIRED:	21	24" BOX MINIMUM.
PROPOSED NEW TREES:	65	SEE PLANTING PLAN FOR SPECIFIC SPECIES & LOCATION.

SITE FURNISHINGS KEY

- PICNIC TABLE: COLUMBIA CASCADE 'TIMBERFORM GREENWAY' ADA-ACCESSIBLE PICNIC TABLE MODEL 2163-6-G W/ DIRECT EMBEDMENT FOOTING; 6' NOMINAL LENGTH (7'-10" OVERALL), HOT DIP GALVANIZED FRAME FINISH; KILN-DRIED DOUGLAS FIR SLATS. FOOTING (N L2.0)
- BENCH: COLUMBIA CASCADE 'TIMBERFORM GREENWAY' ADA-ACCESSIBLE BENCH MODEL 2140-6-ADA-G W/ DIRECT EMBEDMENT FOOTING; 6' NOMINAL LENGTH (5'-10" OVERALL), HOT DIP GALVANIZED FRAME FINISH; KILN-DRIED DOUGLAS FIR SLATS. (N L2.0)
- DOG WASTE STATION: PET WASTE ELIMINATION 'SUPERIOR PET WASTE STATION' W/ 12" X 18" ALUMINUM SIGN, DISPENSER BOX, 5' GALVANIZED STEEL POST, AND 10-GAL WASTE RECEPTACLE WITH LID. FINISH COLOR TO BE GREEN. (N L2.0)
- BIKE RACK: COLUMBIA CASCADE 'ORIGINAL CYCLOOPS' MODEL 2170-R-G W/ DIRECT EMBEDMENT FOOTING; 9 BIKE CAPACITY; HOT-DIP GALVANIZED FINISH. (M L2.0)
- T R C TRASH, RECYCLING, & COMPOST STATIONS: BIG BELLY 'ELEMENT' 50-GAL BIN WITH FULLY ENCLOSED HOPPER INTERFACE & INTEGRATED FOOT PEDAL. BINS SHALL BE IDENTIFIED W/ MANUFACTURER'S STANDARD GRAPHICS AS 'TRASH', 'RECYCLING' OR 'COMPOST'; INSTALL BOLT-DOWN SERENITY PLATE TO SLAB BELOW.

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Date 05/16/2024
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Drawn JS
Approved TKC

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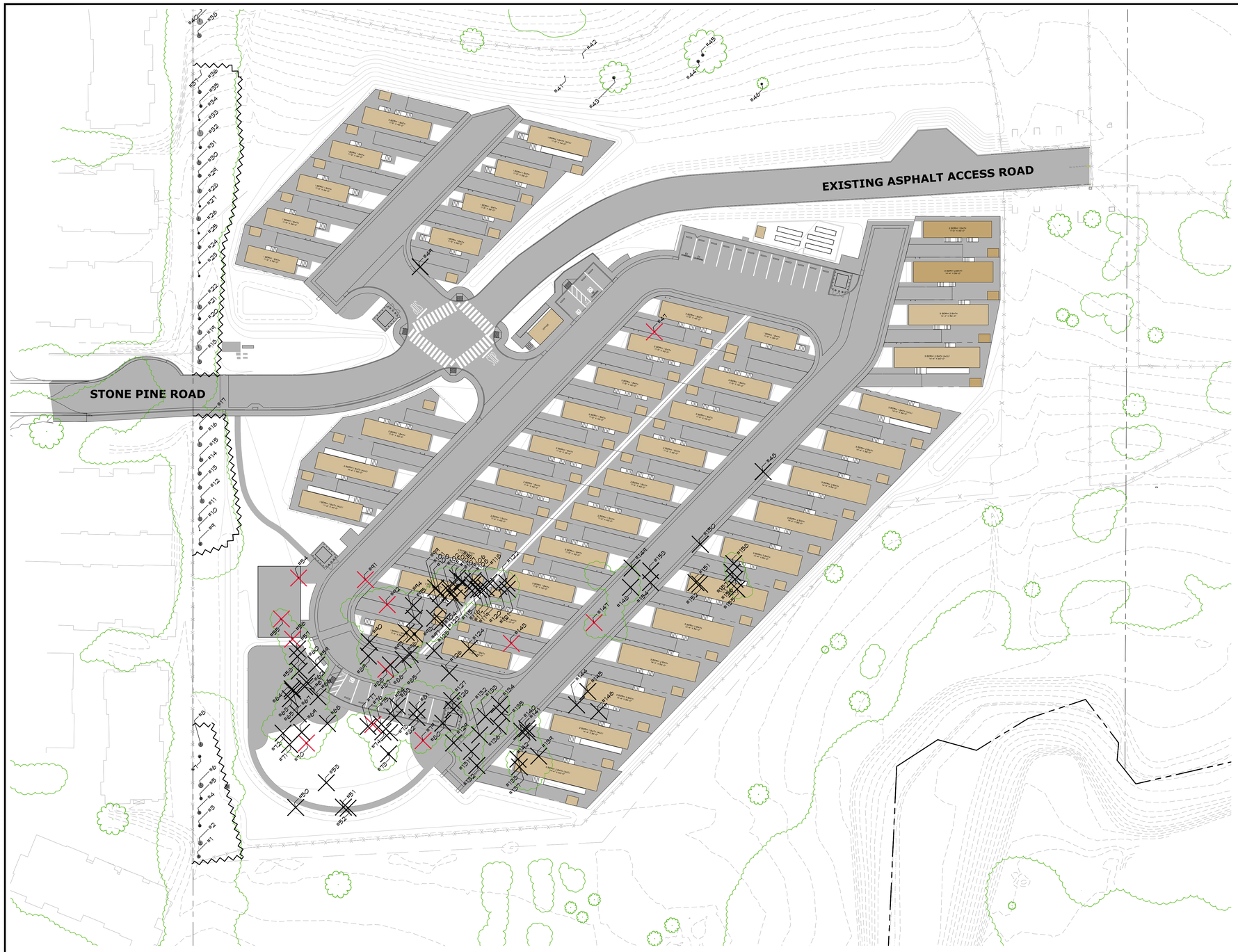

TREE REMOVAL KEY

#	SCIENTIFIC NAME	DBH (INCHES)	HERITAGE? (Y/N)
47	SALIX LUCIDA	7	Y
48	EUCALYPTUS GUNNII	4	N
49	ALNUS RHOMBIFOLIA	5	N
50	PINUS RADIATA	10	N
51	PINUS RADIATA	10	N
52	PINUS RADIATA	10	N
53	EUCALYPTUS GLOBULUS	13	N
54	HESPEROCYPARIS MACROCARPA	15	Y
55	PINUS RADIATA	13	Y
56	PINUS RADIATA	15	Y
57	PINUS RADIATA	11	N
58	HESPEROCYPARIS MACROCARPA	9	N
59	HESPEROCYPARIS MACROCARPA	10	N
60	HESPEROCYPARIS MACROCARPA	7	N
61	HESPEROCYPARIS MACROCARPA	9	N
62	HESPEROCYPARIS MACROCARPA	8	N
63	HESPEROCYPARIS MACROCARPA	9	N
64	HESPEROCYPARIS MACROCARPA	8	N
65	HESPEROCYPARIS MACROCARPA	7	N
66	HESPEROCYPARIS MACROCARPA	7	N
67	HESPEROCYPARIS MACROCARPA	6	N
68	HESPEROCYPARIS MACROCARPA	11	N
69	HESPEROCYPARIS MACROCARPA	6	N
70	HESPEROCYPARIS MACROCARPA	12	Y
71	ACACIA MELANOXYLON	6	N
72	HESPEROCYPARIS MACROCARPA	5	N
73	EUCALYPTUS GLOBULUS	26	N
74	PINUS RADIATA	8	N
75	ACACIA MELANOXYLON	6	N
76	HESPEROCYPARIS MACROCARPA	13	Y
77	HESPEROCYPARIS MACROCARPA	8	N
78	HESPEROCYPARIS MACROCARPA	5	N
79	PINUS RADIATA	12	Y
80	HESPEROCYPARIS MACROCARPA	5	N
81	EUCALYPTUS GLOBULUS	13	N
82	EUCALYPTUS GLOBULUS	16	N
83	EUCALYPTUS GLOBULUS	15	N
84	HESPEROCYPARIS MACROCARPA	10	N
85	ACACIA MELANOXYLON	4	N
86	QUERCUS AGRIFOLIA	4	N
87	HESPEROCYPARIS MACROCARPA	8	N
88	PINUS RADIATA	12	Y
89	EUCALYPTUS GLOBULUS	6	N
90	PINUS RADIATA	11	N
91	PINUS RADIATA	14	Y
92	PINUS RADIATA	15	Y
93	EUCALYPTUS GLOBULUS	17	N
94	PINUS RADIATA	9	N
95	PINUS RADIATA	7	N
96	EUCALYPTUS GLOBULUS	26	N
97	EUCALYPTUS GLOBULUS	16	N
98	PINUS RADIATA	8	N
99	PINUS RADIATA	5	N
100	PINUS RADIATA	5	N
101	PINUS RADIATA	10	N
102	PINUS RADIATA	8	N
103	PINUS RADIATA	7	N
104	PINUS RADIATA	11	N
105	PINUS RADIATA	7	N
106	PINUS RADIATA	8	N
107	PINUS RADIATA	8	N
108	PINUS RADIATA	8	N
115	PINUS RADIATA	8	N
116	PINUS RADIATA	8	N
117	PINUS RADIATA	7	N
118	PINUS RADIATA	4	N
119	PINUS RADIATA	10	N
120	PINUS RADIATA	8	N
121	PINUS RADIATA	10	N
122	PINUS RADIATA	10	N
123	PINUS RADIATA	8	N
124	PINUS RADIATA	10	N
125	QUERCUS AGRIFOLIA	3	N
126	QUERCUS AGRIFOLIA	3	N
127	EUCALYPTUS GLOBULUS	11	N
128	EUCALYPTUS GLOBULUS	12	N
129	PINUS RADIATA	7	N
130	EUCALYPTUS GLOBULUS	14	N
131	PINUS RADIATA	8	N
132	EUCALYPTUS GLOBULUS	13	N
133	PINUS RADIATA	11	N
134	PINUS RADIATA	11	N
135	PINUS RADIATA	7	N
136	PINUS RADIATA	7	N
137	EUCALYPTUS GLOBULUS	10	N
138	EUCALYPTUS GLOBULUS	14	N
139	EUCALYPTUS GLOBULUS	12	N
140	HESPEROCYPARIS MACROCARPA	8	N
141	PINUS RADIATA	11	N
142	PINUS RADIATA	11	N
143	PINUS RADIATA	12	Y
144	HESPEROCYPARIS MACROCARPA	5	N
145	HESPEROCYPARIS MACROCARPA	6	N
146	HESPEROCYPARIS MACROCARPA	5	N
147	PINUS RADIATA	14	Y
148	HESPEROCYPARIS MACROCARPA	11	N
149	PINUS RADIATA	9	N
150	HESPEROCYPARIS MACROCARPA	5	N
151	HESPEROCYPARIS MACROCARPA	5	N
152	HESPEROCYPARIS MACROCARPA	6	N
153	HESPEROCYPARIS MACROCARPA	2	N
154	HESPEROCYPARIS MACROCARPA	2	N
155	ALNUS RHOMBIFOLIA	3	N
156	ALNUS RHOMBIFOLIA	3	N
157	ALNUS RHOMBIFOLIA	4	N
158	ALNUS RHOMBIFOLIA	4	N

TREE PROTECTION LEGEND

- #28 — EXISTING HERITAGE TREE TO BE REMOVED. SEE TREE REMOVAL KEY FOR SIZE AND SPECIES.
- #28 — EXISTING TREE TO BE REMOVED. SEE TREE REMOVAL KEY FOR SIZE AND SPECIES.
- #28 — EXISTING TREE TO REMAIN. SEE ARBORIST'S REPORT FOR SIZE AND SPECIES.
- TREE PROTECTION FENCING
- PROPOSED HARDSCAPE, SEE LAYOUT PLAN & CIVIL DRAWINGS

TREE PROTECTION NOTES

THE FOLLOWING TREE PROTECTION MEASURES SHOULD BE APPLIED TO ALL TREES THAT ARE TO BE RETAINED:

1. PRE-CONSTRUCTION:
   - A PRE-CONSTRUCTION MEETING SHALL BE HELD TO DISCUSS TREE PROTECTION MEASURES AND ENSURE ALL TREE PROTECTION MEASURES HAVE BEEN PROPERLY INSTALLED.
   - ANY CLEARANCE PRUNING THAT IS DEEMED NECESSARY FOR CONSTRUCTION SHALL BE COMPLETED USING THE MINIMAL DOSE NECESSARY AND SHALL BE APPROVED BY THE PROJECT ARBORIST PRIOR TO PRUNING.
   - TREE PROTECTION ZONES SHALL BE ESTABLISHED AND ENFORCED TO PREVENT SOIL COMPACTION, GRADE CHANGE, AND ROOT DAMAGE. TREE PROTECTION AREAS SHALL BE ESTABLISHED WITH FIVE-FOOT HIGH CHAIN LINK FENCING MOUNTED ON 2" DIAMETER GALVANIZED IRON POSTS, DRIVEN INTO THE GROUND TO A DEPTH OF AT LEAST 2', AT NO MORE THAN 10' SPACING.
     - THE DIAMETER OF THE TPZ SHALL BE DETERMINED BY THE TRUNK DIAMETER OF TREES TO BE PROTECTED. FOR EVERY 1" OF TRUNK DIAMETER, THE TPZ SHALL EXTEND 1'. FOR EXAMPLE, A 10" DIAMETER TREE SHALL HAVE A TPZ WITH A RADIUS OF 10' AROUND THE TREE.
       - IN AREAS WHERE THIS TPZ SIZE IS GREATER THAN WHAT CONSTRUCTION CAN ALLOW, THE CANOPY DRIPLINE SHALL BE THE MINIMUM RADIUS FOR THE TPZ.
     - FOR TREES GROWING ALONG THE EAST PERIMETER OF THE PROPERTY, TPZs CAN BE COMBINED TO FORM ONE LARGE TPZ FOR TREES IN THIS AREA. ADDTIONALLY, FENCING IS NOT REQUIRED ON THE WEST SIDE OF THE TREES AS THE PROPERTY LINE FENCING IS ALREADY IN PLACE.
   - A "WARNING: DO NOT ENTER" SIGN SHALL BE PROMINENTLY DISPLAYED ON EACH TREE PROTECTIVE FENCE.
   - A 4" LAYER OF CHIP BARK MULCH SHALL BE PLACED ON TOP OF THE TPZ AND ENCLOSED WITHIN THE TREE PROTECTIVE FENCING. THIS MULCH SHALL ONLY BE MOVED FOR LANDSCAPE PLANTS TO BE INSTALLED AFTER ALL EXCAVATION AND SOIL COMPACTION WORK HAS BEEN COMPLETED.
   - ESTABLISH AN AREA OUTSIDE OF ALL THE TPZs OR ON PREEXISTING HARDSCAPE TO STORE SEDIMENT AND BACKFILL. ENSURE NO FLOW PATHS LEAD TO TPZs FROM SEDIMENT OR BACKFILL PILES IF PRESENT.
   - NO MATERIAL OR EQUIPMENT SHALL BE STORED OR PLACED WITHIN THE TPZ OF PRESERVED TREES.
2. CONSTRUCTION:
   - IN AREAS WHERE CONSTRUCTION ACTIVITY IS TO TAKE PLACE BENEATH THE CANOPY OF EXISTING TREES, SUCH AS THE WALKING PATH, THE TPZ SHALL BE MOVED TO THE GREATEST DISTANCE POSSIBLE FROM THE SUBJECT TREE WHILE ALSO ALLOWING FOR CONSTRUCTION TO PROCEED. ONCE CONSTRUCTION IN THE SUBJECT AREA HAS OCCURRED, THE TPZ SHALL BE MOVED BACK TO BE PREESTABLISHED BOUNDARY.
     - PROJECT ARBORIST SHALL CONDUCT SITE OBSERVATIONS DURING ANY CONSTRUCTION ACTIVITY THAT IS TO TAKE PLACE BENEATH THE CANOPY DRIPLINE OF TREE.
     - ANY EXCAVATION ACTIVITY THAT IS TO TAKE PLACE IN THESE AREAS IS PROHIBITED FROM USING BACKHOES, TREAD TRACTORS, OR ANY OTHER HEAVY VEHICLES.
       - METHODS PERMITTED INCLUDE HAND-DIGGING, HYDRAULIC OR PNEUMATIC AIR EXCAVATION.
   - DURING EXCAVATION ACTIVITY, SHOULD ANY ROOTS BE ENCOUNTERED, ROOT PRUNING SHALL BE DONE WITH HAND TOOLS IN ORDER TO MAKE CLEAN CUTS THAT FACE THE EXCAVATED AREA.
     - ROOTS LARGER THAN 2.5" SHALL NOT BE CUT WITHOUT PROJECT ARBORIST PRIOR APPROVAL.
     - ROOTS LARGER THAN 2.5" THAT ARE CUT SHALL IMMEDIATELY BE SHADED AND KEPT MOIST WITH WET BURLAP OR SIMILAR MATERIAL UNTIL THEY CAN BE RECOVERED.
   - NO PRUNING SHALL BE PERFORMED ON TREES THAT HAVE ROOTS IMPACTED BY CONSTRUCTION ACTIVITY FOR AT LEAST ONE YEAR FOLLOWING THE COMPLETION OF THE PROJECT OTHER THAN NECESSARY MAINTENANCE SUCH AS BUILDING CLEARANCE.
3. POST-CONSTRUCTION:
   - PROJECT ARBORIST SHALL CONDUCT MONITORING TWICE A YEAR FROM THE DATE OF PROJECT COMPLETION FOR NO LESS THAN TWO YEARS TO ENSURE TREES ARE IN GOOD CONDITION.

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TREE PROTECTION PLAN
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA

HALF MOON BAY

No.	Revisions	Date
1	4/03/2024 BID ADDENDUM 01	
2	5/16/2024 PERMIT RESUBMITTAL	

Date 05/16/2024
Scale 1/30" = 1'-0"
0 15" 30"
Drawn MC
Approved MC

Drawing Number:
L1.01

LANDSCAPE LAYOUT PLAN ENLARGEMENT

STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY

HALF MOON BAY

CALIFORNIA

Kikuchi + Kankel
Design Group
730 Mill Street
Half Moon Bay, CA 94019
www.kikdesigngroup.com
Landscape Architecture | Site Planning | Environmental Design

Revisions	Date
4/03/2024 BID ADDENDUM 01	
5/16/2024 PERMIT RESUBMITTAL	

No.	Date
1	09/16/2024

Scale 1/10" = 1'-0"
0 5' 10'
Drawn JS
Approved TMC

Drawing Number: **L1.1**

MATCHLINE - SEE L1.2

1 BDRM 1 BATH (ACC)
11'-3" X 44'-0"

1 BDRM 1 BATH
11'-3" X 36'-0"

2 BDRM 1 BATH
11'-3" X 48'-0"

2 BDRM 1 BATH (ACC)
14'-4" X 36'-0"

PA

OFFICE

CLUBHOUSE

LAYOUT OF ROADWAYS, SIDEWALKS, CURBS/GUTTER, & PARKING AREAS SHOWN FOR CONCEPT ONLY. SEE CIVIL DRAWINGS.

PER CIVIL

3'-0" MIN.

SEE ENLARGEMENT ABOVE

WIDTH AS REQUIRED (5'-0" MIN)

19'-10"

30'-1"

114'-5" VERIFY

TRASH SCREENING FENCE PER L1.0 / L2.0 - TYP.

SPLIT-RAIL FENCE PER L1.0 / L2.0

BIOTREATMENT AREA PER CIVIL DRAWINGS

ELECTRICAL EQUIPMENT PAD & BOLLARDS PER CIVIL DRAWINGS

ELEC. EQUIP. SCREENING & GATES PER L1.0 / L2.0

CENTERLINE OF ROAD PER CIVIL DRAWINGS

10'-0" FROM ℄ OF ROAD TO ℄ CATCH BASIN

2'-0"

4'-0"

5'-0"

22'-8" MIN. CLR. (VERIFY)

BENCH AND DOG WASTE STATIONS SEE FURNISHINGS KEY, SHEET L1.0

STONE PINE ROAD

MATCHLINE - SEE L1.3

(A) PICNIC AREA ENLARGEMENT

SCALE: 1/4" = 1'-0"

NOTE: PICNIC TABLE, DOG WASTE STATION, AND TRASH & RECYCLING RECEPTACLES PER SITE FURNISHINGS KEY, SHEET L1.0

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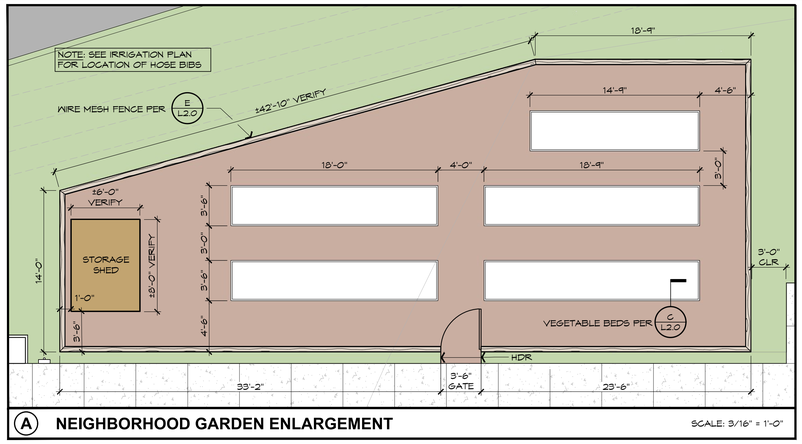

A NEIGHBORHOOD GARDEN ENLARGEMENT SCALE: 3/16" = 1'-0"

MATCHLINE - SEE L1.1

EXISTING ASPHALT ACCESS ROAD

SEE ENLARGEMENT ABOVE

BIKE RACK, BENCH, DOG WASTE STATION, AND TRASH & RECYCLING BINS PER SITE FURNISHINGS KEY, SEE SHEET L1.0

±42'-10" VERIFY

18'-9"

14'-0"

STORAGE SHED

MAILBOXES PER CIVIL DRAWINGS

T R

PER CIVIL

EV. CHARGING

EV. CHARGING

4'-4"

4'-8"

1'-4"

T-1

LAYOUT OF ROADWAYS, SIDEWALKS, CURBS/GUTTER, & PARKING AREAS SHOWN FOR CONTEXT ONLY. SEE CIVIL DRAWINGS.

ELECTRICAL EQUIPMENT PAD & BOLLARDS PER CIVIL DRAWINGS

2'-0"

3'-0"

4'-6"

5'-6"

1'-0"

25'-5"

ELEC. EQUIP. SCREENING & GATES PER I, L L2.0

2'-0" MIN. CLR. FROM ELEC. EQUIP. PADS (TYP. ALL)

WIDTH AS REQUIRED (6'-0" MIN)

CENTERLINE OF RIGHT-OF-WAY PER CIVIL DRAWINGS

PA

2 BDRM 1 BATH
11'-8" X 48'-0"

1 BDRM 1 BATH
11'-8" X 36'-0"

3 BDRM 2 BATH
14'-4" X 56'-0"

3 BDRM 2 BATH (ACC)
14'-4" X 60'-0"

2 BDRM 1 BATH (ACC)
14'-4" X 56'-0"

TRASH SCREENING FENCE PER I L2.0 TYP.

1'-0"

3'-0" MIN.

BIOTREATMENT AREA PER CIVIL DRAWINGS

MATCHLINE - SEE L1.4

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LANDSCAPE LAYOUT PLAN ENLARGEMENT

STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

No.	Revisions	Date
1	4/03/2024 BID ADDENDUM 01	
2	5/16/2024 PERMIT RESUBMITTAL	

Date 05/16/2024
Scale 1/10" = 1'-0"
0 5' 10'
Drawn VS
Approved TKC

Drawing Number:
L1.2

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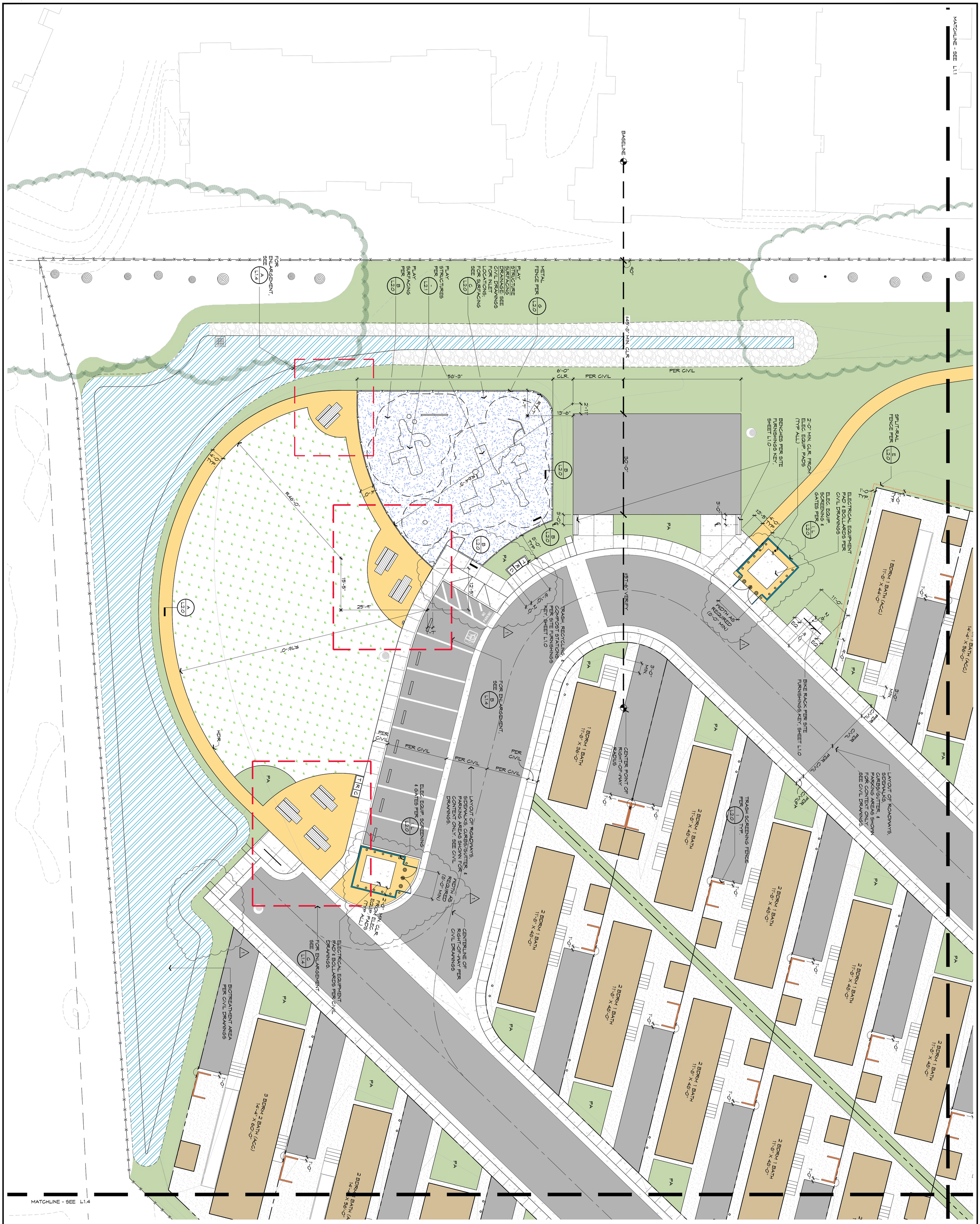

true north REFERENCE NORTH

Drawing Number: L1.3	Date 05/16/2024	No.	Revisions	Date
	Scale 1/10" = 1'-0" (0, 5', 10')	1	4/03/2024 BID ADDENDUM 01	
		2	5/16/2024 PERMIT RESUBMITTAL	
	Drawn JG			
	Approved TWC			

LANDSCAPE LAYOUT PLAN ENLARGEMENT

STONE PINE COVE

880 STONE PINE ROAD

HALF MOON BAY — SAN MATEO COUNTY — CALIFORNIA

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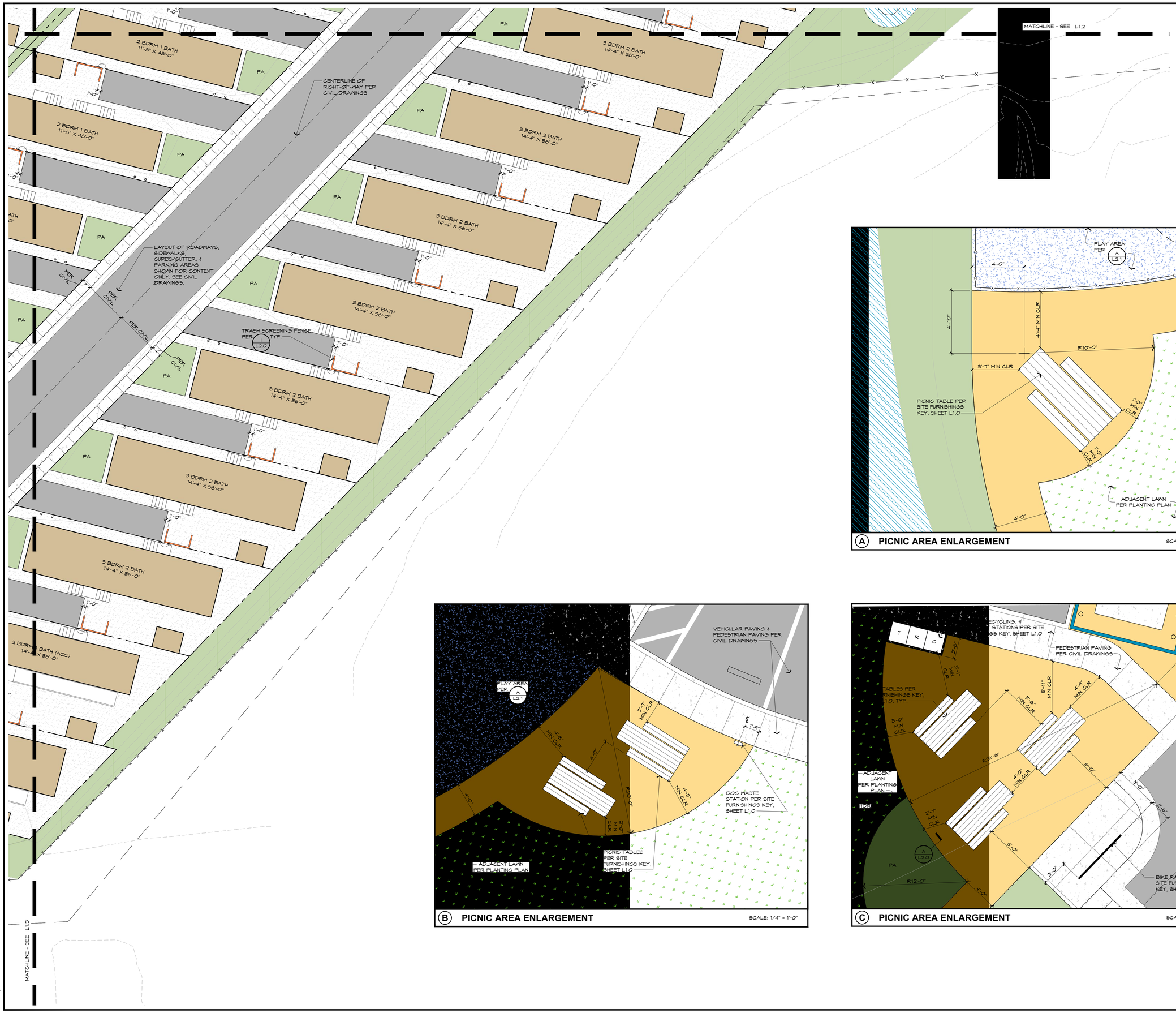

A **PICNIC AREA ENLARGEMENT** SCALE: 3/8" = 1'-0"

B **PICNIC AREA ENLARGEMENT** SCALE: 1/4" = 1'-0"

C **PICNIC AREA ENLARGEMENT** SCALE: 1/4" = 1'-0"

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LANDSCAPE LAYOUT PLAN ENLARGEMENT

STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

No.	Revisions	Date
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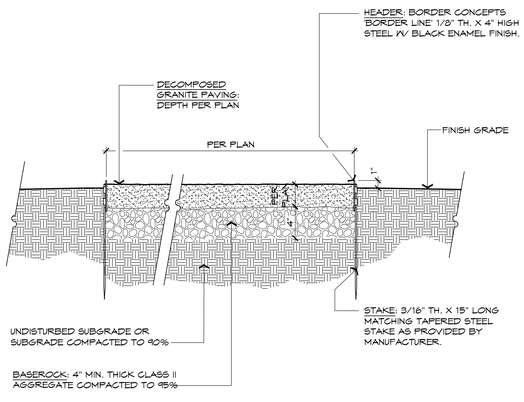
2	5/16/2024 PERMIT RESUBMITTAL	

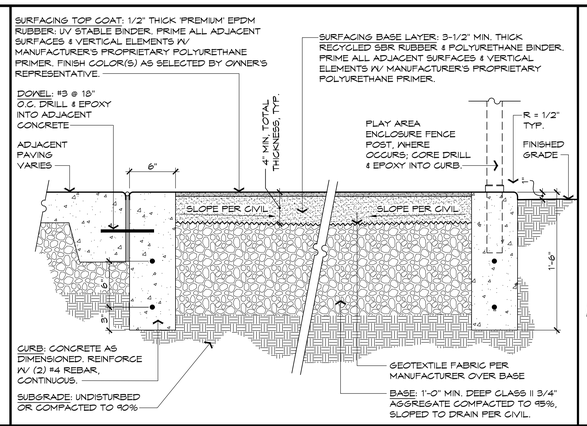
Date 05/16/2024
Scale 1/10" = 1'-0"
0 5' 10'
Drawn JS
Approved TNC

Drawing Number:
L1.4



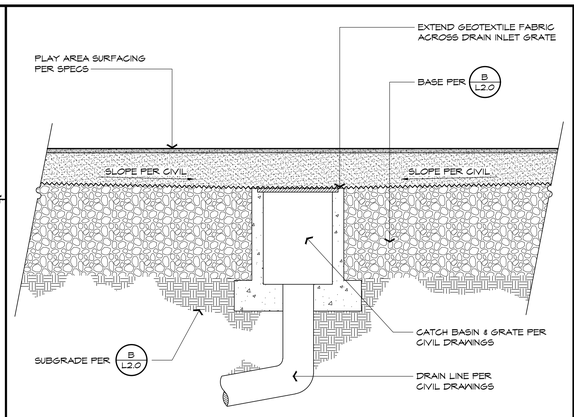
A DECOMPOSED GRANITE PAVING SECTION

SCALE: 1-1/2" = 1'-0"



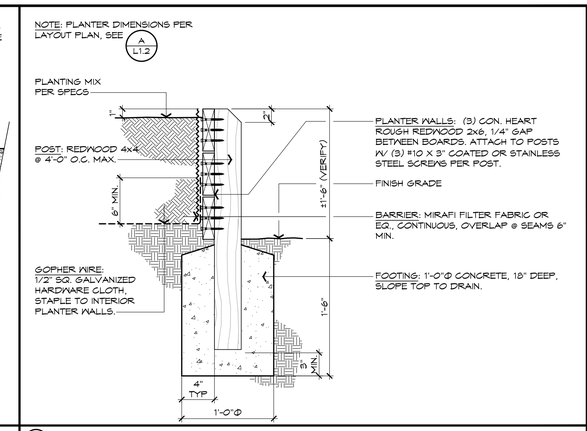
B PLAY SURFACING PERIMETER CURB SECTION

SCALE: 1-1/2" = 1'-0"



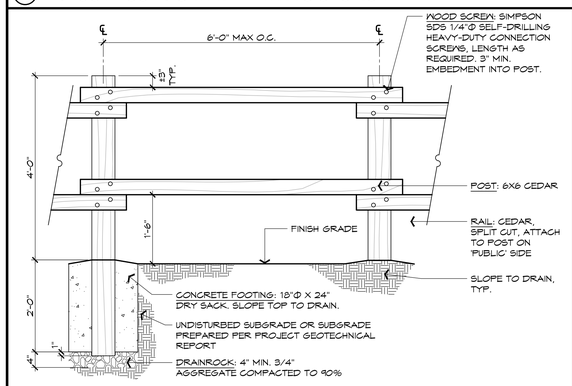
C PLAY SURFACING AT DRAIN INLET SECTION

SCALE: 1-1/2" = 1'-0"



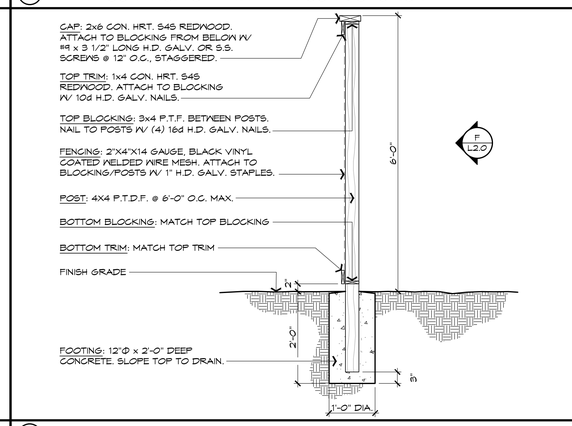
D VEGETABLE BED SECTION

SCALE: 1-1/2" = 1'-0"



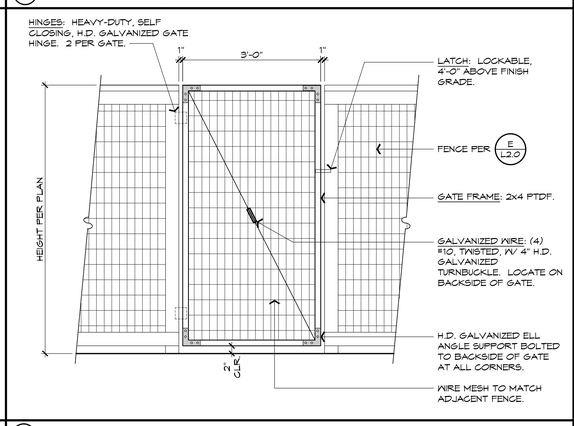
E SPLIT-RAIL FENCE ELEVATION

SCALE: 3/4" = 1'-0"



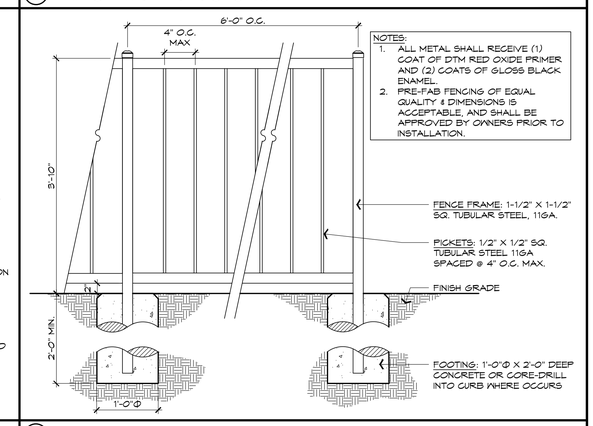
F WIRE MESH FENCE SECTION

SCALE: 3/4" = 1'-0"



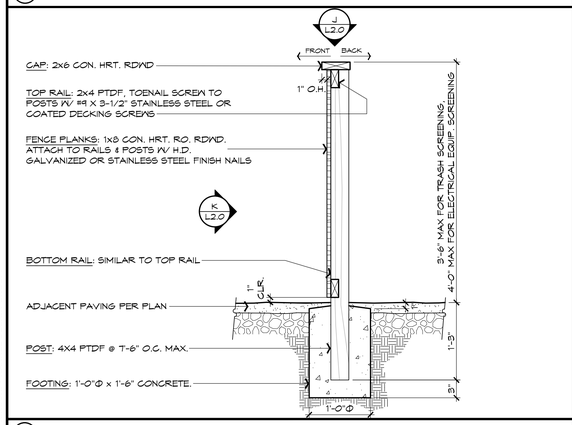
G WIRE MESH FENCE ELEVATION

SCALE: 3/4" = 1'-0"



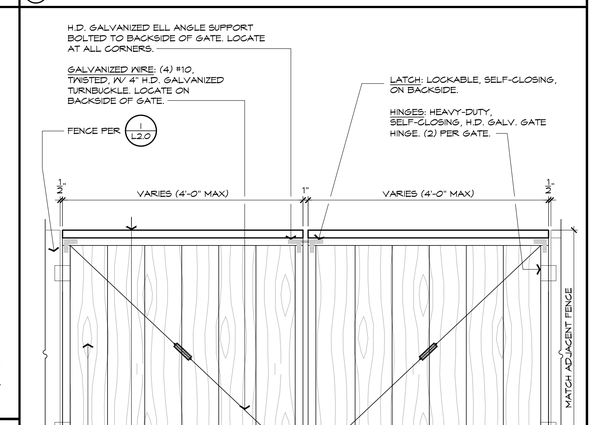
H METAL FENCE SECTION

SCALE: 1" = 1'-0"



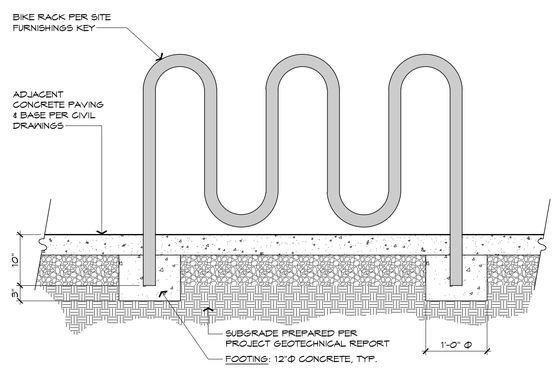
K SCREENING FENCE ELEVATION

SCALE: 1" = 1'-0"



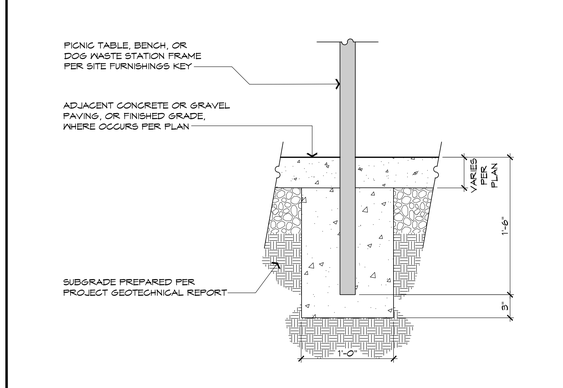
L SCREENING FENCE GATE ELEVATION & SECTION

SCALE: 1" = 1'-0"



M BIKE RACK EMBEDMENT SECTION

SCALE: 1" = 1'-0"



N TYPICAL FURNISHING EMBEDMENT SECTION

SCALE: 1-1/2" = 1'-0"

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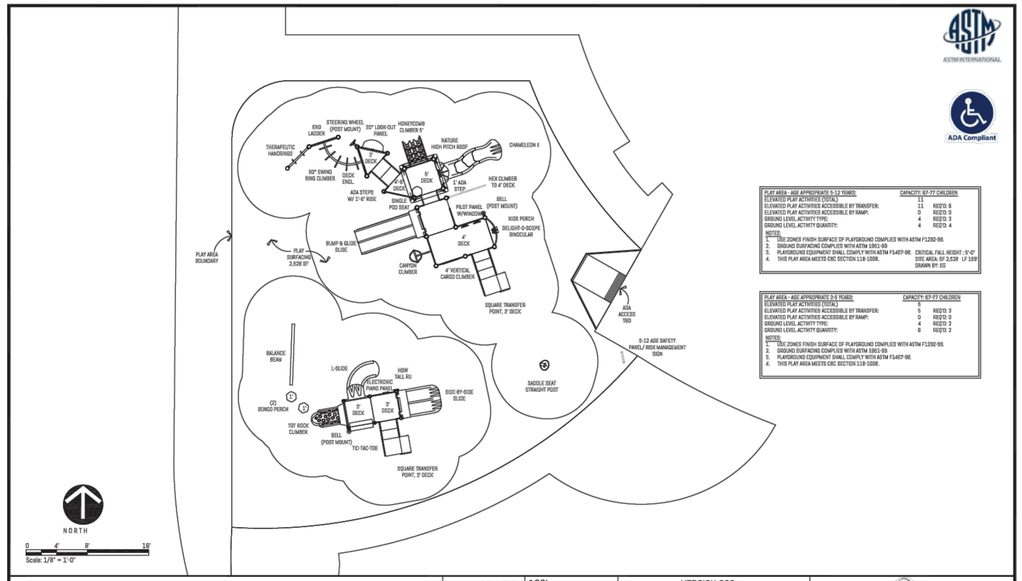
LANDSCAPE CONSTRUCTION DETAILS

STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

No.	Revisions	Date
1	4/03/2024 BID ADDENDUM 01	
2	5/16/2024 PERMIT RESUBMITTAL	

Date: 05/16/2024
Scale: AS NOTED
Drawn: VS
Approved: TYC

Drawing Number:
L2.0



PLAY AREA - AGE APPROPRIATE 5-12 YEARS:

	CAPACITY: 67-77 CHILDREN
ELEVATED PLAY ACTIVITIES (TOTAL):	11
ELEVATED PLAY ACTIVITIES ACCESSIBLE BY TRANSFER:	11 REQ'D: 6
ELEVATED PLAY ACTIVITIES ACCESSIBLE BY RAMP:	0 REQ'D: 0
GROUND LEVEL ACTIVITY TYPES:	4 REQ'D: 3
GROUND LEVEL ACTIVITY QUANTITY:	4 REQ'D: 4

NOTES:
1. CDZ ZONES FINISH SURFACE OF PLAYGROUND COMPLIES WITH ASTM F1292-99.
2. GROUND SURFACING COMPLIES WITH ASTM 1951-99
3. PLAYGROUND EQUIPMENT SHALL COMPLY WITH ASTM F1487-98. CRITICAL FALL HEIGHT: 5'-0"
4. THIS PLAY AREA MEETS CSC SECTION 118-100E. SITE AREA: SF 2,528 LF 189'
DRAWN BY: EG

PLAY AREA - AGE APPROPRIATE 2-5 YEARS:

	CAPACITY: 67-77 CHILDREN
ELEVATED PLAY ACTIVITIES (TOTAL):	6
ELEVATED PLAY ACTIVITIES ACCESSIBLE BY TRANSFER:	6 REQ'D: 3
ELEVATED PLAY ACTIVITIES ACCESSIBLE BY RAMP:	0 REQ'D: 0
GROUND LEVEL ACTIVITY TYPES:	4 REQ'D: 2
GROUND LEVEL ACTIVITY QUANTITY:	6 REQ'D: 2

NOTES:
1. CDZ ZONES FINISH SURFACE OF PLAYGROUND COMPLIES WITH ASTM F1292-99.
2. GROUND SURFACING COMPLIES WITH ASTM 1951-99
3. PLAYGROUND EQUIPMENT SHALL COMPLY WITH ASTM F1487-98.
4. THIS PLAY AREA MEETS CSC SECTION 118-100E.

STONE PINE COVE	PERIMETER:	199'	VERSION 002
	SITE AREA:	2,528	DATE: 2/05/2024
HALF MOON BAY, CA	CRITICAL FALL HEIGHT:	8'-0"	DRAWN BY: EG
	DESIGN CONCEPT		FILE: 24-3562_STONE PINE COVE_002.DWG

ALL DRAWINGS ARE SUBJECT TO CHANGE AND SHOULD BE REVIEWED BEFORE FINAL SALE. ALL SITE DIMENSIONS WILL NEED TO BE VERIFIED PRIOR TO SALE AND INSTALLATION.

NOTE:
- SAMPLE LAYOUT PROVIDED BY PLAY STRUCTURE MANUFACTURER. CONTRACTOR SHALL VERIFY LAYOUT AND ORIENTATION PRIOR TO INSTALLING STRUCTURE.



*Colors shown in rendering are for illustrative purposes only. Actual color and pattern may vary slightly.

2/05/2024
24_3562_StonePineCove_002

Creating Fun Play Environments to Enrich Communities



Colors Used In Rendering:

5-12 PLAY STRUCTURE

*Colors shown in rendering are for illustrative purposes only. Actual color and pattern may vary slightly.

Brown Decks | Forest Green | Beige | Dark Brown

2/05/2024
24_3562_StonePineCove_002

Creating Fun Play Environments to Enrich Communities



*Colors shown in rendering are for illustrative purposes only. Actual color and pattern may vary slightly.

2/05/2024
24_3562_StonePineCove_002

Creating Fun Play Environments to Enrich Communities

GENERAL PLAY AREA NOTES:
- COLORS SHOWN ARE NOT FINAL. CONTRACTOR SHALL VERIFY FINAL COLOR SELECTIONS W/ OWNER'S REPRESENTATIVE PRIOR TO ORDERING
- CONTRACTOR SHALL VERIFY AS-BUILT CONDITIONS OF THE ENTIRE PLAY STRUCTURE AREA TO ENSURE ADEQUATE, SAFE FALL ZONES ARE MAINTAINED PER CBC, CPSC, AND ASTM STANDARDS
- CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ADEQUATE DEPTH OF SAFETY SURFACING IS INSTALLED WITHIN STRUCTURES' FALL ZONES.

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Kikuchi + Kankel Design Group
720 Mill Street
Half Moon Bay, CA 94019
(650) 560-0360
Landscape Architecture | Site Planning | Environmental Design

PLAY STRUCTURE PRELIMINARY PLAN & IMAGES

STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

No.	Revisions	Date
1	4/09/2024 BID ADDENDUM 01	
2	5/16/2024 PERMIT RESUBMITTAL	

Date 05/16/2024
Scale AS NOTED
Drawn JS
Approved TKC

Drawing Number:
L2.1



HYDROZONE INFORMATION TABLE

H = HIGH WATER USE PLANTS
M = MODERATE WATER USE PLANTS
L = LOW WATER USE PLANTS
SLA = SPECIAL LANDSCAPE AREA (RECREATIONAL TURF)

HYDROZONE NUMBER & WATER USE	PLANT TYPE	IRRIGATION ZONES	AREA (SQ.FT.)	PERCENT (%) OF LANDSCAPE AREA
#1, L	SHRUB DRIP	3, 4, 7, 9, 11-13, 15, 17-19, 21-26, 28, 31-32, 34, 38-39, 43	22682	71.7
#2, L	TREE BUBBLER	1, 6	767	2.4
#3, M	SHRUB DRIP	5, 10, 14, 16, 20, 29-30, 33, 42	2382	7.5
#4, M	TREE BUBBLER	2, 8, 27	288	0.9
#5, H* (SLA)	TURF SPRAY	35-37, 40-41	5532	17.5
		TOTAL	31651	100%

* RECREATIONAL LAWN ZONES ARE CONSIDERED SPECIAL LANDSCAPE AREAS PER MWELO.

CALCULATION OF THE MAXIMUM APPLIED WATER ALLOWANCE

MAWA = (ETo) (0.62) [(0.7 x LA) + 0.3 x SLA)]

WHERE
MAWA = MAXIMUM APPLIED WATER ALLOWANCE (GALLONS PER YEAR)
ETo = 33.8 (REFERENCE EVAPOTRANSPIRATION IN HALF MOON BAY (INCHES PER YEAR))
0.62 = CONVERSION FACTOR (TO GALLONS PER SQUARE FOOT)
0.7 = ET ADJUSTMENT FACTOR (ETAF)
LA = LANDSCAPE AREA INCLUDES SPECIAL LANDSCAPED AREA (SQUARE FEET)
SLA = PORTION OF THE LANDSCAPE AREA IDENTIFIED AS SPECIAL LANDSCAPE AREA (SQUARE FEET)

ETO	CONV. FACTOR	ETAF	LA	SLA	MAWA (GALLONS/YR)
33.8	0.62	0.7	31651	5532	499073

CALCULATION OF THE ESTIMATED TOTAL WATER USE

ETWU = ETo x 0.62 x [(PF x HA) ÷ IE + SLA)

WHERE
ETWU = ESTIMATED TOTAL WATER USE PER YEAR (GALLONS PER YEAR)
ETo = 33.8 (REFERENCE EVAPOTRANSPIRATION IN HALF MOON BAY (INCHES PER YEAR))
0.62 = CONVERSION FACTOR (TO GALLONS PER SQUARE FOOT)
PF = PLANT FACTOR FROM MUCOLS
IE = IRRIGATION EFFICIENCY (0.75 FOR SPRAY HEAD & 0.81 FOR DRIP)
ETAF = PF/IE
HA = HYDROZONE AREA (SQUARE FEET)

HYDROZONE #	PLANT WATER USE TYPE	PLANT FACTOR (PF)	IRRIGATION METHOD	IRRIGATION EFFICIENCY (IE)	ETAF (PF/IE)	AREA (HA) (SQUARE FEET)	ETAF x AREA	ESTIMATED TOTAL WATER USE (ETWU)
1	L	0.2	DRIP	0.81	0.2	22682	5600	153615
2	L	0.2	BUBBLER	0.81	0.2	767	189	5195
3	M	0.4	DRIP	0.81	0.5	2382	1176	32264
4	M	0.5	BUBBLER	0.81	0.6	288	178	4876
5	H (SLA)	0.8	SPRAY	0.75	1	5532	5532	151736
					TOTALS	31651		347686
					MAXIMUM ALLOWED WATER ALLOWANCE (MAWA)			499073

FOR IRRIGATION SCHEDULE, SEE SHEET L3.01

FOR IRRIGATION LEGEND & NOTES, SEE SHEET L3.4

I HAVE COMPLIED WITH THE CRITERIA OF THE WATER CONSERVATION IN LANDSCAPING ORDINANCE AND APPLIED THEM FOR THE EFFICIENT USE OF WATER IN THE LANDSCAPE AND IRRIGATION DESIGN PLAN.

RE-USE, REPRODUCTION OR PUBLICATION OF THESE PLANS IS PROHIBITED WITHOUT WRITTEN CONSENT OF KIKUCHI + KANKEL DESIGN GROUP.

Kikuchi + Kankel Design Group
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Landscape Architecture | Site Planning | Environmental Design

IRRIGATION PLAN
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

Revisions
No. 2 4/03/2024 BID ADDENDUM 01
No. 3 5/16/2024 PERMIT RESUBMITTAL

Date 05/16/2024
Scale 1/30" = 1'-0"
0 15" 30"
Drawn JS
Approved TMC

Drawing Number:
L3.0

IRRIGATION SCHEDULE

ZONE OR VALVE NUMBER	DESCRIPTION	GPM	IRRIGATION METHOD	IRRIGATION EFFICIENCY	PLANT WATER USE	PLANT FACTOR	MONTH	JAN.	FEB.	MAR.	APR.	MAY.	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	ANNUAL
							ETo	1.5	1.7	2.4	3	3.9	4.3	4.3	4.2	3.4	2.8	1.3	1	33.8
1	SHRUBS & GROUNDCOVER	1	DRIP	0.81	M	0.4	Run Time Per Cycle (Min)	10	10	10	14	19	24	24	24	24	24	14	10	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	10	20	20	42	76	96	96	96	144	96	28	10	
							Total Gallons Per Month	10	20	20	42	76	96	96	96	144	96	28	10	734
2	TREES	7	BUBBLER	0.81	M	0.5	Run Time Per Cycle (Min)	3	3	3	4	5	7	7	7	7	7	4	3	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	3	6	6	12	20	28	28	28	42	28	8	3	
							Total Gallons Per Month	21	42	42	84	140	196	196	196	294	196	56	21	1484
3	SHRUBS & GROUNDCOVER	3.5	DRIP	0.81	L	0.2	Run Time Per Cycle (Min)	8	8	8	12	16	20	20	20	20	20	12	8	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	8	16	16	36	64	80	80	80	120	80	24	8	
							Total Gallons Per Month	28	56	56	126	224	280	280	280	420	280	84	28	2142
4	SHRUBS & GROUNDCOVER	3.1	DRIP	0.81	L	0.2	Run Time Per Cycle (Min)	8	8	8	12	16	20	20	20	20	20	12	8	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	8	16	16	36	64	80	80	80	120	80	24	8	
							Total Gallons Per Month	24.8	49.6	49.6	111.6	198.4	248	248	248	372	248	74.4	24.8	1897.2
5	TREES	6	BUBBLER	0.81	L	0.2	Run Time Per Cycle (Min)	2	2	2	3	4	5	5	5	5	5	3	2	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	2	4	4	9	16	20	20	20	30	20	6	2	
							Total Gallons Per Month	12	24	24	54	96	120	120	120	180	120	36	12	918
6	SHRUBS & GROUNDCOVER	2.8	DRIP	0.81	M	0.4	Run Time Per Cycle (Min)	10	10	10	14	19	24	24	24	24	24	14	10	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	10	20	20	42	76	96	96	96	144	96	28	10	
							Total Gallons Per Month	28	56	56	117.6	212.8	268.8	268.8	268.8	403.2	268.8	78.4	28	2055.2
7	SHRUBS & GROUNDCOVER	4.9	DRIP	0.81	L	0.2	Run Time Per Cycle (Min)	8	8	8	12	16	20	20	20	20	20	12	8	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	8	16	16	36	64	80	80	80	120	80	24	8	
							Total Gallons Per Month	39.2	78.4	78.4	176.4	313.6	392	392	392	588	392	117.6	39.2	2998.8
8	TREES	8	BUBBLER	0.81	M	0.5	Run Time Per Cycle (Min)	3	3	3	4	5	7	7	7	7	7	4	3	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	3	6	6	12	20	28	28	28	42	28	8	3	
							Total Gallons Per Month	24	48	48	96	160	224	224	224	336	224	64	24	1696
9	SHRUBS & GROUNDCOVER	4.7	DRIP	0.81	L	0.2	Run Time Per Cycle (Min)	8	8	8	12	16	20	20	20	20	20	12	8	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	8	16	16	36	64	80	80	80	120	80	24	8	
							Total Gallons Per Month	37.6	75.2	75.2	169.2	300.8	376	376	376	564	376	112.8	37.6	2876.4
10	TREES	7	BUBBLER	0.81	L	0.2	Run Time Per Cycle (Min)	2	2	2	3	4	5	5	5	5	5	3	2	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	2	4	4	9	16	20	20	20	30	20	6	2	
							Total Gallons Per Month	14	28	28	63	112	140	140	140	210	140	42	14	1071
11	SHRUBS & GROUNDCOVER	3	DRIP	0.81	L	0.2	Run Time Per Cycle (Min)	8	8	8	12	16	20	20	20	20	20	12	8	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	8	16	16	36	64	80	80	80	120	80	24	8	
							Total Gallons Per Month	24	48	48	108	192	240	240	240	360	240	72	24	1836
12	SHRUBS & GROUNDCOVER	3.7	DRIP	0.81	L	0.2	Run Time Per Cycle (Min)	8	8	8	12	16	20	20	20	20	20	12	8	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	8	16	16	36	64	80	80	80	120	80	24	8	
							Total Gallons Per Month	29.6	59.2	59.2	133.2	236.8	296	296	296	444	296	88.8	29.6	2264.4
13	SHRUBS & GROUNDCOVER	8	DRIP	0.81	L	0.2	Run Time Per Cycle (Min)	8	8	8	12	16	20	20	20	20	20	12	8	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	8	16	16	36	64	80	80	80	120	80	24	8	
							Total Gallons Per Month	64	128	128	288	512	640	640	640	960	640	192	64	4896
14	TREES	8	BUBBLER	0.81	L	0.2	Run Time Per Cycle (Min)	2	2	2	3	4	5	5	5	5	5	3	2	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	2	4	4	9	16	20	20	20	30	20	6	2	
							Total Gallons Per Month	16	32	32	72	128	160	160	160	240	160	48	16	1224
15	SHRUBS & GROUNDCOVER	2	DRIP	0.81	L	0.2	Run Time Per Cycle (Min)	8	8	8	12	16	20	20	20	20	20	12	8	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	8	16	16	36	64	80	80	80	120	80	24	8	
							Total Gallons Per Month	16	32	32	72	128	160	160	160	240	160	48	16	1224
16	TREES	2	BUBBLER	0.81	L	0.2	Run Time Per Cycle (Min)	2	2	2	3	4	5	5	5	5	5	3	2	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	2	4	4	9	16	20	20	20	30	20	6	2	
							Total Gallons Per Month	4	8	8	18	32	40	40	40	60	40	12	4	306
17	SHRUBS & GROUNDCOVER	3	DRIP	0.81	L	0.2	Run Time Per Cycle (Min)	8	8	8	12	16	20	20	20	20	20	12	8	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	8	16	16	36	64	80	80	80	120	80	24	8	
							Total Gallons Per Month	24	48	48	108	192	240	240	240	360	240	72	24	1836
18	SHRUBS & GROUNDCOVER	3.3	DRIP	0.81	L	0.2	Run Time Per Cycle (Min)	8	8	8	12	16	20	20	20	20	20	12	8	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	8	16	16	36	64	80	80	80	120	80	24	8	
							Total Gallons Per Month	26.4	52.8	52.8	118.8	211.2	264	264	264	396	264	79.2	26.4	2019.6
19	SHRUBS & GROUNDCOVER	6.4	DRIP	0.81	L	0.2	Run Time Per Cycle (Min)	8	8	8	12	16	20	20	20	20	20	12	8	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	8	16	16	36	64	80	80	80	120	80	24	8	
							Total Gallons Per Month	51.2	102.4	102.4	230.4	409.6	512	512	512	768	512	153.6	51.2	3916.8
20	TREES	5	BUBBLER	0.81	L	0.2	Run Time Per Cycle (Min)	2	2	2	3	4	5	5	5	5	5	3	2	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	2	4	4	9	16	20	20	20	30	20	6	2	
							Total Gallons Per Month	10	20	20	45	80	100	100	100	150	100	30	10	765
21	SHRUBS & GROUNDCOVER	2.9	DRIP	0.81	L	0.2	Run Time Per Cycle (Min)	8	8	8	12	16	20	20	20	20	20	12	8	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	8	16	16	36	64	80	80	80	120	80	24	8	
							Total Gallons Per Month	23.2	46.4	46.4	104.4	185.6	232	232	232	348	232	69.6	23.2	1774.8
22	SHRUBS & GROUNDCOVER	3.1	DRIP	0.81	L	0.2	Run Time Per Cycle (Min)	8	8	8	12	16	20	20	20	20	20	12	8	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	8	16	16	36	64	80	80	80	120	80	24	8	
							Total Gallons Per Month	24.8	49.6	49.6	111.6	198.4	248	248	248	372	248	74.4	24.8	1897.2
23	SHRUBS & GROUNDCOVER	2.9	DRIP	0.81	L	0.2	Run Time Per Cycle (Min)	8	8	8	12	16	20	20	20	20	20	12	8	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	8	16	16	36	64	80	80	80	120	80	24	8	
							Total Gallons Per Month	23.2	46.4	46.4	104.4	185.6	232	232	232	348	232	69.6	23.2	1774.8
24	SHRUBS & GROUNDCOVER	2.7	DRIP	0.81	L	0.2	Run Time Per Cycle (Min)	8	8	8	12	16	20	20	20	20	20	12	8	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	8	16	16	36	64	80	80	80	120	80	24	8	
							Total Gallons Per Month	21.6	43.2	43.2	97.2	172.8	216	216	216	324	216	64.8	21.6	1652.4
25	SHRUBS & GROUNDCOVER	3.8	DRIP	0.81	L	0.2	Run Time Per Cycle (Min)	8	8	8	12	16	20	20	20	20	20	12	8	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	8	16	16	36	64	80	80	80	120	80	24	8	
							Total Gallons Per Month	30.4	60.8	60.8	136.8	243.2	304	304	304	456	304	91.2	30.4	2325.6

ZONE OR VALVE NUMBER	DESCRIPTION	GPM	IRRIGATION METHOD	IRRIGATION EFFICIENCY	PLANT WATER USE	PLANT FACTOR	MONTH	JAN.	FEB.	MAR.	APR.	MAY.	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	ANNUAL
							ETo	1.5	1.7	2.4	3	3.9	4.3	4.3	4.2	3.4	2.8	1.3	1	33.8
26	SHRUBS & GROUNDCOVER	4.1	DRIP	0.81	L	0.2	Run Time Per Cycle (Min)	8	8	8	12	16	20	20	20	20	20	12	8	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	8	16	16	36	64	80	80	80	120	80	24	8	
							Total Gallons Per Month	32.8	65.6	65.6	147.6	262.4	328	328	328	492	328	98.4	32.8	2509.2
27	TREES	3	BUBBLER	0.81	M	0.5	Run Time Per Cycle (Min)	3	3	3	4	5	7	7	7	7	7	4	3	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	3	6	6	12	20	28	28	28	42	28	8	3	
							Total Gallons Per Month	9	18	18	36	60	84	84	84	126	84	24	9	636
28	SHRUBS & GROUNDCOVER	6.8	DRIP	0.81	L	0.2	Run Time Per Cycle (Min)	8	8	8	12	16	20	20	20	20	20	12	8	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	8	16	16	36	64	80	80	80	120	80	24	8	
							Total Gallons Per Month	54.4	108.8	108.8	244.8	435.2	544	544	544	816	544	163.2	54.4	4161.6
29	TREES	8	BUBBLER	0.81	L	0.2	Run Time Per Cycle (Min)	2	2	2	3	4	5	5	5	5	5	3	2	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	2	4	4	9	16	20	20	20	30	20	6	2	
							Total Gallons Per Month	16	32	32	72	128	160	160	160	240	160	48	16	1224
30	TREES	6	BUBBLER	0.81	L	0.2	Run Time Per Cycle (Min)	2	2	2	3	4	5	5	5	5	5	3	2	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	2	4	4	9	16	20	20	20	30	20	6	2	
							Total Gallons Per Month	12	24	24	54	96	120	120	120	180	120	36	12	918
31	SHRUBS & GROUNDCOVER	4.9	DRIP	0.81	L	0.2	Run Time Per Cycle (Min)	8	8	8	12	16	20	20	20	20	20	12	8	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	8	16	16	36	64	80	80	80	120	80	24	8	
							Total Gallons Per Month	39.2	78.4	78.4	176.4	313.6	392	392	392	588	392	117.6	39.2	2998.8
32	SHRUBS & GROUNDCOVER	4.9	DRIP	0.81	L	0.2	Run Time Per Cycle (Min)	8	8	8	12	16	20	20	20	20	20	12	8	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	8	16	16	36	64	80	80	80	120	80	24	8	
							Total Gallons Per Month	39.2	78.4	78.4	176.4	313.6	392	392	392	588	392	117.6	39.2	2998.8
33	TREES	5	BUBBLER	0.81	L	0.2	Run Time Per Cycle (Min)	2	2	2	3	4	5	5	5	5	5	3	2	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	2	4	4	9	16	20	20	20	30	20	6	2	
							Total Gallons Per Month	10	20	20	45	80	100	100	100	150	100	30	10	765
34	SHRUBS & GROUNDCOVER	2.2	DRIP	0.81	L	0.2	Run Time Per Cycle (Min)	8	8	8	12	16	20	20	20	20	20	12	8	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	8	16	16	36	64	80	80	80	120	80	24	8	
							Total Gallons Per Month	17.6	35.2	35.2	79.2	140.8	176	176	176	264	176	52.8	17.6	1346.4
35	TURF	13	SPRAY	0.75	H	0.8	Run Time Per Cycle (Min)	4	4	4	6	8	10	10	10	10	10	6	4	
							Watering Days Per Month	1	1	2	2	4	6	6	8	10	8	4	1	
							Total Minutes Per Month	4	4	8	12	32	60	60	80	100	80	24	4	
							Total Gallons Per Month	52	52	104	156	416	780	780	1040	1300	1040	312	52	6084
36	TURF	14.7	SPRAY	0.75	H	0.8	Run Time Per Cycle (Min)	4	4	4	6	8	10	10	10	10	10	6	4	
							Watering Days Per Month	1	1	2	2	4	6	6	8	10	8	4	1	
							Total Minutes Per Month	4	4	8	12	32	60	60	80	100	80	24	4	
							Total Gallons Per Month	58.8	58.8	117.6	176.4	470.4	882	882	1176	1470	1176	352.8	58.8	6879.6
37	TURF	14.5	SPRAY	0.75	H	0.8	Run Time Per Cycle (Min)	4	4	4	6	8	10	10	10	10	10	6	4	
							Watering Days Per Month	1	1	2	2	4	6	6	8	10	8	4	1	
							Total Minutes Per Month	4	4	8	12	32	60	60	80	100	80	24	4	
							Total Gallons Per Month	58	58	116	174	464	870	870	1160	1450	1160	348	58	6786
38	SHRUBS & GROUNDCOVER	2.1	DRIP	0.81	L	0.2	Run Time Per Cycle (Min)	8	8	8	12	16	20	20	20	20	20	12	8	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	8	16	16	36	64	80	80	80	120	80	24	8	
							Total Gallons Per Month	16.8	33.6	33.6	75.6	134.4	168	168	168	252	168	50.4	16.8	1285.2
39	SHRUBS & GROUNDCOVER	2.9	DRIP	0.81	L	0.2	Run Time Per Cycle (Min)	8	8	8	12	16	20	20	20	20	20	12	8	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	8	16	16	36	64	80	80	80	120	80	24	8	
							Total Gallons Per Month	23.2	46.4	46.4	104.4	185.6	232	232	232	348	232	69.6	23.2	1774.8
40	TURF	14.3	SPRAY	0.75	H	0.8	Run Time Per Cycle (Min)	4	4	4	6	8	10	10	10	10	10	6	4	
							Watering Days Per Month	1	1	2	2	4	6	6	8	10	8	4	1	
							Total Minutes Per Month	4	4	8	12	32	60	60	80	100	80	24	4	
							Total Gallons Per Month	57.2	57.2	114.4	171.6	457.6	858	858	1144	1430	1144	343.2	57.2	6692.4
41	TURF	13	SPRAY	0.75	H	0.8	Run Time Per Cycle (Min)	4	4	4	6	8	10	10	10	10	10	6	4	
							Watering Days Per Month	1	1	2	2	4	6	6	8	10	8	4	1	
							Total Minutes Per Month	4	4	8	12	32	60	60	80	100	80	24	4	
							Total Gallons Per Month	52	52	104	156	416	780	780	1040	1300	1040	312	52	6084
42	TREES	1	BUBBLER	0.81	L	0.2	Run Time Per Cycle (Min)	2	2	2	3	4	5	5	5	5	5	3	2	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	2	4	4	9	16	20	20	20	30	20	6	2	
							Total Gallons Per Month	2	4	4	9	16	20	20	20	30	20	6	2	153
43	SHRUBS & GROUNDCOVER	1	DRIP	0.81	L	0.2	Run Time Per Cycle (Min)	8	8	8	12	16	20	20	20	20	20	12	8	
							Watering Days Per Month	1	2	2	3	4	4	4	4	6	4	2	1	
							Total Minutes Per Month	8	16	16	36	64	80	80	80	120	80	24	8	
							Total Gallons Per Month	8	16	16	36	64	80	80	80	120	80	24	8	612
							TOTAL GALLONS	1185.2	2092.4	2370.4	4878	9394.4	13190.8	13190.8	14580.8	20481.2	14580.8	4364	1185.2	101494

IRRIGATION SCHEDULE NOTES

EACH OF THE 43 INDIVIDUAL IRRIGATION ZONES LISTED ABOVE SHALL BE GROUPED INTO 1 OF 5 SCHEDULED PROGRAMS TO ACCOMODATE IRRIGATION TYPE (SHRUB DRIP, TREE BUBBLERS, OR LAWN SPRAY) AND HYDROZONE (LOW, MODERATE, OR HIGH), AS FOLLOWS:

- PROGRAM A (LOW WATER-USE SHRUB DRIP) - IRRIGATION ZONES #3, 4, 7, 9, 11-13, 15, 17-19, 21-26, 28, 31, 32, 34, 38, 39, 43
- PROGRAM B (MODERATE WATER-USE SHRUB DRIP) - IRRIGATION ZONES #1, 6
- PROGRAM C (LOW WATER-USE TREE BUBBLERS) - IRRIGATION ZONES #5, 10, 14, 16, 20, 29, 30, 33, 42
- PROGRAM D (MODERATE WATER-USE TREE BUBBLERS) - IRRIGATION ZONES #2, 8, 27
- PROGRAM E (HIGH WATER-USE LAWN SPRAY) - IRRIGATION ZONES #35, 36, 37, 40, 41

THE LARGEST OF THESE, PROGRAM A, REQUIRES 480 MINUTES (8 HOURS) TO COMPLETE WITH ALL ZONES OPERATED SEQUENTIALLY.

ALL IRRIGATION ZONES SHALL BE PROGRAMMED TO OPERATE SEQUENTIALLY WITHIN THEIR RESPECTIVE PROGRAM.

Kikuchi + Kankel Design Group
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Landscape Architecture | Site Planning | Environmental Design

CALIFORNIA

IRRIGATION SCHEDULE
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY

HALF MOON BAY

No.	Revisions	Date
1	4/03/2024 BID ADDENDUM 01	
3	5/16/2024 PERMIT RESUBMITTAL	

Date 05/16/2024
Scale AS NOTED
Drawn JG
Approved TKC

Drawing Number: L3.01

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INSTALLATION NOTE: IRRIGATION MAINLINE, LATERAL LINE, AND VALVE LOCATIONS ARE SHOWN SCHEMATICALLY FOR GRAPHIC CLARITY. PIPES SHALL BE PLACED IN PLANTING AREAS WHEREVER POSSIBLE. VALVES & RELATED EQUIPMENT SHALL ALWAYS BE PLACED IN PLANTING AREAS.

FOR IRRIGATION LEGEND & NOTES, SEE SHEET L3.4

EXISTING DOMESTIC WATER MAIN SHOWN FOR CONTEXT. TIE-IN BY OTHERS.

NEW 6"Ø DOMESTIC WATER SERVICE MAIN BY OTHERS, SHOWN FOR CONTEXT

STONE PINE ROAD

NEW 6"Ø DOMESTIC WATER METER & BACKFLOW BY OTHERS

EX. 2"Ø DOMESTIC WATER METER & BACKFLOW BY OTHERS

TO STUB AFTER METER, BY OTHERS

2 BDRM 1 BATH 11'-8" X 48'-0"

1 BDRM 1 BATH 11'-8" X 36'-0"

1 BDRM 1 BATH (ACC) 11'-8" X 44'-0"

2 BDRM 1 BATH (ACC) 14'-4" X 56'-0"

EV CHARGING

OFFICE

VALVE #1 · VALVE #2 · VALVE #3 · VALVE #4 · VALVE #5 · VALVE #6 · VALVE #7 · VALVE #8 · VALVE #9 · VALVE #10 · VALVE #11 · VALVE #12 · VALVE #13 · VALVE #14 · VALVE #15 · VALVE #16 · VALVE #17 · VALVE #18

1	SD
30	M
<1.0	

2	TB
N/A	M
7.0	

3	ID
35	L
5.5	

4	SD
30	L
3.1	

5	TB
N/A	L
6.0	

6	SD
30	M
2.8	

7	ID
35	L
4.9	

8	TB
N/A	M
8.0	

9	SD
30	L
4.7	

10	TB
N/A	L
7.0	

11	SD
30	L
3.0	

12	ID
35	L
1.3	

13	SD
30	L
3.7	

14	TB
N/A	L
8.0	

15	SD
30	L
2.0	

16	TB
N/A	L
2.0	

17	ID
35	L
3.0	

18	ID
35	L
3.3	

MATCHLINE - SEE L3.3

MATCHLINE - SEE L3.2

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IRRIGATION PLAN ENLARGEMENT

STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

No.	Revisions	Date
1	4/09/2024 BID ADDENDUM 01	
2	5/16/2024 PERMIT RES/BMITTAL	

Date 05/16/2024
Scale 1/10" = 1'-0"
Drawn JS
Approved TKC

Drawing Number:
L3.1

MATCHLINE - SEE L3.1

EXISTING ASPHALT ACCESS ROAD

19	SD
30	L
6.4	

20	TB
N/A	L
5.0	

21	ID
95	L
2.9	

22	ID
95	L
3.1	

VALVE #19

VALVE #19

3/4"

3/4"

1/2"

1/2"

EV CHARGING

EV CHARGING

VALVE #17

VALVE #17

VALVE #17

VALVE #17

2 BDRM 1 BATH
11'-8" X 48'-0"

2 BDRM 1 BATH
11'-8" X 48'-0"

1 BDRM 1 BATH
11'-8" X 36'-0"

2 BDRM 1 BATH
11'-8" X 48'-0"

2 BDRM 1 BATH
11'-8" X 48'-0"

2 BDRM 1 BATH
11'-8" X 48'-0"

2 BDRM 1 BATH
11'-8" X 48'-0"

2 BDRM 1 BATH
11'-8" X 48'-0"

VALVE #24

VALVE #24

VALVE #24

VALVE #24

VALVE #26

VALVE #26

3/4"

3/4"

6V

2 BDRM 1 BATH (ACC)
14'-4" X 56'-0"

3 BDRM 2 BATH
14'-4" X 56'-0"

3 BDRM 2 BATH
14'-4" X 56'-0"

3 BDRM 2 BATH (ACC)
14'-4" X 60'-0"

2 BDRM 1 BATH
11'-8" X 48'-0"

3 BDRM 2 BATH
14'-4" X 56'-0"

VALVE #22

VALVE #22

VALVE #22

VALVE #22

VALVE #22

INSTALLATION NOTE: IRRIGATION MAINLINE, LATERAL LINE , AND VALVE LOCATIONS ARE SHOWN SCHEMATICALLY FOR GRAPHIC CLARITY. PIPES SHALL BE PLACED IN PLANTING AREAS WHEREVER POSSIBLE. VALVES & RELATED EQUIPMENT SHALL ALWAYS BE PLACED IN PLANTING AREAS.

FOR IRRIGATION LEGEND & NOTES, SEE SHEET L3.4

MATCHLINE - SEE L3.4

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IRRIGATION PLAN ENLARGEMENT

STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

No.	Revisions	Date
1	4/09/2024 BID ADDENDUM 01	
2	5/16/2024 PERMIT RES/BMITTAL	

Date 05/16/2024
Scale 1/10" = 1'-0"
0 5 10'
Drawn JS
Approved TYC

Drawing Number:
L3.2

RE-USE, REPRODUCTION OR PUBLICATION OF THESE PLANS IS PROHIBITED WITHOUT WRITTEN CONSENT OF KIKUCHI + KANKEL DESIGN GROUP.

INSTALLATION NOTE: IRRIGATION MAINLINE, LATERAL LINE, AND VALVE LOCATIONS ARE SHOWN SCHEMATICALLY FOR GRAPHIC CLARITY. THEY SHALL BE INSTALLED IN PLANTING AREAS WHEREVER POSSIBLE. VALVES & RELATED EQUIPMENT SHALL ALWAYS BE PLACED IN PLANTING AREAS.

FOR IRRIGATION LEGEND & NOTES, SEE SHEET L3.4

MATCHLINE - SEE L3.1

MATCHLINE - SEE L3.4

1 BDRM / 1 BATH (ACC)
11'-6" X 44'-0"

1 BDRM / 1 BATH
11'-6" X 36'-0"

2 BDRM / 1 BATH
11'-6" X 46'-0"

3 BDRM / 2 BATH (ACC)
14'-4" X 60'-0"

2 BDRM / 1 BATH (ACC)
14'-4" X 56'-0"

VALVES

GV

L3.3

Drawing Number

Date 05/16/2024
Scale 1/10" = 1'-0"
0 5' 10'
Drawn JG
Approved TNC

No.	Revisions	Date
1	4/03/2024 BID ADDENDUM 01	
2	5/16/2024 PERMIT RESUBMITTAL	

IRRIGATION PLAN ENLARGEMENT

STONE PINE COVE
880 STONE PINE ROAD
HALF MOON BAY SAN MATEO COUNTY CALIFORNIA

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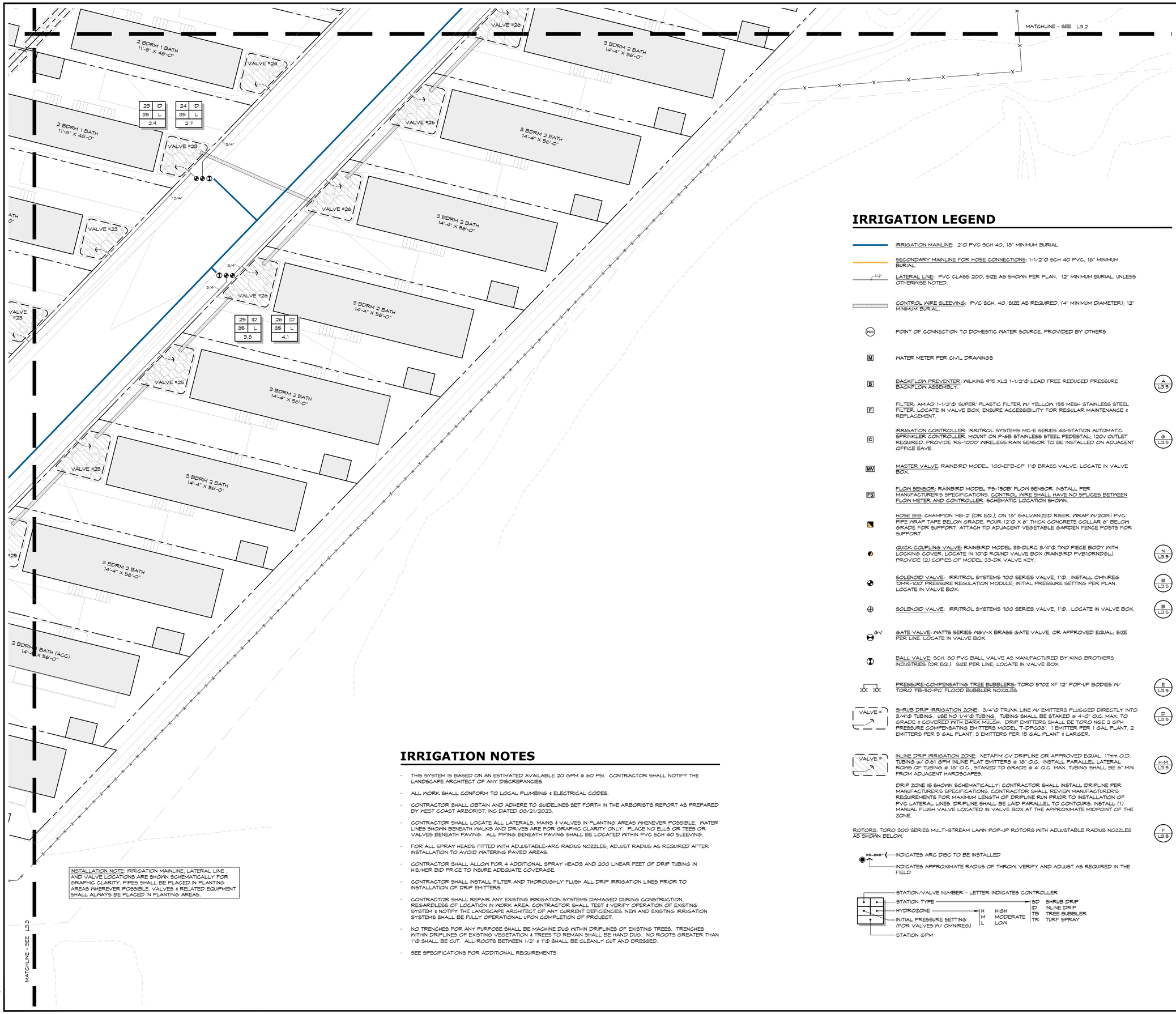

INSTALLATION NOTE: IRRIGATION MAINLINE, LATERAL LINE , AND VALVE LOCATIONS ARE SHOWN SCHEMATICALLY FOR GRAPHIC CLARITY. PIPES SHALL BE PLACED IN PLANTING AREAS WHEREVER POSSIBLE. VALVES & RELATED EQUIPMENT SHALL ALWAYS BE PLACED IN PLANTING AREAS.

IRRIGATION LEGEND

- IRRIGATION MAINLINE: 2"Ø PVC SCH 40, 18" MINIMUM BURIAL.
- SECONDARY MAINLINE FOR HOSE CONNECTIONS: 1-1/2"Ø SCH 40 PVC, 18" MINIMUM BURIAL.
- 1/2" LATERAL LINE: PVC CLASS 200, SIZE AS SHOWN PER PLAN. 12" MINIMUM BURIAL, UNLESS OTHERWISE NOTED.
- CONTROL WIRE SLEEVING: PVC SCH. 40, SIZE AS REQUIRED, (4" MINIMUM DIAMETER); 12" MINIMUM BURIAL.
- POC — POINT OF CONNECTION TO DOMESTIC WATER SOURCE, PROVIDED BY OTHERS
- M — WATER METER PER CIVIL DRAWINGS
- B — BACKFLOW PREVENTER: WILKINS 975 XL2 1-1/2"Ø LEAD FREE REDUCED PRESSURE BACKFLOW ASSEMBLY. (A L3.5)
- F — FILTER: AMIAD 1-1/2"Ø 'SUPER' PLASTIC FILTER W/ YELLOW 155 MESH STAINLESS STEEL FILTER. LOCATE IN VALVE BOX. ENSURE ACCESSIBILITY FOR REGULAR MAINTENANCE & REPLACEMENT.
- C — IRRIGATION CONTROLLER: IRRITROL SYSTEMS MC-E SERIES 48-STATION AUTOMATIC SPRINKLER CONTROLLER. MOUNT ON P-6B STAINLESS STEEL PEDESTAL; 120V OUTLET REQUIRED. PROVIDE 'RS-1000' WIRELESS RAIN SENSOR TO BE INSTALLED ON ADJACENT OFFICE EAVE. (G L3.5)
- MV — MASTER VALVE: RAINBIRD MODEL '100-EFB-CP' 1"Ø BRASS VALVE. LOCATE IN VALVE BOX.
- FS — FLOW SENSOR: RAINBIRD MODEL 'FS-150B' FLOW SENSOR. INSTALL PER MANUFACTURER'S SPECIFICATIONS. CONTROL WIRE SHALL HAVE NO SPLICES BETWEEN FLOW METER AND CONTROLLER. SCHEMATIC LOCATION SHOWN.
- HOSE BIB: CHAMPION 'HB-2' (OR EQ.), ON 18" GALVANIZED RISER. WRAP W/20mil PVC PIPE WRAP TAPE BELOW GRADE. POUR 12"Ø X 6" THICK CONCRETE COLLAR 6" BELOW GRADE FOR SUPPORT. ATTACH TO ADJACENT VEGETABLE GARDEN FENCE POSTS FOR SUPPORT.
- QUICK COUPLING VALVE: RAINBIRD MODEL 33-DLRC 3/4"Ø TWO PIECE BODY WITH LOCKING COVER. LOCATE IN 10"Ø ROUND VALVE BOX (RAINBIRD PVB10RNDGL). PROVIDE (2) COPIES OF MODEL 33-DK VALVE KEY. (N L3.5)
- SOLENOID VALVE: IRRITROL SYSTEMS 700 SERIES VALVE, 1"Ø. INSTALL OMNIRES 'OMR-100' PRESSURE REGULATION MODULE; INITIAL PRESSURE SETTING PER PLAN. LOCATE IN VALVE BOX. (B L3.5)
- SOLENOID VALVE: IRRITROL SYSTEMS 700 SERIES VALVE, 1"Ø. LOCATE IN VALVE BOX. (B L3.5)
- GV — GATE VALVE: WATTS SERIES NGV-X BRASS GATE VALVE, OR APPROVED EQUAL; SIZE PER LINE. LOCATE IN VALVE BOX.
- BALL VALVE: SCH. 80 PVC BALL VALVE AS MANUFACTURED BY KING BROTHERS INDUSTRIES (OR EQ.). SIZE PER LINE; LOCATE IN VALVE BOX.
- PRESSURE-COMPENSATING TREE BUBBLERS: TORO 570Z XF 12" POP-UP BODIES W/ TORO TB-50-PC' FLOOD BUBBLER NOZZLES. (E L3.5)
- VALVE # — SHRUB DRIP IRRIGATION ZONE: 3/4"Ø TRUNK LINE W/ EMITTERS PLUGGED DIRECTLY INTO 3/4"Ø TUBING. USE NO 1/4"Ø TUBING. TUBING SHALL BE STAKED @ 4'-0" O.C. MAX. TO GRADE & COVERED WITH BARK MULCH. DRIP EMITTERS SHALL BE TORO NGE 2 GPH PRESSURE COMPENSATING EMITTERS MODEL 'T-DPC02'. 1 EMITTER PER 1 GAL PLANT, 2 EMITTERS PER 5 GAL PLANT, 3 EMITTERS PER 15 GAL PLANT & LARGER. (D L3.5)
- VALVE # — INLINE DRIP IRRIGATION ZONE: NETAFIM CV DRIPLINE OR APPROVED EQUAL. 17mm O.D. TUBING w/ 0.61 GPH INLINE FLAT EMITTERS @ 18" O.C. INSTALL PARALLEL LATERAL RONS OF TUBING @ 18" O.C., STAKED TO GRADE @ 4' O.C. MAX. TUBING SHALL BE 6" MIN FROM ADJACENT HARDSCAPES. (H-M L3.5)

  DRIP ZONE IS SHOWN SCHEMATICALLY; CONTRACTOR SHALL INSTALL DRIPLINE PER MANUFACTURER'S SPECIFICATIONS. CONTRACTOR SHALL REVIEW MANUFACTURER'S REQUIREMENTS FOR MAXIMUM LENGTH OF DRIPLINE RUN PRIOR TO INSTALLATION OF P/V LATERAL LINES. DRIPLINE SHALL BE LAID PARALLEL TO CONTOURS. INSTALL (1) MANUAL FLUSH VALVE LOCATED IN VALVE BOX AT THE APPROXIMATE MIDPOINT OF THE ZONE.

ROTORS: TORO 300 SERIES MULTI-STREAM LAWN POP-UP ROTORS WITH ADJUSTABLE RADIUS NOZZLES AS SHOWN BELOW. (F L3.5)

##-###° — INDICATES ARC DISC TO BE INSTALLED

INDICATES APPROXIMATE RADIUS OF THROW. VERIFY AND ADJUST AS REQUIRED IN THE FIELD

STATION/VALVE NUMBER - LETTER INDICATES CONTROLLER

STATION TYPE → SD SHRUB DRIP; ID INLINE DRIP; TB TREE BUBBLER; TR TURF SPRAY

HYDROZONE → H HIGH; M MODERATE; L LOW

INITIAL PRESSURE SETTING (FOR VALVES W/ OMNIREG)

STATION GPM

IRRIGATION NOTES

- THIS SYSTEM IS BASED ON AN ESTIMATED AVAILABLE 20 GPM @ 60 PSI. CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT OF ANY DISCREPANCIES.
- ALL WORK SHALL CONFORM TO LOCAL PLUMBING & ELECTRICAL CODES.
- CONTRACTOR SHALL OBTAIN AND ADHERE TO GUIDELINES SET FORTH IN THE ARBORIST'S REPORT AS PREPARED BY WEST COAST ARBORIST, INC DATED 08/21/2023.
- CONTRACTOR SHALL LOCATE ALL LATERALS, MAINS & VALVES IN PLANTING AREAS WHENEVER POSSIBLE. WATER LINES SHOWN BENEATH WALKS AND DRIVES ARE FOR GRAPHIC CLARITY ONLY. PLACE NO ELLS OR TEES OR VALVES BENEATH PAVING. ALL PIPING BENEATH PAVING SHALL BE LOCATED WITHIN PVC SCH 40 SLEEVING.
- FOR ALL SPRAY HEADS FITTED WITH ADJUSTABLE-ARC RADIUS NOZZLES, ADJUST RADIUS AS REQUIRED AFTER INSTALLATION TO AVOID WATERING PAVED AREAS.
- CONTRACTOR SHALL ALLOW FOR 4 ADDITIONAL SPRAY HEADS AND 200 LINEAR FEET OF DRIP TUBING IN HIS/HER BID PRICE TO INSURE ADEQUATE COVERAGE.
- CONTRACTOR SHALL INSTALL FILTER AND THOROUGHLY FLUSH ALL DRIP IRRIGATION LINES PRIOR TO INSTALLATION OF DRIP EMITTERS.
- CONTRACTOR SHALL REPAIR ANY EXISTING IRRIGATION SYSTEMS DAMAGED DURING CONSTRUCTION, REGARDLESS OF LOCATION IN WORK AREA. CONTRACTOR SHALL TEST & VERIFY OPERATION OF EXISTING SYSTEM & NOTIFY THE LANDSCAPE ARCHITECT OF ANY CURRENT DEFICIENCIES. NEW AND EXISTING IRRIGATION SYSTEMS SHALL BE FULLY OPERATIONAL UPON COMPLETION OF PROJECT.
- NO TRENCHES FOR ANY PURPOSE SHALL BE MACHINE DUG WITHIN DRIPLINES OF EXISTING TREES. TRENCHES WITHIN DRIPLINES OF EXISTING VEGETATION & TREES TO REMAIN SHALL BE HAND DUG. NO ROOTS GREATER THAN 1"Ø SHALL BE CUT. ALL ROOTS BETWEEN 1/2" & 1"Ø SHALL BE CLEANLY CUT AND DRESSED.
- SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

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IRRIGATION PLAN ENLARGEMENT

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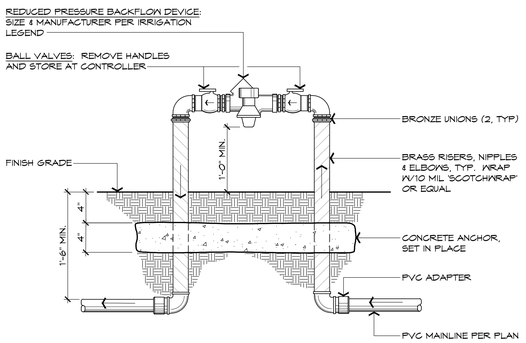
No.	Revisions	Date
1	4/23/2024 BID ADDENDUM 01	
2	5/16/2024 PERMIT RESUBMITTAL	

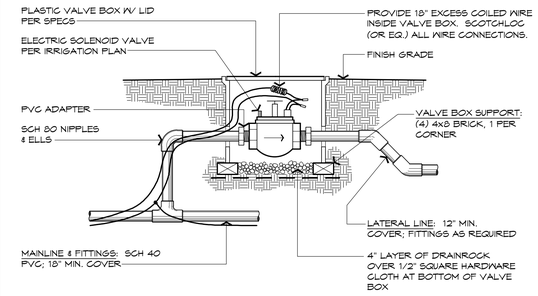
Date 05/16/2024
Scale 1/10" = 1'-0"
0 5' 10'
Drawn JG
Approved TNC

Drawing Number:
L3.4



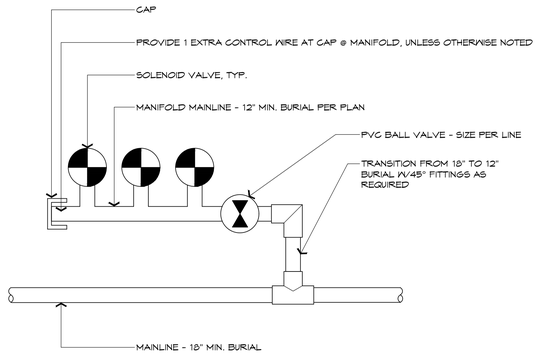
A BACKFLOW PREVENTER DETAIL

SCALE: 1-1/2" = 1'-0"



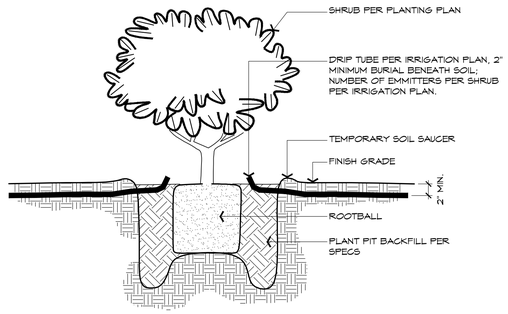
B SOLENOID VALVE DETAIL

SCALE: 1" = 1'-0"



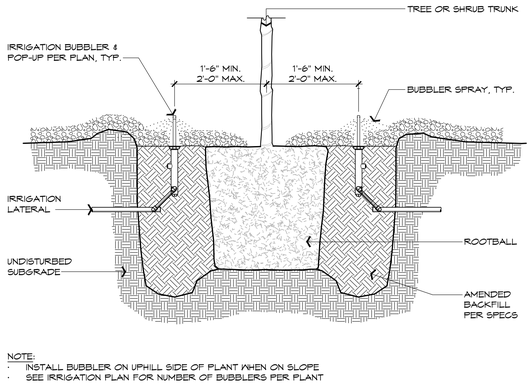
C VALVE MANIFOLD DETAIL

SCALE: 1-1/2" = 1'-0"



D DRIP IRRIGATION DETAIL

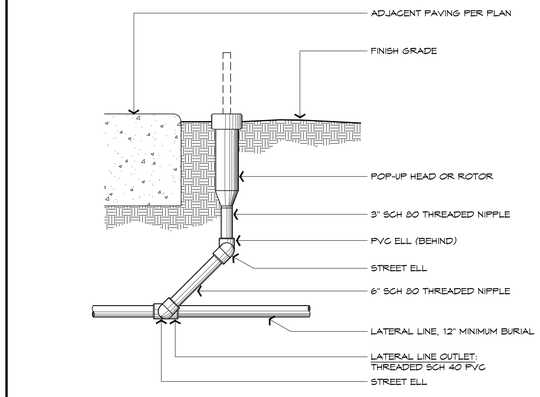
SCALE: 1" = 1'-0"



NOTE:
- INSTALL BUBBLER ON UPHILL SIDE OF PLANT WHEN ON SLOPE
- SEE IRRIGATION PLAN FOR NUMBER OF BUBBLERS PER PLANT

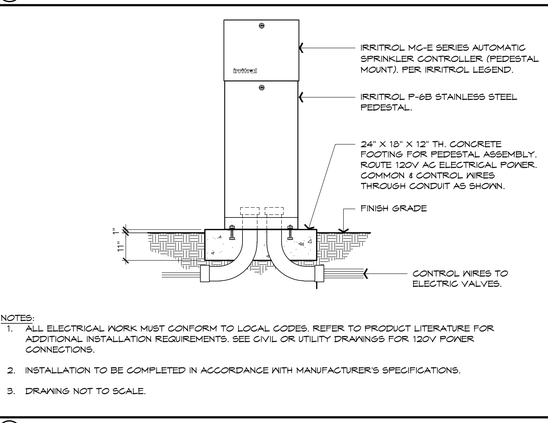
E TREE BUBBLER DETAIL

SCALE: 1" = 1'-0"



F ROTOR DETAIL

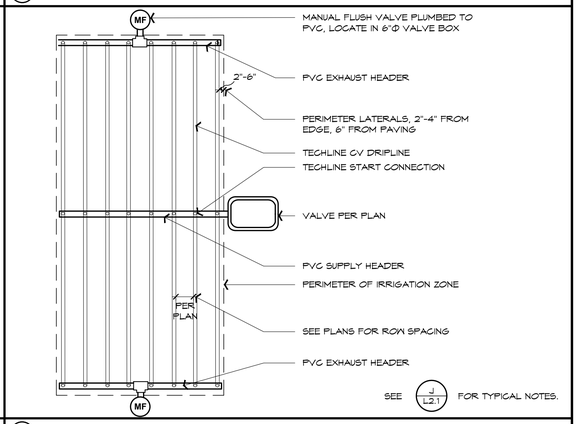
SCALE: 3" = 1'-0"



NOTES:
1. ALL ELECTRICAL WORK MUST CONFORM TO LOCAL CODES. REFER TO PRODUCT LITERATURE FOR ADDITIONAL INSTALLATION REQUIREMENTS. SEE CIVIL OR UTILITY DRAWINGS FOR 120V POWER CONNECTIONS.
2. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
3. DRAWING NOT TO SCALE.

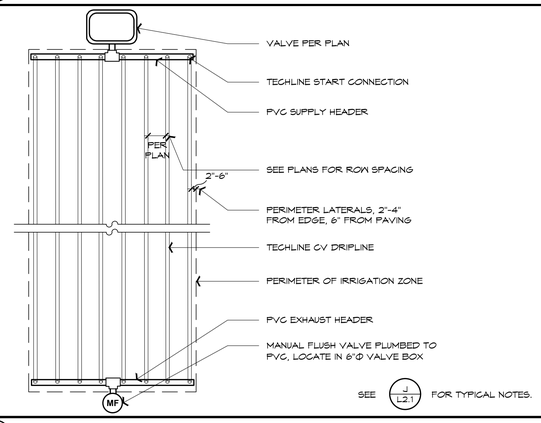
G PEDESTAL CONTROLLER DETAIL

SCALE: 1/2" = 1'-0"



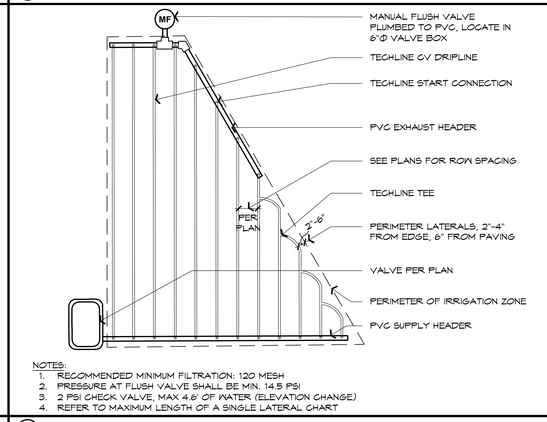
H DRIPLINE CENTER FEED LAYOUT

SCALE: 3/8" = 1'-0"



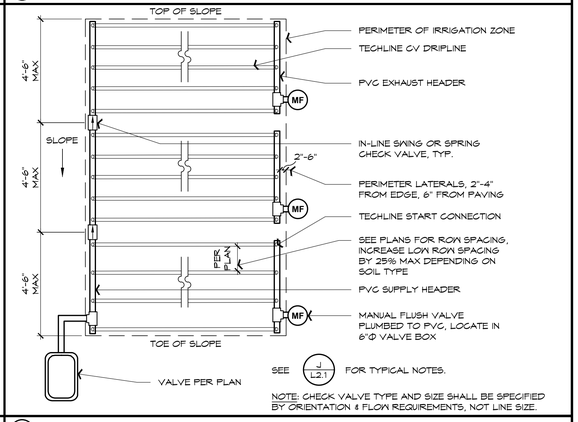
I DRIPLINE END FEED LAYOUT

SCALE: 3/8" = 1'-0"



J DRIPLINE IRREGULAR AREAS (TRIANGULAR)

SCALE: 3/8" = 1'-0"



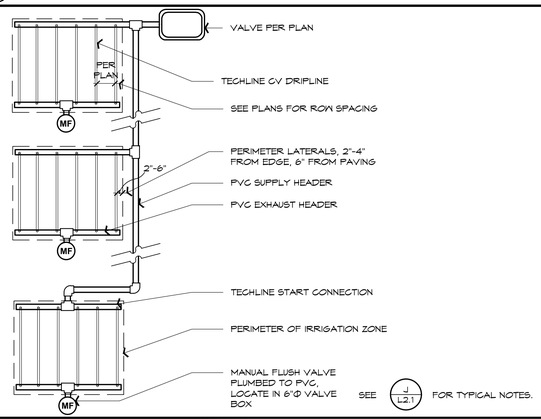
NOTE: CHECK VALVE TYPE AND SIZE SHALL BE SPECIFIED BY ORIENTATION & FLOW REQUIREMENTS, NOT LINE SIZE.

K DRIPLINE IRREGULAR AREAS (ODD CURVES)

SCALE: 3/8" = 1'-0"

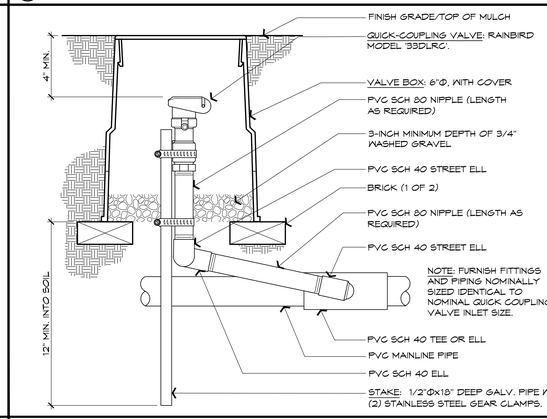
L DRIPLINE SLOPE LAYOUT

SCALE: 3/8" = 1'-0"



M DRIPLINE ISLAND LAYOUT

SCALE: 3/8" = 1'-0"



N QUICK COUPLING VALVE DETAIL

SCALE: 3" = 1'-0"

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IRRIGATION & PLANTING DETAILS

STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

No.	Revisions	Date
1	4/09/2024 BID ADDENDUM 01	
2	5/16/2024 PERMIT RESUBMITTAL	

Date 05/16/2024
Scale AS NOTED
Drawn JS
Approved TKC

Drawing Number:
L3.5



PLANTING LEGEND

SOD LAWN: 'BOLERO PLUS' 90% BOLERO DWARF FESCUE/10% BLUEGRASS MIX FROM SOD OVER 1/2" SQ HARDWARE CLOTH FOR GOPHER PROTECTION PER NOTES.

SEED MIX #1: EROSION CONTROL SEED MIX. SEE NOTES BELOW.

SEED MIX #2: BIOTREATMENT AREA SEED MIX. SEE NOTES BELOW.

SEED MIX #3: SWALE AREA SEED MIX. SEE NOTES BELOW.

NEW SHRUBS & GROUNDCOVERS PER PLAN & PLANT KEY — C-D / L4.5

NEW TREES PER PLAN & PLANT KEY — A-B / L4.5

12" TREE — EXISTING TREE TO REMAIN. SEE SHEET L1.01.

PLANTING NOTES

- WHEN PLANTING IN ESTABLISHED PLANTING AREAS, CONTRACTOR SHALL TAKE UTMOST CARE AS TO NOT DAMAGE ANY EXISTING PLANTS OR TREES.
- PERMANENT IRRIGATION SHALL ONLY BE INSTALLED FOR NEW SHRUB AND TREE PLANTING AREAS. NO IRRIGATION SHALL BE INSTALLED FOR EXISTING MONTEREY CYPRESSES WITHIN A DISTANCE OF 5X THE TREE'S DIAMETER FROM THE TRUNK.
- SEEDED AREAS SHALL RECEIVE IRRIGATION FOR AN ESTABLISHMENT PERIOD ONLY (NO MORE THAN TWO GROWING SEASONS, TYPICALLY).
- ALL NEW PLANTING AREAS SHALL RECEIVE A 2" LAYER OF ORGANIC AMENDMENTS INCORPORATED INTO THE TOP 6" OF SOIL. AREAS BENEATH EXISTING TREES SHALL HAVE PLANT PITS INDIVIDUALLY AMENDED.
- ALL NEW PLANTING AREAS EXCEPT SEEDED AREAS SHALL RECEIVE A 3" DEEP LAYER OF MULCH PER SPECS.
- ALL TURF AREAS SHALL BE UNDERLAIN WITH A CONTINUOUS LAYER OF GALVANIZED HARDWARE MESH AS A MEANS TO CONTROL GOPHER DAMAGE. HARDWARE MESH SHALL BE LOCATED BETWEEN PREPARED SUBGRADE AND SOD. STAKE AS REQUIRED TO ENSURE FULL CONTACT OF SOD TO SOIL.
- FINAL PLANT LOCATIONS SHALL BE REVIEWED BY THE LANDSCAPE ARCHITECT PRIOR TO PLANT PIT EXCAVATION.
- SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

SEED MIXES

SEED MIX #1: 'EROSION CONTROL HABITAT MIX' FROM PACIFIC COAST SEED, CONTAINING:

- BROMUS CARINATUS (NATIVE CALIFORNIA BROME)
- ELYMUS GLAUCUS (BLUE WILDRYE HORDEUM)
- FESTUCA IDAHOENSIS (IDAHO FESCUE)
- HORDEUM CALIFORNICUM (CALIFORNIA BARLEY)
- POA SECUNDA (NATIVE PINE BLUEGRASS)
- STIPA PULCHRA (PURPLE NEEDLEGRASS)

SEED MIX #2: 'BIOSWALE COLLECTION NATIVE ORNAMENTAL MIX' FROM PACIFIC COAST SEED, CONTAINING:

- CAREX PRAEGRACILIS (CLUSTERED FIELD SEDGE)
- DESCHAMPSIA CESPITOSA (TUFTED HAIRGRASS)
- FESTUCA IDAHOENSIS (IDAHO FESCUE)
- FESTUCA OCCIDENTALIS (WESTERN FESCUE)
- FESTUCA RUBRA 'MOLATE' (NATIVE RED FESCUE)

SEED MIX #3: 'BIOSWALE COLLECTION GENERAL COMPACT MIX' FROM PACIFIC COAST SEED, CONTAINING:

- AGROSTIS PALLENS (NATIVE BENTGRASS)
- CAREX PRAEGRACILIS (CLUSTERED FIELD SEDGE)
- CYPERUS ERAGROSTIS (UMBRELLA SEDGE)
- DESCHAMPSIA CESPITOSA (TUFTED HAIRGRASS)
- FESTUCA RUBRA 'MOLATE' (NATIVE RED FESCUE)

SEE SHEET L4.4 FOR PLANT KEY

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PLANTING PLAN
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

No.	Revisions	Date
1	4/23/2024 BID ADDENDUM 01	
2	5/16/2024 PERMIT RESUBMITTAL	

Date 05/16/2024
Scale 1/30" = 1'-0"
0 15 30'
Drawn JS
Approved TYC

Drawing Number:
L4.0

PLANTING PLAN ENLARGEMENT

STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY

HALF MOON BAY

CALIFORNIA

Kikuchi + Kankel
Design Group
730 Mill Street
Half Moon Bay, CA 94019
www.kkdesigngroup.com

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Revisions	No.	Date
4/29/2024 BID ADDENDUM 01	1	
5/16/2024 PERMIT RESUBMITTAL	2	

Date 05/16/2024
Scale 1/10" = 1'-0"
0 5' 10'
Drawn JS
Approved TMC

Drawing Number: **L4.1**

MATCHLINE - SEE L4.2

1 BDRM / 1 BATH (ACC.)
11'-5" X 44'-0"

1 BDRM / 1 BATH
11'-5" X 36'-0"

1 BDRM / 1 BATH
11'-5" X 36'-0"

1 BDRM / 1 BATH
11'-5" X 36'-0"

2 BDRM / 1 BATH
11'-5" X 45'-0"

2 BDRM / 1 BATH
11'-5" X 45'-0"

1 BDRM / 1 BATH
11'-5" X 36'-0"

1 BDRM / 1 BATH
11'-5" X 36'-0"

1 BDRM / 1 BATH
11'-5" X 36'-0"

1 BDRM / 1 BATH
11'-5" X 36'-0"

OFFICE

CHARGING

TV

2 BDRM / 1 BATH
11'-5" X 45'-0"

2 BDRM / 1 BATH
11'-5" X 45'-0"

2 BDRM / 1 BATH
11'-5" X 45'-0"

2 BDRM / 1 BATH (ACC)
14'-4" X 56'-0"

LIMITS OF EROSION CONTROL BERM SHALL FOLLOW LIMITS OF GRADED OR DISTURBED EARTH. VERIFY IN FIELD.

DOMESTIC & IRRIGATION WATER EQUIPMENT. SEE CIVIL & IRRIGATION DRAWINGS.

FOR PLANTING LEGEND & NOTES, SEE SHEET L4.0.
FOR PLANT KEY, SEE SHEET L4.4.

STONE PINE ROAD

MATCHLINE - SEE L4.3

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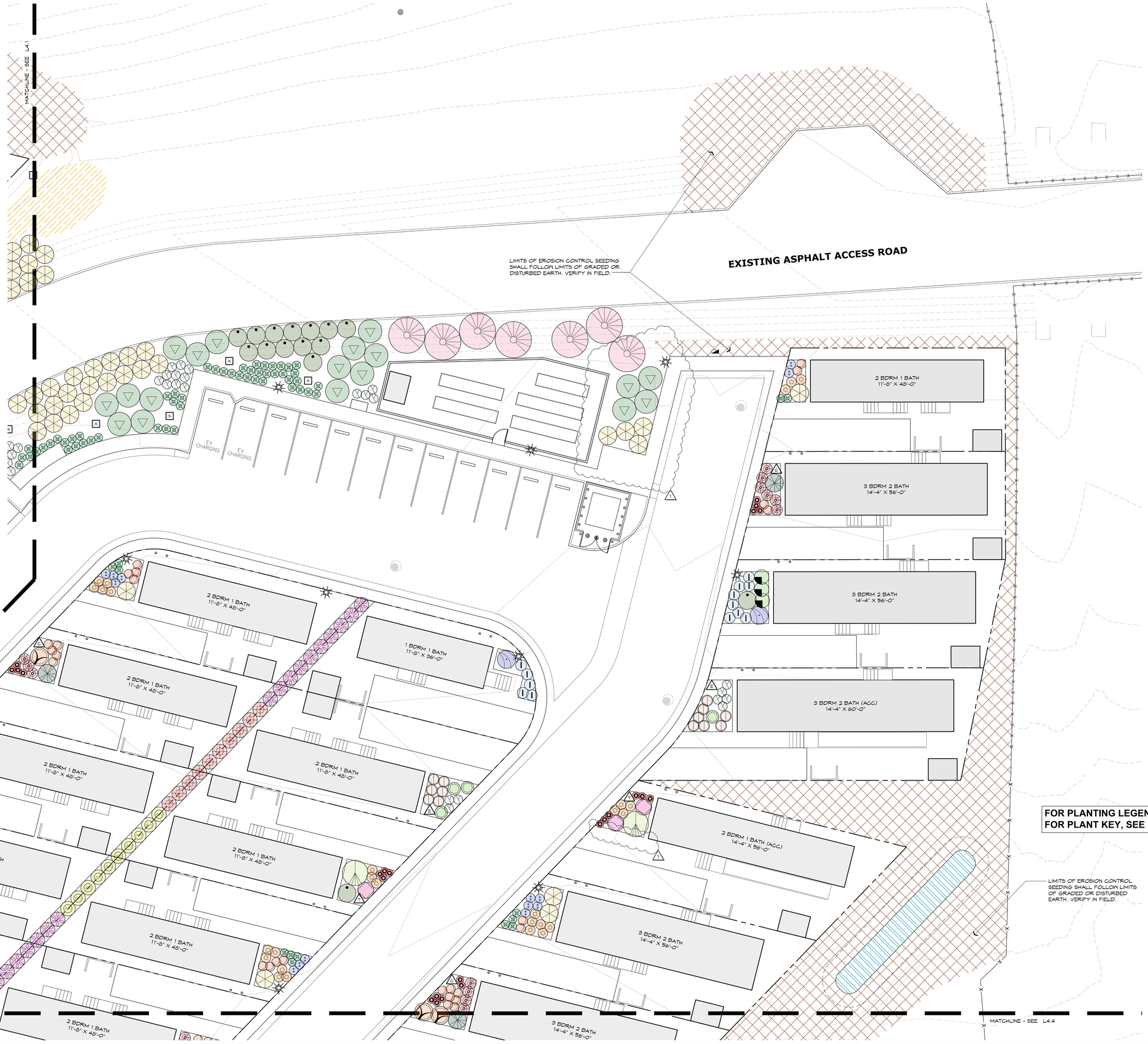

FOR PLANTING LEGEND & NOTES, SEE SHEET L4.0.
FOR PLANT KEY, SEE SHEET L4.4.

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PLANTING PLAN ENLARGEMENT

STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

No.	Revisions	Date
1	4/03/2024 BID ADDENDUM 01	
2	5/16/2024 PERMIT RESUBMITTAL	

Date 05/16/2024
Scale 1/10" = 1'-0"
0 5' 10'
Drawn JS
Approved TYC

Drawing Number:
L4.2

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FOR PLANTING LEGEND & NOTES, SEE SHEET L4.0.
FOR PLANT KEY, SEE SHEET L4.4.

MATCHLINE - SEE L4.1

LIMITS OF EROSION CONTROL SEEDING SHALL FOLLOW LIMITS OF GRADED OR DISTURBED EARTH. VERIFY IN FIELD

1 BDRM 1 BATH (ACC)
11'-8" X 44'-0"

1 BDRM 1 BATH
11'-8" X 36'-0"

2 BDRM 1 BATH
11'-8" X 48'-0"

3 BDRM 2 BATH (ACC)
14'-4" X 60'-0"

2 BDRM 1 BATH (ACC)
14'-4" X 56'-0"

NO PARKING

MATCHLINE - SEE L4.4

true north
REFERENCE NORTH

Drawing Number: **L4.3**

Date	05/16/2024
Scale	1/10" = 1'-0" (0, 5', 10')
Drawn	JG
Approved	TMC

No.	Revisions	Date
1	4/03/2024 BID ADDENDUM 01	
2	5/16/2024 PERMIT RESUBMITTAL	

PLANTING PLAN ENLARGEMENT

STONE PINE COVE
880 STONE PINE ROAD
HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA

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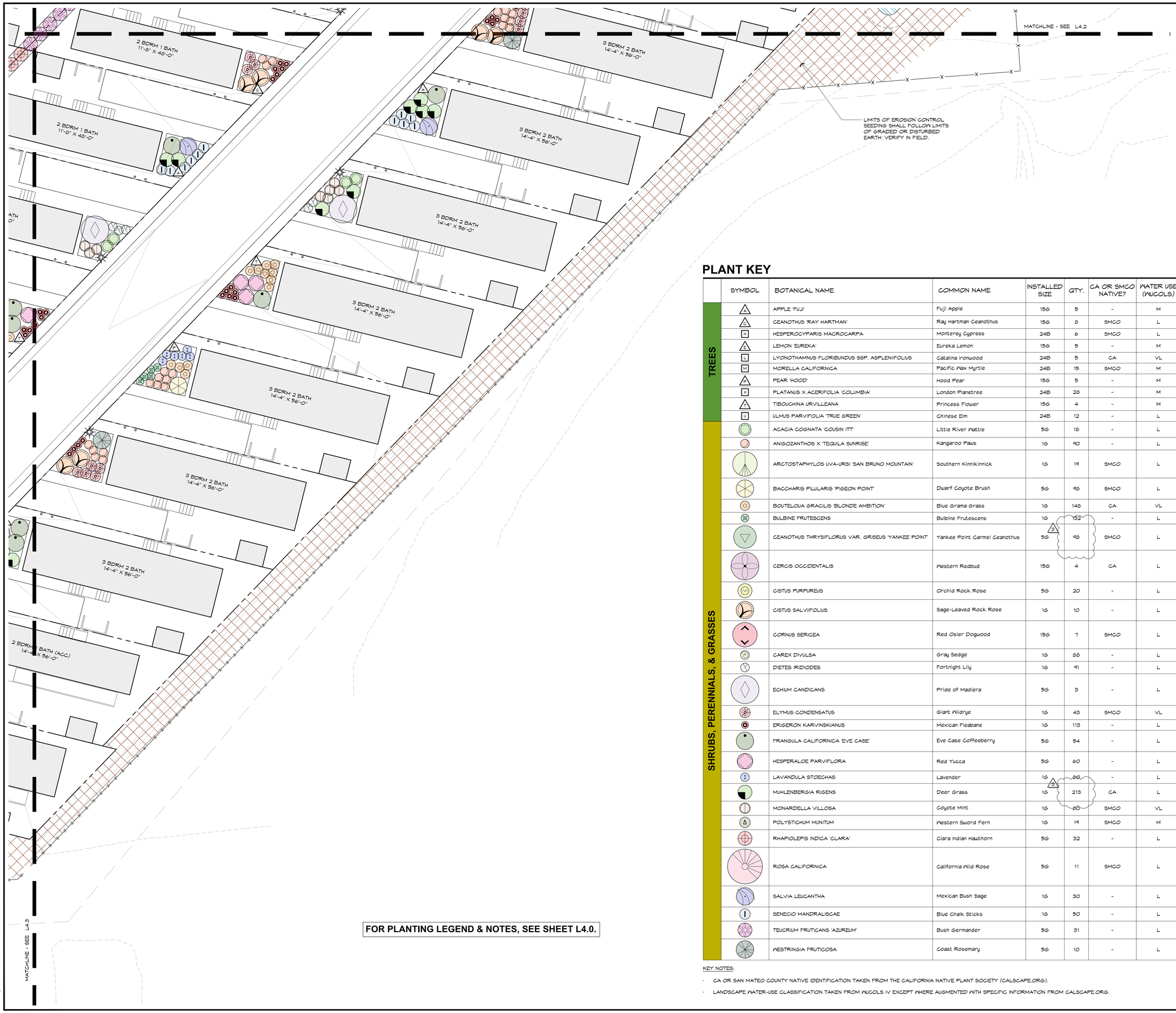

FOR PLANTING LEGEND & NOTES, SEE SHEET L4.0.

PLANT KEY

	SYMBOL	BOTANICAL NAME	COMMON NAME	INSTALLED SIZE	QTY.	CA OR SMCO NATIVE?	WATER USE (WUCOLS)	COMMENTS	DETAIL
TREES	A	APPLE 'FUJI'	Fuji Apple	15G	5	-	M		24" BOX TREES A L4.5
	A	CEANOTHUS 'RAY HARTMAN'	Ray Hartman Ceanothus	15G	8	SMCO	L	STANDARD TREE FORM	
	H	HESPEROCYPARIS MACROCARPA	Monterey Cypress	24B	6	SMCO	L		
	A	LEMON 'EUREKA'	Eureka Lemon	15G	5	-	M		15 GAL TREES A L4.5
	L	LYONOTHAMNUS FLORIBUNDUS SSP. ASPLENIIFOLIUS	Catalina Ironwood	24B	5	CA	VL		
	M	MORELLA CALIFORNICA	Pacific Wax Myrtle	24B	15	SMCO	M		
	A	PEAR 'HOOD'	Hood Pear	15G	5	-	M		
	X	PLATANUS X ACERIFOLIA 'COLUMBIA'	London Planetree	24B	28	-	M		
	A	TIBOUCHINA URVILLEANA	Princess Flower	15G	4	-	M	TREE FORM/HIGH BRANCHING	
	U	ULMUS PARVIFOLIA 'TRUE GREEN'	Chinese Elm	24B	12	-	L		
SHRUBS, PERENNIALS, & GRASSES		ACACIA COGNATA 'COUSIN ITT'	Little River Wattle	5G	18	-	L		SHRUBS C L4.5
		ANIGOZANTHOS X 'TEQUILA SUNRISE'	Kangaroo Paws	1G	90	-	L		
		ARCTOSTAPHYLOS UVA-URSI 'SAN BRUNO MOUNTAIN'	Southern Kinnikinnick	1G	19	SMCO	L		GROUND-COVERS D L4.5
		BACCHARIS PILULARIS 'PIGEON POINT'	Dwarf Coyote Brush	5G	98	SMCO	L		
		BOUTELOUA GRACILIS 'BLONDE AMBITION'	Blue Grama Grass	1G	148	CA	VL		
		BULBINE FRUTESCENS	Bulbine Frutescens	1G	132	-	L		
		CEANOTHUS THRYSIFLORUS VAR. GRISEUS 'YANKEE POINT'	Yankee Point Carmel Ceanothus	5G	98	SMCO	L		
		CERCIS OCCIDENTALIS	Western Redbud	15G	4	CA	L		
		CISTUS PURPUREUS	Orchid Rock Rose	5G	20	-	L		
		CISTUS SALVIIFOLIUS	Sage-Leaved Rock Rose	1G	10	-	L		
		CORNUS SERICEA	Red Osier Dogwood	15G	7	SMCO	L		
		CAREX DIVULSA	Gray Sedge	1G	88	-	L		
		DIETES IRIDIODES	Fortnight Lily	1G	91	-	L		
		ECHIUM CANDICANS	Pride of Madiera	5G	3	-	L		
		ELYMUS CONDENSATUS	Giant Wildrye	1G	43	SMCO	VL		
		ERIGERON KARVINSKIANUS	Mexican Fleabane	1G	113	-	L		
		FRANGULA CALIFORNICA 'EVE CASE'	Eve Case Coffeeberry	5G	54	-	L		
		HESPERALOE PARVIFLORA	Red Yucca	5G	60	-	L		
		LAVANDULA STOECHAS	Lavender	1G	80	-	L		
		MUHLENBERGIA RIGENS	Deer Grass	1G	213	CA	L		
		MONARDELLA VILLOSA	Coyote Mint	1G	80	SMCO	VL		
		POLYSTICHUM MUNITUM	Western Sword Fern	1G	19	SMCO	M		
		RHAPIOLEPIS INDICA 'CLARA'	Clara Indian Hawthorn	5G	32	-	L		
		ROSA CALIFORNICA	California Wild Rose	5G	11	SMCO	L		
		SALVIA LEUCANTHA	Mexican Bush Sage	1G	30	-	L		
		SENECIO MANDRALISCAE	Blue Chalk Sticks	1G	50	-	L		
		TEUCRIUM FRUTICANS 'AZUREUM'	Bush Germander	5G	31	-	L		
		WESTRINGIA FRUTICOSA	Coast Rosemary	5G	10	-	L		

KEY NOTES:

- CA OR SAN MATEO COUNTY NATIVE IDENTIFICATION TAKEN FROM THE CALIFORNIA NATIVE PLANT SOCIETY (CALSCAPE.ORG).
- LANDSCAPE WATER-USE CLASSIFICATION TAKEN FROM WUCOLS IV EXCEPT WHERE AUGMENTED WITH SPECIFIC INFORMATION FROM CALSCAPE.ORG.

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PLANTING PLAN ENLARGEMENT

STONE PINE COVE
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HALF MOON BAY

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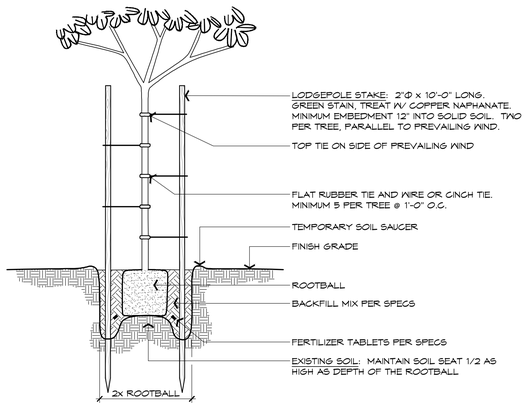
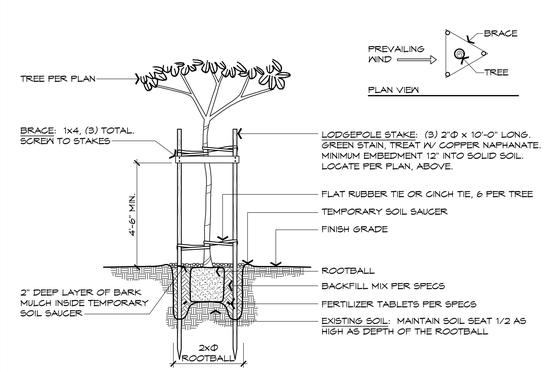
Date 05/16/2024
Scale 1/10" = 1'-0"
0 5 10'
Drawn JG
Approved TKC

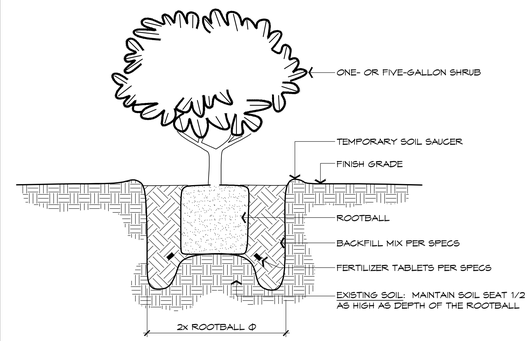
Drawing Number:
L4.4



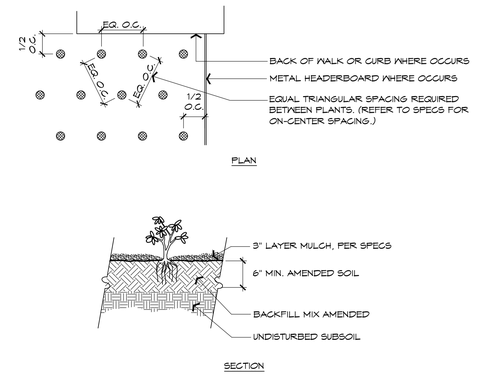
A **24" BOX & LARGER TREE PLANTING DETAIL** SCALE: 1/2" = 1'-0"



B **15GAL TREE PLANTING DETAIL** SCALE: 3/8" = 1'-0"



C **SHRUB PLANTING DETAIL** SCALE: 1" = 1'-0"



D **GROUNDCOVER PLANTING DETAIL** SCALE: 1" = 1'-0"

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PLANTING DETAILS

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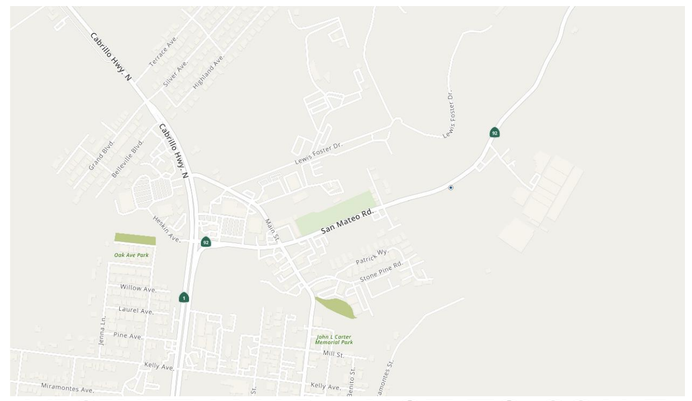
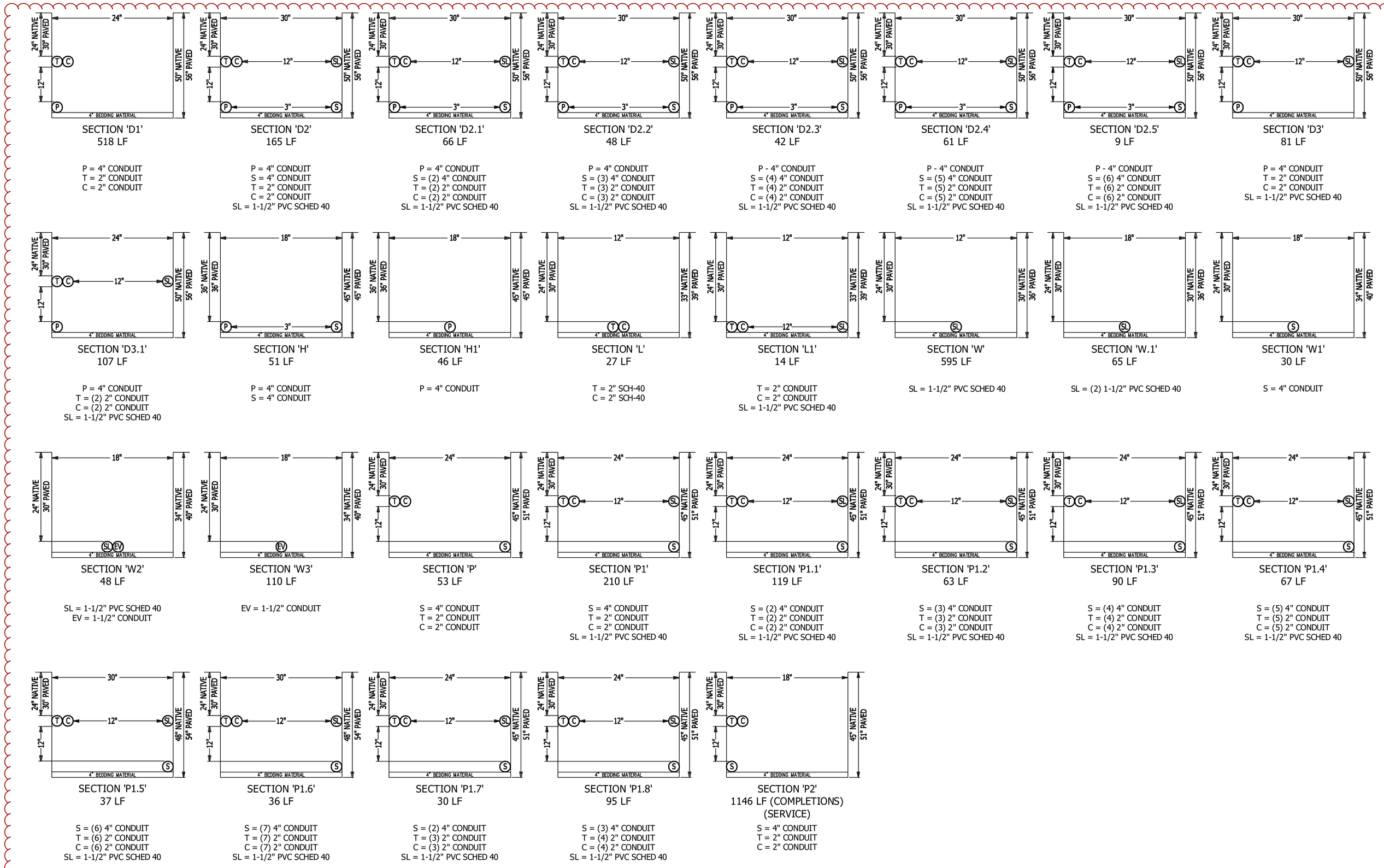
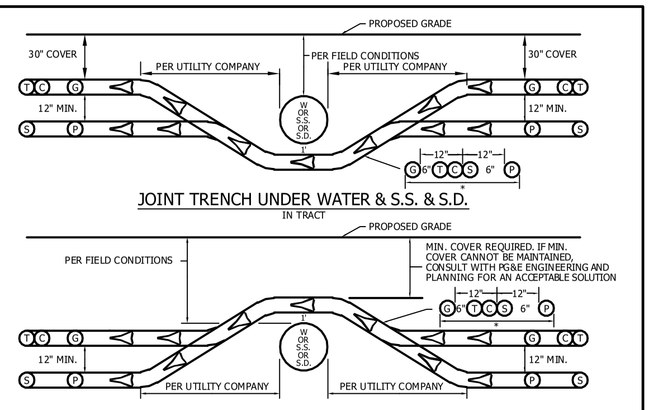
Date 05/16/2024
Scale AS NOTED
Drawn JG
Approved TKC

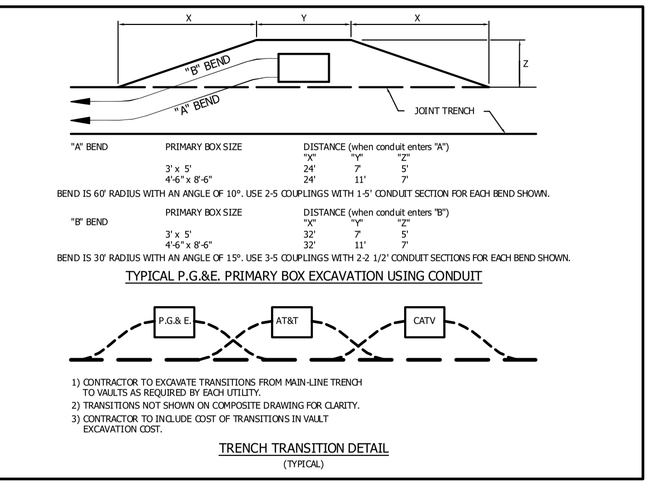
Drawing Number:
L4.5

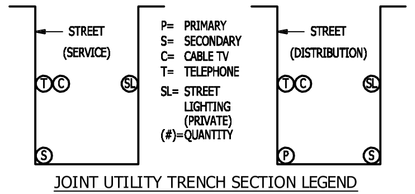


VICINITY MAP - NOT TO SCALE









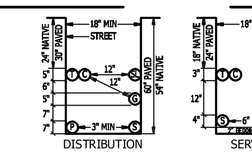
JOINT UTILITY TRENCH SECTION LEGEND

SECTION	G	T	C	S	P	OTHER
A*	X	X	X	X		
B*	X	X		X	X	
C*	X		X	X	X	
D*		X	X	X	X	
E*	X			X	X	
F*		X		X	X	
G*			X	X	X	
H*				X	X	
I	X	X	X			
J	X	X				
K	X		X			
L		X	X			
M	X	X	X	X		
N	X	X		X	X	
O	X		X	X		
P		X	X	X		
Q	X			X		
R		X		X		
S			X	X		
T	X					
U		X				
V			X			
W				X		

* THESE SECTIONS MAY OR MAY NOT CONTAIN SECONDARY

MINIMUM SEPARATION AND CLEARANCE REQUIREMENTS (INCHES)						
LBL	UTILITY TYPE	DOT T	DOT G	C	S	P	SL
G	(GAS) SEE NOTES 4,7, & 13	-	12	12	6	12	6
T	TELEPHONE (DUCT)	12	-	1	1	12	12	12
T	TELEPHONE (DIRECT BURY)	12	1	-	1	12	12	12
C	CATV	12	1	1	-	12	12	12
S	ELECTRIC SECONDARY	6	12	12	12	1.5	3	1.5
P	ELECTRIC PRIMARY	12	12	12	12	3	3	3
SL	STREET LIGHT - SEE NOTE 5	6	12	12	12	1.5	3	1.5
FE*	(FOREIGN ELEC SOURCES, NON PG&E*) SEE NOTE 5	12	12**	12**	12**	12	12	12

*MUST BE CONSIDERED A 'UTILITY' AS DEFINED IN UTILITY STANDARD S5453, "JOINT TRENCH."
**FOR EXCEPTIONS, REFER TO G.O. 128 RULE, SECTION B, ITEMS (1) AND (2).



MINIMUM BACKFILL REQUIREMENTS

JOINT TRENCH CONTRACTOR SHALL COMPLY WITH LOCAL GOVERNING AGENCIES' STANDARDS AND SPECIFICATIONS

millennium design & consulting, inc.
JOINT TRENCH UTILITY DESIGN & CONSULTING
APPLICANT DESIGN - STREET LIGHTING
P.O. BOX 737 ALAMO, CA 94507
PHONE: 925-820-8502 - FAX: 925-820-8407

MDCI JOB#:	23-1668
MDCI PM:	KS
DESIGNED BY:	NK
CHECKED BY:	TW
SCALE:	1"=40'
LAST MODIFIED:	5-3-24

REV	DATE	DESCRIPTION
	4-3-24	BID ADDENDUM 3
3	5-16-24	PERMIT RESUBMITTAL

BKF

JOINT TRENCH SECTION

FARM WORKER HOUSING STUDY

HALF MOON BAY CALIFORNIA

SHEET NO.

JTC1

SHEET 1	OF	4
REVISION NUMBER:		0
PLOT DATE:		5-16-24

ELECTROLIER NOTES:

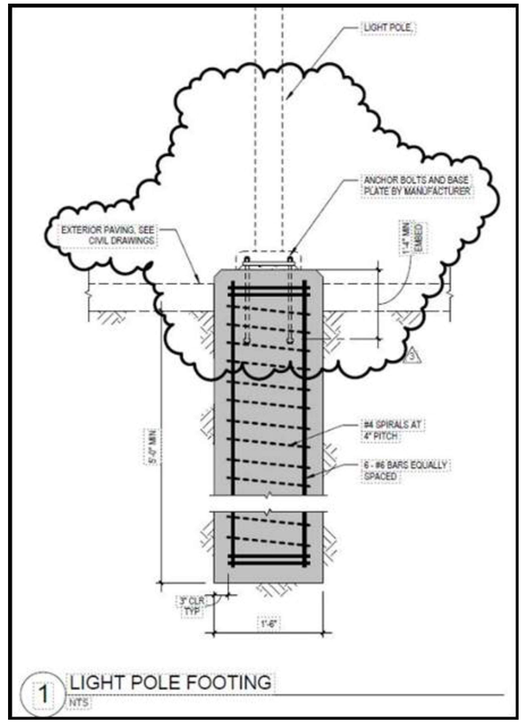
1. ALL MATERIAL AND WORKMANSHIP SHALL FULLY CONFORM WITH THE SPECIFICATIONS OF THE CITY OF HALF MOON BAY.
2. ELECTROLIERS ARE TO BE LOCATED NO CLOSER THAN 3' FROM THE EDGE OF DRIVEWAYS OR 5' FROM HYDRANTS.
3. IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO INSTALL UNDERGROUND SERVICE FROM THE ELECTROLIER TO P.G. & E. SERVICE BOX AND TERMINATE CONDUIT AND WIRE IN BOX AS DIRECTED BY P.G. & E.
4. CONDUIT AND FITTINGS SHALL BE U.L. APPROVED. CONDUIT BELOW GRADE SHALL BE MINIMUM 1–1/2" SCHEDULE 40 P.V.C. U.O.N. MIN. RADIUS BENDS SHALL BE 18". USE RIGID STEEL METALLIC CONDUIT FOR ABOVE GROUND INSTALLATIONS AND FOUNDATIONS. (FOR CONDUIT DEPTH SEE DETAIL.)
5. CABLE TO BE A.W.G. NUMBER 8, (OR LARGER AS NOTED) 7 – STRAND COPPER, TYPE THHN OR APPROVED EQUAL.
6. CIRCUITS WITH TWO OR MORE ELECTROLIERS SHALL BE WIRED TO BALANCE THE LOAD. (SEE WIRING DIAGRAM.)
7. JUNCTION BOXES SHALL MEET THE REQUIREMENTS FOR STATE NUMBER 3 1/2 PULL BOX WITH COVERS. COVERS TO BE MARKED, "STREET LIGHTING" AND SECURED WITH BRASS HOLD DOWN BOLTS.
8. FUSE EACH POLE WITH WATER PROOF IN–LINE BREAK AWAY FUSE HOLDERS AND AT EACH ADJACENT JUNCTION BOX.
9. ALL SPLICES SHALL BE MADE IN HANDHOLES OR JUNCTION BOXES ONLY. ALL SPLICES MUST BE PER CAL–TRANS SECTION 86.
10. CONTRACTOR TO PLACE POLE NUMBERS ON ALL STREET LIGHT STANDARDS. ALL NUMBERS ARE TO BE IN ACCORDANCE WITH P.G. & E. STANDARDS.

SYMBOL LIST

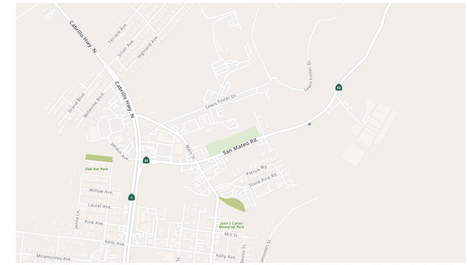
✳	DECORATIVE ELECTROLIER ON 12' POLE (DETAIL THIS PAGE) FIXTURE CAT#PROV2–36L–525–3K7–3–BLS–STANDARD_MOUNT–UNV
—— SL ——	PRIVATE SL TRENCH 1 1/2" PVC SCHED 40 W/3#8 CU & GRND U.O.N
—— JT ——	PRIVATE JOINT TRENCH
□	#3 1/2 SPLICE BOX (TYP 32)
◪	#3 1/2 SPLICE BOX W/ GROUND ROD (TYP 4)
●	FIRE HYDRANT
U.O.N.	UNLESS OTHERWISE NOTED

NOTE:
-PRELIMINARY PLANS-
NOT FOR CONSTRUCTION

NOTE:
PLEASE VERIFY THE SERVICE POINTS ON THIS PLAN MATCH YOUR CURRENT DESIGN. IF THERE ARE DISCREPANCIES, PLEASE CONTACT THE PROJECT MANAGER IN OUR OFFICE @ 925-820-8502



1 LIGHT POLE FOOTING NTS



VICINITY MAP - NOT TO SCALE

architectural area lighting

PROV2

ARCHITECTURAL AREA/SITE

DATE: LOCATION:
TYPE: PROJECT:
CATALOG #:

PROVIDENCE®



Providence Medium

FEATURES

- Reliable, uniform, glare free illumination
- Types 1, 2, 3, 4W, SQ, and 5W distributions
- Amber, 3000K, 4000K, 5000K CCT
- 0-10V dimming ready
- Integral Surge protection: 10k in parallel, 20k in series
- Upgrade Kits

3000K and warmer CCTs only

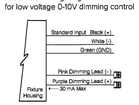
SPECIFICATIONS

CONSTRUCTION
- All housing components aluminum 360 alloy, sealed with continuous silicone rubber gaskets
- Standard configurations do not require a flat lens, optional lenses are tempered glass
- All internal and external hardware is stainless steel
- Finish: fade and abrasion resistant, electrostatically applied, thermally cured, triglycidal isocyanurate (TGIC) polyester powdercoat
- Optical bezel finish to match the luminaire housing

LED/OPTICS
- Optical cartridge system consisting of a die cast heat sink, LED engine, TIR optics, gasket and bezel plate
- Optics are held in place without the use of adhesives
- Molded silicone gasket ensures a weather-proof seal around each individual LED.
- Features individual LED optical control based on high performance TIR optical designs
- House Side Shield is available on Standard and Clear Lens options except any Type 5 distribution. House Side Shield is not available for any distribution using a Diffused Lens

INSTALLATION
- Fixtures must be grounded in accordance with national, state and/or local electrical codes. Failure to do so may result in serious personal injury

ELECTRICAL
- Luminaires have UL recognized integral surge protection, and have a surge current rating of 10,000 Amps using the industry standard 8/20uSec wave and surge rating of 372J
- Drivers are UL recognized with an inrush current maximum of <20.0 Amps maximum at 230VAC
- 100%-1% dimming range. Fixture will be wired for low voltage 0-10V dimming control



- Driver and surge suppressor are mounted to a prewired tray with quick disconnects that may be removed from the gear compartment
- Surge protection: 10,000k in parallel, 20,000k in series

CONTROLS
- Egress adapter(s) will slip over a 4"/100mm DIA. pole with the luminaire or arm slipping over the adapter to add a total of 4.5"/114mm to the overall height. Adapter(s) are prewired, independently rotatable 359°, and have a cast access cover with an integral lens and lanyard

CONTROLS (CONTINUED)
- Egress adapter will require an auxiliary 120 volt supply for operation of an integral MR16 lamp in the event of emergency. The lamp may be aimed and locked into position with an adjustment range of 15°-45°. Adapter will have a socket that accepts miniature bi-pin MR16 lamps up to 50 watts, lamp by others
- Photocell adapter includes a 7-Pin internal twist lock receptacle. Photocell by others

CERTIFICATIONS
- ETL listed under UL 1598 and CSA C22.2 No. 250.0-08 for wet locations
- This product qualifies as a "designated country construction material" per FAR 52.225-11 Buy American-Construction Materials under Trade Agreements effective 5/29/2020

WARRANTY
- 5 year warranty

KEY DATA	
LUMEN RANGE	1,81–9,336
WATTAGE RANGE	31.52–71.6
EFFICACY RANGE (LPW)	44.9–118.9
INPUT CURRENT RANGE (mA)	295–615 mA
WEIGHT	29 lbs / 13.15 kg
EPA	1.33

Current

currentlighting.com/aal

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architectural area lighting

RSA-A Series

ROUND STRAIGHT ALUMINUM POLE

DATE: LOCATION:
TYPE: PROJECT:
CATALOG #:

AAL Poles



SPECIFICATIONS

APPLICATIONS
- Lighting installations for side and top mounting of luminaires with effective projected area (EPA) not exceeding maximum allowable loading of the specified pole in its installed geographic location

CONSTRUCTION
- SHAFT: One-piece straight aluminum with round cross section; Extruded shafts of 6061-T6 aluminum in 1/8", 3/16", or 1/4" thickness. Base plate of 356 cast aluminum.
- BOLT COVERS: Four (4) individual bolt covers provided, painted to match pole and base finish.
- POLE CAP: Pole shaft supplied with removable cover when applicable; Tenon and post-top configurations also available
- HAND HOLE: Rectangular 3x5 aluminum hand hole frame (2.38" x 4.38" opening); Mounting provisions for grounding lug located behind gasketed cover
- ANCHOR BOLTS: Four galvanized anchor bolts provided per pole with minimum yield of 55,000 psi (ASTM F1554). Galvanized hardware with two washers and two nuts per bolt for levelingwarnings

FINISH
- Durable thermoset polyester powder coat paint finish with nominal 3.0 mil thickness
- Powder paint finish coat available in multiple standard colors; Custom colors available; RAL number preferable

ORDERING GUIDE

Example: PR4-4R12-125-PCR-GFI-SBC-PTF-BLT

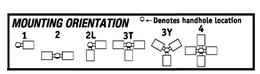
CATALOG #

POLE

Series	Pole	Shaft	Thickness	Mounting	Finish		VM2	
RSA-A	Round Straight Aluminum Pole	Reference page 2 Ordering matrix	Reference page 2 Ordering matrix	Reference page 2 Ordering matrix	TA Tenon (2.375" OD)	BLS Black Gloss Smooth	GFI	20 Amp GFCI Receptacle and Cover
					TB Tenon (2.875" OD)	BLT Black Matte Textured	EHH	Extra Handhole
					OT Open Top (includes pole cap)	DBS Dark Bronze Gloss Smooth	C05	.5" Coupling
						DBT Dark Bronze Matte Textured	C07	.75" Coupling
						GTT Graphite Matte Textured	C20	2" Coupling
						LGS Light Grey Gloss Smooth	VM2	2nd mode vibration damper
						LGT Light Grey Matte Textured	LAB	Less Anchor Bolts
						PSS Platinum Silver Gloss Smooth	UL	UL Certified
						VGT Verde Green Matte Textured		
						WHS White Gloss Smooth		
						WHT White Matte Textured		
					Color Option			
					CC[1] Custom Color			

Accessories	
VM2SXX	2nd mode vibration damper, ordered separately

MOUNTING ORIENTATION ←Denotes handhole location



Notes:
1 Consult factory for custom color, marine and corrosive finish

Current

currentlighting.com/aal

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40 0 20 40 80

(IN FEET)
1 INCH = 40 FT.

MILLENNIUM
DESIGN & CONSULTING, INC.
JOINT TRENCH UTILITY DESIGN & CONSULTING
APPLICANT DESIGN - STREET LIGHTING
P.O. BOX 731 ALAMO, CA 94507
PHONE: 925-820-8502 - FAX: 925-820-8407

MDCI JOB#:	4-30-24
MDCI PM:	TW
DESIGNED BY:	CK
CHECKED BY:	TW
SCALE:	NONE
LAST MODIFIED:	5-3-24

REV	DATE	DESCRIPTION
3	5-16-24	PERMIT RESUBMITTAL

BKF

STREET LIGHTING PLAN

FARM WORKER HOUSING STUDY

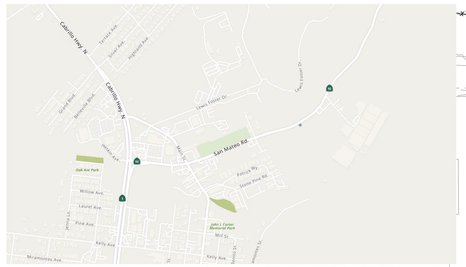
HALF MOON BAY CALIFORNIA

SHEET NO.
JTC2

SHEET 2 OF 4

REVISION NUMBER: 0

PLOT DATE: 5-16-24



VICINITY MAP - NOT TO SCALE

NORTH

30 0 15 30 60

(IN FEET)
1 INCH = 30 FT.

PATRICK WAY

PG&E, AT&T AND COMCAST TO CONFIRM SERVICE TIE-INS

200 AMP, 120/208 VOLT, SINGLE PHASE, 3-WIRES (TYP. 4)

100A METER PED FOR PRIVATE STREET LIGHTS

EV STATIONS

4'X 6'6"X 5' (5'X 7'6" O.D.) PG&E PRIMARY SPLICE VAULT MAY REQUIRE BY PG&E

4'X 6'6"X 5' (5'X 8'6" O.D.) PG&E PRIMARY SPLICE VAULT MAY REQUIRE BY PG&E

17"X30"X36" TEL
17"X30"X12" CATV
24"X 36"X 18" SEC
4'X6'X3' CATV
4'X6'X3' TEL

PROPOSED PG&E PAD MOUNT TRANSFORMER ON A 50"X52" CONCRETE PAD. BOLLARDS MAY BE REQUIRED AT THE DISCRETION OF THE PG&E INSPECTOR. (TYP 4)

BIORETENTION AREA #1
4,800 SF
TOB VARIES
FG VARIES

BIORETENTION AREA #2
350 SF
TOB 78.00
FG 75.75

BIORETENTION AREA #3
350 SF
TOB 78.00
FG 75.75

(E)100-YR FLOOD LIMIT
EG 75.4

(E)500-YR FLOOD LIMIT
EG 76.8

NOTE:
-PRELIMINARY PLANS-
NOT FOR CONSTRUCTION

NOTE:
PLEASE VERIFY THE SERVICE POINTS ON THIS PLAN MATCH YOUR CURRENT DESIGN. IF THERE ARE DISCREPANCIES, PLEASE CONTACT THE PROJECT MANAGER IN OUR OFFICE @ 925-820-8502

CONSTRUCTION NOTE:
DO NOT BURY OR ENCASE CONDUIT, SUBSTRUCTURES OR GROUNDING WITHOUT PG&E INSPECTION

MILLENNIUM
DESIGN & CONSULTING, INC.
JOINT TRENCH UTILITY DESIGN & CONSULTING
APPLICANT DESIGN - STREET LIGHTING
P.O. BOX 273 - ALAMO, CA 94507
PHONE: 925-820-8502 - FAX: 925-820-8407

MDCI JOB#:	23-1668
MDCI PM:	KS
DESIGNED BY:	NK
CHECKED BY:	TW
SCALE:	1"=30'
LAST MODIFIED:	4-30-24

REV	DATE	DESCRIPTION
3	5-16-24	PERMIT RESUBMITTAL
	4-3-24	BID ADDENDUM 3

BKF

JT CONCEPTUAL COMPOSITE
FARM WORKER HOUSING STUDY
HALF MOON BAY CALIFORNIA

SHEET NO.
JTC3

SHEET 3	OF	4
REVISION NUMBER:		0
PLOT DATE:		5-16-24



Notes:

1. The illuminance grids are shown at the ground level and the grid spacing is 10' x 10' for the Roadway and 8' x 8' for the Parking Areas.
2. The luminaire fixture types and part numbers included on the schedule above are for photometric purposes only and may need to be revised for real world conditions. Please refer to the manufacturer specification sheets and make sure to confirm voltages, finishes, mounting options, dimming and control options, accessories, etc. before specifying and/or ordering the fixtures.
3. LLF = Light Loss Factor = Lamp Lumen Depreciation (LLD) x Lamp Dirt Depreciation (LDD) = 0.95 x 0.95 = 0.903
4. The "MH" tag beneath the fixture type designations shown in plan view indicates fixture mounting height AFG.

Illuminance Calculation Summary

Calculation Grid Description	Units	Avg	Max	Min	Avg/Min	Max/Min
Parking Area 1	Fc	1.01	3.5	0.1	10	35
Parking Area 2	Fc	2.07	3.5	0.6	3	6
Parking Area 3	Fc	2.23	3.5	0.8	3	4
Roadway	Fc	1.28	3.3	0.2	6	17
Spill Light	Fc	0.10	3.4	0.0	N.A.	N.A.

Luminaire Schedule

Symbol	Qty	Fixture Type	Manufacturer and Part Number	LLF	Lumens	Watts
○	26	E1	Architectural Area Lighting - PROV2-36L-510-3K7-4W-CL-HS (mounted on 12ft pole)	0.903	2780	58.41
○	5	E2	Architectural Area Lighting - PROV2-36L-510-3K7-4W-CL (mounted on 12ft pole)	0.903	4763	58.41

LIGHTING SYSTEMS

www.ltgsys.com

510-982-3900
2322 6th Street
Berkeley, CA 94710

916-772-5800
1310 Blue Oaks Blvd
Suite 400
Roseville, CA, 95678

STREET LIGHTING PHOTOMETRICS

Customer:
Chris Kellner
Millenium Design
chris@jointutility.com
925-301-5477

Filename: Stone Pine Cove Streetlighting_102423 - REV02.AGI

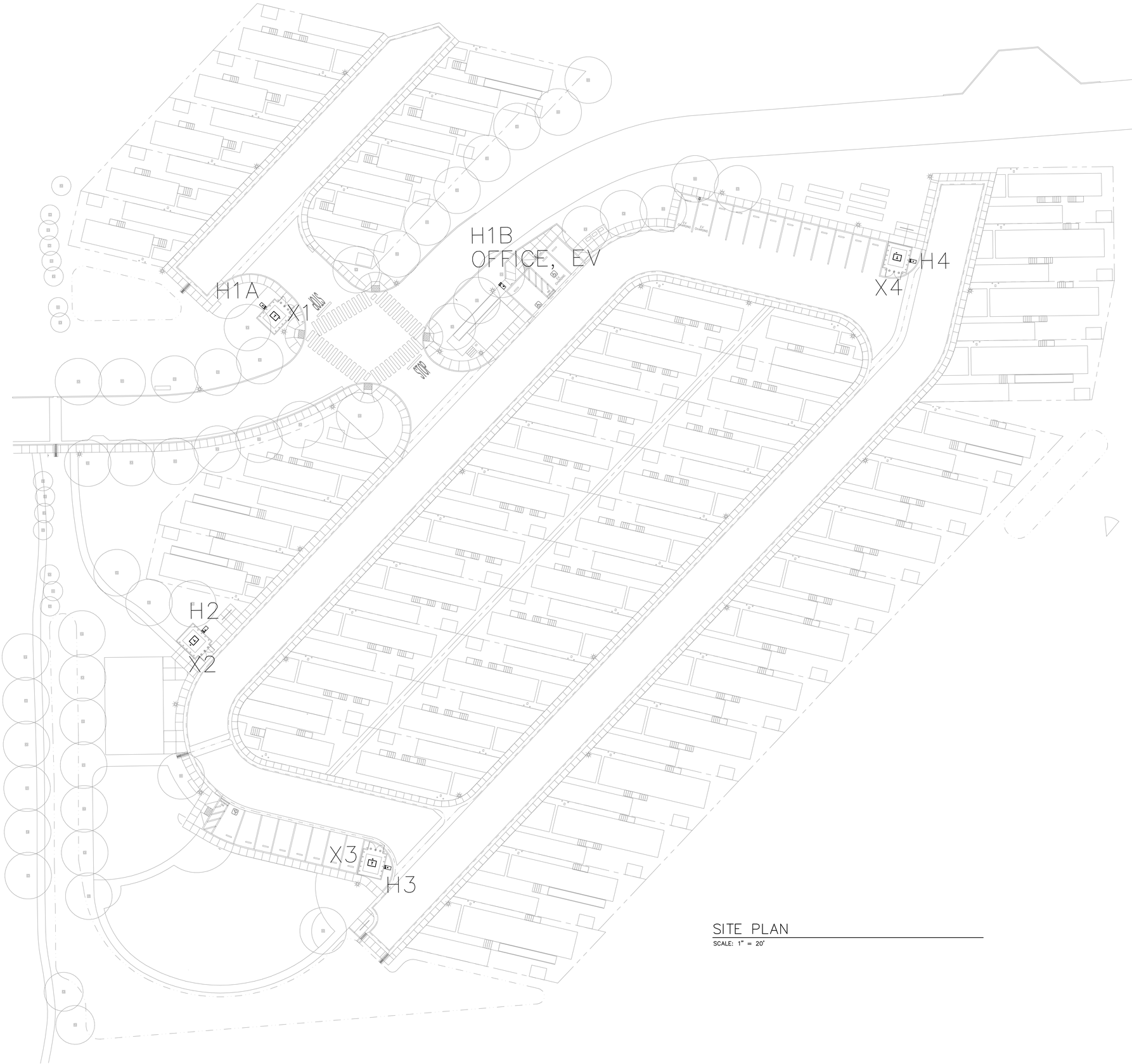
DISCLAIMER:

This lighting calculation report attempts to approximate the maintained light levels and is based on the information provided to LightingSystems. Please verify the information provided (space dimensions, fixture mounting heights, surface reflectances, etc.) to ensure the accuracy of the report. Many factors that can affect field-measured lighting levels cannot be anticipated when using the calculation software and as such Lighting Systems cannot guarantee lighting levels.

Date: 05/16/2024

Calcs by: Brian Franco
Phone: (510)-982-3938
brianf@ltgsys.com

JTC4



SITE PLAN

SCALE: 1" = 20'

NO.	DATE	DESCRIPTION
3	5-16-24	PERMIT RESUBMITTAL
1	04/03/24	BID ADDENDUM 3

REVISIONS

REGISTERED PROFESSIONAL ENGINEER
CHRIS KROEGER
E-23830
EXP. 12-31-25
04-03-24
ELECTRICAL
STATE OF CALIFORNIA

DRAWN: CY
DESIGNED: CY
CHECKED: TK
APPROVED: TK

EMERALD CITY ENGINEERS, INC
21705 Highway 99
Lynnwood, WA 98036
TEL: 425-741-1200

PROJECT:

STONE PINE COVE

880 STONE PINE RD
HALF MOON BAY, CA 94019

DATE: 05/16/24

SHEET TITLE:

SITE PLAN

SHEET NO.

E1.00

COPYRIGHT 2024, EMERALD CITY ENGINEERS, INC.

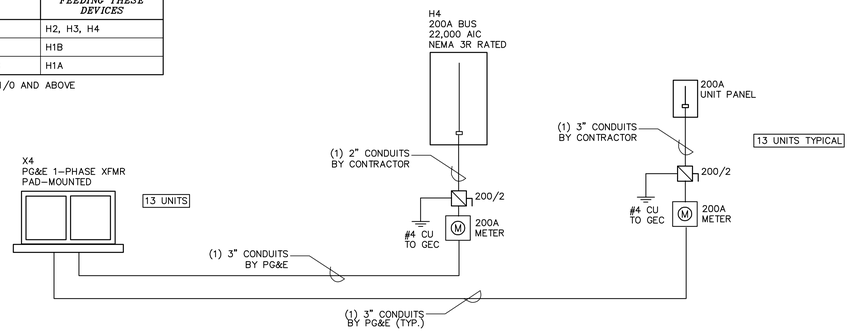
CYOD \\EC2017\JOBS\2472-001 STONE PINE COVE, HALF MOON BAY, CA\DWG\E100 SITE PLAN.DWG 04-03-2024 10:07

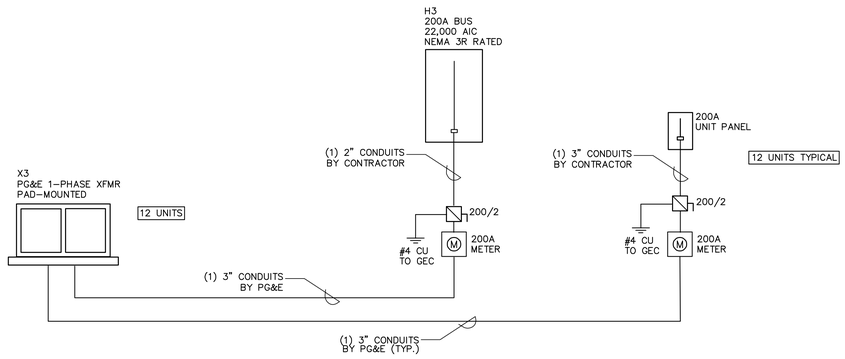
FROM DISCONNECT TO PANEL

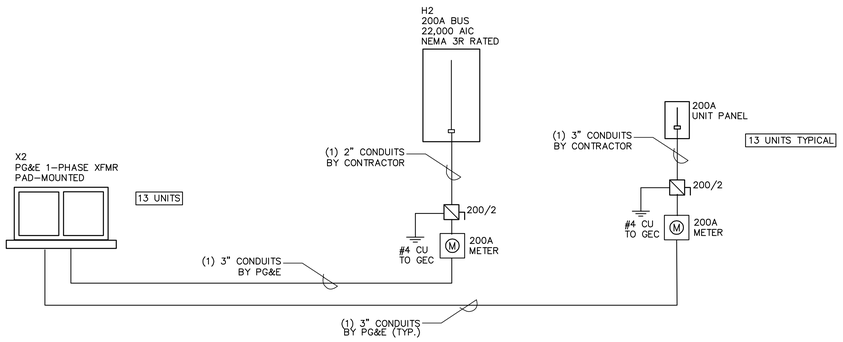
FEEDER SCHEDULE

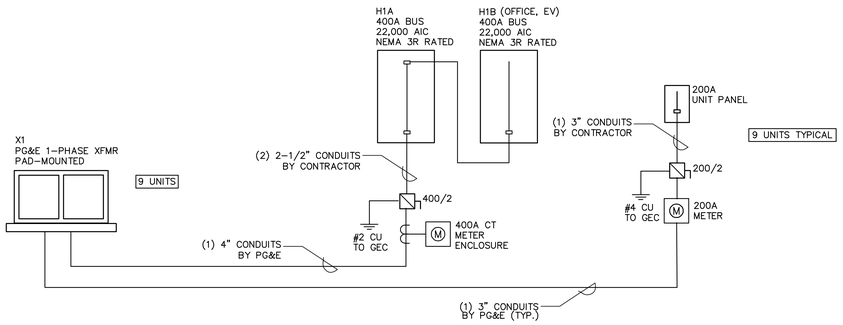
FEEDER AMPS	CONDUIT AND FEEDER	FEEDING THESE DEVICES
200	2"C,2#250kcmil AL,#250kcmil AL N,#2 AL G	H2, H3, H4
400	(2)2-1/2"C,2#250kcmil AL,#250kcmil AL N,#1 AL G	H1B
400	(2)2-1/2"C,2#250kcmil AL,#250kcmil AL N,#1/0 AL G	H1A

SIZING METHOD: COPPER/ALUMINUM, 60°C #12 THROUGH #1, 75°C 1/0 AND ABOVE









SHEET NOTES:

1. PROVIDE PG&E SMART METER CONDUITS PER GREENBOOK REQUIREMENTS, REFER TO FLOOR PLANS FOR LOCATION.
2. 2022 CALIFORNIA ENERGY CODE: VOLTAGE DROP FROM SERVICE POINT TO LOAD TO NOT EXCEED 5%.
3. FIRE PUMP AND HOUSE METERS TO HAVE TEST-BYPASS.
4. NOT USED.
5. EQUIPMENT MARKING SHALL BE PROVIDED FOR ALL ELECTRICAL EQUIPMENT PER CEC 110.21.
6. FURNISH AND INSTALL ARC-FLASH HAZARD MARKINGS FOR ALL EQUIPMENT PER 110.16. MARKINGS SHALL MEET THE REQUIREMENTS OF 110.21(B) AND SHALL BE CLEARLY VISIBLE TO QUALIFIED PERSONS BEFORE EXAMINATION, ADJUSTMENT, SERVICING, OR MAINTENANCE OF THE EQUIPMENT.
7. CIRCUIT BREAKER 1200A OR GREATER, PROVIDE ENERGY-REDUCING MAINTENANCE SWITCH FOR ARC ENERGY REDUCTION PER CEC 240.87.
8. * THE INTERRUPTING RATING OF ALL NEW DOWNSTREAM LOADS SHALL BE VERIFIED WITH PG&E PRIOR TO PROCUREMENT AND INSTALLATION. IN ADDITION, THE AVAILABLE FAULT CURRENT INFORMATION (ONCE IT IS MADE AVAILABLE) SHALL ALSO BE PROVIDED TO SSF DESIGN REVIEW PRIOR TO INSTALLATION.
   * UPON RECEIPT OF THE AVAILABLE FAULT CURRENT INFORMATION, THE ELECTRICAL ENGINEER OF RECORD SHALL VERIFY THAT THE PROPOSED ELECTRICAL EQUIPMENT ARE ADEQUATELY BRACED TO WITHSTAND THE AVAILABLE FAULT CURRENT AT THE ELECTRICAL SERVICE. THE ELECTRICAL SYSTEM SHALL BE SUBJECT TO VERIFICATION AND FINAL ACCEPTANCE BY AHJ.
9. NOT USED.
10. CIRCUIT BREAKERS 400A AND LARGER TO HAVE FIELD-ADJUSTABLE, SHORT-TIME AND CONTINUOUS-CURRENT SETTINGS.
11. CEC 2022: 230.67: MAIN SERVICE REQUIRES TYPE 1 OR TYPE 2 SURGE PROTECTION DEVICE.

    CEC 2022: 110.16(B): SERVICE EQUIPMENT TO HAVE A PERMANENT LABEL (FIELD OR FACTORY) WITH THE FOLLOWING INFORMATION:
    - NOMINAL VOLTAGE
    - AVAILABLE FAULT CURRENT AT THE SERVICE OCPD
    - THE CLEARING TIME OF SERVICE OCPD BASED ON THE AVAILABLE CURRENT.
    - THE DATE THE LABEL WAS APPLIED.

    CEC 2022: 240.67: ARC ENERGY REDUCTION: WHERE CIRCUIT BREAKERS OR FUSES RATED 1200A OR HIGHER, PROVIDE DOCUMENTATION AND CLEARING TIME METHOD PER 240.67(B).

ELECTRIC VEHICLE (EV) CHARGERS

(1) LEVEL 2 EVSE AT EACH UNIT
(3) LEVEL 2 EVSE AT THE GUEST PARKING BY THE OFFICE

= (50) EVSE TOTAL

NO.	DATE	DESCRIPTION
3	5-16-24	PERMIT RESUBMITTAL
1	04/03/24	BID ADDENDUM 3

REVISIONS

REGISTERED PROFESSIONAL ENGINEER
KEVIN A. YOUNG
E-23830
EXP. 12-31-25
04-03-24
ELECTRICAL
STATE OF CALIFORNIA

DRAWN: CY	DESIGNED: CY	CHECKED: TK	APPROVED: TK

EMERALD CITY ENGINEERS, INC
21705 Highway 99
Lynnwood, WA 98036
TEL: 425-741-1200

PROJECT:

STONE PINE COVE

880 STONE PINE RD
HALF MOON BAY, CA 94019

DATE: 05/16/24

SHEET TITLE:

ONELINE DIAGRAM

SHEET NO.

E5.00

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D:\00 \\ESXVA\JOBS\2472-001 STONE PINE COVE, HALF MOON BAY, CA\2ND\E500 ONELINE DIAGRAM.DWG 04-03-2024 10:08

Apt. Service Load - Optional Calculation - H1A, H1B

UNITS MUST HAVE ELECTRIC COOKING ***AND*** ELEC SPACE HEATING/COOLING

Job Number:	2472-001	Run By: ACF	Printed :
Job Name:	Stone Pine Cove		04/02/24
Location:	Half Moon Bay, CA		2:03 PM

House Load

House Square Footage 4290

Continuous House loads (expected to operate for >3 hours at a time) (kVA)

House Lighting	enter known >>	10		(kVA) 12.5
House Washer Load	Load per Washer (kW) 1.5	Quantity 0		(kVA) 0.0
House Dryer Load	Load per Dryer (kW) 5	Quantity 0		(kVA) 0.0

Miscellaneous Continuous Loads

FACP	2		
L2 EV x 3	24.75		
WH	5		

(kVA) 44.7

Non-Continuous House Loads (kVA)

House Range Load	Load per Range (kW) 8.1	Quantity		(kVA) 0.0
Elevator Load	Load per Elevator (kW) 25	Quantity		(kVA) 0.0
Receptacles (220 - 14)	Load per Receptacle (VA) 180	Quantity 50	first 10 kVA at 100% remainder at 50%	0.0
Commercial Kitchen Equipment	TOTAL Equipment Load (kW)	Quantity; Demand Factor: 100%		(kVA) 0.0
Central Electric HPWH	Included? No	Water Heaters (1.16 kW/unit) 0; Recirc Heater (0.567 kW/unit) 0.00		(kVA) 0.0

Miscellaneous Noncontinuous Loads

		Common HVAC	15
Amenity Space	5	Misc. Fans	5
		Misc.	10

(kVA) 35.0

25% of Largest Motor — enter 25% of largest 5 — (kVA) 5.0

House Demand Load Total (kVA) 106
House Demand Load Total (A) 442

Apt. Service Load - Optional Calculation - H2

UNITS MUST HAVE ELECTRIC COOKING ***AND*** ELEC SPACE HEATING/COOLING

Job Number:	2472-001	Run By: ACF	Printed :
Job Name:	Stone Pine Cove		04/02/24
Location:	Half Moon Bay, CA		2:03 PM

House Load

House Square Footage 7258

Continuous House loads (expected to operate for >3 hours at a time) (kVA)

House Lighting	enter known >>	5		(kVA) 6.3
House Washer Load	Load per Washer (kW) 1.5	Quantity 0		(kVA) 0.0
House Dryer Load	Load per Dryer (kW) 5	Quantity 0		(kVA) 0.0

Miscellaneous Continuous Loads

FACP	2		

(kVA) 2.5

Non-Continuous House Loads (kVA)

House Range Load	Load per Range (kW) 8.1	Quantity		(kVA) 0.0
Elevator Load	Load per Elevator (kW) 25	Quantity		(kVA) 0.0
Receptacles (220 - 14)	Load per Receptacle (VA) 180	Quantity 10	first 10 kVA at 100% remainder at 50%	1.8
Commercial Kitchen Equipment	TOTAL Equipment Load (kW)	Quantity; Demand Factor: 100%		(kVA) 0.0
Central Electric HPWH	Included? No	Water Heaters (1.16 kW/unit) 0; Recirc Heater (0.567 kW/unit) 0.00		(kVA) 0.0

Miscellaneous Noncontinuous Loads

		Misc.	10

(kVA) 10.0

25% of Largest Motor — enter 25% of largest 5 — (kVA) 5.0

House Demand Load Total (kVA) 26
House Demand Load Total (A) 108

Apt. Service Load - Optional Calculation - H3

UNITS MUST HAVE ELECTRIC COOKING ***AND*** ELEC SPACE HEATING/COOLING

Job Number:	2472-001	Run By: ACF	Printed :
Job Name:	Stone Pine Cove		04/02/24
Location:	Half Moon Bay, CA		2:04 PM

House Load

House Square Footage 8499

Continuous House loads (expected to operate for >3 hours at a time) (kVA)

House Lighting	enter known >>	5		(kVA) 6.3
House Washer Load	Load per Washer (kW) 1.5	Quantity 0		(kVA) 0.0
House Dryer Load	Load per Dryer (kW) 5	Quantity 0		(kVA) 0.0

Miscellaneous Continuous Loads

FACP	2		

(kVA) 2.5

Non-Continuous House Loads (kVA)

House Range Load	Load per Range (kW) 8.1	Quantity		(kVA) 0.0
Elevator Load	Load per Elevator (kW) 25	Quantity		(kVA) 0.0
Receptacles (220 - 14)	Load per Receptacle (VA) 180	Quantity 10	first 10 kVA at 100% remainder at 50%	1.8
Commercial Kitchen Equipment	TOTAL Equipment Load (kW)	Quantity; Demand Factor: 100%		(kVA) 0.0
Central Electric HPWH	Included? No	Water Heaters (1.16 kW/unit) 0; Recirc Heater (0.567 kW/unit) 0.00		(kVA) 0.0

Miscellaneous Noncontinuous Loads

		Misc.	10

(kVA) 10.0

25% of Largest Motor — enter 25% of largest 5 — (kVA) 5.0

House Demand Load Total (kVA) 26
House Demand Load Total (A) 108

Apt. Service Load - Optional Calculation - H4

UNITS MUST HAVE ELECTRIC COOKING ***AND*** ELEC SPACE HEATING/COOLING

Job Number:	2472-001	Run By: ACF	Printed :
Job Name:	Stone Pine Cove		04/02/24
Location:	Half Moon Bay, CA		2:05 PM

House Load

House Square Footage 8979

Continuous House loads (expected to operate for >3 hours at a time) (kVA)

House Lighting	enter known >>	5		(kVA) 6.3
House Washer Load	Load per Washer (kW) 1.5	Quantity 0		(kVA) 0.0
House Dryer Load	Load per Dryer (kW) 5	Quantity 0		(kVA) 0.0

Miscellaneous Continuous Loads

FACP	2		

(kVA) 2.5

Non-Continuous House Loads (kVA)

House Range Load	Load per Range (kW) 8.1	Quantity		(kVA) 0.0
Elevator Load	Load per Elevator (kW) 25	Quantity		(kVA) 0.0
Receptacles (220 - 14)	Load per Receptacle (VA) 180	Quantity 10	first 10 kVA at 100% remainder at 50%	1.8
Commercial Kitchen Equipment	TOTAL Equipment Load (kW)	Quantity; Demand Factor: 100%		(kVA) 0.0
Central Electric HPWH	Included? No	Water Heaters (1.16 kW/unit) 0; Recirc Heater (0.567 kW/unit) 0.00		(kVA) 0.0

Miscellaneous Noncontinuous Loads

		Misc.	10

(kVA) 10.0

25% of Largest Motor — enter 25% of largest 5 — (kVA) 5.0

House Demand Load Total (kVA) 26
House Demand Load Total (A) 108

Dwelling Unit Load - Optional Calculation
Apartment - 1 Bed

Based on 2020 NEC

		Loads (kVA)	
Dwelling square footage (ft^2)	426		
Lighting and receptacle load (220 - 82 (B))	3 (VA/ft^2)	1.3	
Electric Clothes Dryer (220 - 54)	Yes	5	
Consolidated nameplate rating of electric cooking		8.1	
Small Appliance circuits (2 required in kitchen by 210-52)		3	
All other appliance nameplate loads (220 - 82) (fixed in place) Fixed in place appliances excluding stoves, dryers, space heating, A/C, microw ave, toaster, blender.		8.8	
Includes dishwasher (1.4kw), disposer (1.2kw), microwave/hood (1.6kw), exhaust/supply fans (0.1kw), HPWH (4.5kw)			
Laundry circuit (220 - 52)	Yes	1.5	
Bathroom circuit not required in calc (210-11) - See examples in Appendix D			
Total General Load, first 10 kVA at 100%, remainder at 40% (kVA)		27.7	17.1

Largest of Electric Heat, Air Conditioning, or Heat Pump with Electric Heat

NEC 220.82(C) Only include the largest of the selections to the right

INDIVIDUAL ELEC HEATERS	10.00	(If less than 4 units, @ 65%)
INDIVIDUAL ELEC HEATERS		(If more than 4 units, @ 40%)
AUX HEAT WITH HEAT PUMP		(Calculated at 65%)
COMPRESSOR		(Calculated at 100%)
AC		(Calculated at 100%)
		6.50

Level 2 EV Charger (kVA) 8.3
Total Demand Load (kVA) 31.8

Service Voltage 240/120 - 1

Service Size (A) 133

Dwelling Unit Load - Optional Calculation
Apartment - 2 Bed

Based on 2020 NEC

		Loads (kVA)	
Dwelling square footage (ft^2)	560		
Lighting and receptacle load (220 - 82 (B))	3 (VA/ft^2)	1.7	
Electric Clothes Dryer (220 - 54)	Yes	5	
Consolidated nameplate rating of electric cooking		8.1	
Small Appliance circuits (2 required in kitchen by 210-52)		3	
All other appliance nameplate loads (220 - 82) (fixed in place) Fixed in place appliances excluding stoves, dryers, space heating, A/C, microw ave, toaster, blender.		8.8	
Includes dishwasher (1.4kw), disposer (1.2kw), microwave/hood (1.6kw), exhaust/supply fans (0.1kw), HPWH (4.5kw)			
Laundry circuit (220 - 52)	Yes	1.5	
Bathroom circuit not required in calc (210-11) - See examples in Appendix D			
Total General Load, first 10 kVA at 100%, remainder at 40% (kVA)		28.1	17.2

Largest of Electric Heat, Air Conditioning, or Heat Pump with Electric Heat

NEC 220.82(C) Only include the largest of the selections to the right

INDIVIDUAL ELEC HEATERS	10.00	(If less than 4 units, @ 65%)
INDIVIDUAL ELEC HEATERS		(If more than 4 units, @ 40%)
AUX HEAT WITH HEAT PUMP		(Calculated at 65%)
COMPRESSOR		(Calculated at 100%)
AC		(Calculated at 100%)
		6.50

Level 2 EV Charger (kVA) 8.3
Total Demand Load (kVA) 32.0

Service Voltage 240/120 - 1

Service Size (A) 133

Dwelling Unit Load - Optional Calculation
Apartment - 3 Bed

Based on 2020 NEC

		Loads (kVA)	
Dwelling square footage (ft^2)	803		
Lighting and receptacle load (220 - 82 (B))	3 (VA/ft^2)	2.4	
Electric Clothes Dryer (220 - 54)	Yes	5	
Consolidated nameplate rating of electric cooking		8.8	
Small Appliance circuits (2 required in kitchen by 210-52)		3	
All other appliance nameplate loads (220 - 82) (fixed in place) Fixed in place appliances excluding stoves, dryers, space heating, A/C, microw ave, toaster, blender.		8.8	
Includes dishwasher (1.4kw), disposer (1.2kw), microwave/hood (1.6kw), exhaust/supply fans (0.1kw), HPWH (4.5kw)			
Laundry circuit (220 - 52)	Yes	1.5	
Bathroom circuit not required in calc (210-11) - See examples in Appendix D			
Total General Load, first 10 kVA at 100%, remainder at 40% (kVA)		28.8	17.5

Largest of Electric Heat, Air Conditioning, or Heat Pump with Electric Heat

NEC 220.82(C) Only include the largest of the selections to the right

INDIVIDUAL ELEC HEATERS	10.00	(If less than 4 units, @ 65%)
INDIVIDUAL ELEC HEATERS		(If more than 4 units, @ 40%)
AUX HEAT WITH HEAT PUMP		(Calculated at 65%)
COMPRESSOR		(Calculated at 100%)
AC		(Calculated at 100%)
		6.50

Level 2 EV Charger (kVA) 8.3
Total Demand Load (kVA) 32.3

Service Voltage 240/120 - 1

Service Size (A) 134

LOAD CALCULATIONS

SCALE: NONE

NO.	DATE	DESCRIPTION
3	5-16-24	PERMIT RESUBMITTAL
1	04/03/24	BID ADDENDUM 3

REVISIONS

REGISTERED PROFESSIONAL ENGINEER TYLER C. KEHRT E-23830 EXP. 12-31-25 ELECTRICAL STATE OF CALIFORNIA 04-03-24

DRAWN: CY DESIGNED: CY CHECKED: TK APPROVED: TK

EMERALD CITY ENGINEERS, INC
21705 Highway 99
Lynnwood, WA 98036
TEL: 425-741-1200

PROJECT: STONE PINE COVE
880 STONE PINE RD
HALF MOON BAY, CA 94019

DATE: 05/16/24

SHEET TITLE: LOAD CALCULATIONS

SHEET NO. E5.01

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CYOO \\ECE01\JOBS\2472-001 STONE PINE COVE, HALF MOON BAY, CA\DWG\E501 LOAD CALCULATIONS.DWG 04-03-2024 10:08

APPENDIX B1

Emergency Coastal Development Permit

City of Half Moon Bay
Community Development Director Review
EMERGENCY COASTAL DEVELOPMENT PERMIT ISSUANCE
PDP-23-090– December 11, 2023

PERMIT ISSUANCE

This permit under consideration, PDP-23-090, is a joint application of the County of San Mateo and the City of Half Moon Bay for an Emergency Coastal Development Permit to develop a new neighborhood (preliminarily referred to as "Stone Pine Cove") comprised of manufactured homes for low-income households located at 880 Stone Pine Road on the western side of the property used for the City of Half Moon Bay Corporation Yard. The neighborhood includes 46 manufactured homes for lower-income farmworker households, one manager's unit, and associated neighborhood infrastructure (e.g., access drives and utilities). Site amenities include public open spaces, two shared parking areas, and landscaping. The project includes the development of 28 units under the Joe Serna Farmworker Grant Program which will be made available to qualified (very low-income) farmworkers including the households displaced by the January 23, 2023 shooting incident. The City of Half Moon Bay is the property owner. An Emergency Coastal Development Permit for Stone Pine Cove is hereby approved subject to the Conditions of Approval contained in Attachment 1 for plans contained in Attachment 2.

PERMIT ISSUANCE

Jill Ekas

Jill Ekas, Community Development Director

December 11, 2023

Date

PROJECT SUMMARY

Owner:	City of Half Moon Bay
Applicant:	County of San Mateo and City of Half Moon Bay
City Contact:	John Doughty, Assistant City Manager (650) 726-8252
Requested Permits:	Emergency Coastal Development Permit for the Stone Pine Cove neighborhood emergency housing.

Site Location:	880 Stone Pine Road (Assessor's Parcel Number 056-260-180)
Local Coastal Land Use Plan/ General Plan:	Public Facilities and Institutions
Local Coastal Implementation Plan/Zoning:	Urban Reserve (U-R); note that the Certified Local Coastal Land Use Plan identifies this site for rezoning to the Public and Quasi-Public Land Use (P-S) Zoning District
Environmental Determination:	Statutorily Exempt pursuant to CEQA Statute Section 21080(b)(4) and Categorically Exempt pursuant to CEQA Guidelines Section 15269. Note: An Initial Study/Mitigated Negative Declaration (IS/MND) was prepared for the City of Half Moon Bay Corporation Yard Improvement Project. Mitigation measures have been implemented per the Corporation Yard's IS/MND and its Mitigation Monitoring and Reporting Plan. A subsequent CEQA assessment will be conducted in conjunction with the follow-up Coastal Development Permit. It will incorporate previous work prepared for the Corporation Yard IS/MND as well as new studies as applicable.
Water:	The project includes an extension of a water line to serve the project site and will be sized to provide adequate pressure. The new manufactured homes will be affordable to lower-income households and qualify for affordable housing water connections. Because agriculture is a Coastal Act priority land use, and because farmworker housing is considered to be an agricultural use, farmworker housing units are also eligible for Coastal Act priority water connections. The Coastside County Water District (CCWD) estimates that 30 water connections will be needed for the Stone Pine Cove residential units and additional connections will be needed for landscaping. The applicant will secure such connections directly from CCWD with the City authorizing 28 units from Coastal Act Priority allocation and remaining connections from Affordable Housing allocation.

Sewer:

An existing sewer main is located on the property, and no new sewer mains are required. A private collection system will be installed within the project site to direct effluent to the existing sewer main. There is adequate capacity in the collection system and treatment plant to serve the project. A maximum of 94 sewer capacity units and fees are required.

Dry Utilities:

Dry utilities include telecommunications/cable and electric power. Natural gas will not be provided to the site in accordance with the City of Half Moon Bay's commitment to carbon reduction. Dry utilities will be installed below grade.

Right of Appeal:

Emergency Coastal Development Permit: This permit allows property development necessary to address an emergency. As such the Emergency Coastal Development Permit is not appealable; however, per California Code of Regulations §13569 "Dispute Resolution for Local Permit Processing Procedures" parts C and D, an interested person may request the Coastal Commission executive director to review the local government permitting process and determinations.

Follow-Up Coastal Development Permit: A follow-up Coastal Development Permit will be required and submitted to the City within 60-days of issuance of the emergency permit. When that permit is considered, any aggrieved person may appeal future decisions of the Planning Commission or Community Development Director, as applicable. This project site is located within the Coastal Commission Appeals Jurisdiction; therefore, the City's final action on the follow-up Coastal Development Permit will be appealable to the California Coastal Commission.

BACKGROUND

Project Description: The project includes the development of a new neighborhood, tentatively named Stone Pine Cove. Stone Pine Cove will include 47 manufactured homes of varying sizes, access drives, infrastructure, and amenities including public open space. 46 units will be deed restricted affordable with 1 unit occupied by a resident manager. The proposed development would comprise approximately 5 acres at the western end of the City's Corporation Yard property at 880 Stone Pine Road.

Site & Surrounding Properties: The approximately 21-acre City-owned site is located within the City's defined Town Center at the terminus of Stone Pine Road. The property was used as a garden nursery prior to its current use as the City's Corporation Yard. The City's Corporation Yard utilizes approximately 4 acres on the east end of the site. Stone Pine Cove is to be located on an approximately 5-acre portion of the westerly portion of the property with the remainder of acreage devoted to habitat areas and respective buffers. The site abuts a fenced area containing a Conservation Easement and buffers to protect Pilarcitos Creek and its riparian habitat. Adjacent land uses are summarized below.

Surrounding Uses

	Use	Land Use Plan Designation / Zoning
North	Pedestrian path, Highway 92, and mostly undeveloped land across the highway	Mobile Home Park and the Carter Hill Planned Development (PD) / Industrial (IND) and Planned Unit Development (PUD)
South	Pilarcitos Creek and greenhouses beyond	Horticultural Business / Open Space Reserve (OS-R) and Agriculture (A-1)
East	Mixed light industrial, retail, and residential	Light Industrial / Industrial (IND)
West	Residential uses including Cypress Cove townhouses and the south side of the Hilltop Mobile Home Park	Residential Medium Density and Mobile Home Park / Planned Unit Development (PUD)

Improvements to the Half Moon Bay Corporation Yard have recently been completed ("Corporation Yard Improvement Project"). In advance of that project, the site was developed with the following:

- Corporation Yard offices in a converted ranch house
- Unpaved loop road from the terminus of Stone Pine Road to the Corporation Yard facilities
- Abandoned agricultural pond
- Trash and landscape materials enclosures
- Storage structures and yard space

The newly improved Corporation Yard includes the following additional and/or modified structures and uses:

- Storage and operations building (construction pending for a future phase of improvements)
- Two-way paved access road traversing the center of the site from west to east, starting at the terminus of Stone Pine Road to provide access to the Corporation Yard facilities at the eastern end of the property; replaces the northern portion of the unpaved access loop road
- Demolition and relocation of trash and landscape materials enclosures
- Solar field
- Corporation Yard parking lot
- Security fencing and gate
- Wildlife conservation corridor for protection of California red-legged frog and San Francisco garter snake which are special status species
- Riparian buffer and trail easement fencing

In total, the site area is comprised of the following:

Use	Acreage
Corporation Yard	4
Habitat Conservation	12
Stone Pine Cove Site	5
Total	21 acres

Note: Acreages are approximate.

A majority of the property is devoted to habitat conservation. A 100-foot-wide trail easement; environmentally sensitive areas (ESHAs) including Pilarcitos Creek and the abandoned agricultural pond; and required ESHA buffers cover approximately 12 acres of the property. Buffer requirements are 100 feet from delineated wetlands and 50 feet from the edge of Pilarcitos Creek's riparian vegetation or 100 feet from the top-of-bank, whichever is greater. The riparian buffer is generally within the wider trail easement; consequently, the effective riparian buffer is typically greater than the minimum required. Additionally, a designated wildlife conservation corridor supports protected status reptile and amphibian species. The corridor has been fully implemented with the recent installation of wildlife exclusionary fencing and via wildlife access tunnels under the new access road. Wildlife corridor fencing also extends westward along the edge of the trail easement. The corridor is designed to allow safe passage of protected status species, including the California red-legged frog (CRLF) and the San Francisco garter snake (SFGS), between the abandoned agricultural pond and Pilarcitos Creek and to keep protected status species away from the active portions of the property where they could potentially be harmed by vehicle traffic and other activities. Fencing also provides a barrier to the migration of these species onto Highway 92.

Granting of Emergency Permits: Municipal Code 18.20.040 C. presents the findings that must be made to grant an Emergency Coastal Development Permit. The code also provides the parameters under which the Community Development Director shall act on an Emergency Coastal Development Permit. Generally, the Director may act as quickly as deemed appropriate in the situation. The co-applicants (County of San Mateo and City of Half Moon Bay) addressed these requirements in the application's supplemental narrative contained in Attachment 3. The three required findings and the Community Development Director's determinations are presented below:

1. **Finding:** An emergency exists and requires action more quickly than permitted by the procedures for administrative permits or for ordinary permits, and the development can and will be completed within thirty days unless otherwise specified by the terms of the permit.

   Director's Determination: Per Municipal Code Section 18.20.020.E, "Emergency" means a sudden unexpected occurrence demanding immediate action to prevent or mitigate loss or damage to life, health, property or essential public services.

   This project is an emergency response. A mass shooting on January 23, 2023, at two Coastside farms, was a sudden and unexpected occurrence. This tragic event directly caused at least 19 lower-income farmworker households, comprising 40 individuals, to become homeless due to the "red-tagging" of substandard and unsafe housing, which included storage containers, recreational vehicles, and other non-habitable structures. These conditions precluded any ability for re-occupancy of this housing.

   Following this tragedy, the County established an Emergency Farmworker Housing Safety Task Force. The Task Force has been inspecting housing on Coastside agricultural properties to ensure farmworker safety and safe living conditions. The process has been indicating that additional homes are needed immediately due to excessive overcrowding and substandard living conditions. As of November 2023, the task force has examined approximately 50% of the properties to be evaluated and has inspected 90 farmworker housing units occupied by 268 farmworkers. The task force determined that units housing 68 farmworkers do not meet minimum safety standards and require corrective actions.

   San Mateo County anticipates that the task force will continue to identify substandard and unsafe housing units, creating an emergency need for additional affordable housing units. The County acknowledges that if the trend continues, as many as 130 farmworkers, in addition to the 19 households displaced by the shooting, will become homeless absent the immediate provision of new affordable housing units.

   Homelessness and unsafe living conditions constitute a threat to life and health. Therefore, immediate action to prevent or mitigate loss or damage to life is essential to address this housing emergency. In the most immediate initial response, San Mateo

County and the City of Half Moon Bay, along with other non-governmental organizations (NGOs), secured temporary housing for this traumatized population; however, maintaining long-term funding of market-rate rental housing is not sustainable, and a permanent housing solution is needed quickly in consideration that these leases will expire in mid-2024. At present, these same families face the real possibility of homelessness once again. The City, NGOs, and philanthropic groups are working to secure funding to extend leases until the fall of 2024, the anticipated opening of the project.

This local housing emergency is set against the backdrop of a Statewide housing crisis and its Bay Area context. In the Bay Area, lower-income households are especially impacted because of the lack of units combined with a very high median income driving market-rate housing costs up to some of the highest levels in the United States.

For farmworkers on the San Mateo County Coastside, who typically earn near minimum wage with few, if any, benefits, market-rate housing is out of reach. Absent housing provided by particular farms, households double or triple up to share rent or they resort to living in substandard and often unsafe structures. In any of these cases, living conditions are often poor and overcrowded. These conditions discourage farmworkers and their families from working in this very high-income stretch of the Coastal Zone. Although the farming industry on the Coastside has been contracting in recent years primarily due to drought which has resulted in lower yields, the challenge of providing housing for and retaining farmworkers exacerbates the matter of maintaining coastal agriculture in this area. Coastal agriculture is a State priority as set forth in the California Coastal Act, and these lands are rich with prime soils as mapped by the State Natural Resource Conservation Service.

It is notable that this emergency – the need to find replacement housing for (a) the 19 lower-income farmworker households (40 individuals) who became homeless following the mass shooting in January 2023 as their temporary leases expire in mid-2024, and (b) any additional farmworkers and their families found to be living in unsafe conditions by the San Mateo County Emergency Farmworker Housing Safety Task Force – presents different timelines than more typical emergencies in the Coastal Zone which are often associated with weather-related or tidal impacts to structures, trees, or roadways. In those cases, the emergency is typically addressed within days or weeks of the event, with the follow-up Coastal Development Permit coming forward soon after. In this case, the City has some lead-time in advance of the next phase of the emergency response. However, that lead-time is still not sufficient to process a standard Coastal Development Permit and deliver critical affordable housing to 46 very low-income farmworker households. The project site is located within the Coastal Commission's appeals jurisdiction and thus an administrative Coastal Development Permit could not be processed. The standard process, including public hearing(s), would take several months

and be subject to lengthy appeals periods. Furthermore, San Mateo County, as the property developer, cannot go out to bid for the project construction until an entitlement is in place, thus the timing needed for completing a Coastal Development Permit through the standard process would delay the project by at least a year and likely longer.

The Emergency Coastal Development Permit provides a path for the County to proceed with public bidding and project construction to house the displaced farmworker households in permanent affordable units in a timely manner. Under normal processing, bidding of the project would not likely occur for at least 16 months, and occupancy of the first unit would be no earlier than 2026. The emergency permit affords the opportunity to see occupancy by displaced farmworkers in the fall or winter of 2024. Manufactured homes were selected as the most appropriate for this location and emergency housing need due to their fast build and low cost; the availability of grant funding for this housing type; and the context of the site, where a mobile home park is already adjacent to the property and low-rise structures are preferable because they maintain views from Highway 92 to the Pilarcitos Creek riparian corridor vegetation.

2. **Finding:** Public comment on the proposed emergency action has been reviewed if time allows.

   Director's Determination: The public has been informed and input has been carefully considered.

   Municipal Code 18.20.40.C specifies that in cases where public notice can be made, it shall be provided. In this case, the emergency action required upfront efforts to secure funding, which allowed time for significant public engagement. San Mateo County and the City of Half Moon Bay have co-hosted three outreach sessions as follows:

   - April 17, 2023: Informational meeting with residents of the adjacent Cypress Cove Townhouse community with approximately 50 attendees.

   - May 8, 2023: Facilitated community listening session with approximately 120 attendees. The San Mateo County District 3 Supervisor, Half Moon Bay Mayor, and Half Moon Bay Vice Mayor attended to listen to community input.

   - August 17, 2023: Facilitated community meeting to present project plans, project timing, and permit process. Approximately 130 individuals attended.

   - August 31, 2023: Follow-up meeting with residents of the adjacent Cypress Cove Townhouse community for a project update and a question and answer session with approximately 70 attendees.

Input from the first two sessions provided design guidance for this project. Draft plans and the traffic study were made available in advance of the third session to solicit specific feedback. Additionally, the third and fourth sessions were held in advance of approving this Emergency Coastal Development Permit, again to maximize opportunities for public input and disclosure. The City created and has maintained a special project update page on its website to update the community. The City has also continued to meet with community members and shared information via community enews.

Community input was far-ranging. Some Cypress Cove residents expressed concerns, especially about traffic, parking, and property values. Some residents expressed support for the project, some with reservations, while others stated their intent to support the new neighborhood residents as they move into the community. Farmworkers and housing advocates have indicated that the need is immediate, that the situation is dire, and that this condition goes far beyond the 19 displaced households from the January 23, 2023, shooting tragedy.

Public comment has been addressed in the following areas:

- Traffic study
- Parking needs assessment
- Biological resources protections
- Hazard avoidance and management
- On-site neighborhood management

All the above topics are described later in this permit documentation.

In advance of the issuance of this Emergency Coastal Development Permit, the project site was posted, emails were sent to individuals who had signed up for updates about this project, an update was provided at the December 5, 2023 City Council meeting, and all application materials were posted and made available to the public.

3. **Finding:** The work proposed would be consistent with the requirements of the coastal program.

Director's Determination: At its foundation, the Local Coastal Program's (LCP's) implementation of the California Coastal Act protects coastal resources including environmental resources, coastal access, coastal recreation, scenic and visual resources, and agriculture. The project's Town Center location is aligned with conformance to these protections. While the site allows for housing near services including schools, health care, and shopping areas, this location is in lieu of over-crowded and sometimes unsafe conditions on agricultural properties which often do not have access to potable water or permitted and/or sustainable sewer service. Such conditions can adversely impact coastal

resources, a condition that has been observed in coastal San Mateo County in numerous locations. Additional considerations relative to coastal resource projections include:

Environmental Resources: ESHA was protected and enhanced by improvements included in the Corporation Yard Improvement Project. The Stone Pine Cove neighborhood will not impact ESHA due to the measures taken to establish a wildlife conservation corridor and buffers in conjunction with the Corporation Yard project. Tree removals are required to accommodate the development. In summary, 12 trees proposed for removal qualify as "heritage" trees per Municipal Code Section 7.40.020 and consist of eight Monterey pines, three are Monterey cypress, and one shining willow which has a multi-trunk form and appears to be a large shrub. Monterey pine trees are shallow-rooted, susceptible to numerous pests and diseases, and have been in decline throughout the City for many years. The neighborhood was designed to avoid the most significant tree stands and plantings on the site, including mature Monterey cypress trees that form a hedge row along the site's western property line. City regulations specify that Heritage trees that are removed must be replaced on a one-for-one basis with a minimum size 24-inch box specimen tree. The landscape plan includes significant replacement trees, resulting in a ratio of nearly 6:1 for each heritage tree removed. Some of the replacement trees will be Monterey cypress to fill in gaps in the hedgerow. Other trees proposed for removal do not qualify as heritage trees and replacement is not required; however, the landscape plan includes a significant number of new trees, as well as a range of landscaped spaces with shrubs and groundcovers compensating for the overall loss of vegetation. A tree removal plan summary was provided with the application and is included in Attachment 4.

Coastal Access and Recreation: Coastal access and recreation are maintained by this project. The project will not impede the development of a future trail along the north side of Pilarcitos Creek, for which a conservation and trail easement is already in place. The design and location of on-site amenities include provision for future access to the trail.

Scenic and Visual Resources: With frontage on Highway 92, the proposed development is adjacent to the Town Boulevard Scenic Corridor. Bordering Pilarcitos Creek and its riparian vegetation, it is also adjacent to a significant plant community. The Town Boulevard and significant plant communities are both visual resource areas per the Local Coastal Land Use Plan. Site planning and development form result in compliance with visual resource requirements. With respect to site planning, the new neighborhood will be located at a grade significantly lower than Highway 92. The location is screened from view by the elevated grade of the abandoned agricultural pond and existing hedge row of Monterey cypress trees. The development includes one-story manufactured homes that will be less visible than the structures approved and associated with the Corporation Yard for which no visual impact was identified. Homes are located further away from Highway 92 and on a lower portion of the property than the Corporation Yard structures. Views

from Highway 92 of Pilarcitos Creek riparian vegetation will be maintained. Renderings of the proposed neighborhood are provided in Attachment 5, and story poles will be installed per standard procedure as part of the follow-up Coastal Development Permit review process to confirm this opinion.

Coastal Agriculture: The Stone Pine Cove neighborhood will provide safe and deed-restricted affordable housing to individuals and families that work on San Mateo County coastside farms which directly supports the preservation of coastal agriculture.

In addition to coastal resource protection, the project is also consistent with additional land use/development, growth management, and hazard avoidance Land Use Plan policies.

Land Use/Development: The project site is in the Public Facilities and Institutions land use designation. The Land Use Plan directs future rezoning of the site to Public and Quasi-Public Land Use (P-S). Land Use Plan Policy 1-2, Coastal Resource Protection Priorities, determines that in advance of updates to the Zoning Ordinance in conformance with the recent Land Use Plan update, the Land Use Plan shall provide the standard of review, which includes the land use designations if they are insistent with the underlying zoning. The policy states:

> **Policy 1-2. Coastal Resource Protection Priorities.** *Protection of ESHA, public access and other coastal resources are a high priority for the City. To the extent that any policies in this Land Use Plan (which serves as the City's General Plan Land Use Element) and other elements of the City's General Plan are ambiguous, the City shall interpret them in the way that best protects ESHA and other coastal resources and maximizes public access.* ***In advance of updating the Implementation Plan for conformance with the policies of the 2020 Land Use Plan, the policies of the Land Use Plan shall provide the standard of review for any proposed new development****, including where these policies are more protective of ESHA and other coastal resources and maximize public access as consistent with the Coastal Act. (Emphasis added.)*

Furthermore, the P-S zoning district allows emergency shelters as a permitted use. This project is aligned with that use.

Additional Land Use Plan policies in support of housing at this location and in support of farmworkers and affordable housing include:

> **Policy 2-5. Housing Element Conformance.** *To ensure conformance with Coastal Act policies and priorities, focus the Housing Element's inventory of adequate sites*

within Town Center and through the Workforce Housing Overlay land use designation.

Policy 2-6. Housing Diversity and Affordability. *Encourage a diversity of housing types, including housing at a range of affordability levels, densities, sizes, and ownership types with equitable access to environmental benefits. Meet the needs of Half Moon Bay's diverse population, including young families, multi-generational families, students, young professionals, and seniors.*

Policy 2-8. Community Needs. *Support the development of land uses desired by the community and which contribute to quality of life.* ***Uses include affordable and diverse housing types such as farmworker housing*** *and smaller homes; light industrial uses including live-work and artisan uses; adaptive reuse of heritage buildings; agriculture and Half Moon Bay - Local Coastal Land Use Plan Chapter 2: Development 2-20 agriculture-compatible uses along with supportive accessory uses; commercial including neighborhood and local-serving uses; quasi-public uses including childcare, healthcare, animal care, and assisted living; and public uses including parks and other community facilities. (Emphasis added.)*

Policy 2-30. Town Center Planning. *Prepare and adopt an updated plan or zoning regulations and associated programs for the Town Center that includes use requirements, design standards, and circulation and parking management strategies. Specifically, Town Center planning shall include:*

a. Uses. Provisions to encourage a diverse mix of uses, including a range of housing types and affordability levels and non-residential uses that support the needs of the local community and visitors;

……

Policy 2-3. Priority Land Uses. *Define priority land uses and support development of such land uses throughout the City by the following categories:*

a. Coastal Act Priority Uses: Coastal-dependent uses, ***agricultural uses****, visitor-serving commercial uses, and coastal access and recreational facilities. Coastal Act Priority Uses are considered top tier priority in this LCP; and furthermore, as consistent with Coastal Act Section 30222, coastal-dependent industry and agriculture take precedence over all other uses including visitor-serving commercial recreation facilities.*

b. Local Priority Uses: ***Affordable dwelling units*** *for extremely low, very low, and low-income households. Local Priority Uses are considered second tier priority behind Coastal Act Priority Uses in this LCP. (Emphasis added.)*

Policy 4-4. Farmworker Housing. ***Farmworker housing is considered a Coastal Act Priority Use, as well as a Local Priority Use.*** *Encourage a range of farmworker housing including non-permanent housing for seasonal farmworkers and permanent housing through the Workforce Housing Overlay at appropriate affordability levels, densities, and locations on agricultural lands in Rural Coastal and Horticultural Business land use designations. Encourage clustering of farmworker housing where feasible, especially to preserve prime agricultural soils such that it has the least impact on agricultural production. For agricultural and agricultural compatible uses in Planned Developments, allow for limited on-site affordable employee housing as provided for in the Planned Development designation in Chapter 2. Development. (Emphasis added.)*

Growth Management: The project is subject to the City's growth management allocation system, generally referred to as "Measure D." Measure D requires that one growth allocation per unit be secured prior to the issuance of a Coastal Development Permit. Allocations are limited each year to a number that would result in 1% population growth citywide with a 0.5% bonus allowed within a defined downtown area (the City's former Redevelopment Area). 880 Stone Pine is located within the defined downtown area and 28 Measure D allocations for the downtown area were not yet allocated as of May 23, 2023, the date when the State of California Joe Serna Jr. Grant was awarded to San Mateo County for 28 manufactured housing units for farmworkers. Following the second community meeting during which the concept plans were presented, the City processed an application and awarded 28 allocations on August 18, 2023.[1] No pending applications for allocations had been submitted at that time, and no applicants were denied allocations within the downtown area in 2023 as of the date of this application for an Emergency Coastal Development Permit. An application for the remaining 19 required allocations will be processed in conjunction with the follow-up Coastal Development Permit.

Archeological Resources: A Phase 1 study was conducted in conjunction with the Corporation Yard Improvement Project. Based on the results of the Phase 1 study, the consultant team prepared and implemented a sampling plan that covered the developed areas associated with the Corporation Yard including the new access drive. No resources were identified during the sampling work for the Corporation Yard improvement project. To address the western portion of the site, the City further engaged a qualified consultant to assess the project area of Stone Pine Cove. The consultant prepared a supplemental sampling plan for the proposed development footprint of Stone Pine Cove which was reviewed and approved by the City. Subsequently, the archaeological sampling studies were completed. The results were negative and are summarized in an email provided in Attachment 7. Furthermore, the conditions of approval will ensure compliance with

[1] The City applied for all 47 allocations, however, only 28 remained following the allocation process in spring 2023.

standard provisions for stoppage of work upon the discovery of archaeological, cultural, or paleontological resources.

Hazard Avoidance: The project site's exposure to hazards is substantially the same as that of the adjacent Cypress Cove townhome neighborhood. Development of the Corporation Yard and related access ensures secondary emergency access for adjacent Cypress Cove residents as well as residents of the planned Stone Pine Cove community.

Flood Hazards: A flood elevation study prepared by a qualified civil engineer determined that the Stone Pine Cove community will be located outside both the 100- and 500-year flood zones of Pilarcitos Creek. The project engineer completed studies and utilized prior Army Corps of Engineers studies. Beyond modeling, it is notable that the site experienced no flooding, pooling/ponding, or evident erosion as a result of the most significant run-off recorded from Pilarcitos Creek during the winter storms of 2022-2023. The flood levels are presented in the project plans. Like Cypress Cove, the site is located within the Pilarcitos Dam inundation zone where evacuation planning is required, as addressed below.

Seismic and Geotechnical Hazards: A geotechnical consultant reviewed the proposal and provided a letter confirming project construction requirements (Attachment 8).

Fire Hazards: The site is not mapped within a "Very High Fire Severity Zone" per the California Department of Forestry and Fire Protection (CalFire). Tree removals, including some eucalyptus trees, and new landscaping that will be irrigated and managed, will put in place ongoing fuel load management and reduce wildland fire risk for this portion of the project site. The neighborhood design complies with the California Fire Code and the Coastside Fire Protection District's standards for emergency vehicle access. Fire hydrants and water service will comply with the Coastside County Water District and Coastside Fire Protection District's requirements.

Evacuation Planning: The City's Emergency Preparation and Response Division is currently developing city-wide evacuation plans that cover various scenarios including tsunami, flooding, dam inundation, and wildfire events. The City will be working with the County to develop an emergency response and evacuation plan specific to the new neighborhood. Concurrently, the City will initiate emergency response planning for the Cypress Cove community and other potentially impacted areas. This will include planning for evacuation in the unlikely event of a catastrophic failure of the Pilarcitos Dam.

Additional Considerations: Following feasibility studies of this site for housing, it had been determined that the Workforce Housing Overlay should be applied to it as documented in the public draft Cycle 6 Housing Element submitted to the California Department of Housing and Community Development on May 31, 2023. Such a designation would make

affordable housing on the site available for a wide range of lower-income households. In the meantime, because agriculture is an allowed use in the Public Facilities land use designation, and because farmworker housing is an agricultural use, the use of the proposed housing by farmworker households is already consistent with the Public Facilities land use designation. The Workforce Housing Overlay designation could still be applied to the site at a future time, but is not required for the project as proposed.

In conclusion, the Director has determined that due to emergency conditions with respect to affordable housing generally, and farmworker housing specifically, the Stone Pine Cove neighborhood development is consistent with the LCP. The follow-up Coastal Development Permit will be in line with zoning amendments to implement both the Local Coastal Land Use Plan and the Housing Element.

ANALYSIS

Additional information about the analyses used to back the findings made for this Emergency Coastal Development Permit is presented in this section. Assessments of this site have been addressed through previous relevant studies, updates to previous studies, or through new information prepared to support this Emergency Coastal Development Permit.

Stone Pine Cove Site, comprising a portion of 880 Stone Pine Road, is highlighted in blue.



Biological Resources: A comprehensive biological resources evaluation of the entire 880 Stone Pine Road property was prepared for the Corporation Yard Improvement Project. The study was circulated to resource agencies including the U.S. Fish and Wildlife Services, the Army Corps of Engineers, the California Coastal Commission, the California Department of Fish and Wildlife, and the Regional Water Quality Control Board for a 45-day comment period specified by the Local Coastal Program per Municipal Code section 18.38.035.C. Comments received on that study were addressed and the study was incorporated into the IS/MND prepared for that development pursuant to CEQA. The IS/MND was adopted by the City and the Notice of Determination was posted with San Mateo County on March 30, 2022, and April 20, 2022. The biological resources assessment evaluated the wildlife conservation corridor designed for the Corporation Yard Improvement Project. The wildlife conservation corridor, which is now implemented, created the approximately 5-acre site for the Stone Pine Cove neighborhood such that the neighborhood will be located outside of all ESHAs and associated ESHA buffers. Some of the biological mitigation measures associated with the Corporation Yard project are fully executed and complete, others apply to the construction and/or operational phases of the Stone Pine Cove neighborhood and are included as Conditions of Approval.

Traffic: The City contracted with a qualified independent traffic engineering firm to prepare a traffic study to evaluate the potential impacts of vehicle trips associated with the proposed Stone Pine Cove neighborhood relative to service levels and vehicle miles traveled (VMT). The study evaluated impacts on intersections located near the project site that would be used by future residents leaving and returning to the neighborhood. The study also considered safety impacts on Stone Pine Road for various modes of circulation, including pedestrians. At the request of some residents of the Cypress Cove neighborhood, the study also evaluated the potential for site access to be taken from Highway 92 instead of and/or in addition to the access proposed via Stone Pine Road. The traffic study is provided in Attachment 9.

The study concluded that the Stone Pine Cove neighborhood would not require additional right-of-way or other transportation-related improvements/mitigation measures. The study did not find speed-related impacts. However, based on community concern, the County and City are including traffic calming measures on Stone Pine Road from West Patrick Way to the easterly terminus of Stone Pine Road, subject to review and approval of the City Engineer and the Coastside County Fire District. The traffic calming measures are included as conditions of approval and presented in Attachment 10. Traffic calming measures are anticipated to include the following:

- Crosswalk improvements at West Patrick Way, including the addition of pedestrian-activated flashing beacons to improve pedestrian safety and provide strong visual cues to drivers
- A new high-visibility crosswalk at East Patrick Way, including new curb ramps, signage, and striping to improve pedestrian and bicycle safety
- Speed feedback signs (eastbound and westbound) to increase driver awareness
- Lane striping to narrow travel lanes to reduce vehicle speeds

- Tree trimming near West Patrick Way, to improve intersection visibility

Parking and Site Circulation: The project includes on-site parking which meets City parking standards for the minimum number of required spaces. Parking spaces will be provided within the individual lease spaces as "private" parking for each home. Additionally, the project includes guest/non-designated parking spaces throughout the site. Each access drive will be signed or painted to preclude parking to ensure access by first responders, notably the Fire District and service providers like Republic Services (solid waste).

Only one of the displaced households has more than two vehicles. Six of the smallest households have no vehicles. It is anticipated that Stone Pine Cove's parking provisions will be fully adequate for future residents based on information about household size and automobile ownership for the 19 displaced households, as follows:

Household Size (Persons)	Number of Households	Number of Vehicles per Household
1	5	0
1	5	1
2	1	0
2	2	1
3	4	1
4	1	2
5	0	N/A
6	1	3

For additional guidance, the City also considered the parking demand of Moonridge, which is an established farmworker housing community located in unincorporated San Mateo County just south of the City limits. Over the years, it has become evident that on-site parking is inadequate for Moonridge's current resident population. Moonridge's unit characteristics by bedroom count and parking provisions are compared with those proposed for Stone Pine Cove in the following table:

Community/ # Parking Spaces by Unit Type	1 Bedroom	2 Bedroom	3 Bedroom	4 Bedroom
Moonridge	N/A	1	1.5	2
Stone Pine Cove	2	2	2	N/A

On average, Stone Pine Cove will have smaller units and more parking per unit than Moonridge, with the following highlights explaining these factors:

- Moonridge does not have any one-bedroom units; Stone Pine Cove is proposed to have approximately 14 one-bedroom units.

- Moonridge has four-bedroom units, and Stone Pine Cove will not have any units that large.
- Stone Pine Cove will provide two parking spaces for each unit, whereas Moonridge provides one parking space for all its one- and two-bedroom units as well as one space for half of its three-bedroom units. Moonridge provides two spaces for half of its three-bedroom units and two spaces for all its four-bedroom units.

The new neighborhood will also include on-site property management and community policies addressing, among many things, parking. The City's approval includes a condition requiring on-site property management and rules and covenants in perpetuity regarding parking.

Stormwater Management: On-site detention areas will provide adequate capacity to handle stormwater runoff on site. Stormwater management plans are included in the project plan set in Attachment 2.

Construction Impacts: Construction is estimated to take approximately 8-12 months, dependent on weather and other site conditions. Most of the construction activities will be associated with site grading. Site grading includes the creation of the building pads, access drives, and underground utilities. Because the housing units are pre-manufactured, their installation will be relatively fast, and the normal impacts associated with site-built housing will not be present. Conditions of Approval provided in Attachment 1 include additional details determined by the City Engineer for ensuring safety before, during, and after construction.

Neighborhood Management and Support: A property management company will be contracted by San Mateo County, one of the co-applicants and the ultimate project owner. The company will provide an on-site manager who will live in the manager's unit. A small office and storage building for the maintenance and operations of the community are also included in the plans to support effective management. The management company will be responsible for ensuring that the manufactured homes are inspected at least annually and following earthquakes or other environmental conditions that could affect the structural integrity and/or safety of the homes.

As part of its oversight, the management company will also establish and enforce community policies that will be made a part of each space lease agreement. Examples of topics addressed in community policies include:

- Manufactured Home Standards and Maintenance
- Community Facilities/Shared Space Usage
- Code of Conduct
- Guests
- Parking
- Pets

In addition to on-site management and community policies, the farmworker households will find support from nearby facilities and agencies that are within walking distance of the site. Such resources include Coastside Hope (moving to Main Street in 2024), Ayudando Latinos A Soñar (ALAS), churches, the Half Moon Bay Library, schools, County Coastside Clinic, and the Ted Adcock Community Center.

Neighborhood Design: Renderings of the proposed neighborhood, as well as conceptual floor plans, are provided in Attachments 5 and 6. The homes will have pitched roofs, board and batten or equivalent quality siding, wood steps, covered entrances, and shutters. A warm and complimentary color palette with accent trim will be used for each home. Front yards will have irrigated landscaping. The open space area at the southwest corner of the neighborhood will be a City park and include active and passive spaces for public enjoyment, including a lawn area, play structure, and a hardscape court for flexible use (e.g., four square, hopscotch). The community garden at the northeast corner of the neighborhood will be an amenity for Stone Pine Cove residents. Tree plantings will enhance the neighborhood entrance and be included throughout the open space areas. Each home will have its own enclosure for solid waste bins (e.g., trash, recycling, and green waste) and storage sheds.

Conformance with the Local Coastal Land Use Plan/General Plan and the Zoning Code:
Plan conformance was presented in detail in finding #3, above.

ENVIRONMENTAL DETERMINATION

This emergency farmworker housing development is statutorily exempt pursuant to CEQA Statute Section 21080(b)(4) and CEQA Guidelines Section 15269 in that it consists of specific actions necessary to prevent or mitigate an emergency.

The IS/MND prepared for the Corporation Yard project addressed the entire site, especially concerning biological resources (Attachment 11). Additional studies have been prepared for Stone Pine Cove to evaluate the environmental impacts of the new neighborhood, including a traffic study and a site-specific archaeological resources evaluation. These studies concluded that there are no new impacts and that no new mitigation measures are needed. CEQA assessments will be updated for the follow-up Coastal Development Permit. Notably, some of the mitigation measures associated with the Corporation Yard project are fully executed and complete while others apply to the construction and/or operational phases of the Stone Pine Cove neighborhood. These measures are included as Conditions of Approval of the Emergency Coastal Development Permit.

CONCLUSION

The California Coastal Commission has been informed about this Emergency Coastal Development Permit issuance pursuant to Half Moon Bay Municipal Code 18.20.040 D. The Half Moon Bay City Council and Planning Commission have received regular updates about potential development of affordable housing on this site throughout the Housing Element update process

and review of the Corporation Yard Improvement Project over the past two years, and the City Council is further aware of the County's efforts to secure funding for development of affordable farmworker housing on this site. This report will be provided at a public meeting of the Half Moon Bay Planning Commission on December 12, 2023.

A follow-up Coastal Development Permit will be required per Municipal Code 18.20.040 E, and CEQA review will be conducted accordingly.

Based on the above analysis, the City concludes that an emergency condition constitutes the need for this project in an expedited fashion according to the allowances provided by the certified LCP for Emergency Coastal Development Permits. The project is also found to be consistent with the Zoning Ordinance and Local Coastal Program, is compatible with surrounding uses, and conforms to the requirements of the California Environmental Quality Act. The Community Development Director has approved the Emergency Coastal Development Permit based on the required findings as stated in this report and subject to Conditions of Approval in Attachment 1.

ATTACHMENTS

1. Conditions of Approval
2. Project Plans, November 2023
3. Application Supplemental Narrative
4. Tree Removal Plan Summary, October 2023
5. Renderings, November 2023
6. Conceptual Floor Plans, November 2023
7. Archaeological Email Memo, November 2023
8. Geotechnical Consultant Letter, October 2023
9. Final Traffic Study, November 2023
10. Traffic Calming Improvements, October 2023
11. Half Moon Bay Corporation Yard IS/MND (PDP 21-053), January 2022

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ATTACHMENT 1
CONDITIONS OF APPROVAL
PDP-23-090
ISSUANCE DATE: December 11, 2023

A. The following Conditions apply to this project:

1. CONFORMANCE WITH THE APPROVED PLANS. All plans shall substantially conform to the project plan set dated November 28, 2023, submitted with the application, as may be modified by the conditions of approval. The Community Development Director and the City Engineer shall review and may approve any deviations from the approved plans that are determined minor. Any other proposed change shall be processed as part of the Follow-Up Coastal Development Permit and shall be subject to Planning Commission Review as required by Title 18. (Engineering and Planning)

2. CONFORMANCE WITH CONDITIONS OF APPROVAL. The Community Development Director shall review and may approve any deviation from the Conditions of Approval that is determined minor. Any other change shall be included in the Follow-Up Coastal Development Permit and shall be subject to Planning Commission Review. (Planning)

3. CONFORMANCE WITH THE MUNICIPAL CODE. No part of this approval shall be construed to permit a violation of any part of the Half Moon Bay Municipal Code. (Engineering and Planning)

4. FOLLOW-UP COASTAL DEVELOPMENT PERMIT. The permittee shall submit a Coastal Development Permit application within 60 calendar days of the issuance date of the Emergency Coastal Development Permit. (Planning)

5. ON-SITE MANAGEMENT. The permittee shall obtain a qualified management company and provide on-site management in perpetuity for this community. The on-site management company shall be responsible for administering community policies and rules and for at least an annual inspection of each home to ensure safety and property maintenance. Inspections shall also be conducted following environmental occurrences such as earthquakes and extreme weather events to ensure structural integrity and safety. (Planning)

6. AFFORDABILITY. The project is subject to approval of an affordable housing agreement between the City and San Mateo County. (CMO)

7. FUTURE MODIFICATIONS TO HOMES. The manufactured homes must be maintained in accordance with original specifications. Routine maintenance is allowed but must be compliant with applicable codes. Additions are not permitted. Detached structures, such as arbors or sheds, may be permitted according to the community policies. (Planning)

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8. CONSERVATION CORRIDOR. To comply with Mitigation Measure BIO-2.f. from the Corporation Yard Initial Study/Mitigated Negative Declaration, the conservation corridor established for the Corporation Yard improvement project (PDP 21-053) shall be maintained by the City of Half Moon Bay. The wildlife tunnels and exclusionary fencing shall be inspected at least annually to ensure that the tunnels maintain open passage and the fencing maintains a complete barrier for passage of special status species including the California red-legged frog and the San Francisco garter snake. (Public Works)

9. LIGHTING. All exterior lighting shall be fully shielded so that no light source is visible from outside the property, except as otherwise expressly approved. The permittee shall install lighting per plans and submitted photometric lighting plan for all exterior light fixtures including lighting for parking lots, walkways, and open space areas. No floodlights are permitted on-site. (Planning)

10. SIDEWALK MAINTENANCE AND LIABILITY. It shall be the duty of the owner/operator to maintain all walkways within the project in a safe and non-dangerous condition. Walkway maintenance shall include removal and replacement of concrete to eliminate tripping hazards; and pruning and trimming of trees, shrubs, ground cover, and other landscaping impacting the safety of users. (Engineering and Planning)

B. The following Conditions shall be fulfilled prior to issuance of the grading permit and/or building permit:

1. SIGNED CONDITIONS OF APPROVAL. The permittee shall submit a signed copy of the conditions of approval to the Planning Department. (Planning)

2. CONSTRUCTION PLANS. File Number PDP-23-090 and the Conditions of Approval for this project shall be provided on the cover page of the engineering permit application plan submittal. All plans, specifications, engineering calculations, diagrams, reports, and other data for the construction of the building and required improvements shall be submitted with the appropriate permit application to the City's Building and Engineering Divisions for review and approval. Computations and backup data will be considered a part of the required plans. Structural calculations and engineering calculations shall be prepared, wet-stamped, and signed by an engineer or architect licensed by the State of California. (Planning and Engineering)

3. UNDERGROUND UTILITIES/SERVICES. Electric, telecommunication, and cable and utility service to the property shall be through underground service connections only. No overhead utility lines are allowed. Show locations of all service connections: sanitary sewer, storm drain (if applicable), water (domestic and fire), cable television, telephone, and electrical. (Engineering)

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4. WATER CONSERVATION IN LANDSCAPING. The permittee shall submit a final landscape and irrigation plan in substantial conformance with the Landscape Plan dated November 28, 2023 reflecting any revisions necessitated by the Conditions of Approval. The final irrigation plans shall be submitted and approved by the Community Development Director utilizing an Outdoor Water Efficiency Checklist that demonstrates compliance with the City's Water Conservation in Landscaping Ordinance (Chapter 13.04 of the Municipal Code). (Planning)

5. SURVEY REQUIRED. The permittee shall include a baseline elevation datum point on, or close to the construction site, indicating the grade as consistent with the survey and grading plan included in the November 28, 2023 application submittal. (Building and Public Works)

6. HOME DESIGN. Final elevations, floorplans, and a color board shall be submitted and approved by the Community Development Director prior to the issuance of the Building Permit and/or installation of any homes (compliance with this condition is not a prerequisite for issuance of the Grading Permit). Homes shall include architectural features including pitched roofs, quality siding such as board and batten, shutters, wood steps, covered entrances, and shutters. Home foundations shall comply with the recommendations of the project geotechnical review prepared by BAGG Engineers dated August 23, 2023. (Building and Planning)

7. EVIDENCE OF WATER CONNECTION CAPACITY. Prior to the issuance of the Grading Permit, the permittee shall submit a letter from Coastside County Water District certifying that the subject site has an adequately sized water connection for domestic and fire service for this project and that a sufficient number of priority connections have been allocated to the project. The City agrees to provide a letter in advance to CCWD indicating the allocation of affordable and coastal priority water connections. (Building and Fire)

8. EVIDENCE OF SEWER CONNECTION CAPACITY. Prior to the issuance of the first building permit, the permittee shall obtain a "will serve" letter from the City of Half Moon Bay designating and transferring sewer capacity/connections to the project. (Public Works and Building)

9. LOT GRADING. This project requires the issuance of a grading permit. No on-site grading or site preparation, storage, or placement of construction materials, equipment, or vehicles shall take place prior to the issuance of a grading permit. Lot grading includes, but is not limited to, leveling, scraping, clearing, stockpiling of materials, or removal of lot surface area. (Engineering)

10. DRAINAGE PLAN. On-site drainage shall conform with the Drainage Plan dated November 28, 2023. Prior to the issuance of a grading permit, the permittee shall demonstrate that the grading plan is in substantial conformance with the Drainage Plan. Plans shall include supporting calculations for stormwater detention on the site for the additional run-off from a ten-year frequency storm of two-hour duration.

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11. COPPER BUILDING ELEMENTS. The building plans shall specify that all copper building elements will be pre-patinated at the factory, or if patination will occur on the site, the plans shall identify best management practices in conformance with the *San Mateo Countywide Water Pollution Prevention Program Requirements for Architectural Copper,* to the satisfaction of the City Engineer. (Engineering)

12. EROSION AND SEDIMENT CONTROL. An erosion and sediment control plan shall be submitted in conjunction with the Grading Permit that shows effective Best Management Practices (BMP) and erosion and sediment control measures for the site. Construction plans shall also include the "construction best management practices" plan sheet. (Engineering)

13. FIRE PROTECTION REQUIREMENTS. The permittee shall comply with all applicable fire and building codes and standards as may be identified and recommended by the Coastside Fire Protection District and include such requirements in plans. (Fire)

14. COASTSIDE COUNTY WATER DISTRICT. The project shall comply with all applicable regulations and requirements of the Coastside County Water District including for fire flow and include such requirements in plans. Water service shall not be in the same trench as other utilities. (Water District)

15. TREE PROTECTION REQUIREMENTS. To protect the trees on the site and surrounding area (excluding the trees approved for removal), the project shall conform to the approved tree protection plan. The following tree protection measures shall be implemented during construction:
    a. Prior to commencement of construction, construction fencing shall be placed around the drip line of all trees proposed for preservation.
    b. No grading or other construction shall occur within the drip line of any tree proposed for preservation except in conformance with a tree protection plan approved by the Community Development Director.
    c. No vehicle, equipment or materials shall be parked or stored within the drip line of any tree proposed for preservation. (Planning/Building)

16. NATURAL GAS. There shall be no natural gas service to the project.

C. The following conditions shall be implemented to the satisfaction of the Community Development Director prior to and during grading and construction:

1. ARCHAEOLOGY-DISCOVERY OF HUMAN REMAINS. Pursuant to Section 7050.5 of the Health and Safety Code, and Section 5097.94 of the Public Resources Code of the State of California, in the event of the discovery of human remains during construction, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains. The County Coroner shall be notified and shall make a determination as to whether the remains are Native American. If the Coroner determines that the remains are

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not subject to his authority, he shall notify the California Native American Heritage Commission who shall attempt to identify descendants of the deceased Native American(s). If no satisfactory agreement can be reached as to the disposition of the remains pursuant to this State law, then the permittee shall re-inter the human remains and items associated with Native American burials on the property in a location not subject to further subsurface disturbance. (Planning)

2. ARCHAEOLOGY-DISCOVERY OF RESOURCES. If subsurface historic or archaeological resources are uncovered during construction, all work shall stop, the applicant shall notify the Community Development Director and retain a qualified archaeologist to perform an archaeological reconnaissance and identify any mitigation measures required to protect archaeological resources. Subsurface excavation shall not resume until expressly authorized by the Director. (Building)

3. STREET/PUBLIC RIGHT-OF-WAY CUTS FOR UTILITY CONNECTIONS. Any cuts for utility connections on Stone Pine Road that are less than twenty (20) feet apart shall be repaired with a single patch. Asphalt repair and overlay for public street cuts shall be by the City Standard Details. Three or more cuts in the pavement for utility connections will require a 2-inch thick asphalt concrete overlay on the existing pavement across the property frontage. (Engineering)

4. CONSTRUCTION TRAILER(S). Temporary construction trailers are permitted as accessory uses in conjunction with the development of this site, subject to the following conditions:
    a. Any construction trailer placed on-site shall be used as a temporary construction office only.
    b. Neither sanitation facilities nor plumbed water is permitted within the trailer.
    c. Overnight inhabitance of the construction trailer is not permitted.
    d. No construction trailers are permitted on site prior to issuance of the site grading permit.
    e. Construction trailer(s) shall be removed prior to issuance of a certificate of occupancy for the last unit in the project. (Planning)

5. PROJECT STAGING - EQUIPMENT AND MATERIALS STORAGE. Equipment and material storage shall be located on site, and laydown shall be limited to the designated areas shown on Plans dated November 28, 2023. Construction equipment and materials shall not be stored within Stone Pine Road or the driveway serving the City Corporation Yard. Temporary laydown and storage may be made available, as necessary, within the City Corporation Yard. (Planning and Public Works)

6. SITE ACCESS AND PARKING. Construction vehicles/equipment and workers shall access the project site via Stone Pine Road. Construction vehicles/equipment shall observe a 15-mile-per-hour speed limit on Stone Pine Road, and workers shall abide by the posted speed limit (25 miles per hour). Parking for construction vehicles/equipment and worker vehicles shall be limited to the designated areas identified on Plans dated November 28, 2023. Worker

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parking shall be limited to construction staff, inspectors, and consultants and may occur from 7:00 AM to 7:00 PM Monday through Saturday. Except as otherwise approved by the Public Works Director, there shall be no vehicle parking on Sundays or holidays. (Engineering)

7. AIR QUALITY BEST MANAGEMENT PRACTICES. The project shall implement the following standard BAAQMD dust control measures during all phases of construction on the project site:
    - All active construction areas shall be watered twice daily or more often if necessary. Increased watering frequency shall be required whenever wind speeds exceed 15 miles per hour.
    - Pave, apply water three times daily, or apply non-toxic soil stabilizers on all unpaved access roads and parking and staging areas at construction sites.
    - Cover stockpiles of debris, soil, sand, and any other materials that can be windblown. Trucks transporting these materials shall be covered.
    - All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day or as often as necessary to keep them free of dust and debris associated with site construction. The use of dry power sweeping is prohibited.
    - Subsequent to clearing, grading, or excavating, exposed portions of the site shall be watered, landscaped, treated with soil stabilizers, or covered as soon as possible. Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas and previously graded areas inactive for 10 days or more.
    - Installation of sandbags or other erosion control measures to prevent silt runoff to public roadways.
    - Replanting of vegetation in disturbed areas as soon as possible after completion of construction.
    - Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes. Clear signage shall be provided for construction workers at all access points.
    - All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
    - Post a publicly visible sign with the telephone number and person to contact at the City of Half Moon Bay regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations. (Building)

8. HAZARDOUS MATERIALS. Any materials deemed hazardous by the San Mateo County Department of Health that are uncovered or discovered during the course of work under this permit shall be disposed of in accordance with the regulations of San Mateo County Department of Health. (Building)

DocuSign Envelope ID: 56B3FE21-E50D-4CE5-B718-40FA8C153E4A

9. COMPLIANCE WITH STATE AND FEDERAL CODES. All structures shall be constructed and/or installed in compliance with the standards of the current applicable State and federal Codes including current California Title 24 and California Title 25, as well as local amendments. (Building)

10. COMPLETION OF UTILITIES. Any public utilities requiring relocation as part of the construction of the project shall be relocated at the permittee's expense. (Building)

11. CONSTRUCTION HOURS. Construction activities on the site shall be limited to the hours of 8:00 AM to 6:00 PM. Monday through Saturday. Construction-related staging and mobilization may commence no earlier than 7:00 AM and cease no later than 7:00 PM. No construction is allowed on Sundays and holidays, except as expressly authorized by the City Engineer in conformance with Section 14.40.020 of the Half Moon Bay Municipal Code. (Engineering)

12. NOTICE OF DISRUPTION. The permittee shall provide written notice to affected property and business owners and a copy of such notice to the City Engineer a minimum of two business days prior to any planned disruption of pedestrian or vehicular traffic, parking, or public service facilities. (Engineering)

D. The mitigation measures from the Corporation Yard Initial Study/Mitigated Negative Declaration (PDP 21-053) are incorporated into the conditions of approval and shall be complied with prior to and during construction:

BIO-1 The following general mitigation measures shall be implemented during the project:

a. Prior to the start of the project, all construction crew members shall attend an environmental awareness training presented by a qualified biologist. A training brochure describing special-status species, project avoidance and minimization measures, key contacts, and potential consequences of impacts to special-status species and potentially jurisdictional features shall be distributed to the crew members during the training. Trainees shall sign an environmental training attendance sheet. These personnel shall be informed about the possible presence of all special-status species and habitats associated with the species identified here to be potentially present in the project area and that unlawful take of the animal or destruction of its habitat is a violation of the Federal Endangered Species Act and the California Endangered Species Act. Prior to construction activities, the qualified biologist shall instruct all construction personnel about (1) the description and status of the species; (2) the importance of their associated habitats; and (3) a list of measures being taken to reduce impacts on these species during project construction and implementation. A fact sheet conveying this information shall be prepared for distribution to the construction crew and anyone else who enters the project site.
b. Disturbance to vegetation shall be kept to the minimum necessary to complete the project activities. To minimize impacts to vegetation, a qualified biologist shall work with the contractor to designate the work area and any staging areas as well as delineate areas that shall be avoided with signage and tape. Areas that shall be avoided include Pilarcitos Creek,

DocuSign Envelope ID: 56B3FE21-E50D-4CE5-B718-40FA8C153E4A

the impoundment, riparian habitat, and the wildlife corridor. Specifically, the buffer shall be 50 feet outward from the limit of riparian vegetation along Pilarcitos Creek or 100 feet from the top of bank within Pilarcitos Creek (whichever is greater) and 100 feet outward from the impoundment. The identified buffer shall be clearly depicted on any construction plans. Work may occur within these buffer areas under the supervision of a qualified biologist, and shall be limited to removal of the existing materials enclosure and the existing fencing around the impoundment. In addition, prior to initial ground disturbance or vegetation removal, the limits of the identified buffer around the impoundment, associated riparian habitat, and annual grassland to be avoided shall be flagged or fenced.

c. If any wildlife is encountered during project activities, said wildlife must be allowed to leave the work area unharmed. All listed wildlife species shall be allowed to leave the work area of their own accord and without harassment. Animals shall not be picked up or moved in any way. If non-listed and/or non-special-status wildlife does not leave the work area of their own accord, the qualified project biologist may relocate the wildlife outside of the project limits.
d. During project activities, all trash that may attract predators such as wrappers, cans, bottles, and food scraps shall be disposed of in solid, closed containers (trash cans) and removed at the end of each working day from the entire construction site. Following construction, trash/construction debris shall be removed from work areas.
e. The area of disturbance shall be limited to the minimum necessary to complete the project. Project boundaries shall be clearly demarcated, and these areas shall be outside of sensitive areas.
f. No firearms shall be allowed on the project site, except for federal, state, or local law enforcement, or security guards.
g. Project-related vehicles shall observe a 10 mile-per-hour speed limit in all project areas, except on City and County roads, and state highways; this is particularly important on rainy nights when California red-legged frogs are most active.
h. Nighttime construction shall be avoided.

BIO-2 Minimize impacts to special-status amphibians and reptiles:

NOTE: The requirements of Mitigation Measure BIO-2 are addressed in that the conservation corridor has been established. The measure is included here for reference.

a. The permittee will retain professional qualified biologists with experience monitoring for California red-legged frog and San Francisco garter snake to provide biological monitoring during all project construction activities that may result in take of any special-status species.
b. A qualified biological monitor (or as required by project permits) shall be on-site during all project construction activities that may result in take of any special-status species. The qualified biologist shall be given the authority to freely communicate verbally, by telephone, electronic mail, or in writing at any time with construction personnel, any other person(s) at the project site, otherwise associated with the project, the USFWS, the CDFW, or their designated agents. The qualified biologist shall have oversight over implementation of all the conservation measures and shall have the authority and responsibility to stop project activities if they determine any of the associated requirements are not being fulfilled. If the qualified biologist exercises this authority, the USFWS and CDFW shall be notified by telephone and electronic mail within twenty-four (24) hours.

DocuSign Envelope ID: 56B3FE21-E50D-4CE5-B718-40FA8C153E4A

c. Construction materials, including, but not limited to, wooden pallets, BMPs, equipment, or other materials, that are left on the ground for more than 24 hours shall be inspected before and during moving of the materials to prevent potential impacts to animals that may have utilized the materials as a temporary refuge. All construction pipes, culverts, or similar structures that are stored at a construction site for one or more overnight periods shall be either securely capped prior to storage or thoroughly inspected by the qualified biologist and/or the construction foreman/manager for animals before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a California red-legged frog or San Francisco garter snake is discovered inside a pipe or culvert by the qualified biologist or construction foreman/manager, the protocol in Mitigation Measure BIO-2(h) shall be followed.

d. To prevent inadvertent entrapment of the California red-legged frog or San Francisco garter snake during construction, the qualified biologist and/or construction foreman/manager shall ensure that all excavated, steep-walled holes or trenches more than 1 foot deep are completely covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks and inspected by the qualified biologist. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals by the qualified biologist and/or construction foreman/manager. If at any time a trapped California red-legged frog or San Francisco garter snake is discovered by the qualified biologist or anyone else, the steps in Mitigation Measure BIO-2(h and i) shall be followed.

e. If a California red legged frog or San Francisco garter snake, or any animal that construction personnel believe may be either of these species, is encountered during project construction, the following shall be followed.
    i. All work that could result in direct injury, disturbance, or harassment of the individual animal shall immediately cease;
    ii. The foreman and qualified biologist shall be immediately notified; and
    iii. The qualified biologist shall determine if the animal is a California red-legged frog or San Francisco garter snake and, if so, shall follow Mitigation Measure BIO-2h for California red-legged frog and Mitigation Measure BIO- 2(i) for San Francisco garter snake.

f. If any California red-legged frogs are found during implementation of Mitigation Measures BIO-2(a), BIO-2(b), BIO-2(c), BIO-2(d), BIO-2(e), BIO-2(f), or BIO-2(g) the qualified biologist shall contact the USFWS to determine if moving any of the individuals is appropriate. In making this determination, the USFWS shall consider if an appropriate relocation site exists. If the USFWS approves moving animals, the City shall ensure that a permitted biologist holding a 10(a)(1)(A) permit for California red-legged frog (or as required by the project permits) is given sufficient time to move the animals from the impact area before ground disturbance is initiated. Only qualified and permitted biologists shall capture, handle, and move the California red-legged frog. The permitted biologist shall monitor any relocated frog until it is determined that it is not imperiled by predators or other dangers.

g. The qualified biologist shall monitor any individual San Francisco garter snake encountered within the impact area, but allow it to leave the impact area on its own. If

DocuSign Envelope ID: 56B3FE21-E50D-4CE5-B718-40FA8C153E4A

the qualified biologist determines that the snake cannot leave on its own then the USFWS and CDFW shall be consulted to determine if the snake can be captured and relocated to appropriate habitat on the outside of the impact area. No San Francisco garter snakes shall be handled without explicit agency approval.

h. Planting of western mosquitofish (*Gambusia affinis*) within the impoundment shall be prohibited. Treatment of the impoundment for mosquito larvae by the Mosquito Abatement District will be conducted utilizing alternative treatments approved by the District (e.g., insect growth regulators).

i. The use of any pesticides in the impact area shall be utilized in such a manner to prevent primary or secondary poisoning of the California red-legged frog and/or San Francisco garter snake potentially present in the project area, and the depletion of food items on which they depend. All uses of such compounds shall observe label and other restrictions mandated by the USEPA, California Department of Food and Agriculture, and other appropriate state and federal regulations, as well as additional project-related restrictions deemed necessary by the USFWS and CDFW. Furthermore, pesticide use will be subject to documentation of compliance with the USEPA's Stipulated Injunction concerning the type used and buffer for application away from waterbodies and shall be rated for aquatic use by the California Department of Pesticide Regulation and have less-than-significant effects on California red-legged frog and San Francisco garter snake.

j. The use of herbicides shall not be permitted unless approved by CDP amendment. Future approval of herbicide use will be subject to documentation of compliance with the USEPA's Stipulated Injunction concerning the type used and buffer for application away from waterbodies and shall be rated for aquatic use by the California Department of Pesticide Regulation and have less-than-significant effects on California red-legged frog and San Francisco garter snake.

k. The use of rodenticides (i.e., anticoagulants) for controlling rodents, such as rats (*Rattus* spp.), house mice (*Mus musculus*), and California ground squirrels (*Spermophilus beecheyi*), shall be prohibited. If rodent control is required by the City, localized trapping efforts shall be conducted.

l. Construction activities (e.g., grubbing, grading) shall occur during dry weather conditions only, and to the extent feasible, during the dry season (June 1 to October 15) to facilitate avoidance of California red-legged frog and San Francisco garter snake.

m. Regardless of the season, construction shall adhere to SMCWPPP BMPs, and no construction shall occur during and within 24 hours following a significant rain event (defined as greater than 0.25 inch in a 24-hour period). Following a significant rain event and the 24-hour drying-out period, a qualified biologist shall conduct a preconstruction survey for California red-legged frog and other sensitive species prior to the restart of any project activities.

n. A wildlife corridor shall be constructed as part of the Project and would funnel any potentially dispersing California red-legged frog or San Francisco garter snake into a culvert tunnel beneath the access road and limit the potential for traffic accessing the Corporation Yard to impact California red-legged frog or San Francisco garter snake. The wildlife corridor would also include a fence line along the riparian buffer of Pilarcitos Creek, which would further ensure that individual California red-legged frog and San

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Francisco garter snake would utilize the wildlife corridor to safely travel between the agricultural pond and the creek. The riparian buffer fencing would prevent California red-legged frog or San Francisco garter snake from entering the upland, trafficked portions of the property, where they could be injured or killed or trapped in upland habitat where they could be easily predated. The wildlife corridor design considered the life history aspects of both California red-legged frog and San Francisco garter snake to provide a safe and suitable movement corridor without any further management actions required.

o. The wildlife corridor fencing shall be maintained as a boundary to allow for safe wildlife movement between the impoundment and Pilarcitos Creek by funneling any dispersing wildlife through tunnels beneath the access road and providing a boundary along the riparian corridor of Pilarcitos Creek. The wildlife fencing, tunnel, and corridor shall be maintained over the lifetime of its use, and any portion that is observed to be broken or not functioning property shall be repaired immediately by the City.

p. A temporary material may be used for the wildlife fencing, such as ERTEC or similar material, during construction of the project and for up to 1 year after construction is complete. If a temporary material is used for the fencing, it shall be inspected weekly by the City staff for any needed repairs. After 1 year the temporary fencing should be either replaced with a permanent wildlife fencing (e.g., chain-link fencing with vinyl slats) or reassessed for efficacy by a qualified biologist.

q. Installation of the wildlife corridor and associated fencing should take place during dry weather conditions to ensure that no dispersing California red-legged frogs or San Francisco garter snakes are trapped in upland areas.

r. The wildlife corridor shall be maintained and repaired annually or more frequently as needed. The tunnels beneath the access road shall be inspected to ensure that it is not blocked by vegetation or sediment. Vegetation fuels management within the wildlife corridor shall use low impact methods (such as goat grazing or using hand tools) on an annual basis. Any mechanical maintenance activities (including using hand tools for vegetation maintenance) within the wildlife corridor shall be closely monitored by an approved biologist.

BIO-3 Minimize impacts to Pilarcitos Creek and riparian habitat:

a. The project shall comply with the SMCWPPP, Municipal Regional Stormwater National Pollution Discharge Elimination System (NPDES) Permit and General Construction permit to prevent increases in peak flow, erosion, or reduction in water quality for downslope waters, which shall prevent stream downcutting, riparian bank erosion, or other downstream impacts.

b. All spoils, such as dirt, excavated material, debris, and construction-related materials, generated during project activities shall be placed where they cannot enter any drainage ditch, culvert inlet, or nearby vernal marshes. Spoils shall be covered or secured to prevent sediment from escaping. Once the spoil pile is no longer active, it shall be removed from the work area and disposed of lawfully at an appropriate facility.

c. All exposed soils in the work area resulting from project activities shall be stabilized immediately following the completion of work to prevent erosion. Erosion and sediment control BMPs, such as silt fences, straw hay bales, gravel or rock-lined drainages, water

DocuSign Envelope ID: 56B3FE21-E50D-4CE5-B718-40FA8C153E4A

check bars, and broadcast straw, can be used. BMPs shall be made of certified weed-free materials. Straw wattles, if used, shall be made of biodegradable fabric (e.g., burlap) and free of monofilament netting. At no time shall silt-laden runoff be allowed to enter any drainages or other sensitive areas.

d. All fueling and maintenance of vehicles and other equipment and staging areas shall occur at least 100 feet from any drainages and other water features, including Pilarcitos Creek. Crew members shall ensure that contamination of habitat does not occur during such operations. Prior to the onset of work, the construction contractor shall prepare a plan to be approved by the City before construction begins to allow a prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
e. All exposed surfaces shall be wetted periodically to prevent significant dust.
f. All stockpiled soil shall be covered during periods of rain.
g. The following BMPs shall be implemented to limit the spread of invasive species into sensitive habitats:
    iv. All ground-disturbing equipment used adjacent to the riparian habitat shall be washed (including weeks, tracks, and undercarriages) at a legally operating equipment yard both before and after being used at the site;
    v. All applicable construction materials used on-site, such as straw wattles, mulch, and fill material, shall be certified weed free;
    vi. The project shall follow the SMCWPPP and a SWPPP as per the NPDES *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Construction General Permit; Water Board Order No. 2009-0009-DWQ) if applicable;
    vii. All disturbed soils shall be stabilized and planted with a native seed mix from a local source following construction;
    viii. If excavating, soil and vegetation removed from densely weed-infested areas (for example, dense poison hemlock infestations or cape ivy infestations) shall not be used in general soil stockpiles and shall not be redistributed as topsoil cover for the newly filled areas. All weed-infested soil shall be disposed of off-site at a landfill.

BIO-4. Minimize impacts to nesting birds, as required by the Federal Migratory Bird Treaty Act:

a. If project activities, including, but not limited to, grubbing and grading, are conducted during nesting bird season (generally February 15 to September 15), preconstruction nest surveys shall be conducted in and near the project (within 500 feet for large raptors and 300 feet for all other birds) by a qualified biologist within 7 days of the start of construction. If nesting birds are identified during the preconstruction survey, then the project shall be modified (i.e., a no-work exclusion buffer of appropriate size [to be determined by the qualified project biologist] shall be erected around active nests) and/or delayed as necessary to avoid impacts to the identified nests, eggs, and/or young. Disturbing active nests must be avoided until young birds have fledged.

DocuSign Envelope ID: 56B3FE21-E50D-4CE5-B718-40FA8C153E4A

b. Construction activities shall not be initiated until after the start of the nesting season, all potential nesting substrates (e.g., bushes, trees, grasses, and other vegetation) that are scheduled to be removed by the project shall be removed prior to the start of the nesting season (e.g., prior to February 15), to the extent feasible. This shall preclude the initiation of nests in this vegetation and prevent the potential delay of the project due to the presence of active nests in these substrates.

BIO-5. Minimize impacts to heritage trees:

NOTE: The requirements of Mitigation Measure BIO-5 are replaced by the landscape and tree replacement plan. The measure is included here for reference.

a. During detailed design of the project, removal of trees protected by the City heritage tree ordinance shall be avoided and minimized to the extent feasible. If tree removal is necessary, it is recommended that a certified arborist conduct a tree survey to determine the number and health of heritage trees within the developed habitat of the project area. Where removal of trees cannot be avoided, the City shall comply with the standards of the City heritage tree ordinance, including the planting of replacement trees where feasible and approval from the City Manager.

BIO-6. Minimize impacts to roosting bats:

a. Pre-Construction Bat Survey. Prior to tree removal, a qualified bat biologist shall conduct a visual survey of the project area to identify if bats are roosting within trees within the project area. Roost sites shall be avoided during tree removal. If no roosting sites or bats are observed during the survey no further mitigation is necessary.

i. If roosting bats or indications of bat roosts are observed within project trees to be removed, tree removal shall be conducted under the supervision of a qualified bat biologist. During tree removal and where potential bat roosts were identified, a qualified bat biologist shall be present and tree removal shall begin with portions of the tree that do not provide suitable roost habitat (e.g., low limbs lacking forage). Trees shall be disassembled at a speed in coordination with the on-site qualified bat biologist that allows any roosting bats to vacate the tree.

BIO-7. Minimize impacts to dusky-footed woodrat:

a. Focused surveys for San Francisco dusky-footed woodrat nests within the riparian habitat associated with Pilarcitos Creek and the marsh habitat shall be conducted within 7 days of the start of construction. If no nests are found, then no further mitigation shall be warranted. If nests are found, then Mitigation Measures b and c shall be implemented.

b. Dusky-footed woodrats are year-round residents. Therefore, avoidance mitigation is limited to designing the project to avoid direct impacts on woodrat nests to the extent feasible. Ideally, a minimum 10-foot buffer should be maintained between project construction activities and each nest to avoid disturbance. In some situations, a smaller buffer may be allowed if in the opinion of the qualified biologist removing the nest would be a greater impact than that anticipated due to project activities. If nests are observed within riparian habitat and this habitat shall be avoided by the project, high-visibility

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fencing shall be installed around these woodrat nests to keep workers, construction equipment, and construction materials out of the area where the nests are located.

c. If avoidance of occupied nests is not feasible, the woodrats shall be evicted from their nests prior to the removal of the nests and onset of ground-disturbing activities to avoid injury or mortality of the woodrats. A qualified biologist shall disturb the woodrat nest to the degree that all woodrats leave the nest and seek refuge outside of the project activity area. Subsequently, the nest sticks shall be relocated; these materials shall be piled at the base of a nearby tree or shrub outside of the impact area. The spacing between relocated nests shall not be less than 20 feet, unless a qualified biologist has determined that the habitat can support higher densities of nests.

CUL-1. Implement an environmental awareness training program:
Prior to the start of the project, all construction crew members will attend an environmental awareness training. This environmental awareness training will be conducted by a qualified archaeologist and will address cultural situations that may be encountered. An archaeologist will prepare an archaeological brochure to be distributed to the construction crew at the on-site environmental awareness training. The brochure will identify the types of cultural resources that may be encountered and the procedures to be followed in the event of accidental discovery.

CUL-2. Implement a cultural resources monitoring plan:
The project will develop and implement a cultural resources monitoring plan (CRMP) for all ground-disturbing activities. The CRMP shall include provisions for stop-work by the archaeologist, ownership and proper handling of archaeological resources upon and following discovery, reporting format and frequency, and a project specific communications plan will need to be completed prior to start of work.

GEO-1. Avoid and/or reduce impacts to unknown paleontological resources:
In the unlikely event that a paleontological resource is discovered, the project applicants shall comply with PRC Division 5, Chapter 1.7, Section 5097.5, and Division 20, Chapter 3, Section 30244, which prohibit the removal, without permission, of any paleontological site or feature from lands under the jurisdiction of the state or any city, county, district, authority, or public corporation, or any agency thereof. To be consistent with these PRC Sections, in the event that paleontological resources are exposed during construction, work in the immediate vicinity of the find must stop until a qualified paleontologist can evaluate the significance of the find. Construction activities may continue in other areas. If the discovery proves significant under the provisions of CEQA, the paleontologist shall prescribe, and the project Applicants shall implement, additional measures such as testing or data recovery to avoid impacts to the resources.

E. The following conditions shall be implemented to the satisfaction of the Community Development Director prior to issuance of the first occupancy permit:

1. EXTERIOR COLORS AND MATERIALS. Exterior building colors and materials shall be in conformance with the approved architectural plans and color palette. (Planning)

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2. DISPLAY OF STREET ADDRESS. Prior to issuance of a Certificate of Occupancy, the residential dwelling shall display a street address (or unit number) per Fire District requirements. (Fire/Building)

3. COMMUNITY POLICIES. The permittee shall prepare community policies and rules for the ongoing operation of the project including, but not limited to parking, refuse pick-up/removal, on-site storage, and keeping of pets. The on-site manager will be responsible for education, administration, and enforcement. Covenants are subject to review and approval by the City Engineer and Community Development Director prior to occupancy of the first unit. (Planning)

4. EMERGENCY RESPONSE PLAN. The permittee shall, in conjunction with the City Emergency Response staff, prepare an emergency response plan covering evacuation planning for the residents of Stone Pine Cove in the unlikely failure of the Pilarcitos Dam as well as any other potential natural disaster which may affect the project site. (City Manager's Office)

5. LANDSCAPING AND TREE REPLACEMENTS. The landscape plan, including irrigation and planting, shall be installed per approved plans. Tree removals approved according to the approved plans shall be replaced by at least one 24-inch box specimen tree for every heritage tree removed. (Planning)

6. TRAFFIC CALMING. The permittee shall complete traffic calming improvements on Stone Pine Road. Traffic calming improvements shall include:
    A. Crosswalk improvements at West Patrick Way, including the addition of pedestrian-activated flashing beacons
    B. A new high visibility crosswalk at East Patrick Way, including new curb ramps, signage, and striping
    C. Speed feedback signs (eastbound and westbound)
    D. Lane striping to narrow travel lanes
    E. Tree trimming near West Patrick Way, to improve intersection visibility (Engineering)

F. Validity and Expiration of Permits

1. EFFECTIVE DATE. This Emergency Coastal Development Permit allows property development necessary to address an emergency and is effective immediately upon signature by the Half Moon Bay Community Development Director. The permit is not subject to appeal; however, per California Code of Regulations §13569 "Dispute Resolution for Local Permit Processing Procedures" parts C and D, an interested person may request the Coastal Commission executive director to review the local government permitting process and determinations. (Planning)

2. ACCURACY OF APPLICATION MATERIALS. The applicant shall be responsible for the completeness and accuracy of all forms and material submitted for this application. Any

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errors or discrepancies found therein may be grounds for the revocation or modification of this permit and/or any other City approvals. (Planning)

3. EXPIRATION/TERMINATION. The Emergency Coastal Development Permit shall become null and void upon the effective date of the follow-up Coastal Development Permit. (Planning)

4. HOLD HARMLESS. As set forth in paragraph 9 of the First Amended and Restated Memorandum of Understanding Between the County of San Mateo and the City of Half Moon Bay Regarding Affordable Housing Development at Portion of 880 Stone Pine Rd., Half Moon Bay, CA 94019 ("Pursuant to Government Code Section 895.4, each Party agrees to fully indemnify, defend, and hold the other Party (including its appointed and elected officials, officers, employees, and agents) harmless and free from any damage or liability imposed for injury (as defined by Government Code Section 810.8) occurring by reason of the negligent acts or omissions or willful misconduct of the indemnifying Party, its appointed or elected officials, officers, employees, or agents, under or in connection with any activities undertaken in connection with this MOU. No Party, nor any appointed or elected official, officer, employee, or agent thereof, shall be responsible for any damage or liability occurring by reason of the negligent acts or omissions or willful misconduct of any other Party, its appointed or elected officials, officers, employees, or agents, under or in connection, with any activities undertaken in connection with this MOU. For avoidance of doubt, the County shall not be required to defend, indemnify or hold the City harmless, nor shall the City be required to defend, indemnify or hold the County harmless, in connection with any and all liabilities arising from or related to the application for a Coastal Development Permit (emergency or otherwise) in connection with the Project (City Attorney)

OWNER'S/PERMITTEE'S CERTIFICATION:
I have read and understand and hereby accept and agree to implement the foregoing conditions of approval of the Coastal Development Permit.

APPLICANTS/PERMITTEES:

Mike Callagy _____ 12/11/2023

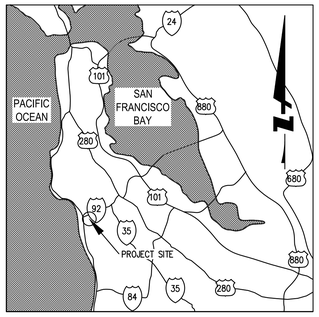
Mike Callagy, County Executive Officer

_____ 12/11/2023

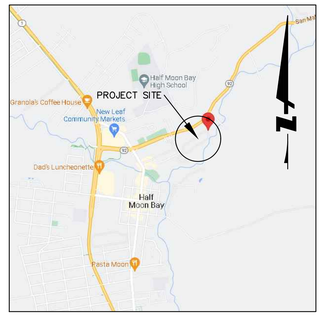
Matthew Chidester, City Manager

STONE PINE COVE
880 STONE PINE ROAD
HALF MOON BAY, CA

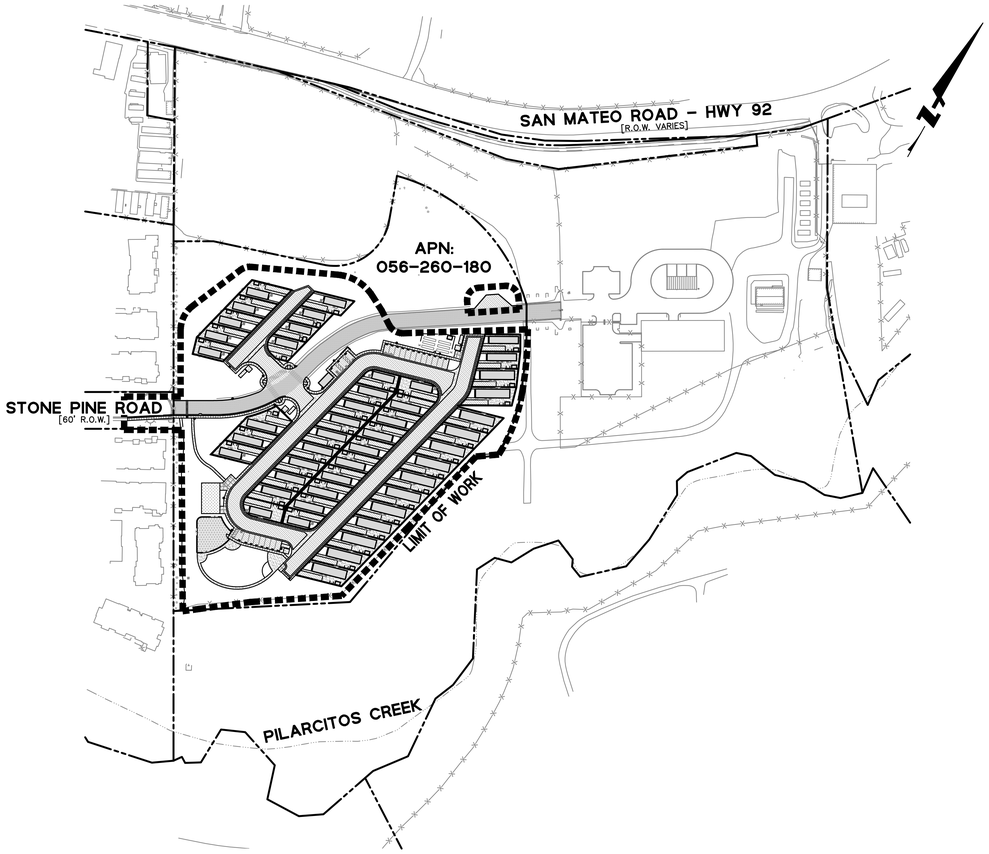
APN: 056-260-180



VICINITY MAP
N.T.S.



LOCATION MAP
N.T.S.



ABBREVIATIONS:

AB	AGGREGATE BASE
AC	ASPHALT CONCRETE
AD	AREA DRAIN
AL	AREA LIGHT
ARV	AIR RELEASE VALVE
ATD	ATRIUM DRAIN
BFPD	BACK FLOW PREVENTION DEVICE
BLDG	BUILDING
BO	BLOW OFF VALVE
BOT	BOTTOM OF TANK OR PIPE
BW	BOTTOM OF WALL ELEVATION
CATV	CABLE TELEVISION
CB	CATCH BASIN
CL	CENTER LINE
CIP	CAST IRON PIPE
CONC	CONCRETE
COR	CORNER
CUL	CULVERT
DDCV	DOUBLE DETECTOR CHECK VALVE
DI	DRAIN INLET
DIP	DUCTILE IRON PIPE
DN	DOCUMENT NUMBER
DS	ROOF DOWN SPOUT
DW	DOMESTIC WATER LINE
DWL	DRYWELL CATCH BASIN
DWY	DRIVEWAY
(E)	EXISTING
EG	EXISTING GRADE
ELEC	ELECTRICAL
EM	ELECTRICAL METER
EP	EDGE OF PAVEMENT
ESM	ELECTRIC SUB-METER
EV	ELECTRIC VAULT
EX. NO.	EXCEPTION NUMBER
FC	FACE OF CURB
FDC	FIRE DEPARTMENT CONNECTION
FF	FINISHED FLOOR ELEVATION
FG	FINISHED GROUND ELEVATION
FH	FIRE HYDRANT
FL	FLOW LINE ELEVATION
FM	FORCE MAIN LINE
FNC	FENCE
FS	FINISHED SURFACE ELEVATION
FW	FIRE WATER LINE
GB	GRADE BREAK
GM	GAS METER
GR	GRATE ELEVATION
GV	GATE VALVE
HDB	HEADERBOARD
HP	HIGH POINT
INV	INVERT ELEVATION
JT	JOINT TRENCH
JP	JOINT POLE
LD	LANDSCAPE DRAIN
LF	LINEAR FEET
LP	LOW POINT
MSB	METERING SWITCHBOARD
MON	MONUMENT
(N)	NEW
OH	OVERHEAD
PIV	POST INDICATOR VALVE
PKG	PARKING
POB	POINT OF BEGINNING
POC	POINT OF CONNECTION
(R#)	DENOTES RECORD DEISTANCE
(R3: #m)	DENOTES DISTANCE MATCHING RECORD
RET	RETAINING WALL
RIM	RIM ELEVATION
R/W	RIGHT-OF-WAY
S	SLOPE
SAP	SEE ARCHITECTURAL PLANS
SBD	STORM SUB DRAIN
SBDCO	STORM SUB DRAIN CLEANOUT
SD	STORM DRAIN
SDCO	STORM DRAIN CLEANOUT
SGR	SEE GEOTECHNICAL REPORT
SICB	SIDE INLET CATCH BASIN
SLP	SEE LANDSCAPE PLANS
SPP	SEE PLUMBING PLANS
SS	SANITARY SEWER
SSCO	SANITARY SEWER CLEANOUT
SSP	SEE STRUCTURAL PLANS
TOB	TOP OF BANK/SLOPE
TOP	TOP OF TANK OR PIPE
TPOB	TRUE POINT OF BEGINNING
TRAN	TRANSFORMER
TW	TOP OF WALL ELEVATION
TYP	TYPICAL
UB	UTILITY BOX
VD	PIPE VERTICAL DROP
VG	VALLEY GUTTER
W	DOMESTIC WATER LINE
WM	WATER METER

LEGEND:

EXISTING	PROPOSED	
		BOUNDARY
		LIMIT OF WORK
X"_SS	X"_SS	SANITARY SEWER
X"_SD	X"_SD	SOLID STORM DRAIN
4"_SBD	4"_SBD	PERFORATED SUB DRAIN
FM	2"FM	FORCE MAIN
10" FW	10"FW	FIRE SERVICE
2" W	2"W	DOMESTIC WATER SERVICE
E	E	ELECTRIC
OH	OH	OVERHEAD WIRES
X	X	FENCE
○	○	CLEAN OUT TO GRADE
◉	◉	FOUND MONUMENT
⋈	⋈	DOUBLE DETECTOR CHECK VALVE
⋈	⋈	VALVE
●	●	BLOW OFF VALVE
◪	◪	AIR RELEASE VALVE
⊠	⊠	METER BOX
☼	☼	STREET LIGHT
•	•	DRAIN
■	■	ATRIUM DRAIN
▣	▣	CATCH BASIN
⍾	⍾	FIRE HYDRANT
⍾	⍾	FIRE DEPARTMENT CONNECTION
◆	◆	BENCHMARK
◯	◉	MANHOLE
		SIGN
		SPLASH BLOCK
	2 / C5.1	DETAIL NUMBER / SHEET LOCATION

SHEET INDEX

CIVIL

SHEET NO.	DESCRIPTION
C0.0	TITLE SHEET
C0.1	NOTES
C0.2	EXISTING CONDITIONS
C1.1	CIVIL SITE PLAN
C1.2	GRADING PLAN
C2.1	UTILITY PLAN
C3.1	STORMWATER CONTROL PLAN
C4.1	FIRE ACCESS PLAN
C5.1	STAGING AND EROSION CONTROL PLAN
C5.2	STAGING AND EROSION CONTROL DETAILS
C5.3	BEST MANAGEMENT PRACTICES SHEET
C6.1	STONE PINE TRAFFIC CALMING IMPROVEMENTS
C6.2	STONE PINE TRAFFIC CALMING IMPROVEMENTS
C7.1	SITE SECTIONS
C8.1	CONCEPTUAL RENDERINGS

LANDSCAPE

SHEET NO.	DESCRIPTION
L1.0	LANDSCAPE SITE PLAN
L1.1	TREE REMOVAL PLAN
L1.2	LANDSCAPE IMAGERY
L2.0	SCHEMATIC PLANTING PLAN
L2.1	SCHEMATIC PLANT LIST
L2.2	SCHEMATIC PLANT IMAGES
L3.0	SCHEMATIC IRRIGATION PLAN
L4.0	SCHEMATIC PLANTING & IRRIGATION DETAILS

FLOOR PLANS

SHEET NO.	DESCRIPTION
MH1	CONCEPTUAL MANUFACTURED HOME FLOOR PLANS

LIGHTING

SHEET NO.	DESCRIPTION
SL1	STREET LIGHTING PLAN
SL2	STREET LIGHTING PLAN
SL3	STREET LIGHTING PHOTOMETRICS

PLANS HAVE BEEN REVIEWED AND APPROVED BY:

CITY ENGINEER DATE

PLANS HAVE BEEN REVIEWED AND APPROVED BY:

COASTSIDE FIRE PROTECTION DISTRICT DATE

PLANS HAVE BEEN REVIEWED AND APPROVED BY:

COASTSIDE COUNTY WATER DISTRICT DATE

DISTURBED AREA

ONSITE DISTURBED AREA	5.29 ACRES
OFFSITE DISTURBED AREA	0.10 ACRES
TOTAL	5.39 ACRES

WDID NO. _____

IMPERVIOUS AREAS

TOTAL PROPERTY AREA	297,155 SF (6.82 AC)
IMPERVIOUS AREAS:	
PRE-CONSTRUCTION	24,600 SF
POST-CONSTRUCTION	157,440 SF

EARTHWORK QUANTITIES

GROSS FIGURES	
CUT	3,470 CUBIC YARDS
FILL	3,510 CUBIC YARDS
TOTAL	6,980 CUBIC YARDS
BALANCE	40 CUBIC YARDS OF IMPORT

QUANTITY BREAKDOWN	
BIORETENTION AREA	
CUT	860 CUBIC YARDS
UTILITY TRENCHING	
CUT	1,160 CUBIC YARDS
SITE WORK AND LANDSCAPING	
CUT	1,450 CUBIC YARDS
FILL	3,510 CUBIC YARDS

EARTHWORK QUANTITIES SHOWN ARE FOR PLANNING PURPOSES ONLY. CONTRACTOR SHALL PERFORM THEIR OWN EARTHWORK QUANTITY CALCULATION, AND USE THEIR CALCULATION FOR BIDDING AND COST ESTIMATING PURPOSES.

SOILS REPORT NOTES:

1. A PROJECT SOILS REPORT WHICH INCLUDES EXPLORATION OF SUBSURFACE CONDITIONS HAS BEEN PREPARED BY BAGG ENGINEERS, DATED AUGUST 23, 2023.
2. GROUNDWATER WAS ENCOUNTERED AT A DEPTH OF 9 FT. THE HIGHEST ANTICIPATED GROUNDWATER DEPTH IS LESS THAN 10 FT BELOW THE EXISTING GROUND SURFACE.
3. REFER TO THE REPORT FOR MORE DETAILED ASSESSMENT OF SUBSURFACE CONDITIONS
4. ALL WORK ONSITE SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS CONTAINED IN THE PROJECT SOILS REPORT AND AS DIRECTED IN THE FIELD BY THE PROJECT GEOTECHNICAL ENGINEER.

FLOOD PLAIN NOTES:

1. 100-YEAR AND 500-YEAR FLOOD ELEVATIONS ARE SHOWN PER PILARCITOS CREEK FLOODPLAIN STUDY BY BKF ENGINEERS, DATED JUNE 29, 2023.

HAUL ROUTE:

CONTRACTOR SHALL UTILIZE THE FOLLOWING HAUL ROUTE FOR IMPORTING/EXPORTING SOILS AND OTHER CONSTRUCTION MATERIALS:

- FROM JOB SITE, HEAD WEST ON STONE PINE RD TOWARDS MAIN ST.
- TURN RIGHT ONTO MAIN ST HEADING NORTH TOWARDS HWY 92.
- TURN RIGHT ONTO HWY 92.

ENGINEER'S STATEMENT

THIS SITE IMPROVEMENT PLAN SUBMITTAL HAS BEEN PREPARED UNDER MY DIRECTION.

BRIAN K. SCOTT DATE
PRINCIPAL
P.E. #61034
BKF ENGINEERS

REGISTERED PROFESSIONAL ENGINEER BRIAN K. SCOTT C 61034 CIVIL STATE OF CALIFORNIA

ENGINEER OF WORK

I HEREBY DECLARE THAT I AM THE CIVIL ENGINEER OF WORK FOR THIS PROJECT AND THAT I HAVE EXERCISED RESPONSIBLE CHARGE OVER THE DESIGN OF THIS PROJECT AS DEFINED IN SECTION 6703 OF THE STATE OF CALIFORNIA, BUSINESS PROFESSIONAL CODES, AND THAT THE DESIGN IS CONSISTENT WITH CURRENT STANDARDS.

DALE LEDA DATE
PROJECT MANAGER
P.E. #78436
BKF ENGINEERS

REGISTERED PROFESSIONAL ENGINEER DALE J. LEDA C 78436 CIVIL STATE OF CALIFORNIA

CONTACT INFORMATION:

PROJECT COORDINATOR:	CAPITAL PROGRAM MANAGEMENT, INC. 1851 HERITAGE LN, SUITE 210 SACRAMENTO, CA 95815 CONTACT: STEVEN MCGUCKIN STEVENM@CAPITALPM.COM (916) 553-4400
CIVIL:	BKF ENGINEERS 255 SHORELINE DR, SUITE 200 REDWOOD CITY, CA 94065 CONTACT: DALE LEDA DLEDA@BKF.COM (650) 482-6300
LANDSCAPE ARCHITECT:	KIKUCHI + KANKEL DESIGN GROUP 730 MILL ST, HALF MOON BAY, CA 94019 CONTACT: TOM CONROY TCONROY@KKDESIGNGROUP.COM (650) 726-7100
ELECTRICAL:	EMERALD CITY ENGINEERS, INC. 21705 HIGHWAY 99, LYNNWOOD, WA 98036 CONTACT: ADAM FRENCH AFRENCH@EMERALDCITYENG.COM (425) 741-1200
JOINT TRENCH:	MILLENIUM DESIGN AND CONSULTING, INC. P.O. BOX 737, ALAMO, CA 94507 CONTACT: KAHN SENIMANORA KAHN@JOINTUTILITY.COM (510) 837-7602

0 100 200
GRAPHIC SCALE

811 Know what's below. Call before you dig.

255 SHORELINE DRIVE
SUITE 200
REDWOOD CITY, CA 94065
(650) 482-6300
www.bkf.com

CALIFORNIA

TITLE SHEET
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
HALF MOON BAY

REGISTERED PROFESSIONAL ENGINEER DALE J. LEDA C 78436 CIVIL STATE OF CALIFORNIA
REVIEW ONLY
NOT FOR CONSTRUCTION

Date	No.	Revisions

Date 11/29/2023
Scale NO SCALE
Design DJP
Drawn DLG
Approved DJL
Job No 20211367-15

Drawing Number:
CO.0
OF

DRAWING NAME: K:\2021\211367-15_HMB_Corporate_Housing\ENG\bmpsheets.dwg
PLOT DATE: 11-29-23 PLOTTED BY: gald

DEVELOPMENT STANDARDS NOTES:

REQUIREMENTS PER CITY OF HALF MOON BAY MUNICIPAL CODE CHAPTER 18.17 FOR MOBILE HOME PARK DISTRICT:

1. ALL MOBILE HOME SPACES SHALL BE SERVED FROM INTERNAL PRIVATE ROADWAYS AND THERE SHALL BE NO DIRECT VEHICULAR ACCESS FROM A MOBILE HOME SPACE TO A PUBLIC STREET OR ALLEY. INTERNAL ROADS SHALL HAVE A CLEAR AND UNOBSTRUCTED ACCESS TO A PUBLIC STREET OR HIGHWAY.

2. WALKWAYS SHALL BE PROVIDED THROUGHOUT THE MOBILE HOME PARK TO PROVIDE SAFE AND CONVENIENT PEDESTRIAN ACCESS TO AMENITIES, OPEN SPACE AREAS, AND PUBLIC ROADWAYS. WALKWAYS SHALL COMPLY WITH APPLICABLE ACCESSIBILITY STANDARDS BUT IN NO CASE SHALL BE LESS THAN THREE FEET IN WIDTH. WALKWAYS SHALL BE PAVED AND SEPARATE FROM ROADWAYS AND DRIVEWAYS FOR AUTOMOBILES.

2. A LANDSCAPING PLAN AND LANDSCAPE MAINTENANCE PLAN FOR THE SETBACK AREAS FROM THE PROPERTY PERIMETER OF THE MOBILE HOME PARK SHALL BE SUBMITTED FOR CONSIDERATION WITH EACH PERMIT APPLICATION FOR DEVELOPMENT OR EXPANSION OF A MOBILE HOME PARK. LANDSCAPING SHALL BE USED AS A BUFFER BETWEEN MOBILE HOME SPACES AND ADJACENT PROPERTIES. SERVICE AREAS AND OUTDOOR STORAGE AREAS SHALL BE SCREENED FROM VIEW FROM PUBLIC STREETS.

3. NO PLANT SPECIES LISTED AS PROBLEMATIC AND/OR INVASIVE BY THE CALIFORNIA NATIVE PLANT SOCIETY, THE CALIFORNIA INVASIVE PLANT COUNCIL, OR AS MAY BE IDENTIFIED FROM TIME TO TIME BY THE STATE OF CALIFORNIA SHALL BE EMPLOYED IN ANY LANDSCAPING IN THE MOBILE HOME PARK. NO PLANT SPECIES LISTED AS A NOXIOUS WEED BY THE STATE OF CALIFORNIA OR THE U.S. FEDERAL GOVERNMENT SHALL BE UTILIZED. ONLY NATIVE PLANTS OF LOCAL STOCK AND/OR DROUGHT-TOLERANT NONINVASIVE PLANTS SHALL BE USED FOR LANDSCAPING.

4. ONE NONILLUMINATED OR INDIRECTLY ILLUMINATED DETACHED MONUMENT SIGN, IDENTIFYING THE NAME OF THE MOBILE HOME PARK, SHALL BE PERMITTED. SUCH SIGN SHALL BE CONSTRUCTED OF NATURAL MATERIAL SUCH AS WOOD AND SHALL NOT EXCEED A HEIGHT OF FOUR FEET OR AN AREA OF SIXTEEN SQUARE FEET. ANY SUCH SIGN SHALL BE INTEGRATED INTO THE LANDSCAPE DESIGN.

6. MOBILE HOME PARKS SHALL BE REQUIRED TO USE GARBAGE COLLECTION AND RECYCLING SERVICES. CENTRAL COLLECTION CONTAINERS SHALL BE PROVIDED AT CONVENIENT LOCATIONS WITHIN DECORATIVE FENCED OR WALLED ENCLOSURES.

7. THE DEVELOPMENT, REDEVELOPMENT, OR MODIFICATION OF MOBILE HOME PARKS SHALL BE UNDERTAKEN PURSUANT TO THE WATER QUALITY PROTECTION STANDARDS SPECIFIED IN SECTION 18.38.121.

8. PRIOR TO ISSUANCE OF ANY COASTAL DEVELOPMENT PERMIT OR USE PERMIT, THE APPLICANT SHALL RECEIVE PRELIMINARY APPROVAL OF PLANS BY THE HALF MOON BAY FIRE PROTECTION DISTRICT.

9. LIGHTING SHALL BE THE MINIMUM NECESSARY TO ILLUMINATE THE INTERNAL ROADS WITHOUT ADVERSE IMPACT ON ADJACENT PROPERTIES. LIGHT FIXTURES SHALL BE THE MINIMUM HEIGHT NEEDED FOR PUBLIC SAFETY, BUT SHALL NOT EXCEED FIFTEEN FEET IN HEIGHT, AND SHALL BE SHIELDED TO DOWNCAST LIGHT TO PREVENT GLARE ON ADJACENT PROPERTIES.

10. IN DEVELOPMENT OF NEW AND EXPANSION OF EXISTING MOBILE HOME PARKS, ALL NEW ELECTRICAL, TELEPHONE, CABLE TV, AND SIMILAR DISTRIBUTION LINES PROVIDING DIRECT SERVICE TO THE DEVELOPMENT, INCLUDING INDIVIDUAL SPACES, SHALL BE INSTALLED UNDERGROUND.

11. MOBILE HOME UNITS WITHIN MOBILE HOME PARKS SHALL BE LIMITED TO USE AS PERMANENT RESIDENCES. NO MOBILE HOME SHALL BE RENTED TO OR OCCUPIED BY ANY INDIVIDUAL OR GROUP OF INDIVIDUALS FOR A TERM LESS THAN THIRTY CONSECUTIVE DAYS.

CAUTION:

1. CONTRACTOR SHALL CONTACT UNDERGROUND SERVICE ALERT FOR LOCATION OF UNDERGROUND UTILITIES AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION – PHONE (800) 642-2444. CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES PRIOR TO BEGINNING ANY WORK ON THIS SITE.

GENERAL SITE NOTES:

1. CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING ON THIS WORK AND CONSIDER THE EXISTING CONDITIONS AND SITE CONSTRAINTS IN THE BID. CONTRACTOR SHALL BE IN THE POSSESSION OF AND FAMILIAR WITH ALL APPLICABLE GOVERNING AGENCIES STANDARD DETAILS AND SPECIFICATIONS PRIOR TO SUBMITTING A BID.

2. ALL WORK ON-SITE AND IN THE PUBLIC RIGHT-OF-WAY SHALL CONFORM TO ALL APPLICABLE GOVERNING AGENCIES STANDARD DETAILS & SPECIFICATIONS.

3. PRIOR TO BEGINNING WORK, AND AFTER INITIAL HORIZONTAL CONTROL STAKING, CONTRACTOR SHALL FIELD CHECK ALL ELEVATIONS MARKED WITH (E) AND REPORT ANY DISCREPANCIES GREATER THAN 0.05' TO PROJECT MANAGER.

4. DAMAGE TO ANY EXISTING SITE IMPROVEMENTS, UTILITIES AND/OR SERVICES TO REMAIN, SHALL BE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL REPAIR AND/OR REPLACE IN KIND.

5. CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE CLIENT, THE CONSULTING ENGINEER AND THE CITY/TOWN HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE CLIENT OR THE CONSULTING ENGINEER.

6. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT BY BAGG ENGINEERS, DATED AUGUST 23, 2023.

DEMOLITION NOTES :

1. CONTRACTOR IS TO COMPLY WITH ALL GENERAL AND STATE REQUIREMENTS INVOLVING THE REMOVAL AND DISPOSAL OF HAZARDOUS MATERIAL(S).

2. CONTRACTOR'S BID IS TO INCLUDE ALL VISIBLE SURFACE AND ALL SUBSURFACE FEATURES IDENTIFIED TO BE REMOVED OR ABANDONED IN THESE DOCUMENTS.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR A SITE INSPECTION TO FULLY ACKNOWLEDGE THE EXTENT OF THE DEMOLITION WORK.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY AND ALL PERMITS NECESSARY FOR ENCROACHMENT, GRADING, DEMOLITION, AND DISPOSAL OF SAID MATERIALS AS REQUIRED BY PRIVATE, LOCAL AND STATE JURISDICTIONS. THE CONTRACTOR SHALL PAY ALL FEES ASSOCIATED WITH THE DEMOLITION WORK.

5. BACKFILL ALL DEPRESSIONS AND TRENCHES FROM DEMOLITION TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER.

6. REMOVAL OF LANDSCAPING SHALL INCLUDE ROOTS AND ORGANIC MATERIALS TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER.

7. PRIOR TO BEGINNING DEMOLITION WORK ACTIVITIES, CONTRACTOR SHALL INSTALL EROSION CONTROL MEASURES OUTLINED IN THE EROSION CONTROL PLAN & DETAILS.

8. THE CONTRACTOR SHALL MAINTAIN ALL SAFETY DEVICES, AND SHALL BE RESPONSIBLE FOR CONFORMANCE TO ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS LAWS AND REGULATIONS.

9. THE CONTRACTOR SHALL PROTECT FROM DAMAGE ALL EXISTING IMPROVEMENTS FACILITIES AND STRUCTURES WHICH ARE TO REMAIN. ANY ITEMS DAMAGED BY THE CONTRACTOR OR HIS AGENTS OR ANY ITEMS REMOVED FOR HIS USE SHALL BE REPLACED IN EQUAL OR BETTER CONDITION AS APPROVED BY THE OWNER'S REPRESENTATIVE.

10. COORDINATE WITH ELECTRICAL, MECHANICAL, LANDSCAPING AND ARCHITECTURAL DRAWINGS FOR UTILITY SHUT-DOWN/DISCONNECT LOCATIONS. CONTRACTOR IS TO SHUT OFF ALL UTILITIES AS NECESSARY PRIOR TO DEMOLITION. CONTRACTOR IS TO COORDINATE SERVICE INTERRUPTIONS WITH THE CLIENT. DO NOT INTERRUPT SERVICES TO ADJACENT OFF-SITE OWNERS. ALSO SEE ARCHITECTURAL PLANS FOR ADDITIONAL DEMOLITION SCOPE OF WORK.

11. THE DEMOLITION PLAN IS NOT INTENDED TO BE A COMPLETE CATALOGUE OF ALL EXISTING STRUCTURES AND UTILITIES. THE PLAN INTENDS TO DISCLOSE GENERAL INFORMATION KNOWN BY THE ENGINEER AND TO SHOW THE EXTENT OF THE AREA WHERE WORK WILL BE PERFORMED. THE PLAN SHOWS THE EXISTING FEATURES TAKEN FROM A FIELD SURVEY, FIELD INVESTIGATIONS AND AVAILABLE INFORMATION. THE PLAN MAY OR MAY NOT ACCURATELY REFLECT THE TYPE OR EXTENT OF THE ITEMS TO BE ENCOUNTERED AS THEY ACTUALLY EXIST. WHERE EXISTING FEATURES ARE NOT SHOWN, IT IS NOT IMPLIED THAT THEY ARE NOT TO BE DEMOLISHED OR REMOVED. THE CONTRACTOR SHALL PERFORM A THOROUGH FIELD INVESTIGATION AND REVIEW OF THE SITE WITHIN THE LIMIT OF WORK SHOWN IN THIS PLAN SET TO DETERMINE THE TYPE, QUANTITY AND EXTENT OF ANY AND ALL ITEMS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR DETERMINING THE EXTENT OF EXISTING STRUCTURES AND UTILITIES AND QUANTITY OF WORK INVOLVED IN REMOVING THESE ITEMS FROM THE SITE.

RECORD DRAWINGS:

1. THE CONTRACTOR SHALL KEEP UP-TO-DATE AND ACCURATE A COMPLETE RECORD SET OF PRINTS OF THE CONTRACT DRAWINGS SHOWING EVERY CHANGE FROM THE ORIGINAL DRAWINGS MADE DURING THE COURSE OF CONSTRUCTION INCLUDING EXACT FINAL LOCATION, ELEVATION, SIZES, MATERIALS, AND DESCRIPTION OF ALL WORK. RECORDS SHALL BE "REDLINED" ON A SET OF CONSTRUCTION PLAN DRAWINGS. A COMPLETE SET OF CORRECTED AND COMPLETED RECORD DRAWING PRINTS SHALL BE SUBMITTED TO THE CITY ENGINEER AND DEVELOPER'S CIVIL ENGINEER PRIOR TO FINAL ACCEPTANCE FOR REVIEW AND APPROVAL BY THE CITY ENGINEER.

STORM DRAIN MAINTENANCE NOTES:

PLEASE NOTE THAT REGULAR MAINTENANCE ON GRADING AND DRAINAGE STRUCTURES IS REQUIRED TO ENSURE FUNCTIONALITY THROUGHOUT THE LIFE OF THE PROPERTY. MAINTENANCE SHOULD INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:

1. THE CLEARING OF DEBRIS FROM THE STORMWATER BIORETETION AREAS AND STORM DRAIN LINES.

2. ROOF GUTTERS AND DOWNSPOUTS SHOULD BE CLEARED BEFORE THE BEGINNING OF EACH RAINY SEASON AND AS NEEDED THROUGHOUT THE WINTER MONTHS.

3. SURFACE GRADING MAY ALSO REQUIRE CONTINUED REFINEMENT, INCLUDING THE CLEARING AND RE-FINISHING OF VEGETATED SWALES AND SLOPES TO MINIMIZE PONDING, MAINTAIN POSITIVE DRAINAGE AWAY FROM IMPROVEMENTS AND PROTECT AGAINST EROSION.

4. GRADED SLOPES SHOULD BE MONITORED AND RE-VEGETATED AS NEEDED.

5. FINALLY, DRAINAGE SWALES AND CONCRETE VALLEY GUTTERS SHOULD BE CONTINUOUSLY MONITORED AND CLEARED OF LEAVES AND DIRT DEBRIS.

TREE/PLANT PROTECTION NOTES:

1. PRIOR TO BEGINNING CONSTRUCTION ON-SITE, CONTRACTOR SHALL IDENTIFY AND PROTECT EXISTING TREES AND PLANTS DESIGNATED AS TO REMAIN.

2. PROTECT EXISTING TREES TO REMAIN FROM SPILLED CHEMICALS, FUEL OIL, MOTOR OIL, GASOLINE AND ALL OTHER CHEMICALLY INJURIOUS MATERIAL; AS WELL AS FROM PUDDLING OR CONTINUOUSLY RUNNING WATER. SHOULD A SPILL OCCUR, STOP WORK IN THAT AREA AND CONTACT THE CITY/TOWN'S ENGINEER/INSPECTOR IMMEDIATELY. CONTRACTOR SHALL BE RESPONSIBLE TO MITIGATE DAMAGE FROM SPILLED MATERIAL AS WELL AS MATERIAL CLEAN UP.

3. CONTRACTOR SHALL BE RESPONSIBLE FOR ONGOING MAINTENANCE OF ALL TREES DESIGNATED TO REMAIN AND FOR MAINTENANCE OF RELOCATED TREES STOCKPILED DURING CONSTRUCTION. CONTRACTOR WILL BE REQUIRED TO REPLACE TREES THAT DIE DUE TO LACK OF MAINTENANCE.

4. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE ARBORIST REPORT BY WEST COAST ARBORISTS, INC., DATED AUGUST 21, 2023.

ARBORIST TREE PROTECTION NOTES:

THE FOLLOWING TREE PROTECTION MEASURES SHOULD BE APPLIED TO ALL TREES THAT ARE TO BE RETAINED:

1. PRE-CONSTRUCTION:
   - A. A PRE-CONSTRUCTION MEETING SHOULD BE HELD TO DISCUSS TREE PROTECTION MEASURES AND ENSURE ALL TREE PROTECTION MEASURES HAVE BEEN PROPERLY INSTALLED.
   - B. ANY CLEARANCE PRUNING THAT IS DEEMED NECESSARY FOR CONSTRUCTION SHALL BE COMPLETED USING THE MINIMAL DOSE NECESSARY AND SHALL BE APPROVED BY THE PROJECT ARBORIST PRIOR TO PRUNING.
   - C. TREE PROTECTION ZONES (TPZ) SHALL BE ESTABLISHED AND ENFORCED TO PREVENT SOIL COMPACTION, GRADE CHANGE, AND ROOT DAMAGE. TREE PROTECTION AREAS SHALL BE ESTABLISHED WITH FIVE-FOOT-HIGH CHAIN LINK FENCING MOUNTED ON 2-INCH DIAMETER GALVANIZED IRON POSTS, DRIVEN INTO THE GROUND TO A DEPTH OF AT LEAST 2-FEET, AT NO MORE THAN 10-FOOT SPACING.
     - C.1. THE DIAMETER OF THE TPZ SHALL BE DETERMINED BY THE TRUNK DIAMETER OF TREES TO BE PROTECTED. FOR EVERY 1 INCH OF TRUNK DIAMETER, THE TPZ SHALL EXTEND 1 FOOT. FOR EXAMPLE, A 10-INCH DIAMETER TREE SHALL HAVE A TPZ WITH A RADIUS OF 10-FEET AROUND THE TREE. IN AREAS WHERE THIS TPZ SIZE IS GREATER THAN WHAT CONSTRUCTION CAN ALLOW, THE CANOPY DRIPLINE SHALL BE THE MINIMUM RADIUS FOR THE TPZ
     - C.2. FOR TREES GROWING ALONG THE EAST PERIMETER OF THE PROPERTY, TPZS CAN BE COMBINED TO FORM ONE LARGE TPZ FOR TREES IN THIS AREA. ADDITIONALLY, FENCING IS NOT REQUIRED ON THE WEST SIDE OF THE TREES AS THE PROPERTY LINE FENCING IS ALREADY IN PLACE.
   - D. A 'WARNING: DO NOT ENTER' SIGN SHALL BE PROMINENTLY DISPLAYED ON EACH TREE PROTECTIVE FENCE.
   - E. A 4-INCH LAYER OF CHIP BARK MULCH SHALL BE PLACED ON TOP OF THE TPZ AND ENCLOSED WITHIN THE TREE PROTECTIVE FENCING. THIS MULCH SHALL ONLY BE MOVED FOR LANDSCAPE PLANTS TO BE INSTALLED AFTER ALL EXCAVATION AND SOIL COMPACTION WORK HAS BEEN COMPLETED.
   - F. ESTABLISH AN AREA OUTSIDE OF THE TPZS OR ON PREEXISTING HARDSCAPE TO STORE SEDIMENT AND BACKFILL. ENSURE NO FLOW PATHS LEAD TO TPZS FROM SEDIMENT OR BACKFILL PILES IF PRESENT.
   - G. NO MATERIAL OR EQUIPMENT SHALL BE STORED OR PLACED WITHIN THE TPZ OF PRESERVED TREES.
2. CONSTRUCTION:
   - A. IN AREAS WHERE CONSTRUCTION ACTIVITY IS TO TAKE PLACE BENEATH THE CANOPY OF EXISTING TREES, SUCH AS THE WALKING PATH, THE TPZ SHALL BE MOVED TO THE GREATEST DISTANCE POSSIBLE FROM THE SUBJECT TREE WHILE ALSO ALLOWING FOR CONSTRUCTION TO PROCEED. ONCE CONSTRUCTION IN THE SUBJECT AREA HAS OCCURRED, THE TPZ SHALL BE MOVED BACK TO THE PREESTABLISHED BOUNDARY.
     - A.1. PROJECT ARBORIST SHALL CONDUCT SITE OBSERVATIONS DURING ANY CONSTRUCTION ACTIVITY THAT IS TO TAKE PLACE BENEATH THE CANOPY DRIPLINE OF TREES.
     - A.2. ANY EXCAVATION ACTIVITY THAT IS TO TAKE PLACE IN THESE AREAS IS PROHIBITED FROM USING BACKHOES, TREAD TRACTORS, OR ANY OTHER HEAVY VEHICLES. METHODS PERMITTED INCLUDE HAND DIGGING, HYDRAULIC OR PNEUMATIC AIR EXCAVATION.
   - B. DURING EXCAVATION ACTIVITY, SHOULD ANY ROOTS BE ENCOUNTERED, ROOT PRUNING SHALL BE DONE WITH HAND TOOLS IN ORDER TO MAKE CLEAN CUTS THAT FACE THE EXCAVATED AREA.
     - B.1. ROOTS LARGER THAN 2.5 INCHES SHALL NOT BE CUT WITHOUT PROJECT ARBORIST PRIOR APPROVAL.
     - B.2. ROOTS LARGER THAN 2.5 INCHES THAT ARE CUT SHALL IMMEDIATELY SHADED AND KEPT MOIST WITH WET BURLAP OR SIMILAR MATERIAL UNTIL THEY CAN BE RECOVERED.
   - C. NO PRUNING SHOULD BE PERFORMED ON TREES THAT HAVE ROOTS IMPACTED BY CONSTRUCTION ACTIVITY FOR AT LEAST ONE YEAR FOLLOWING THE COMPLETION OF THIS PROJECT OTHER THAN NECESSARY MAINTENANCE SUCH AS BUILDING CLEARANCE.
3. POST CONSTRUCTION:
   - A. PROJECT ARBORIST SHOULD CONDUCTING MONITORING TWCE A YEAR FROM THE DATE OF PROJECT COMPLETION FOR NO LESS THAN TWO YEARS TO ENSURE TREES ARE IN GOOD CONDITION.

HORIZONTAL CONTROL NOTES:

1. ALL DIMENSIONS ON THE PLANS ARE IN FEET OR DECIMALS THEREOF UNLESS SPECIFICALLY CALLED OUT AS FEET AND INCHES.

PAVEMENT SECTION:

1. SEE GEOTECHNICAL REPORT FOR ALL FLATWORK AND VEHICULAR PAVEMENT SECTIONS AND BASE REQUIREMENTS.

2. THE FINAL OR SURFACE LAYER OF ASPHALT CONCRETE SHALL NOT BE PLACED UNTIL ALL ON-SITE IMPROVEMENTS HAVE BEEN COMPLETED, INCLUDING ALL GRADING, AND ALL UNACCEPTABLE CONCRETE WORK HAS BEEN REMOVED AND REPLACED, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER AND/OR DEVELOPER'S CIVIL ENGINEER.

3. ALL PAVING SHALL BE IN CONFORMANCE WITH SECTION 26 "AGGREGATE BASE" AND SECTION 39 "ASPHALT CONCRETE" PER LATEST EDITION OF CALTRANS STANDARD SPECIFICATIONS.

SITE MAINTENANCE:

1. REMOVE ALL DIRT, GRAVEL, RUBBISH, REFUSE, AND GREEN WASTE FROM STREET PAVEMENT AND STORM DRAINS ADJOINING THE SITE. LIMIT CONSTRUCTION ACCESS POINTS FOR THE SITE AND PLACE STABILIZED CONSTRUCTION ENTRANCES AT THESE LOCATIONS. DO NOT DRIVE VEHICLES AND EQUIPMENT OFF THE PAVED OR GRAVELED AREAS DURING WET WEATHER.

2. SWEEP OR VACUUM THE STREET PAVEMENT AND SIDEWALKS ADJOINING THE PROJECT SITE AND THE ON-SITE PAVED AREAS ON A DAILY BASIS. SCRAPE CAKED-ON MUD AND DIRT FROM THESE AREAS BEFORE SWEEPING. CORNERS AND HARD TO REACH AREAS SHALL BE SWEPT MANUALLY.

3. CREATE A CONTAINED AND COVERED AREA ON THE SITE FOR THE STORAGE OF BAGS, CEMENT, PAINTS, OILS, FERTILIZERS, PESTICIDES, OR OTHER MATERIALS USED ON THE SITE THAT HAVE THE POTENTIAL OF BEING DISCHARGED INTO THE STORM DRAIN SYSTEM THROUGH EITHER BEING WIND-BLOWN OR IN THE EVENT OF A MATERIAL SPILL.

4. NEVER CLEAN MACHINERY, EQUIPMENT OR TOOLS INTO A STREET, GUTTER OR STORM DRAIN.

5. ENSURE THAT CEMENT TRUCKS, PAINTERS, OR STUCCO/PLASTER FINISHING CONTRACTORS DO NOT DISCHARGE WASH WATER FROM EQUIPMENT, TOOLS OR RINSE CONTAINERS INTO GUTTERS OR DRAINS.

NPDES REQUIREMENTS:

1. ALL CONSTRUCTION ON OFF-SITE OR ON-SITE IMPROVEMENTS SHALL ADHERE TO NPDES (NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM) BEST MANAGEMENT PRACTICES TO PREVENT DELETERIOUS MATERIALS OR POLLUTANTS FROM ENTERING THE CITY/TOWN OR COUNTY STORM DRAIN SYSTEMS.

2. ERODED SEDIMENTS AND OTHER POLLUTANTS MUST BE RETAINED ON-SITE AND MAY NOT BE TRANSPORTED FROM THE SITE VIA SHEET FLOW, SWALES, AREA DRAINS, NATURAL DRAINAGE COURSES, OR WIND.

3. STOCKPILES OF EARTH AND OTHER CONSTRUCTION RELATED MATERIALS MUST BE PROTECTED FROM BEING TRANSPORTED FROM THE SITE BY THE FORCES OF WIND OR WATER.

4. FUELS, OILS, SOLVENTS, AND OTHER TOXIC MATERIALS MUST BE STORED IN ACCORDANCE WITH THEIR LISTING AND ARE NOT TO CONTAMINATE THE SOIL AND SURFACE WATERS. ALL APPROVED STORAGE CONTAINERS ARE TO BE PROTECTED FROM THE WEATHER. SPILLS MUST BE CLEANED UP IMMEDIATELY AND DISPOSED OF IN A PROPER MANNER. SPILLS MAY NOT BE WASHED INTO THE DRAINAGE SYSTEM.

5. EXCESS OR WASTE CONCRETE MAY NOT BE WASHED INTO THE PUBLIC RIGHT-OF-WAY OR ANY OTHER DRAINAGE SYSTEM. PROVISIONS SHALL BE MADE TO RETAIN CONCRETE WASTES ON-SITE UNTIL THEY CAN BE DISPOSED OF AS SOLID WASTE.

6. TRASH AND CONSTRUCTION RELATED SOLID WASTES MUST BE DEPOSITED INTO A COVERED RECEPTACLE TO PREVENT CONTAMINATION AND DISPERSAL BY WIND.

7. SEDIMENTS AND OTHER MATERIALS MAY NOT BE TRACKED FROM THE SITE BY VEHICLE TRAFFIC. THE CONSTRUCTION ENTRANCE ROADWAYS MUST BE STABILIZED SO AS TO INHIBIT SEDIMENTS FROM BEING DEPOSITED INTO THE PUBLIC RIGHT-OF-WAY. ACCIDENTAL DEPOSITIONS MUST BE SWEPT UP IMMEDIATELY AND MAY NOT BE WASHED DOWN BY RAIN OR OTHER MEANS.

8. ANY SLOPES WITH DISTURBED SOILS OR DENUDED OF VEGETATION MUST BE STABILIZED SO AS TO INHIBIT EROSION BY WIND AND WATER.

9. CLEAN UP ALL SPILLS USING DRY METHODS.

10. SWEEP ALL GUTTERS AT THE END OF EACH WORKING DAY. GUTTERS SHALL BE KEPT CLEAN AFTER LEAVING CONSTRUCTION-SITE.

11. CALL 911 IN CASE OF A HAZARDOUS SPILL.

12. BMP'S AS OUTLINED IN, BUT NOT LIMITED TO, CALIFORNIA STORM WATER QUALITY TASK FORCE, SACRAMENTO, CALIFORNIA, JANUARY 2015, OR THE LATEST REVISED EDITION, MAY APPLY DURING THE CONSTRUCTION OF THIS PROJECT (ADDITIONAL MEASURES MAY BE REQUIRED IF DEEMED APPROPRIATE BY CITY/TOWN INSPECTORS).

13. UPON SATISFACTORY COMPLETION OF THE WORK, THE ENTIRE WORK SITE SHALL BE CLEANED BY THE CONTRACTOR AND LEFT WITH A SMOOTH AND NEATLY GRADED SURFACE FREE OF CONSTRUCTION WASTE, RUBBISH, AND DEBRIS OF ANY NATURE.

EROSION AND SEDIMENTATION CONTROL NOTES:

1. CONTRACTOR SHALL ASSUME THE CONCEPTS ON THE EROSION CONTROL PLAN, IF PROVIDED, ARE SCHEMATIC MINIMUM REQUIREMENTS, THE FULL EXTENT OF WHICH ARE TO BE DETERMINED BY THE CONTRACTOR. CONTRACTOR IS RESPONSIBLE FOR THE EXACT DESIGN AND EXTENT OF THE EROSION CONTROL SYSTEM SO THAT IT WORKS WITH THE CONTRACTOR'S INTENDED USE AND MANAGEMENT OF THE CONSTRUCTION-SITE.

2. ALL EROSION CONTROL FACILITIES SHALL BE INSPECTED BY THE CONTRACTOR AND REPAIRED, AS REQUIRED, AT THE CONCLUSION OF EACH WORKING DAY. THE CONTRACTOR SHALL INSPECT THE EROSION CONTROL FACILITIES AND MAKE NECESSARY REPAIRS PRIOR TO ANTICIPATED STORMS AND AT REASONABLE INTERVALS DURING STORMS OF EXTENDED DURATION. REPAIRS TO DAMAGED FACILITIES SHALL BE MADE IMMEDIATELY UPON DISCOVERY.

3. AS SOON AS PRACTICAL FOLLOWING EACH STORM, THE CONTRACTOR SHALL REMOVE ANY ACCUMULATION OF SILT OR DEBRIS FROM THE EROSION CONTROL SEDIMENT BASINS AND SHALL CLEAR THE OUTLET PIPES OF ANY BLOCKAGE.

4. STOCKPILED MATERIAL SHALL BE COVERED WITH VISQUEEN OR A TARPAULIN UNTIL THE MATERIAL IS REMOVED FROM THE SITE. ANY REMAINING BARE SOIL THAT EXISTS AFTER THE STOCKPILE HAS BEEN REMOVED SHALL BE COVERED WITH IN A NATURAL GROUND COVER IS ESTABLISHED OR IT MAY BE SEEDED OR PLANTED TO PROVIDE GROUND COVER.

5. PRIOR TO THE COMMENCEMENT OF ANY CLEARING, GRADING, OR EXCAVATION, THE CONTRACTOR SHALL VERIFY THAT THE CLIENT HAS SUBMITTED TO THE STATE WATER RESOURCES CONTROL BOARD A NOTICE OF INTENT (NOI) FOR COVERAGE UNDER THE STATE CONSTRUCTION STORM WATER GENERAL PERMIT, IF REQUIRED BY THE STATE. THE CONTRACTOR SHALL MAINTAIN A COPY OF THE NOI ON THE CONSTRUCTION-SITE.

6. NECESSARY MATERIALS SHALL BE AVAILABLE ON-SITE AND STOCKPILED AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF TEMPORARY DEVICES WHEN RAIN IS IMMINENT.

7. PROTECT ADJACENT PROPERTIES AND UNDISTURBED AREAS FROM CONSTRUCTION IMPACTS USING VEGETATIVE BUFFER STRIPS, SEDIMENT BARRIERS OR FILTERS, DIKES, MULCHING OR OTHER MEASURES AS APPROPRIATE.

8. CONTRACTOR SHALL MAINTAIN ADJACENT STREETS IN A NEAT, CLEAN, DUST FREE AND SANITARY CONDITION AT ALL TIMES AND TO THE SATISFACTION OF THE CITY/TOWN INSPECTOR. THE ADJACENT STREET SHALL BE KEPT CLEAN OF DEBRIS, WITH DUST AND OTHER NUISANCE BEING CONTROLLED AT ALL TIMES. DEVELOPER SHALL BE RESPONSIBLE FOR ANY CLEAN UP ON ADJACENT STREETS AFFECTED BY THEIR CONSTRUCTION, METHOD OF STREET CLEANING SHALL BE BY DRY SWEEPING OF ALL PAVED AREAS. NO STOCKPILING OF BUILDING MATERIALS WITHIN THE CITY/TOWN'S RIGHT-OF-WAY IS PERMITTED.

9. ALL EROSION CONTROL MATERIALS SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR UNLESS OTHERWISE NOTED.

10. PROTECT DOWN SLOPE DRAINAGE COURSES, STREAMS AND STORM DRAINS WITH ROCK FILLED SAND BAGS, TEMPORARY DRAINAGE SWALES, SILT FENCES, EARTH BERMS, STORM DRAIN INLET FILTERS AND/OR STRAW BALES USED ONLY IN CONJUNCTION WITH PROPERLY INSTALLED SILT FENCES.

SITE FENCE NOTES:

1. CONTRACTOR SHALL PROVIDE A CONSTRUCTION FENCE AROUND THE ENTIRE AREA OF DEMOLITION AND CONSTRUCTION, INCLUDING ALL STAGING, STORAGE, CONSTRUCTION OFFICE AND LAYDOWN AREAS.

2. CONSTRUCTION FENCE SHALL BE A MINIMUM OF A 6' HIGH GALVANIZED CHAIN LINK WITH GREEN WINDSCREEN FABRIC ON THE OUTSIDE OF THE FENCE.

3. CONSTRUCTION FENCE ADDRESSED IN THESE NOTES IS ONLY FOR VISUAL CONFORMANCE OF THIS CONSTRUCTION-SITE TO THE CITY/TOWN STANDARDS. CONTRACTOR MAY BE REQUIRED TO PROVIDE ADDITIONAL FENCING, BARRICADES OR OTHER SAFETY DEVICES TO KEEP THE SITE SECURE AND SAFE.

DUST CONTROL:

1. GRADING OR ANY OTHER OPERATIONS THAT CREATES DUST SHALL BE STOPPED IMMEDIATELY IF DUST AFFECTS ADJACENT PROPERTIES. THE CONTRACTOR SHALL PROVIDE SUFFICIENT DUST CONTROL FOR THE ENTIRE PROJECT SITE IN ACCORDANCE WITH THE PROJECT NPDES AT ALL TIMES. THE SITE SHALL BE WATERED (BY HAND OR TRUCK) AS NECESSARY TO PREVENT DUST NUISANCE. IN THE EVENT THAT THE CONTRACTOR NEGLECTS TO USE ADEQUATE MEASURES TO CONTROL DUST, THE CLIENT RESERVES THE RIGHT TO TAKE WHATEVER MEASURES ARE NECESSARY TO CONTROL DUST AND CHARGE THE COST TO THE CONTRACTOR.

2. ALL PUBLIC STREETS AND MEDIANS SOILED OR LITTERED DUE TO THIS CONSTRUCTION ACTIVITY SHALL BE CLEANED AND SWEPT ON A DAILY BASIS DURING THE WORK WEEK, OR AS OFTEN AS DEEMED NECESSARY BY THE CLIENT/INSPECTOR, OR TO THE SATISFACTION OF THE CITY/TOWN'S DEPARTMENT OF PUBLIC WORKS.

3. ALL TRUCKS HAULING SOIL, SAND, AND OTHER LOOSE MATERIALS SHALL BE COVERED WITH TARPAULINS OR OTHER EFFECTIVE COVERS.

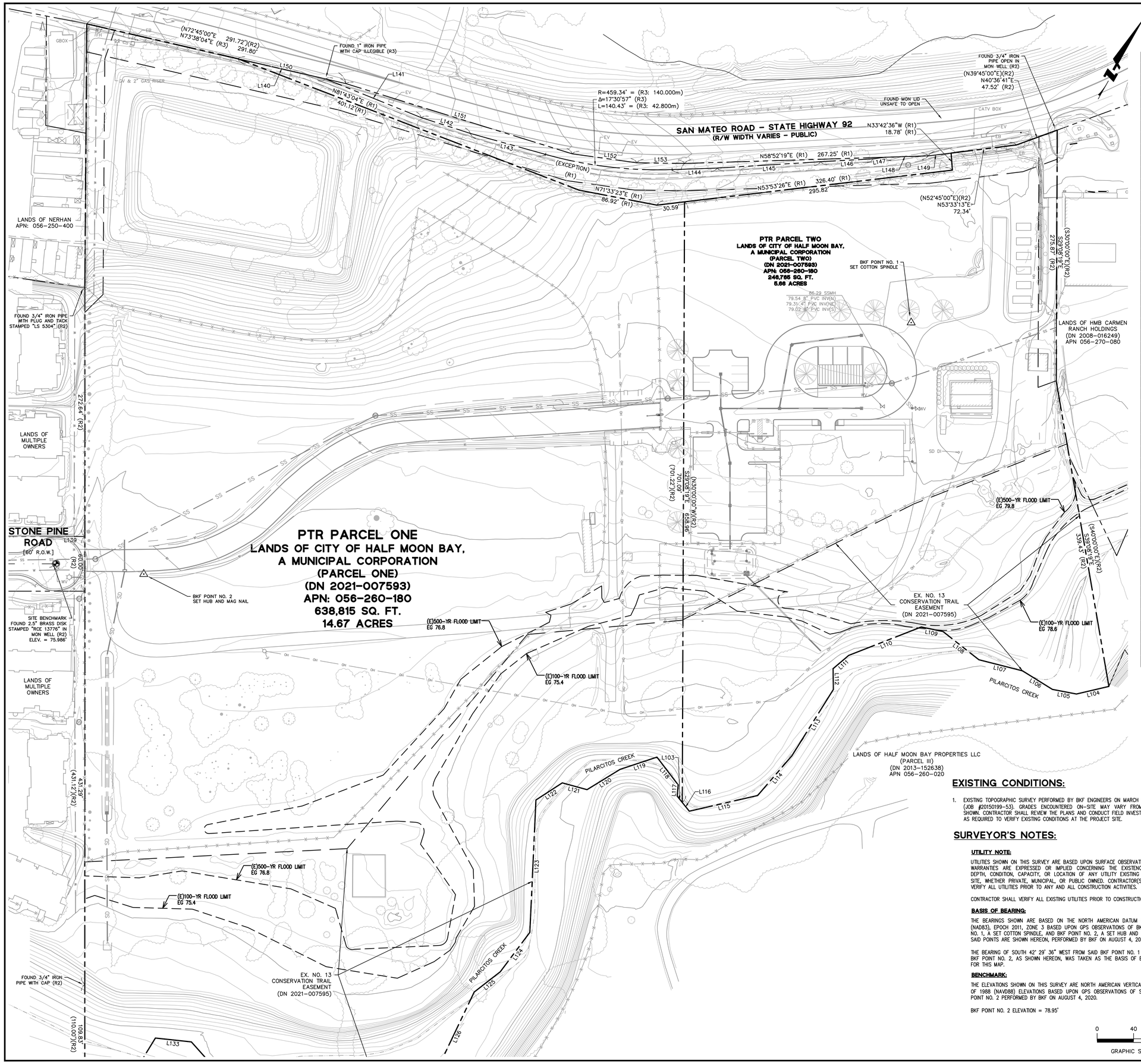
4. WHEEL WASHERS SHALL BE INSTALLED AND USED TO CLEAN ALL TRUCKS AND EQUIPMENT LEAVING THE CONSTRUCTION SITE. IF WHEEL WASHERS CANNOT BE INSTALLED, TIRES OR TRACKS OF ALL TRUCKS AND EQUIPMENT SHALL BE WASHED OFF BEFORE LEAVING THE CONSTRUCTION SITE.

GENERAL UTILITY SYSTEM NOTES:

1. ALL TRENCHES SHALL BE BACKFILLED PER THE SPECIFICATIONS WITH APPROPRIATE TESTS BY THE GEOTECHNICAL ENGINEER TO VERIFY COMPACTION VALUES.

2. CLEAN OUTS, CATCH BASINS AND AREA DRAINS ARE TO BE ACCURATELY LOCATED BY THEIR RELATIONSHIP TO THE BUILDING, FLATWORK, ROOF DRAINS, AND/OR CURB LAYOUT, NOT BY THE LENGTH OF PIPE SPECIFIED IN THE DRAWINGS (WHICH IS APPROXIMATE).

3. CONTRACTOR SHALL STAKE LOCATION OF ABOVE GROUND UTILITY EQUIPMENT (BACKFLOW PREVENTOR, SATELLITE DISH, TRANSFORMER, GAS METER, ETC.) AND MEET WITH CLIENT TO REVIEW LOCATION PRIOR TO INSTALLATION. PLANNING DEPARTMENT MUST SPECIFICALLY AGREE WITH LOCATION P



EXISTING CONDITIONS:

1. EXISTING TOPOGRAPHIC SURVEY PERFORMED BY BKF ENGINEERS ON MARCH 18, 2021 (JOB #20150199-53). GRADES ENCOUNTERED ON-SITE MAY VARY FROM THOSE SHOWN. CONTRACTOR SHALL REVIEW THE PLANS AND CONDUCT FIELD INVESTIGATIONS AS REQUIRED TO VERIFY EXISTING CONDITIONS AT THE PROJECT SITE.

SURVEYOR'S NOTES:

UTILITY NOTE:

UTILITIES SHOWN ON THIS SURVEY ARE BASED UPON SURFACE OBSERVATIONS. NO WARRANTIES ARE EXPRESSED OR IMPLIED CONCERNING THE EXISTENCE, SIZE, DEPTH, CONDITION, CAPACITY, OR LOCATION OF ANY UTILITY EXISTING ON THE SITE, WHETHER PRIVATE, MUNICIPAL, OR PUBLIC OWNED. CONTRACTOR(S) SHALL VERIFY ALL UTILITIES PRIOR TO ANY AND ALL CONSTRUCTION ACTIVITIES.

CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION

BASIS OF BEARING:

THE BEARINGS SHOWN ARE BASED ON THE NORTH AMERICAN DATUM OF 1983 (NAD83), EPOCH 2011, ZONE 3 BASED UPON GPS OBSERVATIONS OF BKF POINT NO. 1, A SET COTTON SPINDLE, AND BKF POINT NO. 2, A SET HUB AND TACK AS SAID POINTS ARE SHOWN HEREON, PERFORMED BY BKF ON AUGUST 4, 2020.

THE BEARING OF SOUTH 42° 29' 36" WEST FROM SAID BKF POINT NO. 1 TO SAID BKF POINT NO. 2, AS SHOWN HEREON, WAS TAKEN AS THE BASIS OF BEARINGS FOR THIS MAP.

BENCHMARK:

THE ELEVATIONS SHOWN ON THIS SURVEY ARE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) ELEVATIONS BASED UPON GPS OBSERVATIONS OF SAID BKF POINT NO. 2 PERFORMED BY BKF ON AUGUST 4, 2020.

BKF POINT NO. 2 ELEVATION = 78.95'

0 40 80
GRAPHIC SCALE

LINE TABLE		
LINE NO.	DIRECTION	LENGTH
L103	N68°00'29"W	8.90'
L104	S47°25'02"W	36.52'
L105	S71°31'17"W	26.85'
L106	N87°28'52"W	38.62'
L107	S74°52'52"W	49.37'
L108	N81°09'28"W	50.08'
L109	S72°32'08"W	24.33'
L110	S39°14'12"W	85.57'
L111	S20°14'46"W	22.43'
L112	S30°07'13"E	22.83'
L113	S02°39'36"W	85.73'
L114	S11°24'28"W	57.62'
L115	S47°43'04"W	76.92'
L116	N68°00'29"W	12.29'
L117	N24°18'13"W	12.34'
L118	N66°42'59"W	38.40'
L119	S42°15'35"W	42.60'
L120	S29°04'36"W	42.58'
L121	S75°58'13"W	28.14'
L122	S27°39'47"W	34.46'
L123	S26°43'24"E	145.40'
L124	S07°30'40"W	54.02'
L125	S22°45'40"W	36.27'
L126	S03°51'49"E	104.20'
L127	S37°46'25"W	61.71'
L128	S19°33'41"W	107.45'
L129	S56°13'06"W	40.18'
L130	S88°49'22"W	58.28'
L131	N17°07'56"W	56.88'
L132	N71°05'20"W	72.28'
L133	S66°47'43"W	39.70'
L134	S02°07'42"W	62.88'
L135	S58°53'58"W	25.72'
L136	N57°38'51"W	11.15'
L137	S36°00'41"W	15.01'
L138	S29°20'59"E	30.00'
L139	N60°39'01"E	31.63'
L140	N73°38'04"E	98.77'
L141	N82°41'18"E	113.17'
L142	N78°26'58"E	56.56'
L143	N76°15'07"E	85.66'
L144	N58°44'09"E	49.57'
L145	N57°07'31"E	113.58'
L146	N57°32'14"E	57.76'
L147	N52°28'49"E	12.50'
L148	N58°52'19"E	47.99'
L149	N53°33'13"E	25.26'
L150	N73°38'04"E	121.87'
L151	N77°53'28"E	259.68'
L152	N68°33'21"E	71.61'
L153	N61°25'06"E	52.50'

RECORD LINE TABLE	
RECORD DIRECTION	RECORD LENGTH
(S46°33'28"W)(R2)	(36.53')(R2)
(S70°39'43"W)(R2)	(26.86')(R2)
(N88°20'26"W)(R2)	(38.63')(R2)
(S74°01'18"W)(R2)	(49.39')(R2)
(N82°01'02"W)(R2)	(50.10')(R2)
(S71°40'34"W)(R2)	(24.34')(R2)
(S38°22'38"W)(R2)	(85.60')(R2)
(S19°23'12"W)(R2)	(22.44')(R2)
(S30°58'47"E)(R2)	(22.84')(R2)
(S01°48'02"W)(R2)	(85.76')(R2)
(S10°32'54"W)(R2)	(57.64')(R2)
(S46°51'30"W)(R2)	(76.95')(R2)
(N68°52'03"W)(R2)	(12.22')(R2)
(N68°52'03"W)(R2)	(8.98')(R2)
(N25°09'47"W)(R2)	(12.34')(R2)
(N67°34'33"W)(R2)	(38.41')(R2)
(S41°24'01"W)(R2)	(42.61')(R2)
(S28°13'02"W)(R2)	(42.59')(R2)
(S75°06'39"W)(R2)	(28.15')(R2)
(S26°48'13"W)(R2)	(34.47')(R2)
(S27°34'58"E)(R2)	(145.45')(R2)
(S06°39'06"W)(R2)	(54.04')(R2)
(S21°54'06"W)(R2)	(36.28')(R2)
(S04°43'23"E)(R2)	(104.24')(R2)
(S36°54'51"W)(R2)	(61.73')(R2)
(S18°42'07"W)(R2)	(107.49')(R2)
(S55°21'32"W)(R2)	(40.19')(R2)
(S87°57'48"W)(R2)	(58.30')(R2)
(N17°59'30"W)(R2)	(56.90')(R2)
(N71°56'54"W)(R2)	(72.31')(R2)
(S65°56'09"W)(R2)	(39.71')(R2)
(S01°16'08"W)(R2)	(62.90')(R2)
(S58°02'24"W)(R2)	(25.73')(R2)
(N58°30'25"W)(R2)	(11.15')(R2)
(S35°09'07"W)(R2)	(15.02')(R2)
(S30°12'40"E)(R2)	(30.00')(R2)
(N59°47'20"E)(R2)	(31.50')(R2)
(N53°33'13"E)(R1)(R3)	(25.26')(R1)
(N58°52'19"E)(R1)(R3)	(R3: 14.628m) = 47.99'
(S52°28'49"W)(R3)	(R3: 3.811m) = 12.50'
(S57°32'14"W)(R3)	(R3: 17.604m) = 57.76'
(N57°07'31"E)(R3)	(R3: 34.616m) = 113.58'
(S58°44'09"W)(R3)	(R3: 15.108m) = 49.57'
(S76°15'07"W)(R3)	(R3: 26.108m) = 85.66'
(S78°26'58"W)(R3)	(R3: 17.237m) = 56.56'
(S82°41'18"W)(R3)	(R3: 34.491m) = 113.17'
(N73°38'04"E)(R3)	(R3: 30.104m) = 98.77'
(N73°38'04"E)(R1) (N72°45'00"E)(R2)	(121.88')(R1)
(N77°53'28"E)(R1) (N77°00'00"E)(R2)	(259.67')(R1) (260.04')(R2)
(N68°33'21"E)(R1)	(71.61')(R1)
(N67°45'00"E)(R2)	(71.28')(R2)
(N61°25'06"E)(R1) (N60°30'00"E)(R2)	(52.50')(R1) (52.80')(R1)

RECORD REFERENCES

(R1) GRANT DEED RECORDED OCTOBER 1, 2009 AS DOCUMENT NUMBER 2009-131257, OFFICIAL RECORDS OF SAN MATEO COUNTY.
(R2) RECORD OF SURVEY RECORDED APRIL 5, 2005 IN BOOK 27 OF LLS MAPS AT PAGE 40, OFFICIAL RECORDS OF SAN MATEO COUNTY.
(R3) RECORD OF SURVEY NO. 2460 RECORDED OCTOBER 10, 2013 IN BOOK 38 OF LLS MAPS AT PAGES 99-102OFFICIAL RECORDS OF SAN MATEO COUNTY.

SURVEYOR'S NOTE

RECORD DISTANCES PER (R3) ARE GRID DISTANCES IN METERS. (R3: #m) DENOTES DISTANCE MATCHING RECORD CONVERTED FROM GRID METERS TO GROUND U.S. SURVEY FEET. TO OBTAIN GROUND DISTANCES IN METERS, MULTIPLY (R3) GRID DISTANCES BY 1.000059093, AS STATED ON (R3). TO OBTAIN GROUND DISTANCES IN U.S. SURVEY FEET, MULTIPLY GROUND DISTANCES IN METERS BY THE CONVERSION FACTOR OF (3937/1200).

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880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

No.	Revisions	Date

Date 11/28/2023
Scale 1" = 40'
Design DJP
Drawn DLG
Approved DJL
Job No. 20211367-15

Drawing Number:
C0.2
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DRAWING NAME: K:\2021\211367-15_HMB_Coryard_Housing\ENG\hmbsheets.dwg
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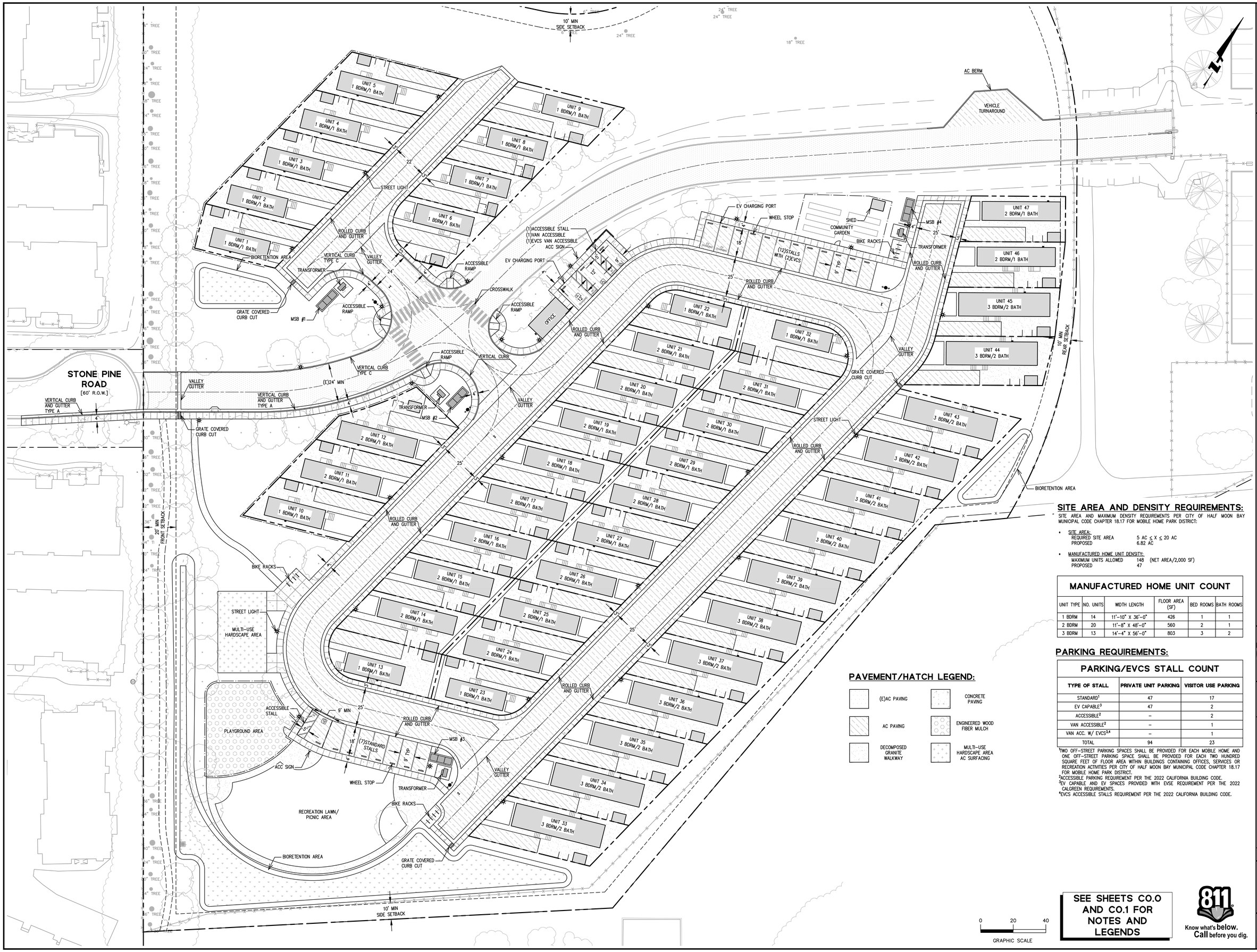

SITE AREA AND DENSITY REQUIREMENTS:

SITE AREA AND MAXIMUM DENSITY REQUIREMENTS PER CITY OF HALF MOON BAY MUNICIPAL CODE CHAPTER 18.17 FOR MOBILE HOME PARK DISTRICT:

- SITE AREA:
  - REQUIRED SITE AREA: 5 AC ≤ X ≤ 20 AC
  - PROPOSED: 6.82 AC
- MANUFACTURED HOME UNIT DENSITY:
  - MAXIMUM UNITS ALLOWED: 148 (NET AREA/2,000 SF)
  - PROPOSED: 47

MANUFACTURED HOME UNIT COUNT

UNIT TYPE	NO. UNITS	WIDTH LENGTH	FLOOR AREA (SF)	BED ROOMS	BATH ROOMS
1 BDRM	14	11'-10" X 36'-0"	426	1	1
2 BDRM	20	11'-8" X 48'-0"	560	2	1
3 BDRM	13	14'-4" X 56'-0"	803	3	2

PARKING REQUIREMENTS:

PARKING/EVCS STALL COUNT

TYPE OF STALL	PRIVATE UNIT PARKING	VISITOR USE PARKING
STANDARD[1]	47	17
EV CAPABLE[3]	47	2
ACCESSIBLE[2]	–	2
VAN ACCESSIBLE[2]	–	1
VAN ACC. W/ EVCS[2,4]	–	1
TOTAL	94	23

[1]TWO OFF-STREET PARKING SPACES SHALL BE PROVIDED FOR EACH MOBILE HOME AND ONE OFF-STREET PARKING SPACE SHALL BE PROVIDED FOR EACH TWO HUNDRED SQUARE FEET OF FLOOR AREA WITHIN BUILDINGS CONTAINING OFFICES, SERVICES OR RECREATION ACTIVITIES PER CITY OF HALF MOON BAY MUNICIPAL CODE CHAPTER 18.17 FOR MOBILE HOME PARK DISTRICT.
[2]ACCESSIBLE PARKING REQUIREMENT PER THE 2022 CALIFORNIA BUILDING CODE.
[3]EV CAPABLE AND EV SPACES PROVIDED WITH EVSE REQUIREMENT PER THE 2022 CALGREEN REQUIREMENTS.
[4]EVCS ACCESSIBLE STALLS REQUIREMENT PER THE 2022 CALIFORNIA BUILDING CODE.

PAVEMENT/HATCH LEGEND:

- (E)AC PAVING
- AC PAVING
- DECOMPOSED GRANITE WALKWAY
- CONCRETE PAVING
- ENGINEERED WOOD FIBER MULCH
- MULTI-USE HARDSCAPE AREA AC SURFACING

0 20 40
GRAPHIC SCALE

SEE SHEETS C0.0 AND C0.1 FOR NOTES AND LEGENDS

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No.	Revisions	Date

Date 11/28/2023
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Drawn DLG
Approved DJL
Job No. 20211367-15

Drawing Number:
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OF

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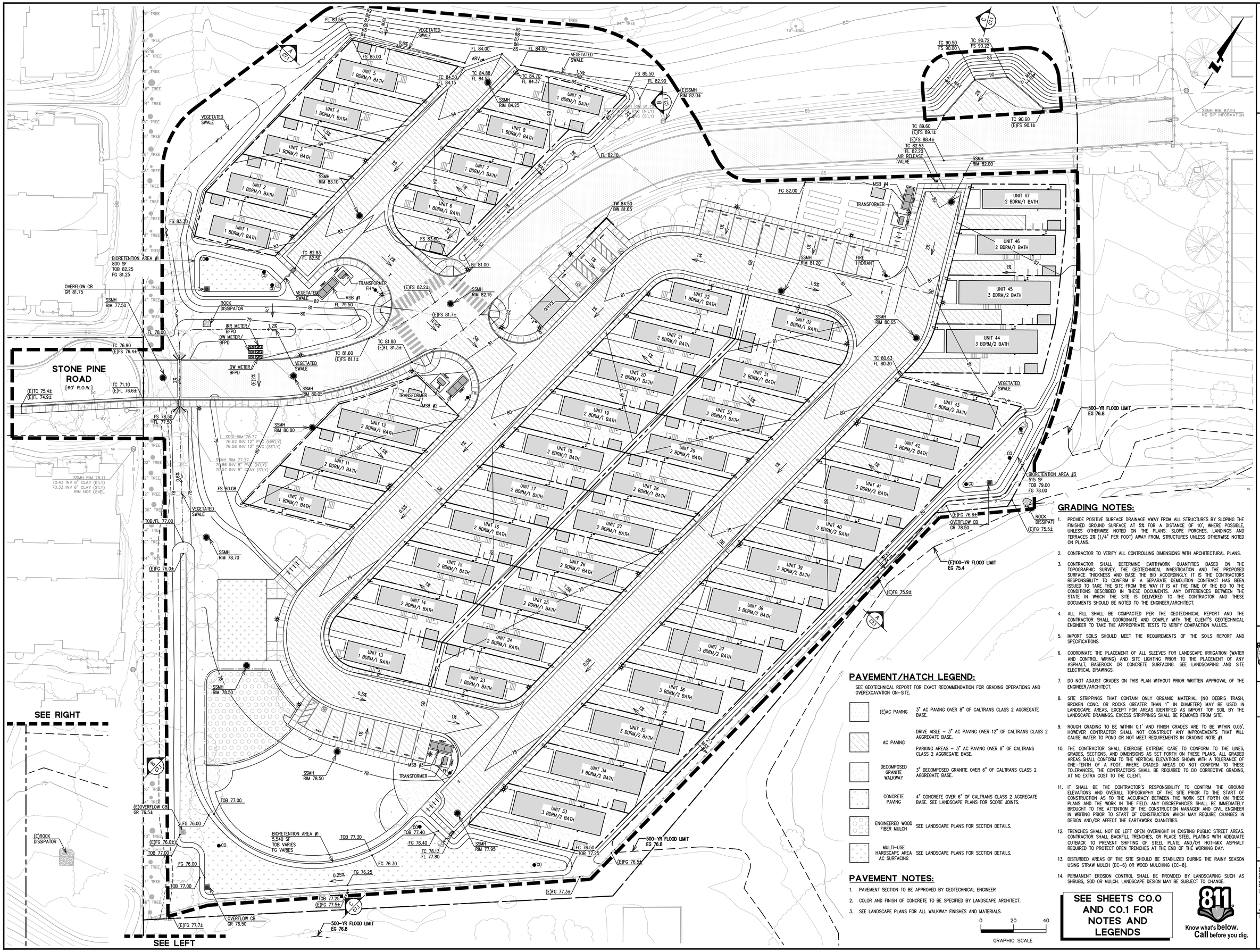

GRADING NOTES:

1. PROVIDE POSITIVE SURFACE DRAINAGE AWAY FROM ALL STRUCTURES BY SLOPING THE FINISHED GROUND SURFACE AT 5% FOR A DISTANCE OF 10', WHERE POSSIBLE, UNLESS OTHERWISE NOTED ON THE PLANS. SLOPE PORCHES, LANDINGS AND TERRACES 2% (1/4" PER FOOT) AWAY FROM, STRUCTURES UNLESS OTHERWISE NOTED ON PLANS.
2. CONTRACTOR TO VERIFY ALL CONTROLLING DIMENSIONS WITH ARCHITECTURAL PLANS.
3. CONTRACTOR SHALL DETERMINE EARTHWORK QUANTITIES BASED ON THE TOPOGRAPHIC SURVEY, THE GEOTECHNICAL INVESTIGATION AND THE PROPOSED SURFACE THICKNESS AND BASE THE BID ACCORDINGLY. IT IS THE CONTRACTORS RESPONSIBILITY TO CONFIRM IF A SEPARATE DEMOLITION CONTRACT HAS BEEN ISSUED TO TAKE THE SITE FROM THE WAY IT IS AT THE TIME OF THE BID TO THE CONDITIONS DESCRIBED IN THESE DOCUMENTS. ANY DIFFERENCES BETWEEN THE STATE IN WHICH THE SITE IS DELIVERED TO THE CONTRACTOR AND THESE DOCUMENTS SHOULD BE NOTED TO THE ENGINEER/ARCHITECT.
4. ALL FILL SHALL BE COMPACTED PER THE GEOTECHNICAL REPORT AND THE CONTRACTOR SHALL COORDINATE AND COMPLY WITH THE CLIENT'S GEOTECHNICAL ENGINEER TO TAKE THE APPROPRIATE TESTS TO VERIFY COMPACTION VALUES.
5. IMPORT SOILS SHOULD MEET THE REQUIREMENTS OF THE SOILS REPORT AND SPECIFICATIONS.
6. COORDINATE THE PLACEMENT OF ALL SLEEVES FOR LANDSCAPE IRRIGATION (WATER AND CONTROL WIRING) AND SITE LIGHTING PRIOR TO THE PLACEMENT OF ANY ASPHALT, BASEROCK OR CONCRETE SURFACING. SEE LANDSCAPING AND SITE ELECTRICAL DRAWINGS.
7. DO NOT ADJUST GRADES ON THIS PLAN WITHOUT PRIOR WRITTEN APPROVAL OF THE ENGINEER/ARCHITECT.
8. SITE STRIPPINGS THAT CONTAIN ONLY ORGANIC MATERIAL (NO DEBRIS TRASH, BROKEN CONC. OR ROCKS GREATER THAN 1" IN DIAMETER) MAY BE USED IN LANDSCAPE AREAS, EXCEPT FOR AREAS IDENTIFIED AS IMPORT TOP SOIL BY THE LANDSCAPE DRAWINGS. EXCESS STRIPPINGS SHALL BE REMOVED FROM SITE.
9. ROUGH GRADING TO BE WITHIN 0.1' AND FINISH GRADES ARE TO BE WITHIN 0.05', HOWEVER CONTRACTOR SHALL NOT CONSTRUCT ANY IMPROVEMENTS THAT WILL CAUSE WATER TO POND OR NOT MEET REQUIREMENTS IN GRADING NOTE #1.
10. THE CONTRACTOR SHALL EXERCISE EXTREME CARE TO CONFORM TO THE LINES, GRADES, SECTIONS, AND DIMENSIONS AS SET FORTH ON THESE PLANS. ALL GRADED AREAS SHALL CONFORM TO THE VERTICAL ELEVATIONS SHOWN WITH A TOLERANCE OF ONE-TENTH OF A FOOT. WHERE GRADED AREAS DO NOT CONFORM TO THESE TOLERANCES, THE CONTRACTORS SHALL BE REQUIRED TO DO CORRECTIVE GRADING, AT NO EXTRA COST TO THE CLIENT.
11. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM THE GROUND ELEVATIONS AND OVERALL TOPOGRAPHY OF THE SITE PRIOR TO THE START OF CONSTRUCTION AS TO THE ACCURACY BETWEEN THE WORK SET FORTH ON THESE PLANS AND THE WORK IN THE FIELD. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND CIVIL ENGINEER IN WRITING PRIOR TO START OF CONSTRUCTION WHICH MAY REQUIRE CHANGES IN DESIGN AND/OR AFFECT THE EARTHWORK QUANTITIES.
12. TRENCHES SHALL NOT BE LEFT OPEN OVERNIGHT IN EXISTING PUBLIC STREET AREAS. CONTRACTOR SHALL BACKFILL TRENCHES, OR PLACE STEEL PLATING WITH ADEQUATE CUTBACK TO PREVENT SHIFTING OF STEEL PLATE AND/OR HOT-MIX ASPHALT REQUIRED TO PROTECT OPEN TRENCHES AT THE END OF THE WORKING DAY.
13. DISTURBED AREAS OF THE SITE SHOULD BE STABILIZED DURING THE RAINY SEASON USING STRAW MULCH (EC-6) OR WOOD MULCHING (EC-8).
14. PERMANENT EROSION CONTROL SHALL BE PROVIDED BY LANDSCAPING SUCH AS SHRUBS, SOD OR MULCH. LANDSCAPE DESIGN MAY BE SUBJECT TO CHANGE.

PAVEMENT/HATCH LEGEND:

SEE GEOTECHNICAL REPORT FOR EXACT RECOMMENDATION FOR GRADING OPERATIONS AND OVEREXCAVATION ON-SITE.

(E)AC PAVING	3" AC PAVING OVER 8" OF CALTRANS CLASS 2 AGGREGATE BASE.
AC PAVING	DRIVE AISLE – 3" AC PAVING OVER 12" OF CALTRANS CLASS 2 AGGREGATE BASE. PARKING AREAS – 3" AC PAVING OVER 8" OF CALTRANS CLASS 2 AGGREGATE BASE.
DECOMPOSED GRANITE WALKWAY	3" DECOMPOSED GRANITE OVER 6" OF CALTRANS CLASS 2 AGGREGATE BASE.
CONCRETE PAVING	4" CONCRETE OVER 6" OF CALTRANS CLASS 2 AGGREGATE BASE. SEE LANDSCAPE PLANS FOR SCORE JOINTS.
ENGINEERED WOOD FIBER MULCH	SEE LANDSCAPE PLANS FOR SECTION DETAILS.
MULTI-USE HARDSCAPE AREA AC SURFACING	SEE LANDSCAPE PLANS FOR SECTION DETAILS.

PAVEMENT NOTES:

1. PAVEMENT SECTION TO BE APPROVED BY GEOTECHNICAL ENGINEER
2. COLOR AND FINISH OF CONCRETE TO BE SPECIFIED BY LANDSCAPE ARCHITECT.
3. SEE LANDSCAPE PLANS FOR ALL WALKWAY FINISHES AND MATERIALS.

0 20 40
GRAPHIC SCALE

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REGISTERED PROFESSIONAL ENGINEER — DAVID L. GOLD — No. 56611 — CIVIL — STATE OF CALIFORNIA

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Approved DJL
Job No 20211367-15

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OF

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PLOT DATE: 11-29-23
PLOTTED BY: gold

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SANITARY SEWER NOTES:

1. ALL SEWER WORK SHALL BE IN CONFORMANCE WITH THE CITY.
2. PRIVATE SANITARY SEWER SERVICE LINE 4-INCH THROUGH 8-INCH SHALL BE POLYVINYL CHLORIDE (PVC) SDR 26 GREEN SEWER PIPE AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION D 3034-73 WITH GLUED JOINTS. ALL DIRECTION CHANGES SHALL BE MADE WITH WYE CONNECTIONS, 22.5° ELBOWS or 45° ELBOWS, 90° ELBOWS AND TEE's ARE PROHIBITED. PUBLIC SANITARY SEWER LINES AND MAINS SHALL BE PER CITY/TOWN STANDARDS.
3. ALL LATERALS SHALL HAVE A CLEANOUT AT FACE OF BUILDING AND AS SHOWN ON PLANS PER THE CITY STANDARD OR APPROPRIATE SANITARY SEWER DISTRICT.
4. IF (E) SEWER LATERAL IS TO BE USED, CONTRACTOR SHALL PERFORM PRESSURE TEST ON (E) SEWER LATERAL, AND SHALL PERFORM ANY NEEDED REPAIRS. EXTEND (N) OR (E) SEWER LINE AS SHOWN ON THE PLANS SLOPED AT 2% MINIMUM. INSTALL CLEANOUT AT FACE OF BUILDING AND AT PROPERTY LINE.
5. SANITARY SEWER SYSTEMS INCLUDING MAINS, MANHOLES, LATERALS AND SANITARY FORCE MAINS SHALL BE TESTED PER CITY'S STANDARD DESIGN GUIDELINES FOR PUBLIC WORKS CONSTRUCTION 2016.

GENERAL NOTES:

1. WATER LINES ARE SHOWN SCHEMATICALLY, CONTRACTOR SHALL IDENTIFY EACH ANGLE AND/OR BEND THAT MAY BE REQUIRED TO ACCOMPLISH THE INTENDED DESIGN.
2. CONTRACTOR SHALL SIZE AND INSTALL ALL NEW DESIGN BUILD DOMESTIC IRRIGATION AND FIRE WATER LINE(S) IN ACCORDANCE WITH THE LATEST EDITION OF THE UNIFORM/CALIFORNIA PLUMBING AND FIRE CODES.
3. ALL LANDSCAPE IRRIGATION SYSTEMS SHALL BE IN ACCORDANCE WITH THE LANDSCAPE ARCHITECTURAL PLANS AND SPECIFICATIONS AND SHALL BE CONNECTED TO THE EXISTING AND/OR NEW WATER SYSTEM AND METERED ACCORDINGLY.

UTILITY LEGEND:

X" SD	STORM DRAIN LATL
X" SS	SANITARY SEWER LATL
X" DIP DW	DOMESTIC WATER LATL DUCTILE IRON PIPE
X" FW	FIRE WATER LATL
E	UNDERGROUND ELECTRICAL SERVICE LATL
	JOINT TRENCH

0 20 40
GRAPHIC SCALE

STORM DRAIN NOTES:

1. PRIVATE STORM DRAIN LINE 4-INCH THROUGH 12-INCH WITH A MINIMUM OF TWO (2) FEET OF COVER IN NON-TRAFFIC AREAS SHALL BE POLYVINYL CHLORIDE (PVC) SDR 35 WHITE PIPE AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION D 3034-73 WITH GLUED JOINTS. ALL DIRECTION CHANGES SHALL BE MADE WITH WYE CONNECTIONS, 22.5° ELBOWS, 45° ELBOWS OR LONG SWEEP ELBOWS, 90° ELBOWS AND TEE's ARE PROHIBITED.
2. PRIVATE STORM DRAIN LINE 6-INCH THROUGH 12-INCH WITH LESS THAN THREE (3) FEET OF COVER IN VEHICULAR TRAFFIC AREAS SHALL BE POLYVINYL CHLORIDE (PVC) C900, RATED FOR 150 PSI CLASS PIPE. PROVIDE AND INSTALL "STORM DRAIN" MARKER TAPE FOR THE ENTIRE LENGTH OF PIPE TRENCH IN ACCORDANCE WITH CITY/TOWN STANDARDS. ALL DIRECTION CHANGES SHALL BE MADE WITH WYE CONNECTIONS, OBTUSE ELBOWS OR LONG SWEEP ELBOWS, 90° ELBOWS AND TEE's ARE PROHIBITED.
3. ALL AREA DRAINS AND CATCH BASINS GRATES WITHIN PEDESTRIAN ACCESSIBLE AREAS SHALL MEET ADA REQUIREMENTS.
4. ALL TRENCHES SHALL BE BACK FILLED PER THE SPECIFICATIONS WITH APPROPRIATE TESTS BY THE GEOTECHNICAL ENGINEER TO VERIFY COMPACTION VALUES.
5. FOR GRAVITY FLOW SYSTEMS CONTRACTOR SHALL VERIFY (POTHOLE IF NECESSARY) SIZE, MATERIAL, LOCATION AND DEPTH OF ALL SYSTEMS THAT ARE TO BE CONNECTED TO OR CROSSED PRIOR TO THE TRENCHING OR INSTALLATION OF ANY GRAVITY FLOW SYSTEM.
6. DRAINS SHOWN ON CIVIL PLANS ARE NOT INTENDED TO BE THE FINAL NUMBER AND LOCATION OF ALL DRAINS. PLACEMENT AND NUMBER OF LANDSCAPING DRAINS ARE HIGHLY DEPENDENT ON GROUND COVER TYPE AND PLANT MATERIAL. CONTRACTOR SHALL ADD ADDITIONAL AREA DRAINS AS NEEDED AND AS DIRECTED BY THE LANDSCAPE ARCHITECT OR CIVIL ENGINEER.
7. ALL DOWN SPOUTS SHALL DISCHARGE DIRECTLY ON TO ADJACENT IMPERVIOUS SURFACES OR SPLASH BLOCKS UNLESS OTHERWISE NOTED ON PLANS. SEE ARCHITECTURE PLANS FOR EXACT LOCATION OF THE DOWN SPOUTS.

DOMESTIC WATER SYSTEM NOTES:

1. WATER SYSTEM CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE COASTSIDE COUNTY WATER DISTRICT DOCUMENT TITLED "STANDARD SPECIFICATIONS AND STANDARD DRAWINGS, MAY 2018, LATEST REVISION."
2. INSTALLATION SHALL CONFORM TO THE CCWD STANDARD DRAWINGS INCLUDED IN THESE IMPROVEMENT PLANS AND OTHER CCWD STANDARD DRAWINGS.
3. WATER METER BOXES SHALL NOT BE LOCATED IN DRIVEWAY AREAS OR WITHIN 3 FEET HORIZONTAL AND 1 FOOT VERTICAL OF OTHER UTILITIES INCLUDING ELECTRICAL, GAS, TELEPHONED, AND CABLE TV.

SEE SHEETS CO.0 AND CO.1 FOR NOTES AND LEGENDS

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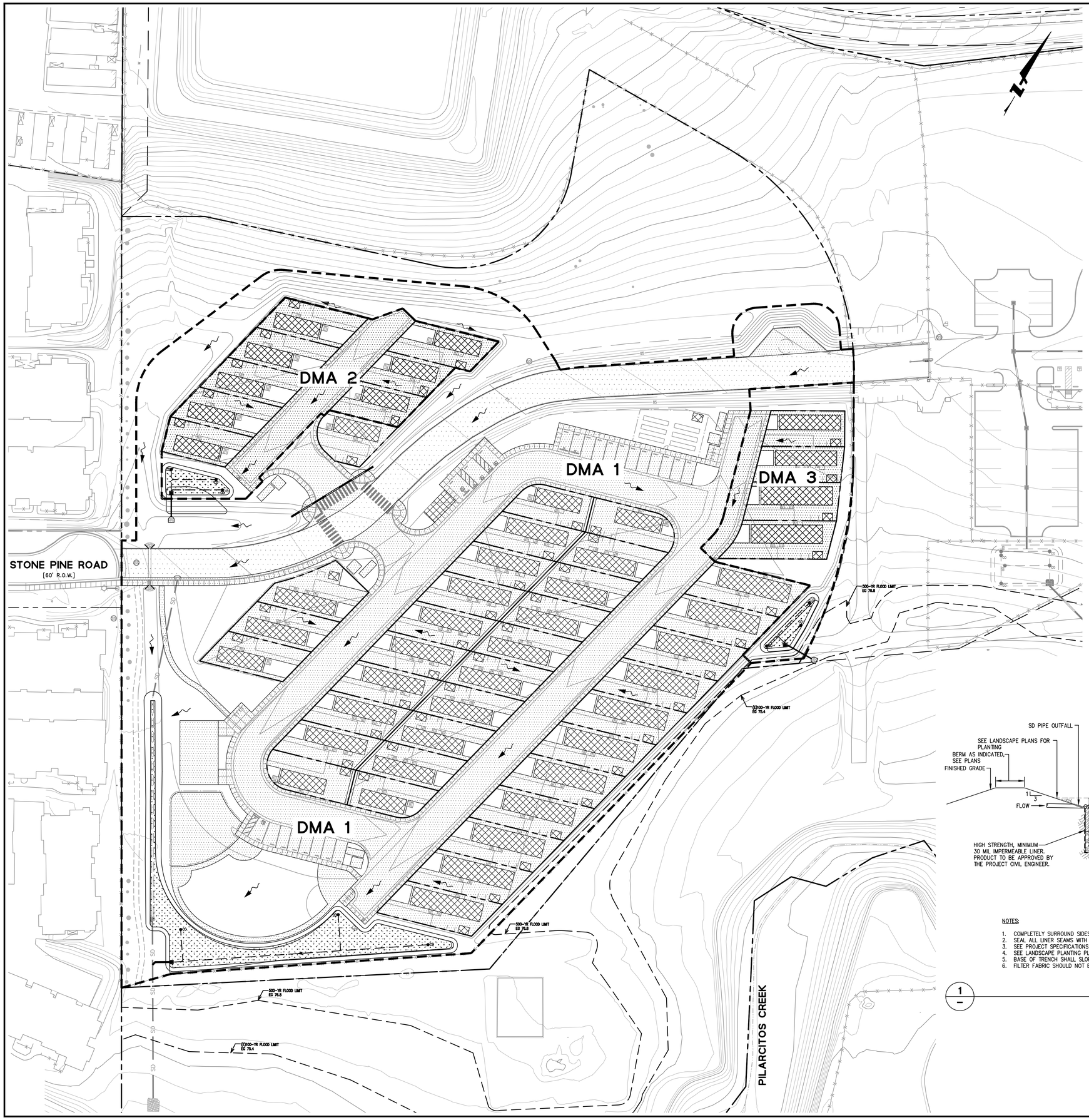


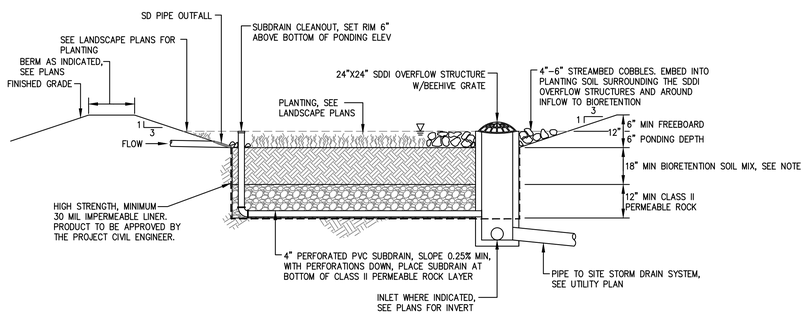
LEGEND:

- DMA BOUNDARY
- FLOW DIRECTION ARROW
- CREATED/REPLACED IMPERVIOUS HARDSCAPE
- CREATED/REPLACED IMPERVIOUS BUILDING
- EXISTING IMPERVIOUS HARDSCAPE RETAINED
- EXISTING IMPERVIOUS BUILDING RETAINED
- PROPOSED TREATMENT AREA

ONSITE TRIBUTARY AREA

DRAINAGE MANAGEMENT AREA (DMA)	IMPERVIOUS AREA	PERVIOUS AREA	EFFECTIVE IMPERVIOUS AREA	REQUIRED TREATMENT AREA	PROVIDED TREATMENT AREA
DMA 1	130,770	72,790	138,049	5,522	5,540
DMA 2	17,220	3,535	17,574	703	800
DMA 3	9,450	6,435	10,094	404	515
TOTAL	157,440	82,760	165,717	6,629	6,855

1. BIOTREATMENT AREAS ARE SIZED TO TREAT 4% OF EFFECTIVE IMPERVIOUS AREA IN DMA'S 1-3.
2. EFFECTIVE IMPERVIOUS AREA IS EQUAL TO THE TOTAL IMPERVIOUS AREA PLUS 0.1 TIMES THE TOTAL PERVIOUS AREA PER THE SAN MATEO COUNTY C.3 MANUAL.



NOTES:

1. COMPLETELY SURROUND SIDES AND BOTTOM OF BIORETENTION AREA WITH IMPERMEABLE LINER. NO INFILTRATION INTO SURROUNDING SOIL IS PERMITTED.
2. SEAL ALL LINER SEAMS WITH WATERPROOF TAPE AS RECOMMENDED BY LINER MANUFACTURER.
3. SEE PROJECT SPECIFICATIONS FOR BIOTREATMENT SOIL MIX.
4. SEE LANDSCAPE PLANTING PLAN FOR TREE LOCATIONS AND OTHER PLANT SPECIES IN BIORETENTION AREA.
5. BASE OF TRENCH SHALL SLOPE AT 0.25% TO PARALLEL UNDERDRAIN.
6. FILTER FABRIC SHOULD NOT BE USED IN OR AROUND THE UNDERDRAIN OR BETWEEN THE BSM AND CLASS II PERM.

1 — **BIORETENTION AREA**
NTS

0 30 60
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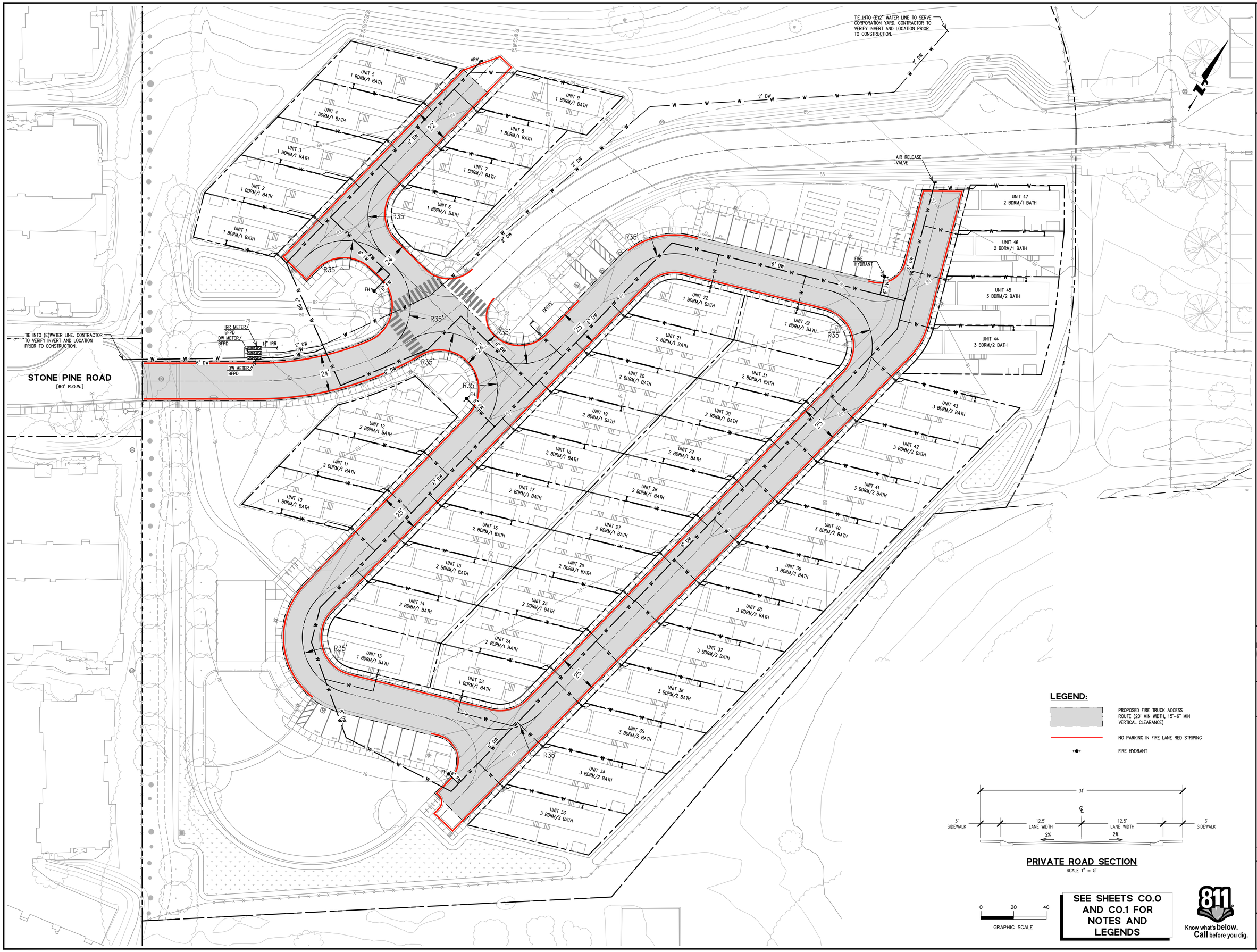

LEGEND:

- PROPOSED FIRE TRUCK ACCESS ROUTE (20' MIN WIDTH, 15'-6" MIN VERTICAL CLEARANCE)
- NO PARKING IN FIRE LANE RED STRIPING
- FIRE HYDRANT

PRIVATE ROAD SECTION

SCALE 1" = 5'

0 20 40

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Approved DJL
Job No 20211367-15

Drawing Number:
C4.1
OF

DRAWING NAME: K:\2021\2113367-15_HMB_Corpyard_Housing\ENG\hmbsheets.dwg
PLOT DATE: 11-29-23 PLOTTED BY: gold

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TREE PROTECTION (TYPICAL)

FIBER ROLLS (SE-5)

LOCATION OF PROPOSED ROAD

SEDIMENT BASIN (SE-2)
(LOCATED WHERE PROPOSED BIORETENTION AREAS ARE LOCATED)
800± SF
TOP OF BANK 82.3
BASE 81.3

FIBER ROLLS (SE-5)
(LOCATED AT TOP OF PROPOSED BIO AREA)

STABILIZED CONSTRUCTION ENTRANCE (TC-1)

VEHICLE/EQUIPMENT WASHOUT PIT (NS-8)

STONE PINE ROAD
[60' R.O.W.]

1 / C5.2 GRAVEL BAG BERM (SE-6)

7 / C5.2 STORM DRAIN INLET PROTECTION (SE-10)

GRAVEL BAG BERM (SE-6)

FIBER ROLLS (SE-5) 6 / C5.2

2 / C5.2 VEHICLE/EQUIPMENT WASHOUT PIT (NS-8)

STABILIZED CONSTRUCTION ENTRANCE (TC-1) 4 / C5.2

TREE PROTECTION (TYPICAL)

LOCATION OF PROPOSED ROAD

CONTRACTOR PARKING AREA

(3)JOB TRAILERS

TOILETS

GRAVEL BAG BERM (SE-6)

GRAVEL BAG BERM (SE-6)

FIBER ROLLS (SE-5)

3 / C5.2 STOCKPILE MANAGEMENT (WM-3)

SEDIMENT BASIN (SE-2)
(LOCATED WHERE PROPOSED BIORETENTION AREAS ARE LOCATED)
515± SF
TOP OF BANK 79.0
BASE 78.0

FIBER ROLLS (SE-5)
(LOCATED AT TOP OF PROPOSED SLOPE)

SILT FENCE (SE-1) 5 / C5.2

FIBER ROLLS (SE-5)
(LOCATED AT TOP OF PROPOSED BIO AREA)

SEDIMENT BASIN (SE-2)
(LOCATED WHERE PROPOSED BIORETENTION AREAS ARE LOCATED)
5,540± SF
TOP OF BANK 77.0
BASE 76.0

SILT FENCE (SE-1)

EROSION CONTROL LEGEND:

- TREE PROTECTION (TYP.) SEE ARBORIST NOTES
- STABILIZED CONSTRUCTION ENTRANCE/EXIT
- VEHICLE/EQUIPMENT WASHOUT PIT
- STOCKPILE COVERING
- CONTRACTOR PARKING AREA
- SEDIMENT BASIN
- GRAVEL BAG BERM
- FIBER ROLL
- SILT FENCE
- INLET PROTECTION

PERMANENT EROSION/SEDIMENT CONTROLS:

1. CONTRACTOR SHALL PROVIDE POST-CONSTRUCTION PERMANENT EROSION/SEDIMENT CONTROL THROUGHOUT THE SITE IN THE FORM OF FINISH LANDSCAPING.
2. PERMANENT EROSION CONTROLS SHOULD CONSIST OF VEGETATION OR OTHER MEANS OF STABILIZING ALL DISTURBED AREAS OF THE SITE. SUITABLE EROSION CONTROLS INCLUDE TURF, SHRUBS, ESTABLISHED HYDROSEEDING, MULCH, BARK, AND OTHER GROUNDCOVERS.
3. ALL DISTURBED GROUND SURFACES SHALL BE STABILIZED UPON COMPLETION OF CONSTRUCTION ACTIVITIES.
4. FINAL LANDSCAPING PLAN TO BE DEVELOPED IN COORDINATION WITH THE PROJECT ARCHITECT AND TO BE CONSISTENT WITH EXISTING LANDSCAPING AND TREES TO REMAIN, AND MEET THE APPROVAL OF THE PROJECT ARBORIST.
5. LANDSCAPING PROPOSED SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH THE CALIFORNIA MODEL WATER EFFICIENT LANDSCAPE ORDINANCE.
6. DISTURBED AREAS OF THE SITE SHOULD BE STABILIZED DURING THE RAINY SEASON USING STRAW MULCH (EC-6) OR WOOD MULCHING (EC-8).
7. PERMANENT EROSION CONTROL SHALL BE PROVIDED BY LANDSCAPING SUCH AS SHRUBS, SOD OR MULCH. LANDSCAPE DESIGN MAY BE SUBJECT TO CHANGE.

0 20 40
GRAPHIC SCALE

SEE SHEETS C0.0 AND C0.1 FOR NOTES AND LEGENDS

811 Know what's below. Call before you dig.

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STAGING AND EROSION CONTROL PLAN
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

REVIEW ONLY NOT FOR CONSTRUCTION
REGISTERED PROFESSIONAL ENGINEER DAVID J. LEE 73178 CIVIL STATE OF CALIFORNIA

No.	Revisions	Date

Date 11/28/2023
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Design DJP
Drawn DLG
Approved DJL
Job No. 20211367-15

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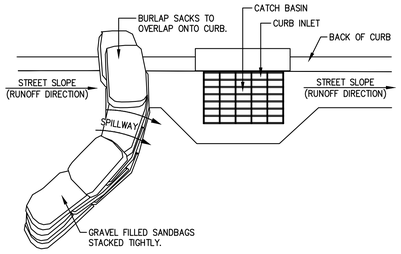
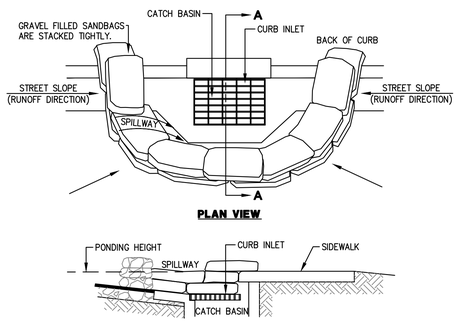


PLAN VIEW

NOTES:

1. PLACE CURB TYPE SEDIMENT BARRIERS ON GENTLY SLOPING STREETS, WHERE WATER CAN POND AND ALLOW SEDIMENT TO SEPARATE FROM RUNOFF.
2. SANDBAGS OF EITHER BURLAP OR WOVEN GEOTEXTILE FABRIC, ARE FILLED WITH GRAVEL, LAYERED AND PACKED TIGHTLY.
3. LEAVE ONE SANDBAG GAP IN THE TOP ROW TO PROVIDE A SPILLWAY OVERFLOW. TOP OF SPILLWAY SHALL BE LOWER THAN TOP OF CURB.
4. INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT, SEDIMENT AND GRAVEL MUST BE REMOVED FROM THE TRAVELED WAY IMMEDIATELY.

CURB INLET SEDIMENT BARRIER - CONTINUOUS GRADE



PLAN VIEW

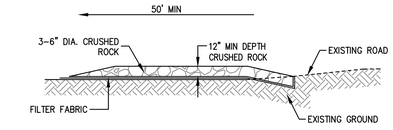
SECTION A-A

CURB INLET SEDIMENT BARRIER - SUMP

NOTES:

1. PLACE CURB TYPE SEDIMENT BARRIERS ON GENTLY SLOPING STREETS, WHERE WATER CAN POND AND ALLOW SEDIMENT TO SEPARATE FROM RUNOFF.
2. SANDBAGS OF EITHER BURLAP OR WOVEN GEOTEXTILE FABRIC, ARE FILLED WITH GRAVEL, LAYERED AND PACKED TIGHTLY.
3. LEAVE ONE SANDBAG GAP IN THE TOP ROW TO PROVIDE A SPILLWAY OVERFLOW.
4. INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT, SEDIMENT AND GRAVEL MUST BE REMOVED FROM THE TRAVELED WAY IMMEDIATELY.

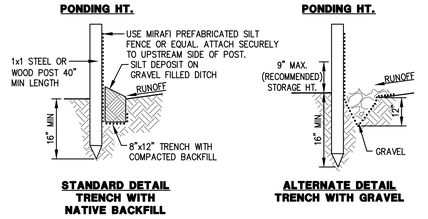
7 – INLET PROTECTION
NTS

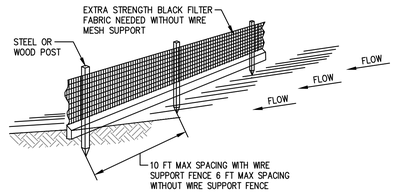


NOTES:

1. PROVIDE A FANNED STABILIZED CONSTRUCTION ENTRANCE TO ACCOMMODATE THE TURNING RADIUS OF CONSTRUCTION EQUIPMENT ON AND OFF THE PUBLIC STREET.
2. INSTALL ALONG NEW DWY CORRIDOR FOR THE FULL PROPOSED WIDTH.

4 – STABILIZED CONSTRUCTION ENTRANCE
NTS

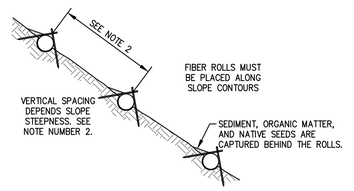


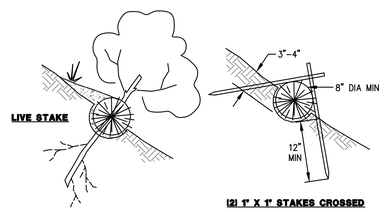


NOTES:

1. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.
2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
3. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.

5 – SILT FENCE
NTS

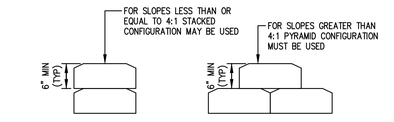




NOTES:

1. FIBER ROLL INSTALLATION REQUIRES THE PLACEMENT AND SECURE STAKING OF THE ROLL IN A TRENCH, 3" TO 4" DEEP, DUG ON CONTOUR. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND ROLL.
1. VERTICAL SPACING FOR SLOPE INSTALLATIONS:
   SLOPE OF 2:1 OR GREATER = 10 FEET APART
   SLOPE BETWEEN 4:1 AND 2:1 = 15 FEET APART
   SLOPE OF 4:1 OR FLATTER = 20 FEET APART
2. INSPECT AND REPAIR FIBER ROLLS AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.
3. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.

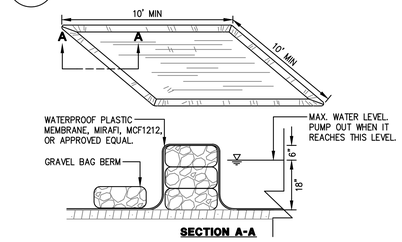
6 – FIBER ROLL
NTS



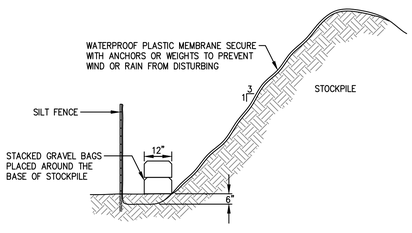
NOTES:

1. INSTALL AT LOCATIONS AS SHOWN ON EROSION CONTROL PLAN, AND IN ADDITION, PROTECT ALL EXISTING AND PROPOSED STORM DRAIN STRUCTURES WITH GRAVEL BAGS.

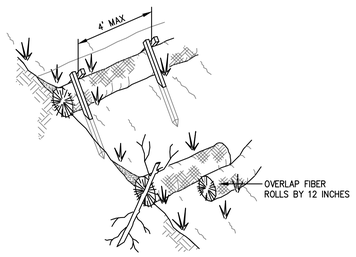
1 – GRAVEL BAG BERM
NTS



2 – VEHICLE/EQUIPMENT WASHOUT PIT
NTS



3 – STOCKPILE COVERING
NTS



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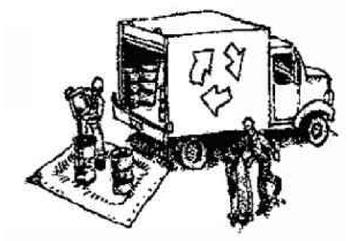
SAN MATEO COUNTYWIDE
Water Pollution Prevention Program
Clean Water. Healthy Community.

Construction Best Management Practices (BMPs)

Construction projects are required to implement the stormwater best management practices (BMP) on this page, as they apply to your project, all year long.

Materials & Waste Management



Non-Hazardous Materials

- ❑ Berm and cover stockpiles of sand, dirt or other construction material with tarps when rain is forecast or if not actively being used within 14 days.
- ❑ Use (but don't overuse) reclaimed water for dust control.

Hazardous Materials

- ❑ Label all hazardous materials and hazardous wastes (such as pesticides, paints, thinners, solvents, fuel, oil, and antifreeze) in accordance with city, county, state and federal regulations.
- ❑ Store hazardous materials and wastes in water tight containers, store in appropriate secondary containment, and cover them at the end of every work day or during wet weather or when rain is forecast.
- ❑ Follow manufacturer's application instructions for hazardous materials and be careful not to use more than necessary. Do not apply chemicals outdoors when rain is forecast within 24 hours.
- ❑ Arrange for appropriate disposal of all hazardous wastes.

Waste Management

- ❑ Cover waste disposal containers securely with tarps at the end of every work day and during wet weather.
- ❑ Check waste disposal containers frequently for leaks and to make sure they are not overfilled. Never hose down a dumpster on the construction site.
- ❑ Clean or replace portable toilets, and inspect them frequently for leaks and spills.
- ❑ Dispose of all wastes and debris properly. Recycle materials and wastes that can be recycled (such as asphalt, concrete, aggregate base materials, wood, gyp board, pipe, etc.)
- ❑ Dispose of liquid residues from paints, thinners, solvents, glues, and cleaning fluids as hazardous waste.

Construction Entrances and Perimeter

- ❑ Establish and maintain effective perimeter controls and stabilize all construction entrances and exits to sufficiently control erosion and sediment discharges from site and tracking off site.
- ❑ Sweep or vacuum any street tracking immediately and secure sediment source to prevent further tracking. Never hose down streets to clean up tracking.

Equipment Management & Spill Control



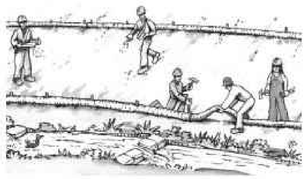
Maintenance and Parking

- ❑ Designate an area, fitted with appropriate BMPs, for vehicle and equipment parking and storage.
- ❑ Perform major maintenance, repair jobs, and vehicle and equipment washing off site.
- ❑ If refueling or vehicle maintenance must be done onsite, work in a bermed area away from storm drains and over a drip pan or drop cloths big enough to collect fluids. Recycle or dispose of fluids as hazardous waste.
- ❑ If vehicle or equipment cleaning must be done onsite, clean with water only in a bermed area that will not allow rinse water to run into gutters, streets, storm drains, or surface waters.
- ❑ Do not clean vehicle or equipment onsite using soaps, solvents, degreasers, or steam cleaning equipment.

Spill Prevention and Control

- ❑ Keep spill cleanup materials (e.g., rags, absorbents and cat litter) available at the construction site at all times.
- ❑ Inspect vehicles and equipment frequently for and repair leaks promptly. Use drip pans to catch leaks until repairs are made.
- ❑ Clean up spills or leaks immediately and dispose of cleanup materials properly.
- ❑ Do not hose down surfaces where fluids have spilled. Use dry cleanup methods (absorbent materials, cat litter, and/or rags).
- ❑ Sweep up spilled dry materials immediately. Do not try to wash them away with water, or bury them.
- ❑ Clean up spills on dirt areas by digging up and properly disposing of contaminated soil.
- ❑ Report significant spills immediately. You are required by law to report all significant releases of hazardous materials, including oil. To report a spill: 1) Dial 911 or your local emergency response number, 2) Call the Governor's Office of Emergency Services Warning Center, (800) 852-7550 (24 hours).

Earthmoving



- ❑ Schedule grading and excavation work during dry weather.
- ❑ Stabilize all denuded areas, install and maintain temporary erosion controls (such as erosion control fabric or bonded fiber matrix) until vegetation is established.
- ❑ Remove existing vegetation only when absolutely necessary, and seed or plant vegetation for erosion control on slopes or where construction is not immediately planned.
- ❑ Prevent sediment from migrating offsite and protect storm drain inlets, gutters, ditches, and drainage courses by installing and maintaining appropriate BMPs, such as fiber rolls, silt fences, sediment basins, gravel bags, berms, etc.
- ❑ Keep excavated soil on site and transfer it to dump trucks on site, not in the streets.

Contaminated Soils

- ❑ If any of the following conditions are observed, test for contamination and contact the Regional Water Quality Control Board:
  - Unusual soil conditions, discoloration, or odor.
  - Abandoned underground tanks.
  - Abandoned wells
  - Buried barrels, debris, or trash.

Paving/Asphalt Work



- ❑ Avoid paving and seal coating in wet weather or when rain is forecast, to prevent materials that have not cured from contacting stormwater runoff.
- ❑ Cover storm drain inlets and manholes when applying seal coat, tack coat, slurry seal, fog seal, etc.
- ❑ Collect and recycle or appropriately dispose of excess abrasive gravel or sand. Do NOT sweep or wash it into gutters.
- ❑ Do not use water to wash down fresh asphalt concrete pavement.

Sawcutting & Asphalt/Concrete Removal

- ❑ Protect nearby storm drain inlets when saw cutting. Use filter fabric, catch basin inlet filters, or gravel bags to keep slurry out of the storm drain system.
- ❑ Shovel, abosorb, or vacuum saw-cut slurry and dispose of all waste as soon as you are finished in one location or at the end of each work day (whichever is sooner!).
- ❑ If sawcut slurry enters a catch basin, clean it up immediately.

Concrete, Grout & Mortar Application



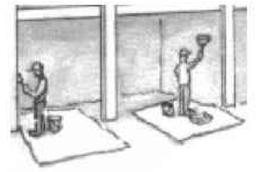
- ❑ Store concrete, grout, and mortar away from storm drains or waterways, and on pallets under cover to protect them from rain, runoff, and wind.
- ❑ Wash out concrete equipment/trucks offsite or in a designated washout area, where the water will flow into a temporary waste pit, and in a manner that will prevent leaching into the underlying soil or onto surrounding areas. Let concrete harden and dispose of as garbage.
- ❑ When washing exposed aggregate, prevent washwater from entering storm drains. Block any inlets and vacuum gutters, hose washwater onto dirt areas, or drain onto a bermed surface to be pumped and disposed of properly.

Landscaping



- ❑ Protect stockpiled landscaping materials from wind and rain by storing them under tarps all year-round.
- ❑ Stack bagged material on pallets and under cover.
- ❑ Discontinue application of any erodible landscape material within 2 days before a forecast rain event or during wet weather.

Painting & Paint Removal



Painting Cleanup and Removal

- ❑ Never clean brushes or rinse paint containers into a street, gutter, storm drain, or stream.
- ❑ For water-based paints, paint out brushes to the extent possible, and rinse into a drain that goes to the sanitary sewer. Never pour paint down a storm drain.
- ❑ For oil-based paints, paint out brushes to the extent possible and clean with thinner or solvent in a proper container. Filter and reuse thinners and solvents. Dispose of excess liquids as hazardous waste.
- ❑ Paint chips and dust from non-hazardous dry stripping and sand blasting may be swept up or collected in plastic drop cloths and disposed of as trash.
- ❑ Chemical paint stripping residue and chips and dust from marine paints or paints containing lead, mercury, or tributyltin must be disposed of as hazardous waste. Lead based paint removal requires a state-certified contractor.

Dewatering



- ❑ Discharges of groundwater or captured runoff from dewatering operations must be properly managed and disposed. When possible send dewatering discharge to landscaped area or sanitary sewer. If discharging to the sanitary sewer call your local wastewater treatment plant.
- ❑ Divert run-on water from offsite away from all disturbed areas.
- ❑ When dewatering, notify and obtain approval from the local municipality before discharging water to a street gutter or storm drain. Filtration or diversion through a basin, tank, or sediment trap may be required.
- ❑ In areas of known or suspected contamination, call your local agency to determine whether the ground water must be tested. Pumped groundwater may need to be collected and hauled off-site for treatment and proper disposal.

Storm drain polluters may be liable for fines of up to $10,000 per day!

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BEST MANAGEMENT PRACTICES
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PATRICK WAY

(E)3' SIDEWALK

(N)2-WAY ILLUMINATED CROSSWALK SIGN WITH RECTANGULAR RAPID FLASHING BEACONS

(N)VEGETATION TRIMMING

(E)CROSSWALK

(N)2-WAY ILLUMINATED CROSSWALK SIGN WITH RECTANGULAR RAPID FLASHING BEACONS

(E)CURB RAMP

(E)4' SIDEWALK

(E)DRIVEWAY

(N)4" THERMOPLASTIC WHITE STRIPE TRANSITION TO 10' LANE

(N)4" THERMOPLASTIC WHITE STRIPE TRANSITION TO 10' LANE

STONE PINE ROAD
(60' R/W - PUBLIC)

(N)SHARROW MARKING

(N)4" THERMOPLASTIC WHITE STRIPE 2' OFFSET FROM FACE OF CURB

10' LANE

10' LANE

24' CURB TO CURB

(E)DRIVEWAY

(N)4" THERMOPLASTIC WHITE STRIPE 2' OFFSET FROM FACE OF CURB

(E)DRIVEWAY

SEE SHEET C6.2

SIGNING AND STRIPING NOTES:

1. ALL SIGNING, STRIPING, AND MARKINGS SHALL CONFORM TO THE 2022 CALTRANS STANDARDS AND THE 2014 MUTCD UNLESS NOTED TO BE PER CITY STANDARDS.
2. ALL SIGNS SHALL BE INSTALLED 18" OFF THE FACE OF CURB OR EDGE OF TRAVELED PATH UNLESS OTHERWISE NOTED.
3. RECTANGULAR RAPID FLASHING BEACONS SHALL BE PROVIDED WITH POLERA IDETECT APS BUTTONS OR APPROVED EQUIVALENT.
4. WHERE THE FOLLOWING SYMBOLS OCCUR ON THE DRAWINGS PROVIDE THE SPECIFIED SIGNING AND/OR STRIPING:

——— 4" THERMOPLASTIC WHITE STRIPE 2' OFFSET FROM FACE OF CURB UNLESS OTHERWISE NOTED.

CROSSWALK STRIPING SHALL BE 2' WIDE AND 8' LONG THERMOPLASTIC WHITE STRIPES ALIGNED WITH CORRESPONDING CURB RAMPS. SPACE STRIPES 4' ON CENTER.

YIELD LINES SHALL BE ROW OF SOLID WHITE ISOSCELES TRIANGLES WITH 12"-24" BASE WIDTH AND HEIGHT EQUAL TO 1.5 TIMES THE BASE. SPACE BETWEEN TRIANGLES SHOULD BE 3"-12".

SHARROWS TO BE LOCATED AT LEAST 4' FROM FACE OF CURB, IMMEDIATELY AFTER AN INTERSECTION AND SPACED AT INTERVALS NOT GREATER THAN 250' THEREAFTER.

DETECTABLE WARNING SURFACE: 36" MIN. IN DIRECTION OF TRAVEL WHERE SHOWN.

SIGN PER CALTRANS AND MUTCD STANDARDS. SEE PLANS FOR DETAILS.

0 20 40

GRAPHIC SCALE

SEE SHEETS CO.0 AND CO.1 FOR NOTES AND LEGENDS

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PLOT DATE: 11-29-23 PLOTTED BY: gold

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SEE SHEETS C0.0 AND C0.1 FOR NOTES AND LEGENDS

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STONE PINE COVE
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HALF MOON BAY SAN MATEO COUNTY CALIFORNIA

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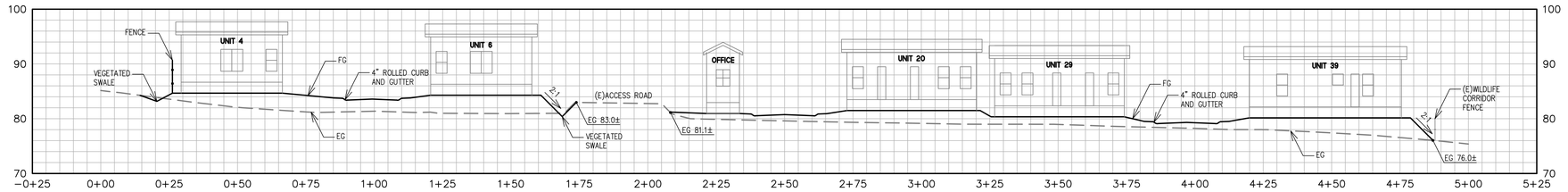


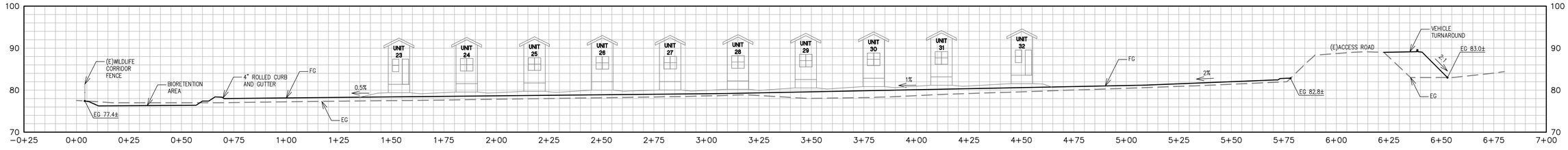
SECTION A–A

SCALE: 1:20 HORIZONTAL
1:10 VERTICAL



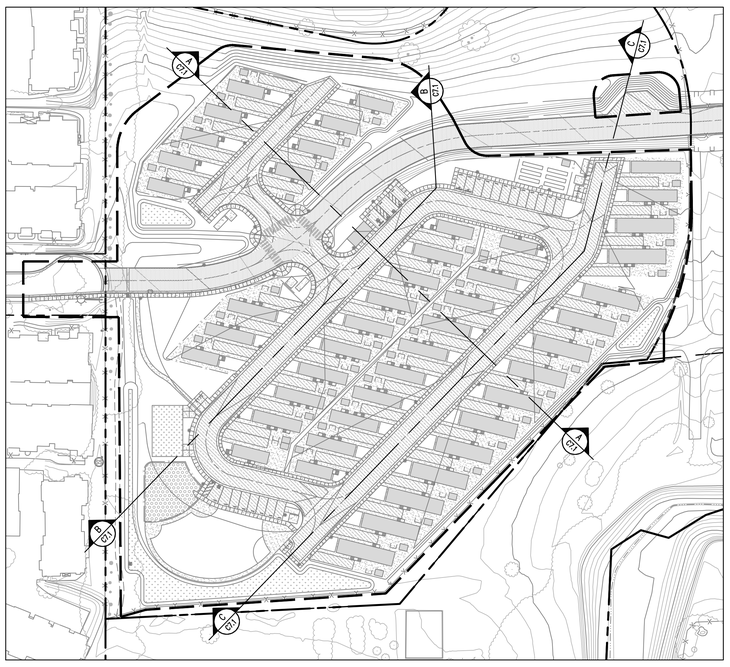
SECTION B–B

SCALE: 1:20 HORIZONTAL
1:10 VERTICAL



SECTION C–C

SCALE: 1:20 HORIZONTAL
1:10 VERTICAL



SITE SECTION KEYMAP

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0 20 40
GRAPHIC SCALE

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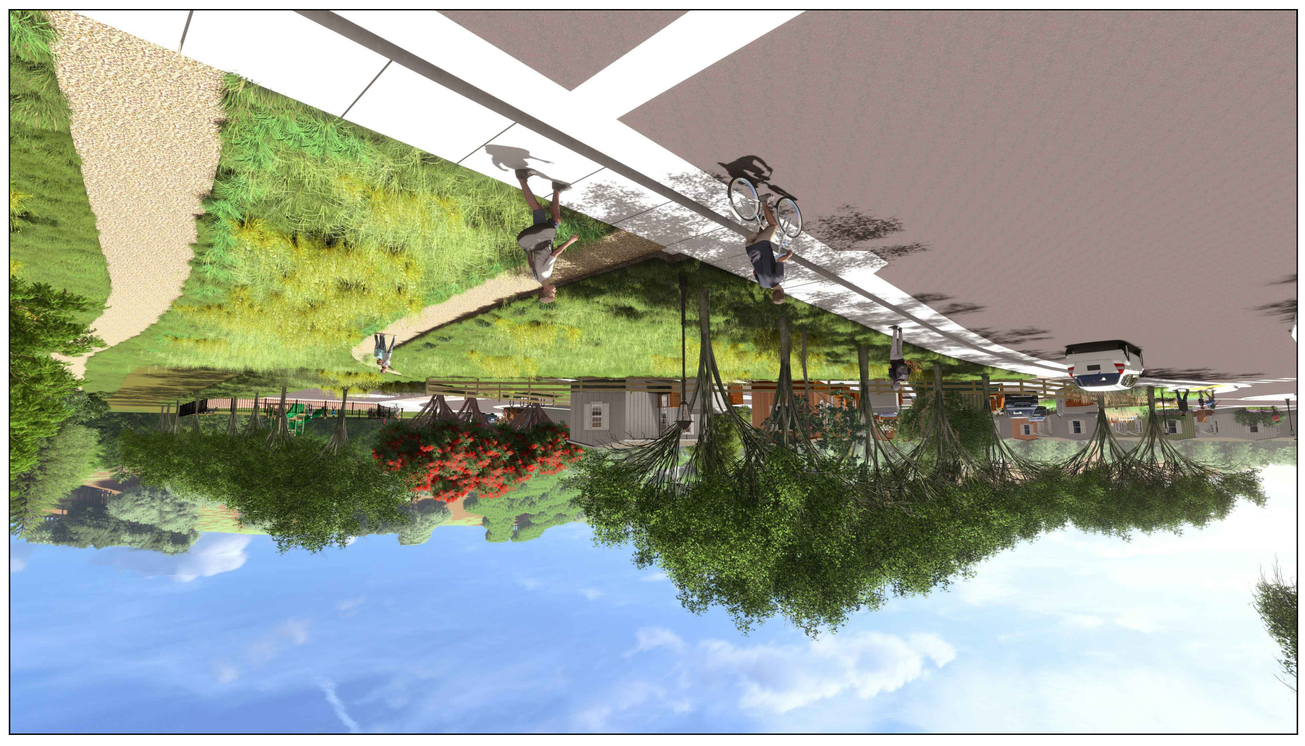
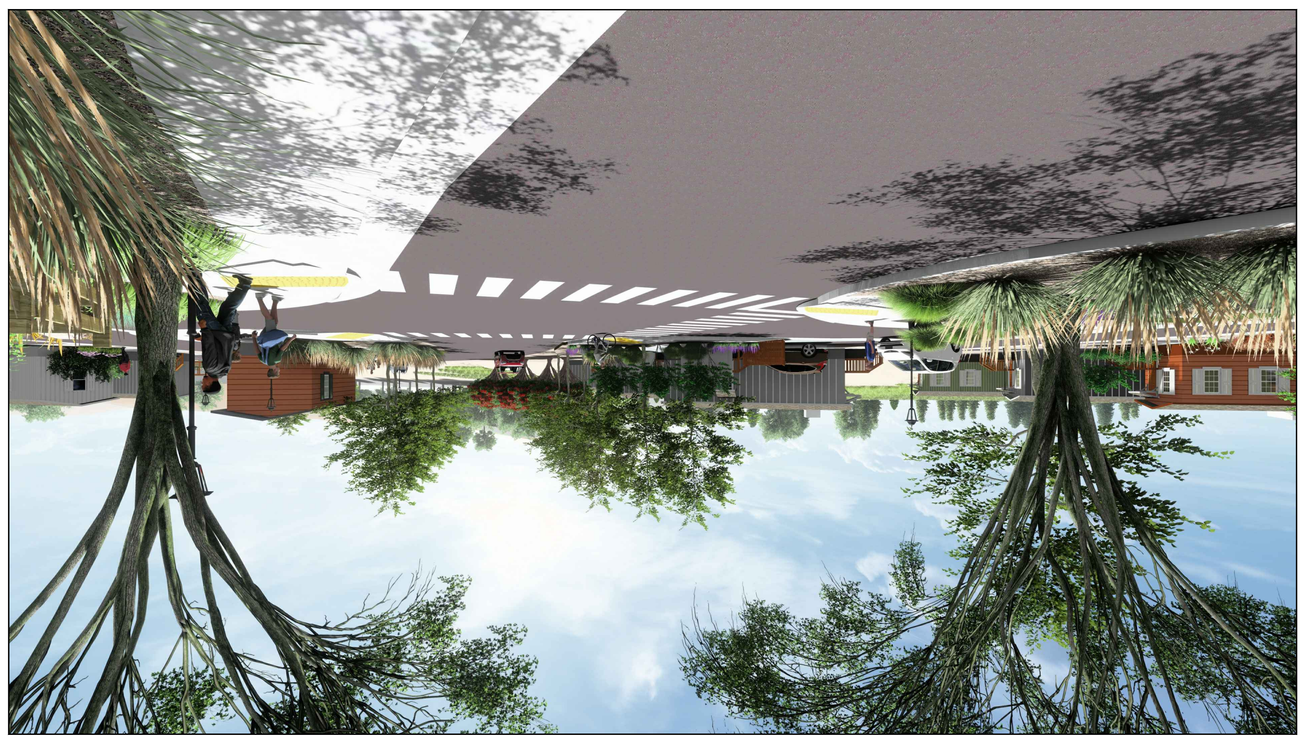
PLOTTED BY: gold

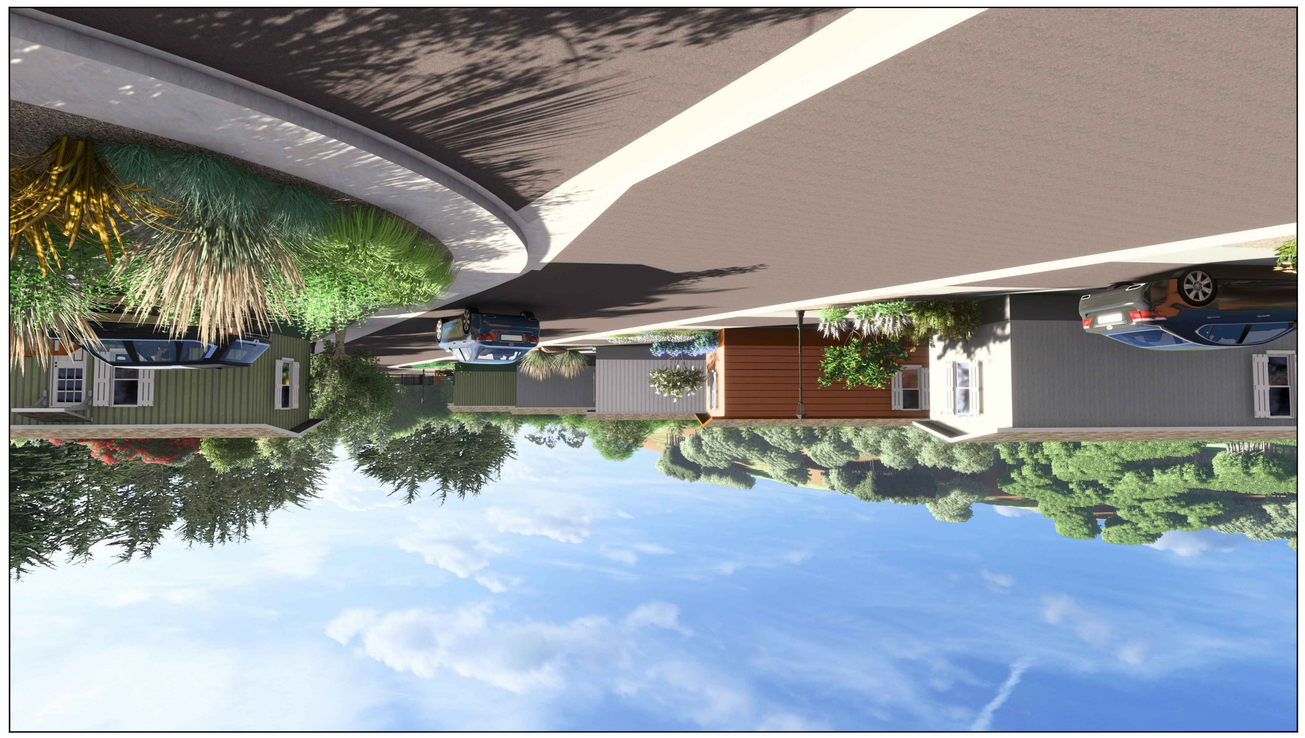
VIEW #1 – ENTRY POINT, LOOKING SOUTHEAST



VIEW #2 – MAIN INTERSECTION



VIEW #3 – MANAGERS UNIT, LOOKING SOUTHWEST



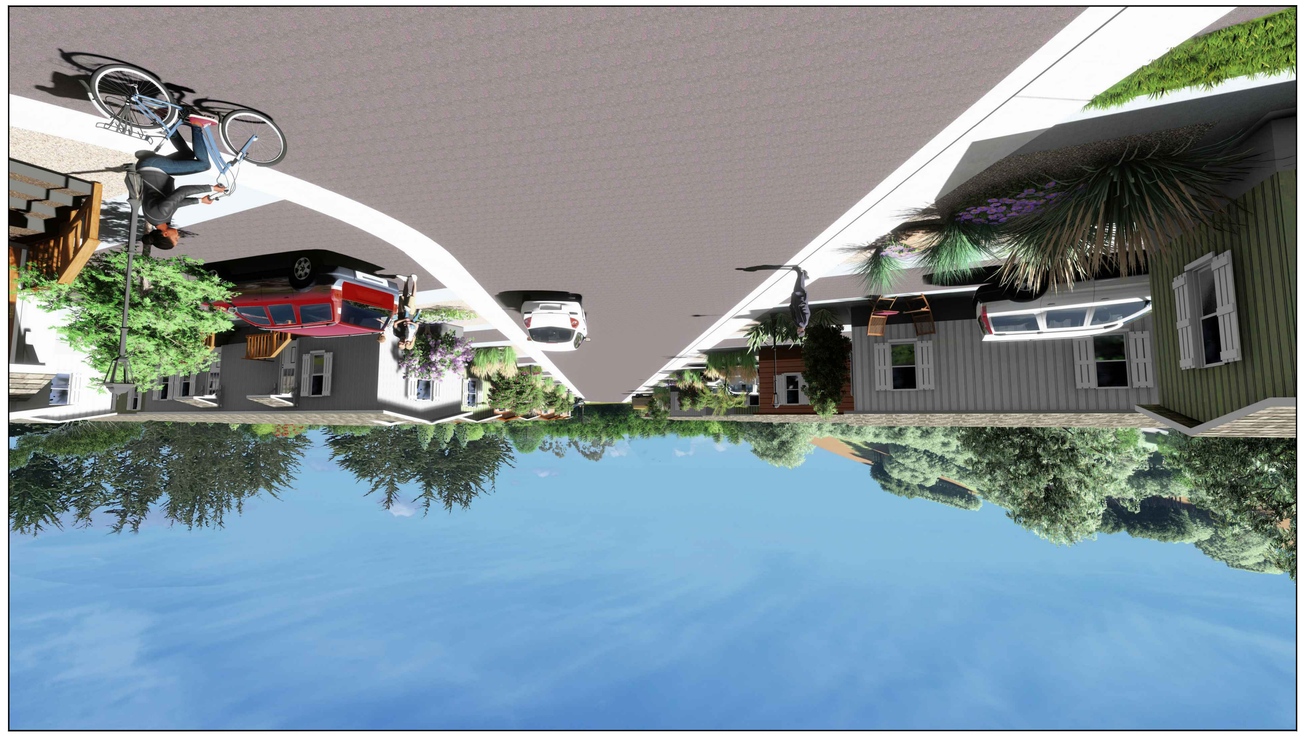
VIEW #4 – COMMUNITY PARK



VIEW #5 – COMMUNITY GARDEN, LOOKING SOUTH



VIEW #6 – STREET LEVEL, LOOKING SOUTH



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SITE PLAN LEGEND

- ASPHALT DRIVE AISLE AND ROADWAY: w/ 2' ROLLED GUTTERS & 3' CONCRETE SIDEWALKS ON BOTH SIDES. SEE CIVIL DRAWINGS.
- LANDSCAPE AREA: MIX OF NATIVE AND ADAPTED LOW WATER-USE SHRUBS, GROUNDCOVERS, AND GRASSES (±50,700 sf). SEE SCHEMATIC PLANTING PLAN & PLANT LISTS.
- STORMWATER MANAGEMENT & BIORETENTION AREAS (±11,000 sf): SEE CIVIL DRAWINGS FOR BIORETENTION SPECIFICATIONS. SEE SCHEMATIC PLANTING PLAN FOR SPECIES LISTS.
- SOFTSCAPE (±3,700 sf): PERVIOUS BARK MULCH SURFACING OR ENGINEERED WOOD FIBERS.
- PERVIOUS PAVING (±40,000 sf): STABILIZED DECOMPOSED GRANITE.

TREES

(PER HMBMC §7.40)

EXISTING HERITAGE TREES TO BE REMOVED:	12	SEE TREE PLAN, SHEET L1.1 FOR COMPLETE LIST OF TREES PROPOSED FOR REMOVAL.
REPLACEMENT TREES REQUIRED:	21	(24" BOX MINIMUM) SEE SCHEMATIC PLANTING PLAN & PLANT LISTS.
PROPOSED NEW TREES:	68	(24" BOX MINIMUM)

SEE SHEET L1.2 FOR SCHEMATIC IMAGERY OF TYPICAL AMENITY AREAS

OPEN SPACE

(PER HMBMC §18.17.030)

INDICATES APPROXIMATE LIMITS OF PROPOSED COMMUNITY OPEN SPACE.

A MINIMUM OF 300 sf FOR EACH UNIT DEVELOPED SHALL BE DEVOTED TO COMMUNITY OPEN SPACE AVAILABLE FOR THE USE OF ALL RESIDENTS.

UNITS PROPOSED:	47	
MIN. OPEN SPACE REQUIRED:	14,100 sf	(47 x 300 sf)
OPEN SPACE PROVIDED:	24,100 sf	(+10,000 sf ABOVE MIN. REQUIRED)

PARKING

(PER HMBMC §18.17.030 & §18.36.050)

RESIDENT PARKING:

TWO OFF-STREET PARKING SPACES PROVIDED PER UNIT

GUEST PARKING:

OFF-STREET PARKING SHALL BE PROVIDED AT A RATIO OF ONE SPACE FOR EACH FOUR UNITS

UNITS PROPOSED:	47	
GUEST PARKING REQUIRED:	12 SPACES	(4:1 RATIO)
GUEST PARKING PROVIDED:	20 SPACES	(1 ADA)

OFFICE PARKING:

ONE OFF-STREET PARKING SPACE SHALL BE PROVIDED FOR EACH 200 sf OF OFFICE FLOOR AREA

PROPOSED OFFICE:	288 sf	
OFFICE PARKING REQUIRED:	2 SPACES	
OFFICE PARKING PROVIDED:	3 SPACES	(2 ADA)

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LANDSCAPE SITE PLAN

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TREES TO BE REMOVED

TOTAL TREES TO BE REMOVED: 106

TOTAL HERITAGE TREES TO BE REMOVED: 12

TOTAL # OF REPLACEMENT TREES REQUIRED: 21

ALL HERITAGE TREES = 1:1 REPLACEMENT RATIO
EXCEPT WILLOW = 10:1 REPLACEMENT RATIO

#	SCIENTIFIC NAME	DBH (INCHES)	HERITAGE? (Y/N)
47	SALIX LUCIDA	7	Y
48	EUCALYPTUS GUNNII	4	N
49	ALNUS RHOMBIFOLIA	5	N
50	PINUS RADIATA	10	N
51	PINUS RADIATA	10	N
52	PINUS RADIATA	10	N
53	EUCALYPTUS GLOBULUS	13	N
54	HESPEROCYPARIS MACROCARPA	15	Y
55	PINUS RADIATA	13	Y
56	PINUS RADIATA	15	Y
57	PINUS RADIATA	11	N
58	HESPEROCYPARIS MACROCARPA	9	N
59	HESPEROCYPARIS MACROCARPA	10	N
60	HESPEROCYPARIS MACROCARPA	7	N
61	HESPEROCYPARIS MACROCARPA	9	N
62	HESPEROCYPARIS MACROCARPA	8	N
63	HESPEROCYPARIS MACROCARPA	9	N
64	HESPEROCYPARIS MACROCARPA	8	N
65	HESPEROCYPARIS MACROCARPA	7	N
66	HESPEROCYPARIS MACROCARPA	7	N
67	HESPEROCYPARIS MACROCARPA	6	N
68	HESPEROCYPARIS MACROCARPA	11	N
69	HESPEROCYPARIS MACROCARPA	6	N
70	HESPEROCYPARIS MACROCARPA	12	Y
71	ACACIA MELANOXYLON	6	N
72	HESPEROCYPARIS MACROCARPA	5	N
73	EUCALYPTUS GLOBULUS	26	N
74	PINUS RADIATA	8	N
75	ACACIA MELANOXYLON	6	N
76	HESPEROCYPARIS MACROCARPA	13	Y
77	HESPEROCYPARIS MACROCARPA	8	N
78	HESPEROCYPARIS MACROCARPA	5	N
79	PINUS RADIATA	12	Y
80	HESPEROCYPARIS MACROCARPA	5	N
81	EUCALYPTUS GLOBULUS	13	N
82	EUCALYPTUS GLOBULUS	16	N
83	EUCALYPTUS GLOBULUS	15	N
84	HESPEROCYPARIS MACROCARPA	10	N
85	ACACIA MELANOXYLON	4	N
86	QUERCUS AGRIFOLIA	4	N
87	HESPEROCYPARIS MACROCARPA	8	N
88	PINUS RADIATA	12	Y
89	EUCALYPTUS GLOBULUS	6	N
90	PINUS RADIATA	11	N
91	PINUS RADIATA	14	Y
92	PINUS RADIATA	15	Y
93	EUCALYPTUS GLOBULUS	17	N
94	PINUS RADIATA	9	N
95	PINUS RADIATA	7	N
96	EUCALYPTUS GLOBULUS	26	N
97	EUCALYPTUS GLOBULUS	16	N
98	PINUS RADIATA	8	N
99	PINUS RADIATA	5	N
100	PINUS RADIATA	5	N
101	PINUS RADIATA	10	N
102	PINUS RADIATA	8	N
103	PINUS RADIATA	7	N
104	PINUS RADIATA	11	N
105	PINUS RADIATA	7	N
106	PINUS RADIATA	8	N
107	PINUS RADIATA	8	N
108	PINUS RADIATA	8	N
115	PINUS RADIATA	8	N
116	PINUS RADIATA	8	N
117	PINUS RADIATA	7	N
118	PINUS RADIATA	4	N
119	PINUS RADIATA	10	N
120	PINUS RADIATA	8	N
121	PINUS RADIATA	10	N
122	PINUS RADIATA	10	N
123	PINUS RADIATA	8	N
124	PINUS RADIATA	10	N
125	QUERCUS AGRIFOLIA	3	N
126	QUERCUS AGRIFOLIA	3	N
127	EUCALYPTUS GLOBULUS	11	N
128	EUCALYPTUS GLOBULUS	12	N
129	PINUS RADIATA	7	N
130	EUCALYPTUS GLOBULUS	14	N
131	PINUS RADIATA	8	N
132	EUCALYPTUS GLOBULUS	13	N
133	PINUS RADIATA	11	N
134	PINUS RADIATA	11	N
135	PINUS RADIATA	7	N
136	PINUS RADIATA	7	N
137	EUCALYPTUS GLOBULUS	10	N
138	EUCALYPTUS GLOBULUS	14	N
139	EUCALYPTUS GLOBULUS	12	N
140	HESPEROCYPARIS MACROCARPA	8	N
141	PINUS RADIATA	11	N
142	PINUS RADIATA	11	N
143	PINUS RADIATA	12	Y
144	HESPEROCYPARIS MACROCARPA	5	N
145	HESPEROCYPARIS MACROCARPA	6	N
146	HESPEROCYPARIS MACROCARPA	5	N
147	PINUS RADIATA	14	Y
148	HESPEROCYPARIS MACROCARPA	11	N
149	PINUS RADIATA	9	N
150	HESPEROCYPARIS MACROCARPA	5	N
151	HESPEROCYPARIS MACROCARPA	5	N
152	HESPEROCYPARIS MACROCARPA	6	N
153	HESPEROCYPARIS MACROCARPA	2	N
154	HESPEROCYPARIS MACROCARPA	2	N
155	ALNUS RHOMBIFOLIA	3	N
156	ALNUS RHOMBIFOLIA	3	N
157	ALNUS RHOMBIFOLIA	4	N
158	ALNUS RHOMBIFOLIA	4	N

TREE REMOVAL LEGEND

EXISTING HERITAGE TREE TO BE REMOVED	>12" DBH, VARIES PER PLAN
EXISTING TREE TO BE REMOVED	<12" DBH, VARIES PER PLAN
EXISTING TREE TO REMAIN	DBH VARIES PER PLAN
TREE PROTECTION FENCING	

TREE PROTECTION NOTES

THE FOLLOWING TREE PROTECTION MEASURES SHOULD BE APPLIED TO ALL TREES THAT ARE TO BE RETAINED:

1. PRE-CONSTRUCTION:
   - A PRE-CONSTRUCTION MEETING SHALL BE HELD TO DISCUSS TREE PROTECTION MEASURES AND ENSURE ALL TREE PROTECTION MEASURES HAVE BEEN PROPERLY INSTALLED.
   - ANY CLEARANCE PRUNING THAT IS DEEMED NECESSARY FOR CONSTRUCTION SHALL BE COMPLETED USING THE MINIMAL DOSE NECESSARY AND SHALL BE APPROVED BY THE PROJECT ARBORIST PRIOR TO PRUNING.
   - TREE PROTECTION ZONES SHALL BE ESTABLISHED AND ENFORCED TO PREVENT SOIL COMPACTION, GRADE CHANGE, AND ROOT DAMAGE. TREE PROTECTION AREAS SHALL BE ESTABLISHED WITH FIVE-FOOT HIGH CHAIN LINK FENCING MOUNTED ON 2" DIAMETER GALVANIZED IRON POSTS, DRIVEN INTO THE GROUND TO A DEPTH OF AT LEAST 2', AT NO MORE THAN 10' SPACING.
     -- THE DIAMETER OF THE TPZ SHALL BE DETERMINED BY THE TRUNK DIAMETER OF TREES TO BE PROTECTED. FOR EVERY 1" OF TRUNK DIAMETER, THE TPZ SHALL EXTEND 1'. FOR EXAMPLE, A 10" DIAMETER TREE SHALL HAVE A TPZ WITH A RADIUS OF 10' AROUND THE TREE.
       --- IN AREAS WHERE THIS TPZ SIZE IS GREATER THAN WHAT CONSTRUCTION CAN ALLOW, THE CANOPY DRIPLINE SHALL BE THE MINIMUM RADIUS FOR THE TPZ.
     -- FOR TREES GROWING ALONG THE EAST PERIMETER OF THE PROPERTY, TPZs CAN BE COMBINED TO FORM ONE LARGE TPZ FOR TREES IN THIS AREA. ADDTIONALLY, FENCING IS NOT REQUIRED ON THE WEST SIDE OF THE TREES AS THE PROPERTY LINE FENCING IS ALREADY IN PLACE.
   - A "WARNING: DO NOT ENTER" SIGN SHALL BE PROMINENTLY DISPLAYED ON EACH TREE PROTECTIVE FENCE.
   - A 4" LAYER OF CHIP BARK MULCH SHALL BE PLACED ON TOP OF THE TPZ AND ENCLOSED WITHIN THE TREE PROTECTIVE FENCING. THIS MULCH SHALL ONLY BE MOVED FOR LANDSCAPE PLANTS TO BE INSTALLED AFTER ALL EXCAVATION AND SOIL COMPACTION WORK HAS BEEN COMPLETED.
   - ESTABLISH AN AREA OUTSIDE OF ALL THE TPZs OR ON PREEXISTING HARDSCAPE TO STORE SEDIMENT AND BACKFILL. ENSURE NO FLOW PATHS LEAD TO TPZs FROM SEDIMENT OR BACKFILL PILES IF PRESENT.
   - NO MATERIAL OR EQUIPMENT SHALL BE STORED OR PLACED WITHIN THE TPZ OF PRESERVED TREES.
2. CONSTRUCTION:
   - IN AREAS WHERE CONSTRUCTION ACTIVITY IS TO TAKE PLACE BENEATH THE CANOPY OF EXISTING TREES, SUCH AS THE WALKING PATH, THE TPZ SHALL BE MOVED TO THE GREATEST DISTANCE POSSIBLE FROM THE SUBJECT TREE WHILE ALSO ALLOWING FOR CONSTRUCTION TO PROCEED. ONCE CONSTRUCTION IN THE SUBJECT AREA HAS OCCURRED, THE TPZ SHALL BE MOVED BACK TO BE PREESTABLISHED BOUNDARY.
     -- PROJECT ARBORIST SHALL CONDUCT SITE OBSERVATIONS DURING ANY CONSTRUCTION ACTIVITY THAT IS TO TAKE PLACE BENEATH THE CANOPY DRIPLINE OF TREE.
     -- ANY EXCAVATION ACTIVITY THAT IS TO TAKE PLACE IN THESE AREAS IS PROHIBITED FROM USING BACKHOES, TREAD TRACTORS, OR ANY OTHER HEAVY VEHICLES.
       --- METHODS PERMITTED INCLUDE HAND-DIGGING, HYDRAULIC OR PNEUMATIC AIR EXCAVATION.
   - DURING EXCAVATION ACTIVITY, SHOULD ANY ROOTS BE ENCOUNTERED, ROOT PRUNING SHALL BE DONE WITH HAND TOOLS IN ORDER TO MAKE CLEAN CUTS THAT FACE THE EXCAVATED AREA.
     -- ROOTS LARGER THAN 2.5" SHALL NOT BE CUT WITHOUT PROJECT ARBORIST PRIOR APPROVAL.
     -- ROOTS LARGER THAN 2.5" THAT ARE CUT SHALL IMMEDIATELY BE SHADED AND KEPT MOIST WITH WET BURLAP OR SIMILAR MATERIAL UNTIL THEY CAN BE RECOVERED.
   - NO PRUNING SHALL BE PERFORMED ON TREES THAT HAVE ROOTS IMPACTED BY CONSTRUCTION ACTIVITY FOR AT LEAST ONE YEAR FOLLOWING THE COMPLETION OF THE PROJECT OTHER THAN NECESSARY MAINTENANCE SUCH AS BUILDING CLEARANCE.
3. POST-CONSTRUCTION:
   -- - PROJECT ARBORIST SHALL CONDUCT MONITORING TWICE A YEAR FROM THE DATE OF PROJECT COMPLETION FOR NO LESS THAN TWO YEARS TO ENSURE TREES ARE IN GOOD CONDITION.

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TREE REMOVAL PLAN
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PICNIC AREAS







PLAY AREAS







BIKE RACKS







BIOTREATMENT AREAS









NEIGHBORHOOD GARDEN







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SCHEMATIC PLANTING LEGEND

TREES: NATIVE OR ADAPTED MODERATE TO LARGE TREES FOR SHADE AND/OR SCREENING	
EXISTING TREE TO REMAIN. SEE TREE PLAN, SHEET L2.1, AND PROJECT ARBORIST'S REPORT FOR TREE HEALTH & DISPOSITION AND ADDITIONAL INFORMATION.	
HIGH & MODERATE DENSITY PLANTING: MIX OF NATIVE AND ADAPTED SHRUBS, GROUNDCOVERS, AND HERBACEOUS PLANTS FOR SCREENING AND SEASONAL INTEREST	±9,400 S.F.
LOW DENSITY PLANTING: MIX OF NATIVE AND ADAPTED SHRUBS, GROUNDCOVERS, AND HERBACEOUS PLANTS FOR SCREENING AND SEASONAL INTEREST	±13,300 S.F.
SCREENING & BANK STABILIZATION PLANTING: NATIVE SHRUBS & GROUNDCOVERS INTENDED TO PROVIDE STRUCTURE TO RECENTLY GRADED AREAS AND PROVIDE PRIVACY SCREENING.	±12,100 S.F.
EROSION CONTROL NATIVE SEED MIX: BLEND OF NATIVE GRASSES AND FORBS TO STABILIZE RECENTLY GRADED AREAS.	±15,200 S.F.
BIOTREATMENT AREA PLANTING MIX: BLEND OF NATIVE SHRUBS, GRASSES, AND FORBS SUITABLE FOR STORMWATER TREATMENT AREAS	±10,900 S.F.
RECREATION LAWN: DWARF FESCUE BLEND	±5,400 S.F.
RESIDENTIAL LANDSCAPE AREAS: ADAPTED SHRUBS, GROUNDCOVER, AND SMALL TREES FOR SCREENING AND SEASONAL INTEREST.	±7,200 S.F. ±150 S.F. PER LOT
VEGETABLE PLANTERS: DEDICATED AREAS FOR RESIDENT GARDENS; PLANT TYPES VARY AS SELECTED.	±400 S.F.
PROPOSED HARDSCAPE (PERVIOUS OR IMPERVIOUS): SURFACE VARIES BY LOCATION. SEE SITE PLAN, SHEET L1.0.	±130,600 S.F.
PROPOSED SOFTSCAPE: SURFACES COVERED WITH BARK MULCH (VEGETABLE GARDEN) OR ENGINEERED WOOD FIBERS (PLAY AREA). PERVIOUS. SEE SITE PLAN, SHEET L1.0.	±4,300 S.F.

SCHEMATIC PLANTING NOTES

- PERMANENT & TEMPORARY IRRIGATION ZONES SHALL BE PROVIDED FOR PLANTING AREAS AS SHOWN ON THE SCHEMATIC IRRIGATION PLAN, SHEET L3.0.
- SEEDED AREAS SHALL BE INSTALLED JUST PRIOR TO OR DURING THE RAINY SEASON (NOVEMBER-FEBRUARY). WHEN THIS IS NOT POSSIBLE, A TEMPORARY SYSTEM SHALL BE INSTALLED TO PROVIDE IRRIGATION THROUGH THE PLANT ESTABLISHMENT PERIOD ONLY (TYPICAL, NO MORE THAN TWO GROWING SEASONS)
- SEE CIVIL DRAWINGS FOR LIMITS & DISPOSITION OF ALL STRUCTURES, HARDSCAPE, WALLS, AND UTILITIES.
- CONTRACTOR SHALL TAKE THE UTMOST CARE WHEN PERFORMING PLANTING ACTIVITIES UNDER THE DRIPLINES OR TREE PROTECTION ZONES (TPZs) OF EXISTING SITE TREES. SEE TREE PLAN, SHEET L2.1 & PROJECT ARBORIST'S REPORT FOR ADDITIONAL INFORMATION.
- PRIOR TO PLANTING, CONTRACTOR SHALL OBTAIN A COMPLETE SOIL ANALYSIS FROM AT LEAST THREE (3) LOCATIONS IDENTIFIED BY THE PROJECT LANDSCAPE ARCHITECT TO DETERMINE SOIL AMENDMENT REQUIREMENTS. A COPY OF THE FERTILITY ANALYSIS SHALL BE PROVIDED TO THE OWNER & CITY OF HALF MOON BAY FOR REVIEW PRIOR TO THE COMMENCEMENT OF PLANTING ACTIVITIES.
- ALL NEW PLANTING AREAS SHALL RECEIVE A 3" LAYER OF MULCH EXCEPT SEEDED AREAS.
- FINAL PLANT PIT LOCATIONS SHALL BE REVIEWED & APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO EXCAVATION.
- ADDITIONAL DETAILS PER SHEET L4.0.

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SCHEMATIC PLANTING PLAN

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SAN MATEO COUNTY CALIFORNIA

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TREES

SCIENTIFIC NAME	COMMON NAME	EVERGREEN OR DECIDUOUS?	CA or SMCo NATIVE? (1)	WATER USE (WUCOLS IV)	SUMMER IRRIG. FREQUENCY (2)	BEE/POLLINATOR FRIENDLY (2,3)	FIRE SAFE (4,5,6)
HESPEROCYPARIS MACROCARPA	(Monterey Cypress)	Evergreen	CA	MEDIUM	-	-	-
LYONOTHAMNUS FLORIBUNDUS	(Catalina Ironwood)	Evergreen	CA	LOW	1X/MO	YES (2)	YES (4)
METROSIDEROS EXCELSA	(Pohutukawa)	Evergreen	-	LOW	-	-	-
ULMUS PARVIFOLIA 'TRUE GREEN'	(Chinese Elm)	Deciduous	-	MEDIUM	-	-	-

TYPICAL HIGH, MODERATE, & LOW DENSITY PLANTINGS

SCIENTIFIC NAME	COMMON NAME	SHRUB, GRASS, OR FORB?	CA or SMCo NATIVE? (1)	WATER USE (WUCOLS IV)	SUMMER IRRIG. FREQUENCY (2)	BEE/POLLINATOR FRIENDLY (2,3)	FIRE SAFE (4,5,6)
ARCTOSTAPHYLOS UVA-URSI	(Southern Kinnikinnick)	Shrub	CA	LOW	2X/MO MAX	YES (2,3)	YES (4,6)
ARTEMESIA CALIFORNICA	(California Sagebrush)	Shrub	SMCo	LOW	-	YES (2)	-
BACCHARIS PILULARIS 'PIGEON POINT'	(Coyote Bush)	Forb	SMCo	LOW	1X/WK MAX	YES (2,3)	YES (5)
BOUTELOUA GRACILIS 'BLONDE AMBITION'	(Blue Grama Grass)	Grass	CA	LOW	2X/MO MAX	YES (2)	-
CAREX DENSA	(Dense Sedge)	Grass	SMCo	MEDIUM	-	-	-
CEANOTHUS GRISEUS HORIZONTALIS	(Diamond Heights Carmel Creeper)	Shrub	-	LOW	-	YES (2)	YES (6)
CEANOTHUS THYRSIFLORUS	(California Lilac)	Shrub	SMCo	LOW	1X/MO MAX	YES (2,3)	YES (4,6)
DIETES BICOLOR	(African Iris)	Forb	-	MEDIUM	-	-	YES (5)
DIPLACUS AURANTIACUS	(Sticky Monkeyflower)	Forb	SMCo	LOW	1X/MO MAX	YES (2,3)	YES (4)
EPILOBIUM CANUM	(California Fuchsia)	Shrub	SMCo	LOW	1X/MO MAX	YES (2)	YES (4,6)
ERIGERON GLAUCUS	(Seaside Fleabane)	Forb	SMCo	LOW	2X/MO MAX	YES (2)	YES (5)
ERIOGONUM LATIFOLIUM	(Coast Buckwheat)	Forb	SMCo	LOW	1X/MO MAX	YES (2)	YES (5)
FRANGULA CALIFORNICA 'MOUND SAN BRUNO'	(Coffeeberry)	Shrub	SMCo	LOW	-	YES (2,3)	(YES 4,5)
GRINDELIA STRICTA	(Coastal Wild Gum)	Forb	SMCo	MEDIUM	3X/MO MAX	YES (2)	YES (5)
HETEROMELES ARBUTIFOLIA	(Toyon)	Shrub	SMCo	LOW	2X/MO MAX	YES (2,3)	YES (4,6)
IRIS DOUGLASIANA	(Douglas Iris)	Forb	SMCo	LOW	1X/MO MAX	-	YES (4,5,6)
LAVANDULA STOECHAS	(Lavender)	Forb	-	LOW	1X/WK MAX	-	YES (5,6)
LOMANDRA LONGIFOLIA	(Dwarf Mat Rush)	Grass	-	LOW	-	-	-
MORELLA CALIFORNICA	(Pacific Wax Myrtle)	Shrub	SMCo	MEDIUM	1X/WK MAX	-	YES (5,6)
MUHLENBERGIA RIGENS	(Deer Grass)	Grass	CA	LOW	1X/MO MAX	YES (2)	YES (4,6)
POLYSTICHUM MUNITUM	(Western Sword Fern)	Forb	SMCo	LOW	2X/MO MAX	YES (2)	YES (4,5,6)
ROSA RUGOSA	(Beach Rose)	Shrub	-	MEDIUM	-	-	-
SALVIA CLEVELANDII	(Cleveland Sage)	Shrub	CA	LOW	-	YES (2)	-
STIPA PULCHRA	(Purple Needlegrass)	Grass	SMCo	LOW	1X/MO MAX	YES (2)	-

SCREENING & BANK STABILIZATION PLANTING

SCIENTIFIC NAME	COMMON NAME	SHRUB, GRASS, OR FORB?	CA or SMCo NATIVE? (1)	WATER USE (WUCOLS IV)	SUMMER IRRIG. FREQUENCY (2)	BEE/POLLINATOR FRIENDLY (2,3)	FIRE SAFE (4,5,6)
ARTEMESIA CALIFORNICA	(California Sagebrush)	Shrub	SMCo	LOW	-	YES (2)	-
BACCHARIS PILULARIS 'PIGEON POINT'	(Coyote Bush)	Forb	SMCo	LOW	1X/WK MAX	YES (2,3)	YES (5)
CEANOTHUS THYRSIFLORUS	(California Lilac)	Shrub	SMCo	LOW	1X/MO MAX	YES (2,3)	YES (4,6)
ERIOGONUM LATIFOLIUM	(Coast Buckwheat)	Forb	SMCo	LOW	1X/MO MAX	YES (2)	YES (5)
FRANGULA CALIFORNICA 'MOUND SAN BRUNO'	(Coffeeberry)	Shrub	SMCo	LOW	-	-	YES (4,5)
HETEROMELES ARBUTIFOLIA	(Toyon)	Shrub	SMCo	LOW	2X/MO MAX	YES (2,3)	YES (4,6)
MORELLA CALIFORNICA	(Pacific Wax Myrtle)	Shrub	SMCo	MEDIUM	1X/WK MAX	-	YES (5,6)
SALVIA MELLIFERA	(Black Sage)	Shrub	SMCo	LOW	1X/MO MAX	YES (2,3)	-

SEE SHEET L2.2 FOR REPRESENTATIVE PLANT IMAGES

BIOTREATMENT AREA SHRUB & SEED MIX

SCIENTIFIC NAME	COMMON NAME	SHRUB, GRASS, OR FORB?	CA or SMCo NATIVE? (1)	WATER USE (WUCOLS IV)	SUMMER IRRIG. FREQUENCY (2)	BEE/POLLINATOR FRIENDLY (2,3)	FIRE SAFE (4,5,6)
ACHILLEA MILLEFOLIUM CALIFORNICA	(Western Yarrow)	Forb	SMCo	LOW	1X/WK MAX	YES (2,3)	YES (4,5,6)
ARTEMESIA CALIFORNICA	(California Sagebrush)	Shrub	SMCo	LOW	-	YES (2)	-
BACCHARIS GLUTINOSA	(Saltmarsh Baccharis)	Forb	SMCo	MEDIUM	-	YES (2)	-
BOUTELOUA GRACILIS 'BLONDE AMBITION'	(Blue Grama Grass)	Grass	CA	LOW	2X/MO MAX	YES (2)	-
CAREX DENSA	(Dense Sedge)	Grass	SMCo	MEDIUM	-	-	YES (6)
CERCIS OCCIDENTALIS	(Western Redbud)	Shrub	SMCo	LOW	1X/WK MAX	YES (2)	YES (4,5,6)
CORNUS SERICEA	(Red Osier Dogwood)	Shrub	SMCo	MEDIUM	1X/WK MAX	YES (2)	-
ERIOGONUM FASCICULATUM	(Coast Buckwheat)	Forb	SMCo	LOW	1X/MO MAX	YES (2)	-
HORDEUM BRACHYANTHERUM	(Meadow Barley)	Grass	SMCo	LOW	2X/MO MAX	YES (2)	-
IRIS DOUGLASIANA	(Douglas Iris)	Forb	SMCo	LOW	1X/MO MAX	-	YES (4,5,6)
JUNCUS EFFUSUS	(Soft Rush)	Grass	SMCo	MEDIUM	1X/WK MAX	YES (2)	-
JUNCUS PATENS	(Common Rush)	Grass	SMCo	LOW	1X/MO MAX	-	YES (4)
KOELERIA MACRANTHA	(Prairie Junegrass)	Grass	SMCo	LOW	-	-	-
LASTHENIA CALIFORNICA	(California Goldfields)	Forb	SMCo	LOW	2X/MO MAX	YES (2)	-
MIMULUS CARDINALIS	(Scarlet Monkeyflower)	Forb	SMCo	MEDIUM	KEEP MOIST	YES (2,3)	YES (5,6)
MUHLENBERGIA RIGENS	(Deer Grass)	Grass	CA	LOW	1X/MO MAX	YES (2)	YES (4,6)
NEMOPHILA MENZIESII	(Baby Blue Eyes)	Forb	SMCo	LOW	2X/MO MAX	YES (2)	-
POTENTILLA ANSERINA	(Silver Weed)	Forb	SMCo	LOW	-	YES (2)	-
RIBES SANGUINEUM GLUTINOSUM	(Pink-flowering Currant)	Shrub	SMCo	LOW	3X/MO MAX	YES (2)	YES (4,6)
RUBUS URSINUS	(California Blackberry)	Shrub	SMCo	MEDIUM	1X/MO MAX	YES (2)	-
SAMBUCUS NIGRA	(Black Elderberry)	Shrub	SMCo	LOW	2X/MO MAX	YES (2)	-
STACHYS BULLATA	(California Hedgenettle)	Forb	SMCo	MEDIUM	1X/WK MAX	YES (2)	-
SYMPHYOTRICHUM CHILENSE	(California Aster)	Forb	SMCo	LOW	1X/MO MAX	YES (2)	YES (5)
VACCINIUM OVATUM	(Evergreen Huckleberry)	Shrub	SMCo	LOW	3X/MO MAX	YES (2)	YES (5)

EROSION CONTROL NATIVE SEED MIX

SHALL BE A 50/50 BLEND OF:

CALIFORNIA HABITAT MIX:
- BROMUS CARINATUS (California Brome)
- ELYMUS GLAUCUS (Blue Wildrye)
- HORDEUM CALIFORNICUM (California Barley)
- FESTUCA IDAHOENSIS (Idaho Fescue)
- STIPA PULCHRA (Purple Needlegrass)
- POA SECUNDA (One-sided Bluegrass)

CALIFORNIA COASTAL NATIVE WILDFLOWER MIX:
- CAMISSONIOPSIS CHEIRANTHIFOLIA (Beach Evening Primrose)
- CLARKIA AMOENA SEMI-DWARF (Farewell-to-spring)
- CLARKIA UNGUICULATA (Mountain Garland)
- COLLINSIA HETEROPHYLLA (Chinese Houses)
- ESCHSCHOLZIA CALIFORNICA (California Poppy)
- GILIA CAPITATA (Globe Gilia)
- GILIA TRICOLOR (Bird's Eye)
- LASTHENIA CALIFORNICA (Dwarf Goldfields)
- LAYIA PLATYGLOSSA (Tidy Tips)
- LUPINUS MICROCARPUS ED GEDLING (Ed Gedling's Golden Lupine)
- LUPINUS SUCCULENTUS (Arroyo Lupine)
- DIPLACUS AURANTIACUS (Sticky Monkeyflower)
- NEMOPHILIA MENZIESII (Baby Blue Eyes)
- PENSTEMON SPECTABILIS (Showy Penstemon)
- SISYRINCHIUM BELLUM (Blue-eyed Grass)

MIX RATE SHALL BE 20 LBS./ACRE. INSTALL VIA HYDROSEED. DO NOT TILL.

SEED MIXES AVAILABLE VIA NATURESSEED.COM.

SOURCES:

1. CALFLORA (calflora.org)
2. CALIFORNIA NATIVE PLANT SOCIETY (calscape.org)
3. SELECTING PLANTS FOR POLLINATORS: A REGIONAL GUIDE FOR FARMERS, LAND MANAGERS, AND GARDENERS IN THE CALIFORNIA COASTAL CHAPARRAL FOREST SHRUB PROVINCE, PUBLISHED BY THE NORTH AMERICAN POLLINATOR PROTECTION CAMPAIGN(nappc.org) AND THE POLLINATOR PARTNERSHIP (pollinator.org)
4. "FIRESCAPING WITH NATIVE PLANTS: SAN MATEO COUNTY"; FIRESAFE SAN MATEO COUNTY (firesafesanmateo.org)
5. "FIRE-RESISTANT PLANTS COMMON TO MARIN COUNTY" FIRESAFE MARIN (firesafemarin.org/plants)
6. "CENTRAL COUNTY FIRE DEPARTMENT VEGETATION MANAGEMENT PLANT LIST"; CENTRAL COUNTY FIRE

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Landscape Architecture | Site Planning | Environmental Design

SCHEMATIC PLANT LIST
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA

NOT FOR CONSTRUCTION

HALF MOON BAY

Date

Revisions

No.		
Date	11/28/2023	VS
Scale	AS NOTED	TYC
	Drawn	
	Approved	

Drawing Number:
L2.1

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TREES


HESPEROCYPARIS MACROCARPA


LYONOTHAMNUS FLORIBUNDUS


METEROSIDEROS EXCELSA


ULMUS PARVIFOLIA 'TRUE GREEN'

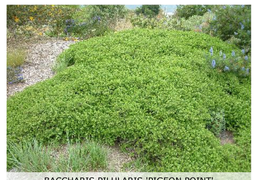
SHRUBS, FORBS, & GRASSES


ACHILLEA MILLEFOLIUM CALIFORNICA


ARCTOSTAPHYLOS UVA-URSI

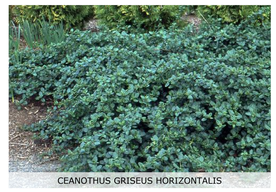

ARTEMESIA CALIFORNICA


BACCHARIS GLUTINOSA


BACCHARIS PILULARIS 'PIGEON POINT'


BOUTELOUA GRACILIS 'BLONDE AMBITION'


CAREX DENSA


CEANOTHUS GRISEUS HORIZONTALIS


CEANOTHUS THYRSIFLORUS


CERCIS OCCIDENTALIS


CORNUS SERICEA


DIETES BICOLOR


DIPLACUS AURANTIACUS


EPILOBIUM CANUM


ERIGERON GLAUCUS


ERIOGONUM FASCICULATUM


ERIOGONUM LATIFOLIUM


FRANGULA CALIFORNICA


GRINDELIA STRICTA


HETEROMELES ARBUTIFOLIA


HORDEUM BRACHYANTHERUM


IRIS DOUGLASIANA


JUNCUS EFFUSUS


JUNCUS PATENS


KOELERIA MACRANTHA


LASTHENIA CALIFORNICA


LAVANDULA STOECHAS


LOMANDRA LONGIFOLIA


MIMULUS CARDINALIS


MORELLA CALIFORNICA


MUHLENBERGIA RIGENS


NEMOPHILIA MENZIESII


POLYSTICHUM MUNITUM


POTENTILLA ANSERINA


RIBES SANGUINEUM VAR. GLUTINOSUM


ROSA RUGOSA

RUBUS URSINUS

SALVIA CLEVELANDII

SALVIA MELLIFERA

SAMBUCUS NIGRA

STACHYS BULLATA

STIPA PULCHRA

SYMPHOTRICHUM CHILENSE

VACCINUM OVATUM

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SCHEMATIC PLANT IMAGES

STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

NOT FOR CONSTRUCTION

Date	No.	Revisions

Date: 11/25/2025
Scale: AS NOTED
Drawn: JS
Approved: TKC

Drawing Number:
L2.2

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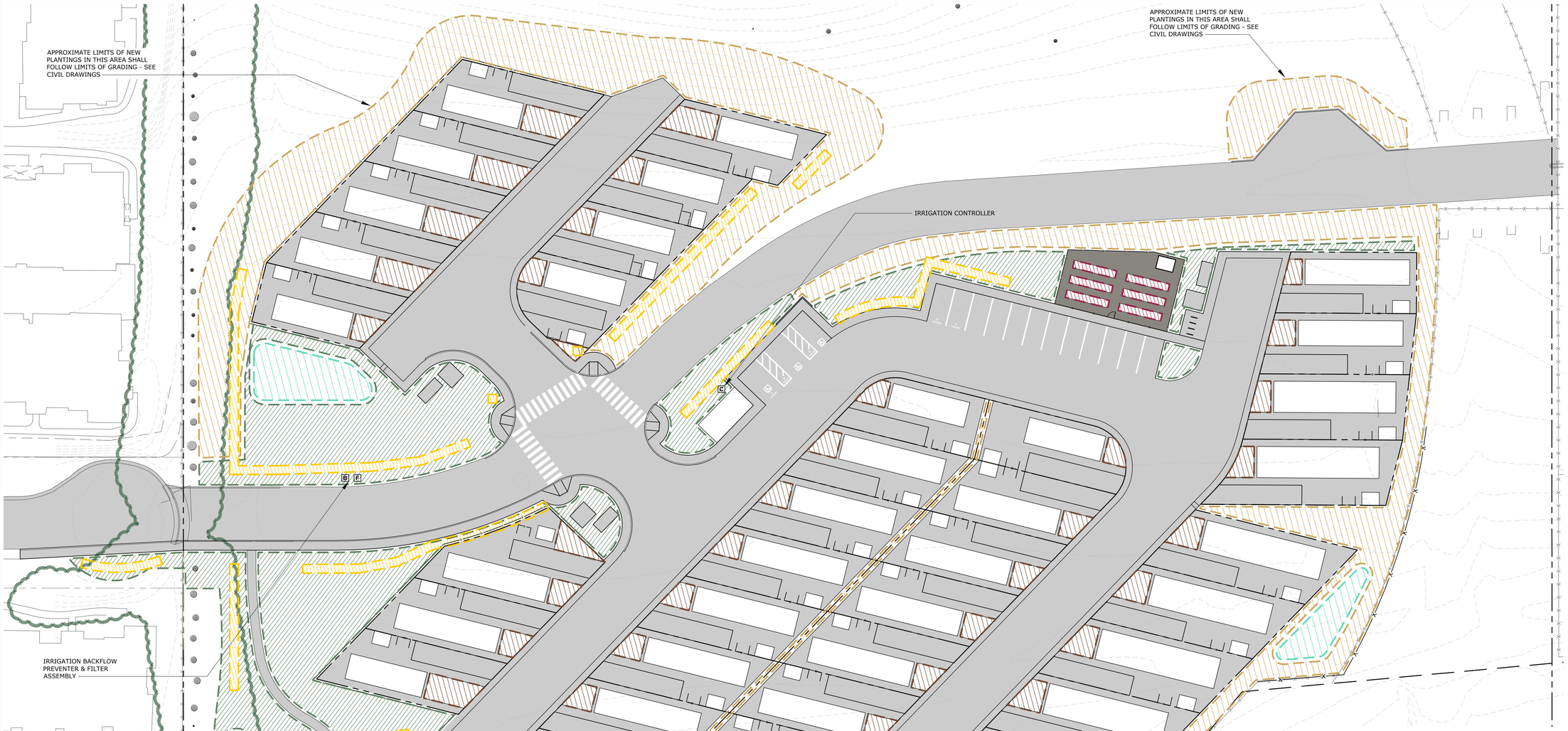

SCHEMATIC IRRIGATION LEGEND

TREE PLANTINGS DRIP BUBBLERS	±1,100 S.F.
HIGH, MODERATE, AND LOW DENSITY PLANTING DRIP	±22,700 S.F.
LOW DENSITY SHRUBS TEMPORARY DRIP	±27,300 S.F.
BIOTREATMENT AREA PLANTING NOT IRRIGATED	±10,900 S.F.
RECREATION LAWN SPRAY - SPECIAL LANDSCAPE AREA	±5,400 S.F.
RESIDENTIAL LANDSCAPE AREAS DRIP	±7,200 S.F. ±150 S.F. PER LOT
VEGETABLE PLANTERS DRIP - SPECIAL LANDSCAPE AREA	±400 S.F.
PROPOSED HARDSCAPE (PERVIOUS OR IMPERVIOUS): SURFACE VARIES BY LOCATION; SEE SITE PLAN, SHEET L1.0.	±130,600 S.F.
PROPOSED SOFTSCAPE: SURFACES COVERED WITH BARK MULCH (VEGETABLE GARDEN) OR ENGINEERED WOOD FIBERS (PLAY AREA); PERVIOUS. SEE SITE PLAN, SHEET L1.0.	±4,300 S.F.

SCHEMATIC IRRIGATION NOTES

- AUTOMATIC WEATHER-BASED OR SOIL-MOISTURE BASED IRRIGATION CONTROLLERS SHALL BE INSTALLED ON THE IRRIGATION SYSTEM. IRRIGATION CONTROLLER PROGRAMMING DATA WILL NOT BE LOST DUE TO AN INTERRUPTION IN THE PRIMARY POWER SOURCE.
- PRESSURE REGULATORS SHALL BE INSTALLED ON THE IRRIGATION SYSTEM TO ENSURE DYNAMIC PRESSURE OF THE SYSTEM IS WITHIN THE MANUFACTURER'S RECOMMENDED PRESSURE RANGE.
- MANUAL-SHUT-OFF VALVES SHALL BE INSTALLED AS CLOSE AS POSSIBLE TO THE POINT OF CONNECTION OF THE WATER SUPPLY.
- AREAS LESS THAN 10-FEET IN WIDTH IN ANY DIRECTION SHALL BE IRRIGATED WITH SUBSURFACE IRRIGATION OR OTHER MEANS THAT PRODUCES NO RUNOFF OR OVERSPRAY.
- A LANDSCAPE SUBMETER SHALL BE INSTALLED TO SEPARATE LANDSCAPE AREAS OF THE PARK FROM THE DOMESTIC WATER USES.
- COMPOST SHALL BE INSTALLED IN ORNAMENTAL PLANTING AREAS AT A RATE OF A MINIMUM OF FOUR CUBIC YARDS PER 1,000 SQ. FT. OF PLANTING AREA AND SHALL BE INCORPORATED TO A DEPTH OF SIX INCHES INTO THE SOIL.
- CONTRACTOR SHALL INSTALL FILTER AND THOROUGHLY FLUSH ALL DRIP IRRIGATION LINES PRIOR TO INSTALLATION OF DRIP EMITTERS.
- WATER PURVEYOR IS COASTSIDE COUNTY WATER DISTRICT.
- ADDITIONAL DETAILS PER SHEET L4.0.

IRRIGATED AREA

TOTAL PROJECT AREA: ±232,400 S.F.

TOTAL LANDSCAPE AREA: ±66,000 S.F.
TOTAL PERMANENTLY IRRIGATED AREA: ±31,000 S.F.
TOTAL TEMPORARY IRRIGATED AREA: ±27,300
TOTAL SPECIAL LANDSCAPE AREA: ±5,800

TEMPORARY IRRIGATION NOTES

- THE PURPOSE OF TEMPORARY IRRIGATION IS TO NURTURE NEWLY TRANSPLANTED SPECIES THROUGH THEIR TRANSITION FROM NURSERY SPECIMENS TO THRIVING, ESTABLISHED PLANTS. SIGNIFICANT ATTENTION MUST BE PROVIDED DURING THE FIRST YEAR AFTER PLANTING TO ENSURE LONG-TERM SUCCESS.
- THE IDEAL TIME FOR INSTALLING NEW PLANTING IS IN LATE AUTUMN IN ADVANCE OF THE RAINY SEASON.
- THE FIRST THREE MONTHS AFTER PLANTING ARE CRITICAL. NEW PLANTINGS SHOULD BE WATERED ~2 TIMES PER WEEK, BUT THERE ARE NO ABSOLUTES -- WEATHER, HUMIDITY, AND TIME OF YEAR ALL AFFECT WATERING SCHEDULES. AFTER THE FIRST THREE MONTHS, WATERING FREQUENCY SHOULD BE REDUCED, BUT RUN TIMES INCREASED TO ENSURE DEEP WATERING. AFTER THE FIRST YEAR, PLANTS CAN LIKELY SURVIVE ON WINTER RAIN AND SUMMER FOG DRIP ALONE; DURING PARTICULARLY DRY SEASONS, MONTHLY WATERING MAY BE REQUIRED TO ENSURE VEGETATION REMAINS FULL.

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SCHEMATIC IRRIGATION PLAN

STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA

NOT FOR CONSTRUCTION

HALF MOON BAY

Date
Revisions
No.

Date 11/20/2023
Scale 1/20" = 1'-0"
0 10' 20'
Drawn JG
Approved TKC

Drawing Number:
L3.0

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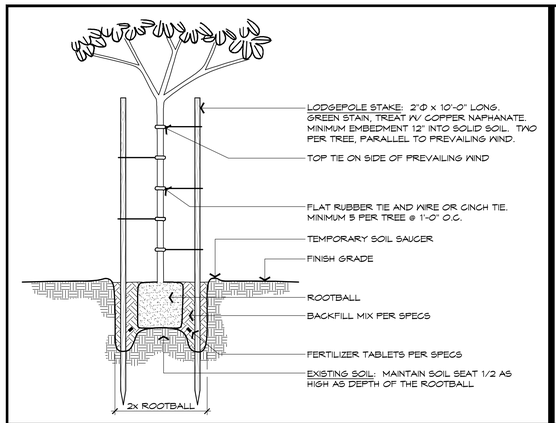
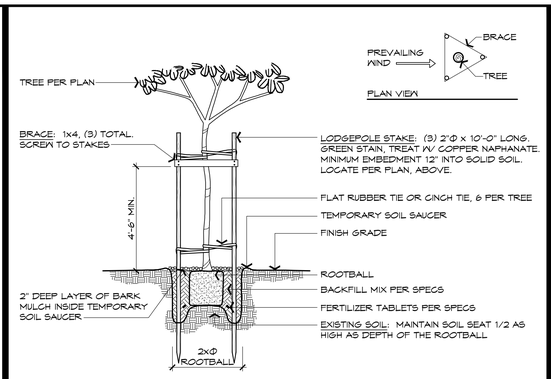
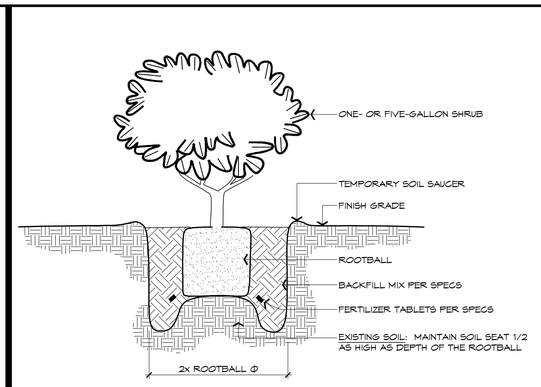


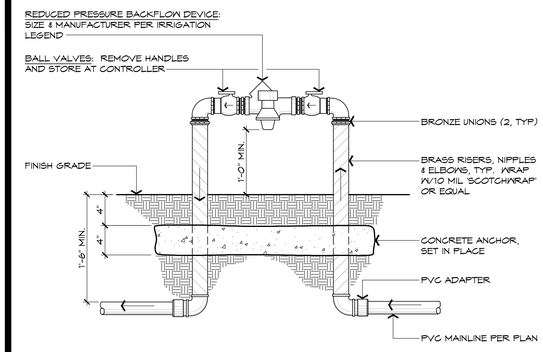
A 24B BOX TREE PLANTING SCALE: 1/2" = 1'-0"



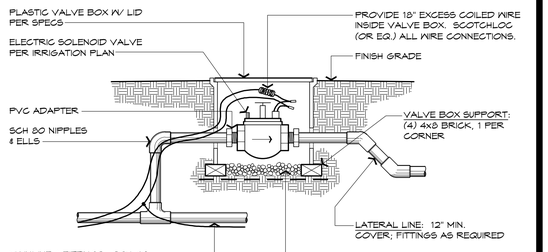
B 15G BOX TREE PLANTING SCALE: 3/8" = 1'-0"



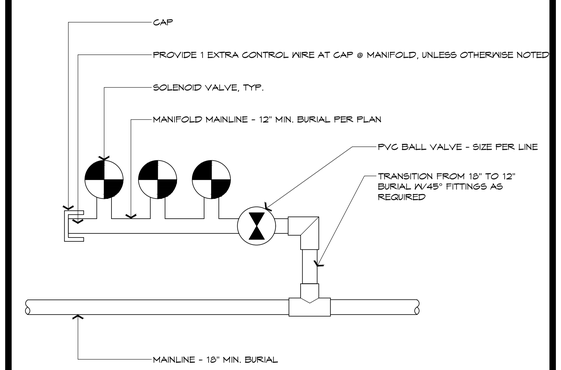
C SHRUB PLANTING SCALE: 1" = 1'-0"



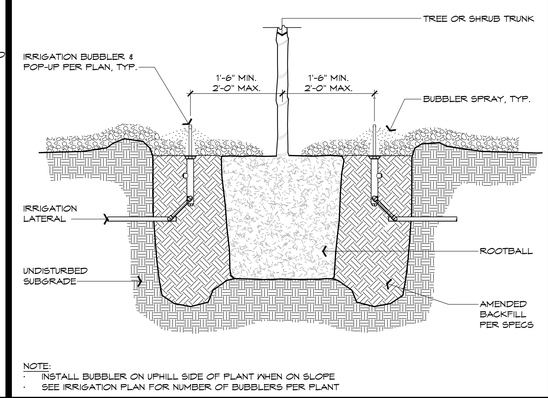
D BACKFLOW PREVENTER SCALE: 1 1/2" = 1'-0"



E SOLENOID VALVE SECTION SCALE: 1" = 1'-0"

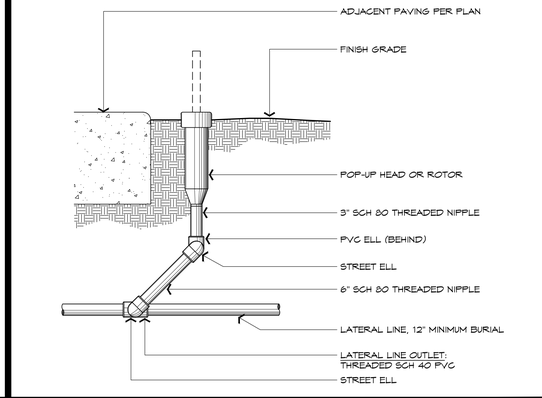


F VALVE MANIFOLD DETAIL SCALE: 1 1/2" = 1'-0"

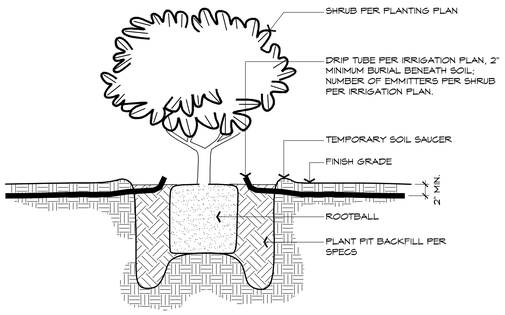


NOTE:
- INSTALL BUBBLER ON UPHILL SIDE OF PLANT WHEN ON SLOPE
- SEE IRRIGATION PLAN FOR NUMBER OF BUBBLERS PER PLANT

G TREE BUBBLERS DETAIL SCALE: 1" = 1'-0"



H POP-UP SPRAY SCALE: 3" = 1'-0"



I SHRUB DRIP IRRIGATION SCALE: 1" = 1'-0"

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SCHEMATIC PLANTING & IRRIGATION DETAILS

STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA

NOT FOR CONSTRUCTION

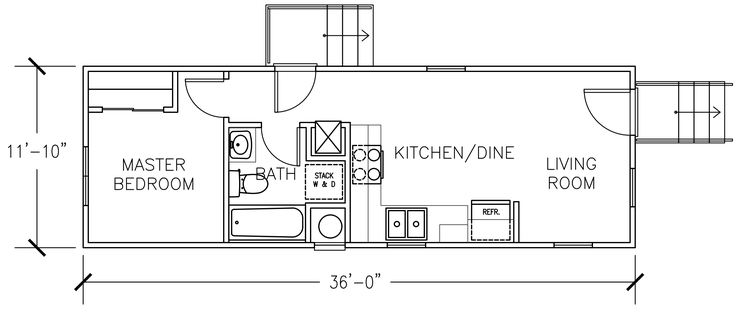
HALF MOON BAY

No.	Revisions	Date

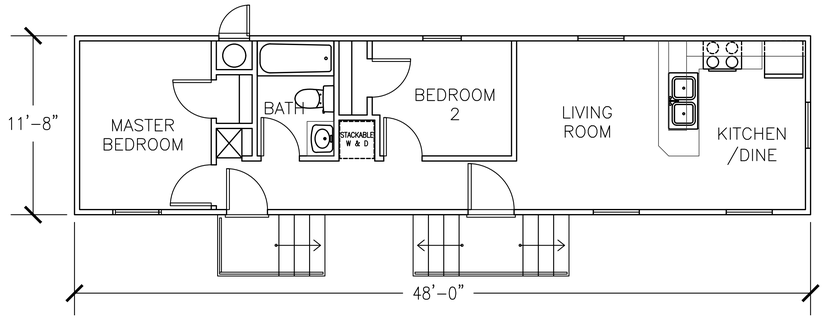
Date 11/20/2023
Scale AS NOTED
Drawn JG
Approved TKC

Drawing Number:
L4.0

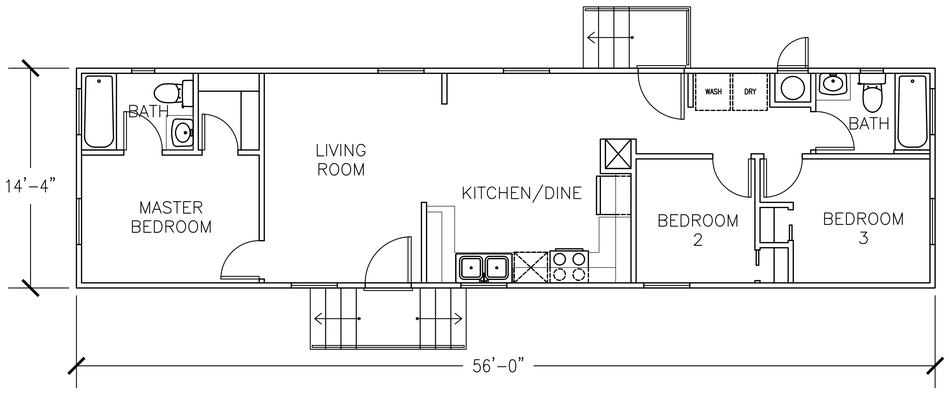
XX% SUBMITTAL - NOT FOR CONSTRUCTION



1-BEDROOM MANUFACTURED HOME



2-BEDROOM MANUFACTURED HOME



3-BEDROOM MANUFACTURED HOME

EXTERNAL MATERIALS:

- COMPOSITION SHINGLES
- FIBER CONCRETE SIDING/TRIM WITH HORIZONTAL OR BOARD & BATTEN PATTERN (PAINTED)
- SKIRTING TO MATCH SIDING (PAINTED)

0 4 8

1/4" = 1 FT

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

CONCEPTUAL MANUFACTURED HOME FLOOR PLANS

STONE PINE COVE

880 STONE PINE ROAD

SAN MATEO COUNTY CALIFORNIA

HALF MOON BAY

No.	Revisions	Date

Date 11/28/2023
Scale AS NOTED
Design XXX
Drawn D. B.
Approved XXX
Job No XXX

Drawing Number:
MH1
1 OF 1

ELECTROLIER NOTES:

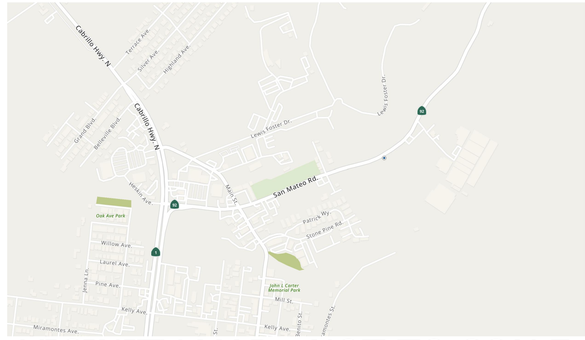
1. ALL MATERIAL AND WORKMANSHIP SHALL FULLY CONFORM WITH THE SPECIFICATIONS OF THE CITY OF HALF MOON BAY.
2. ELECTROLIERS ARE TO BE LOCATED NO CLOSER THAN 3' FROM THE EDGE OF DRIVEWAYS OR 5' FROM HYDRANTS.
3. IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO INSTALL UNDERGROUND SERVICE FROM THE ELECTROLIER TO P.G. & E. SERVICE BOX AND TERMINATE CONDUIT AND WIRE IN BOX AS DIRECTED BY P.G. & E.
4. CONDUIT AND FITTINGS SHALL BE U.L. APPROVED. CONDUIT BELOW GRADE SHALL BE MINIMUM 1–1/2" SCHEDULE 40 P.V.C. U.O.N. MIN. RADIUS BENDS SHALL BE 18". USE RIGID STEEL METALLIC CONDUIT FOR ABOVE GROUND INSTALLATIONS AND FOUNDATIONS. (FOR CONDUIT DEPTH SEE DETAIL.)
5. CABLE TO BE A.W.G. NUMBER 8, (OR LARGER AS NOTED) 7 – STRAND COPPER, TYPE THHN OR APPROVED EQUAL.
6. CIRCUITS WITH TWO OR MORE ELECTROLIERS SHALL BE WIRED TO BALANCE THE LOAD. (SEE WIRING DIAGRAM.)
7. JUNCTION BOXES SHALL MEET THE REQUIREMENTS FOR STATE NUMBER 3 1/2 PULL BOX WITH COVERS. COVERS TO BE MARKED, "STREET LIGHTING" AND SECURED WITH BRASS HOLD DOWN BOLTS.
8. FUSE EACH POLE WITH WATER PROOF IN–LINE BREAK AWAY FUSE HOLDERS AND AT EACH ADJACENT JUNCTION BOX.
9. ALL SPLICES SHALL BE MADE IN HANDHOLES OR JUNCTION BOXES ONLY. ALL SPLICES MUST BE PER CAL–TRANS SECTION 86.
10. CONTRACTOR TO PLACE POLE NUMBERS ON ALL STREET LIGHT STANDARDS. ALL NUMBERS ARE TO BE IN ACCORDANCE WITH P.G. & E. STANDARDS.

SYMBOL LIST

✷	DECORATIVE ELECTROLIER ON 12' POLE (DETAIL THIS PAGE) FIXTURE CAT#PROV2–36L–525–3K7–3–BLS–STANDARD_MOUNT–UNV
– – – – – –	1 1/2" PVC SCHED 40 W/3#8 CU & GRND U.O.N
□	#3 1/2 SPLICE BOX
◪	#3 1/2 SPLICE BOX W/ GROUND ROD
■	#3 1/2 SPLICE BOX PULL THRU
	FIRE HYDRANT
U.O.N.	UNLESS OTHERWISE NOTED

NOTE:
-PRELIMINARY PLANS-
NOT FOR CONSTRUCTION

NOTE:
PLEASE VERIFY THE SERVICE POINTS ON THIS PLAN MATCH YOUR CURRENT DESIGN. IF THERE ARE DISCREPANCIES, PLEASE CONTACT THE PROJECT MANAGER IN OUR OFFICE @ 925-820-8502



VICINITY MAP - NOT TO SCALE

architectural area lighting

PROV2

ARCHITECTURAL AREA/SITE

DATE: LOCATION:
TYPE: PROJECT:
CATALOG #:

FEATURES

- Reliable, uniform, glare free illumination
- Types 1, 2, 3, 4W, 5Q, and 5W distributions
- Amber, 3000K, 4000K, 5000K CCT
- 0-10V dimming ready
- Integral Surge protection: 10k in parallel, 20k in series
- Upgrade Kits

PROVIDENCE®



Providence Medium

3000K and warmer CCTs only

Buy American Solutions Sea Certification Specifications

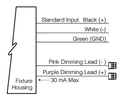
SPECIFICATIONS

CONSTRUCTION
- All housing components aluminum 360 alloy, sealed with continuous silicone rubber gaskets
- Standard configurations do not require a flat lens, optional lenses are tempered glass
- All internal and external hardware is stainless steel
- Finish: fade and abrasion resistant, electrostatically applied, thermally cured, triglycidal isocyanurate (TGIC) polyester powdercoat
- Optical bezel finish to match the luminaire housing

LED/OPTICS
- Optical cartridge system consisting of a die cast heat sink, LED engine, TIR optics, gasket and bezel plate
- Optics are held in place without the use of adhesives
- Molded silicone gasket ensures a weather-proof seal around each individual LED.
- Features individual LED optical control based on high performance TIR optical designs
- House Side Shield is available on Standard and Clear Lens options except any Type 5 distribution. House Side Shield is not available for any distribution using a Diffused Lens

INSTALLATION
- Fixtures must be grounded in accordance with national, state and/or local electrical codes. Failure to do so may result in serious personal injury

ELECTRICAL
- Luminaires have UL recognized integral surge protection, and have a surge current rating of 10,000 Amps using the industry standard 8/20uSec wave and surge rating of 372J
- Drivers are UL recognized with an inrush current maximum of <20.0 Amps maximum at 230VAC
- 100%-1% dimming range. Fixture will be wired for low voltage 0-10V dimming control



- Driver and surge suppressor are mounted to a prewired tray with quick disconnects that may be removed from the gear compartment
- Surge protection: 10,000k in parallel, 20,000k in series

CONTROLS
- Egress adapter(s) will slip over a 4"/100mm DIA. pole with the luminaire or arm slipping over the adapter to add a total of 4.5"/114mm to the overall height. Adapter(s) are prewired, independently rotatable 359°, and have a cast access cover with an integral lens and lanyard

CONTROLS (CONTINUED)
- Egress adapter will require an auxiliary 120 volt supply for operation of an integral MR16 lamp in the event of emergency. The lamp may be aimed and locked into position with an adjustment range of 15°-45°. Adapter will have a socket that accepts miniature bi-pin MR16 lamps up to 50 watts, lamp by others
- Photocell adapter includes a 7-Pin internal twist lock receptacle. Photocell by others

CERTIFICATIONS
- ETL listed under UL 1598 and CSA C22.2 No. 250.0-08 for wet locations
- This product qualifies as a "designated country construction material" per FAR 52.225-11 Buy American-Construction Materials under Trade Agreements effective 5/29/2020

WARRANTY
- 5 year warranty

KEY DATA	
LUMEN RANGE	1,81–9,336
WATTAGE RANGE	31.52–71.6
EFFICACY RANGE (LPW)	44.9–118.9
INPUT CURRENT RANGE (mA)	295–615 mA
WEIGHT	29 lbs / 13.15 kg
EPA	1.33

Current

currentlighting.com/aal

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architectural area lighting

RSA-A Series

ROUND STRAIGHT ALUMINUM POLE

DATE: LOCATION:
TYPE: PROJECT:
CATALOG #:

AAL Poles



SPECIFICATIONS

APPLICATIONS
- Lighting installations for side and top mounting of luminaires with effective projected area (EPA) not exceeding maximum allowable loading of the specified pole in its installed geographic location

CONSTRUCTION
- SHAFT: One-piece straight aluminum with round cross section; Extruded shafts of 6061-T6 aluminum in 1/8", 3/16", or 1/4" thickness. Base plate of 356 cast aluminum.
- BOLT COVERS: Four (4) individual bolt covers provided, painted to match pole and base finish.
- POLE CAP: Pole shaft supplied with removable cover when applicable; Tenon and post-top configurations also available
- HAND HOLE: Rectangular 3x5 aluminum hand hole frame (2.38" x 4.38" opening); Mounting provisions for grounding lug located behind gasketed cover
- ANCHOR BOLTS: Four galvanized anchor bolts provided per pole with minimum yield of 55,000 psi (ASTM F1554). Galvanized hardware with two washers and two nuts per bolt for levelingwarnings

FINISH
- Durable thermoset polyester powder coat paint finish with nominal 3.0 mil thickness
- Powder paint finish coat available in multiple standard colors; Custom colors available; RAL number preferable

ORDERING GUIDE

Example: PR4-4R12-125-PCR-GFI-SBC-PTF-BLT

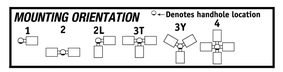
CATALOG #

POLE

Series	Pole	Shaft	Thickness	Mounting	Finish	VM2
RSA-A Round Straight Aluminum Pole	Reference page 2 Ordering matrix	Reference page 2 Ordering matrix	Reference page 2 Ordering matrix	TA Tenon (2.375" OD) TB Tenon (2.875" OD) OT Open Top (includes pole cap)	BLS Black Gloss Smooth BLT Black Matte Textured DBS Dark Bronze Gloss Smooth DBT Dark Bronze Matte Textured GTT Graphite Matte Textured LGS Light Grey Gloss Smooth LGT Light Grey Matte Textured PSS Platinum Silver Gloss Smooth VGT Verde Green Matte Textured WHS White Gloss Smooth WHT White Matte Textured Color Option CC[1] Custom Color	GFI 20 Amp GFCI Receptacle and Cover EHH Extra Handhole C05 5" Coupling C07 7.5" Coupling C20 2" Coupling VM2 2nd mode vibration damper LAB Less Anchor Bolts UL UL Certified

Accessories	
VM2SXX	2nd mode vibration damper, ordered separately

MOUNTING ORIENTATION ← Denotes handhole location



Notes:
1 Consult factory for custom color, marine and corrosive finish

Current

currentlighting.com/aal

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MILLENNIUM DESIGN & CONSULTING, INC.
JOINT TRENCH UTILITY DESIGN & CONSULTING
PROJECT MANAGEMENT & ESTIMATING
P.O. BOX 737 ALAMO, CA 94507
PHONE: 925 820 8502 FAX: 925 820 8507

STREET LIGHTING PLAN
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

Date	Revisions	No.

Date 11/28/2023
Scale
Design CK
Drawn CK
Approved
Job No 23-1668

Drawing Number:
SL1



NOTE:

-PRELIMINARY PLANS-
NOT FOR CONSTRUCTION

millennium
design & consulting, inc.
JOINT TRENCH UTILITY DESIGN & CONSULTING
ELECTRICAL ENGINEERING & SURVEY
P.O. BOX 737 ALAMO, CA 94507
PHONE: 925-588-0926 / FAX: 925-588-0987

STREET LIGHTING PLAN
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY

CALIFORNIA

HALF MOON BAY

No.	Revisions	Date

Date 11/28/2023
Scale 1"=20'
Design CK
Drawn CK
Approved
Job No 23-1668

Drawing Number:

SL2



Notes:

1. The illuminance grids are shown at the ground level and the grid spacing is 10' x 10' for the Roadway and 8' x 8' for the Parking Areas.
2. The luminaire fixture types and part numbers included on the schedule above are for photometric purposes only and may need to be revised for real world conditions. Please refer to the manufacturer specification sheets and make sure to confirm voltages, finishes, mounting options, dimming and control options, accessories, etc. before specifying and/or ordering the fixtures.
3. LLF = Light Loss Factor = Lamp Lumen Depreciation (LLD) x Lamp Dirt Depreciation (LDD) = 0.95 x 0.95 = 0.903
4. The "MH" tag beneath the fixture type designations shown in plan view indicates fixture mounting height AFG.

Illuminance Calculation Summary

Calculation Grid Description	Units	Avg	Max	Min	Avg/Min	Max/Min
Parking Area 1	Fc	1.01	3.5	0.1	10	35
Parking Area 2	Fc	2.07	3.5	0.6	3	6
Parking Area 3	Fc	2.23	3.5	0.8	3	4
Roadway	Fc	1.28	3.3	0.2	6	17
Spill Light	Fc	0.10	3.4	0.0	N.A.	N.A.

Luminaire Schedule

Symbol	Qty	Fixture Type	Manufacturer and Part Number	LLF	Lumens	Watts
○	26	E1	Architectural Area Lighting - PROV2-36L-510-3K7-4W-CL-HS (mounted on 12ft pole)	0.903	2780	58.41
○	5	E2	Architectural Area Lighting - PROV2-36L-510-3K7-4W-CL (mounted on 12ft pole)	0.903	4763	58.41

LIGHTING SYSTEMS

www.ltgsys.com

510-982-3900
2322 6th Street
Berkeley, CA 94710

916-772-5800
1310 Blue Oaks Blvd
Suite 400
Roseville, CA, 95678

STREET LIGHTING PHOTOMETRICS

Customer:
Chris Kellner
Millenium Design
chris@jointutility.com
925-301-5477

Filename: Stone Pine Cove Streetlighting_102423 - REV02.AGI

DISCLAIMER:

This lighting calculation report attempts to approximate the maintained light levels and is based on the information provided to LightingSystems. Please verify the information provided (space dimensions, fixture mounting heights, surface reflectances, etc.) to ensure the accuracy of the report. Many factors that can affect field-measured lighting levels cannot be anticipated when using the calculation software and as such Lighting Systems cannot guarantee lighting levels.

Date: 11/28/2023

Calcs by: Brian Franco
Phone: (510)-982-3938
brianf@ltgsys.com

SL3

Stone Pine Cove - 880 Stone Pine Road
Application for Emergency Coastal Development Permit
Supplemental Narrative – November 2023

The County of San Mateo and City of Half Moon Bay are co-applicants for a Coastal Development Permit to entitle development of a new neighborhood comprised of 46 manufactured homes affordable to farmworker households and one manager's unit at 880 Stone Pine Road. As of November 2023, the co-applicants are seeking an Emergency Coastal Development Permit in advance of a follow-up Coastal Development Permit and associated environmental review pursuant to the California Environmental Quality Act (CEQA). This narrative supplements the application and plans submitted for the Emergency Coastal Development Permit. It addresses the City of Half Moon Bay's Local Coastal Program requirements for emergency permitting as established in Municipal Code §18.20.040.

1. **The nature of the emergency:**

   The need for immediate housing for low-income farmworkers displaced by unsafe, unpermitted, and dilapidated housing conditions.

2. **The cause of the emergency, insofar as this can be established.**

   After the tragic events of the mass shooting in Half Moon Bay on January 23, 2023 exposed substandard housing conditions at the two impacted farms, the San Mateo County Board of Supervisors (Board) allocated funds to provide long-term temporary housing for those 19 households displaced by unsafe housing conditions at the two farm sites in Half Moon Bay. The events also prompted the Board to create a task force dedicated to inspecting farm worker housing on farms to ensure that minimum habitability standards are met.

   In addition to the need for longer-term housing for those households impacted by the mass shootings, the County continues to identify additional unpermitted, substandard farmworker housing through the work of the task force. As of November 2023, the task force has examined approximately 50% of the properties to be evaluated and has so far inspected 90 farmworker housing units occupied by 268 farmworkers. The task force has determined that units housing 68 farmworkers did not meet the task force's minimum safety standards and will require corrective actions.

   We anticipate that the County will continue to identify housing units that are deemed unsafe, unpermitted, and/or otherwise unable to be legalized in the future, creating an emergency need for additional affordable housing units. While it is difficult to know the result of ongoing inspections, if the trend continues, at the end of the task force's inspections, we may have as many as 130 farmworkers residing in substandard housing, in addition to the 19 households displaced by the shooting.

   Given the magnitude of low-income households that are at high risk of becoming homeless at the conclusion of these inspections, housing solutions are critical to mitigate this emergency.

3. The location of the emergency

   Half Moon Bay and neighboring coastside communities that are facing an acute affordable housing shortage due to recently identified unsafe and unpermitted housing conditions.

4. The remedial, protective, or preventive work required to deal with the emergency.

The County requests an emergency permit to place up to 47 manufactured homes and its associated infrastructure and amenities at the 880 Stone Pine Road property. These manufactured homes will provide the opportunity for lower initial construction costs and quicker construction to address the emergency need for housing opportunities for those who have been displaced by dilapidated housing conditions. At least 28 of the homes will be prioritized for homeownership opportunities for low-income farmworker households.

5. The circumstances during the emergency that appeared to justify the course of action taken, including the probable consequences of failing to take action.

A 2016 Agricultural Workforce Housing Needs Assessment conducted by the County found that the median income for farmworkers for farmworkers that live on farms was $21,000 a year, which falls well within the County's extremely low-income category. The report also identified that 1,020 to 1,140 housing units for the agricultural workforce are presently needed. The lack of turnover at affordable housing developments in the Half Moon Bay area and the overall dearth of units set aside for both the general low-income population and farmworkers in the area highlight the undersupply of housing for the low-income populations targeted by this proposed program.

Identified households living in unpermitted substandard conditions will add to the high need for affordable housing needed in the region. The emergency permit will allow the County to work toward creating up to 50 safe, affordable units of housing for displaced low-income families on the coast and avoid more households falling into homelessness. Without local housing options like this proposed development, families will be forced to relocate out of the county and away from the communities in which many have lived for decades.

Kikuchi + Kankel
Design Group

Landscape Architecture
Environmental Design
Site Planning

October 12, 2023

Jill Ekas
Community Development Director
City of Half Moon Bay
501 Main Street
Half Moon Bay, CA 94019

RE: Stone Pine Cove (880 Stone Pine Road)
Heritage Tree Removals

Dear Jill:

On behalf of the project team we have prepared the following narrative to describe the disposition of trees potentially impacted by the construction of the proposed housing development at 880 Stone Pine Road. Please note: where referenced, tree species, sizes (d.b.h.), locations, and numbers, are sourced from the project's arborist report prepared by West Coast Arborists, dated August 21, 2023.

The arborist's report describes 152 existing trees on the property.[1] Trees #1-40 comprise an existing hedge row along the western property boundary; trees #41-46 are scattered along the south-facing slope on the northern edge of the proposed development. All of these trees will remain and be protected for the duration of construction per the recommendations in the arborist's report.

The remaining 106 trees, #47-158, are generally located in dense clusters in the southwestern corner of the site, and will be removed. These trees are typically small, volunteer saplings of undesirable or invasive species. Of these, only 12 specimens meet the definition of a "heritage trees" per the City's Municipal Code (§7.40.020).

Eight of the heritage trees are Monterey pines (*Pinus radiata*), ranging in size from 12-15 inches d.b.h., with an average size of 13.4 inches; three of the heritage trees are Monterey cypress (*Hesperocyparis macrocarpa*), ranging in size from 12-15 inches d.b.h. with an average size of 13.3 inches; the remaining heritage tree is a shining willow (*Salix lucida*). This tree has numerous leaders

[1] Existing trees are numbered 1-158 in the arborist's report, but numbers 109-114 are omitted. Only 152 trees are specifically identified, measured, and located in the report.

730 Mill Street, Half Moon Bay
Steven T. Kikuchi, ASLA Principal
Thomas W. Conroy, Senior Associate
Jeanette T. Hill, ASLA Associate

61 East Main Street, Suite C, Los Gatos
Christopher Kankel, ASLA Principal
Nathan Rose, RLA Senior Associate
Robert J. Dietz, ASLA Associate

emerging from its base with a range of 2 to 7 inches d.b.h. and has the appearance of a large shrub. Due to the numerous basal leaders, we are considering this a heritage tree per typical arboriculture conventions, but we note that the City's code is ambiguous on this matter.

Heritage Tree Removal Table

Tree #	Species	Size (d.b.h. in inches)
47	Salix lucida	7
54	Hesperocyparis macrocarpa	15
55	Pinus radiata	13
56	Pinus radiata	15
70	Hesperocyparis macrocarpa	12
76	Hesperocyparis macrocarpa	13
79	Pinus radiata	12
88	Pinus radiata	12
91	Pinus radiata	14
92	Pinus radiata	15
143	Pinus radiata	12
147	Pinus radiata	14

Tree numbers per project arborist's report.

The removal of these 12 heritage trees is necessary for the successful development of the project. Significant site grading and site preparation, mobile home installation, and utility installation all provide good cause for the proposed removal; no reasonable or feasible alternatives exist for alternative site development that would allow these trees to be preserved. We would also note that the trees proposed for removal have limited landscape value in residential settings; Monterey pines are particularly shallow-rooted and susceptible to numerous pests and diseases, including pitch canker.

Per City code, heritage trees shall be replaced "on a one-for-one basis with a minimum size twenty-four-inch box specimen tree" (§7.40.060). The current Landscape Site Plan and Schematic Planting Plan proposes approximately 69 new 24" box trees to be installed throughout the new development, a ratio of nearly 6:1. Proposed replacement species may include Monterey cypress (as infill for portions of the existing hedge row), Catalina ironwood (*Lyonothamnus floribundus*), New Zealand Christmas tree (*Metrosideros excelsus*), and Chinese elm (*Ulmus parvifolia* 'True Green'), though final species and locations are still to be determined. The ultimate goal for all the proposed new plantings is for species and locations to be optimized for long-term success.

Please don't hesitate to contact my office with any questions or concerns.

Sincerely,



Tom Conroy
Partner, Senior Associate



TREES TO BE REMOVED

TOTAL TREES TO BE REMOVED: 106

TOTAL HERITAGE TREES TO BE REMOVED: 12

TOTAL # OF REPLACEMENT TREES REQUIRED: 21

ALL HERITAGE TREES = 1:1 REPLACEMENT RATIO
EXCEPT WILLOW = 10:1 REPLACEMENT RATIO

#	SCIENTIFIC NAME	DBH (INCHES)	HERITAGE? (Y/N)
47	SALIX LUCIDA	7	Y
48	EUCALYPTUS GUNNII	4	N
49	ALNUS RHOMBIFOLIA	5	N
50	PINUS RADIATA	10	N
51	PINUS RADIATA	10	N
52	PINUS RADIATA	10	N
53	EUCALYPTUS GLOBULUS	13	N
54	HESPEROCYPARIS MACROCARPA	15	Y
55	PINUS RADIATA	13	Y
56	PINUS RADIATA	15	Y
57	PINUS RADIATA	11	N
58	HESPEROCYPARIS MACROCARPA	9	N
59	HESPEROCYPARIS MACROCARPA	10	N
60	HESPEROCYPARIS MACROCARPA	7	N
61	HESPEROCYPARIS MACROCARPA	9	N
62	HESPEROCYPARIS MACROCARPA	8	N
63	HESPEROCYPARIS MACROCARPA	9	N
64	HESPEROCYPARIS MACROCARPA	8	N
65	HESPEROCYPARIS MACROCARPA	7	N
66	HESPEROCYPARIS MACROCARPA	7	N
67	HESPEROCYPARIS MACROCARPA	6	N
68	HESPEROCYPARIS MACROCARPA	11	N
69	HESPEROCYPARIS MACROCARPA	6	N
70	HESPEROCYPARIS MACROCARPA	12	Y
71	ACACIA MELANOXYLON	6	N
72	HESPEROCYPARIS MACROCARPA	5	N
73	EUCALYPTUS GLOBULUS	26	N
74	PINUS RADIATA	8	N
75	ACACIA MELANOXYLON	6	N
76	HESPEROCYPARIS MACROCARPA	13	Y
77	HESPEROCYPARIS MACROCARPA	8	N
78	HESPEROCYPARIS MACROCARPA	5	N
79	PINUS RADIATA	12	Y
80	HESPEROCYPARIS MACROCARPA	5	N
81	EUCALYPTUS GLOBULUS	13	N
82	EUCALYPTUS GLOBULUS	16	N
83	EUCALYPTUS GLOBULUS	15	N
84	HESPEROCYPARIS MACROCARPA	10	N
85	ACACIA MELANOXYLON	4	N
86	QUERCUS AGRIFOLIA	4	N
87	HESPEROCYPARIS MACROCARPA	8	N
88	PINUS RADIATA	12	Y
89	EUCALYPTUS GLOBULUS	6	N
90	PINUS RADIATA	11	N
91	PINUS RADIATA	14	Y
92	PINUS RADIATA	15	Y
93	EUCALYPTUS GLOBULUS	17	N
94	PINUS RADIATA	9	N
95	PINUS RADIATA	7	N
96	EUCALYPTUS GLOBULUS	26	N
97	EUCALYPTUS GLOBULUS	16	N
98	PINUS RADIATA	8	N
99	PINUS RADIATA	5	N
100	PINUS RADIATA	5	N
101	PINUS RADIATA	10	N
102	PINUS RADIATA	8	N
103	PINUS RADIATA	7	N
104	PINUS RADIATA	11	N
105	PINUS RADIATA	7	N
106	PINUS RADIATA	8	N
107	PINUS RADIATA	8	N
108	PINUS RADIATA	8	N
115	PINUS RADIATA	8	N
116	PINUS RADIATA	8	N
117	PINUS RADIATA	7	N
118	PINUS RADIATA	4	N
119	PINUS RADIATA	10	N
120	PINUS RADIATA	8	N
121	PINUS RADIATA	10	N
122	PINUS RADIATA	10	N
123	PINUS RADIATA	8	N
124	PINUS RADIATA	10	N
125	QUERCUS AGRIFOLIA	3	N
126	QUERCUS AGRIFOLIA	3	N
127	EUCALYPTUS GLOBULUS	11	N
128	EUCALYPTUS GLOBULUS	12	N
129	PINUS RADIATA	7	N
130	EUCALYPTUS GLOBULUS	14	N
131	PINUS RADIATA	8	N
132	EUCALYPTUS GLOBULUS	13	N
133	PINUS RADIATA	11	N
134	PINUS RADIATA	11	N
135	PINUS RADIATA	7	N
136	PINUS RADIATA	7	N
137	EUCALYPTUS GLOBULUS	10	N
138	EUCALYPTUS GLOBULUS	14	N
139	EUCALYPTUS GLOBULUS	12	N
140	HESPEROCYPARIS MACROCARPA	8	N
141	PINUS RADIATA	11	N
142	PINUS RADIATA	11	N
143	PINUS RADIATA	12	Y
144	HESPEROCYPARIS MACROCARPA	5	N
145	HESPEROCYPARIS MACROCARPA	6	N
146	HESPEROCYPARIS MACROCARPA	5	N
147	PINUS RADIATA	14	Y
148	HESPEROCYPARIS MACROCARPA	11	N
149	PINUS RADIATA	9	N
150	HESPEROCYPARIS MACROCARPA	5	N
151	HESPEROCYPARIS MACROCARPA	5	N
152	HESPEROCYPARIS MACROCARPA	6	N
153	HESPEROCYPARIS MACROCARPA	2	N
154	HESPEROCYPARIS MACROCARPA	2	N
155	ALNUS RHOMBIFOLIA	3	N
156	ALNUS RHOMBIFOLIA	3	N
157	ALNUS RHOMBIFOLIA	4	N
158	ALNUS RHOMBIFOLIA	4	N

TREE REMOVAL LEGEND

EXISTING HERITAGE TREE TO BE REMOVED	>12" DBH, VARIES PER PLAN
EXISTING TREE TO BE REMOVED	<12" DBH, VARIES PER PLAN
EXISTING TREE TO REMAIN	DBH VARIES PER PLAN
TREE PROTECTION FENCING	

TREE PROTECTION NOTES

THE FOLLOWING TREE PROTECTION MEASURES SHOULD BE APPLIED TO ALL TREES THAT ARE TO BE RETAINED:

1. PRE-CONSTRUCTION:
   - A PRE-CONSTRUCTION MEETING SHALL BE HELD TO DISCUSS TREE PROTECTION MEASURES AND ENSURE ALL TREE PROTECTION MEASURES HAVE BEEN PROPERLY INSTALLED.
   - ANY CLEARANCE PRUNING THAT IS DEEMED NECESSARY FOR CONSTRUCTION SHALL BE COMPLETED USING THE MINIMAL DOSE NECESSARY AND SHALL BE APPROVED BY THE PROJECT ARBORIST PRIOR TO PRUNING.
   - TREE PROTECTION ZONES SHALL BE ESTABLISHED AND ENFORCED TO PREVENT SOIL COMPACTION, GRADE CHANGE, AND ROOT DAMAGE. TREE PROTECTION AREAS SHALL BE ESTABLISHED WITH FIVE-FOOT HIGH CHAIN LINK FENCING MOUNTED ON 2" DIAMETER GALVANIZED IRON POSTS, DRIVEN INTO THE GROUND TO A DEPTH OF AT LEAST 2', AT NO MORE THAN 10' SPACING.
     -- THE DIAMETER OF THE TPZ SHALL BE DETERMINED BY THE TRUNK DIAMETER OF TREES TO BE PROTECTED. FOR EVERY 1" OF TRUNK DIAMETER, THE TPZ SHALL EXTEND 1'. FOR EXAMPLE, A 10" DIAMETER TREE SHALL HAVE A TPZ WITH A RADIUS OF 10' AROUND THE TREE.
       --- IN AREAS WHERE THIS TPZ SIZE IS GREATER THAN WHAT CONSTRUCTION CAN ALLOW, THE CANOPY DRIPLINE SHALL BE THE MINIMUM RADIUS FOR THE TPZ.
     -- FOR TREES GROWING ALONG THE EAST PERIMETER OF THE PROPERTY, TPZs CAN BE COMBINED TO FORM ONE LARGE TPZ FOR TREES IN THIS AREA. ADDTIONALLY, FENCING IS NOT REQUIRED ON THE WEST SIDE OF THE TREES AS THE PROPERTY LINE FENCING IS ALREADY IN PLACE.
   - A "WARNING: DO NOT ENTER" SIGN SHALL BE PROMINENTLY DISPLAYED ON EACH TREE PROTECTIVE FENCE.
   - A 4" LAYER OF CHIP BARK MULCH SHALL BE PLACED ON TOP OF THE TPZ AND ENCLOSED WITHIN THE TREE PROTECTIVE FENCING. THIS MULCH SHALL ONLY BE MOVED FOR LANDSCAPE PLANTS TO BE INSTALLED AFTER ALL EXCAVATION AND SOIL COMPACTION WORK HAS BEEN COMPLETED.
   - ESTABLISH AN AREA OUTSIDE OF ALL THE TPZs OR ON PREEXISTING HARDSCAPE TO STORE SEDIMENT AND BACKFILL. ENSURE NO FLOW PATHS LEAD TO TPZs FROM SEDIMENT OR BACKFILL PILES IF PRESENT.
   - NO MATERIAL OR EQUIPMENT SHALL BE STORED OR PLACED WITHIN THE TPZ OF PRESERVED TREES.
2. CONSTRUCTION:
   - IN AREAS WHERE CONSTRUCTION ACTIVITY IS TO TAKE PLACE BENEATH THE CANOPY OF EXISTING TREES, SUCH AS THE WALKING PATH, THE TPZ SHALL BE MOVED TO THE GREATEST DISTANCE POSSIBLE FROM THE SUBJECT TREE WHILE ALSO ALLOWING FOR CONSTRUCTION TO PROCEED. ONCE CONSTRUCTION IN THE SUBJECT AREA HAS OCCURRED, THE TPZ SHALL BE MOVED BACK TO BE PREESTABLISHED BOUNDARY.
     -- PROJECT ARBORIST SHALL CONDUCT SITE OBSERVATIONS DURING ANY CONSTRUCTION ACTIVITY THAT IS TO TAKE PLACE BENEATH THE CANOPY DRIPLINE OF TREE.
     -- ANY EXCAVATION ACTIVITY THAT IS TO TAKE PLACE IN THESE AREAS IS PROHIBITED FROM USING BACKHOES, TREAD TRACTORS, OR ANY OTHER HEAVY VEHICLES.
       --- METHODS PERMITTED INCLUDE HAND-DIGGING, HYDRAULIC OR PNEUMATIC AIR EXCAVATION.
   - DURING EXCAVATION ACTIVITY, SHOULD ANY ROOTS BE ENCOUNTERED, ROOT PRUNING SHALL BE DONE WITH HAND TOOLS IN ORDER TO MAKE CLEAN CUTS THAT FACE THE EXCAVATED AREA.
     -- ROOTS LARGER THAN 2.5" SHALL NOT BE CUT WITHOUT PROJECT ARBORIST PRIOR APPROVAL.
     -- ROOTS LARGER THAN 2.5" THAT ARE CUT SHALL IMMEDIATELY BE SHADED AND KEPT MOIST WITH WET BURLAP OR SIMILAR MATERIAL UNTIL THEY CAN BE RECOVERED.
   - NO PRUNING SHALL BE PERFORMED ON TREES THAT HAVE ROOTS IMPACTED BY CONSTRUCTION ACTIVITY FOR AT LEAST ONE YEAR FOLLOWING THE COMPLETION OF THE PROJECT OTHER THAN NECESSARY MAINTENANCE SUCH AS BUILDING CLEARANCE.
3. POST-CONSTRUCTION:
   -- - PROJECT ARBORIST SHALL CONDUCT MONITORING TWICE A YEAR FROM THE DATE OF PROJECT COMPLETION FOR NO LESS THAN TWO YEARS TO ENSURE TREES ARE IN GOOD CONDITION.

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TREE REMOVAL PLAN
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA

NOT FOR CONSTRUCTION
HALF MOON BAY

Date
Revisions
No.

Date 11/20/2023
Scale 1/20" = 1'-0"
0 10' 20'
Drawn JG
Approved TVC

Drawing Number:
L1.1

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VIEW #1 – ENTRY POINT, LOOKING SOUTHEAST

255 SHORELINE DRIVE
SUITE 200
REDWOOD CITY, CA 94065
(650) 482-6300
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CONCEPTUAL RENDERING – VIEW 1
STONE PINE COVE
880 STONE PINE ROAD

HALF MOON BAY
SAN MATEO COUNTY
CALIFORNIA

No.	Revisions

Date: 11/28/2023
Scale: NO SCALE
Design: DJP
Drawn: DLG
Approved: DJL
Job No: 20211367-15

Drawing Number:
X-1
1 OF 6

DRAWING NAME: K:\2021\21136?-15_NMB_Corpyard_Housing\ENG\EXHIBITS\2023-11-28_Rendering_Exhibits\nmbexhibits.dwg
PLOT TIME: 11:28:23
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VIEW #2 - MAIN INTERSECTION

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CONCEPTUAL RENDERING - VIEW 2
STONE PINE COVE
880 STONE PINE ROAD
HALF MOON BAY
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X-2
2 OF 6

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VIEW #3 – MANAGERS UNIT, LOOKING SOUTHWEST

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CONCEPTUAL RENDERING – VIEW 3
STONE PINE COVE
880 STONE PINE ROAD
HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA

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Scale: NO SCALE
Design: DJP
Drawn: DLG
Approved: DJL
Job No: 2021367-15

Drawing Number:
X-3
3 OF 6

DRAWING NAME: K:\2021\2111367-15_HMB_Coryard_Housing\ENG\EXHIBITS\2023-11-28_Rendering_Exhibits\hmbexhibits.dwg
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VIEW #4 - COMMUNITY PARK

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CONCEPTUAL RENDERING - VIEW 4
STONE PINE COVE
880 STONE PINE ROAD
HALF MOON BAY
SAN MATEO COUNTY
CALIFORNIA

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Drawn: DLG
Approved: DJL
Job No: 2021367-15

Drawing Number:
X-4
4 OF 6

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VIEW #5 – COMMUNITY GARDEN, LOOKING SOUTH

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CONCEPTUAL RENDERING – VIEW 5

STONE PINE COVE

880 STONE PINE ROAD

HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA

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Drawn: DLG
Approved: DJL
Job No: 2021367-15

Drawing Number:
X-5
5 OF 6

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VIEW #6 – STREET LEVEL, LOOKING SOUTH

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CONCEPTUAL RENDERING – VIEW 6
STONE PINE COVE
880 STONE PINE ROAD
HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA

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Drawn: DLG
Approved: DJL
Job No: 2021367-15

Drawing Number:
X-6
6 OF 6

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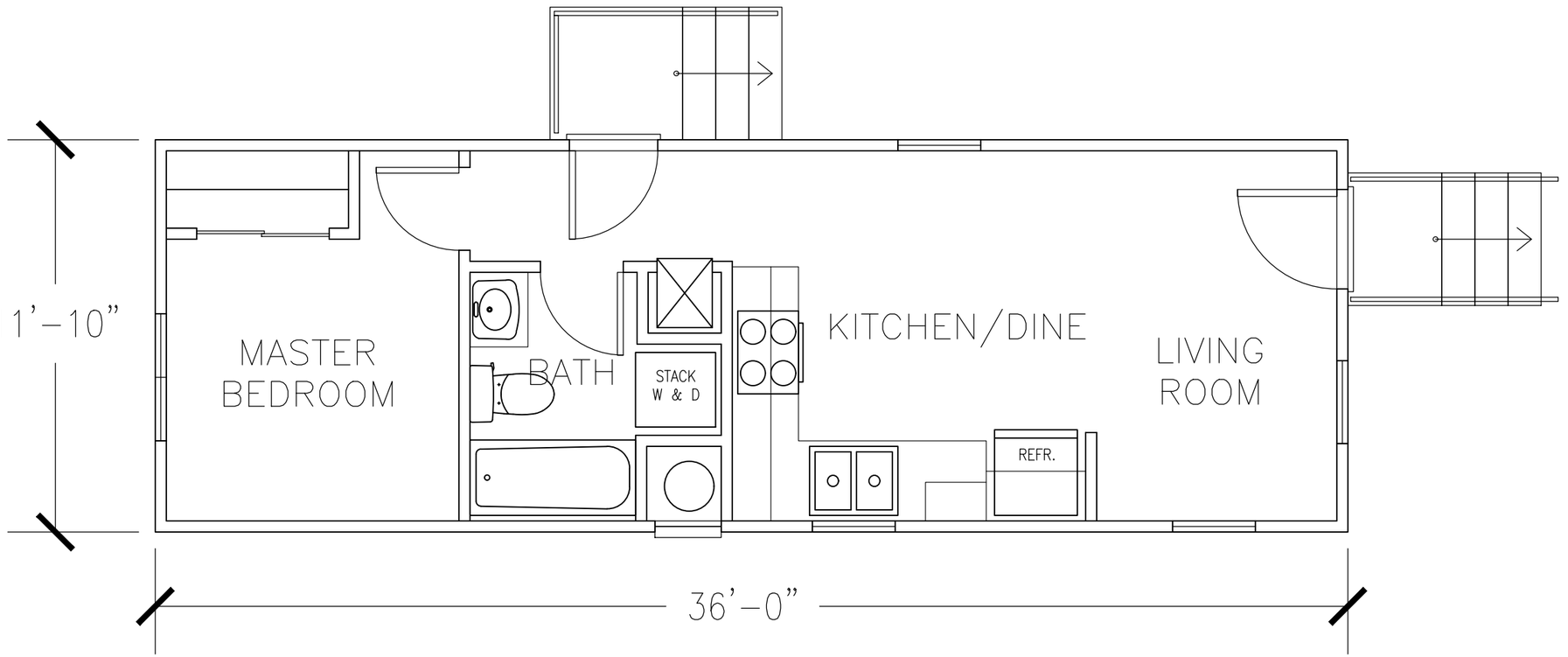

1-BEDROOM MANUFACTURED HOME

EXTERNAL MATERIALS:

- COMPOSITION SHINGLES
- FIBER CONCRETE SIDING/TRIM WITH HORIZONTAL OR BOARD & BATTEN PATTERN (PAINTED)
- SKIRTING TO MATCH SIDING (PAINTED)

0 4 8
1/4" = 1 FT

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

CONCEPTUAL MANUFACTURED HOME FLOOR PLANS
STONE PINE COVE
880 STONE PINE ROAD
HALF MOON BAY SAN MATEO COUNTY CALIFORNIA

Revisions
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Design:
Dram: D. B.
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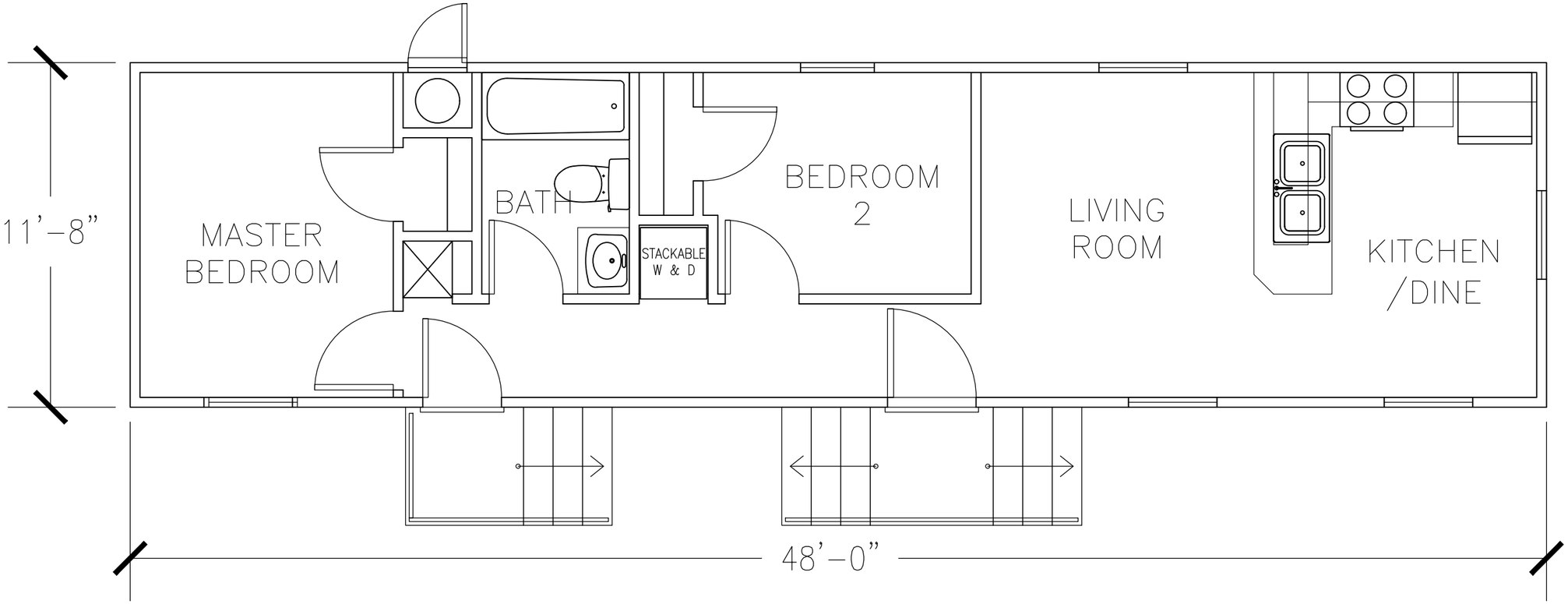

2-BEDROOM MANUFACTURED HOME

EXTERNAL MATERIALS:

- COMPOSITION SHINGLES
- FIBER CONCRETE SIDING/TRIM WITH HORIZONTAL OR BOARD & BATTEN PATTERN (PAINTED)
- SKIRTING TO MATCH SIDING (PAINTED)

0 4 8
1/4" = 1 FT

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

CONCEPTUAL MANUFACTURED HOME FLOOR PLANS
STONE PINE COVE
880 STONE PINE ROAD
HALF MOON BAY SAN MATEO COUNTY CALIFORNIA

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Job No:

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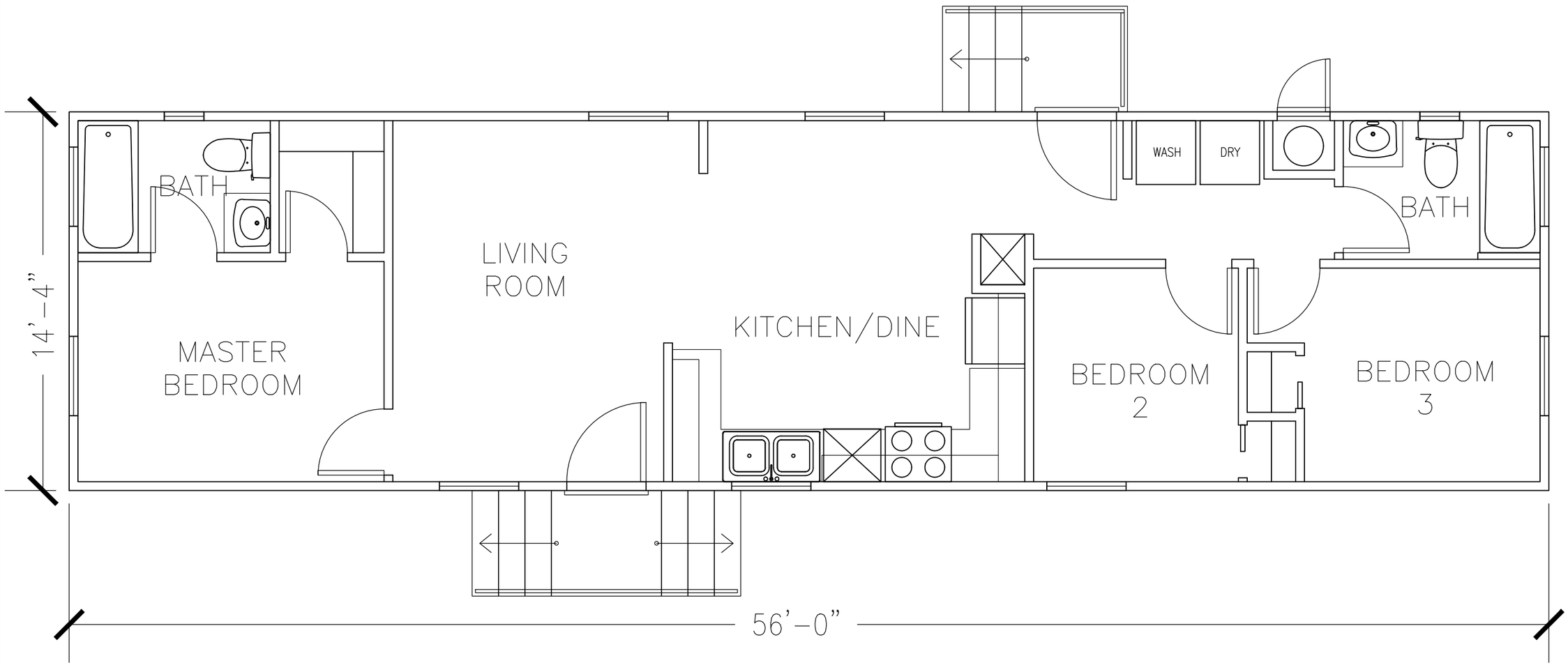
2 OF 3



3-BEDROOM MANUFACTURED HOME

EXTERNAL MATERIALS:

- COMPOSITION SHINGLES
- FIBER CONCRETE SIDING/TRIM WITH HORIZONTAL OR BOARD & BATTEN PATTERN (PAINTED)
- SKIRTING TO MATCH SIDING (PAINTED)

0 4 8

1/4" = 1 FT

PRELIMINARY PLANS NOT FOR CONSTRUCTION

CONCEPTUAL MANUFACTURED HOME FLOOR PLANS
STONE PINE COVE
880 STONE PINE ROAD
HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA

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Job No:

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MH3
3 OF 3

From: Christina Alonso
To: John Doughty; Jill Ekas
Cc: Jessica Brinton-McBean
Subject: City of HMB Affordable Housing Archaeological Testing Results
Date: Thursday, November 30, 2023 3:42:41 PM
Attachments: 96FB9F999A7B42989BCB5C161780D4DB.png

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Good afternoon John,

We wanted to provide you with a brief email summarizing the results of the archaeological testing effort for the City of HMB Affordable Housing Project.

Fieldwork was conducted in the project area on November 1 and 2 of 2023 by SWCA geoarchaeologist Jack Meyer, who meets or exceed the Secretary of the Interior-standards for the identification of prehistoric resources in California, and archaeologist Reid Donovan. The purpose and overall goals of this work were previously outlined by an approved research design in keeping with State CEQA guidelines. Trenching was supervised and monitored by the principal geoarchaeologist with competent person excavation safety certification, and project personnel did not physically enter any of the excavated trenches. The back dirt from each trench was consistently hand-raked and examined for archaeological materials during excavation, and the base and trench side walls were also closely examined when possible. Once completed, each trench was backfilled using the excavated back dirt to restore the surface grade.

The deposits exposed in the trenches consist mainly of relatively intact alluvial floodplain sediments that range from sand to clay in texture. The sandy alluvium is consistent with deposition in or near a formerly active stream channel, and the finer alluvium was formed by overbank deposition of sediments in a floodplain or basin setting. The alluvial deposits are consistently overlain by artificial fill composed of disturbed and/or imported materials, such as gravel, sand, and wood bark, which range from 0.3 to 0.9 meters (1 to 3 feet) in thickness. Since the entire parcel is covered by some amount of fill, it demonstrates why a normal archaeological surface survey would be inadequate and confirms the need for this type of exploratory study. These soils were closely examined for evidence of human activities, but no archaeological materials (i.e., bone, charcoal, shell, flaked stone, and heat-altered rock), features, or deposits were identified in any trenches excavated in the project parcel.

Based on these findings, it is unclear as to why the archaeological site was mapped in this location. A possible explanation is that the western part of the site was incorrectly mapped and is, instead, located further to the east.

If you have any questions, please feel free to reach out.

Christina Alonso
Senior Project Manager – Team Lead

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October 25, 2023
BAGG Job No. COUSM-23-03

County of San Mateo
Department of Public Works
555 County Center, 5th Floor
Redwood City, CA 94063

c/o: Steven McGuckin, AIA
Capital Program Management, Inc

Geotechnical Review of Civil Drawings
SMC-HMB Farmworker Housing Project
880 Stone Pine Road
Half Moon Bay, San Mateo County, California

References:
1. Thirteen (13) sheets of civil drawings, titled *Stone Pine Cove, 880 Stone Pine Road, Half Moon Bay, San Mateo County, California,* prepared by BKF Engineers, dated 10/24/2023.
2. *Report, Geotechnical Engineering Investigation, SMC-HMB Farmworker Housing Project, 880 Stone Pine Road, Half Moon Bay, San Mateo County, California,* prepared by BAGG Engineers, dated August 23, 2023.

Dear Mr. McGuckin:

Per the request of the Project Civil Engineer (BKF Engineers), we have reviewed the civil drawings referenced above. The drawings have been reviewed based on the soils information and recommendations contained in our report as also referenced above.

It is our opinion the above-referenced civil plans have been prepared in general conformance with the intent of our recommendations. This opinion is contingent upon the geotechnical observation and testing by BAGG Engineers' field staff during site grading and subgrade preparation phases of the work to verify soil conditions are similar to those anticipated during design, and that the work in the field is performed as recommended and in accordance with the approved plans and specifications.

We trust this letter provides you with the information required at this time. If you have any questions or require additional information, please do not hesitate to contact us.

Very truly yours,
BAGG Engineers

Jingqi Liu
Project Engineer

Jason Van Zwol
VP/Chief Engineer

REGISTERED PROFESSIONAL ENGINEER
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138 Charcot Avenue, San Jose, California 95131-1101



STONE PINE COVE TRANSPORTATION IMPACT ANALYSIS

NOVEMBER 2023

PREPARED FOR:

CITY OF HALF MOON BAY

DKS

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Erin Vaca

TABLE OF CONTENTS

INTRODUCTION **1**

PROJECT SETTING AND STUDY INTERSECTIONS **1**

STUDY INTERSECTIONS 4
STUDY ROADWAYS 4
STUDY TIME PERIOD 4
DATA COLLECTION 5

EXISTING CONDITIONS **5**

EXISTING INTERSECTION OPERATIONS 5

EXISTING CONDITIONS ANALYSIS **7**

EXISTING ACTIVE TRANSPORTATION AND TRANSIT 9
SPEED ANALYSIS AND TRAFFIC CALMING ON STONE PINE ROAD 11

PROJECT TRAVEL CHARACTERISTICS **13**

PROJECT TRIP GENERATION 13
TRIP DISTRIBUTION 14

EXISTING PLUS PROJECT CONDITIONS **14**

SIGNAL WARRANT ANALYSIS **20**

SITE CIRCULATION AND ACCESS **20**

POTENTIAL DIRECT ACCESS TO SR-92 20

VEHICLE MILES TRAVELED **22**

POTENTIAL TRAFFIC CALMING IMPROVEMENTS **22**

SUMMARY OF FINDINGS **23**

APPENDIX **24**

LIST OF FIGURES

FIGURE 1: PROJECT SITE AND STUDY AREA 2
FIGURE 2: PROJECT SITE PLAN 3
FIGURE 3: INTERSECTION GEOMETRY AND EXISTING WEEKDAY/WEEKEND VOLUMES 8
FIGURE 4: EXISTING PEDESTRIAN, BICYCLE, AND TRANSIT FACILITIES 11
FIGURE 5: TRAFFIC VOLUME PATTERNS ON STONE PINE ROAD WEST OF PATRICK WAY 13
FIGURE 6: SPEED STUDY LOCATIONS 12
FIGURE 7: PROJECT A.M. TRIP DISTRIBUTION 15
FIGURE 8: PROJECT P.M. TRIP DISTRIBUTION 16
FIGURE 9: PROJECT SITE TRIP VOLUMES 17
FIGURE 10: EXISTING PLUS PROJECT TRAFFIC VOLUMES 18

LIST OF TABLES

TABLE 1: INTERSECTION LEVEL-OF-SERVICE AND AVERAGE DELAY 6

TABLE 2: EXISTING INTERSECTION DELAY AND LEVEL OF SERVICE 8

TABLE 3: EXISTING INTERSECTION 95TH PERCENTILE QUEUE LENGTHS 9

TABLE 4: SPEED DATA (MAY 17, 2023 AND JUNE 1, 2023) 12

TABLE 5: INTERSECTION OPERATING CONDITIONS WITH PROJECT 19

TABLE 6: INTERSECTION OPERATING CONDITIONS WITH PROJECT - 95TH PERCENTILE QUEUE LENGTHS 19

INTRODUCTION

The City of Half Moon Bay is seeking to address the housing needs of its agricultural workforce and to replace substandard housing that has been lost due to recent events. The project proposed to meet these needs would consist of up to 50 mobile home units to be located on the City property at the eastern end of Stone Pine Road. The City's corporation yard facilities are co-located on the eastern half of the site.

This report presents an analysis of the potential traffic impacts that would be associated with the proposed project. The traffic study was completed in accordance with the criteria established by the City of Half Moon Bay and City/County Association of Governments of San Mateo County. This report documents analysis of the potential local transportation-related effects of the proposed project as well as consideration of potential VMT impacts. In addition to examining the operations at two study intersections, this study also addresses site access as well as bicycle and pedestrian access and safety.

PROJECT SETTING AND STUDY INTERSECTIONS

The proposed project consists of the construction of 50 mobile homes on an undeveloped parcel of land, to be co-located with the City's corporation yard. The project is located with State Route 92/San Mateo Road (SR-92) to the north, a residential neighborhood to the west, Pilarcitos Creek to the south, and commercial and agricultural uses to the east. Access to the residential project and the City's corporation yard would be provided via Stone Pine Road. Currently, there is no direct access to San Mateo Road/State Route 92 (SR-92) but there is an easement along the eastern edge of the property through which emergency vehicular access will be provided.

The project is located near downtown Half Moon Bay and would be within walking distance of many key destinations including Stone Pine Shopping Center, New Leaf Community Market, Half Moon Bay Pharmacy, Rite Aid, CVS, Safeway, and numerous restaurants.

The project site and study area boundary are illustrated in **Figure 1**, a project site plan is provided in **Figure 2**.



FIGURE 1: PROJECT SITE AND STUDY AREA

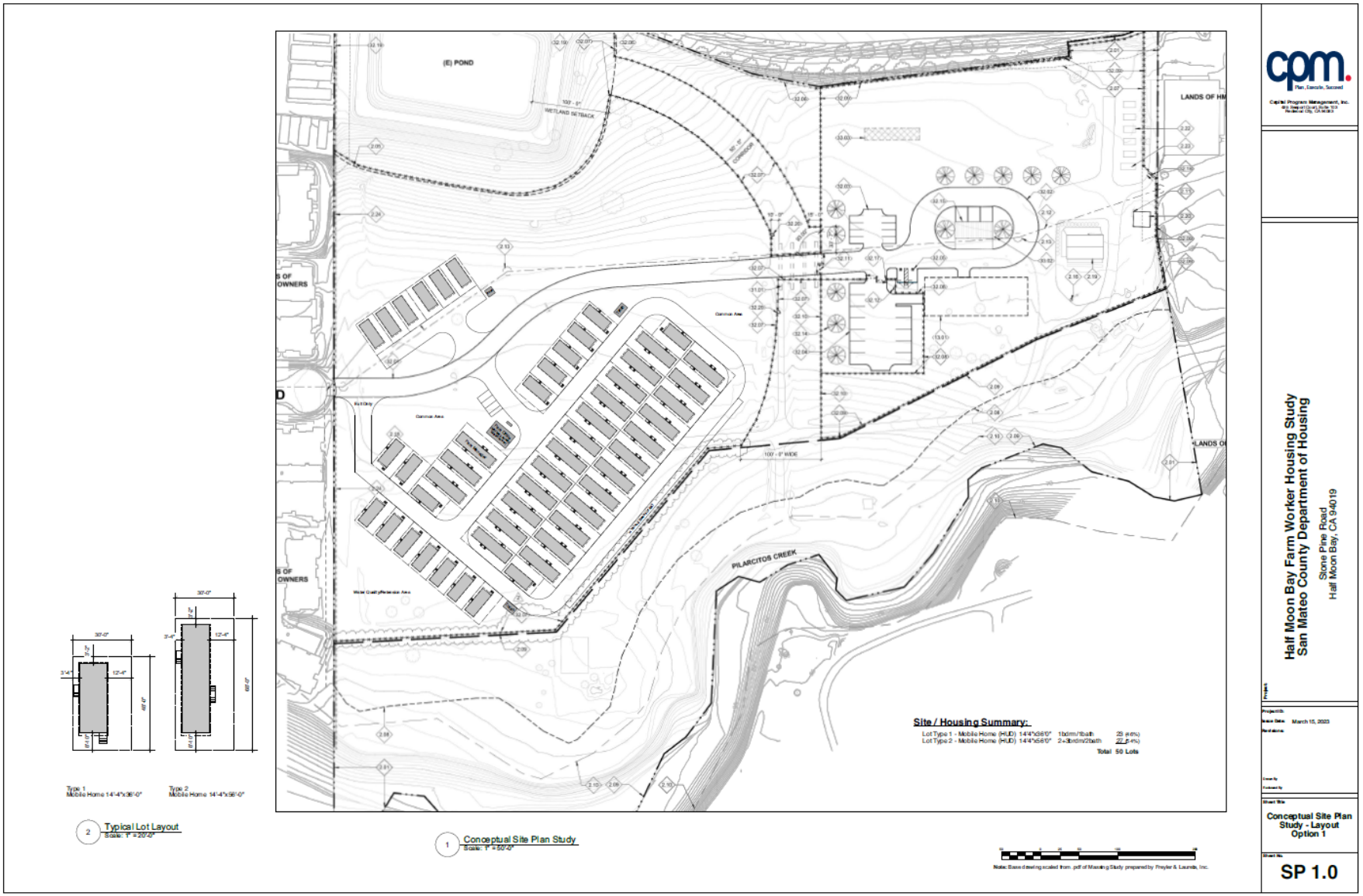

FIGURE 2: PROJECT SITE PLAN

STUDY INTERSECTIONS

The roadway network and study intersections are shown in **Figure 1**. This analysis will examine the project's potential effects on peak hour operations at two study intersections:

1. **SR-92 and Main Street** is a signalized, four-legged intersection with protected left-turn phasing on all approaches. Marked crosswalks and pedestrian signals are provided across every approach. This intersection is part of the County of San Mateo Congestion Management Program and is operated by Caltrans.

2. **Main Street and Stone Pine Road** is an all-way stop-controlled (AWSC), four-legged intersection. There are high-visibility crosswalks across the east and south approaches.

Crosswalks and sidewalks are generally provided within the study intersections and the study area. Bus stops are also located along SR-92 in both directions. A detailed description of the existing pedestrian and transit facilities is provided within the Existing Conditions Analysis.

STUDY ROADWAYS

SR-92 is a major east-west state highway that serves regional traffic between Highway 1, Interstate 280, the San Mateo Bridge and the City of Hayward. East of the study intersection, there is a raised median with one or two through lanes in each direction. Adjacent to the project site, the cross-section tapers to an undivided two-lane cross section with shoulders.

Main Street is a north-south arterial roadway that serves local circulation. This street has one travel lane in each direction with on street parking in some locations. Adjacent land uses include agricultural and local businesses, public facilities, commercial and residential. South of the Study Area, Main Street traverses the historic shopping district of Half Moon Bay, and the posted speed limit is 25 mph.

Stone Pine Road is a local east-west street that primarily provides access to residential properties as well as the Stone Pine Shopping Center. The street has one travel lane in each direction and a posted speed limit of 25 mph.

STUDY TIME PERIOD

Operating conditions during the weekday morning (7:00 a.m. to 9:00 a.m.) and afternoon (4:00 p.m. to 6:00 p.m.) as well as the Saturday midday (12:00 p.m. to 2:00 p.m.) peak periods were evaluated to capture the highest potential impacts for the proposed project as well as the highest volumes on the study road network. Turning movement intersection counts are provided in the **Appendix, Section 1**. Conditions during the weekday and Saturday midday peak hours were evaluated for the following scenarios:

- **Existing Conditions**: Existing peak hour volume, lane geometry, and traffic control
- **Existing plus Project Conditions**: Existing peak hour volumes plus net-new project-generated trips estimated for the proposed development.

DATA COLLECTION

Traffic volume data representative of a typical weekday was collected on Wednesday, May 17, 2023, while local schools were in session.

For the weekend analysis, counts collected in 2019 for another traffic study were used at the SR-92 and Main Street intersection[1]. Weekday volumes collected at this intersection in 2019 and 2023 were compared to assess if there was an increase in volume. Based on the weekday count comparison, using the 2019 weekend counts without adjustment was deemed to be the more conservative approach.

Weekend midday volumes entering and exiting Stone Pine Road and Main Street were estimated based on the tube counts collected for the speed study. The inbound and outbound trip distributions among these intersections were based on existing traffic patterns.

Vehicle speed data was collected along Stone Pine Road, east and west of Patrick Way. Twenty-four-hour tube counts were conducted on Wednesday, May 17, 2023, and Thursday, June 1, 2023, for weekday analysis, and on Saturday, June 3, 2023, for the weekend analysis. The vehicle speed data from May 17 was collected east of Patrick Way while the vehicle speed data from June 1 and June 3, 2023, was collected west of Patrick Way near the crosswalk east of Main Street.

EXISTING CONDITIONS

EXISTING INTERSECTION OPERATIONS

Intersection analyses were conducted using methodology outlined in the *Highway Capacity Manual 6th Edition* (HCM 6) and implemented in the Synchro 11 software package. This procedure calculates an average control delay per vehicle at an intersection and assigns a level of service designation based upon the delay. **Table 1** presents the level of service criteria for intersections in accordance with the HCM 6 methodology.

OPERATION ANALYSIS THRESHOLDS

The City of Half Moon Bay has established criteria to determine the level of significance of traffic impacts based on standards set by the City's *General Plan Circulation Element* (2013), and the *San Mateo County Congestion Management Program (CMP), Appendix L: Traffic Impact Analysis Policy*.

As the SR-92 and Main Street study intersection is within the CMP network, a project is considered to have an adverse impact on this intersection if it causes one or more of the following:

[1] Half Moon Bay Hyatt Place Project (2022).

TABLE 1: INTERSECTION LEVEL-OF-SERVICE AND AVERAGE DELAY

LEVEL OF SERVICE (LOS)	DELAY PER VEHICLE (SECONDS)	
	SIGNALIZED	UNSIGNALIZED
A	< 10	< 10
B	> 10 and < 20	> 10 and < 15
C	> 20 and < 35	> 15 and < 25
D	> 35 and < 55	> 25 and < 35
E	> 55 and < 80	> 35 and < 50
F	> 80	> 50

Source: Highway Capacity Manual 6th Edition, Transportation Research Board.

- For a CMP intersection currently in compliance with the adopted LOS standard:
    - A project will be considered to have an adverse impact if the project will cause the CMP intersection to operate at a level of service that violates the standard adopted in the current Congestion Management Program (CMP).
    - A project will be considered to have an adverse impact if the cumulative analysis indicates that the combination of the proposed project and future cumulative traffic demand will result in the CMP intersection operating at a level of service that violates the standard adopted in the current CMP AND the proposed project increases the average control delay at the intersection by four seconds or more.
- For a CMP intersection currently not in compliance with the adopted LOS standard, a project is considered to have an adverse impact if the project will add any additional traffic to the CMP intersection that is currently not in compliance with its adopted level of service standard as established in the CMP.

The City's policy has established that LOS C is the desired level of service at study intersections on SR-92, except during the peak two-hour commuting period and the peak recreational hour when LOS E is considered the minimum acceptable standard.

The City of Half Moon Bay does not have a formally adopted minimum threshold for unsignalized intersections. For this analysis, traffic effects are considered to be adverse if the addition of project-generated traffic causes operation of an unsignalized intersection to deteriorate from an acceptable LOS to LOS F, or queue lengths exceed storage lengths or spillback to impact nearby intersections.

EXISTING CONDITIONS ANALYSIS

The existing conditions scenario provides an evaluation of current operation based on existing traffic volumes during the weekday morning and afternoon peak hours as well as the weekend midday peak hour.

Existing traffic operations have been calculated based on the lane configurations and traffic volumes shown in **Figure 3**. The results of the traffic operations and queuing analysis are summarized in **Table 2** and **Table 3**, respectively. Both study intersections currently operate acceptably during the weekday morning and afternoon as well as the weekend midday peak hours based on established performance standards. Detailed existing condition intersection analysis results may be found in the **Appendix, Section 2**. The signal timing worksheets used in the Synchro analysis are shown in the **Appendix, Section 3**.

Under existing conditions, queues at the SR-92 and Main Street intersection exceed available storage for the following movements:

- The eastbound left turn movement currently exceeds the available storage length during the weekday a.m. peak hour by 6 feet or less than one vehicle. Vehicles waiting to make an eastbound left turn movement may block one of the eastbound travel lanes.
- The westbound right turn movement currently exceeds the available storage length by 145 feet (approximately 6 vehicles) during the weekday afternoon peak hour and by 67 feet (approximately 3 vehicles) during the weekend midday peak hour. Vehicles making a westbound right turn at this intersection may block one of the westbound travel lanes.
- The northbound left turn movement currently exceeds the available storage length by 62 feet (approximately 3 vehicles) during the weekday afternoon peak hour and by 46 feet (approximately 2 vehicles) during the weekend midday peak hour. If the northbound left turn queue exceeds the available storage length, vehicles may be forced to stay in the two-way-center turn lane.
- The southbound left turn movement currently exceeds the available storage length by 77 feet (approximately 3 vehicles) during the weekday morning peak hour and by 48 feet (approximately 2 vehicles) during the weekend midday peak hour. Similarly, if the southbound left turn queue exceeds the available storage length, vehicles may be forced to wait in the two-way center turn lane.

Under existing conditions, queues do not exceed available storage at the Main Street and Stone Pine Road intersection.

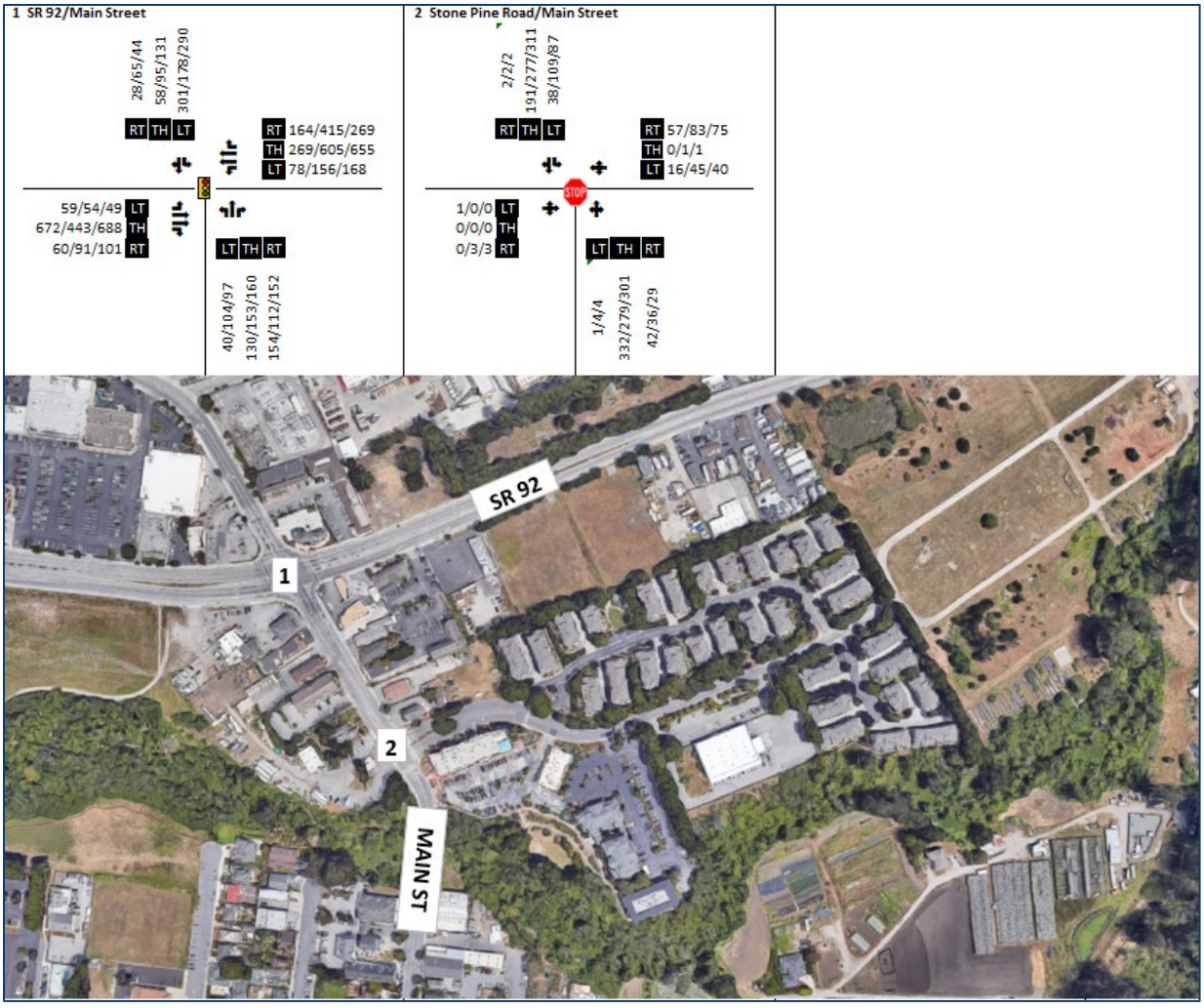

FIGURE 3: INTERSECTION GEOMETRY AND EXISTING WEEKDAY/WEEKEND VOLUMES

TABLE 2: EXISTING INTERSECTION DELAY AND LEVEL OF SERVICE

INTERSECTION	AM PEAK HOUR		PM PEAK HOUR		WEEKEND PEAK HOUR	
	DELAY	LOS	DELAY	LOS	DELAY	LOS
SR-92 & MAIN STREET	44.6	D	38.3	D	42.6	D
MAIN STREET & STONE PINE ROAD	10.8	B	11.6	B	11.5	B

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service

Source: DKS Associates, 2023.

TABLE 3: EXISTING INTERSECTION 95TH PERCENTILE QUEUE LENGTHS

INTERSECTION/ MOVEMENT	TURN BAY LENGTH (FT)	AM PEAK HOUR	PM PEAK HOUR	WEEKEND PEAK HOUR
		QUEUE (FT)	QUEUE (FT)	QUEUE (FT)
SR-92 & MAIN STREET				
EBL	110	**116**	103	96
EBR		24	42	46
WBL	430	140	230	245
WBR	100	49	**245**	**167**
NBL	100	74	**162**	**146**
NBR		62	59	64
SBL	340	**417**	238	**388**
SBT/R		111	197	222
MAIN STREET & STONE PINE ROAD				
NBL/T/R		73	65	63
EBL/T/R		0	0	0
SBL	100	5	18	13
SBT/R		30	58	63
WBL/T/R		10	20	15

Note: Lengths shown in **bold** exceed storage.

Source: DKS Associates, 2023.

EXISTING ACTIVE TRANSPORTATION AND TRANSIT

PEDESTRIAN FACILITIES

Pedestrian facilities in the study area include sidewalks, crosswalks, pedestrian signal phases, curb ramps, and various streetscape amenities such as lighting and benches. A network of sidewalks, crosswalks, pedestrian signals and curb ramps provides access for pedestrians in the project vicinity, primarily along Main Street.

State Route 92 (SR-92). A continuous sidewalk is provided along the north side of SR-92 between Main Street and SR-1, and along the south side of SR-92 approximately 330 ft west of Main Street. Crosswalks are provided at nearby signalized intersections.

Main Street. Sidewalks are provided along both sides of Main Street with curb ramps and overhead lighting at intersections between SR-92 and Half Moon Bay's downtown. Crosswalks are also provided at the Main Street intersections with SR-92 and Stone Pine Road.

Stone Pine Road. Sidewalks are provided along the southern side of Stone Pine Road between Main Street and the western edge of the property. Crosswalks are provided at Main Street and Patrick Way. The ramp on the north side of crosswalk at Stone Pine Road and Patrick Way is not built to current design standards.

BICYCLE FACILITIES

Within the vicinity of the project area, there are on-street bike lanes (Class II facilities) on Main Street north of the SR-92 intersection, but no facilities south of the intersection. There are no bike facilities on Stone Pine Road or SR-92. The proposed project does not provide direct access to the bicycle network, but is within 0.5 mile of the Naomi Partridge Trail, a Class I shared use path which travels north-south adjacent to Highway 1 within Half Moon Bay. This path could be accessed by travelling north via Main Street. The existing bicycle network is illustrated in **Figure 4** and the complete bicycle map may be found in **Appendix, Section 4**.

TRANSIT FACILITIES

SamTrans provides multiple fixed-route bus services in the City of Half Moon Bay. Routes 117 and 294 operate daily and Route 18 operates only on school days. All three routes have stops in Half Moon Bay primarily along SR-1, Main Street, and SR-92.

Route 117 (Linda Mar Park & Ride - Moonridge Apartments) operates daily between Linda Mar Park-and-Ride in Pacifica and Miramontes Point Road along SR-1 in Half Moon Bay, with limited service to the town of Pescadero. Service is provided from 5 a.m. to 9 p.m. on weekdays and 5 a.m. and 8 p.m. on weekends. Headways are approximately 1 hour on both weekends and weekdays.

Route 18 operates on school days only and provides service between the town of Montara and the Moonridge Apartments in Half Moon Bay via SR-1 and Main Street. During the mornings, the northbound service departs from the Moonridge Apartments at 7:27 a.m. and 8:06 a.m. while the southbound service departs from Montara at 7:28 a.m., 7:29 a.m. In the afternoons, the northbound service departs at 3:03 p.m., 4:03 p.m. and 4:34 p.m. while the southbound service departs at 2:37 p.m., 3:37 p.m. and 4:18 p.m.

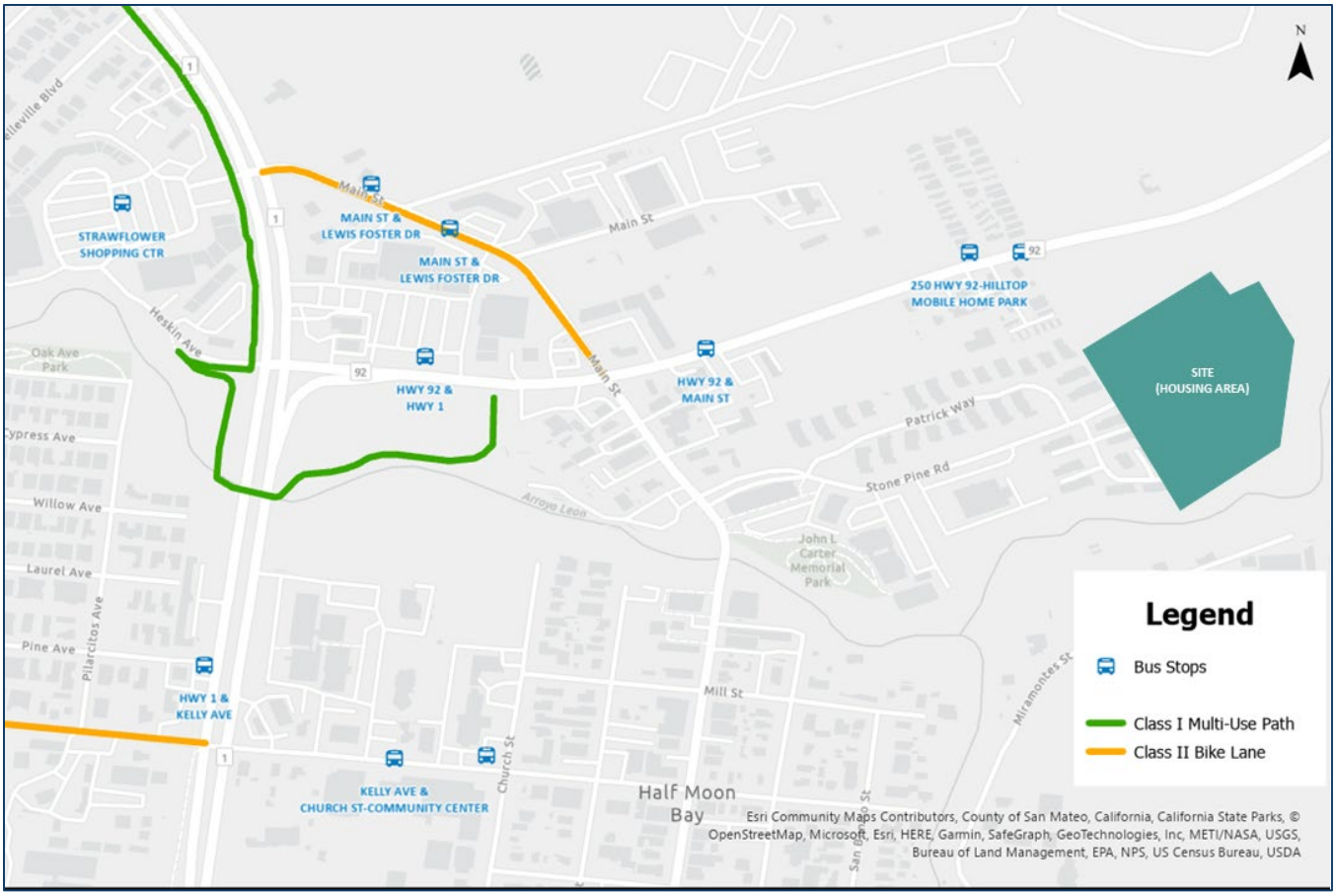

FIGURE 4: EXISTING BICYCLE, AND TRANSIT FACILITIES

Route 294 operates daily from approximately 5:00 a.m. to 9:00 p.m., with headways ranging from one to two hours. Route 294 connects Half Moon Bay with the San Mateo Medical Center with stops along Main Street and SR-92. The existing bus stops near the study site are illustrated in **Figure 4**.

SPEED ANALYSIS AND TRAFFIC CALMING ON STONE PINE ROAD

Vehicle speed data was collected along Stone Pine Road, east and west of Patrick Way. Twenty-four-hour tube counts were conducted on two midweek days (Wednesday and Thursday) as well as the weekend (Saturday) at the locations illustrated in **Figure 5**. As previously mentioned, the vehicle speed data observed on May 17, 2023, was collected east of Patrick Way while the vehicle speed data observed on June 1 and June 3, 2023, was collected west of Patrick Way near the crosswalk east of Main Street. See the **Appendix, Section 5** for a full summary of the collected speed data.

The midweek twenty-four-hour tube counts recorded 3,700 vehicles west of Patrick Way on Stone Pine Road, and 1,400 vehicles east of Patrick Way. Peak hour volumes west of Patrick Way were 350 vehicles at 1:00 p.m., and 167 vehicles at 3:00 p.m. east of Patrick Way. The weekend twenty-four hour tube counts recorded 2,900 vehicles west of Patrick Way on Stone Pine Road,

with the peak hour volume of 305 vehicles recorded at 11:00 a.m. Traffic volume hourly trends on Stone Pine Road west of Patrick Way on collected on weekday and weekday dates are illustrated in **Figure 6**. The count data sheets are provided in the **Appendix, Section 5**.



FIGURE 5: SPEED STUDY LOCATIONS

Results of the vehicle speed data study are summarized in **Table 4**. Comparing the average and 85th percentile observed speeds to the posted speed limit of 25 mph, excessive speeding was not common on either data collection date on Stone Pine Road.

TABLE 4: SPEED DATA (MAY 17, 2023 AND JUNE 1, 2023)

LOCATION	SPEED DATA (MPH)				
	COLLECTION DATE	DAY OF WEEK	POSTED SPEED	AVERAGE SPEED	85TH PERCENTILE SPEED
1. STONE PINE ROAD EAST OF PATRICK WAY	May 17, 2023	Wednesday	25	19	23
2. STONE PINE ROAD WEST OF PATRICK WAY	June 1, 2023	Thursday	25	19	24

Source: DKS Associates, 2023

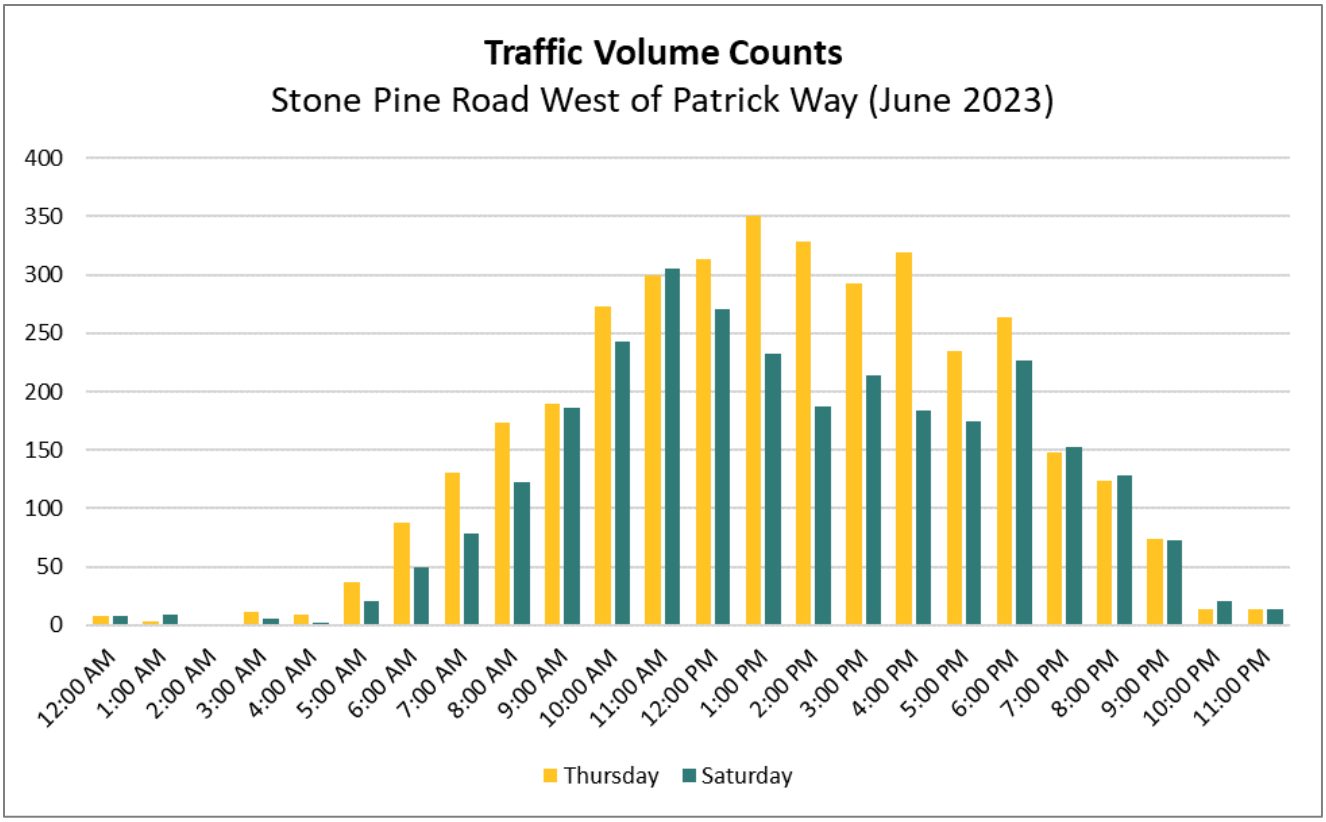

FIGURE 6: TRAFFIC VOLUME PATTERNS ON STONE PINE ROAD WEST OF PATRICK WAY

PROJECT TRAVEL CHARACTERISTICS

PROJECT TRIP GENERATION

Anticipated trip generation for the proposed project was estimated using the average rate published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual, 11th Edition for* "Mobile Home Park" (ITE LU #240).

The resulting expected trip generation potential for the proposed project is indicated in **Table 5**. The project is expected to generate an average of 356 trips per day, including 26 trips during the weekday morning peak hour, 43 trips during the weekday afternoon peak hour and 32 trips on the weekend midday peak hour.

The trip generation analysis accounted for the trips associated with the corporation yard that is currently under construction. Based on discussions with City staff, there are seven employees who typically arrive at the project site before the morning peak hour and depart in city-owned vehicles during the morning peak hour. Then, employees typically return during the afternoon peak hour to retrieve their personal vehicles. These trips have been added to the project-generated traffic by adding seven outbound trips to the morning peak hour, and seven inbound and outbound (14 total) during the afternoon peak hour.

TABLE 5: VEHICLE TRIP GENERATION
ITE CODE 240, MOBILE HOME PARK

TRIP TYPE AND RATE PER DWELLING UNIT	TRIPS ENTERING	TRIPS EXITING	TOTAL TRIPS
DAILY TRIPS (RATE)	178	178	356 [a]
AM PEAK HOUR (RATE)	4	22	26
PM PEAK HOUR (RATE)	25	18	43
WEEKEND PEAK HOUR (RATE)	17	15	32

Source: Institute of Transportation Engineers Trip Generation, 11th edition (itetripgen.org)

TRIP DISTRIBUTION

Project trip distribution for peak hours was based on existing travel patterns identified through the turning movement counts. Weekday peak hour distribution is illustrated in **Figure 7** and **Figure 8**.

EXISTING PLUS PROJECT CONDITIONS

Existing plus project condition intersection analysis results are summarized in this section with analysis details in the **Appendix, Section 6**. Project trips, as shown in **Figure 9**, were developed from the site trip generation and the trip distribution described in the previous section. Existing plus project traffic volumes are shown in **Figure 10**. Traffic operations under the existing plus project condition are summarized in **Table 5**. Consistent with the existing conditions, both study intersections will continue to operate acceptably during the weekday and weekend peak hours.

The queuing analysis summarized in **Table 6**, is also generally consistent with the existing conditions. The only movement where an increase in queue length was seen was the northbound left turn movement at SR-92 and Main Street, which increases by about three feet in both the weekday afternoon and the weekend midday peak hours.

With the development of the project, there is no change in the number of vehicles that would exceed available storage lengths compared to existing conditions for all peak hours. Therefore, the queuing impact of the proposed development is expected to be minimal.

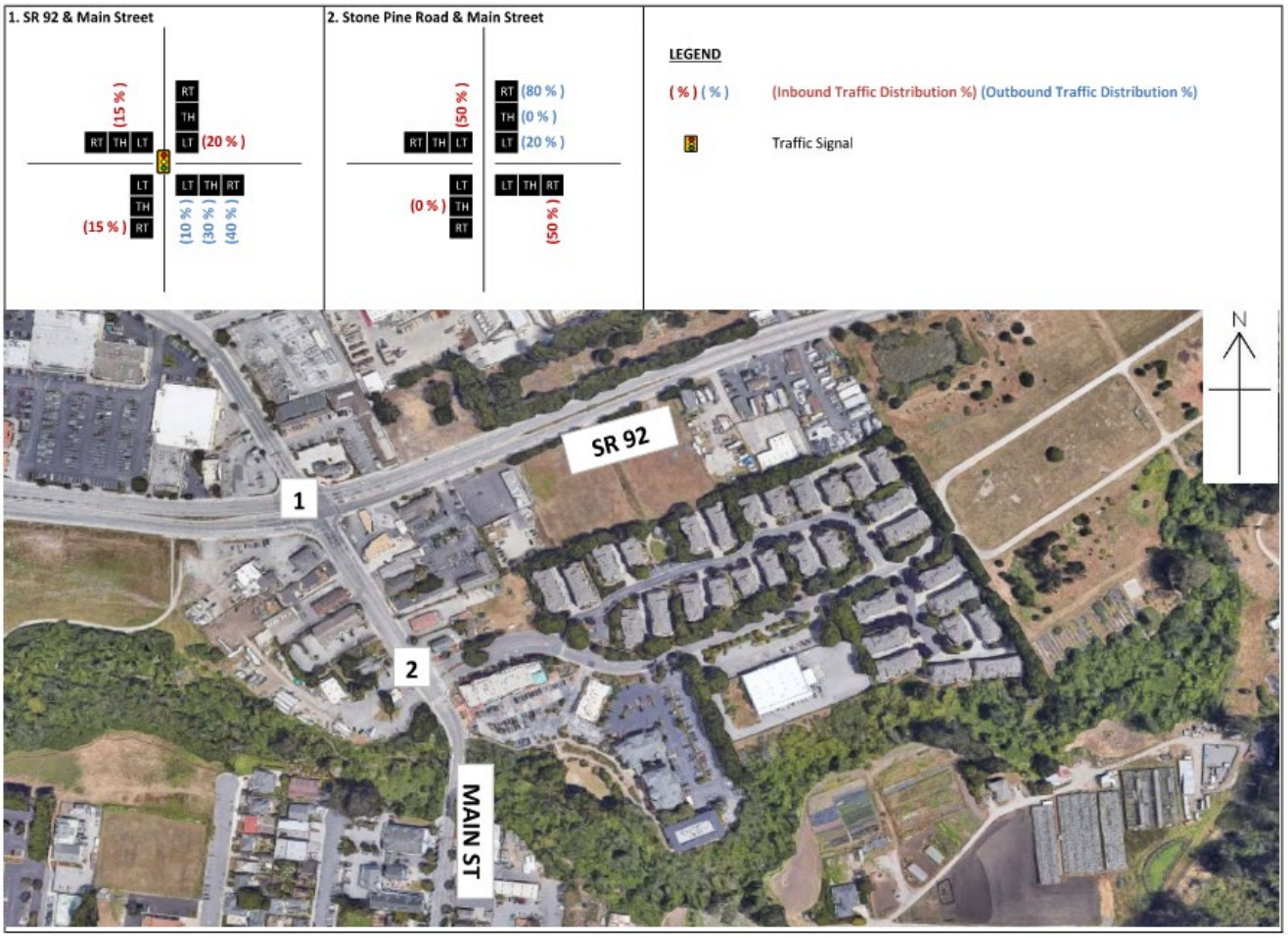

FIGURE 7: PROJECT A.M. TRIP DISTRIBUTION

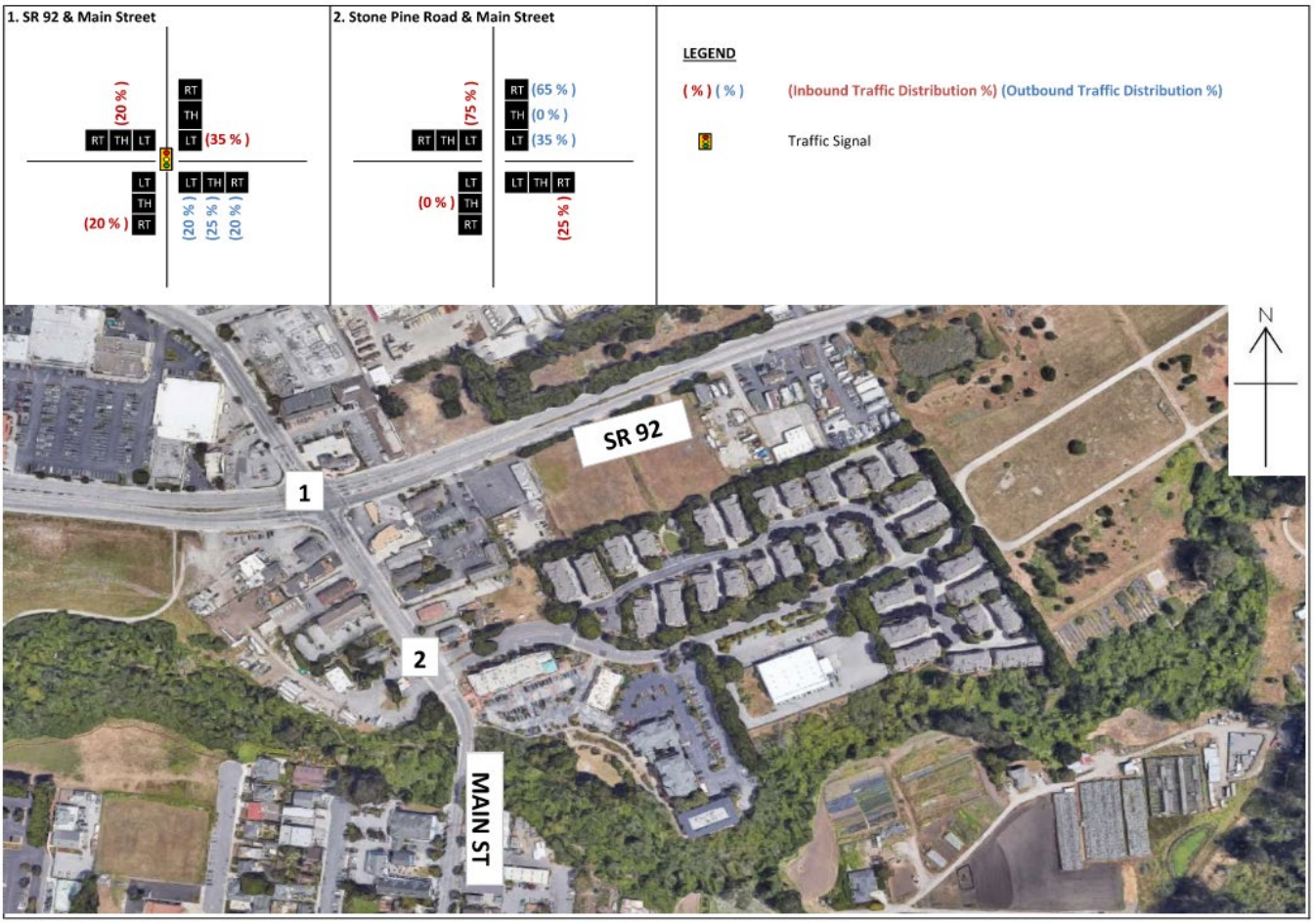

FIGURE 8: PROJECT P.M. TRIP DISTRIBUTION



FIGURE 9: PROJECT SITE TRIP VOLUMES

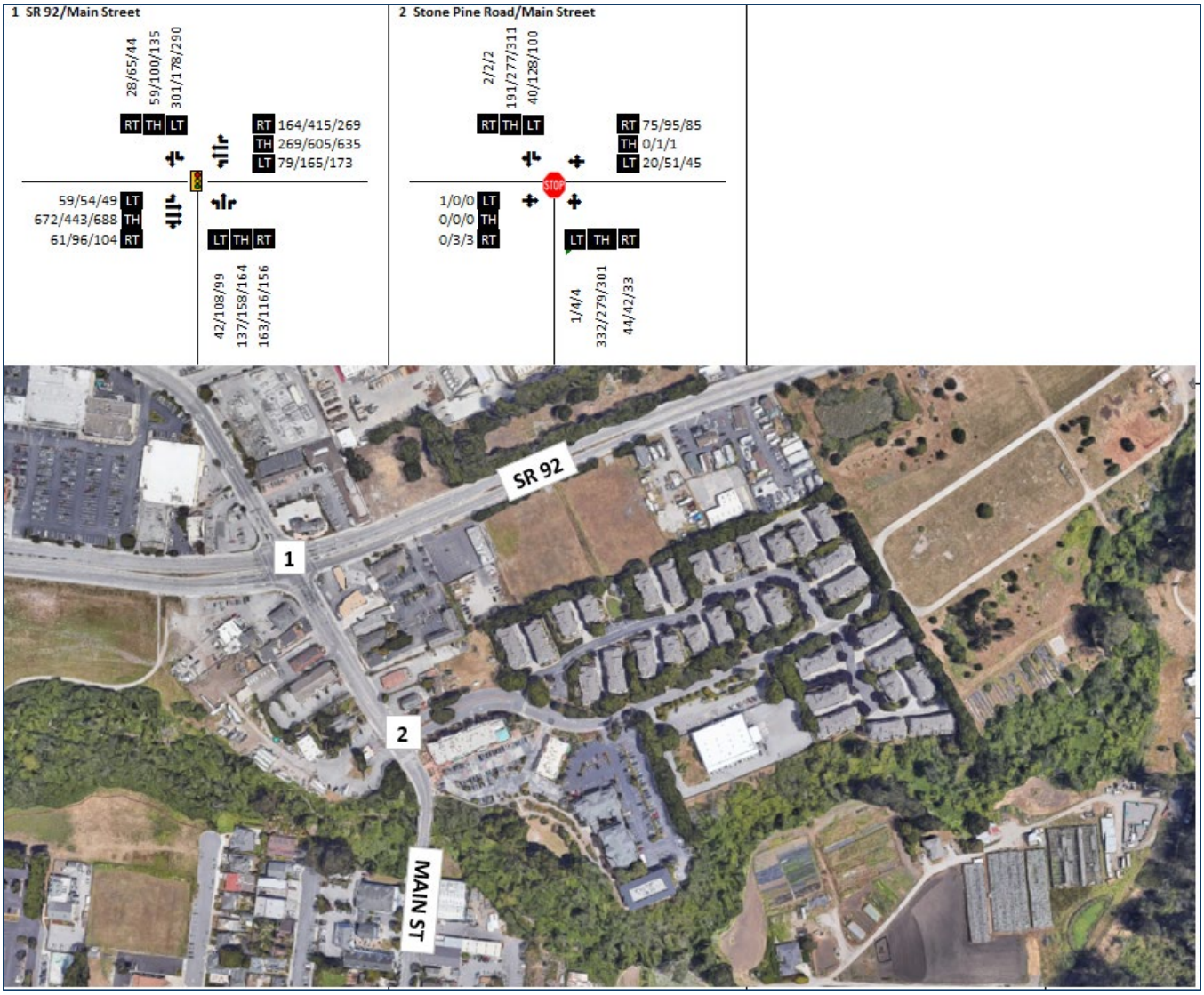

FIGURE 10: EXISTING PLUS PROJECT TRAFFIC VOLUMES

TABLE 5: INTERSECTION OPERATING CONDITIONS WITH PROJECT

INTERSECTION	AM PEAK HOUR		PM PEAK HOUR		WEEKEND PEAK HOUR	
	DELAY (SECONDS)	LOS	DELAY (SECONDS)	LOS	DELAY (SECONDS)	LOS
1. SR-92 & MAIN STREET	45.1	D	38.9	D	42.9	D
2. MAIN STREET & STONE PINE ROAD	11.0	B	11.8	B	11.7	B

Source: DKS Associates, 2023

TABLE 6: INTERSECTION OPERATING CONDITIONS WITH PROJECT - 95TH PERCENTILE QUEUE LENGTHS

INTERSECTION/ MOVEMENT	TURN BAY LENGTH (FT)	AM PEAK HOUR	PM PEAK HOUR	WEEKEND PEAK HOUR
		QUEUE (FT)	QUEUE (FT)	QUEUE (FT)
SR-92 & MAIN STREET				
EBL	110	**116**	103	96
EBR		25	44	47
WBL	430	140	241	251
WBR	100	49	**246**	**167**
NBL	100	78	**167**	**149**
NBR		64	59	64
SBL	340	**417**	238	**388**
SBT/R		113	204	228
MAIN STREET & STONE PINE ROAD				
NBL/T/R		75	70	65
EBL/T/R		0	0	0
SBL	100	5	23	15
SBT/R		30	60	63
WBL/T/R		13	25	20

Note: Lengths shown in **bold** exceed storage.

Source: DKS Associates, 2023.

SIGNAL WARRANT ANALYSIS

A preliminary traffic signal warrant analysis was performed to determine if the Main Street and Stone Pine Road intersection would meet the thresholds to warrant a traffic signal with the existing plus project traffic conditions. For this preliminary signal warrant study, data were available to examine Warrants 2, and 3 (Four-Hour Vehicular Volume, and Peak Hour) from the 2014 California Manual of Uniform Traffic Devices (CA MUTCD). Neither Warrant 2 nor Warrant 3 are met under existing plus project traffic conditions. Full details of the preliminary signal warrant study can be found in **Appendix, Section 7**.

SITE CIRCULATION AND ACCESS

As shown in the site plan, access to the proposed project would be located along the western edge of the property via Stone Pine Road. There are three driveways that serve as access points for residential housing. It is noted that the driveway closest to the direct access point on Stone Pine Road serves as an exit-only driveway.

Within the vicinity of the proposed project, sidewalks are only provided on the south side of Stone Pine Road between the western edge of the property and Main Street, providing access to the Stone Pine shopping plaza. The commercial plaza, which includes a pharmacy, a coffee shop, and restaurants, is less than a quarter mile away from the proposed project along Stone Pine Road.

Due to the low volumes entering and exiting Stone Pine Road along Main Street, the crosswalks across Stone Pine Road at Main Street and Patrick Way are adequate, as motorists are expected to come to a full-stop at the all-way stop-controlled intersection. Additionally, the average and 85th percentile speed along Stone Pine Road does not exceed the posted speed limit. There is, however, community concern regarding the crosswalk across Stone Pine Road at west Patrick Way. This crosswalk is used by most of the existing neighborhood residents to reach the shopping center and points beyond on foot. The 880 Stone Pine Road project presents an opportunity to consider traffic calming and pedestrian infrastructure improvements in the neighborhood (see Potential Traffic Calming Improvements, below).

POTENTIAL DIRECT ACCESS TO SR-92

The project site includes emergency access to SR-92 through an easement along the eastern edge of the property. The possibility of adding another driveway access point from SR-92 that directly serves the residential complex was also examined, including the option for an SR-92 driveway to replace vehicular access from Stone Pine Road. Provision of a regular access point from SR-92 would be subject to several constraints, pertaining to constructability, cost, safety, environmental considerations, and operational feasibility, all of which would negatively affect the feasibility of such an access point.

- Environmental constraints, topography, and access spacing related to adjacent site access limit the potential locations for providing an access point to the site via SR-92. The grade differential between SR-92 and the project site presents a challenge in finding a suitable location for a

driveway that would not require significant grading, which restricts possible driveway locations. The slope or grade of a driveway has a direct impact on maneuverability, as driveways with steep slopes can cause vehicles to scrape their undercarriages, necessitating a slow speed transition. The maximum recommended slope for a driveway on a major arterial is 6 percent[2]. Potential driveway locations are constrained by on-site environmental conditions, such as the pond located on the western edge of the project site, as well as the existing Frog Corridor. The Frog Corridor, in the context of the California Environmental Quality Act (CEQA), refers to a designated area or habitat crucial for the conservation and protection of frogs and other amphibians. The potential impact of a driveway on these corridors would need careful evaluation and mitigation, which limits how far west along the project frontage an additional driveway can be located.

- The existing driveways located adjacent to the eastern project frontage also impose a constraint on potential driveway locations. Appropriate distances between driveways along SR-92 should be maintained for the safety of both the mainline and drivers entering and exiting the access points. Sufficient access spacing is necessary to ensure proper separation between crossing, stopping, and turning movements, avoiding overlaps that could create conflict points, and the addition of new driveways without adequate spacing increases the potential for conflicts and collisions.
- A full-movement unsignalized site access on SR-92 is not advisable due to the number of additional conflicts points it would create on a state highway facility. Conflict points refer to locations where the travel paths of different vehicles may legally cross.
- If full-movement access on SR-92 were to be provided, signalization would be the preferred control measure from a safety perspective. However, it would not be preferable from an operational standpoint. A full signal with proper geometric upgrades including right-turn tapers and left-turn pockets would require additional right-of-way acquisition and earthwork in addition to geometric upgrades and signal installation due to the terrain adjacent to SR-92. While a signalized access with proper left-turn storage lanes and suitable pedestrian-cycling crossing treatments could offer a safer option for full-movement site access, the associated costs and operational considerations make signalization prohibitive for the project.
- In addition to the geometric upgrades that would be required, signalization of a full movement access on SR-92 is generally not supported from an operations standpoint as it would negatively impact traffic flow and operations due to increased congestion and delays caused by the introduction of signal cycles, as well as its spacing from other existing signals. Signalization would resolve issues for this development; however, it would cause impacts to the rest of the travelling public on SR-92.
- A restricted movement access, such as right-in, right-out only, would be a safer alternative to an unsignalized full-movement access as this would reduce the complexity of driving conditions and minimize conflicts between through vehicles and turning vehicles. However, this would not efficiently serve the needs of the project traffic.
- The implementation of any additional signalization on SR-92 would require multijurisdictional coordination involving local, regional, and state agencies. Caltrans, which is responsible for enhancing and maintaining the State Highway System, aims to minimize the number of

[2] Transportation Research Board Access Management Manual, 2nd Edition

connection points on freeways and expressways to protect access control rights. Introducing a new driveway on SR-92 does not align with the general objectives of access management and would necessitate coordination among various agencies. This coordination process would lead to delays and complications for the project.

VEHICLE MILES TRAVELED

The California Environmental Quality Act (CEQA) Guidelines Section 15064.3 states that a project's potential effects on VMT must be examined. The proposed project is intended to allow agricultural workers of modest income to live relatively near to their workplaces rather than potentially commuting into Half Moon Bay from greater distances. The proposed project is located within the City's Town Center area and within walking distance of retail and service opportunities, which will also tend to reduce VMT.

In addition, this agricultural worker housing project was analyzed as part of the City's currently ongoing Housing Element update. In aggregate, the planned additional housing units, including those in this project, result in a Year 2040 citywide VMT per capita that is lower than 85% of the baseline VMT per capita in the Coastside region. Although a threshold of significance has not been formally adopted, the Housing Element analysis supports the proposition that the project will have less than significant VMT impacts.

POTENTIAL TRAFFIC CALMING IMPROVEMENTS

Although speeds are not typically high on Stone Pine Road, there is community concern, especially around the Patrick Way crosswalk. The addition of the 880 Stone Pine Road project is an opportunity to implement traffic calming options for the neighborhood such as rectangular rapid flashing beacons (RRFB), raised crosswalks, speed cushions, and chicanes. The project civil engineer, BKF Engineers, along with DKS and city staff have jointly prepared a recommended program of traffic calming and active transportation infrastructure improvements that can be considered for implementation in concert with the proposed project. This program of improvements will help manage the additional vehicle traffic associated with the project while providing improved pedestrian access in the neighborhood.

A wide variety of potential improvements were reviewed by the project team. The package of improvements recommended for immediate implementation alongside the project includes those improvements that are both feasible and will have the greatest impact. Additional improvements may be considered in the future if traffic conditions remain a neighborhood concern and as funding becomes available.

The recommended improvements include:

- Addition of a crosswalk sign with a Rectangular Rapid Flashing Beacon (RRFB) at the west Patrick Way crosswalk.

- Edge line striping and sharrows (bicycle route pavement markers) on Stone Pine Road between the project driveway and the west Patrick Way crosswalk.
- Vegetation trimming at the west Patrick Way crosswalk to improve sight lines.
- Speed feedback messaging signs on Stone Pine Road midway between the east and west Patrick Way intersections (one in eastbound and one in westbound direction); and
- A crosswalk, new ADA-compliant ramps, and landings at the east Patrick Way intersection with Stone Pine Road.

This program of improvements is estimated to cost $225,000. Planning level cost estimates and a conceptual diagram may be found in the **Appendix, Section 8**.

SUMMARY OF FINDINGS

This transportation impact assessment assessed the potential traffic and circulation effects associated with the proposed project. Key findings are summarized below.

- Under existing conditions both study intersections operate acceptably during the weekday morning, weekday afternoon and weekend midday peak hours based on established performance thresholds.
- Under existing conditions, all intersections are operating at LOS D or better during both weekday and weekend peak hours. The SR-92 and Main Street intersection is operating at LOS D in the weekday morning peak hour, and LOS D in the weekday afternoon peak hour.
- The project site is served by adequate pedestrian, cycling and transit facilities. Sidewalks connect the project site to key destinations in the area such as the Stone Pine shopping center and bus stops, and pedestrian crossing treatments are provided at both study intersections.
- Vehicle speed data collected on Stone Pine Road did not indicate that high vehicle travel speeds are common at the locations surveyed.
- With the addition of site-generated traffic, both study intersections are expected to continue to operate at acceptable levels of service. Significant increases in queuing are not expected at the study intersections with the addition of site-generated traffic.
- A preliminary traffic signal warrant analysis did not indicate that a traffic signal was warranted at the Main Street and Stone Pine Road intersection.
- While the proposed site already includes emergency access to SR-92 through an easement along the eastern edge of the property, the possibility of adding another driveway access point that directly serves the residential complex was also examined. This option is not recommended due to significant challenges related to constructability, cost, safety, environmental considerations, and operational feasibility.
- The project is expected to have less than significant VMT impacts.
- Although high vehicles travel speeds are not common on Stone Pine Road, traffic calming measures and pedestrian improvements are recommended to address neighborhood concerns about increased vehicular traffic and to improve the pedestrian experience.

APPENDIX

DKS

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CONTENTS

SECTION 1. INTERSECTION TURNING MOVEMENT COUNT DATA SHEETS

SECTION 2. EXISTING CONDITIONS OPERATIONAL ANALYSIS REPORTS

SECTION 3. SIGNAL TIMING SHEETS

SECTION 4. BICYCLE NETWORK

SECTION 5. DAILY TRAFFIC AND SPEED DATA COLLECTION ON STONE PINE ROAD

SECTION 6: EXISTING + PROJECT OPERATIONAL ANALYSIS RESULTS

SECTION 7. SIGNAL WARRANT RESULTS

SECTION 8. TRAFFIC CALMING AND PEDESTRIAN INFRASTRUCTURE IMPROVEMENTS

SECTION 1. INTERSECTION TURNING MOVEMENT COUNT DATA SHEETS

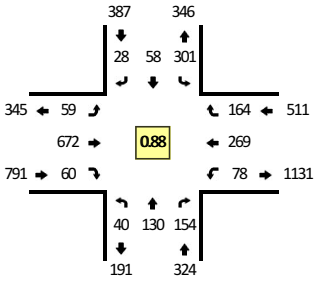
Type of peak hour being reported: Intersection Peak

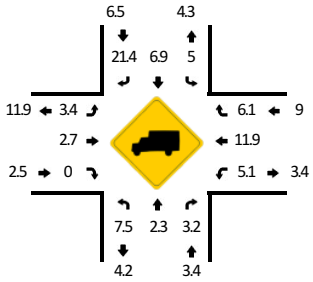
Method for determining peak hour: Total Entering Volume

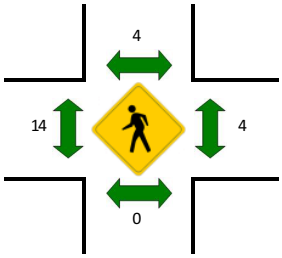
LOCATION: Main St -- San Mateo Rd
CITY/STATE: Half Moon Bay, CA

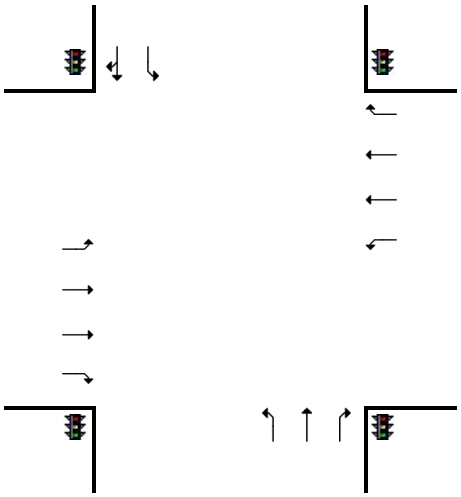
QC JOB #: 16189901
DATE: Wed, May 17 2023

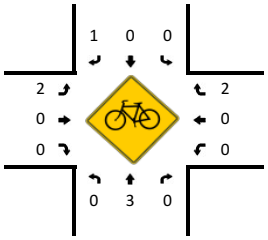
Peak-Hour: 7:20 AM -- 8:20 AM
Peak 15-Min: 7:25 AM -- 7:40 AM

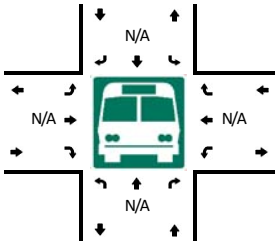


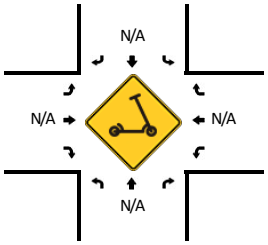












5-Min Count Period Beginning At	Main St (Northbound)				Main St (Southbound)				San Mateo Rd (Eastbound)				San Mateo Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	3	8	0	35	3	0	0	0	40	7	1	1	16	16	0	132	
7:05 AM	3	4	7	0	34	12	2	0	1	67	3	2	1	9	10	0	155	
7:10 AM	4	4	9	0	34	6	2	0	0	41	4	1	3	15	10	0	133	
7:15 AM	2	3	12	0	40	2	4	0	3	42	3	0	7	18	18	2	156	
7:20 AM	4	4	8	0	31	5	1	0	0	57	8	1	2	24	11	0	156	
7:25 AM	3	6	13	0	40	6	3	0	0	75	5	1	4	23	12	0	191	
7:30 AM	3	2	16	0	33	4	1	0	0	81	3	1	12	23	16	1	196	
7:35 AM	1	7	7	0	43	6	1	0	1	73	5	0	10	17	16	1	188	
7:40 AM	2	8	17	0	31	4	2	0	2	41	4	0	1	27	19	1	159	
7:45 AM	2	8	6	0	21	6	2	0	3	46	7	0	7	21	10	0	139	
7:50 AM	8	11	11	0	21	8	2	0	4	51	6	3	7	35	25	0	192	
7:55 AM	5	14	11	0	25	4	3	0	4	41	4	0	6	12	12	0	141	1938
8:00 AM	2	12	13	0	16	5	3	0	9	39	6	2	9	41	11	0	168	1974
8:05 AM	3	21	14	0	13	5	1	0	7	48	5	0	4	19	10	0	150	1969
8:10 AM	3	23	26	0	15	4	3	0	15	46	1	0	10	9	13	1	169	2005
8:15 AM	4	14	12	0	11	1	6	1	6	74	6	0	1	18	9	1	164	2013
8:20 AM	3	24	6	0	16	4	8	1	5	52	5	0	3	12	13	0	152	2009
8:25 AM	9	10	11	0	14	5	6	0	2	54	8	1	6	22	11	0	159	1977
8:30 AM	8	14	8	0	17	14	3	0	4	20	7	0	11	24	21	0	151	1932
8:35 AM	1	11	10	0	11	14	5	0	9	49	6	0	6	17	9	0	148	1892
8:40 AM	2	9	9	0	15	4	5	0	4	15	12	0	11	9	7	0	102	1835
8:45 AM	8	20	11	0	15	12	3	0	3	38	10	1	9	13	13	0	156	1852
8:50 AM	3	9	10	0	6	10	4	0	5	28	17	0	6	15	5	0	118	1778
8:55 AM	2	9	3	0	7	11	1	0	3	21	13	3	1	14	14	0	102	1739

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	28	60	144	0	464	64	20	0	4	916	52	8	104	252	176	8	2300
Heavy Trucks	0	4	12		16	16	0		0	16	0		4	44	12		124
Buses																	
Pedestrians		0				8				12				8			28
Bicycles	0	4	0		0	0	0		0	0	0		0	0	0		4
Scooters																	

Comments:

Report generated on 5/25/2023 3:47 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

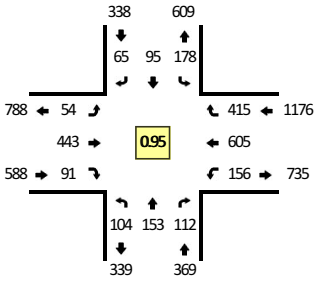
Type of peak hour being reported: Intersection Peak

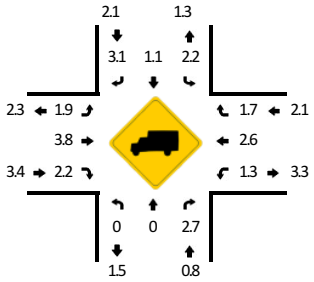
Method for determining peak hour: Total Entering Volume

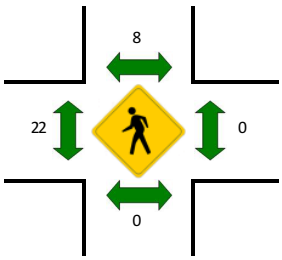
LOCATION: Main St -- San Mateo Rd
CITY/STATE: Half Moon Bay, CA

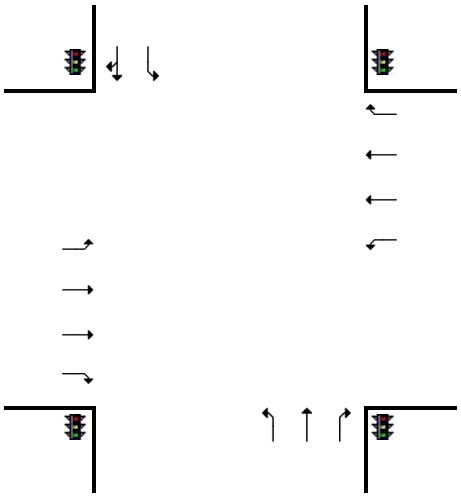
QC JOB #: 16189902
DATE: Wed, May 17 2023

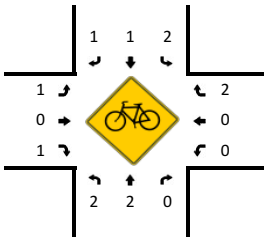
Peak-Hour: 4:10 PM -- 5:10 PM
Peak 15-Min: 4:10 PM -- 4:25 PM

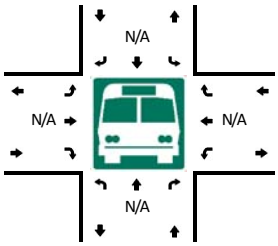


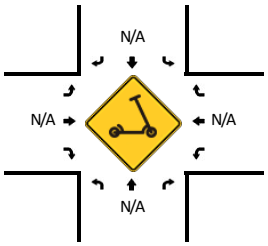












5-Min Count Period Beginning At	Main St (Northbound)				Main St (Southbound)				San Mateo Rd (Eastbound)				San Mateo Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	11	12	10	0	17	8	6	0	3	58	7	2	16	51	28	0	229	
4:05 PM	16	14	8	0	18	12	11	0	0	35	2	2	12	42	29	2	203	
4:10 PM	8	14	9	0	18	6	6	0	4	46	14	2	12	44	20	0	203	
4:15 PM	7	10	10	0	9	7	10	1	2	57	8	4	12	49	44	0	230	
4:20 PM	6	9	10	0	19	11	7	1	2	33	15	1	15	57	30	0	216	
4:25 PM	9	13	6	0	11	9	3	0	2	32	7	0	9	40	21	0	162	
4:30 PM	12	17	7	0	16	8	7	0	6	30	6	0	10	54	37	0	210	
4:35 PM	6	16	13	0	22	10	8	0	5	25	4	2	9	57	35	1	213	
4:40 PM	3	11	13	0	6	5	2	0	1	41	6	0	20	55	38	1	202	
4:45 PM	10	16	10	0	16	7	4	0	4	33	6	1	16	44	25	0	192	
4:50 PM	9	11	10	0	14	4	3	0	4	37	3	2	8	46	48	1	200	
4:55 PM	10	12	3	0	18	9	2	0	3	32	7	2	9	48	44	1	200	2460
5:00 PM	11	10	11	0	15	13	5	0	4	29	10	1	22	51	42	0	224	2455
5:05 PM	12	14	10	1	12	6	8	0	2	48	5	0	10	60	31	0	219	2471
5:10 PM	5	20	8	0	24	12	4	0	2	37	4	0	10	42	33	0	201	2469
5:15 PM	9	15	13	0	12	14	5	0	0	26	11	1	9	57	21	1	194	2433
5:20 PM	8	6	14	0	19	14	7	0	3	39	11	0	22	66	36	0	245	2462
5:25 PM	6	10	8	0	17	6	8	0	4	28	9	3	11	27	29	0	166	2466
5:30 PM	10	20	8	0	12	5	1	0	3	31	1	0	12	48	32	3	186	2442
5:35 PM	6	11	8	0	12	12	2	0	1	30	1	1	12	43	44	0	183	2412
5:40 PM	12	18	8	0	12	7	5	0	3	27	4	2	11	62	33	0	204	2414
5:45 PM	5	21	9	0	11	2	4	0	7	26	7	1	10	36	36	0	175	2397
5:50 PM	7	17	11	0	10	6	1	0	9	34	9	0	14	54	29	1	202	2399
5:55 PM	7	16	7	0	9	2	6	0	6	32	6	0	10	37	31	0	169	2368

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	84	132	116	0	184	96	92	8	32	544	148	28	156	600	376	0	2596
Heavy Trucks	0	0	0		4	0	8		0	20	0		4	24	16		76
Buses																	
Pedestrians		0				16				16				0			32
Bicycles	0	4	0		4	0	0		0	0	4		0	0	4		16
Scooters																	

Comments:

Report generated on 5/25/2023 3:47 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

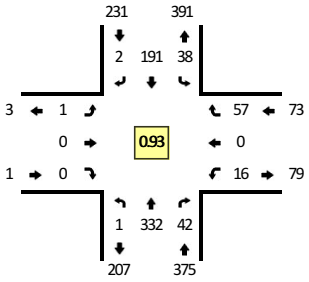
Type of peak hour being reported: Intersection Peak

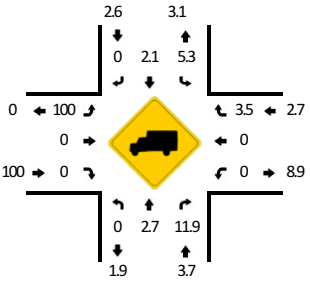
Method for determining peak hour: Total Entering Volume

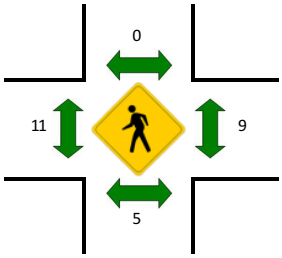
LOCATION: Main St -- Produce Shop Dwy/Stone Pine Rd
CITY/STATE: Half Moon Bay, CA

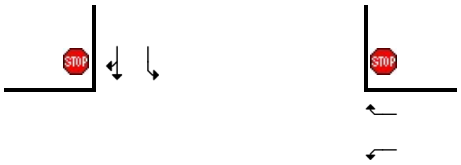
QC JOB #: 16189904
DATE: Wed, May 17 2023

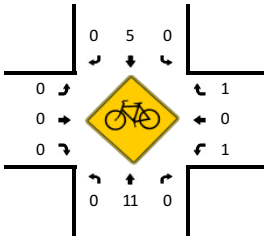
Peak-Hour: 7:50 AM -- 8:50 AM
Peak 15-Min: 8:00 AM -- 8:15 AM

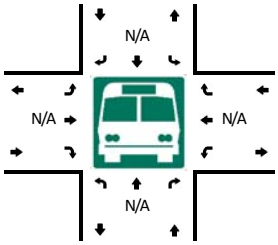




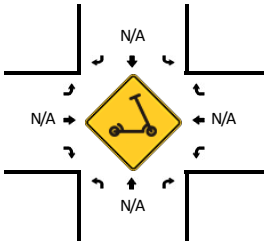












5-Min Count Period Beginning At	Main St (Northbound)				Main St (Southbound)				Produce Shop Dwy/Stone Pine Rd (Eastbound)				Produce Shop Dwy/Stone Pine Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	8	3	0	7	3	0	0	0	0	0	0	3	0	7	0	31	
7:05 AM	0	11	1	0	5	8	0	1	0	0	0	0	1	0	2	0	29	
7:10 AM	0	13	0	0	4	9	0	0	0	0	0	0	0	0	6	0	32	
7:15 AM	0	12	1	0	4	7	0	0	0	0	0	0	2	0	5	0	31	
7:20 AM	0	15	1	0	4	5	0	0	0	0	0	0	1	0	1	0	27	
7:25 AM	0	15	1	0	5	12	0	0	0	0	0	0	3	0	6	0	42	
7:30 AM	0	16	1	0	6	14	0	0	0	0	0	0	2	0	3	0	42	
7:35 AM	0	14	1	0	2	17	0	0	0	0	0	0	3	0	5	0	42	
7:40 AM	0	18	3	0	1	8	1	0	0	0	1	0	1	0	5	0	38	
7:45 AM	0	18	2	0	4	14	0	0	0	0	0	0	2	0	1	0	41	
7:50 AM	0	26	3	0	0	19	0	0	0	0	0	0	2	0	6	0	56	
7:55 AM	0	20	6	0	1	15	0	0	0	0	0	0	1	0	6	0	49	460
8:00 AM	0	25	1	0	6	18	0	0	0	0	0	0	0	0	5	0	55	484
8:05 AM	0	36	2	0	2	13	0	0	0	0	0	0	1	0	2	0	56	511
8:10 AM	0	54	2	0	1	9	1	0	0	0	0	0	3	0	2	0	72	551
8:15 AM	0	29	7	0	5	9	0	0	0	0	0	0	0	0	5	0	55	575
8:20 AM	0	34	3	0	1	4	0	0	0	0	0	0	1	0	5	0	48	596
8:25 AM	1	20	3	0	3	16	0	0	0	0	0	0	1	0	2	0	46	600
8:30 AM	0	28	4	0	0	26	1	0	0	0	0	0	1	0	5	0	65	623
8:35 AM	0	14	3	0	3	18	0	0	0	0	0	0	2	0	5	0	45	626
8:40 AM	0	27	5	0	8	21	0	0	1	0	0	0	1	0	5	0	68	656
8:45 AM	0	19	3	0	7	23	0	1	0	0	0	0	3	0	9	0	65	680
8:50 AM	0	14	1	0	5	23	0	1	0	0	0	0	3	0	3	0	50	674
8:55 AM	0	10	3	0	6	9	0	0	0	0	0	0	2	0	6	0	36	661

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	460	20	0	36	160	4	0	0	0	0	0	16	0	36	0	732
Heavy Trucks	0	8	0		0	4	0		0	0	0		0	0	0		12
Buses																	
Pedestrians		0				0				16				12			28
Bicycles	0	16	0		0	4	0		0	0	0		4	0	0		24
Scooters																	

Comments:

Report generated on 5/25/2023 3:47 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

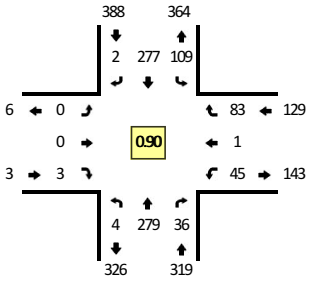
Type of peak hour being reported: Intersection Peak

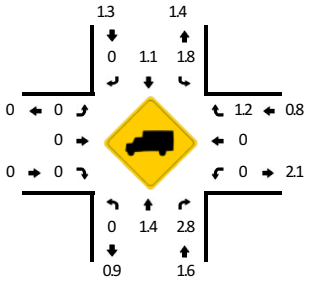
Method for determining peak hour: Total Entering Volume

LOCATION: Main St -- Produce Shop Dwy/Stone Pine Rd
CITY/STATE: Half Moon Bay, CA

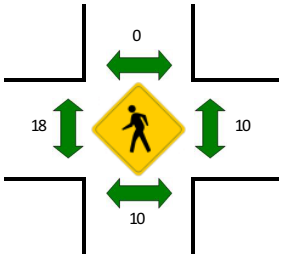
QC JOB #: 16189905
DATE: Wed, May 17 2023

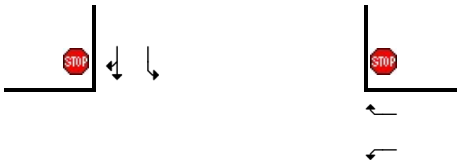
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

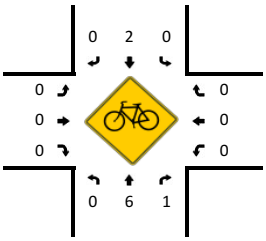


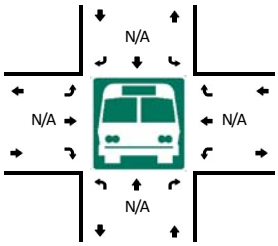


Quality Counts
DATA THAT DRIVES COMMUNITIES

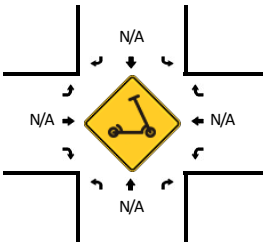












5-Min Count Period Beginning At	Main St (Northbound)				Main St (Southbound)				Produce Shop Dwy/Stone Pine Rd (Eastbound)				Produce Shop Dwy/Stone Pine Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	21	6	0	6	25	1	0	0	0	1	0	4	0	11	0	75	
4:05 PM	1	19	5	0	7	24	1	0	0	0	1	0	5	0	16	0	79	
4:10 PM	0	21	3	0	11	20	0	0	0	0	1	0	1	0	5	0	62	
4:15 PM	0	17	3	0	7	26	0	0	0	0	0	0	2	0	9	0	64	
4:20 PM	0	22	2	0	10	33	0	0	0	0	0	0	5	0	6	0	78	
4:25 PM	0	19	4	0	6	21	0	1	0	0	0	0	2	0	8	0	61	
4:30 PM	0	23	3	0	8	24	0	0	0	0	0	0	4	0	10	0	72	
4:35 PM	0	28	4	0	4	18	0	0	0	0	0	0	3	0	6	0	63	
4:40 PM	0	23	4	0	12	25	1	0	0	0	0	0	4	0	7	0	76	
4:45 PM	2	26	4	0	12	21	1	0	0	0	1	0	3	0	5	0	75	
4:50 PM	0	13	3	0	3	15	0	1	0	0	0	0	4	0	7	0	46	
4:55 PM	0	13	2	0	10	22	0	0	0	0	0	0	4	0	6	0	57	808
5:00 PM	0	26	4	0	11	26	0	0	0	0	0	0	3	0	9	0	79	812
5:05 PM	1	30	1	0	13	23	0	0	0	0	1	0	4	0	6	0	79	812
5:10 PM	0	30	3	0	6	25	0	0	0	0	0	0	5	1	4	0	74	824
5:15 PM	0	28	2	0	8	21	0	1	0	0	0	0	5	0	8	0	73	833
5:20 PM	0	20	2	1	11	33	0	0	0	0	1	0	4	0	5	0	77	832
5:25 PM	0	19	4	0	9	24	0	0	0	0	0	0	2	0	10	0	68	839
5:30 PM	0	19	7	0	5	12	0	0	0	0	0	0	5	0	9	0	57	824
5:35 PM	0	23	1	0	8	24	0	0	0	0	0	0	2	0	6	0	64	825
5:40 PM	0	22	2	0	10	18	0	1	0	0	0	0	1	0	12	0	66	815
5:45 PM	0	22	3	0	8	14	0	0	0	0	0	0	4	0	7	0	58	798
5:50 PM	0	32	5	0	7	22	0	0	0	0	0	0	3	0	7	0	76	828
5:55 PM	0	19	1	0	8	17	0	0	0	0	0	0	2	0	7	0	54	825

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	344	32	0	120	296	0	0	0	0	4	0	48	4	76	0	928
Heavy Trucks	0	12	0		4	4	0		0	0	0		0	0	0		20
Buses																	
Pedestrians		20				0				12				16			48
Bicycles	0	12	0		0	0	0		0	0	0		0	0	0		12
Scooters																	

Comments:

Report generated on 5/25/2023 3:47 PM

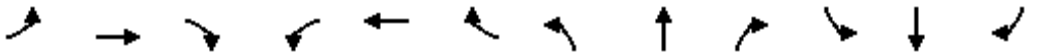
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

SECTION 2. EXISTING CONDITIONS OPERATIONAL ANALYSIS REPORTS



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	67	764	68	89	306	186	45	148	175	342	98
v/c Ratio	0.61	0.47	0.09	0.65	0.19	0.23	0.23	0.70	0.53	0.90	0.25
Control Delay	91.3	32.1	4.5	87.1	24.9	4.7	60.2	80.6	13.3	81.8	39.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	91.3	32.1	4.5	87.1	24.9	4.7	60.2	80.6	13.3	81.8	39.8
Queue Length 50th (ft)	65	266	0	86	88	0	41	143	0	325	65
Queue Length 95th (ft)	116	411	24	140	148	49	74	197	62	417	111
Internal Link Dist (ft)		800			1072			451			782
Turn Bay Length (ft)	110			430		100	100			340	
Base Capacity (vph)	130	1646	781	157	1642	804	330	348	431	439	447
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.46	0.09	0.57	0.19	0.23	0.14	0.43	0.41	0.78	0.22

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	672	60	78	269	164	40	130	154	301	58	28
Future Volume (vph)	59	672	60	78	269	164	40	130	154	301	58	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.1	5.1	3.0	5.1	5.1	4.7	4.7	4.7	4.7	4.7	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.98	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1752	3505	1568	1656	3312	1434	1752	1845	1530	1703	1688	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1752	3505	1568	1656	3312	1434	1752	1845	1530	1703	1688	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	67	764	68	89	306	186	45	148	175	342	66	32
RTOR Reduction (vph)	0	0	37	0	0	95	0	0	155	0	12	0
Lane Group Flow (vph)	67	764	31	89	306	91	45	148	20	342	86	0
Confl. Peds. (#/hr)	4					4	14		4	4		14
Confl. Bikes (#/hr)									3			
Heavy Vehicles (%)	3%	3%	3%	9%	9%	9%	3%	3%	3%	6%	6%	6%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases			6			2			4			
Actuated Green, G (s)	8.3	68.6	68.6	13.1	73.4	73.4	17.1	17.1	17.1	33.7	33.7	
Effective Green, g (s)	8.3	68.6	68.6	13.1	73.4	73.4	17.1	17.1	17.1	33.7	33.7	
Actuated g/C Ratio	0.06	0.46	0.46	0.09	0.49	0.49	0.11	0.11	0.11	0.22	0.22	
Clearance Time (s)	3.0	5.1	5.1	3.0	5.1	5.1	4.7	4.7	4.7	4.7	4.7	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.5	1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)	96	1602	717	144	1620	701	199	210	174	382	379	
v/s Ratio Prot	c0.04	c0.22		c0.05	0.09		0.03	c0.08		c0.20	0.05	
v/s Ratio Perm			0.02			0.06			0.01			
v/c Ratio	0.70	0.48	0.04	0.62	0.19	0.13	0.23	0.70	0.11	0.90	0.23	
Uniform Delay, d1	69.6	28.2	22.5	66.0	21.6	20.9	60.4	64.0	59.7	56.4	47.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	16.3	1.0	0.1	5.5	0.3	0.4	0.2	8.5	0.1	22.0	0.1	
Delay (s)	85.9	29.3	22.6	71.5	21.8	21.3	60.6	72.5	59.8	78.5	47.6	
Level of Service	F	C	C	E	C	C	E	E	E	E	D	
Approach Delay (s)		33.0			29.2			65.0			71.6	
Approach LOS		C			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	44.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	10.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	0	16	0	57	1	332	42	38	191	2
Future Vol, veh/h	1	0	0	16	0	57	1	332	42	38	191	2
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	3	3	3	3	3	3	4	4	4	3	3	3
Mvmt Flow	1	0	0	17	0	61	1	357	45	41	205	2
Number of Lanes	0	1	0	0	1	0	0	1	0	1	1	0

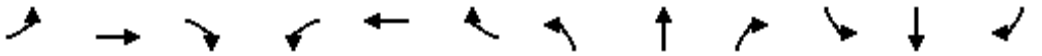
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	8.8	8.7	12	9.6
HCM LOS	A	A	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	0%	100%	22%	100%	0%
Vol Thru, %	89%	0%	0%	0%	99%
Vol Right, %	11%	0%	78%	0%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	375	1	73	38	193
LT Vol	1	1	16	38	0
Through Vol	332	0	0	0	191
RT Vol	42	0	57	0	2
Lane Flow Rate	403	1	78	41	208
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.502	0.002	0.109	0.063	0.291
Departure Headway (Hd)	4.485	5.755	4.99	5.552	5.042
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	802	619	716	645	712
Service Time	2.513	3.817	3.037	3.284	2.774
HCM Lane V/C Ratio	0.502	0.002	0.109	0.064	0.292
HCM Control Delay	12	8.8	8.7	8.7	9.8
HCM Lane LOS	B	A	A	A	A
HCM 95th-tile Q	2.9	0	0.4	0.2	1.2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	57	466	96	164	637	437	109	161	118	187	168
v/c Ratio	0.53	0.28	0.12	0.76	0.33	0.47	0.55	0.77	0.42	0.59	0.52
Control Delay	84.8	28.5	6.4	85.1	23.3	12.5	72.4	87.2	13.8	62.6	52.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.8	28.5	6.4	85.1	23.3	12.5	72.4	87.2	13.8	62.6	52.3
Queue Length 50th (ft)	55	160	0	158	206	114	103	155	0	158	122
Queue Length 95th (ft)	103	237	42	230	291	245	162	228	59	238	197
Internal Link Dist (ft)		800			1072			451			782
Turn Bay Length (ft)	110			430		100	100			340	
Base Capacity (vph)	133	1648	788	330	1916	936	337	354	393	416	420
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.28	0.12	0.50	0.33	0.47	0.32	0.45	0.30	0.45	0.40

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	443	91	156	605	415	104	153	112	178	95	65
Future Volume (vph)	54	443	91	156	605	415	104	153	112	178	95	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.1	5.1	3.0	5.1	5.1	4.7	4.7	4.7	4.7	4.7	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.96	1.00	1.00	0.98	1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1752	3505	1568	1770	3539	1513	1787	1881	1573	1770	1721	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1752	3505	1568	1770	3539	1513	1787	1881	1573	1770	1721	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	57	466	96	164	637	437	109	161	118	187	100	68
RTOR Reduction (vph)	0	0	51	0	0	118	0	0	105	0	17	0
Lane Group Flow (vph)	57	466	45	164	637	319	109	161	13	187	151	0
Confl. Peds. (#/hr)	8					8	22					22
Confl. Bikes (#/hr)									2			1
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	1%	1%	1%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases			6			2			4			
Actuated Green, G (s)	8.2	69.9	69.9	18.9	80.6	80.6	16.8	16.8	16.8	26.9	26.9	
Effective Green, g (s)	8.2	69.9	69.9	18.9	80.6	80.6	16.8	16.8	16.8	26.9	26.9	
Actuated g/C Ratio	0.05	0.47	0.47	0.13	0.54	0.54	0.11	0.11	0.11	0.18	0.18	
Clearance Time (s)	3.0	5.1	5.1	3.0	5.1	5.1	4.7	4.7	4.7	4.7	4.7	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.5	1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)	95	1633	730	223	1901	812	200	210	176	317	308	
v/s Ratio Prot	c0.03	0.13		c0.09	0.18		0.06	c0.09		c0.11	0.09	
v/s Ratio Perm			0.03			c0.21			0.01			
v/c Ratio	0.60	0.29	0.06	0.74	0.34	0.39	0.55	0.77	0.08	0.59	0.49	
Uniform Delay, d1	69.3	24.7	22.0	63.1	19.6	20.4	63.0	64.7	59.6	56.5	55.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	6.6	0.4	0.2	10.3	0.5	1.4	1.6	13.9	0.1	1.8	0.4	
Delay (s)	75.9	25.1	22.2	73.5	20.1	21.8	64.6	78.6	59.7	58.3	55.8	
Level of Service	E	C	C	E	C	C	E	E	E	E	E	
Approach Delay (s)		29.3			27.7			68.9			57.1	
Approach LOS		C			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	38.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	11.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	3	45	1	83	4	279	36	109	277	2
Future Vol, veh/h	0	0	3	45	1	83	4	279	36	109	277	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	0	0	1	1	1	2	2	2	1	1	1
Mvmt Flow	0	0	3	50	1	92	4	310	40	121	308	2
Number of Lanes	0	1	0	0	1	0	0	1	0	1	1	0

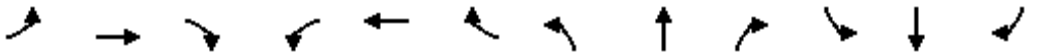
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	8.5	9.9	12.3	11.6
HCM LOS	A	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	1%	0%	35%	100%	0%
Vol Thru, %	87%	0%	1%	0%	99%
Vol Right, %	11%	100%	64%	0%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	319	3	129	109	279
LT Vol	4	0	45	109	0
Through Vol	279	0	1	0	277
RT Vol	36	3	83	0	2
Lane Flow Rate	354	3	143	121	310
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.477	0.005	0.213	0.192	0.448
Departure Headway (Hd)	4.84	5.444	5.346	5.712	5.203
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	737	661	665	624	688
Service Time	2.908	3.444	3.429	3.484	2.974
HCM Lane V/C Ratio	0.48	0.005	0.215	0.194	0.451
HCM Control Delay	12.3	8.5	9.9	9.9	12.2
HCM Lane LOS	B	A	A	A	B
HCM 95th-tile Q	2.6	0	0.8	0.7	2.3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	51	717	105	175	682	280	101	167	158	302	182
v/c Ratio	0.51	0.49	0.15	0.74	0.38	0.33	0.43	0.68	0.46	0.85	0.49
Control Delay	85.7	37.0	7.0	80.1	26.9	13.6	63.8	75.0	11.8	78.2	53.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.7	37.0	7.0	80.1	26.9	13.6	63.8	75.0	11.8	78.2	53.5
Queue Length 50th (ft)	49	278	0	166	224	71	94	161	0	276	144
Queue Length 95th (ft)	96	402	46	245	326	167	146	226	64	388	222
Internal Link Dist (ft)		800			1072			451			782
Turn Bay Length (ft)	110			430		100	100			340	
Base Capacity (vph)	130	1529	744	245	1782	846	333	351	420	416	427
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.47	0.14	0.71	0.38	0.33	0.30	0.48	0.38	0.73	0.43

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	688	101	168	655	269	97	160	152	290	131	44
Future Volume (vph)	49	688	101	168	655	269	97	160	152	290	131	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.1	5.1	3.0	5.1	5.1	4.7	4.7	4.7	4.7	4.7	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.98	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1532	1770	1863	1546	1770	1779	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1532	1770	1863	1546	1770	1779	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	51	717	105	175	682	280	101	167	158	302	136	46
RTOR Reduction (vph)	0	0	62	0	0	76	0	0	137	0	9	0
Lane Group Flow (vph)	51	717	43	175	682	204	101	167	21	302	173	0
Confl. Peds. (#/hr)	4					4	14		4	4		14
Confl. Bikes (#/hr)									3			
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases			6			2			4			
Actuated Green, G (s)	7.5	61.6	61.6	20.8	74.9	74.9	19.8	19.8	19.8	30.3	30.3	
Effective Green, g (s)	7.5	61.6	61.6	20.8	74.9	74.9	19.8	19.8	19.8	30.3	30.3	
Actuated g/C Ratio	0.05	0.41	0.41	0.14	0.50	0.50	0.13	0.13	0.13	0.20	0.20	
Clearance Time (s)	3.0	5.1	5.1	3.0	5.1	5.1	4.7	4.7	4.7	4.7	4.7	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.5	1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)	88	1453	650	245	1767	764	233	245	204	357	359	
v/s Ratio Prot	c0.03	c0.20		c0.10	0.19		0.06	c0.09		c0.17	0.10	
v/s Ratio Perm			0.03			0.13			0.01			
v/c Ratio	0.58	0.49	0.07	0.71	0.39	0.27	0.43	0.68	0.10	0.85	0.48	
Uniform Delay, d1	69.7	32.7	26.8	61.8	23.3	21.7	59.9	62.1	57.3	57.6	52.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.6	1.2	0.2	8.0	0.6	0.9	0.5	6.1	0.1	16.0	0.4	
Delay (s)	75.3	33.9	27.0	69.7	23.9	22.5	60.4	68.2	57.4	73.6	53.3	
Level of Service	E	C	C	E	C	C	E	E	E	E	D	
Approach Delay (s)		35.5			30.6			62.3			66.0	
Approach LOS		D			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	42.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	11.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	3	40	1	75	4	301	29	87	311	2
Future Vol, veh/h	0	0	3	40	1	75	4	301	29	87	311	2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	3	42	1	78	4	314	30	91	324	2
Number of Lanes	0	1	0	0	1	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	8.4	9.6	11.9	11.7
HCM LOS	A	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	1%	0%	34%	100%	0%
Vol Thru, %	90%	0%	1%	0%	99%
Vol Right, %	9%	100%	65%	0%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	334	3	116	87	313
LT Vol	4	0	40	87	0
Through Vol	301	0	1	0	311
RT Vol	29	3	75	0	2
Lane Flow Rate	348	3	121	91	326
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.462	0.005	0.179	0.142	0.466
Departure Headway (Hd)	4.78	5.379	5.324	5.652	5.144
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	748	669	668	632	698
Service Time	2.837	3.379	3.4	3.412	2.903
HCM Lane V/C Ratio	0.465	0.004	0.181	0.144	0.467
HCM Control Delay	11.9	8.4	9.6	9.4	12.4
HCM Lane LOS	B	A	A	A	B
HCM 95th-tile Q	2.5	0	0.6	0.5	2.5

SECTION 3. SIGNAL TIMING SHEETS

Location: N. MAIN STREET & RTE 92 | **Designed By:**

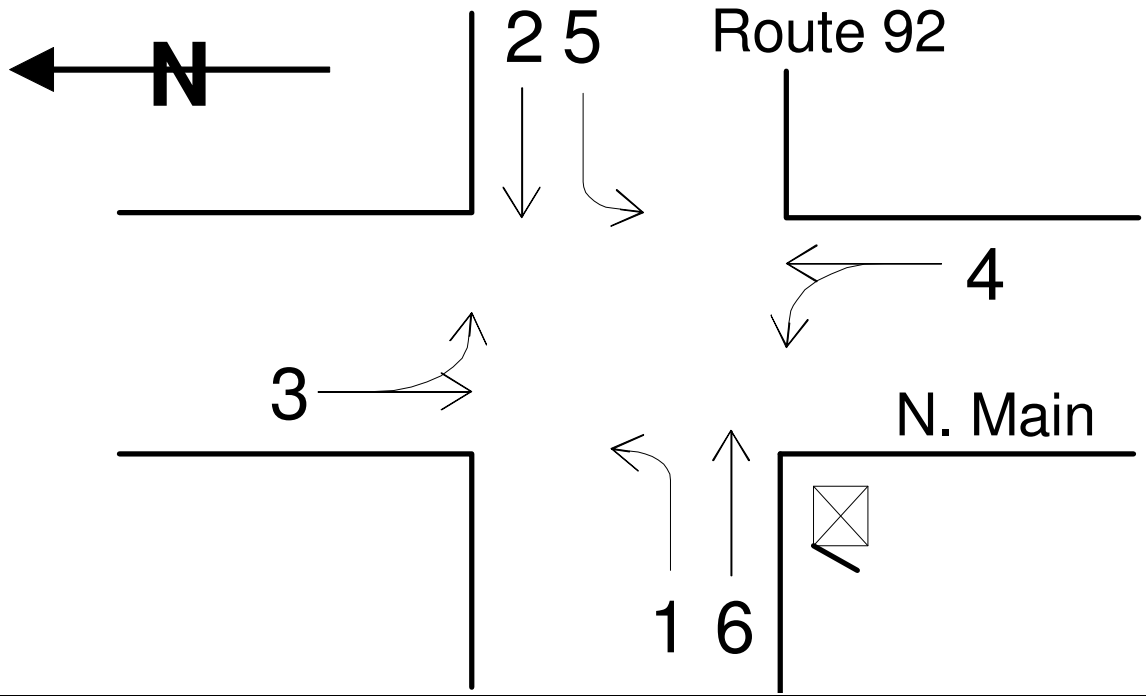
System: | **District:** 04 | **Installed By:**

Master At: | **I/C:** | **Service Info:**

Timing Change: | **Date Start:** | **Date End:** | **Designed:** | **Installed:**

		FLASH
PHASE	1)	[R]
	2)	[R]
	3)	[R]
	4)	[R]
	5)	[R]
	6)	[R]
	7)	[ ]
	8)	[ ]
OVERLAP	A)	[ ]
	B)	[ ]
	C)	[ ]
	D)	[ ]
	E)	[ ]
	F)	[ ]

Intersection Layou



Comments and Notes:
TSCP 2.20 BUILD 120 - 08/04/2016

RAM Checksum

Page 2: 3C6F	Page 8: 46AD
Page 3: DCF1	Page 9: D2FD
Page 4: 9B9D	Page 10: DC9A
Page 5: 191A	Page 11: CC23
Page 6: 191A	Page 12: EF20
Page 7: 2645	Page 13: 86F7

CONFIGURATION PHASE FLAGS

Phases (2-1-1-1)	
Permitted	1 2 3 4 5 6 . .
Restricted	. . . . .

Phase Recalls (2-1-1-2)	
Vehicle Min	. 2 . . . 6 . .
Vehicle Max	. . . . .
Pedestrian	. . . . .
Bicycle	. . . . .

Phase Locks (2-1-1-3)	
Red	. . . . .
Yellow	. . . . .
Force/Max	. . . . .

Phase Features (2-1-1-4)	
Double Entry	. . . . .
Rest In Walk	. . . . .
Rest In Red	. . . . .
Walk 2	. . . . .
Max Green 2	. . . . .
Max Green 3	. . . . .

Startup (2-1-1-5)	
First Green Phases	. 2 . . . 6 . .
Yellow Start Phases	. . . . .
Vehicle Calls	1 2 3 4 5 6 . .
Pedestrian Calls	. 2 3 4 . 6 . .
Yellow Start Overlaps	. . . . .
Startup All-Red	5.0

Call To Phase (2-1-2-1)		Omit On Green	
1	. . . . .	1	. . . . .
2	. . . . .	2	. . . . .
3	. . . . .	3	. . . . .
4	. . . . .	4	. . . . .
5	. . . . .	5	. . . . .
6	. . . . .	6	. . . . .
7	. . . . .	7	. . . . .
8	. . . . .	8	. . . . .

Flashing Colors (2-1-2-2)	
Yellow Flash Phases	. . . . .
Yellow Flash Overlap	. . . . .
Flash In Red Phases	. . . . .
Flash In Red Overlap	. . . . .

Special Operation (2-1-2-3)	
Single Exit Phase	. . . . .
Driveway Signal Phases	. . . . .
Driveway Signal Overlaps	. . . . .
Leading Ped Phases	. . . . .

Protected Permissive (2-1-2-4)	
Protected Permissive	. . . . .

Pedestrian (2-1-3)	
P1	. . . . .
P2	. 2 . . . . .
P3	. . . . .
P4	. . . 4 . . . .
P5	. . . . .
P6	. . . . . 6 . .
P7	. . . . .
P8	. . 3 . . . . .

Overlap (2-1-4)				
Overlap	Parent	Omit	No Start	Not
A	. . . . .	. . . . .	. . . . .	. . . . .
B	. . . . .	. . . . .	. . . . .	. . . . .
C	. . . . .	. . . . .	. . . . .	. . . . .
D	. . . . .	. . . . .	. . . . .	. . . . .
E	. . . . .	. . . . .	. . . . .	. . . . .
F	. . . . .	. . . . .	. . . . .	. . . . .

PHASE TIMING

Phase (2-2)	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
--- Walk 1 ---	0	5	5	5	0	5	0	10
Flash Don't Walk	0	18	30	23	0	18	0	10
Minimum Green	4	10	4	4	4	10	2	2
Det Limit	0	30	0	0	0	30	10	10
Max Initial	0	25	0	0	0	25	10	10
Max Green 1	11	55	28	22	21	55	2	2
Max Green 2	50	50	50	50	50	50	50	50
Max Green 3	50	50	50	50	50	50	50	50
Extension	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Maximum Gap	2.0	2.0	1.5	1.5	2.0	2.0	2.0	2.0
Minimum Gap	1.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0
Add Per Vehicle	0.0	2.0	0.0	0.0	0.0	2.0	1.0	1.0
Reduce Gap By	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0
Reduce Every	1.0	1.2	1.0	1.0	1.0	1.2	1.0	1.0
Yellow	3.0	4.1	3.7	3.7	3.0	4.1	3.0	3.0
All-Red	0.0	1.0	1.0	1.0	0.0	1.0	0.0	0.0
Ped/Bike (2-3)	**-1-**	**-2-**	**-3-**	**-4-**	**-5-**	**-6-**	**-7-**	**-8-**
--- Walk 2 ---	0	0	0	0	0	0	0	0
Delay/Early Walk	0	0	0	0	0	0	0	0
Solid Don't Walk	0	0	0	0	0	0	0	0
Bike Green	0	0	0	0	0	0	0	0
Bike All-Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

OVERLAP TIMING

Overlap (2-4)	A	B	C	D	E	F
Green	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	5.0	5.0	5.0	5.0	5.0	5.0
Red	0.0	0.0	0.0	0.0	0.0	0.0

Red Revert

Red Revert (2-5)	
Time	2.0
All-Red Sec/Min (2-6)	
All-Red Sec/Min:	SEC

Max 2 Extension

Max/Gap Out (2-7)	
Max Cnt	0
Gap Cnt	0

Local Plan 1...9 (7-1) TIMING DATA

COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 1	Green Factor	150		1	74			11	54	38	28	13	47		
Plan 2	Green Factor	136		1	105			10	44	35	28	13	36		
Plan 3	Green Factor	150		1	96			11	57	35	28	25	38		
Plan 4	Green Factor	150		1	17			11	57	35	28	17	46		
Plan 5	Green Factor														
Plan 6	Green Factor														
Plan 7	Green Factor														
Plan 8	Green Factor														
Plan 9	Green Factor														

Master Timer Sync (7-A)	
Enable in Plans	
1-9	. . . . .
11-19	. . . . .
21-29	. . . . .

Master Sub Master	
Input	
Output	

FREE PLAN PHASE FLAGS

(7-E) Free	
Lag	Omit
. 2 . 4 . 6 . 8	. . . . .
Veh Min	Veh Max
. 2 . . . 6 . .	. . . . .
Ped	Bike
. . . . .	. . . . .
Cond	Cond Grn
. . . . .	10

Local Plan 1...9 (7-1) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 1	. 2 3 . 5 . . 8	. 2 . . . 6 . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 2	. 2 3 . 5 . . 8	. 2 . . . 6 . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 3	. 2 3 . 5 . . 8	. 2 . . . 6 . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 4	. 2 . 4 5 . . 8	. 2 . . . 6 . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 5	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 6	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 7	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 8	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 9	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .

MANUAL COMMANDS

Manual Plan (4-1)	
Plan	OffSet
	A

Plan: 1-9
15 or 254 = Flash
14 or 255 = Free
Offset A, B, or C

Special Function Override (4-2)			
#	Control	#	Control
1	NORMAL	3	NORMAL
2	NORMAL	4	NORMAL

Detector Reset	(4-3)
Local Manual (4-4)	OFF

Local Plan 11...19 (7-2) TIMING DATA

COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 11	Green Factor														
Plan 12	Green Factor														
Plan 13	Green Factor														
Plan 14	Green Factor														
Plan 15	Green Factor														
Plan 16	Green Factor														
Plan 17	Green Factor														
Plan 18	Green Factor														
Plan 19	Green Factor														

Local Plan 11...19 (7-2) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 11	.....	.....	.....	.....	.....	.....	.....	.....
Plan 12	.....	.....	.....	.....	.....	.....	.....	.....
Plan 13	.....	.....	.....	.....	.....	.....	.....	.....
Plan 14	.....	.....	.....	.....	.....	.....	.....	.....
Plan 15	.....	.....	.....	.....	.....	.....	.....	.....
Plan 16	.....	.....	.....	.....	.....	.....	.....	.....
Plan 17	.....	.....	.....	.....	.....	.....	.....	.....
Plan 18	.....	.....	.....	.....	.....	.....	.....	.....
Plan 19	.....	.....	.....	.....	.....	.....	.....	.....

Local Plan 21...29 (7-3) TIMING DATA

COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 21	Green Factor														
Plan 22	Green Factor														
Plan 23	Green Factor														
Plan 24	Green Factor														
Plan 25	Green Factor														
Plan 26	Green Factor														
Plan 27	Green Factor														
Plan 28	Green Factor														
Plan 29	Green Factor														

Local Plan 21...29 (7-3) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 21	.....	.....	.....	.....	.....	.....	.....	.....
Plan 22	.....	.....	.....	.....	.....	.....	.....	.....
Plan 23	.....	.....	.....	.....	.....	.....	.....	.....
Plan 24	.....	.....	.....	.....	.....	.....	.....	.....
Plan 25	.....	.....	.....	.....	.....	.....	.....	.....
Plan 26	.....	.....	.....	.....	.....	.....	.....	.....
Plan 27	.....	.....	.....	.....	.....	.....	.....	.....
Plan 28	.....	.....	.....	.....	.....	.....	.....	.....
Plan 29	.....	.....	.....	.....	.....	.....	.....	.....

DETECTORS

Detector Attributes (5-1)				Slot	Detector Configuration (5-2)				
Det	Type	Phases	Lock		Det	Delay	Extend	Recall	Port
1	COUNT+CALL+EXTEND	1	NO	I1U	1			10	3.2
2	COUNT+CALL+EXTEND	1	NO	I1L	2			10	7.2
3	COUNT+CALL+EXTEND	. 2	NO	I2U	3		2.0	10	1.1
4	COUNT+CALL+EXTEND	. 2	NO	I2L	4		2.0	10	1.5
5	LIMITED	. 2	NO	I3U	5			10	4.5
6	CALL+EXTEND	. 2	NO	I3L	6			10	6.2
7	LIMITED	. 2	NO	I4U	7		1.0	10	2.1
8	COUNT+CALL+EXTEND	. 2	NO	I4L	8			10	7.4
9	COUNT+CALL+EXTEND	. . 3	NO	I5U	9			10	3.4
10	COUNT+CALL+EXTEND	. . 3	NO	I5L	10			10	7.6
11	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I6U	11			10	1.3
12	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I6L	12			10	1.7
13	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I7U	13	10		10	4.7
14	CALL+EXTEND	. . . 4 . . .	NO	I7L	14	15		10	6.4
15	CALL+EXTEND	. . . 4 . . .	NO	I8U	15			10	2.3
16	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I8L	16			10	7.8
17	COUNT+CALL+EXTEND	1	NO	I9U	17			10	3.6
18	COUNT+CALL+EXTEND	. . 3	NO	I9L	18			10	3.8
19	COUNT+CALL+EXTEND	. 2	NO	I10U	19			10	4.1
20	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I10L	20			10	4.2
21	COUNT+CALL+EXTEND	. . . . 5 . . .	NO	J1U	21			10	3.1
22	COUNT+CALL+EXTEND	. . . . 5 . . .	NO	J1L	22			10	7.1
23	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J2U	23		2.0	10	1.2
24	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J2L	24		2.0	10	1.6
25	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J3U	25		2.0	10	4.6
26	LIMITED	. . . . . 6 . .	NO	J3L	26			10	6.3
27	LIMITED	. . . . . 6 . .	NO	J4U	27		1.0	10	2.2
28	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J4L	28			10	7.3
29	COUNT+CALL+EXTEND	. . . . . 7 .	NO	J5U	29			10	3.3
30	COUNT+CALL+EXTEND	. . . . . 7 .	NO	J5L	30			10	7.5
31	COUNT+CALL+EXTEND	. . 3	NO	J6U	31			10	1.4
32	COUNT+CALL+EXTEND	. . 3	NO	J6L	32			10	1.8
33	COUNT+CALL+EXTEND	. . 3	NO	J7U	33			10	4.8
34	CALL+EXTEND	. . 3	NO	J7L	34			10	6.5
35	LIMITED	 8	NO	J8U	35			10	2.4
36	COUNT+CALL+EXTEND	 8	NO	J8L	36			10	7.7
37	COUNT+CALL+EXTEND	. . . . 5 . . .	NO	J9U	37			10	3.5
38	COUNT+CALL+EXTEND	. . . . . 7 .	NO	J9L	38			10	3.7
39	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J10U	39			10	4.3
40	COUNT+CALL+EXTEND	 8	NO	J10L	40			10	4.4
41	PEDESTRIAN	. 2	NO	I12U	41			10	5.1
42	PEDESTRIAN	. . . 4 . . .	NO	I12L	42			10	5.3
43	PEDESTRIAN	. . . . . 6 . .	NO	I13U	43			10	5.2
44	PEDESTRIAN	. . 3	NO	I13L	44			10	5.4

Failure Times(5-3)	Minutes
Maximum On Time	
Fail Reset Time	

Failure Override (5-4)	
Detectors 1-8	. . . . .
Detectors 9-16	. . . . .
Detectors17-24	. . . . .
Detectors 25-32	. . . . .
Detectors 33-40	. . . . .
Detectors 41-44	. . . . .

System Detector Assignment (5-5)

Sys Det	1	2	3	4	5	6	7	8
Det Nu								
Sys Det	9	10	11	12	13	14	15	16
Det Nu								

CIC Operation (5-6-1)	
Enable in Plans	. . . . .

CIC Values (5-6-2)	Volume	Occupancy	Demand
Smoothing	0.66	0.66	0.66
Multiplier	4.0	0.33	
Exponent	0.50	1.00	

Detector-to-Phase Assignment (5-6-3)

Sys Det	1	2	3	4	5	6	7	8
Phase								
Sys Det	9	10	11	12	13	14	15	16
Phase								

Input File Port-Bit Assignments

332 Cabinet - For Reference Only

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
I-	3.2	1.1	4.5	2.1	3.4	1.3	4.7	2.3	3.6	4.1	6.6	5.1	5.2	6.7
	7.2	1.5	6.2	7.4	7.6	1.7	6.4	7.8	3.8	4.2	2.7	5.3	5.4	6.8
J-	3.1	1.2	4.6	2.2	3.3	1.4	4.8	2.4	3.5	4.3	2.8	5.5	5.6	2.5
	7.1	1.6	6.3	7.3	7.5	1.8	6.5	7.7	3.7	4.4	6.1	5.7	5.8	2.6

TOD SCHEDULE

Table 1 (8-2-1)		
Time	Plan	OS
0645	1	A
1100	2	A
1430	3	A
2000	255	A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 2 (8-2-2)		
Time	Plan	OS
1000	4	A
1500	255	A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 3 (8-2-3)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 4 (8-2-4)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 5 (8-2-5)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 6 (8-2-6)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

WEEKDAY ASSIGNMENT

Weekday Table Assignments (8-2-7)						
Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	1	1	1	1	2	2

HOLIDAY TABLES

Floating Holiday Table (8-2-8)

#	Mnth	Week	DOW	Table
1			.....	
2			.....	
3			.....	
4			.....	
5			.....	
6			.....	
7			.....	
8			.....	
9			.....	
10			.....	
11			.....	
12			.....	
13			.....	
14			.....	
15			.....	
16			.....	

Fixed Holiday Table (8-2-9)

#	Mnth	Day	DOW	Table
1			.....	
2			.....	
3			.....	
4			.....	
5			.....	
6			.....	
7			.....	
8			.....	
9			.....	
10			.....	
11			.....	
12			.....	
13			.....	
14			.....	
15			.....	
16			.....	

Solar Clock Data (8-4)

North Latitude	34
West Longitude	118
Local Time Zone	8

Sabbatical Clock (8-5)

Hebrew	Ped Recall
Sabbath	.....
Holiday	.....

Daylight Saving (8-6)

Enabled	YES

TOD FUNCTIONS

TOD Functions (8-3)

#	Start	End	DOW	Action	Phases
1			.....		.....
2			.....		.....
3			.....		.....
4			.....		.....
5			.....		.....
6			.....		.....
7			.....		.....
8			.....		.....
9			.....		.....
10			.....		.....
11			.....		.....
12			.....		.....
13			.....		.....
14			.....		.....
15			.....		.....
16			.....		.....

Action Codes:

0. None
1. Permitted
2. Restricted
4. Veh Min Recall
5. Veh Max Recall
6. Ped Recall
7. Bike Recall
8. Red Lock
9. Yellow Lock
10. Force/Max Lock
11. Double Entry
12. Y-Coord C
13. Y-Coord D
14. Free
15. Flashing
16. Walk 2
17. Max Green 2
18. Max Green 3
19. Rest in Walk
20. Rest in Red
21. Free Lag Phases
22. Special Functions
23. Truck Preempt
24. Conditional Service
25. Conditional Service
26. Leading Ped
27. Traffic Actuated Max 2
41. Protected Permissive
42. Protected Permissive

Action Code = Phases added to normal setting

100+Action Code = Phases removed

200+Action Code = Phases replaced

COMMUNICATIONS

C2 (6-1-1)	
Address	3
Protocol	AB3418
Limit Access	0
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C20 (6-1-2)	
Address	
Protocol	AB3418
Limit Access	0
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C21 (6-1-3)	
Address	
Protocol	AB3418
Limit Access	0
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

Limit Access:
0-None
1-Status Only
2-Status, Set Pattern, Time
3-Status, Set Pattern, Time, Manual Plan

SOFT LOGIC

Soft Logic (6-2)

#	Data	OP	Data	OP	Data	OP	Data
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

*Refer to User's Manual for Data and OP Codes

CALLBACK NUMBERS

Callback Numbers (6-3...3)	
Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

NETWORK

Network (6-4)	
Address	
Protocol	AB3418
Port	27000
IP Mode	STATIC

IP Address	0 . 0 . 0 . 0
Netmask	255 . 255 . 255 . 0
Broadcast	0 . 0 . 0 . 254
Gateway	0 . 0 . 0 . 1

RAILROAD PREEMPTION

RR 1

(3-1-1)	Timing	Phase Flags (3-1-2)			Pedestrian Flags (3-1-3)			Overlap Flags (3-1-4)		
Delay		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
Clear 1	10	. 2 . . 5 . . .	. . . . .	. . . . .	. . . . .	. . . . .	. 2 . 4 . 6 . 8	. . . . .	. . . . .	. . . . .
Clear 2		. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Clear 3		. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Hold		. . . . .	. . . . .	1 2 3 4 5 6 7 8	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	A B C D E F
Exit										
Min Grn										
Ped Clr										

Exit Parameters (3-1-5)			
Phase Green	Overlap Green	Vehicle Call	Ped Call
. . . . .	. . . . .	1 2 3 4 5 6 7 8	. 2 . 4 . 6 . 8

Configuration (3-1-6)			
Port	Gate Port	Latching	Power-Up
2.5	0.0	YES	FLASHING

RR 2

(3-2-1)	Timing	Phase Flags (3-2-2)			Pedestrian Flags (3-2-3)			Overlap Flags (3-2-4)		
Delay		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
Clear 1	10	. . . 4 . . 7 .	. . . . .	. . . . .	. . . . .	. . . . .	. 2 . 4 . 6 . 8	. . . . .	. . . . .	. . . . .
Clear 2		. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Clear 3		. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Hold		1 2 3 . . 6 . .	. . . . .	. . . . .	. 2 . . . 6 . .	. . . . .	. . . 4 . . . 8	. . . . .	. . . . .	. . . . .
Exit										
Min Grn										
Ped Clr										

Exit Parameters (3-2-5)			
Phase Green	Overlap Green	Vehicle Call	Ped Call
. . . . .	. . . . .	. . . 4 . . 7 .	. . . . .

Configuration (3-2-6)			
Port	Gate Port	Latching	Power-up
2.6	0.0	YES	DARK

EMERGENCY VEHICLE PREEMPTION

EVA (3-A)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	5	40	. 2 . . 5 . . .	. . . . .

Port	Latching	Phase Termination
5.5	NO	ADVANCE

EVB (3-B)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	5	40	. . . 4 . . 7 .	. . . . .

Port	Latching	Phase Termination
5.6	NO	ADVANCE

EVC (3-C)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	5	40	1 . . . . 6 . .	. . . . .

Port	Latching	Phase Termination
5.7	NO	ADVANCE

EVD (3-D)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	5	40	. . 3 8	. . . . .

Port	Latching	Phase Termination
5.8	NO	ADVANCE

INPUTS

		7 Wire I/C (2-1-5-1)			
		Input	Port	Input	Port
Enable	NO	R1	3.8	Free	3.6
Max ON		R2	3.5	D2	2.8
Max OFF		R3	3.7	D3	6.1

Manual Control (2-1-5-2)	
Input	Port
Manual Advance	6.6
Advance Enable	6.6

Cabinet Status (2-1-5-3)	
Input	Port
Flash Bus	
Door Ajar	
Flash Sense	6.7
Stop Time	6.8

Special Function (2-1-5-4)	
Input	Port
1	
2	
3	
4	

Battery Backup (2-1-5-5)	
Port	Operation
2.7	FLASHING

Y-Coordination (2-1-5-6)	
Port C	Port D
6.1	2.8

OUTPUTS

Loadswitch Assignments (2-1-6)							+
A	1	2	22	3	4	24	9
B	5	6	26	7	8	28	10
X	13	14	0	11	12	0	0

Loadswitch Codes:

0 Unused (no output)
1-8 Vehicle 1-8
9-14 Overlap A-F
21-28 Ped 1-8
41-47 Special Functions
41 Protected Permissive Flashing Phase 1
43 Protected Permissive Flashing Phase 3
45 Protected Permissive Flashing Phase 5
47 Protected Permissive Flashing Phase 7
51-57 Special Functions
71-72 Seven Wire I/C

\+ middle output of loadswitches 3 and 6 Channel 9 and 10

TRANSIT PRIORITY

Local Plans (3-E) 1...9 11...19		Early Green	Green Extend	Inhibit Cycles	Phase 1 Minimum	Phase 2 Minimum	Phase 3 Minimum	Phase 4 Minimum	Phase 5 Minimum	Phase 6 Minimum	Phase 7 Minimum	Phase 8 Minimum
Plan 1	Green Factor											
Plan 2	Green Factor											
Plan 3	Green Factor											
Plan 4	Green Factor											
Plan 5	Green Factor											
Plan 6	Green Factor											
Plan 7	Green Factor											
Plan 8	Green Factor											
Plan 9	Green Factor											
Plan 11	Green Factor											
Plan 12	Green Factor											
Plan 13	Green Factor											
Plan 14	Green Factor											
Plan 15	Green Factor											
Plan 16	Green Factor											
Plan 17	Green Factor											
Plan 18	Green Factor											
Plan 19	Green Factor											

Transit Priority Configuration (3-E-A)				Indicator Output	
Enable in Plans		Input	Type	Stop	Go
Plan 1-9	. . . . .	0.0	OPT	0	0
Plan 11-19	. . . . .	0.0	OPT	0	0

Queue Jump (3-E-B)	
Grn Hold	Hold Phase
	. . . . .
	. . . . .

Free Plans (3-E-E)	
Max Grn Hold	Hold Phase
	. . . . .

Access Utilities (9-5)	
Password	***
Timeout	30

YELLOW YIELD COORDINATION

					Force-Offs											
Y-Coord Plans (7-C,D)	Long Grn	No Grn	Offset	Perm	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-	Coord	Lag	Min Recall	Restricted
Plan C													. 2 . . . 6 . .	. 2 . 4 . 6 . 8	. . . . .	. . . . .
Plan D													. 2 . . . 6 . .	. 2 . 4 . 6 . 8	. . . . .	. . . . .

TRUCK PRIORITY

Truck Priority (3-F)	Passage	CarryOver	Clearance	Next Priority	Phase Green	Det 2 Port	Det 3 Port	Det 4 Port	Sign Output	Slave Input	Slave Output
					. . . . .	0.0	0.0	0.0	0	0.0	0

SECTION 4. BICYCLE NETWORK

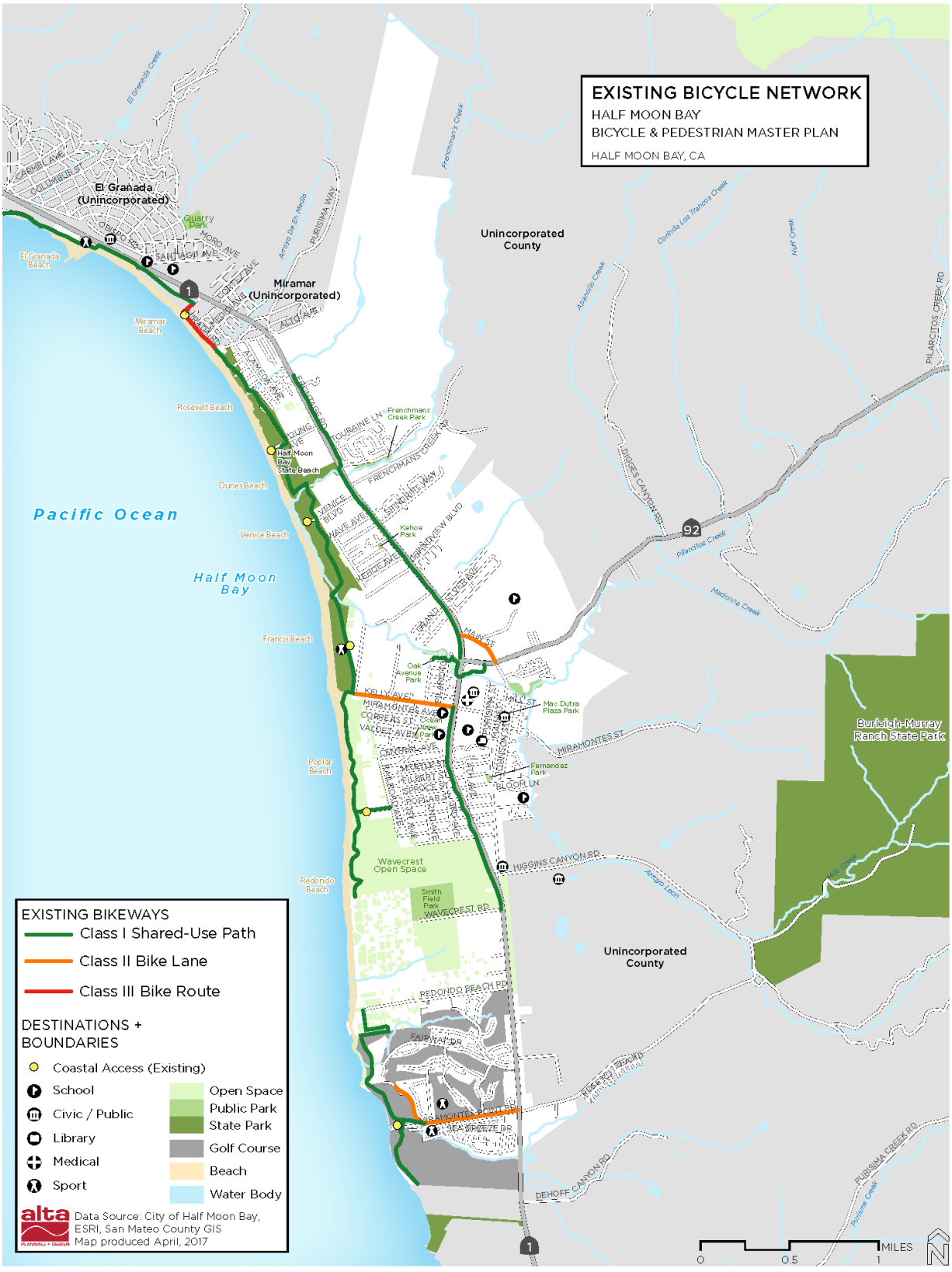


Figure 2-1: Existing Bicycle Network

SECTION 5. DAILY TRAFFIC AND SPEED DATA COLLECTION ON STONE PINE ROAD

Type of report: Tube Count - Speed Data

LOCATION: Stone Pine Rd West of Patrick Way (Midweek) **QC JOB #:** 16225701
SPECIFIC LOCATION: **DIRECTION:** EB, WB
CITY/STATE: Half Moon Bay, CA **DATE:** Jun 1 2023

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
12:00 AM	0	1	6	1	0	0	0	0	0	0	0	0	0	0	8	16-25	7
01:00 AM	0	1	1	1	0	0	0	0	0	0	0	0	0	0	3	16-25	2
02:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	16-25	1
03:00 AM	2	1	6	1	1	0	0	0	0	0	0	0	0	0	11	16-25	7
04:00 AM	1	3	3	2	0	0	0	0	0	0	0	0	0	0	9	16-25	6
05:00 AM	2	10	15	10	0	0	0	0	0	0	0	0	0	0	37	16-25	25
06:00 AM	8	43	32	3	2	0	0	0	0	0	0	0	0	0	88	16-25	75
07:00 AM	9	46	57	16	2	0	0	0	0	0	0	0	0	0	130	16-25	103
08:00 AM	11	69	75	18	0	0	0	0	0	0	0	0	0	0	173	16-25	144
09:00 AM	18	56	97	18	0	0	0	0	0	0	0	0	0	0	189	16-25	153
10:00 AM	**26**	122	103	**19**	**3**	0	0	0	0	0	0	0	0	0	273	16-25	225
11:00 AM	26	**149**	**105**	19	1	0	0	0	0	0	0	0	0	0	**300**	16-25	254
12:00 PM	**34**	**150**	112	15	2	0	0	0	0	0	0	0	0	0	313	16-25	262
01:00 PM	17	148	**157**	25	**3**	0	0	0	0	0	0	0	0	0	**350**	16-25	305
02:00 PM	32	136	139	18	3	0	0	0	0	0	0	0	0	0	328	16-25	275
03:00 PM	23	117	126	25	2	0	0	0	0	0	0	0	0	0	293	16-25	243
04:00 PM	22	112	150	**34**	1	0	0	0	0	0	0	0	0	0	319	16-25	262
05:00 PM	22	100	98	14	1	0	0	0	0	0	0	0	0	0	235	16-25	198
06:00 PM	15	120	110	19	0	0	0	0	0	0	0	0	0	0	264	16-25	230
07:00 PM	10	77	48	10	3	0	0	0	0	0	0	0	0	0	148	16-25	125
08:00 PM	12	54	53	5	0	0	0	0	0	0	0	0	0	0	124	16-25	107
09:00 PM	8	25	30	10	1	0	0	0	0	0	0	0	0	0	74	16-25	55
10:00 PM	1	7	4	1	0	0	0	0	0	0	0	0	0	0	13	16-25	11
11:00 PM	0	3	7	3	0	0	0	0	0	0	0	0	0	0	13	16-25	10
Day Total	299	1550	1535	287	25	0	0	0	0	0	0	0	0	0	3696	16-25	3085
Percent	8.1%	41.9%	41.5%	7.8%	0.7%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
AM Peak	10:00 AM	11:00 AM	11:00 AM	10:00 AM	10:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	11:00 AM		
Volume	26	149	105	19	3	0	0	0	0	0	0	0	0	0	300		
PM Peak	12:00 PM	12:00 PM	1:00 PM	4:00 PM	1:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	1:00 PM		
Volume	34	150	157	34	3	0	0	0	0	0	0	0	0	0	350		



Comments:

Report generated on 6/7/2023 12:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Speed Data

SUMMARY - Tube Count - Speed Data

LOCATION: Stone Pine Rd West of Patrick Way (Midweek)
SPECIFIC LOCATION:
CITY/STATE: Half Moon Bay, CA

QC JOB #: 16225701
DIRECTION: EB, WB
DATE: Jun 1 2023

Speed Range	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
Grand Total	299	1550	1535	287	25	0	0	0	0	0	0	0	0	0	3696	16-25	3085
Percent	8.1%	41.9%	41.5%	7.8%	0.7%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
Cumulative Percent	8.1%	50%	91.6%	99.3%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			

ADT
3696



85th Percentile: 24 MPH
Mean Speed(Average): 19 MPH
Median: 19 MPH
Mode: 18 MPH

Comments:

Report generated on 6/7/2023 12:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Quality Counts
DATA THAT DRIVES COMMUNITIES

Type of report: Tube Count - Volume Data

LOCATION: Stone Pine Rd West of Patrick Way (Midweek) **QC JOB #:** 16225701

SPECIFIC LOCATION: **DIRECTION:** EB, WB

CITY/STATE: Half Moon Bay, CA **DATE:** Jun 1 2023 - Jun 1 2023

Start Time	Mon	Tue	Wed	Thu 1 Jun 23	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM				8		8			8	
01:00 AM				3		3			3	
02:00 AM				1		1			1	
03:00 AM				11		11			11	
04:00 AM				9		9			9	
05:00 AM				37		37			37	
06:00 AM				88		88			88	
07:00 AM				130		130			130	
08:00 AM				173		173			173	
09:00 AM				189		189			189	
10:00 AM				273		273			273	
11:00 AM				**300**		**300**			**300**	
12:00 PM				313		313			313	
01:00 PM				**350**		**350**			**350**	
02:00 PM				328		328			328	
03:00 PM				293		293			293	
04:00 PM				319		319			319	
05:00 PM				235		235			235	
06:00 PM				264		264			264	
07:00 PM				148		148			148	
08:00 PM				124		124			124	
09:00 PM				74		74			74	
10:00 PM				13		13			13	
11:00 PM				13		13			13	
Day Total				3696		3696			3696	
% Weekday Average				100%						
% Week Average				100%		100%				
AM Peak Volume				11:00 AM 300		11:00 AM 300			11:00 AM 300	
PM Peak Volume				1:00 PM 350		1:00 PM 350			1:00 PM 350	

Comments:

Report generated on 6/7/2023 12:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Quality Counts
DATA THAT DRIVES COMMUNITIES

Type of report: Tube Count - Speed Data

LOCATION: Stone Pine Rd West of Patrick Way (Saturday) **QC JOB #:** 16225703
SPECIFIC LOCATION: **DIRECTION:** EB, WB
CITY/STATE: Half Moon Bay, CA **DATE:** Jun 3 2023

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
12:00 AM	1	3	4	0	0	0	0	0	0	0	0	0	0	0	8	16-25	7
01:00 AM	0	1	5	2	1	0	0	0	0	0	0	0	0	0	9	21-30	7
02:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	11-20	1
03:00 AM	2	2	2	0	0	0	0	0	0	0	0	0	0	0	6	16-25	4
04:00 AM	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2	16-25	1
05:00 AM	2	9	7	3	0	0	0	0	0	0	0	0	0	0	21	16-25	16
06:00 AM	4	18	22	6	0	0	0	0	0	0	0	0	0	0	50	16-25	40
07:00 AM	4	31	35	8	0	0	0	0	0	0	0	0	0	0	78	16-25	66
08:00 AM	12	41	54	13	**2**	0	0	0	0	0	0	0	0	0	122	16-25	95
09:00 AM	15	81	77	13	0	0	0	0	0	0	0	0	0	0	186	16-25	158
10:00 AM	17	106	104	**15**	1	0	0	0	0	0	0	0	0	0	243	16-25	210
11:00 AM	**26**	**156**	**113**	10	0	0	0	0	0	0	0	0	0	0	**305**	16-25	269
12:00 PM	21	**136**	**98**	**16**	0	0	0	0	0	0	0	0	0	0	**271**	16-25	234
01:00 PM	**31**	110	82	9	0	0	0	0	0	0	0	0	0	0	232	16-25	192
02:00 PM	25	101	52	8	**1**	0	0	0	0	0	0	0	0	0	187	16-25	153
03:00 PM	25	97	84	8	0	0	0	0	0	0	0	0	0	0	214	16-25	181
04:00 PM	17	61	93	13	0	0	0	0	0	0	0	0	0	0	184	16-25	154
05:00 PM	14	70	80	11	0	0	0	0	0	0	0	0	0	0	175	16-25	150
06:00 PM	19	113	80	15	0	0	0	0	0	0	0	0	0	0	227	16-25	193
07:00 PM	14	79	53	7	0	0	0	0	0	0	0	0	0	0	153	16-25	132
08:00 PM	13	56	51	8	0	0	0	0	0	0	0	0	0	0	128	16-25	107
09:00 PM	12	38	20	3	0	0	0	0	0	0	0	0	0	0	73	16-25	58
10:00 PM	0	4	12	5	0	0	0	0	0	0	0	0	0	0	21	21-30	17
11:00 PM	0	6	5	2	0	0	0	0	0	0	0	0	0	0	13	16-25	11
Day Total	275	1320	1134	175	5	0	0	0	0	0	0	0	0	0	2909	16-25	2454
Percent	9.5%	45.4%	39%	6%	0.2%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
AM Peak	11:00 AM	11:00 AM	11:00 AM	10:00 AM	8:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	11:00 AM		
Volume	26	156	113	15	2	0	0	0	0	0	0	0	0	0	305		
PM Peak	1:00 PM	12:00 PM	12:00 PM	12:00 PM	2:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM		
Volume	31	136	98	16	1	0	0	0	0	0	0	0	0	0	271		



Comments:

Report generated on 6/7/2023 12:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Speed Data

SUMMARY - Tube Count - Speed Data

LOCATION: Stone Pine Rd West of Patrick Way (Saturday)
QC JOB #: 16225703
SPECIFIC LOCATION:
DIRECTION: EB, WB
CITY/STATE: Half Moon Bay, CA
DATE: Jun 3 2023

Speed Range	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
Grand Total	275	1320	1134	175	5	0	0	0	0	0	0	0	0	0	2909	16-25	2454
Percent	9.5%	45.4%	39%	6%	0.2%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
Cumulative Percent	9.5%	54.8%	93.8%	99.8%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			

ADT
2909



85th Percentile: 23 MPH
Mean Speed(Average): 19 MPH
Median: 19 MPH
Mode: 18 MPH

Comments:

Report generated on 6/7/2023 12:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Quality Counts
DATA THAT DRIVES COMMUNITIES

Type of report: Tube Count - Volume Data

LOCATION: Stone Pine Rd West of Patrick Way (Saturday) **QC JOB #:** 16225703

SPECIFIC LOCATION: **DIRECTION:** EB, WB

CITY/STATE: Half Moon Bay, CA **DATE:** Jun 3 2023 - Jun 3 2023

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat 3 Jun 23	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM							8		8	
01:00 AM							9		9	
02:00 AM							1		1	
03:00 AM							6		6	
04:00 AM							2		2	
05:00 AM							21		21	
06:00 AM							50		50	
07:00 AM							78		78	
08:00 AM							122		122	
09:00 AM							186		186	
10:00 AM							243		243	
11:00 AM							**305**		305	
12:00 PM							**271**		271	
01:00 PM							232		232	
02:00 PM							187		187	
03:00 PM							214		214	
04:00 PM							184		184	
05:00 PM							175		175	
06:00 PM							227		227	
07:00 PM							153		153	
08:00 PM							128		128	
09:00 PM							73		73	
10:00 PM							21		21	
11:00 PM							13		13	
Day Total							2909		2909	
% Weekday Average										
% Week Average						0%	100%			
AM Peak Volume							11:00 AM 305		11:00 AM 305	
PM Peak Volume							12:00 PM 271		12:00 PM 271	

Comments:

Report generated on 6/7/2023 12:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Quality Counts DATA THAT DRIVES COMMUNITIES

Type of report: Tube Count - Speed Data

LOCATION: Stone Pine Road East of Patrick Way
QC JOB #: 16189903
SPECIFIC LOCATION:
DIRECTION: EB, WB
CITY/STATE: Half Moon Bay, CA
DATE: May 17 2023

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
12:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	21-30	1
01:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	11-20	2
02:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	16-25	1
03:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	16-25	1
04:00 AM	2	2	0	0	0	0	0	0	0	0	0	0	0	0	4	11-20	3
05:00 AM	0	5	5	3	0	0	0	0	0	0	0	0	0	0	13	16-25	10
06:00 AM	3	9	13	3	0	0	0	0	0	0	0	0	0	0	28	16-25	22
07:00 AM	5	22	**44**	**9**	0	0	0	0	0	0	0	0	0	0	80	16-25	66
08:00 AM	7	28	23	4	0	0	0	0	0	0	0	0	0	0	62	16-25	51
09:00 AM	12	43	37	3	0	0	0	0	0	0	0	0	0	0	95	16-25	80
10:00 AM	**21**	56	40	6	0	0	0	0	0	0	0	0	0	0	**123**	16-25	96
11:00 AM	15	**59**	40	2	0	0	0	0	0	0	0	0	0	0	116	16-25	99
12:00 PM	25	63	47	2	0	0	0	0	0	0	0	0	0	0	137	16-25	110
01:00 PM	12	44	36	7	**1**	0	0	0	0	0	0	0	0	0	100	16-25	80
02:00 PM	13	56	**55**	8	0	0	0	0	0	0	0	0	0	0	132	16-25	111
03:00 PM	26	**77**	52	**12**	0	0	0	0	0	0	0	0	0	0	**167**	16-25	129
04:00 PM	**29**	60	42	9	0	0	0	0	0	0	0	0	0	0	140	16-25	102
05:00 PM	14	33	30	5	0	0	0	0	0	0	0	0	0	0	82	16-25	63
06:00 PM	11	18	14	0	0	0	0	0	0	0	0	0	0	0	43	16-25	32
07:00 PM	6	19	13	1	0	0	0	0	0	0	0	0	0	0	39	16-25	32
08:00 PM	0	9	5	2	0	0	0	0	0	0	0	0	0	0	16	16-25	14
09:00 PM	5	4	1	1	0	0	0	0	0	0	0	0	0	0	11	11-20	6
10:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	16-25	1
11:00 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3	16-25	3
Day Total	206	609	503	78	1	0	0	0	0	0	0	0	0	0	1397	16-25	1112
Percent	14.7%	43.6%	36%	5.6%	0.1%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
AM Peak	10:00 AM	11:00 AM	7:00 AM	7:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	10:00 AM		
Volume	21	59	44	9	0	0	0	0	0	0	0	0	0	0	123		
PM Peak	4:00 PM	3:00 PM	2:00 PM	3:00 PM	1:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	3:00 PM		
Volume	29	77	55	12	1	0	0	0	0	0	0	0	0	0	167		



Comments:

Report generated on 5/23/2023 8:36 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Speed Data

SUMMARY - Tube Count - Speed Data

LOCATION: Stone Pine Road East of Patrick Way
SPECIFIC LOCATION:
CITY/STATE: Half Moon Bay, CA

QC JOB #: 16189903
DIRECTION: EB, WB
DATE: May 17 2023

Speed Range	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
Grand Total	206	609	503	78	1	0	0	0	0	0	0	0	0	0	1397	16-25	1112
Percent	14.7%	43.6%	36%	5.6%	0.1%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
Cumulative Percent	14.7%	58.3%	94.3%	99.9%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			

ADT
1397



85th Percentile: 23 MPH
Mean Speed(Average): 19 MPH
Median: 19 MPH
Mode: 18 MPH

Comments:

Report generated on 5/23/2023 8:36 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Quality Counts
DATA THAT DRIVES COMMUNITIES

Type of report: Tube Count - Volume Data

LOCATION: Stone Pine Road East of Patrick Way | **QC JOB #:** 16189903

SPECIFIC LOCATION: | **DIRECTION:** EB, WB

CITY/STATE: Half Moon Bay, CA | **DATE:** May 17 2023 - May 17 2023

Start Time	Mon	Tue	Wed 17 May 23	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM			1			1			1	
01:00 AM			2			2			2	
02:00 AM			1			1			1	
03:00 AM			1			1			1	
04:00 AM			4			4			4	
05:00 AM			13			13			13	
06:00 AM			28			28			28	
07:00 AM			80			80			80	
08:00 AM			62			62			62	
09:00 AM			95			95			95	
10:00 AM			**123**			**123**			**123**	
11:00 AM			116			116			116	
12:00 PM			137			137			137	
01:00 PM			100			100			100	
02:00 PM			132			132			132	
03:00 PM			**167**			**167**			**167**	
04:00 PM			140			140			140	
05:00 PM			82			82			82	
06:00 PM			43			43			43	
07:00 PM			39			39			39	
08:00 PM			16			16			16	
09:00 PM			11			11			11	
10:00 PM			1			1			1	
11:00 PM			3			3			3	
Day Total			1397			1397			1397	
% Weekday Average			100%							
% Week Average			100%			100%				
AM Peak Volume			10:00 AM 123			10:00 AM 123			10:00 AM 123	
PM Peak Volume			3:00 PM 167			3:00 PM 167			3:00 PM 167	

Comments:

Report generated on 5/23/2023 8:36 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

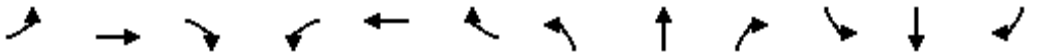
Quality Counts
DATA THAT DRIVES COMMUNITIES

SECTION 6: EXISTING + PROJECT OPERATIONAL ANALYSIS RESULTS



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	67	764	69	90	306	186	48	156	185	342	99
v/c Ratio	0.61	0.48	0.09	0.65	0.19	0.23	0.23	0.72	0.54	0.90	0.25
Control Delay	91.3	32.5	4.6	86.8	25.1	4.8	60.1	81.3	13.1	82.0	40.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	91.3	32.5	4.6	86.8	25.1	4.8	60.1	81.3	13.1	82.0	40.4
Queue Length 50th (ft)	65	269	0	87	90	0	44	151	0	325	67
Queue Length 95th (ft)	116	411	25	140	147	49	78	208	64	417	113
Internal Link Dist (ft)		800			1072			451			782
Turn Bay Length (ft)	110			430		100	100			340	
Base Capacity (vph)	130	1632	775	158	1631	800	330	348	439	439	447
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.47	0.09	0.57	0.19	0.23	0.15	0.45	0.42	0.78	0.22

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	672	61	79	269	164	42	137	163	301	59	28
Future Volume (vph)	59	672	61	79	269	164	42	137	163	301	59	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.1	5.1	3.0	5.1	5.1	4.7	4.7	4.7	4.7	4.7	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.98	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1752	3505	1568	1656	3312	1434	1752	1845	1530	1703	1689	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1752	3505	1568	1656	3312	1434	1752	1845	1530	1703	1689	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	67	764	69	90	306	186	48	156	185	342	67	32
RTOR Reduction (vph)	0	0	38	0	0	96	0	0	163	0	12	0
Lane Group Flow (vph)	67	764	31	90	306	90	48	156	22	342	87	0
Confl. Peds. (#/hr)	4					4	14		4	4		14
Confl. Bikes (#/hr)									3			
Heavy Vehicles (%)	3%	3%	3%	9%	9%	9%	3%	3%	3%	6%	6%	6%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases			6			2			4			
Actuated Green, G (s)	8.3	67.9	67.9	13.3	72.9	72.9	17.6	17.6	17.6	33.7	33.7	
Effective Green, g (s)	8.3	67.9	67.9	13.3	72.9	72.9	17.6	17.6	17.6	33.7	33.7	
Actuated g/C Ratio	0.06	0.45	0.45	0.09	0.49	0.49	0.12	0.12	0.12	0.22	0.22	
Clearance Time (s)	3.0	5.1	5.1	3.0	5.1	5.1	4.7	4.7	4.7	4.7	4.7	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.5	1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)	96	1586	709	146	1609	696	205	216	179	382	379	
v/s Ratio Prot	c0.04	c0.22		c0.05	0.09		0.03	c0.08		c0.20	0.05	
v/s Ratio Perm			0.02			0.06			0.01			
v/c Ratio	0.70	0.48	0.04	0.62	0.19	0.13	0.23	0.72	0.12	0.90	0.23	
Uniform Delay, d1	69.6	28.7	22.9	65.9	21.8	21.1	60.1	63.8	59.3	56.4	47.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	16.3	1.1	0.1	5.3	0.3	0.4	0.2	9.7	0.1	22.0	0.1	
Delay (s)	85.9	29.8	23.0	71.2	22.1	21.5	60.3	73.5	59.4	78.5	47.7	
Level of Service	F	C	C	E	C	C	E	E	E	E	D	
Approach Delay (s)		33.4			29.5			65.2			71.5	
Approach LOS		C			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	45.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	64.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	11
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	0	20	0	75	1	332	44	40	191	2
Future Vol, veh/h	1	0	0	20	0	75	1	332	44	40	191	2
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	3	3	3	3	3	3	4	4	4	3	3	3
Mvmt Flow	1	0	0	22	0	81	1	357	47	43	205	2
Number of Lanes	0	1	0	0	1	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	8.9	8.9	12.3	9.8
HCM LOS	A	A	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	0%	100%	21%	100%	0%
Vol Thru, %	88%	0%	0%	0%	99%
Vol Right, %	12%	0%	79%	0%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	377	1	95	40	193
LT Vol	1	1	20	40	0
Through Vol	332	0	0	0	191
RT Vol	44	0	75	0	2
Lane Flow Rate	405	1	102	43	208
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.512	0.002	0.142	0.067	0.295
Departure Headway (Hd)	4.551	5.82	5.006	5.627	5.117
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	790	611	713	636	701
Service Time	2.586	3.892	3.058	3.369	2.858
HCM Lane V/C Ratio	0.513	0.002	0.143	0.068	0.297
HCM Control Delay	12.3	8.9	8.9	8.8	10
HCM Lane LOS	B	A	A	A	A
HCM 95th-tile Q	3	0	0.5	0.2	1.2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	57	466	101	174	637	437	114	166	122	187	173
v/c Ratio	0.53	0.29	0.13	0.78	0.33	0.47	0.56	0.77	0.42	0.59	0.53
Control Delay	84.8	29.4	6.4	85.3	23.6	12.7	72.5	87.1	13.5	62.6	53.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.8	29.4	6.4	85.3	23.6	12.7	72.5	87.1	13.5	62.6	53.4
Queue Length 50th (ft)	55	162	0	167	207	115	107	160	0	158	128
Queue Length 95th (ft)	103	242	44	241	292	246	167	233	59	238	204
Internal Link Dist (ft)		800			1072			451			782
Turn Bay Length (ft)	110			430		100	100			340	
Base Capacity (vph)	133	1621	779	330	1907	933	337	354	396	416	421
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.29	0.13	0.53	0.33	0.47	0.34	0.47	0.31	0.45	0.41

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	443	96	165	605	415	108	158	116	178	100	65
Future Volume (vph)	54	443	96	165	605	415	108	158	116	178	100	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.1	5.1	3.0	5.1	5.1	4.7	4.7	4.7	4.7	4.7	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.96	1.00	1.00	0.98	1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1752	3505	1568	1770	3539	1513	1787	1881	1574	1770	1725	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1752	3505	1568	1770	3539	1513	1787	1881	1574	1770	1725	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	57	466	101	174	637	437	114	166	122	187	105	68
RTOR Reduction (vph)	0	0	55	0	0	119	0	0	108	0	16	0
Lane Group Flow (vph)	57	466	46	174	637	318	114	166	14	187	157	0
Confl. Peds. (#/hr)	8					8	22					22
Confl. Bikes (#/hr)									2			1
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	1%	1%	1%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases			6			2			4			
Actuated Green, G (s)	8.2	68.8	68.8	19.6	80.2	80.2	17.2	17.2	17.2	26.9	26.9	
Effective Green, g (s)	8.2	68.8	68.8	19.6	80.2	80.2	17.2	17.2	17.2	26.9	26.9	
Actuated g/C Ratio	0.05	0.46	0.46	0.13	0.53	0.53	0.11	0.11	0.11	0.18	0.18	
Clearance Time (s)	3.0	5.1	5.1	3.0	5.1	5.1	4.7	4.7	4.7	4.7	4.7	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.5	1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)	95	1607	719	231	1892	808	204	215	180	317	309	
v/s Ratio Prot	c0.03	0.13		c0.10	0.18		0.06	c0.09		c0.11	0.09	
v/s Ratio Perm			0.03			c0.21			0.01			
v/c Ratio	0.60	0.29	0.06	0.75	0.34	0.39	0.56	0.77	0.08	0.59	0.51	
Uniform Delay, d1	69.3	25.3	22.6	62.9	19.8	20.6	62.8	64.5	59.3	56.5	55.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	6.6	0.5	0.2	11.6	0.5	1.4	1.9	14.4	0.1	1.8	0.5	
Delay (s)	75.9	25.8	22.8	74.5	20.3	22.0	64.7	78.9	59.4	58.3	56.0	
Level of Service	E	C	C	E	C	C	E	E	E	E	E	
Approach Delay (s)		29.9			28.5			69.0			57.2	
Approach LOS		C			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	38.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	11.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	3	51	1	95	4	279	42	128	277	2
Future Vol, veh/h	0	0	3	51	1	95	4	279	42	128	277	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	0	0	1	1	1	2	2	2	1	1	1
Mvmt Flow	0	0	3	57	1	106	4	310	47	142	308	2
Number of Lanes	0	1	0	0	1	0	0	1	0	1	1	0

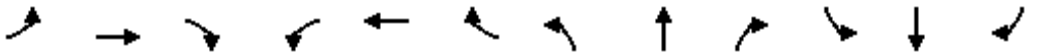
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	8.6	10.3	12.7	11.7
HCM LOS	A	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	1%	0%	35%	100%	0%
Vol Thru, %	86%	0%	1%	0%	99%
Vol Right, %	13%	100%	65%	0%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	325	3	147	128	279
LT Vol	4	0	51	128	0
Through Vol	279	0	1	0	277
RT Vol	42	3	95	0	2
Lane Flow Rate	361	3	163	142	310
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.493	0.005	0.245	0.229	0.454
Departure Headway (Hd)	4.913	5.568	5.4	5.785	5.276
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	726	647	658	616	676
Service Time	2.992	3.568	3.493	3.57	3.06
HCM Lane V/C Ratio	0.497	0.005	0.248	0.231	0.459
HCM Control Delay	12.7	8.6	10.3	10.3	12.4
HCM Lane LOS	B	A	B	B	B
HCM 95th-tile Q	2.8	0	1	0.9	2.4



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	51	717	108	180	682	280	103	171	163	302	187
v/c Ratio	0.51	0.50	0.15	0.73	0.38	0.33	0.44	0.69	0.47	0.85	0.51
Control Delay	85.7	37.6	7.0	78.8	27.0	13.7	63.8	75.5	11.7	78.2	54.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.7	37.6	7.0	78.8	27.0	13.7	63.8	75.5	11.7	78.2	54.3
Queue Length 50th (ft)	49	282	0	170	225	72	96	165	0	276	149
Queue Length 95th (ft)	96	402	47	251	326	167	149	231	64	388	228
Internal Link Dist (ft)		800			1072			451			782
Turn Bay Length (ft)	110			430		100	100			340	
Base Capacity (vph)	130	1512	738	251	1778	845	333	351	424	416	426
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.47	0.15	0.72	0.38	0.33	0.31	0.49	0.38	0.73	0.44

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	688	104	173	655	269	99	164	156	290	135	44
Future Volume (vph)	49	688	104	173	655	269	99	164	156	290	135	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.1	5.1	3.0	5.1	5.1	4.7	4.7	4.7	4.7	4.7	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.98	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1532	1770	1863	1547	1770	1781	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1532	1770	1863	1547	1770	1781	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	51	717	108	180	682	280	103	171	162	302	141	46
RTOR Reduction (vph)	0	0	64	0	0	76	0	0	141	0	8	0
Lane Group Flow (vph)	51	717	44	180	682	204	103	171	22	302	179	0
Confl. Peds. (#/hr)	4					4	14		4	4		14
Confl. Bikes (#/hr)									3			
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases			6			2			4			
Actuated Green, G (s)	7.5	60.6	60.6	21.6	74.7	74.7	20.0	20.0	20.0	30.3	30.3	
Effective Green, g (s)	7.5	60.6	60.6	21.6	74.7	74.7	20.0	20.0	20.0	30.3	30.3	
Actuated g/C Ratio	0.05	0.40	0.40	0.14	0.50	0.50	0.13	0.13	0.13	0.20	0.20	
Clearance Time (s)	3.0	5.1	5.1	3.0	5.1	5.1	4.7	4.7	4.7	4.7	4.7	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.5	1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)	88	1429	639	254	1762	762	236	248	206	357	359	
v/s Ratio Prot	c0.03	c0.20		c0.10	0.19		0.06	c0.09		c0.17	0.10	
v/s Ratio Perm			0.03			0.13			0.01			
v/c Ratio	0.58	0.50	0.07	0.71	0.39	0.27	0.44	0.69	0.11	0.85	0.50	
Uniform Delay, d1	69.7	33.4	27.4	61.2	23.4	21.8	59.8	62.0	57.1	57.6	53.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.6	1.3	0.2	7.2	0.6	0.9	0.5	6.2	0.1	16.0	0.4	
Delay (s)	75.3	34.7	27.6	68.4	24.1	22.7	60.3	68.3	57.2	73.6	53.5	
Level of Service	E	C	C	E	C	C	E	E	E	E	D	
Approach Delay (s)		36.2			30.7			62.3			65.9	
Approach LOS		D			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	42.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	11.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	3	45	1	85	4	301	33	100	311	2
Future Vol, veh/h	0	0	3	45	1	85	4	301	33	100	311	2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	3	47	1	89	4	314	34	104	324	2
Number of Lanes	0	1	0	0	1	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	8.5	9.8	12.2	11.9
HCM LOS	A	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	1%	0%	34%	100%	0%
Vol Thru, %	89%	0%	1%	0%	99%
Vol Right, %	10%	100%	65%	0%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	338	3	131	100	313
LT Vol	4	0	45	100	0
Through Vol	301	0	1	0	311
RT Vol	33	3	85	0	2
Lane Flow Rate	352	3	136	104	326
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.473	0.005	0.203	0.165	0.471
Departure Headway (Hd)	4.833	5.464	5.359	5.706	5.197
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	739	659	663	625	688
Service Time	2.899	3.464	3.443	3.475	2.966
HCM Lane V/C Ratio	0.476	0.005	0.205	0.166	0.474
HCM Control Delay	12.2	8.5	9.8	9.6	12.6
HCM Lane LOS	B	A	A	A	B
HCM 95th-tile Q	2.6	0	0.8	0.6	2.5

SECTION 7. SIGNAL WARRANT RESULTS

Traffic Signal Warrant Analysis Workbook

6/23/2023

STUDY AND ANALYSIS INFORMATION

Municipality:	Half Moon Bay	**Analysis Date:**	6/15/2023
County:	San Mateo	**Conducted By:**	Christine Bairan
		Agency/Company Name:	DKS Associates

Analysis Information

Data Collection Date:	5/17/2023
Day of the Week:	Wednesday

Is the intersection in a built-up area of an isolated community of <10,000 population? No

Major Street Information

Major Street Name and Route Number:	Main Street
Major Street Approach #1 Direction:	N-Bound
Major Street Approach #2 Direction:	S-Bound

Number of Lanes for Moving Traffic on Each Major Street Approach:	1	**LANE(S)**
Speed Limit or 85th Percentile Speed on the Major Street:	25	**MPH**

Minor Street Information

Minor Street Name and Route Number:	Stone Pine Road
Minor Street Approach #1 Direction:	W-Bound
Minor Street Approach #2 Direction:	E-Bound

Number of Lanes for Moving Traffic on Each Minor Street Approach:	1	**LANE(S)**

TRAFFIC SIGNAL WARRANT ANALYSIS FINDINGS

	Applicable?	Warrant Met?
Warrant 1, Eight-Hour Vehicular Volume	**No**	**N/A**
Warrant 2, Four-Hour Vehicular Volume	**Yes**	**No**
Warrant 3, Peak Hour	**Yes**	**No**
Warrant 4, Pedestrian Volume	**No**	**N/A**
Warrant 5, School Crossing	**No**	**N/A**
Warrant 6, Coordinated Signal System	**No**	**N/A**
Warrant 7, Crash Experience	**No**	**N/A**
Warrant 8, Roadway Network	**No**	**N/A**
Warrant 9, Intersection Near a Grade Crossing	**No**	**N/A**
Bicycle Signal Warrant (CA)	**No**	**N/A**

MUTCD WARRANT 2, FOUR-HOUR VEHICULAR VOLUME

Number of Lanes for Moving Traffic on Each Approach	
Major Street:	1 Lane
Minor Street:	1 Lane

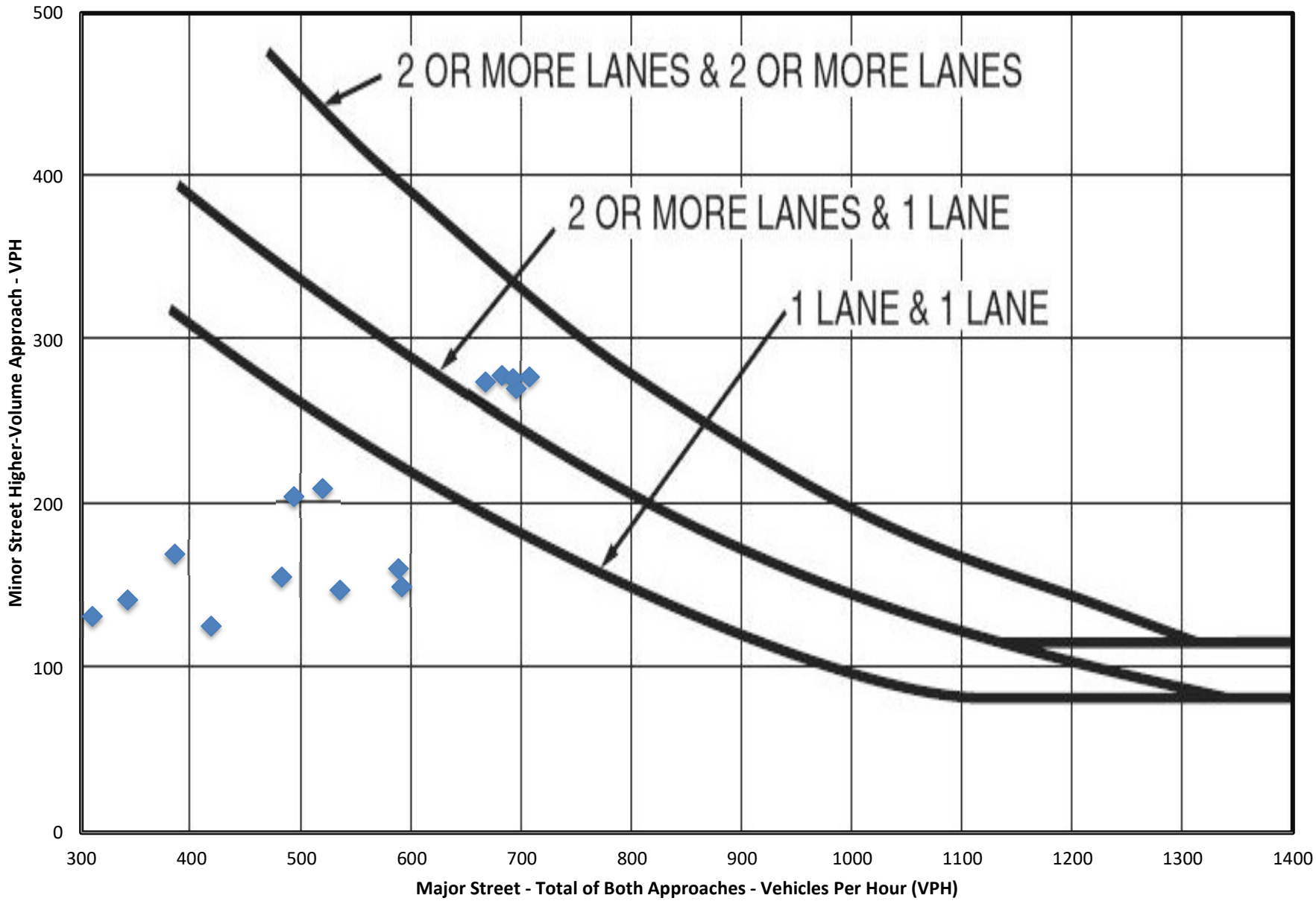
Total Number of Unique Hours Met On Figure 4C-1
2

Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH on Major Street?	No

Hourly Vehicular Volume			
Hour Interval Beginning At	Major Street Combined Vehicles Per Hour (VPH)	Highest Minor Street Approach Vehicles Per Hour (VPH)	Hour Met?
12:00 AM	0	0	
12:15 AM	0	0	
12:30 AM	0	0	
12:45 AM	0	0	
1:00 AM	0	0	
1:15 AM	0	0	
1:30 AM	0	0	
1:45 AM	0	0	
2:00 AM	0	0	
2:15 AM	0	0	
2:30 AM	0	0	
2:45 AM	0	0	
3:00 AM	0	0	
3:15 AM	0	0	
3:30 AM	0	0	
3:45 AM	0	0	
4:00 AM	0	0	
4:15 AM	0	0	
4:30 AM	0	0	
4:45 AM	0	0	
5:00 AM	0	0	
5:15 AM	0	0	
5:30 AM	0	0	
5:45 AM	0	0	
6:00 AM	0	0	
6:15 AM	73	49	
6:30 AM	155	93	
6:45 AM	257	134	
7:00 AM	385	170	
7:15 AM	482	156	
7:30 AM	535	148	
7:45 AM	591	150	
8:00 AM	588	161	
8:15 AM	418	126	
8:30 AM	283	90	
8:45 AM	125	47	
9:00 AM	0	0	
9:15 AM	0	0	
9:30 AM	0	0	
9:45 AM	0	0	
10:00 AM	0	0	
10:15 AM	0	0	
10:30 AM	0	0	
10:45 AM	0	0	
11:00 AM	0	0	
11:15 AM	0	0	
11:30 AM	0	0	
11:45 AM	0	0	

Hourly Vehicular Volume			
Hour Interval Beginning At	Major Street Combined Vehicles Per Hour (VPH)	Highest Minor Street Approach Vehicles Per Hour (VPH)	Hour Met?
12:00 PM	0	0	
12:15 PM	0	0	
12:30 PM	0	0	
12:45 PM	0	0	
1:00 PM	0	0	
1:15 PM	0	0	
1:30 PM	0	0	
1:45 PM	0	0	
2:00 PM	0	0	
2:15 PM	0	0	
2:30 PM	0	0	
2:45 PM	0	0	
3:00 PM	0	0	
3:15 PM	171	76	
3:30 PM	342	142	
3:45 PM	519	210	
4:00 PM	667	275	Met
4:15 PM	695	271	Met
4:30 PM	707	278	Met
4:45 PM	682	279	Met
5:00 PM	692	277	Met
5:15 PM	493	205	
5:30 PM	310	132	
5:45 PM	158	63	
6:00 PM	0	0	
6:15 PM	0	0	
6:30 PM	0	0	
6:45 PM	0	0	
7:00 PM	0	0	
7:15 PM	0	0	
7:30 PM	0	0	
7:45 PM	0	0	
8:00 PM	0	0	
8:15 PM	0	0	
8:30 PM	0	0	
8:45 PM	0	0	
9:00 PM	0	0	
9:15 PM	0	0	
9:30 PM	0	0	
9:45 PM	0	0	
10:00 PM	0	0	
10:15 PM	0	0	
10:30 PM	0	0	
10:45 PM	0	0	
11:00 PM	0	0	

MUTCD Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



MUTCD WARRANT 3, PEAK HOUR

Number of Lanes for Moving Traffic on Each Approach	
Major Street:	1 Lane
Minor Street:	1 Lane

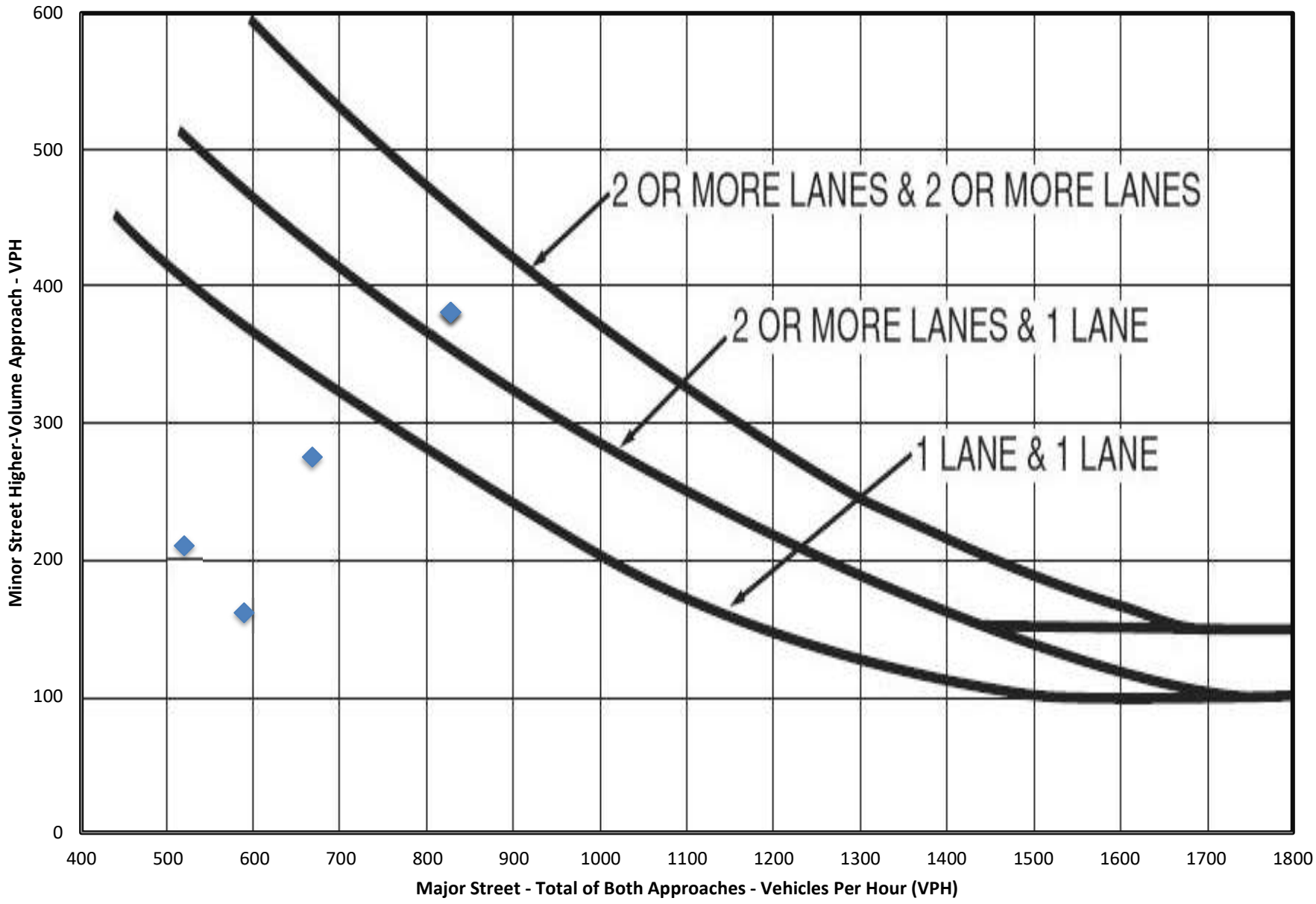
Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH on Major Street?	No
Is this signal warrant being applied for an unusual case, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time?	No

Indicate whether all three of the following conditions for the same 1 hour (any four consecutive 15-minute periods) of an average day are present*	
Does the total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equal or exceed 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach?	No
Does the volume on the same minor-street approach (one direction only) equal or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes?	No
Does the total entering volume serviced during the hour equal or exceed 650 vehicles per hour for intersection with three approaches or 800 vehicles per hour for intersections with four or more approaches?	No
**If applicable, attach all supporting calculations and documentation.*	

Total Number of Unique Hours Met On Figure 4C-3
1

Hourly Vehicular Volume			
Hour Interval Beginning At	**Major Street Combined Vehicles Per Hour (VPH)**	**Highest Minor Street Approach Vehicles Per Hour (VPH)**	**Hour Met?**
8:00 AM	588	161	
8:15 AM	827	381	Met
8:30 AM	827	381	Met
8:45 AM	827	381	Met
9:00 AM	0	0	
9:15 AM	0	0	
1:30 PM	0	0	
1:45 PM	0	0	
2:00 PM	0	0	
2:15 PM	0	0	
2:30 PM	0	0	
2:45 PM	0	0	
3:00 PM	0	0	
3:15 PM	171	76	
3:30 PM	342	142	
3:45 PM	519	210	
4:00 PM	667	275	

MUTCD Figure 4C-3. Warrant 3, Peak Hour



SECTION 8. TRAFFIC CALMING AND PEDESTRIAN INFRASTRUCTURE IMPROVEMENTS

© BKF Engineers

TRAFFIC CALMING/CROSSWALK IMPROVEMENTS

HWY 92

CROSSWALK, RAMPS AND LANDINGS @ EAST PATRICK WAY
SEE ATTACHMENT 1 FOR DETAILS

PATRICK WAY

STONE PINE RD

SPEED FEEDBACK MESSAGING BOARD

VEGETATION TRIMMING

STONE PINE RD

ERIN LN

STONE PINE RD

MAIN ST

CROSSWALK SIGN WITH
RECT. RAPID FLASHING BEACON

TWO WHITE STRIPES AND SHARROWS

PILARCITOS CREEK

0 40 80
GRAPHIC SCALE

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255 SHORELINE DRIVE
SUITE 200
REDWOOD CITY, CA 94065
(650) 482-6300
www.bkf.com

STONE PINE ROAD
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

No.	Revisions	Date

Date 10/10/2023
Scale 1" = 40'
Design DJP
Drawn DLG
Approved DJL
Job No 2021367-15

Drawing Number:
X-1
OF

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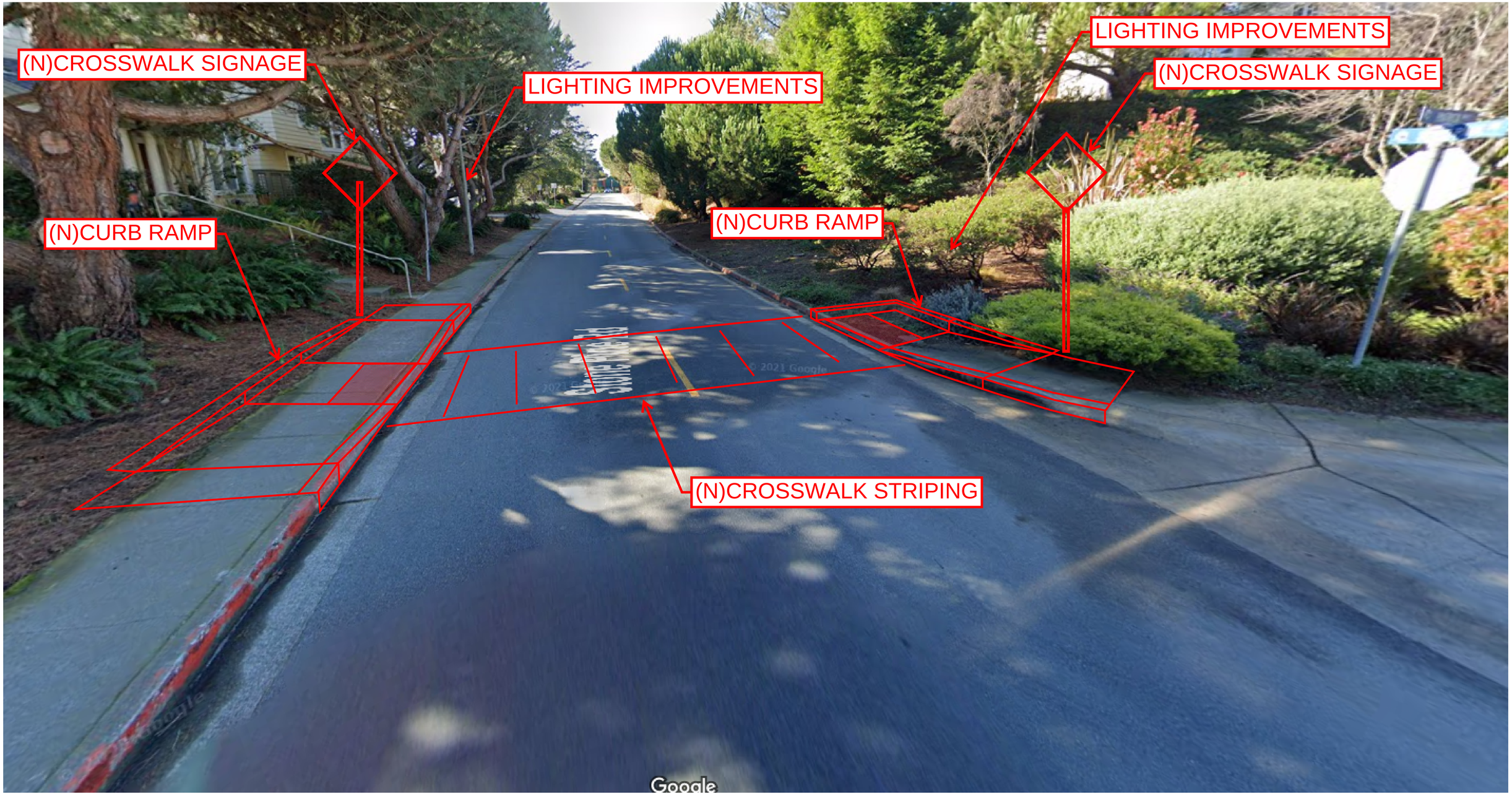
PLOT DATE: 08-30-23 PLOTTED BY: gold



ATTACHMENT 1:
STONE PINE RD & PATRICK WAY
EAST INTERSECTION

255 Shoreline Drive, Suite 200
Redwood City, CA 94065
Tel 650.482.6300

Stone Pine Road Traffic Calming and Crosswalk Improvements

Engineer's Opinion of Probable Construction Cost for Site Improvements[1]

Item No.	Item	Total Quantity	Unit	Unit Cost[2]	Total Cost
Mobilization and Traffic Control					
1	Mobilization	1	LS	$4,000	$4,000
2	Traffic Control[4]	1	LS	$15,000	$15,000
3	Tree Protection/Erosion Control	1	LS	$5,000	$5,000
Mobilization and Traffic Control Subtotal					$24,000
Rect. Rapid Flashing Beacons - West Patrick Wy Crosswalk					
1	Pedestrian Crosswalk Sign	2	EA	$1,000	$2,000
2	RRFB System (4 RRFB)	1	LS	$50,000	$50,000
3	Extension of Electrical System	1	LS	$5,000	$5,000
Rect. Rapid Flashing Beacons Subtotal					$57,000
Vegetation Trimming - West Patrick Wy Crosswalk (North Side)					
1	Vegetation Trimming Services	1	LS	$5,000	$5,000
Vegetation Trimming Subtotal					$5,000
Crosswalk, Ramps and Landings - East Patrick Wy					
1	Remove Existing Concrete Curb, Gutter and Sidewalk	400	SF	$3	$1,200
2	Remove Existing AC Paving	200	SF	$1	$200
3	New Accessible Curb Ramp (North)	1	EA	$15,000	$15,000
4	New Accessible Curb Ramp (South)	1	EA	$8,000	$8,000
5	New AC Paving	200	SF	$10	$2,000
6	Pedestrian Crosswalk Sign	2	EA	$1,000	$2,000
7	Thermoplastic Crosswalk Striping	200	SF	$5	$1,000
8	Lighting Improvements	1	LS	$10,000	$10,000
Crosswalk, Ramps and Landings Subtotal					$39,400
Speed Feedback Messaging Board - Stone Pine Rd					
1	Speed Feedback Sign	2	EA	$5,000	$10,000
2	Extension of Electrical System	1	LS	$5,000	$5,000
Speed Feedback Messaging Board Subtotal					$15,000
Re-striping and Lane Narrowing - Stone Pine Rd					
1	Two White Thermoplastic Edge Striping (Stone Pine Rd~1000 LF)	2,000	LF	$3	$6,000
2	Thermoplastic Sharrows	10	EA	$300	$3,000
Re-striping and Lane Narrowing Subtotal					$9,000

Subtotal	$149,400
50% Contingency[3]	$74,700
GRAND TOTAL	$225,000

NOTES

1. This Opinion of Probable Construction Quality & Costs Estimate for Site Improvements is based upon observation of current onsite conditions and the 2022 San Mateo County GIS Aerial Imagery. This estimate of Site Improvement Quantities and Order of Magnitude Costs has been prepared as a guide as to the opinion of the probable conceptual construction costs quantities anticipated for this project. BKF Engineers makes no warranty, either expressed or implied that the actual quantities and/or costs will not vary from the
2. Unit prices are generally based on Caltrans Region 4 construction cost data and comparison to other recent bids or estimates.
3. 50% contingency accounts for variation in design, design fees and other soft costs.
4. Traffic control does not include temporary pedestrian path of travel for any closures of the Stone Pine Road sidewalk due to improvements.

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TRAFFIC CALMING/CROSSWALK IMPROVEMENTS

HWY 92

CROSSWALK, RAMPS AND LANDINGS @ EAST PATRICK WAY
SEE ATTACHMENT 1 FOR DETAILS

PATRICK WAY

STONE PINE RD

SPEED FEEDBACK MESSAGING BOARD

VEGETATION TRIMMING

STONE PINE RD

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STONE PINE RD

MAIN ST

CROSSWALK SIGN WITH
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TWO WHITE STRIPES AND SHARROWS

PILARCITOS CREEK

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GRAPHIC SCALE

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STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

No.	Revisions	Date

Date 10/10/2023
Scale 1" = 40'
Design DJP
Drawn DLG
Approved DJL
Job No 2021367-15

Drawing Number:
X-1
OF

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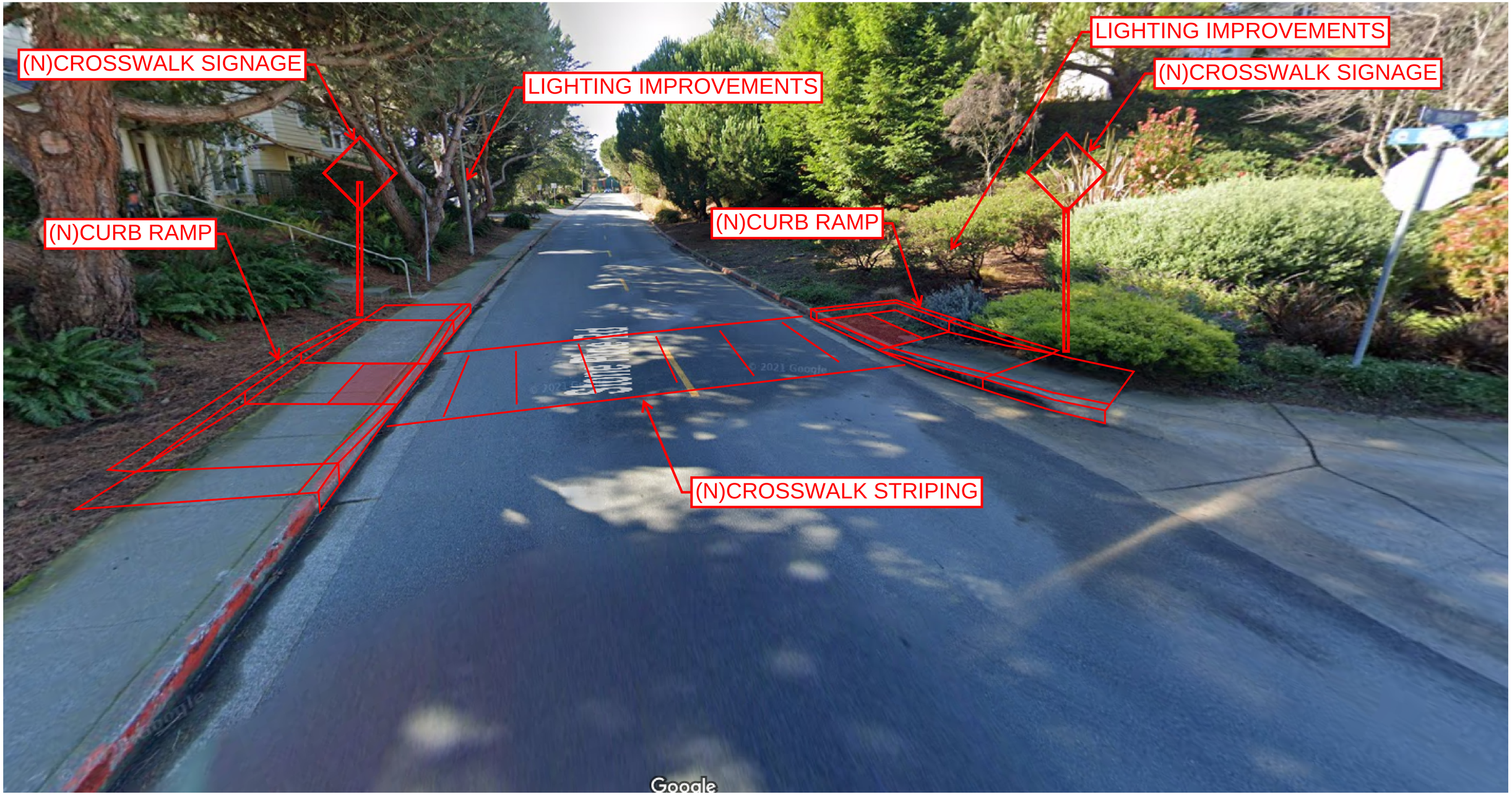
PLOT DATE: 08-30-23 PLOTTED BY: gold



ATTACHMENT 1:
STONE PINE RD & PATRICK WAY
EAST INTERSECTION

Half Moon Bay
Corporation Yard Upgrade Project

Draft Initial Study/
Mitigated Negative Declaration

JANUARY 2022

PREPARED FOR

City of Half Moon Bay

PREPARED BY

SWCA Environmental Consultants

HALF MOON BAY
CORPORATION YARD UPGRADE PROJECT
DRAFT INITIAL STUDY/
MITIGATED NEGATIVE DECLARATION

Prepared for

City of Half Moon Bay
501 Main Street
Half Moon Bay, California 94019
Attn: Todd Seeley

Prepared by

SWCA Environmental Consultants
60 Stone Pine Road, Suite 100
Half Moon Bay, California 94019
(650) 440-4160
www.swca.com

SWCA Project No. 67708

City Project No. PDP-21-053

January 2022

CONTENTS

Environmental Factors Potentially Affected 1

Chapter 1. Project Description 3

1.1 Introduction 3
1.2 CEQA Statute and Guidelines 4
1.3 Project Location 5
1.4 Land Use and Zoning 10
1.5 Proposed Project 12
1.6 Requested Action and Required Permits 21

Chapter 2. Environmental Checklist and Responses 23

2.1 Aesthetics 23
2.2 Agriculture and Forestry Resources 28
2.3 Air Quality 31
2.4 Biological Resources 36
2.5 Cultural Resources 56
2.6 Energy 59
2.7 Geology and Soils 61
2.8 Greenhouse Gas Emissions 65
2.9 Hazards and Hazardous Materials 67
2.10 Hydrology and Water Quality 71
2.11 Land Use and Planning 77
2.12 Mineral Resources 80
2.13 Noise 81
2.14 Population and Housing 82
2.15 Public Services 83
2.16 Recreation 86
2.17 Traffic and Circulation 87
2.18 Tribal Cultural Resources 89
2.19 Utilities and Service Systems 91
2.20 Wildfire 96
2.21 Mandatory Findings of Significance 99

Chapter 3. Preparers of the Initial Study and Mitigated Negative Declaration 103

3.1 Lead Agency 103
3.2 Project Applicant 103
3.3 Environmental Consultants (CEQA) 103

Appendices

Appendix A. Preliminary Site Design Plans
Appendix B. Biological Evaluations
B1. Biological Resources Report. 880 Stone Pine Road Project, H.T. Harvey & Associates
B2. Peer Review of the Biological Resources Report. 880 Stone Pine Road Project. Technical Memorandum, SWCA Environmental Associates
B3. Preliminary Delineation of Wetlands and Other Waters/Delineation of Coastal Zone Wetlands Within California Coastal Commission Jurisdiction. 880 Stone Pine Road Project, H.T Harvey & Associates
B4. Draft Frog/Snake Tunnel Design Proposal, Dr. Mark R. Jennings, Rana Resources
B5. Peer Review of H.T. Harvey & Associates Biological Resources Report for the City of Half Moon Bay Corporation Yard Upgrade Project, Dr. Mark R. Jennings, Rana Resources
Appendix C. Mitigation Monitoring and Reporting Plan

Figures

Figure 1-1. Project location map. 6
Figure 1-2. Project vicinity map. 7
Figure 1-3. Existing facilities. 8
Figure 1-4. Proposed project. 13
Figure 1-5. Proposed Corporation Yard facilities. 14
Figure 1-6. Tension fabric warehouse design. 19
Figure 2-1. Visual simulation from Highway 92 looking southwest. 25
Figure 2-2. Visual simulation from Highway 92 looking southeast 26

Tables

Table 1-1. Existing Facilities and Changes Under the Proposed Project 9
Table 2.1-1. Project Consistency with LCLUP Policies. 27
Table 2.3-1. Operational-Related Criteria Air Pollutant and Precursor Screening Level Sizes for General Light Industry 33
Table 2.11-1. Project Consistency with LCLUP Policies and Municipal Code 79
Table 2.19-1. CCWD Water Supply and Demand Estimates for Normal Water Years 93
Table 2.19-2. CCWD Water Supply and Demand Estimates for Multiple Dry Years 94

Acronyms and Abbreviations

2020 LCLUP	Local Coastal Land Use Plan adopted in 2020
AB	Assembly Bill
AMMP	archeological monitoring and mitigation plan
APN	Assessor's Parcel Number
BAAQMD	Bay Area Air Quality Management District
BMP	best management practice
BRR	Biological Resources Report
BSA	biological survey area
CAL FIRE	California Department of Forestry and Fire Protection
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CCC	California Coastal Commission
CCR	California Code of Regulations
CCWD	Coastside County Water District
CDFW	California Department of Fish and Wildlife
CDOC	California Department of Conservation
CDP	Coastal Development Permit
CEQA	California Environmental Quality Act
CFPD	Coastside Fire Protection District
City	City of Half Moon Bay
CNDDB	California Natural Diversity Database
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
Coastal Trail	Half Moon Bay Coastal Trail
County	County of San Mateo
CRHR	California Register of Historical Resources
CUSD	Cabrillo Unified School District
CY	cubic yards
DPS	Distinct Population Segment
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources

ESHA	Environmentally Sensitive Habitat Area
GHG	greenhouse gas
GIP	Green Infrastructure Plan
IS/MND	Initial Study/Mitigated Negative Declaration
LCLUP	Local Coastal Land Use Plan adopted in 2020
LID	Low Impact Development
LOS	level of service
MBTA	Migratory Bird Treaty Act
mgd	million gallons per day
MRZ	Mineral Resource Zone
NAHC	Native American Heritage Commission
NO_x	nitrogen oxides
NPDES	National Pollution Discharge Elimination System
NRHP	National Register of Historic Places
NWIC	Northwest Information Center
OHWM	ordinary high-water mark
PERP	portable engine registration program
PG&E	Pacific Gas and Electric Company
PM_{10}	particulate matter, 10 microns or less
$PM_{2.5}$	particulate matter, 2.5 microns or less
POST	Peninsula Open Space Trust
PRC	Public Resources Code
project	Half Moon Bay Corporation Yard Upgrade Project
ROG	reactive organic gases
RWQCB	Regional Water Quality Control Board
SAM	Sewer Authority Mid-Coastside
SamTrans	San Mateo County Transit District
SFPUC	San Francisco Public Utilities Commission
Sheriff's Department	San Mateo County Sheriff' Department
SLF	sacred lands file
SMCWPPP	San Mateo Countywide Water Pollution Prevention Program
SR-	State Route
SSC	Species of Special Concern
State	State of California

State Water Board	State Water Resources Control Board
SVP	Society of Vertebrate Paleontology
SWCA	SWCA Environmental Consultants
SWPPP	Stormwater Pollution Prevention Plan
TAC	Toxic Air Contaminants
U-R	Urban Reserve
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VHFHSZ	Very High Fire Hazard Severity Zone
VDECS	Verified Diesel Emission Control Strategies
VMT	Vehicle Miles Traveled
WUI	wildland urban interface

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CITY OF HALF MOON BAY

CALIFORNIA ENVIRONMENTAL QUALITY ACT
INITIAL STUDY AND CHECKLIST

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "potentially significant impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Greenhouse Gas Emissions	☐ Public Services
☐ Agriculture and Forestry Resources	☐ Hazards and Hazardous Materials	☐ Recreation
☐ Air Quality	☐ Hydrology and Water Quality	☐ Transportation
☐ Biological Resources	☐ Land Use and Planning	☐ Tribal Cultural Resources
☐ Cultural Resources	☐ Mineral Resources	☐ Utilities and Service Systems
☐ Energy	☐ Noise	☐ Wildfire
☐ Geology and Soils	☐ Population and Housing	☐ Mandatory Findings of Significance

DETERMINATION (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (a) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (b) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENT IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Todd J Seeley
Todd J Seeley (Jan 14, 2022 15:46 PST)

Jan 14, 2022

Signature **Date**

Printed Name
Todd Seeley, Public Works Superintendent

INITIAL STUDY CHECKLIST

BACKGROUND

PROPONENT NAME	**PHONE NUMBER**
City of Half Moon Bay	650-726-8265

PROPONENT ADDRESS
501 Main Street
Half Moon Bay, CA 94019

AGENCY REQUIRING CHECKLIST	**DATE SUBMITTED**
City of Half Moon Bay Public Works Department	January 14, 2022

PROPOSAL NAME
Half Moon Bay Corporation Yard Upgrade Project

CHAPTER 1. PROJECT DESCRIPTION

1.1 Introduction

Project Title: Half Moon Bay Corporation Yard Upgrade Project
Initial Study/Mitigated Negative Declaration

Lead Agency: City of Half Moon Bay
Public Works and Engineering Department
501 Main Street
Half Moon Bay, CA 94019

City Staff Contact: Todd Seeley, Public Works Superintendent
Maziar Bozorginia, City Engineer
Doug Garrison, Senior Planner

TSeeley@hmbcity.com
MBozorginia@hmbcity.com
DGarrison@hmbcity.com

Project Applicants: City of Half Moon Bay, Public Works and Engineering Department

The subject of this Initial Study/Mitigated Negative Declaration (IS/MND) under the California Environmental Quality Act (CEQA) is the proposed Half Moon Bay Corporation Yard Upgrade Project (project), which consists of constructing improvements and upgrades to City-owned property at the City's existing Corporation Yard at 880 Stone Pine Road, Half Moon Bay, California. The property currently contains the City's Corporation Yard facilities, as well as several Environmentally Sensitive Areas (ESHAs) and a Conservation Trail Easement. The project would be composed of the following improvements: a new access road would be constructed and the old access road loop abandoned; the approximately 4-acre Corporation Yard area would receive upgrades to the Corporation Yard facilities, including a new fabric tension warehouse (warehouse) building, trash and landscape materials enclosure (materials enclosure), solar field, roadways, parking areas, gates, and fencing; and approximately 12 acres of ESHAs, including a 50-foot riparian buffer area around Pilarcitos Creek and 100-foot wetland buffer area around an existing impoundment, would be protected with the installation of wildlife fencing including wildlife tunnels under the new access road. The remaining approximately 4-acre portion of the parcel (remainder area) would not receive any improvements. The remainder area is not a part of the project but may be developed under a subsequent project. The project is planned to be implemented in two phases. In Phase 1, the site would be cleared, prepared, and graded; water and electrical utilities would be upgraded; wildlife corridor fencing would be installed; a portion of the existing fencing within the 100-foot buffer of the impoundment would be removed; and a new materials enclosure, solar field, roadways, parking areas, gates, and fencing would be constructed. The existing dirt/gravel loop roadway would be removed. Preparation would include demolition of some existing features, including the existing trash bins, and removal of a number of existing metal shipping containers and trailers. Under Phase 2, the project would construct the new warehouse, including the foundation and the following interior improvements to the warehouse: storage rooms, offices, kitchenette, locker room, restrooms/shower rooms, and new electrical and utilities. The project includes installation of new fencing around a portion of the Corporation Yard area to fully enclose it and a security gate at the entrance of the Corporation Yard. Security lighting would be included at the gate and on the warehouse and materials enclosure.

Construction of the Corporation Yard upgrades would commence in April 2022 and take approximately 4 to 6 months to complete over the course of 2 to 3 years. This IS/MND includes a description of the existing environmental setting of the project and the environmental effects that may result from construction and operation of the project.

1.2 CEQA Statute and Guidelines

According to CEQA Statute Section 21064.5:

> MITIGATED NEGATIVE DECLARATION
>
> "Mitigated negative declaration" means a negative declaration prepared for a project when the initial study has identified potentially significant effects on the environment, but (1) revisions in the project plans or proposals made by, or agreed to by, the applicant before the proposed negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur, and (2) there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment."

According to California State (State) CEQA Guidelines Article 6. Negative Declaration Process:

> 15070. DECISION TO PREPARE A NEGATIVE OR MITIGATED NEGATIVE DECLARATION
>
> A public agency shall prepare or have prepared a proposed negative declaration or mitigated negative declaration for a project subject to CEQA when:
>
> (a) The initial study shows that there is no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment, or
>
> (b) The initial study identifies potentially significant effects, but:
>
> (1) Revisions in the project plans or proposals made by, or agreed to by the applicant before a proposed mitigated negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and
>
> (2) There is no substantial evidence, in light of the whole record before the agency, that the project as revised may have a significant effect on the environment.
>
> 15071. CONTENTS
>
> A Negative Declaration circulated for public review shall include:
>
> (a) A brief description of the project, including a commonly used name for the project, if any;
>
> (b) The location of the project, preferably shown on a map, and the name of the project proponent;
>
> (c) A proposed finding that the project will not have a significant effect on the environment;

(d) An attached copy of the Initial Study documenting reasons to support the finding; and

(e) Mitigation measures, if any, included in the project to avoid potentially significant effects.

1.3 Project Location

Regional Setting

The project site is located at the east end of Stone Pine Road between State Route (SR-) 92 and Pilarcitos Creek in the City of Half Moon Bay, San Mateo County, California. San Mateo County is situated along the central coast of California and encompasses approximately 554 square miles (including tidal waters) of the San Francisco Peninsula. The county's western border is on the Pacific Ocean and the eastern border is on the San Francisco Bay shoreline. The county is bounded by the city and county of San Francisco to the north and by Santa Cruz and Santa Clara Counties to the south and southeast, respectively.

The Santa Cruz Mountain Range traverses San Mateo County in a north–south direction, effectively dividing the county into two distinct regions: the Coastside and the Bayside. The Coastside is characterized by coastal terraces transitioning into the gently sloping foothills of the Santa Cruz Mountains. The Bayside is characterized by low-lying mudflats, marshes, artificial fill, and broad, flat alluvial plains. Farther west, this low-lying region transitions into the foothills of the Santa Cruz Mountains, increasing in slope to 15 to 30 percent near its crest. The City is situated along the Coastside, approximately 25 miles south of San Francisco, and encompasses approximately 6.4 square miles of land. It is bordered by the Pacific Ocean to the west, the Santa Cruz Mountains to the east, and unincorporated San Mateo County to the north and south. Figure 1-1 shows the project site location and regional vicinity.

Local Setting

The project site, at 880 Stone Pine Road, is the site of a former plant nursery at the east end of Stone Pine Road (Figure 1-2) with a total acreage of 20.33 acres. The site is gently sloping from north to south towards Pilarcitos Creek and varies from approximately 65 to 80 feet above mean sea level; the site drains by overland flow to Pilarcitos Creek. The eastern portion of the site is currently used as a Corporation Yard by the City, and the western portion of the site is undeveloped except for a former agricultural water impoundment/wetland (impoundment) in the northwestern corner that was used by the previous agricultural operation, a dirt/gravel loop road for access, and fencing around the entire site (Figure 1-3). The western portion of the site also contains several abandoned structures from the previous agricultural operations. A Pacific Gas and Electric Company (PG&E) transmission line crosses the western portion from north to south.

The project site is bordered by SR-92 to the north, a commercial center (Spanish Town) to the east, Pilarcitos Creek to the south, and townhomes and mobile homes to the west (see Figure 1-2). In the broader area, there are open space areas and agricultural greenhouses southeast of Pilarcitos Creek and southeast, east, and northeast of the project site. To the north, there are open space areas north of SR-92 and the Hilltop Mobile Home Park to the northwest.

The project site is partially visible from SR-92; however, it is partially screened by a row of cypress trees.

The project site is accessed by Main Street and Stone Pine Road via SR-92. Stone Pine Road connects to Main Street approximately 0.25 mile west of the project site.

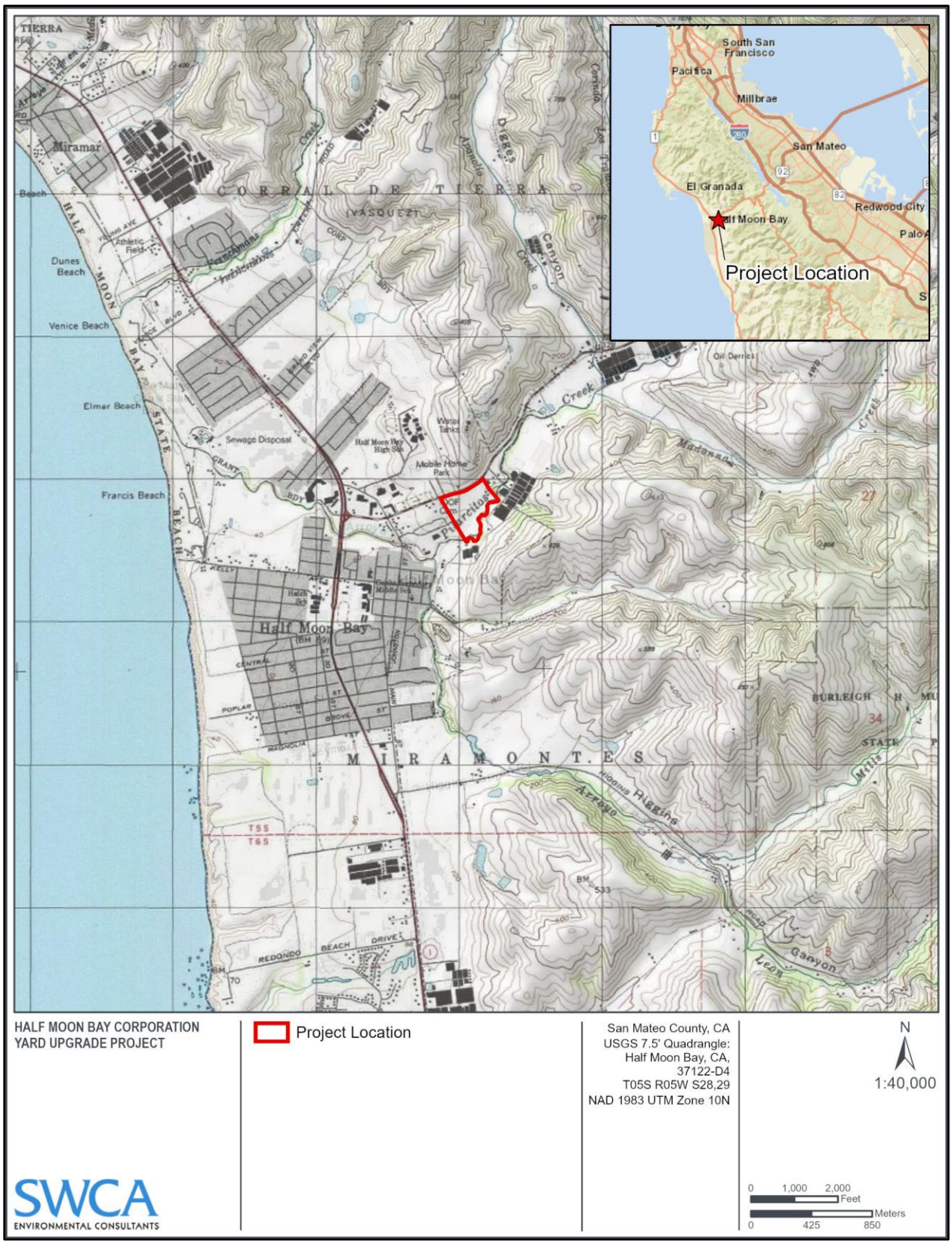

Figure 1-1. Project location map.



Figure 1-2. Project vicinity map.

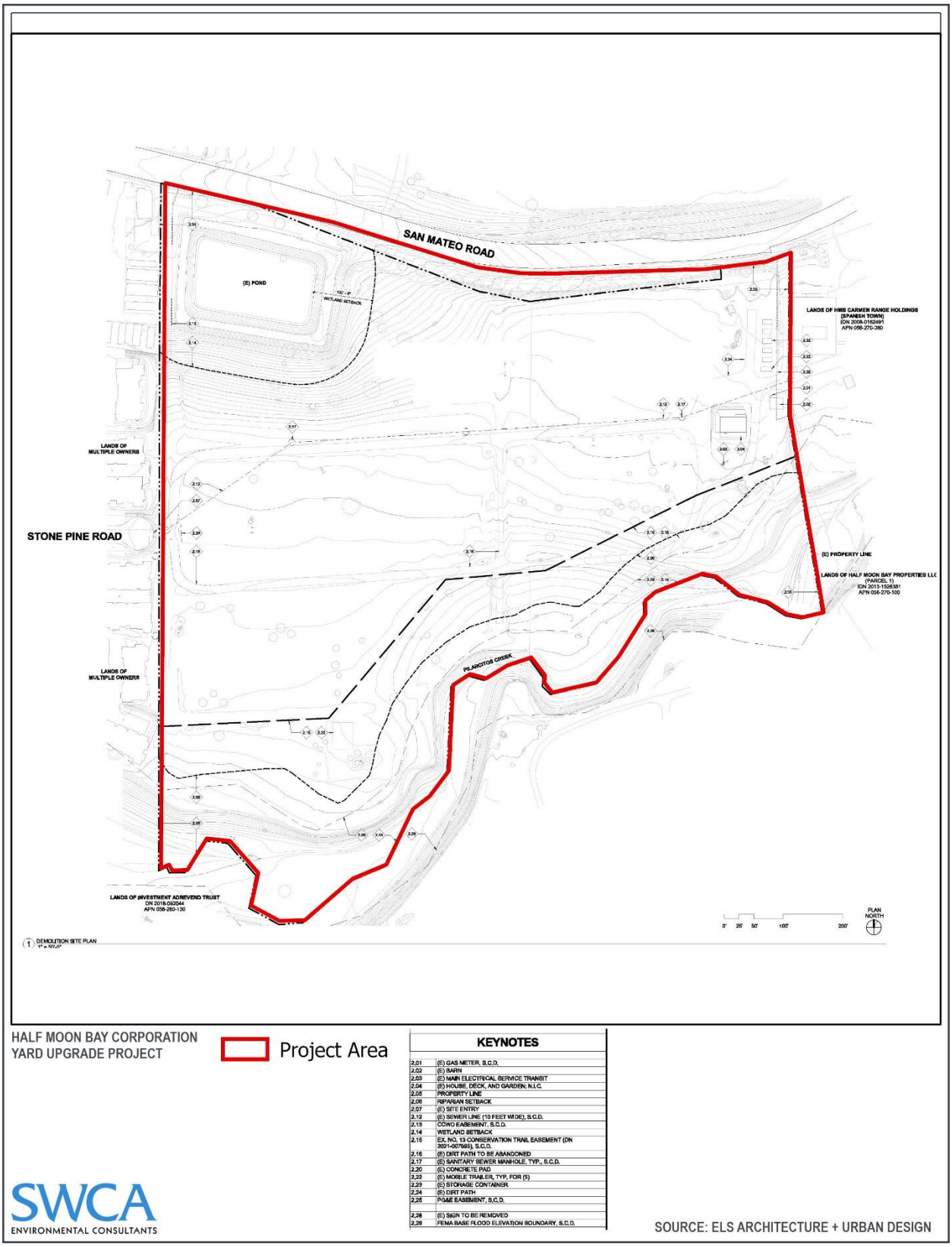

Figure 1-3. Existing facilities.

Existing Use and Facilities

Approximately 6 acres of the project site are currently in use as a Corporation Yard and contain a number of existing facilities (see Figure 1-3). The primary function of the Corporation Yard is storage, including vehicle storage, equipment storage, and trash and materials storage and removal. City vehicles are stored on dirt/graveled parking areas and include dump and haul trucks for construction materials, a backend loader, and other small construction equipment. There are four to five solid waste truck trips every week. Existing gravel roads are covered with re-purposed aggregate.

Trash and construction materials are stored in the existing trash and landscaping materials enclosure. Construction materials include, but are not limited to, sand, gravel, asphalt grindings, and base rock that are being transferred between projects. The yard also acts as a laydown yard for City projects.

Equipment and materials are stored in metal shipping containers. Emergency supplies for City and Coastside agencies are stored on-site. There is an existing building (formerly a ranch house) on-site that serves as office space and restroom facilities for staff. Currently eight employees work at the Corporation Yard. Each staff member makes an average of five round trips per day in and out of the yard. Most of these trips are done in City vehicles.

Many of the storage containers were removed prior to the start of the project. Existing facilities and recent and proposed changes are shown on Table 1-1 and in Figure 1-3.

There is an existing water impoundment at the northwest corner of the property. The impoundment is not in current use but provides breeding habitat for California red-legged frog, as does Pilarcitos Creek on the southern border of the project. There is an existing wildlife corridor that could potentially be used by California red-legged frog and San Francisco garter snake that crosses the parcel between the impoundment in the north and Pilarcitos Creek to the south.

Table 1-1. Existing Facilities and Changes Under the Proposed Project

Existing Facilities	Current Use	Changes Under Proposed Project
Within Corporation Yard Area		
Office, deck	Offices and restrooms	Existing structures would remain. No work would be done as part of the project.
Barn/Garage	Recently rebuilt and used for storage	None
Gravel/dirt access road	Existing Corporation Yard access	Loop road would be abandoned and replaced with single paved access road.
Gravel/dirt parking	Parking for employees and City vehicles	Parking areas would be abandoned and replaced with paved lots.
Trash enclosure, partially within 50-foot riparian setback	Storage for trash, recycling, gravel, and other landscaping and construction materials	Enclosure would be demolished and replaced in a different location.
Nineteen metal containers	Material and equipment storage	Containers owned by others have been removed by others. Containers with City supplies would be replaced by the warehouse.

Existing Facilities	Current Use	Changes Under Proposed Project
Wildlife Corridor	Currently open and undefined between impoundment and Pilarcitos Creek	A minimum 50-foot-wide corridor would be fenced from the impoundment leading east, then south, which would fan out near Pilarcitos Creek and be fenced on the north side of the Conservation Trial Easement along the southern boundary. It would include frog/snake tunnels under the access road. Either permanent or temporary wildlife fencing would extend along the north side of the Conservation Trail Easement from the Corporation Yard to the western border as part of this project. Temporary fencing would be replaced with a permanent solution within 1 year.
Trees	Not Applicable (N/A)	Twelve trees would be removed as part of the project. The City would plant 12 trees on the site or elsewhere in the City to replace at a 1-to-1 ratio.
Outside of Corporation Yard Area		
Water impoundment/wetland	No current use	Portions of the existing southern and eastern fencing around the impoundment would be removed and replaced with wildlife fencing 100 feet from the perimeter that would connect to the proposed wildlife corridor. The impoundment would not be impacted.
Wildlife corridor	N/A	Wildlife corridor would be fenced and provided with a frog/snake tunnels under new road. Portions of the existing fencing inside the 100-foot buffer zone on the south and east sides would be removed to allow access to the wildlife corridor.
Gravel loop road	Access	Would be abandoned and replaced with a single paved access road, including frog/snake tunnels under the road.
Fencing around Corporation Yard	Security	The Corporation Yard is currently fenced on the northern and eastern borders. New fencing would be installed on the western and southern borders of the Corporation Yard to complete the security fencing around City facilities. No existing perimeter fencing will be removed.

Source: ELS Architecture + Urban Design (2020)

1.4 Land Use and Zoning

The project site is owned by the City and located entirely within the City limits. Under the *City of Half Moon Bay Local Coastal Land Use Plan* (LCLUP), the project site is designated as Public Facilities and Institutions. This designation provides for "educational, governmental, agricultural, habitat restoration, and institutional uses, such as public schools, public works and utilities yards and maintenance buildings, community gardens, public hospitals, and quasi-public uses including churches, and healthcare uses such as hospitals, clinics, and assisted living facilities."[1] The LCLUP Land Use Map designates Pilarcitos Creek, adjacent to the project area, as a Greenbelt Stream Corridor.

[1] City of Half Moon Bay. 2020. *City of Half Moon Bay Local Coastal Land Use Plan 2020 Comprehensive Update*. October 20. Available at https://www.half-moon-bay.ca.us/DocumentCenter/View/3784/Full-Combined-2020-HMB-LCLUP. Accessed August 3, 2021.

Under the Half Moon Bay Municipal Code, existing zoning for the entire project site is currently designated Urban Reserve (U-R); however, the intended future zoning of this site is Public/Quasi Public (P-S).[2,3] Permitted uses for the Public/Quasi Public (P-S) districts include fire stations, schools, airports, libraries, churches, civic centers, hospitals, cemeteries, parks, and emergency shelters. Under Zoning Code Section 18.03.040, public and semipublic classifications include Maintenance and Service facilities, defined as: "*Facilities providing maintenance and repair services for vehicles and equipment, and materials storage areas for public or quasipublic entities. This classification includes corporation yards, equipment service centers, and similar facilities for public or quasipublic entities*."[4,5] In certifying the LCLUP, the California Coastal Commission (CCC) specifically noted if there were discrepancies between the LCLUP designations and policies and the zoning code, the LCLUP is the ruling document.

The entire City is in the California Coastal Zone. The project is approximately 1.2 miles east of the Pacific Ocean and is within 50 feet of Pilarcitos Creek at its closest point; therefore, it is in the California Coastal Zone. The California Coastal Zone was established by the California Coastal Act of 1976 and is under the jurisdiction of the CCC. Chapter 3 of the California Coastal Act includes provisions that address the impact of development on public services, infrastructure, traffic, the environment, significant resources, and coastal access.

In October 2020, the City adopted a new LCLUP,[6] which was certified by the CCC on April 15, 2021. The LCLUP together with the City's Zoning Ordinance, Subdivision Ordinance, and zoning map constitute the Local Coastal Program for the City's coastal zone. A Coastal Development Permit (CDP) is required for construction of the project. The City is the designated agency responsible for CDP approval of projects within the City limits.

The property has been used historically as an agricultural operation. The City began to use the land under a license agreement and subsequently under a lease following purchase of the land by Peninsula Open Space Trust (POST) in 2005. The City has maintained the parcel on behalf of POST (until recent purchase by City) and has used a portion of it as a Corporation Yard. In 2020 the City purchased the property from POST. As part of the purchase agreement, for portions of the land which were not developed for municipal uses, the City agreed to "*consider public uses including, but not limited to, passive open space, nature trails, and uses of the land that recognize and are consistent with the property's legacy use as agricultural land.*" In addition, the City agreed to pursue restoration of the portion of Pilarcitos Creek on the parcel and develop a public access trail adjacent to Pilarcitos Creek from the property to Carter Park[7] (refer to Figure 1-3 for the No. 13 Conservation Trail Easement). The proposed project protects these sensitive areas, but solely addresses upgrades to the City's Corporation Yard. Restoration of Pilarcitos

[2] City of Half Moon Bay. 2015. Half Moon Bay Zoning Map. Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/129/Zoning-Map-PDF. Accessed August 3, 2021.

[3] City of Half Moon Bay. 2020. *City of Half Moon Bay Local Coastal Land Use Plan 2020 Comprehensive Update*. *Appendix A LUP Implementation.* Table A-1. Zoning Map Amendments. Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/3765/Appendix-A-LUP-Implementation. Accessed December 15, 2021.

[4] City of Half Moon Bay. 2020. *Half Moon Bay Municipal Code, Chapter 18.09. Public and Quasi Public Land.* Available at: https://www.codepublishing.com/CA/HalfMoonBay/#!/HalfMoonBay18/HalfMoonBay1809.html#18.09. Accessed December 15, 2021.

[5] City of Half Moon Bay. 2020. *Half Moon Bay Municipal Code, Chapter 18.03.Use Classifications.* Available at: https://www.codepublishing.com/CA/HalfMoonBay/#!/HalfMoonBay18/HalfMoonBay1803.html#18.03. Accessed December 15, 2021

[6] City of Half Moon Bay. 2020. *City of Half Moon Bay Local Coastal Land Use Plan 2020 Comprehensive Update*. October 20. Available at https://www.half-moon-bay.ca.us/DocumentCenter/View/3784/Full-Combined-2020-HMB-LCLUP. Accessed August 3, 2021.

[7] City of Half Moon Bay. 2020. 880 Stone Pine Purchase and Sale Agreement between Peninsula Open Space Trust and City of Half Moon Bay.

Creek and development of a public trail are not part of the proposed project; however, the City is committed to both restoring portions of Pilarcitos Creek in and adjacent to the boundary of the property and development of a creek-side pedestrian trail.

1.5 Proposed Project

The project would result in the development/redevelopment of approximately 4 acres of the 20.33 acres for use as a City Corporation Yard on the northeast end of the property. Related improvements to the Corporation Yard include a paved access road with frog/toad tunnels under the new access road. Some related improvements would be made to protect the approximately 12 acres of ESHAs on the site. These would include wildlife fencing around the 100-foot buffer for the impoundment, proposed wildlife corridor, and on the north side of the Conservation Trail Easement. Future improvements to the parcel include construction of a pedestrian trail in the Conservation Trail Easement and restoration of the riparian area adjacent to Pilarcitos Creek to the south. The remaining approximately 4 acres of the parcel are not part of the project or proposed to be developed at this time. Improvements would be made to utilities that cross the remainder area (potentially including electrical, water, and sewer lines). The exact locations of the access road and wildlife corridor are still being studied. The road alignment would be located as far to the north as is practicable based on traffic safety, vegetation, avoidance of ESHAs, and landforms. All new utilities will be undergrounded, and the new electrical connection would be undergrounded from the utility pole closest to the existing office (former residence). Proposed improvements are shown in Figures 1-4 and 1-5.

The project is to be developed in two phases. Phase 1 includes construction of the wildlife corridor; clearing, preparation, and grading of the site per the development plans; and development of most of the new facilities. Preparation would include demolition of some existing features, including the existing materials enclosure and portions of the existing fence around the impoundment. Wildlife fencing would be installed. Utilities, including water, sewer, and electrical utilities, would be upgraded. A new roadway and two parking areas, new materials enclosure, and new solar field would be constructed. Under Phase 1, new perimeter fencing with a security gate would be installed on the south and west sides of the Corporation Yard consistent with the defined Corporation Yard boundaries on the development plans. Security lighting would be installed at the gate and on the exterior of the warehouse and materials enclosure.

In addition to road, utility line, and security fencing around the Corporation Yard, the project would add wildlife fencing around the water impoundment and wildlife corridor, designed to guide sensitive species between the water impoundment and Pilarcitos Creek. The wildlife fence would surround a portion of the water impoundment and funnel movement from the impoundment to frog/snake tunnels constructed under the new access road, and then to Pilarcitos Creek. The portion of the existing security fencing around the impoundment on the south and east sides that are within the 100-foot wetland buffer area would be removed, and wildlife fencing would be erected around the impoundment at the 100-foot buffer line or property line, whichever is closer. At the southern end of the wildlife corridor, the wildlife fencing would fan out north of the Conservation Trail Easement and continue on the north side of the Conservation Trail Easement. Temporary wildlife fencing may be installed east of the Corporation Yard. If temporary

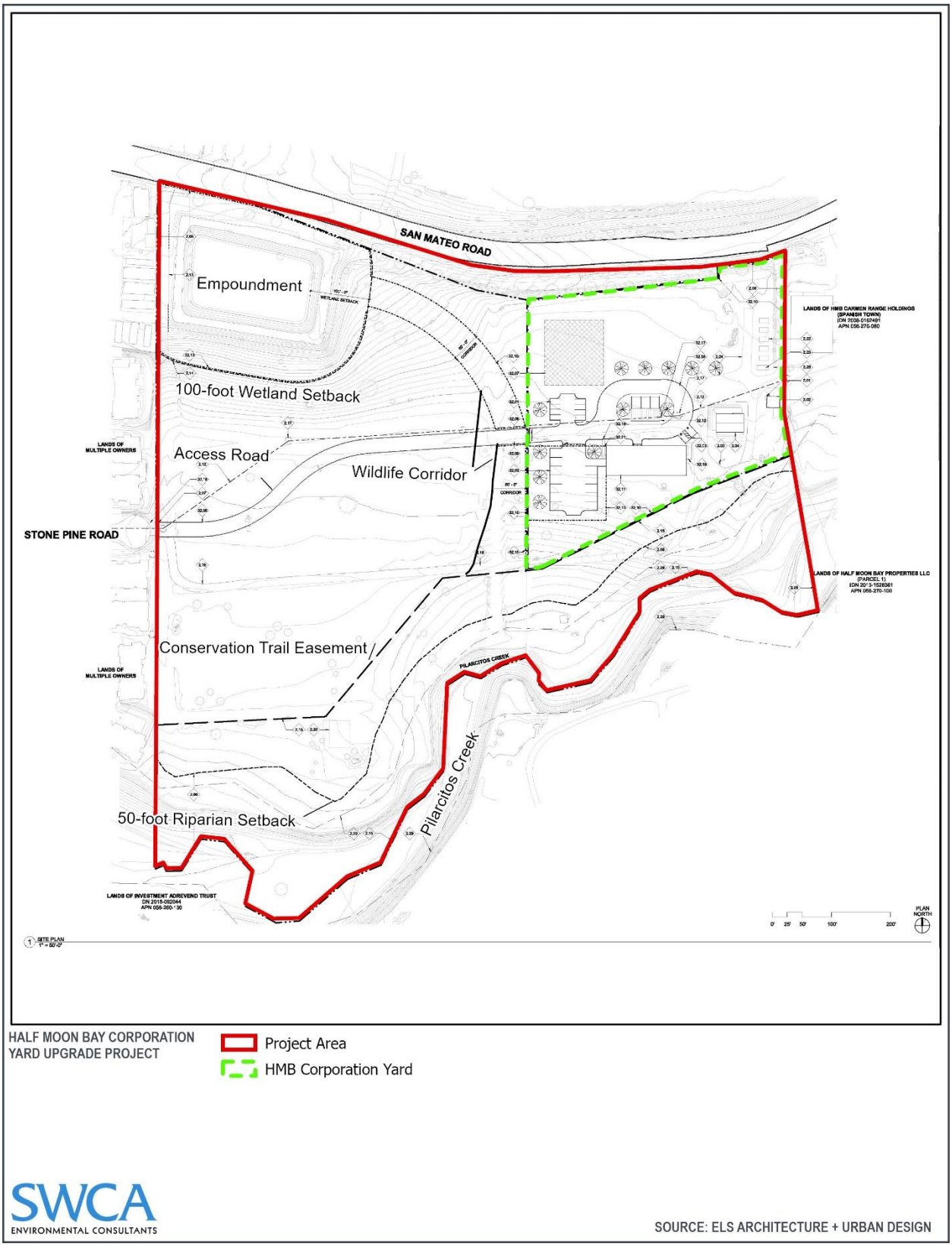

Figure 1-4. Proposed project.

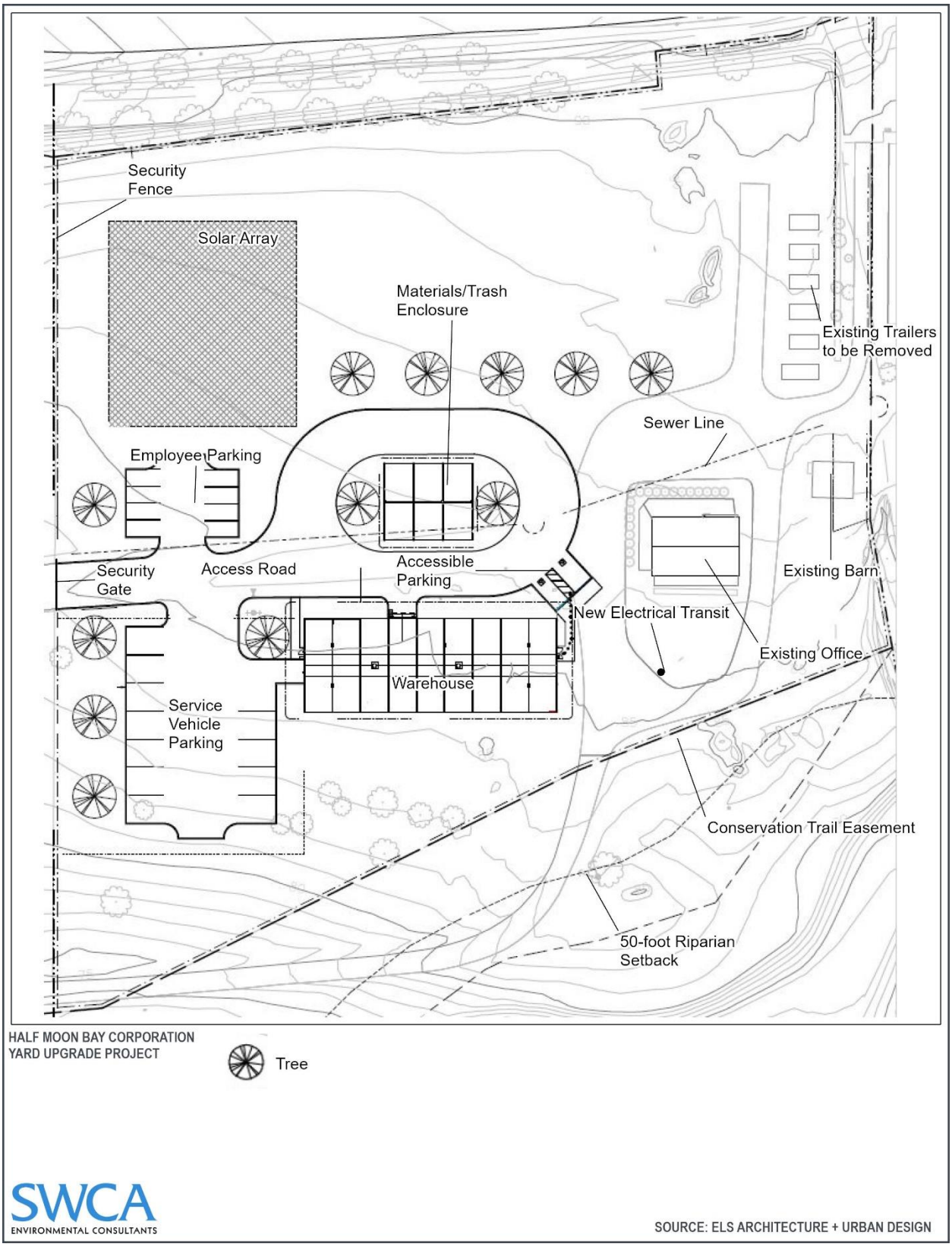

Figure 1-5. Proposed Corporation Yard facilities.

fencing is used, it would be inspected once a week and replaced with a permanent solution within 1 year under a separate project. The wildlife fence would be constructed of chain-link fencing with slats to prevent sensitive species from crossing. The access road would be raised to accommodate four frog/snake tunnels under the road and prevent sensitive species from crossing the road surface. The frog/snake tunnels would be constructed of concrete box culverts. The City would maintain an approximately 10-foot-wide access corridor adjacent to the wildlife corridor to allow access for maintenance.

Under Phase 2, the project would construct the new warehouse with restrooms in the Corporation Yard, including foundation, erection of the warehouse, and installation of fire sprinkler system, and new electrical, water, and sewer utilities. This phase would also include interior improvements to the warehouse, including storage rooms, locker rooms, kitchenette, and restrooms/shower rooms. The proposed project is shown in Figures 1-4 and 1-5.

Potential additional uses of and improvements to the parcel outside the Corporation Yard area could include, but would not be limited to, a trailhead and trail along the No. 13 Conservation Trail Easement, a visitor parking area, and restoration of Pilarcitos Creek. These potential future uses would be conducted under a future project or projects. Potential future improvements to the remainder area, apart from the improvements to utilities, could include, but would not be limited to, an additional potential solar generation field, a community garden, and/or housing. Any improvements to the remainder area would be conducted under a future project or projects.

As the City owns the entirety of the property, no parceling is necessary at this time to implement the project. The City may choose to parcel the property either through a Boundary Line Adjustment or other means provided under the State Subdivision Map Act and in accordance with the Coastal Act.

Phase 1

Phase 1 would include site clearing and preparation; demolition of some existing features; and construction of roads, parking areas, utilities, a materials enclosure, and a solar field. New security fencing would be installed around the south and west sides of the Corporation Yard area, to fully enclose City facilities, with a card-activated gate. Security lighting would be installed at the gate and on the warehouse and material enclosure. Security lighting at the gate may be continuous and would likely be confined to illuminating the keypad for entry. As required by City code, all lighting would be directed downward and shielded to prevent spillover onto neighboring properties. Security lighting will likely be on timers or photocells to turn them on at night. No other nighttime lighting is anticipated.

Specifically, Phase 1 of the project would include the following:

- Removal of existing facilities as described in Table 1-1;
- Grubbing and grading as required for new facilities; construction of an asphalt-paved access road designed to include the frog/snake tunnels under the road; and construction of two accessible parking stalls adjacent to the warehouse. The precise location of the road is being determined and may change slightly from that shown in Figure 1-4;
- Construction of the 50-foot-wide wildlife corridor with wildlife exclusion fencing and 10-foot-wide access paths on either side. The wildlife fence would surround the water impoundment at the 100-foot buffer line or the property line, whichever is closer, and direct movement of sensitive species to frog/snake tunnels under the new access road, prevent sensitive species from crossing the road, and fan out on the north side of the Conservation Easement toward Pilarcitos Creek. The corridor would include four frog/snake tunnels under the access road constructed of four 3-foot-wide by 2-foot-tall concrete box culverts. The road would be elevated to accommodate the frog/snake tunnels;

- Construction of a paved staff parking area with eight parking stalls;
- Construction of a paved service vehicle parking area with 12 parking stalls;
- Construction of a new 11,000-square-foot solar field north of the new parking area with connection to new PG&E service;
- Installation of a new picnic area near the existing on-site office building that was formerly a residence;
- Construction of an approximately 40-foot by 47-foot roofed materials enclosure with six bays, approximately 15 feet in height, that would include a French drain to the existing sanitary sewer that crosses the enclosure footprint, and security lighting;
- Installation of a new electrical service transit and electrical upgrades, to be undergrounded from the utility pole south of the existing offices (former residence);
- Installation of new water service upgrades, including fire hydrants and sprinklers;
- Installation of security fencing around south and west sides of the Corporation Yard, including one automatic rolling gate with keycard entry at the Corporation Yard entrance;
- Installation of drainage improvements that meet the requirements of the *City of Half Moon Bay Green Infrastructure Plan* (GIP)[8] to prevent sediment-laden runoff to Pilarcitos Creek; and
- Protection of the existing No. 13 Conservation Trail Easement and wetland and riparian setbacks.

Some construction equipment, such as a backhoe and haul trucks, is currently stored at the site. During project construction, the existing site, primarily the existing dirt road that runs between the two main roads, would be used to stage equipment. The staging area would be used for equipment storage, materials staging, and parking.

MATERIALS ENCLOSURE

The materials enclosure would include six bays for storage of wood, gravel, sand, compost, trash, and recycling materials. Each bay would be 15 feet by 20 feet and partially enclosed with 5-foot-4-inch-high side walls. The entire structure would be roofed with a metal roof over plywood supported by a metal frame and would be approximately 40 feet by 47 feet and 15 feet in height. The structure would have a continuous French drain to divert runoff to an existing sanitary sewer, which would prevent contaminated drainage from leaving the enclosure.

SOLAR FIELD

The solar power-generating system would include an estimated 80 solar panels, 66 inches by 40 inches in size. They would be mounted in banks of six on angled mounts, with one inverter and interconnection facilities to a new, on-site, PG&E switchboard to support the Corporation Yard. The solar field would provide 100 percent of the electricity required by the Corporation Yard.

The solar field would cover approximately 11,000 square feet. The approximately 80 solar panels would be fixed in a south-facing direction. Each rack would be approximately 10 feet wide. The racking system would be supported, when practical, by driven piers (piles) directly embedded into the ground and would be parallel to the ground. Each rack would have a height up to 8 feet, 4 inches above grade. The minimum clearance from the lower edge of the panel to ground level would be approximately 30 inches.

[8] City of Half Moon Bay. 2019. *City of Half Moon Bay Green Infrastructure Plan*. September. Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/2305/HalfMoonBayGIPlan09-2019Final1. Accessed August 6, 2021.

The installation would include one aboveground inverter station, which would collect the generated power in a central location, convert the power to the appropriate voltage, and feed it into the new PG&E main switchboard south of the current office (former residence). The transmission line would run underground from the inverter to the switchboard in a trench approximately 24 to 36 inches in depth.

WILDLIFE CORRIDOR

The wildlife corridor would be 50 feet wide and directed northeast from the water impoundment, then southeast along the new Corporation Yard fence line to the riparian corridor around Pilarcitos Creek. North of the Conservation Trail Easement it would fan out to create a wider entrance. A wildlife fence line would also be added along the northern border of the Conservation Trail Easement, running east to west to funnel any dispersing wildlife into the wildlife corridor from Pilarcitos Creek.

A portion of the security fencing around the current impoundment would be removed. The northern and western fence lines would be expanded to the current edge of the PG&E easement on the northern edge of the property and to the property boundary on the western edge of the property and remain as a 6-foot-tall fence. The eastern and southern fence lines would be expanded to the 100-foot wetland setback and would be composed of 4-foot-tall chain-link wildlife fence. The access gate located in the northeast corner of the fence would remain in place. All wildlife fencing would be installed with aluminum slats or vinyl slats (with wings) to exclude frogs and snakes. Gaps at the ends of the fencing would be covered with slats bolted together. The bottom of the fencing would be buried in the soil to a depth of 2 inches (except at the entrance to the movement corridor on the east side of the fence line. Here, no slats would be installed, and the fencing would leave a gap of 2 inches at the bottom for frogs and snakes to pass).

The wildlife fencing around the movement corridor itself and along the Conservation Trail Easement would be chain-link fencing 4 feet tall. It would also be buried 2 inches at the bottom and covered with aluminum or vinyl slats. Gaps at the ends of the fencing would be covered with slats bolted together. Access gates would be installed on the west side of the fence lines. This fence would also connect on either side of the roadway to prevent frogs and snakes from entering the roadway.

Wildlife fencing along the Conservation Trail Easement may be constructed of a temporary material (such as ERTEC brand or similar material) during construction and for up to 1 year following the completion of construction. The temporary wildlife fencing would be maintained weekly by Corporation Yard staff. After 1 year, the temporary wildlife fencing must be assessed by a qualified biologist; at that time, the temporary fencing would be replaced with a permanent wildlife fence or a timeline for permanent fence installation would be established.

Where the wildlife corridor crosses the new access road, it would cross under via frog/snake tunnels. The access road would be elevated to admit the frog/snake tunnels. The frog/snake tunnels would be composed of four 3-foot-wide and 2-foot-tall concrete box culverts. They would be spaced under the roadway with culverts on the west and east sides flush against the adjacent wildlife fencing, and the remaining two culverts spaced approximately 14 feet from one another. The culvert bases would be at ground level and installed at a 2 percent slope to drain water. Either a trench or raising the roadway would be required to ensure that the culvert bases are properly aligned on the ground level. Whichever method is used, the end result would be to prevent any water from ponding in the culverts for extended periods. The floor of each culvert would contain an inch or so of natural soil (to cover the concrete base). The level of this soil base would be even with the soil level at the entrance and exit of each box culvert.

There would be a 10-foot-wide path on either side of the wildlife corridor, as well as gates in the fence, to provide access for maintenance. It is anticipated that, if feasible, domestic goats would be used to graze the area around the impoundment and the migration corridor on an annual basis for vegetation fuels

management. If goat grazing is not feasible, vegetation management may be accomplished by using hand tools with a biological monitor present.

Phase 2

Phase 2 includes the construction of the warehouse, which would be a 50-foot by 135-foot tension fabric building, approximately 23 feet 9 inches in height. The warehouse would be erected on a new concrete pad foundation with underslab piping for electrical and future plumbing. A fabric tension structure is made up of a flexible membrane material supported by cables and structural steel members. The structure would have a corrugated steel frame. The exterior would be tan in color (Figure 1-6). Following construction of the structure, the City will complete interior improvements to the structure. The warehouse would include two accessible restrooms with showers, one locker room, one kitchenette, two 220-square-foot offices, two 300-square-foot storage rooms, and related mechanical/plumbing/electrical systems for the interior. All interior rooms would be "stick-built" drywall on metal stud framing within the warehouse. The remainder of the floor space would be used as a workshop and for equipment and materials storage. Security lighting would be added to the outside of the warehouse.

The project would result in approximately 54,260 square feet (approximately 1.25 acres) of new impervious surface area, consisting of new pavement for the access road and parking areas, concrete foundations for the warehouse, and the materials enclosure. The project would be required to comply with the City's GIP to control runoff. Green infrastructure is anticipated to include flow-through, planter-style stormwater channels that would filter contaminants from the stormwater before it enters Pilarcitos Creek.

Construction

Project construction would involve grubbing and grading new construction areas, trenching for new utilities (primarily electrical and water), paving access road and parking areas, pouring concrete foundations, constructing two new structures, constructing the new solar field, and installing GIP stormwater facilities.

The existing ground surface would be grubbed and graded and would require excavation of approximately 1,475 cubic yards (CY) of cut and 3,810 CY of fill. No fill would be imported. The project would require importation of approximately 1,025 CY of aggregate base, 675 CY of asphalt for roadways and parking areas, and 160 CY of concrete for curbs, gutters, and foundations. Excavation depths would not exceed 5 feet. The deepest excavation would occur at the planter located at the Stone Pine entrance. The exported materials would be hauled off for disposal or recycling. The project would generate approximately 59 round-trip haul truck trips (assuming a 10-CY dump truck), or 74 round-trip truck trips, assuming an 8-CY dump truck.

Construction would likely commence in April 2022 and would take approximately 4 to 6 months to complete and may occur over 2 to 3 years. Phase 1 would likely be started in April 2022 and completed by October 15, 2022. Phase 2 may not occur for 2 or 3 years, based on budget considerations. Construction would occur during dry weather only. Construction hours would be limited to 8:00 a.m. to 5:00 p.m., Monday through Friday. Although the City allows construction from 8:00 a.m. to 6:00 p.m. on Saturdays and 10:00 a.m. to 6:00 p.m. on Sundays, weekend construction is not anticipated and would require permission from the City.[9]

[9] City of Half Moon Bay. 2021. Noise Restrictions Webpage. Available at: https://www.half-moon-bay.ca.us/210/Noise-Restrictions. Accessed June 3, 2021.

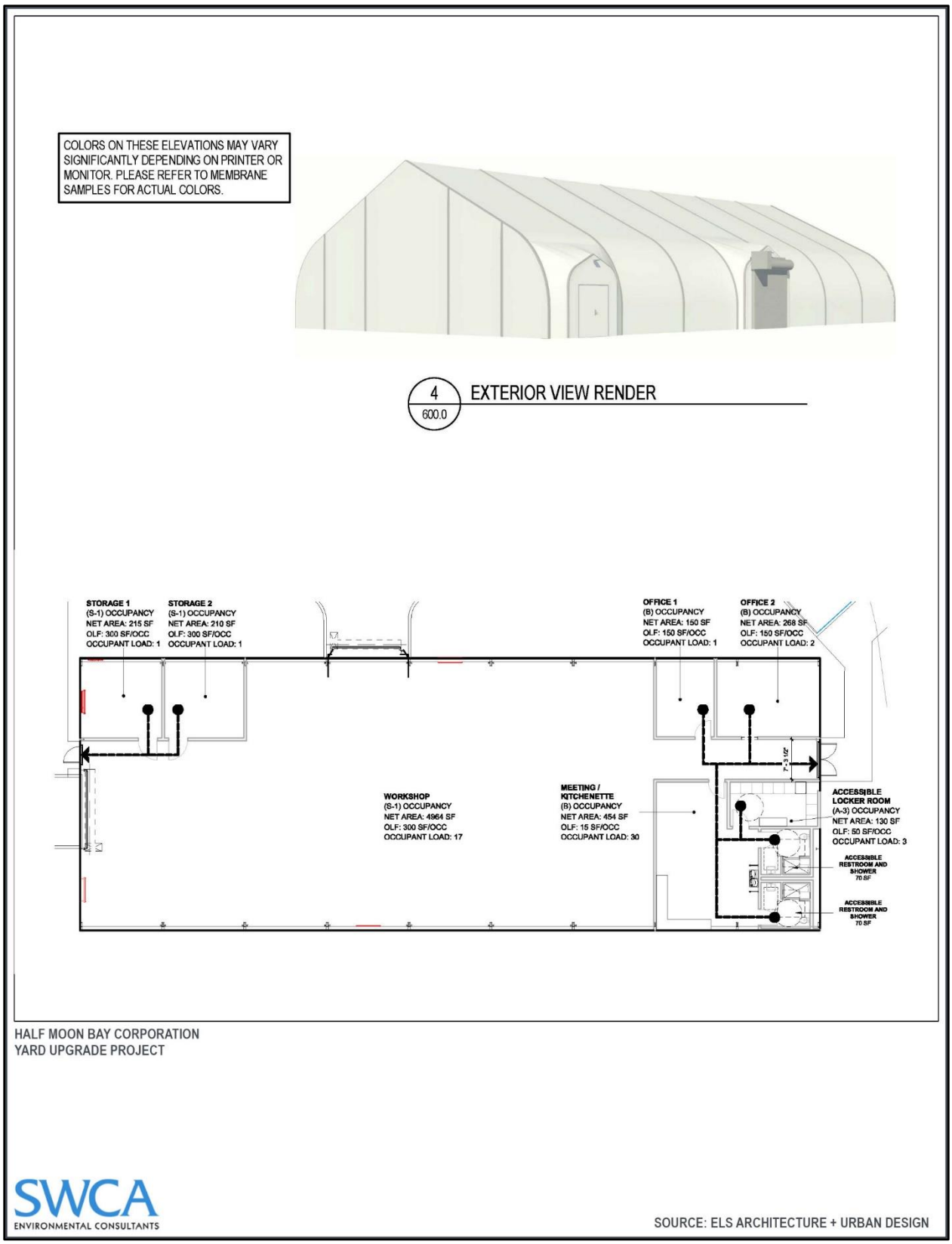

Figure 1-6. Tension fabric warehouse design.

Access for construction would be from Stone Pine Road. Construction staging and materials staging would occur on-site. All work would comply with the Regional Water Quality Control Board (RWQCB) Best Management Practices (BMPs). Construction equipment would likely include the following:

- milling machine
- paver
- asphalt trucks
- hauling trucks (10-CY dump truck)
- cement mixer
- scraper
- bulldozer
- backhoe
- boom truck
- forklift
- rubber-tired loader
- motor grader
- steel drum roller
- crane or scissor lift
- water truck
- hand tools, such as saws and hammers

Construction of the solar field would involve the following activities:

- Site preparation and clearing/grading
- Underground work (trenching)
- Solar array installation
- Inverter installation
- Trench and connection to existing new PG&E switchboard
- Testing and commissioning
- Site cleanup and restoration

Grading for solar field construction is expected to be minor because the site is fairly level. However, grading would be necessary for construction of the racking system and inverter pads. Scrapers, motor graders, water trucks, dozers, and compaction equipment are expected to used for grading.
The photovoltaic (PV) modules would be offloaded and installed using small cranes, boom trucks, forklifts, rubber-tired loaders, rubber-tired backhoes, and other small- to medium-sized construction equipment as needed. Construction equipment would be delivered to the site on “low-bed” trucks unless the equipment can be driven to the site (e.g., boom trucks).

Vegetation on-site would be modified only where necessary and would be removed where structures are to be constructed (if necessary). Water use during construction would be minimal and would be required primarily for dust control and concrete mixing.

Operation

Operations and personnel at the Corporation Yard would not change as a result of the project with the exception of the solar field. With the addition of electrical energy from the solar field, the Corporation Yard would have a net zero carbon footprint. Operation and maintenance of the solar field would require periodic maintenance and washing of the solar panels approximately twice a year. Washing the panels would require approximately 2,000 gallons of water per year.

1.6 Requested Action and Required Permits

This IS/MND provides environmental information and analysis in compliance with CEQA, which is necessary for City decision makers to be able to adequately consider the effects of the project. The City, as the CEQA lead agency, has approval authority and responsibility for considering the environmental effects of the project as a whole. The CCC would serve as a Responsible Agency under CEQA. The City is responsible for authorizing and approving the project. The IS/MND, in conjunction with other project documents as necessary, would be used for the CDP discretionary approval.

The project is requesting approval of a Coastal Development Permit (CDP).

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CHAPTER 2. ENVIRONMENTAL CHECKLIST AND RESPONSES

2.1 Aesthetics

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099, would the project:				
(a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
(b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
(c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (public views are those that are experienced from publicly accessible vantage points). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
(d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Environmental Evaluation

a. Would the project have a substantial adverse effect on a scenic vista?

A scenic vista generally provides focal views of objects, settings, or features of visual interest, or panoramic views of large geographic areas of scenic quality, from a fixed vantage point or linear corridor, such as a roadway or trail. A significant impact would occur if a project introduced incompatible scenic elements within a field of view containing a scenic vista or substantially block views of an existing scenic vista.

The project site is located on the south side of SR-92 as it enters the City and is visible from SR-92's eastern gateway to the City where westbound SR-92 enters City limits. SR-92 within City limits is identified as part of the Town Boulevard Corridor in the City's 2020 LCLUP Scenic and Visual Resources Element, and provides a sweeping view of the ocean and town upon entering City limits. Eastbound, SR-92 provides scenic views of the hillsides and ridges of the coastal mountains.[10] Looking south from SR-92 provides views of the Pilarcitos Creek riparian corridor that are often blocked by trees or commercial buildings. The landscape of the project site slopes downward from the road, so the project site is lower than the roadway by 10 to 20 feet and is heavily screened by a row of cypress trees on the project site's northern border. In addition, the new building would be sited as far away from the road as possible to reduce visual massing from the highway and would use neutral colors to further lower its visual impact. Therefore, improvements to the project site would not block scenic views of the coastal hills or the town. There are also interrupted views of Pilarcitos Creek's riparian corridor from SR-92.

[10] City of Half Moon Bay. 2020. *Local Coastal Land Use Plan. 2020 Comprehensive Update. Chapter 9 Scenic and Visual Resources.* Available at https://www.half-moon-bay.ca.us/DocumentCenter/View/3784/Full-Combined-2020-HMB-LCLUP. Accessed November 10, 2021.

These views are partially blocked by the row of cypress trees fronting the highway and currently include Corporation Yard facilities, including a number of temporary structures, in the foreground. Although the warehouse will have a larger footprint, it will replace a number of temporary storage containers and the overall view of Pilarcitos Creek with Corporation Yard facilities in the foreground would be similar to existing conditions (Figures 2-1 and 2-2). Therefore, this impact would be less than significant.

b. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, within a scenic highway?

The project is adjacent to SR-92, which is an eligible scenic highway.[11] In addition, the project is approximately 0.43 mile east of SR-1, which is an eligible scenic highway as it passes through the City.[12] The 2020 LCLUP identifies the need to protect "significant" views available along SR-92, including the "sweeping view of the ocean and town upon entering city limits."[13] The project is located on the south side of SR-92 as it enters City limits. The project involves improvements to the existing Corporation Yard including the construction of a new warehouse, materials enclosure, solar field, roadway, and parking lots. As discussed in Section 2.1.a, the existing Corporation Yard is largely screened by a row of cypress trees on its northern border and is lower than the roadway by 10 to 20 feet. The project would remove 12 trees on the Corporation Yard site in the footprints of the new warehouse, materials enclosure, fence line, access road, and parking areas. The trees would be replaced at a 1-to-1 ratio on the project site. No trees in the riparian corridor would be removed. There are no rock outcroppings, or historic buildings that are listed or eligible for listing (see Section 2.5, Cultural Resources), on or adjacent to the project site. Therefore, impacts to scenic resources within a scenic highway would be less than significant.

c. In non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

The project site is located in an urbanized area on the south side of SR-92 as it enters the City, but is lower than the roadway by 10 to 20 feet and is heavily screened by a row of cypress trees on the project site's northern border. The project site is visible from SR-92's eastern gateway to the City where westbound 92 enters City limits. SR-92 within City limits is identified as part of the Town Boulevard Corridor in the City's 2020 LCLUP Scenic and Visual Resources Element, and provides a sweeping view of the ocean and town upon entering City limits.[14]

A visual resource analysis is not required by CEQA; however, visual simulations have been prepared for this project to inform the planning process and to ensure conformity with LCP policies and zoning requirements (see Figures 2-1 and 2-2).

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[11] An eligible state scenic highway is one identified in Section 263 of the Streets and Highways Code and may be nominated by local governments. To be converted to a designated state scenic highway, the local government agency must develop a Corridor Protection Program and submit it to Caltrans.

[12] California Department of Transportation (Caltrans). 2021. Scenic Highways Webpage. Available at: https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways. Accessed September 9, 2021.

[13] City of Half Moon Bay. 2020. *Local Coastal Land Use Plan. 2020 Comprehensive Update. Chapter 9 Scenic and Visual Resources.* Available at https://www.half-moon-bay.ca.us/DocumentCenter/View/3784/Full-Combined-2020-HMB-LCLUP. Accessed November 10, 2021.

[14] City of Half Moon Bay. 2020. *Local Coastal Land Use Plan. 2020 Comprehensive Update. Chapter 9 Scenic and Visual Resources.* Available at https://www.half-moon-bay.ca.us/DocumentCenter/View/3784/Full-Combined-2020-HMB-LCLUP. Accessed November 10, 2021.



Figure 2-1. Visual simulation from Highway 92 looking southwest.

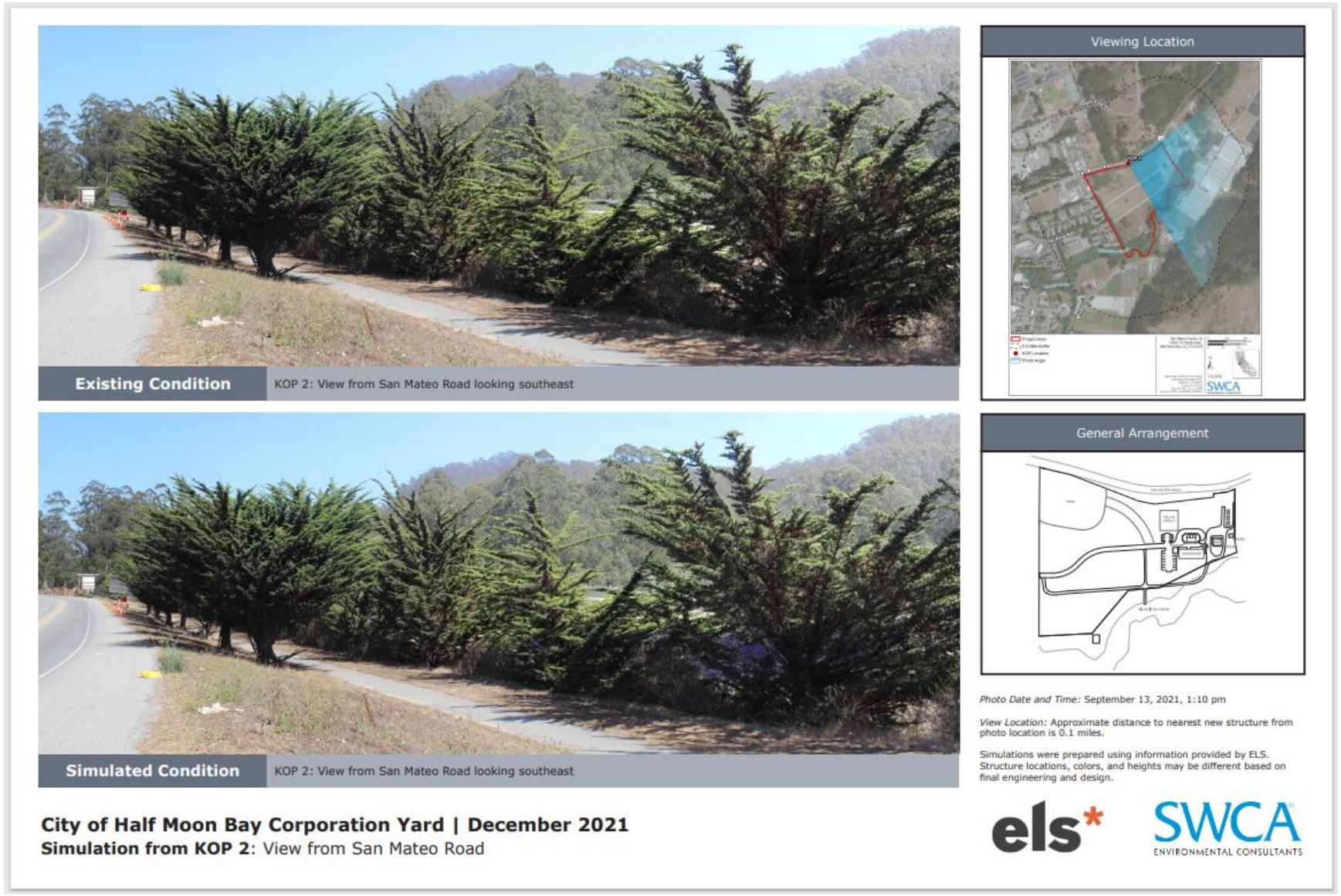

Figure 2-2. Visual simulation from Highway 92 looking southeast

The project's consistency with LCLUP policies is shown in Table 2.1-1.

Table 2.1-1. Project Consistency with LCLUP Policies.

LCLUP Policy	Consistency
Policy 9-5. Visual Impact Evaluation. Where any development is proposed within a scenic and visual resource area, including as designated on Figure 9-1, a site-specific visual impact evaluation shall be required and may include visual simulations, story poles, and/or other means of visual assessment as appropriate based on the type and location of development.	Consistent. Visual simulations were prepared for this project and used to inform the City's planning. This section analyzes the visual impacts of the proposed project. The project will be required to install story poles at least 10 days prior to the public hearing.
Policy 9-10. Fences, Walls and Landscaping. Ensure that fences, walls, and landscaping shall not block public views of or from scenic and visual resource areas including along scenic corridors, at parks and beaches, and other scenic public viewing areas through height restrictions and required landscape maintenance.	Consistent. The project site currently has chain-link security fence between the site and SR-92. The project would include some chain-link fencing farther from and downslope of SR-92, which would not block views of scenic resources. The new warehouse would replace existing smaller temporary structures, is situated downslope and as far from SR-92 as possible while avoiding ESHAs, and includes neutral earth-tone colors and well-designed exterior lighting that reduces glare and offensive spillover. The new facilities would be clustered with existing buildings, including commercial buildings on the adjacent Spanishtown property.
Policy 9-11. Landscape Screening. Prioritize avoidance of development impacts to scenic and visual resource areas through site planning and design alternatives over landscape screening. Landscape screening as mitigation of visual impacts shall not substitute for project alternatives including re-siting or reducing the height or bulk of structures, but may be used where appropriate to soften any unavoidable visual impacts of new development. Where permitted, landscape screening shall be comprised of native and drought tolerant species and shall be maintained such that scenic views are not blocked at maturity.	Consistent. The project has been designed to minimize impacts to scenic resources while upgrading Corporation Yard facilities. The site is currently partially visually screened from view from SR-92 by a row of cypress trees. The new warehouse would replace existing smaller temporary structures, is situated downslope and as far from SR-92 as possible while avoiding ESHAs, and includes neutral earth-tone colors and well-designed exterior lighting that reduces glare and offensive spillover. The new facilities would be clustered with existing buildings, including commercial and industrial buildings on the adjacent Spanishtown property. No additional screening is anticipated.
9-12. Town Boulevard Scenic Corridor. Require that new development in close proximity to or easily visible from the Town Boulevard scenic corridor, including Highways 1 and 92: a. Protects views of visual resource areas as seen from the Town Boulevard, including views to the ocean, upland slopes (i.e. minimizes intrusions into the ridgeline), and the historic Johnston House; b. Incorporates design standards such as screening of commercial parking areas and landscaping provisions; and c. Is visually compatible with the surrounding land and development.	Consistent. The project is downslope from SR-92 and would upgrade existing Corporation Yard facilities. Surrounding development includes a commercial center to the east and mobile home park to the west. The Corporation Yard is largely screened from view by an existing row of cypress trees and is visually compatible with existing development.
Policy 9-30. Dark Night Skies. Protect dark night skies as part of Half Moon Bay's scenic and visual character by preventing light pollution from development. Avoid impacts from exterior lighting on dark night skies, sensitive habitat areas, and agricultural operations by: a. Limiting exterior lighting to low-intensity fixtures that are shielded, down-cast, and concealed so that the light source is not directly visible from public viewing areas, with the exception of traffic lights, navigational lights, and other similar safety lighting	Consistent. The project would comply with all lighting requirements of the municipal code. Lighting would consist of low-intensity fixtures that are shielded, down-cast, and concealed to the extent feasible. from public viewing areas and sensitive habitat. The new facilities would be in the existing Corporation Yard facility and adjacent to a commercial area; therefore, the project would result in minimal changes in exterior lighting levels. All lighting would be downward facing, shielded, and designed to reduce glare and spillover and therefore would not impact adjacent sensitive habitat.

d. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

The project would upgrade the existing Corporation Yard facilities and would include installation of building-mounted security lighting on the warehouse and materials enclosure, as well as pole-mounted security lighting at the new gate. All new lighting would be downward-facing and shielded, and would meet all requirements of the City municipal code. The new facilities would be constructed of non-glare materials, including asphalt, tension fabric, concrete block, and metal roof. The metal roof of the material storage and waste enclosure would have a non-glare coating. Solar panels would be oriented in a southwest direction to maximize efficiency, which would orient them away from SR-92 and minimize glare, and screened by existing trees from adjacent residential development. The project would meet all requirements of the City's municipal code; therefore, the project would not add a substantial new source of light or glare, and operational impacts would be less than significant.

Construction impacts would be short-term and temporary, lasting approximately 4 to 6 months. Nighttime construction is prohibited under City regulations; therefore, nighttime construction would not occur and temporary construction lighting would not be required. Therefore, no construction impacts related to light and glare would occur.

2.2 Agriculture and Forestry Resources

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
(a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☒	☐
(b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
(c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
(d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
(e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Environmental Evaluation

a. Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

A significant impact may occur if a project were to result in the conversion of state-designated agricultural land from agricultural use to another non-agricultural use. The California Department of Conservation (CDOC) Division of Land Protection lists Prime Farmland, Unique Farmland, and Farmland of Statewide Importance under the general category of "Important Farmland" in California.

The project area contains no land that is designated by the CDOC as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. The northern portion of the parcel is designated Other Land, and the southern portion of the parcel is designated Grazing Land.[15] Therefore, the project would have no impact on the conversion of CDOC-designated farmland to non-agricultural uses.

Although the project site does not fall under the CDOC definition of Prime Farmland, a portion of the Project site does fall under the four-part Coastal Act definition (Section 30113) for Prime agricultural land.[16]

However, the Coastal Act specifies that:

> *"Conversions of agricultural land to non-agricultural uses around the periphery of urban areas may only occur where the viability of agriculture is severely limited or where conversion would complete a logical boundary and contribute to a stable urban limit. The conversion of other lands that are suitable for agricultural use is prohibited, unless (1) continued or renewed agricultural use is not feasible, or (2) such conversion would preserve prime agricultural land or appropriately concentrate development."*[17]

Agricultural uses were deemed non-viable by the previous owner and discontinued on the Project site prior to the LCLUP update. In 2020, the LCLUP changed the land use designation from Urban Reserve (U-R) to Public Facilities and Institutions, and recommended the zoning designation be changed from Public/Quasi-Public (P-S) (see discussion in Section 2.11. Land Use and Planning). The LCLUP was certified by the Coastal Commission in April 2021. Since the agricultural viability of the land has been shown to be severely limited, and the land use designation for the parcel was changed under the 2020 LCLUP, the Project would not conflict with the Coastal Act policies regarding conversion of agricultural lands and this impact would be less than significant.

[15] California Department of Conservation (CDOC). 2019. *San Mateo County Important Farmland Map. 2018*. Available at: https://www.conservation.ca.gov/dlrp/fmmp/Pages/SanMateo.aspx. Accessed September 8, 2021.

[16] City of Half Moon Bay. 2021. *Local Coastal Land Use plan. Chapter 4. Agriculture.* Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/3759/Chapter-4-Agriculture. Accessed January 14, 2022

[17] California Coastal Commission. 2017. *Agriculture in the Coastal Zone: An Informational Guide for the Permitting of Agricultural Development.* Available at: https://documents.coastal.ca.gov/assets/agriculture/Informational%20Guide%20for%20Agricultural%20Development%209.29.2017.pdf. Accessed January 14, 2022

b. Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

A significant impact may occur if a project were to result in the conversion of land zoned for agricultural use or under a Williamson Act contract from agricultural use to non-agricultural use. The Williamson Act of 1965 allows local governments to enter into agreements with local landowners with the purpose of trying to limit specific parcels of land to agricultural or other related open space use.

The project site is not zoned for agricultural use and is not subject to a Williamson Act contract. The current zoning is Urban Reserve (U-R); however, the parcel zoning is expected to be changed to Public/Quasi Public (P-S) in order to line up with the LCLUP designation of Public Facilities and Institutions. The nearest agricultural operations are in greenhouses southeast of Pilarcitos Creek, approximately 250 feet east of the project. The nearest land under Williamson Act contract is approximately 0.7 mile northeast of the project.[18] Activities in the Corporation Yard would be buffered from these areas by the riparian corridor and would have no impact on surrounding agricultural operations. Therefore, no impact with respect to land zoned for agricultural use or under a Williamson Act Contract would occur.

c. Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

"Forest land" is defined as land that "can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits." "Timberland" is defined as land "which is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees." Timberland zoned for Timber Production is defined as land that "is devoted to and used for growing and harvesting timber."

There is no land zoned for timber production within the City limits, although there are several Christmas tree farms in San Mateo County sited in Planned Agriculture Districts. Twelve trees would be removed as part of the project. Some of these may be scattered small cypress trees on the project site. In addition, there is a row of cypress trees planted adjacent to SR-92, which would not be impacted by the project. Although portions of the project site could meet the definition of forest land, these are within the riparian areas and would not be impacted by the project. The project site is not zoned for management of forest or timberland resources; therefore, the project would not conflict with zoning for, or cause the rezoning of, forest land, timberland, or timberland zoned Timberland Production. No impact would occur.

d. Would the project result in the loss of forest land or conversion of forest land to non-forest use?

The project site is surrounded by undeveloped lands and urban uses and is not located on forest land (as discussed in Section 2.2.c). Although portions of the project site could meet the definition of forest land, these are within the riparian areas and would not be impacted by the project. No impact related to the loss of forest land or conversion of forest land would occur.

[18] County of San Mateo. 2021. San Mateo County GIS Open Data, Williamson Act Parcels. Available at: https://data.smcgov.org/Housing-Development/Williamson-Act-Parcels/sq6e-7j5j. Accessed September 8, 2021.

e. Would the project involve other changes in the existing environment, which due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

A significant impact may occur if a project involves other changes to the existing environment that could result in the conversion of farmland to another non-agricultural use or conversion of forest land to non-forest use. As described in Section 2.2.b, the project site is not currently zoned for agricultural use and is expected to be rezoned for Public/Quasi Public (P-S) use. It is surrounded by undeveloped lands, agricultural greenhouses, SR-92, and urban uses. Neither the project site nor the surrounding parcels are utilized for agricultural uses or forest land. The closest land in agricultural production is located approximately 250 feet east of the project area and would buffered from the project site by Pilarcitos Creek. The riparian area surrounding Pilarcitos Creek may meet the definition of forest land; however, the riparian corridor would not be impacted by the project. With the exception of the riparian corridor, there is no forest land in the vicinity of the project site. No impacts related to conversion of farmland to a non-agricultural use or conversion of forest land to non-forest use would occur.

2.3 Air Quality

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:				
(a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
(b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
(c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
(d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☐	☒

Environmental Evaluation

a. Would the project conflict with or obstruct implementation of the applicable air quality plan?

The screening criteria established by the Bay Area Air Quality Management District (BAAQMD) have been relied upon to make the following significance determinations.

The project is located within the San Francisco Bay Area Air Basin under the jurisdiction of the BAAQMD.[19] The BAAQMD regulates air pollutant emissions, enforces regulations, administers permits governing stationary sources, inspects stationary sources, monitors air quality and meteorological conditions, and assists local governments in addressing climate change.

[19] Bay Area Air Quality Management District (BAAQMD). 2017. *California Environmental Quality Act Air Quality Guidelines.* Available at: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed September 8, 2021.

The BAAQMD *2017 Clean Air Plan*[20] was adopted in April 2017 and updated the *2010 Clean Air Plan*. The *2017 Clean Air Plan* includes strategies to reduce emissions of ozone precursors and emissions of fine particulate matter and Toxic Air Contaminants (TAC). The plan also provides a framework for long-term planning efforts to reduce greenhouse gas (GHG) emissions 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050.

The BAAQMD has set thresholds of significance for criteria air pollutants and precursors and GHGs for construction-related impacts. If daily average emissions of construction-related criteria air pollutants or precursors would exceed any applicable Threshold of Significance listed in 2017 Air Quality CEQA Guidelines, a project may have a significant impact under CEQA.[21] A project may have a significant impact where project-related emissions would exceed federal, state, or regional standards or thresholds, or where project-related emissions would substantially contribute to an existing or projected air quality violation.

The project would generate temporary emissions from the use of construction vehicles and equipment. The BAAQMD *2017 Clean Air Plan* contains various control measures to reduce stationary and mobile sources of air pollutants. Transportation Control Measure TR22 applies to Construction, Freight and Farming Equipment and encourages early deployment of electric, Tier 3, and Tier 4 off-road engines to be used in construction, freight, and farming equipment.[22] The *2017 Clean Air Plan* also addresses construction impacts and specifies construction emission control measures to be implemented. Additionally, the U.S. Environmental Protection Agency (USEPA) and California Air Resources Board (CARB) have established standards for off-road equipment. CARB regulations for off-road diesel equipment include the following:

- limits on vehicle idling to not more than 5 minutes unless necessary, and a requirement for a written idling policy for medium and large fleets;
- a requirement for all vehicles to be reported to CARB in the online reporting system (DOORS) and labeled with Equipment Identification Numbers;
- a requirement for fleets to reduce their emissions by retiring, replacing, or repowering older engines or installing Verified Diesel Emission Control Strategies (VDECS) (i.e., exhaust retrofits); and
- a ban on adding Tier 2 engines to fleets beginning January 1, 2018, for large and medium fleets, and January 1, 2023, for small fleets.[23]

CARB regulations also include a portable engine registration program (PERP) for portable diesel engines 50 horsepower or greater. Under this program, owners or operators of portable engines and other types of equipment register their units under PERP in order to operate their equipment throughout California.

[20] BAAQMD. 2017. *2017 Clean Air Plan.* Available at: http://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf?la=en. Accessed September 8, 2021.

[21] BAAQMD. 2017. *California Environmental Quality Act Air Quality Guidelines.* Available at: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed September 8, 2021.

[22] The USEPA and CARB established emission standards for new engines found in off-road equipment. There are four tiers of emission standards, which become increasingly more stringent the higher the tier. Tier 3 and 4 emission standards are met through advanced engine design with no or minimal use of exhaust gas after combustion

[23] California Air Resources Board (CARB). 2021. *Off-Road Diesel Regulation Webpage.* Available at: https://www.arb.ca.gov/msprog/offroadzone/landing/offroad.htm. Accessed September 8, 2021.

PERP requires phase-out of lower engine emission tiers and replacement with Tier 3 or Tier 4 standards on an established schedule.[24]

To reduce emissions, project applicants are required to comply with USEPA and CARB standards for off-road equipment, including DOORS and PERP registration requirements. Compliance with USEPA and CARB standards would reduce emissions of ozone precursors and particulate matter. As a result, the project would not conflict with or obstruct compliance with Transportation Control Measure TR22 or any other control measure provided in the *2017 Clean Air Plan*, or conflict with or obstruct the implementation of the *2017 Clean Air Plan*.

The BAAQMD's *CEQA Air Quality Guidelines* establishes screening criteria for analyzing projects.[25] If a project meets the screening criteria, then its air quality impacts may be considered less than significant. The project would improve the existing Corporation Yard, including addition of a solar field. These facilities would most closely fall under the "General light industry*"* categories in the BAAQMD's *CEQA Air Quality Guidelines.* The screening criteria related to General light industry are shown in Table 2.3-1, below. It is clear that the project is small in scope when compared to the screening criteria for light industry projects. Screening size for construction-related air quality impacts includes 259,000 square feet, 11 acres and/or 549 employees for light industry development. The area of construction disturbance would cover approximately 1.78 acres, which is relatively small and would not exceed any of the construction emissions thresholds in Table 2.3-1. Standard conditions of approval for all CDPs in the City include all air quality BMPs and dust control measures required by the BAAQMD, which would further reduce these less-than-significant construction impacts.

Table 2.3-1. Operational-Related Criteria Air Pollutant and Precursor Screening Level Sizes for General Light Industry

Land Use Type	Operational Criteria Pollutant Screening Size	Operational GHG Screening Size	Construction-Related Screening Size	Project Size
General light industry	541,000 square feet (NO_x)	121,000 square feet	259,000 square feet (NO_x)	77,325 square feet
General light industry	72 acres (NO_x)	—	11 acres (NO_x)	1.78 acres
General light industry	1,249 employees (NO_x)	—	540 employees (NO_x)	8 existing employees (Corporation Yard only – no change anticipated)

Note: NO_x = nitrogen oxides

Source: Bay Area Air Quality Management District 2010[26]

[24] California Air Resources Board (CARB). 2018. *Statewide Portable Equipment Registration Program (PERP). 2018 Regulatory and Program Changes.* Available at: https://ww2.arb.ca.gov/sites/default/files/2018-11/perp_booklet_2018_1_0.pdf. Accessed September 8, 2021.

[25] Bay Area Air Quality Management District (BAAQMD). 2017. *California Environmental Quality Act Air Quality Guidelines.* Available at: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed September 8, 2021.

[26] BAAQMD. 2010. *Bay Area Air Quality Management District CEQA Guidelines*. Table 3-1. Available at: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/draft_baaqmd_ceqa_guidelines_may_2010_final.pdf. Accessed September 8, 2021.

The project would comply with all measures required by the BAAQMD's *CEQA Air Quality Guidelines*.[27] These measures shall be included in the construction contract and plans and would be the responsibility of the construction contractor. They include the following:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxic Control Measures in California Code of Regulations [CCR] Title 13, Section 2485). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- All roadways, driveways, and sidewalks shall be paved as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- A publicly visible sign shall be posted with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

The scope and intensity of operational activities at the Corporation Yard would not change as a result of the project. However, abandoning the existing unpaved roads and construction of the proposed paved access road would reduce dust emissions. Electricity generated by the solar panels would be fed into the electrical grid via the PG&E transmission line that crosses the project site, to offset electrical use at the Corporation Yard and, potentially, Carter Park. Therefore, no operational impacts would occur.

b. Would the project expose sensitive receptors to substantial pollutant concentrations?

The BAAQMD *CEQA Air Quality Guidelines* recommend assessment of risks and hazards on sensitive receptors within 1,000 feet of the project. Existing sensitive receptors within this radius include residences on Patrick Way, Erin Lane, and at Hilltop Mobile Home Park. Potential future receptors that are not part of this project could include recreational users of a community garden and the Pilarcitos Creek trail alignment. The feasibility of developing an affordable housing project on a portion of the property is also being explored. If any of these uses are approved in the future, it is anticipated that this would be after Corporation Yard construction is completed. Consequently, they would not be affected by construction emissions. Construction of the project would generate emissions that could expose existing sensitive receptors to substantial pollutant concentrations.

However, as discussed under Section 2.3.a, the project would not generate criteria air pollutants in excess of threshold levels. The project would upgrade infrastructure (driveways, parking lots, and electrical) and construct new facilities for the Half Moon Bay Corporation Yard. The project would be under the 11-acre

[27] BAAQMD. 2017. *California Environmental Quality Act Air Quality Guidelines.* Available at: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed September 8, 2021.

screening threshold for construction emissions; therefore, the project would not produce construction emissions that would exceed the BAAQMD's recommended localized standards of significance for reactive organic gases (ROG), nitrogen oxides (NO_x), particulate matter with a diameter of 10 micrometers or less (PM_{10}), or particulate matter with a diameter of 2.5 micrometers or less ($PM_{2.5}$) during the construction phase.

Nearby residential receptors could be exposed to localized pollutants from construction of the project. Given the relatively small size of the project and the temporary nature of construction, the project would not generate substantial levels of air emissions. Sensitive receptors within 1,000 feet of the project would not be adversely affected based on implementation of standard City conditions of approval, requiring implementation of BAAQMD air quality BMPs. Since the project size is relatively small, potential construction impacts to sensitive receptors would be less than significant.

Operations at the Corporation Yard would not change as a result of the project; therefore, there would be no increase in operational emissions. Abandoning the existing unpaved roads and replacing them with the proposed paved access road would reduce future fugitive dust emissions. Operational emissions from the solar field would result from activities consisting of routine inspection and maintenance. Off-site operational emissions related to electrical use would be reduced as a result of the solar field, which is expected to supply all electricity required by the Corporation Yard. Therefore, operational impacts related to air quality would be less than significant.

c. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

According to the BAAQMD's *CEQA Air Quality Guidelines*:

> "No single project is sufficient in size to, by itself, result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's contribution to the cumulative impact is considerable, then the project's impact on air quality would be considered significant."[28]

A project would have a cumulative significant impact if the aggregate total of all past, present, and foreseeable future sources within a 1,000-foot radius (or beyond where appropriate) from the fence line of a source, or from the location of a receptor, plus the contribution from the project, exceeds the following:

- An excess cancer risk level of more than 100 in one million or a chronic hazard index greater than 10 for TACs; or
- 0.8 micrograms per cubic meter annual average $PM_{2.5}$.[29]

Under the BAAQMD's *CEQA Air Quality Guidelines*, if a project meets the screening criteria in Table 2.3-1, then the project would not result in the generation of criteria air pollutants and/or precursors that exceed the Thresholds of Significance.

The construction-related screening size for light industrial facilities is 11 acres, or 259,000 square feet. The project is relatively small (the Corporation Yard is approximately 4 acres and would include 54,260

[28] BAAQMD. 2017. *California Environmental Quality Act Air Quality Guidelines.* Available at: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed September 9, 2021.

[29] BAAQMD. 2017. *California Environmental Quality Act Air Quality Guidelines.* Available at: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed September 9, 2021.

square feet of new facilities, including roads and parking lots) and falls under the screening threshold for generating significant construction emissions. Existing activities and operational emissions at the Corporation Yard would not change as a result of the project. Operational emissions from the solar field would result from routine inspection and maintenance activities. Abandoning the existing unpaved roads and construction of the proposed paved access road would reduce fugitive dust emissions. Off-site operational emissions related to electrical use would be reduced as a result of the solar field, which is expected to supply all electricity required by the Corporation Yard. Therefore, the project would not result in a cumulatively considerable net increase of any criteria pollutant, and this impact would be less than significant.

d. Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Odors are usually associated with industrial projects involving the use of chemicals, solvents, petroleum products, and other strong-smelling elements used in manufacturing processes, as well as sewage treatment facilities and landfills. The project would upgrade the existing Corporation Yard facilities and add a solar field. The project would not include any land uses typically associated with unpleasant odors and local nuisances (e.g., rendering facilities, dry cleaners). Therefore, no impact would occur.

2.4 Biological Resources

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
(b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☒	☐	☐
(c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
(d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
(e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
(f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Environmental Evaluation

The analysis of biological resources is based on the following documents: *Biological Resources Report for 880 Stone Pine Road Project, Half Moon Bay, California* (BRR), completed by H.T. Harvey & Associates (June 2021); *Preliminary Delineation of Wetlands and Other Waters/Delineation of Coastal Zone Wetlands Within California Coastal Commission Jurisdiction,* completed by H.T Harvey (October 2020); *BRR Peer Review,* conducted by SWCA (November 2021); and the *Draft Frog and Snake Tunnel Design Proposal,* supplied by Dr. Mark Jennings (November 2021). All reports are included in Appendix B.

a. Would the project have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

A significant impact would occur if a project were to remove or modify habitat for any species identified or designated as a candidate, sensitive, or special-status species in regional or local plans, policies, or regulations, or by the U.S. Fish and Wildlife Service (USFWS) or California Department of Fish and Wildlife (CDFW).

The BRR was conducted for Parcels 1 and 2 and included the parcel areas (see Figure 1-2) plus a 200-foot buffer area surrounding the project. The BRR was circulated to federal and state agencies, including USFWS, U.S. Army Corps and Engineers (USACE), CDFW, San Francisco Regional Water Quality Control Board (RWQCB), and CCC. Minor comments were received from the CCC and addressed. No other agency comments were received. The 2020 LCLUP was certified by the CCC on April 15, 2021.[30] This discussion includes information from the BRR as well as updated information from the 2020 LCLUP.

The project would upgrade facilities at the existing Corporation Yard, including construction of a new access road and parking areas, warehouse, materials enclosure, solar field, and security and wildlife fencing. The project includes creation of a fenced wildlife corridor and removal of some of the existing security fencing around the impoundment. The project is located on a marine terrace approximately 60 to 85 feet above mean sea level, and approximately 1.2 miles east of the Pacific Ocean. The project site is relatively flat, but drains generally to the southwest toward Pilarcitos Creek and the Pacific Ocean. The project site is bounded by Pilarcitos Creek on the south, which is a 13.5-mile perennial stream that flows from the western slopes of the Santa Cruz Mountains, through Pilarcitos Canyon, and discharges into the Pacific Ocean. The project is the site of a former plant nursery, and there is some evidence of the former nursery still present at the site, including several unused dilapidated buildings, areas with black ground plastic (adjacent to the riparian woodland along Pilarcitos Creek), several vaulted culverts, concrete-lined ditches, and irrigation pumps and pipes. A man-made impoundment is located in the northwest corner of the project site. Water was previously pumped into this impoundment from Pilarcitos Creek and used for nursery operations. The impoundment continues to hold water and extensive emergent vegetation and has been classified as a perennial freshwater marsh by H. T. Harvey in the BRR.

The project site consists of a mix of ruderal grassland, and developed or landscaped areas. Riparian woodland, perennial freshwater marsh, and aquatic riverine habitats are adjacent to the project area, but not located within the project area. No work would occur in these habitats. Habitats within and adjacent to the project area are described in more detail below.

[30] City of Half Moon Bay. 2020. *Local Coastal Land Use Plan. 2020 Comprehensive Update*. Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/3784/Full-Combined-2020-HMB-LCLUP. Accessed November 10, 2021.

- **Developed/Landscaped Habitat**. Developed/landscaped habitat includes areas where permanent structures and/or pavement have been placed along with planted landscaping. Such landscaping includes native Monterey pine (*Pinus radiata*) and Monterey cypress (*Hesperocyparis macrocarpa*) trees. These trees have been installed as part of a landscape plan and do not naturally occur on-site and are therefore not considered sensitive species.
- **Ruderal**. The most abundant species in the ruderal grassland are wild oat (*Avena* sp.), Italian rye grass (*Festuca perennis*), ripgut brome (*Bromus diandrus*), Italian thistle (*Carduus pycnocephalus*), bristly ox-tongue (*Helminthotheca echioides*), and Chile tarweed (*Madia sativa*). Additionally, there were scattered small patches of other facultative hydrophytic vegetation, including curly dock (*Rumex crispus*), poison hemlock (*Conium maculatum*), and bird's foot trefoil (*Lotus corniculatus*), all occurring in upland habitat positions and intermixed with upland grassland species. Similarly, scattered arroyo willow (*Salix lasiolepis*) and red alder (*Alnus rubra*) occur in the grassland in upland areas, and likely were able to establish due to irrigation, as no indicators of hydric soils or wetland hydrology occur in these areas.
- **Riparian Woodland**. Riparian woodland habitat is found adjacent to the south side of the project site along Pilarcitos Creek and around the perennial freshwater marsh habitat in the impoundment in the northwest corner. Trees observed in the riparian woodland habitat include arroyo willow, red willow (*Salix laevigata*), red alder, and blue gum eucalyptus (*Eucalyptus globulus*). The understory includes Himalayan blackberry (*Rubus armeniacus*), cape ivy (*Delairea odorata*), poison hemlock, common horsetail (*Equisetum arvense*), French broom (*Genista monspessulana*), hoary nettle (*Urtica dioica* ssp. *holosericea*), bristly ox-tongue, pampas grass (*Cortaderia jubata*), and Italian rye grass.
- **Aquatic Riverine**. Pilarcitos Creek flows outside the project area through the dense riparian woodland and provides unvegetated aquatic habitat.
- **Perennial Freshwater Marsh**. The dominant vegetation in the impoundment is freshwater marsh consisting of common cattail (*Typha latifolia*). Other species in the freshwater marsh vegetation include duckweed (*Lemna* sp.), rabbitsfoot grass (*Polypogon monspeliensis*), and tall flatsedge (*Cyperus eragrostis*).

Desktop review identified 73 special-status plant species and 34 special-status wildlife species within 5 miles of the survey area (see Appendix B for details of the desktop review). Only one of the special-status plant species was determined to have a moderate to high potential to occur in the freshwater marsh habitat and dense riparian woodland—harlequin lotus (*Hosackia gracilis*); California Rare Plant Rank 4.2), This species is not anticipated to be impacted by the project because it was not observed during the field-level reconnaissance survey conducted in June 2018 at the height of its bloom period. In addition, the freshwater marsh vegetation in the impoundment and riparian woodland vegetation would not be impacted by the project.

Of the special-status wildlife species identified within 5 miles of the project area, there are eight species that could potentially occur in or adjacent to the project area: white-tailed kite (*Elanus leucurus*; State–Fully Protected), Central California coast steelhead (*Oncorhynchus mykiss irideus*; Federal–Threatened [T]), California red-legged frog (*Rana draytonii*; Federal–T, State–Species of Special Concern [SSC]), San Francisco garter snake (*Thamnophis sirtalis tetrataenia*; Federal–Endangered [E], State–E), western pond turtle (*Actinemys marmorata*; Federal–None, State–SSC), San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*; Federal–None, State–SSC), San Francisco common yellowthroat (*Geothlypis trichas sinuosa*; Federal–None, State–SSC), and yellow warbler (*Setophaga petechia*; Federal–None, State–SSC). Of these species, three species—the California red-legged frog, San Francisco garter snake, and white-tailed kite—have the potential to be present within the project site. The remaining five, if present, are expected to be located in Pilarcitos Creek, riparian habitat, or freshwater marsh habitat

in the impoundment adjacent to the project. Additional detail on the eight special-status species with potential to occur within or adjacent to the project area is provided below.

CALIFORNIA RED-LEGGED FROG

California red-legged frog, a federally threatened species and CDFW SSC, occurs in various habitat types depending on its life cycle stage. Breeding areas include aquatic habitats, such as lagoons, streams, and natural and human-made ponds. The species prefers aquatic habitats with little or no flow, the presence of surface water to at least early June, surface water depths to approximately 2 feet, and the presence of emergent vegetation (e.g., cattails and bulrush). During periods of wet weather, some individuals may make overland dispersals through adjacent upland habitats of distances up to 1 mile. Upland habitats, including small mammal burrows and woody debris, can also be used as refuge during the summer if water is scarce or unavailable. California red-legged frogs typically travel between sites and are unaffected by topography and vegetation types during migration. Dispersal habitat makes it possible for California red-legged frogs to locate new breeding and non-breeding sites, and is crucial for conservation of the species. California red-legged frog adults and larvae have been found in a breeding pond in the vicinity of Pilarcitos Creek about 1.3 miles northwest of the project area as recently as 2016; California red-legged frog adults were observed in Pilarcitos Creek about 0.5 mile west of the project area in 2006; and California red-legged frog adults and juveniles were observed in the perennial freshwater marsh habitat in the impoundment within the project area in 2005. Due to the presence of juvenile frogs, it is likely there was active breeding in the perennial freshwater marsh habitat in the impoundment during the 2005 observation. Since 2005, no recent species-specific surveys of this species have been conducted in the project area.

Based on the above information and the number of known California red-legged frog occurrences on-site and within 2 miles of the project area, there is a high potential for California red-legged frog to occur in the project area during the wet season (October 15 to May 31) and the dry season (June 1 to October 15). If present, California red-legged frog could forage and disperse in Pilarcitos Creek and forage, disperse, or breed in the perennial freshwater marsh habitat in the impoundment. In addition, California red-legged frog could disperse through the upland habitat in the project area to move between the Pilarcitos Creek and the impoundment. California red-legged frogs are most likely to disperse in the spring and early summer when juveniles would leave the impoundment, and adults may move to and from the perennial freshwater marsh habitat in the impoundment during warm winter rains. During the wet season, frogs may be found in upland areas around the creek and impoundment. This species is generally considered to forage up to 300 feet from aquatic habitat.

The project includes installation of wildlife fencing and a wildlife corridor which would include frog/snake tunnels under the access road to prevent impacts to California red-legged frog. The wildlife fencing would be installed around the existing impoundment (see Figure 1-4). The wildlife corridor would start at the impoundment, narrow to a 50-foot-wide corridor through the project area, and then fan out towards Pilarcitos Creek (including wildlife fencing along the riparian corridor of Pilarcitos Creek). Mitigation Measure BIO-1 (worker awareness training) and BIO-2 (biological monitor presence during ground-disturbing activities and pre-construction surveys before start of work each morning, as well as burrow protection, and additional measures for work in the wet season) would be implemented to reduce any impacts to California red-legged frog. Therefore, the implementation of Mitigation Measures BIO-1 and BIO-2 would reduce a potentially significant impact to this special-status species to a less-than-significant level.

SAN FRANCISCO GARTER SNAKE

The federally and state endangered/fully protected San Francisco garter snake's historical range is entirely within San Mateo County. The two main components of San Francisco garter snake habitat are (1) wetlands supporting its prey species (e.g., California red-legged frog, Pacific chorus frog); and (2) surrounding uplands that are adjacent to waterways and support small mammal burrows used by the snakes for escape cover. San Francisco garter snakes inhabit various aquatic habitats, including reservoirs, freshwater marshes, creeks, drainage ditches, ponds, and lakes. Less ideal habitats can also be used by San Francisco garter snake, such as ditches and other waterways or floating algal or rush mats. Suitable breeding habitat includes shallow marshlands with an abundance of emergent vegetation. Grasslands and low ground cover are also an important upland habitat for this species, as they provide areas for thermoregulation and cover. Small mammal burrows are used by San Francisco garter snake during hibernation. During the warm days of summer, most activity occurs during the morning and afternoon. Preferred nocturnal retreats are thought to be holes, especially mammal burrows, crevices, and surface objects.

San Francisco garter snakes have been documented within the region of the project as recently as 2008. Exact California Natural Diversity Database (CNDDB) locations of San Francisco garter snakes are suppressed because of concern about illegal collection of the species. However, there are two CNDDB records for the Half Moon Bay U.S. Geological Survey (USGS) quadrangle, both associated with Pilarcitos Creek, with the closest one at approximately 0.5 mile downstream of the project area in 2004.[31] Because the primary prey species of the snake is the California red-legged frog, an established population of California red-legged frogs in the perennial freshwater marsh habitat in the impoundment would elevate the likelihood that the snake could occur in the project area.

San Francisco garter snakes can move into upland habitats during summer to prey on amphibians aestivating in small mammal burrows. They could potentially forage on amphibians in Pilarcitos Creek and the impoundment and disperse and/or aestivate throughout the project area. The San Francisco garter snake is, therefore, considered potentially present throughout the project area.

Based on the above information, there is high potential for San Francisco garter snake to occur within the project area during both the wet season (October 15 to May 31) and the dry season (June 1 to October 15). The project includes installation of wildlife fencing and a wildlife corridor which would include frog/snake tunnels under the access road to prevent impacts to San Francisco garter snake. Mitigation Measure BIO-1 (worker awareness training) and BIO-2 (biological monitor presence during ground-disturbing activities and pre-construction surveys before start of work each morning, as well as burrow protection, and additional measures for work in the wet season) would be implemented to reduce any impacts to San Francisco garter snake. Therefore, the implementation of Mitigation Measures BIO-1 and BIO-2 would reduce a potentially significant impact to this special-status species to a less-than-significant level.

WHITE-TAILED KITE

White-tailed kite is a State-listed, fully protected species. White-tailed kites are common residents in the vicinity of the project area where open grassland, ruderal, or agricultural habitats are present. Large trees on and adjacent to the project area provide suitable nesting sites. The open habitats (e.g., ruderal grasslands and agricultural areas) on and adjacent to the project area provide potential foraging opportunities for this species. Although the developed nature and high levels of human disturbance within

[31] California Natural Diversity Database (CNDDB). 2021. Rarefind 5.0. California Department of Fish and Wildlife. Available at: from http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp. Accessed June 7, 2021, and other dates.

the project area make it less attractive to nesting kites, an individual was observed in the vicinity of the impoundment in 2014. Therefore, this species could potentially forage or nest in the project area.

White-tailed kite is protected while nesting by the Migratory Bird Treaty Act (MBTA) as well as by the California Fish and Game Code. Direct impacts to white-tailed kite nests could occur if a kite were to nest within or adjacent to the project area during construction, where the nest could be disturbed by noise, dust, or equipment. Mitigation Measure BIO-4, which requires a nesting bird survey for any construction performed during the nesting season between February 15 and September 15, would be implemented to reduce any impacts to white-tailed kite. A nesting bird survey and compliance with the MBTA and California Fish and Game Code would reduce impacts to nesting birds to a less-than-significant level.

The remaining species could be located in the riparian habitat or within Pilarcitos Creek adjacent to the project area and therefore would not be directly impacted by the project. However, indirect impacts could occur from project activities including, but not limited to, construction noise and sedimentation in Pilarcitos Creek.

CENTRAL CALIFORNIA COAST STEELHEAD DISTINCT POPULATION SEGMENT

Steelhead in the Central California Coast Distinct Population Segment (DPS) are federally threatened, and are winter-spawning steelhead, maturing in the ocean and spawning shortly after entering freshwater. Winter steelhead enter rivers and streams in the late fall and winter months when higher flows and associated lower water temperatures occur. Adult female steelhead will prepare a redd (or nest) in gravel-bottomed, fast-flowing, well-oxygenated rivers and streams. Preferred streams typically support dense canopy cover that provides shade, woody debris, and organic matter, and are usually free of rooted or aquatic vegetation. The length of the incubation period is dependent on water temperature. Fry emerge from the gravel and rear along the stream margins, moving gradually into pools and riffles as they grow larger. Young juveniles feed primarily on aquatic invertebrate drift.

Habitat conditions in Pilarcitos Creek adjacent to the project area are suitable to support freshwater migration of adult and juvenile Central California coast steelhead. Pilarcitos Creek does not support suitable habitat for spawning, rearing, or feeding during most times of the year due to the lack of channel complexity, gravels, or connectivity with an adjacent floodplain. As a result, steelhead are only expected to be present in this portion of Pilarcitos Creek during upstream and downstream migration, which occurs late fall into spring. Designated critical habitat for Central California Coast steelhead includes aquatic habitat within Pilarcitos Creek. Although Pilarcitos Creek would not be directly affected by project activities, water quality in the creek could be affected by runoff and sedimentation during construction and operation of the project. However, the project would be required to comply with San Mateo Countywide Pollution Prevention Program (SMCWPPP), discussed in Section 2.10, Hydrology and Water Quality. In addition, project construction would disturb more than 1 acre of land; therefore, it would be required to implement a Storm Water Pollution Prevention Plan (SWPPP) to control runoff during construction. The project would relocate the existing materials enclosure further from the creek (outside of the 50-foot riparian buffer zone) and upgrade it to meet current drainage and design requirements. In addition, Mitigation Measure BIO-3 would be implemented to reduce impacts and requires measures to protect surrounding habitat from runoff of stormwater and construction chemicals and debris. Therefore, the implementation of Mitigation Measure BIO-3 in addition to compliance with the SMCWPPP and SWPPP would reduce a potentially significant impact to Central California Coast steelhead to a less-than-significant level.

DUSKY-FOOTED WOODRAT

The San Francisco dusky-footed woodrat (CDFW SSC) occurs in a variety of woodland and scrub habitats from the San Francisco Peninsula south to the Pajaro River in Monterey County. Woodrats prefer riparian and oak woodland forests with dense understory cover, or thick chaparral habitat. Dusky-footed woodrats build large, complex nests of sticks and other woody debris, which may be maintained by a series of occupants for several years. Woodrats are also very adept at making use of human-made structures, and can nest in electrical boxes, pipes, wooden pallets, and even portable storage containers. Woodrat nest densities increase with canopy density and with the presence of poison oak. The breeding season for the dusky-footed woodrat begins in February and sometimes continues through September, with females bearing a single brood of one to four young per year.

A San Francisco dusky-footed woodrat nest was observed near Pilarcitos Creek over 3 miles east-northeast of the project area in 2007. The riparian forest adjacent to the project area provides suitable habitat for dusky-footed woodrats. Although no nests were observed in the riparian woodland habitat adjacent to the project area during the reconnaissance survey, this species could potentially nest and forage in, and disperse through, the riparian habitat along Pilarcitos Creek and around the freshwater marsh habitat in the impoundment. If woodrat nests are present within riparian woodland habitat they may be disturbed by noise or dust resulting from nearby construction activities. Foraging woodrats may enter the project site and be injured or killed by construction equipment. Mitigation Measure BIO-7 requires pre-construction surveys for nests, and protection and buffers for any nests found. Therefore, the implementation of Mitigation Measure BIO-7 would reduce impacts to San Francisco dusky-footed woodrat to a less-than-significant level. However, with the exception of removing the existing materials enclosure, project activities would not occur in the 50-foot buffer surrounding riparian habitat. Under Mitigation Measure BIO-2, all sensitive habitat would be fenced with exclusion fencing prior to project construction. Therefore, the project would have no impact on dusky-footed woodrat.

WESTERN POND TURTLE

The western pond turtle (CDFW SSC) occurs in ponds, streams, and other wetland habitats in the Pacific slope drainages of California and northern Baja California, Mexico. The central California population was historically present in most drainages on the Pacific slope. The perennial freshwater marsh habitat in the impoundment within the project area is too shallow, with emergent vegetation too thick, to be considered suitable aquatic foraging habitat for this species. The reach of Pilarcitos Creek adjacent to the project area is degraded due to surrounding development; however, suitable basking and foraging habitat for pond turtles is present in this area. However, suitable nesting habitat for pond turtles is not present in the project area in upland areas adjacent to Pilarcitos Creek because the riparian habitat is too dense for nest construction and the adjacent upland grassland habitat is degraded and frequently disturbed due to the human use of the area. In addition, the nearest CNDDB recorded observations are over 4 miles from the project area in the area of the Crystal Springs Reservoir. Thus, there is some potential for pond turtles to be present adjacent to the project area, though they are likely present in low numbers and/or infrequently as dispersers, but not as resident turtles prone to breeding and nesting in the upland habitats adjacent to the creek. The perennial freshwater marsh habitat in the impoundment is too shallow, with emergent vegetation too thick, to be considered suitable aquatic foraging habitat for this species

The western pond turtle may be present in low numbers and/or infrequently as dispersers in the project area. The wildlife corridor and wildlife fencing that would be installed along the riparian corridor of Pilarcitos Creek would prevent this species from dispersing into upland habitat within the project area. Furthermore, the proposed project would not directly impact the riparian vegetation surrounding either Pilarcitos Creek or the impoundment. As a result, the impacts to western pond turtle are expected to be less than significant.

YELLOW WARBLER

In California, the yellow warbler (CDFW SSC) occupies wooded riparian habitats. This species prefers riparian corridors with an overstory of mature cottonwoods (*Populus* sp.) and sycamores (*Platanus occidentalis*), a midstory of box elder and willow, and a substantial shrub understory, particularly in areas with more open space adjacent to the riparian habitat. Yellow warblers construct open-cup nests in upright forks of shrubs or trees in dense willow thickets or other dense vegetation.

The yellow warbler is an uncommon to rare breeder in wooded riparian habitats, occurring primarily in association with alders and willows, in San Mateo County. Riparian woodlands in the County provide suitable nesting and foraging habitat for this species, but the species is scarce and local, being particularly scarce as a breeder on the immediate coast. Nevertheless, it is possible that one or two pairs could potentially breed in riparian habitat along Pilarcitos Creek and around the freshwater marsh, both of which are not within the project area. Otherwise, this species is expected to occur as a common migrant adjacent to the project area during the spring and fall.

The yellow warbler is protected while nesting by the MBTA and California Fish and Game Code. The project would not include Pilarcitos Creek, its surrounding riparian vegetation, or the freshwater marsh; therefore, this species would not be directly impacted by the project. Indirect impacts related to construction noise and disturbance could occur. Mitigation Measure BIO-4, which requires a nesting bird survey for any construction performed during the nesting season between February 15 and September 15, would be implemented to reduce any indirect impacts. A nesting bird survey and compliance with the MBTA and California Fish and Game Code would reduce impacts to yellow warbler to a less-than-significant level.

SAN FRANCISCO COMMON YELLOWTHROAT

The San Francisco common yellowthroat (CDFW SSC) inhabits emergent vegetation and nests in fresh and brackish marshes and moist floodplain vegetation around the San Francisco Bay. Common yellowthroats will use small and isolated patches of habitat as long as groundwater is close enough to the surface to encourage the establishment of dense stands of rushes (*Scirpus* and *Juncus* spp.), cattails, willows, and other emergent vegetation

Nesting San Francisco common yellowthroats have been recorded in the vicinity of the project area, and observations of individuals have been recorded within the Pilarcitos Creek riparian habitat less than a mile west of the project area as recently as 2017. The species may nest in taller vegetation within the impoundment adjacent to the project area, and possibly in riparian habitat along Pilarcitos Creek.

San Francisco common yellowthroat is protected while nesting by the MBTA and California Fish and Game Code. The project would not include Pilarcitos Creek, its surrounding riparian vegetation, or the impoundment; therefore, this species would not be directly impacted by the project. Indirect impacts related to construction noise and disturbance could occur. Mitigation Measure BIO-4, which requires a nesting bird survey for any construction performed during the nesting season between February 15 and September 15, will be implemented to reduce any direct impacts. A nesting bird survey and compliance with the MBTA and California Fish and Game Code would reduce impacts to San Francisco common yellowthroat to a less-than-significant level.

OTHER SPECIES

In addition, the BRR determined that six special-status wildlife species have the potential to occur in the project area: monarch butterfly (*Danaus plexippus*), pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), American peregrine falcon (*Falco peregrinus anatum*), northern harrier

(*Circus cyaneus*), and mountain lion (*Puma concolor*). These species are expected to occur only as visitors, migrants, or transients and are not expected to reside or breed, or occur in large numbers, or otherwise make substantial use of the project area. As a result, the project is expected to have a less-than-significant impact on these species.

Under the 2020 LCLUP ruderal areas may contain foraging habitat for migratory birds and raptor species.[32] Migratory birds and raptors are protected while nesting by the MBTA and California Fish and Game Code. Project construction would be short-term, lasting approximately 4 to 6 months. Should nesting birds be identified, they would be protected by measures for nesting birds under Mitigation Measure BIO-4. Therefore, Mitigation Measure BIO-4 would mitigate potentially significant impacts to nesting birds to a less-than-significant level. Additionally, while no large tree cavities or caves suitable for large maternity bat roosts were identified within the project area, individual bats may forage and roost in trees on-site. Tree removal proposed may cause disturbance, injury or harm to individual roosting bats. Implementation of Mitigation Measure BIO-6, which requires pre-construction bat surveys, would ensure that impacts to roosting bats would be less than significant.

b. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in the local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

The BRR completed for the project area identified the habitat within and immediately surrounding the project area as consisting of a mix of ruderal grassland, developed or landscaped areas, and non-native woodland. Riparian woodland, perennial freshwater marsh, and aquatic riverine habitats are adjacent to, but outside of the project area.

The City's LCLUP has identified Environmentally Sensitive Habitat Areas (ESHA), which are defined as "*any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.*" The LCLUP mapping identified three ESHAs and one potential ESHA within and adjacent to the project site:

- The Central Coast Riparian Scrub adjacent to the project area in the riparian corridor adjacent to Pilarcitos Creek is identified as "*California Red-legged Frog Upland, Foraging, and Dispersal Habitat and San Francisco Garter Snake Habitat (ESHA);*"
- The emergent freshwater marsh adjacent to the project area in the impoundment is identified as "*California Red-legged Frog Breeding Site (ESHA);*"
- The aquatic habitat adjacent to the project area in Pilarcitos Creek is identified as "*Final Critical Habitat for Steelhead Designated by National Marine Fisheries Service under the Federal Endangered Species Act (ESHA);*" and
- The ruderal grassland within the project area is identified as "*Potential San Francisco Garter Snake Habitat and/or California Red-legged Frog Upland, Foraging, and Dispersal Habitat (Potential ESHA).*"

The former agricultural impoundment still contains water, likely a combination of groundwater and surface runoff, and has perennial freshwater marsh vegetation. The freshwater impoundment is surrounded by riparian vegetation. The freshwater marsh habitat in the impoundment has been identified

[32] City of Half Moon Bay. 2020. *Local Coastal Land Use Plan. 2020 Comprehensive Update*. Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/3784/Full-Combined-2020-HMB-LCLUP. Accessed April 30, 2021.

as a known breeding site for California red-legged frog; therefore, it has been identified as an ESHA under the LCLUP. As a result, the LCLUP requires that the project maintain a 100-foot buffer from the freshwater marsh/impoundment. As part of the improvements related to the wildlife corridor, the project would remove the existing chain-link fence around the freshwater marsh and install wildlife fencing to delineate the 100-foot buffer or to the property boundaries where the 100-foot buffer goes beyond the parcel limits. The wildlife fencing would include aluminum or vinyl slates to prevent the frogs and other wildlife from leaving the protected area. As a result, the project would not disturb the freshwater marsh or riparian habitat associated with the freshwater marsh, and no impact to freshwater marsh habitat would occur.

Riparian woodland habitat is found adjacent to the south side of the project site along Pilarcitos Creek and around the impoundment in the northwest corner. Trees observed in the riparian woodland habitat include arroyo willow, red willow, red alder, and blue gum eucalyptus. The LCLUP has mapped this area as Central Coast Riparian Scrub. Riparian scrub can support a wide diversity of wildlife due to the availability of important features such as nesting sites, close proximity to water, escape and thermal cover, food, and dispersal corridors. As required by the LCLUP, the project would establish a 50-foot buffer zone from the edge of the riparian vegetation and Mitigation Measure BIO-2 requires that the buffer zone be clearly marked with signage and tape and that disturbance to vegetation be kept to a minimum. Therefore, the project would not directly impact riparian vegetation. The project would also be required to comply with the SMCWPPP and project SWPPP to prevent stormwater runoff from impacting adjacent areas. In addition, Mitigation Measure BIO-3 contains measures to ensure that no spoils, sedimentation, hazardous materials from fueling and maintenance of vehicles, or invasive plant materials enter the riparian areas. As a result, all impacts to riparian habitat would be reduced to a less-than-significant level.

The City has developed the *City of Half Moon Bay GIP*, which requires that stormwater runoff designs implement "more resilient, sustainable stormwater management which reduces runoff volumes, disperses runoff to vegetated areas, harvests and uses runoff where feasible, promotes infiltration and evapotranspiration, and utilizes natural processes to detain and treat runoff."[33] Green infrastructure limits the discharge of pollutants to the storm drain system and promotes the infiltration of stormwater into the groundwater basin. Runoff from the project site drains toward Pilarcitos Creek. Project operations would be required to comply with the City's GIP and would direct stormwater runoff from the Corporation Yard through vegetated channels or swales prior to reaching the riparian habitat adjacent to Pilarcitos Creek. Therefore, compliance with the City's GIP, SMCWPPP, and implementation of Mitigation Measures BIO-2 and BIO-3 would reduce potential impacts related to operational runoff into riparian habitat to a less-than-significant level.

Pilarcitos Creek is a perennial freshwater stream with a connection to groundwater that flows overland adjacent to the southern portion of the project area. In the LCLUP, Pilarcitos Creek is identified as a perennial stream with well-developed canopy and critical habitat for Central California Coast steelhead, known occupied habitat for California red-legged frog and San Francisco garter snake, and past nesting for San Francisco common yellowthroat. As discussed above regarding the riparian habitat, the project would maintain a 50-foot buffer zone from the edge of the riparian habitat surrounding Pilarcitos Creek and would not directly impact the aquatic habitat. Potentially significant indirect impacts related to construction runoff would be reduced to a less-than-significant level by compliance with the City's GIP, SMCWPPP, and implementation of Mitigation Measures BIO-2 and BIO-3. Therefore, impacts to aquatic habitat would be less than significant.

[33] City of Half Moon Bay. 2019. *Green Infrastructure Plan. Pg 87.* Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/2305/HalfMoonBayGIPlan09-2019Final1. Accessed November 12, 2021.

Non-native grassland may be considered a sensitive habitat if it is found to be especially valuable for its role in an ecosystem pursuant to the City's LCLUP. The project site is mapped as ruderal land in the LCLUP and is considered to have limited habitat value. Species that may be associated with ruderal habitat include foraging bats and migratory bird and raptors.[34] At the project site, the grassland may provide a wildlife corridor for California red-legged frog and San Francisco garter snake between the freshwater marsh and Pilarcitos Creek. Therefore, the ruderal grassland is considered a potential ESHA. The project would construct a fenced wildlife corridor to direct any potentially dispersing California red-legged frogs and San Francisco garter snakes from the freshwater marsh to Pilarcitos Creek. The wildlife corridor would also pass under the new access road through four frog/snake tunnels. The corridor would be a minimum of 50 feet wide, would fan out in the vicinity of the Pilarcitos Creek, and would include a wildlife barrier fence along the southern boundary of Parcel 2 for the extent of the riparian buffer along Pilarcitos Creek. Therefore, the project would not cause potentially significant impacts to the potential wildlife corridor in the upland grassland, and impacts to non-native grassland dispersal habitat would be less than significant.

c. Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

The wetland delineation conducted on June 12, 2020, by H.T. Harvey identified a total of 0.91 acre of potentially jurisdictional features as defined by the USACE and RWQCB in the study area. These included approximately 0.29 acre of Section 404 and Section 401 waters situated below the ordinary high water mark (OHWM) line of Pilarcitos Creek, which forms the southeastern edge of the project property, but is outside the project area. Section 401 Waters of the State extend farther up to the top of the bank from Pilarcitos Creek, for an additional 0.24 acre. Sections 404 and 401 wetlands totaling approximately 0.38 acre are also present within the impoundment, which is perennially inundated and presently occupied by emergent freshwater marsh habitat. In addition, the wetland delineation identified a total of 3.52 acre of potentially jurisdictional one-parameter wetlands (having either [1] the presence of hydric soils, or [2] the presence of a predominance of wetland plants) potentially subject to jurisdiction of the CCC. This includes approximately 0.38 acre of perennial freshwater marsh, 0.29 acre of aquatic riverine, and 2.85 acres of riparian woodland. During the June 2020 wetland delineation, H.T. Harvey also determined that the willow-alder stands identified within the ruderal grassland habitat on-site were located on upland terraces and likely persisting due to a high groundwater table on-site, and were therefore not determined to be potential CCC jurisdictional wetlands. As discussed under Section 2.4.b, no work or staging would occur within the freshwater marsh habitat in the impoundment, riparian habitat, or aquatic riverine habitat. As required by the LCLUP, the project would maintain a 50-foot buffer zone from all riparian habitat and a 100-foot buffer zone from the impoundment. As a result, no direct impacts to these features would occur.

Stormwater runoff from excavation, grading, and construction activities could impact water quality in Pilarcitos Creek. Stormwater from the construction area would be unlikely to enter the freshwater marsh/impoundment, as the construction area drains away from this feature. Standard conditions of approval for all CDPs in the City include all stormwater quality BMPs required by the SMCWPPP (see Section 2.10, Hydrology and Water Quality). All construction activities would be required to implement BMPs to comply with the SMCWPPP and project SWPPP, which would prevent sediment-laden runoff and/or pollutants from entering the riparian area or Pilarcitos Creek. In addition, Mitigation Measure BIO-3, which would require management of exposed soils and vehicle fueling and maintenance, would further reduce these impacts to less than significant.

[34] City of Half Moon Bay. 2020. *Local Coastal Land Use Plan. 2020 Comprehensive Update*. Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/3784/Full-Combined-2020-HMB-LCLUP. Accessed November 12, 2021.

d. Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

The grassland area of the project site may provide dispersal habitat for California red-legged frog and San Francisco garter snake to move between Pilarcitos Creek and California red-legged frog breeding habitat in the freshwater marsh. The project would abandon two existing unpaved access roads and construct a single new paved access road, reducing the number of potential conflicts between vehicles and wildlife. However, the new road could still impede dispersal for these species. In order to ensure that dispersal habitat remains available and that these species are able to move between Pilarcitos Creek and the freshwater marsh safely, the project includes construction of a protected, fenced, minimum 50-foot-wide wildlife corridor, which would include four frog/snake tunnels under the access road (see Section 1.5. Proposed Project). As a result of construction and maintenance of the protected wildlife corridor, the project would have a less-than-significant impact on native species wildlife corridors.

The project site contains suitable nesting and foraging habitat for avian species protected under the MBTA and California Fish and Game Code Sections 3511 and 3513. Although no nesting was observed during the BRR field survey due to the timing of the survey, avian species protected by the MBTA and California Fish and Game Code observed in the project area during the BRR field survey included American crow (*Corvus brachyrhynchos*), house finch (*Haemorhous mexicanus*), song sparrow (*Melospiza melodia*), Savannah sparrow (*Passerculus sandwichensis*), white-crowned sparrow (*Zonotrichia leucophrys*), and red-winged blackbird (*Agelaius phoeniceus*). The project has the potential to impact potential eggs or young of avian species covered under the MBTA and California Fish and Game Code. The developed portion of the project area could be used for nesting by native species such as the American crow, Anna's hummingbird (*Calypte anna*), California towhee (*Melozone crissalis*), bushtit (*Psaltriparus minimus*), and California scrub-jay (*Aphelocoma californica*). In addition, unused dilapidated structures present within the grassland and adjacent to the riparian habitat, may be attractive to other nesting and/or roosting bird species in the area, such as the black phoebe. Further, the several Monterey cypress and Monterey pine trees around the west, east, and north perimeters of the project area may provide suitable nesting habitat for raptors, such as red-tailed hawks (*Buteo jamaicensis*). The riparian woodland provides suitable nesting habitat for a variety of common, resident bird species such as the California scrub-jay, American robin (*Turdus migratorius*), American crow, lesser goldfinch (*Spinus psaltria*), and bushtit. Numerous species of migratory birds also use this riparian woodland. These include species such as the black-headed grosbeak (*Pheucticus melanocephalus*), Wilson's warbler (*Cardellina pusilla*), and Swainson's thrush (*Catharus ustulatus*) that breed in this habitat but migrate south for winter. While potential nesting sites for migratory birds could be removed through removal of vegetative ground cover on the project site, hundreds of acres of suitable nesting and foraging habitat are present near the project and would remain undisturbed by project activities. Therefore, suitable nesting habitat would remain within and in the vicinity of the project. If work occurs during avian nesting season, implementation of Mitigation Measure BIO-4, which requires nesting bird surveys and construction modifications if active nests are identified, would ensure that impacts to nesting birds would be less than significant.

An examination of trees and structures in the project area and surrounding 200-foot-wide buffer did not detect any large cavities that might provide suitable bat roosting habitat. Therefore, large roosting or maternity colonies of bats are not expected to occur in the project area. Individual bats may be attracted to riparian areas to roost in trees and forage over nearby water sources and grassland habitat within the project site. Tree removal proposed may cause disturbance, injury, or harm to individual roosting bats. Implementation of Mitigation Measure BIO-6, which requires pre-construction bat surveys, would ensure that impacts to roosting bats would be less than significant.

e. Would the project conflict with any local policies or ordinances protecting biological resources, such as tree preservation policy or ordinance?

The project would have a significant impact if it would conflict with the City's Heritage Tree Ordinance under Municipal Code Chapter 7.40[35] or the City's Coastal Resource Conservation Standards under Municipal Code Chapter 18.38.[36] Section 7.40.020 of the Heritage Tree Ordinance defines heritage trees as:

A. A tree located on public or private property, exclusive of eucalyptus, with a trunk diameter of 12 inches or more, or a circumference of at least 38 inches measured at 48 inches above ground level.

B. A tree or stand of trees so designated by resolution of the city council based on its finding of special historical, environmental or aesthetic value, including a resolution adopted under former Chapter 12.16.

The project would remove 12 trees on the project site and would replace them by planting 12 new trees—a 1-to-1 ratio, as required by the LCLUP. No riparian trees would be impacted. To comply with Section 7.40.020 of the Heritage Tree Ordinance, Mitigation Measure BIO-5 requires that a tree survey be conducted by a certified arborist, and that removal of trees be avoided or replaced where feasible. With implementation of Mitigation Measure BIO-5, impacts to heritage trees would be less than significant.

The Coastal Resource Conservation Standards in the LCLUP require any proposed project within 100 feet of a "sensitive habitat area" to prepare a biological report. Sensitive habitat is defined as sand dunes, marine habitats, sea cliffs, riparian areas, wetlands, rocky intertidal zones, coastal scrub, and habitats supporting rare and endangered species defined by the California State Fish and Game Commission. The project site is mapped as having three ESHAs and one Potential ESHA on the City's ESHA maps in the 2020 LCLUP (see Section 2.4.b above).[37] A BRR was prepared for the project site specifying mitigation measures to protect potential sensitive species and habitats. The BRR measures have been incorporated into the mitigation measures listed below. The project would remove the existing materials enclosure, which is partially within the 50-foot riparian buffer. The new enclosure would be located farther away and constructed to meet all current stormwater and other design standards. The project would also remove the existing security fence around the impoundment, which is within the 100-foot wetland buffer zone, and replace it with wildlife fencing establishing a 100-foot buffer area around the impoundment and guiding wildlife into the wildlife corridor. The project would maintain a fenced 100-foot buffer around the impoundment. The project would also maintain a 50-foot buffer area from the riparian vegetation and construct a protected wildlife corridor with frog/snake tunnels under the new access road. Therefore, any impacts to ESHA would be less than significant with implementation of mitigation measures. As a result, the project complies with the 2020 LCLUP and Municipal Code Chapter 18.38.

[35] City of Half Moon Bay. 2019. *Half Moon Bay Municipal Code Chapter 7.40. Heritage Trees.* Available at: https://www.codepublishing.com/CA/HalfMoonBay/html/HalfMoonBay07/HalfMoonBay0740.html. Accessed November 12, 2021.

[36] City of Half Moon Bay. 2019. *Half Moon Bay Municipal Code Chapter 18.38. Coastal Resource Conservation Standards.* Available at: https://www.codepublishing.com/CA/HalfMoonBay/html/HalfMoonBay18/HalfMoonBay1838.html#18.38. Accessed November 12, 2021.

[37] City of Half Moon Bay. 2020. *Local Coastal Land Use Plan. 2020 Comprehensive Update. Chapter 6. Natural Resources, Figure 6-2. Environmentally Sensitive Habitat Areas.* Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/3784/Full-Combined-2020-HMB-LCLUP. Accessed November 12, 2021.

f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

There are no Habitat Conservation Plans or Natural Community Conservation Plans that apply to the project. Therefore, no impact would occur.

Mitigation Measures

The project shall comply with all of the following relevant measures. These measures have been developed based on measures identified in the BRR and BRR Peer Review:

BIO-1 The following mitigation measures shall be implemented during the project:

a. Prior to the start of the project, all construction crew members shall attend an environmental awareness training presented by a qualified biologist. A training brochure describing special-status species, project avoidance and minimization measures, key contacts, and potential consequences of impacts to special-status species and potentially jurisdictional features shall be distributed to the crew members during the training. Trainees shall sign an environmental training attendance sheet. These personnel shall be informed about the possible presence of all special-status species and habitats associated with the species identified here to be potentially present in the project area and that unlawful take of the animal or destruction of its habitat is a violation of the Federal Endangered Species Act and the California Endangered Species Act. Prior to construction activities, the qualified biologist shall instruct all construction personnel about (1) the description and status of the species; (2) the importance of their associated habitats; and (3) a list of measures being taken to reduce impacts on these species during project construction and implementation. A fact sheet conveying this information shall be prepared for distribution to the construction crew and anyone else who enters the project site.

b. Disturbance to vegetation shall be kept to the minimum necessary to complete the project activities. To minimize impacts to vegetation, a qualified biologist shall work with the contractor to designate the work area and any staging areas as well as delineate areas that shall be avoided with signage and tape. Areas that shall be avoided include Pilarcitos Creek, the impoundment, riparian habitat, and the wildlife corridor. Specifically, the buffer shall be 50 feet outward from the limit of riparian vegetation along Pilarcitos Creek or 100 feet from the top of bank within Pilarcitos Creek (whichever is greater) and 100 feet outward from the impoundment. The identified buffer shall be clearly depicted on any construction plans. Work may occur within these buffer areas under the supervision of a qualified biologist, and shall be limited to removal of the existing materials enclosure and the existing fencing around the impoundment. In addition, prior to initial ground disturbance or vegetation removal, the limits of the identified buffer around the impoundment, associated riparian habitat, and annual grassland to be avoided shall be flagged or fenced.

c. All riparian habitat and the 50-foot riparian buffer area to be avoided shall be shown on project design plan sets, and prior to project activities, these areas shall be protected with high-visibility fencing.

d. If any wildlife is encountered during project activities, said wildlife must be allowed to leave the work area unharmed. All listed wildlife species shall be allowed to leave the work area of their own accord and without harassment. Animals shall not be picked up or moved in any way. If non-listed and/or non-special-status wildlife does not leave the work area of their own accord, the qualified project biologist may relocate the wildlife outside of the project limits.

e. During project activities, all trash that may attract predators such as wrappers, cans, bottles, and food scraps shall be disposed of in solid, closed containers (trash cans) and removed at the end of each working day from the entire construction site. Following construction, trash/construction debris shall be removed from work areas.

f. The area of disturbance shall be limited to the minimum necessary to complete the project. Project boundaries shall be clearly demarcated, and these areas shall be outside of sensitive areas.

g. No firearms shall be allowed on the project site, except for federal, state, or local law enforcement, or security guards. No pets shall be allowed on the project site.

h. Project-related vehicles shall observe a 10 mile-per-hour speed limit in all project areas, except on City and County roads, and state highways; this is particularly important on rainy nights when California red-legged frogs are most active.

i. Nighttime construction shall be avoided.

BIO-2 The following measures shall be implemented to minimize impacts to special-status amphibians and reptiles:

a. The City will retain professional qualified biologists with experience monitoring for California red-legged frog and San Francisco garter snake to provide biological monitoring during all project construction activities that may result in take of any special-status species.

b. A qualified biological monitor (or as required by project permits) shall be on-site during all project construction activities that may result in take of any special-status species. The qualified biologist shall be given the authority to freely communicate verbally, by telephone, electronic mail, or in writing at any time with construction personnel, any other person(s) at the project site, otherwise associated with the project, the USFWS, the CDFW, or their designated agents. The qualified biologist shall have oversight over implementation of all the conservation measures and shall have the authority and responsibility to stop project activities if they determine any of the associated requirements are not being fulfilled. If the qualified biologist exercises this authority, the USFWS and CDFW shall be notified by telephone and electronic mail within twenty-four (24) hours.

c. A temporary wildlife exclusion barrier shall be installed at the discretion of the qualified biologist (or as required in project permits). Prior to any ground disturbance in the impact area, the temporary wildlife exclusion barrier shall be installed along the limits of disturbance. A qualified biologist shall inspect the area prior to installation of the barrier. The barrier shall be designed to allow the California red-legged frog and San Francisco garter snake to leave the impact area and prevent them from entering the impact area, and shall remain in place until all development activities have been completed. This barrier shall be

inspected daily and maintained and repaired as necessary to ensure that it is functional and is not a hazard to California red-legged frogs or San Francisco garter snakes on the outer side of the barrier.

d. Plastic mono-filament netting (erosion control matting), rolled erosion control products, or similar material shall not be used at the project site to prevent trapping California red-legged frogs, San Francisco garter snakes, or other species.

e. Within 24 hours of the planned start of project activities, a focused preconstruction survey for sensitive and listed species, including but not limited to California red-legged frog and San Francisco garter snake, shall be conducted by a qualified biologist within the impact area. The qualified biologist shall investigate all potential areas that could be used by the California red-legged frog and San Francisco garter snake for feeding, breeding, sheltering, movement, and other essential behaviors. This includes an adequate examination of mammal burrows. Construction activities shall not take place until the survey is completed.

f. Construction materials, including, but not limited to, wooden pallets, BMPs, equipment, or other materials, that are left on the ground for more than 24 hours shall be inspected before and during moving of the materials to prevent potential impacts to animals that may have utilized the materials as a temporary refuge. All construction pipes, culverts, or similar structures that are stored at a construction site for one or more overnight periods shall be either securely capped prior to storage or thoroughly inspected by the qualified biologist and/or the construction foreman/manager for animals before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a California red-legged frog or San Francisco garter snake is discovered inside a pipe or culvert by the qualified biologist or construction foreman/manager, the protocol in Mitigation Measure BIO-2(h) shall be followed.

g. To prevent inadvertent entrapment of the California red-legged frog or San Francisco garter snake during construction, the qualified biologist and/or construction foreman/manager shall ensure that all excavated, steep-walled holes or trenches more than 1 foot deep are completely covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks and inspected by the qualified biologist. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals by the qualified biologist and/or construction foreman/manager. If at any time a trapped California red-legged frog or San Francisco garter snake is discovered by the qualified biologist or anyone else, the steps in Mitigation Measure BIO-2(i) shall be followed.

h. If a California red-legged frog or San Francisco garter snake, or any animal that construction personnel believes may be either of these species, is encountered during project construction, the following shall be followed:

    i. All work that could result in direct injury, disturbance, or harassment of the individual animal shall immediately cease;

    ii. The foreman and qualified biologist shall be immediately notified; and

    iii. The qualified biologist shall determine if the animal is a California red-legged frog or San Francisco garter snake and, if so, shall follow

Mitigation Measure BIO-2h for California red-legged frog and Mitigation Measure BIO-2i for San Francisco garter snake.

i. If any California red-legged frogs are found during implementation of Mitigation Measures BIO-2(a), BIO-2(b), BIO-2(c), BIO-2(d), BIO-2(e), BIO-2(f), or BIO-2(g) the qualified biologist shall contact the USFWS to determine if moving any of the individuals is appropriate. In making this determination, the USFWS shall consider if an appropriate relocation site exists. If the USFWS approves moving animals, the City shall ensure that a permitted biologist holding a 10(a)(1)(A) permit for California red-legged frog (or as required by the project permits) is given sufficient time to move the animals from the impact area before ground disturbance is initiated. Only qualified and permitted biologists shall capture, handle, and move the California red-legged frog. The permitted biologist shall monitor any relocated frog until it is determined that it is not imperiled by predators or other dangers.

j. The qualified biologist shall monitor any individual San Francisco garter snake encountered within the impact area, but allow it to leave the impact area on its own. If the qualified biologist determines that the snake cannot leave on its own then the USFWS and CDFW shall be consulted to determine if the snake can be captured and relocated to appropriate habitat on the outside of the impact area. No San Francisco garter snakes shall be handled without explicit agency approval.

k. Planting of western mosquitofish (*Gambusia affinis*) within the impoundment shall be prohibited. Treatment of the impoundment for mosquito larvae by the Mosquito Abatement District will be conducted utilizing alternative treatments approved by the District (e.g., insect growth regulators).

l. The use of any pesticides in the impact area shall be utilized in such a manner to prevent primary or secondary poisoning of the California red-legged frog and/or San Francisco garter snake potentially present in the project area, and the depletion of food items on which they depend. All uses of such compounds shall observe label and other restrictions mandated by the USEPA, California Department of Food and Agriculture, and other appropriate state and federal regulations, as well as additional project-related restrictions deemed necessary by the USFWS and CDFW. Furthermore, pesticide use will be subject to documentation of compliance with the USEPA's Stipulated Injunction concerning the type used and buffer for application away from waterbodies and shall be rated for aquatic use by the California Department of Pesticide Regulation and have less-than-significant effects on California red-legged frog and San Francisco garter snake.

m. The use of herbicides shall not be permitted unless approved by CDP amendment. Future approval of herbicide use will be subject to documentation of compliance with the USEPA's Stipulated Injunction concerning the type used and buffer for application away from waterbodies and shall be rated for aquatic use by the California Department of Pesticide Regulation and have less-than-significant effects on California red-legged frog and San Francisco garter snake.

n. The use of rodenticides (i.e., anticoagulants) for controlling rodents, such as rats (*Rattus* spp.), house mice (*Mus musculus*), and California ground squirrels (*Spermophilus beecheyi*), shall be prohibited. If rodent control is required by the City, localized trapping efforts shall be conducted.

o. Construction activities (e.g., grubbing, grading) shall occur during dry weather conditions only, and to the extent feasible, during the dry season (June 1 to October 15) to facilitate avoidance of California red-legged frog and San Francisco garter snake.

p. Regardless of the season, construction shall adhere to SMCWPPP BMPs, and no construction shall occur during and within 24 hours following a significant rain event (defined as greater than 0.25 inch in a 24-hour period). Following a significant rain event and the 24-hour drying-out period, a qualified biologist shall conduct a preconstruction survey for California red-legged frog and other sensitive species prior to the restart of any project activities.

q. A wildlife corridor shall be constructed as part of the Project and would funnel any potentially dispersing California red-legged frog or San Francisco garter snake into a culvert tunnel beneath the access road and limit the potential for traffic accessing the Corporation Yard to impact California red-legged frog or San Francisco garter snake. The wildlife corridor would also include a fence line along the riparian buffer of Pilarcitos Creek, which would further ensure that individual California red-legged frog and San Francisco garter snake would utilize the wildlife corridor to safely travel between the agricultural pond and the creek. The riparian buffer fencing would prevent California red-legged frog or San Francisco garter snake from entering the upland, trafficked portions of the property, where they could be injured or killed or trapped in upland habitat where they could be easily predated. The wildlife corridor design considered the life history aspects of both California red-legged frog and San Francisco garter snake to provide a safe and suitable movement corridor without any further management actions required.

r. The wildlife corridor fencing shall be maintained as a boundary to allow for safe wildlife movement between the impoundment and Pilarcitos Creek by funneling any dispersing wildlife through tunnels beneath the access road and providing a boundary along the riparian corridor of Pilarcitos Creek. The wildlife fencing, tunnel, and corridor shall be maintained over the lifetime of its use, and any portion that is observed to be broken or not functioning property shall be repaired immediately by the City.

s. A temporary material may be used for the wildlife fencing, such as ERTEC or similar material, during construction of the project and for up to 1 year after construction is complete. If a temporary material is used for the fencing, it shall be inspected weekly by the City staff for any needed repairs. After 1 year the temporary fencing should be either replaced with a permanent wildlife fencing (e.g., chain-link fencing with vinyl slats) or re-assessed for efficacy by a qualified biologist.

t. Installation of the wildlife corridor and associated fencing should take place during dry weather conditions to ensure that no dispersing California red-legged frogs or San Francisco garter snakes are trapped in upland areas.

u. The wildlife corridor shall be maintained and repaired annually or more frequently as needed. The tunnels beneath the access road shall be inspected to ensure that it is not blocked by vegetation or sediment. Vegetation fuels management within the wildlife corridor shall use low impact methods (such as goat grazing or using hand tools) on an annual basis. Any mechanical

maintenance activities (including using hand tools for vegetation maintenance) within the wildlife corridor shall be closely monitored by an approved biologist.

BIO-3 The following measures shall be implemented to minimize impacts to Pilarcitos Creek and riparian habitat in the vicinity of the project:

a. The project shall comply with the SMCWPPP, Municipal Regional Stormwater National Pollution Discharge Elimination System (NPDES) Permit and General Construction permit to prevent increases in peak flow, erosion, or reduction in water quality for downslope waters, which shall prevent stream downcutting, riparian bank erosion, or other downstream impacts.

b. All spoils, such as dirt, excavated material, debris, and construction-related materials, generated during project activities shall be placed where they cannot enter any drainage ditch, culvert inlet, or nearby vernal marshes. Spoils shall be covered or secured to prevent sediment from escaping. Once the spoil pile is no longer active, it shall be removed from the work area and disposed of lawfully at an appropriate facility.

c. All exposed soils in the work area resulting from project activities shall be stabilized immediately following the completion of work to prevent erosion. Erosion and sediment control BMPs, such as silt fences, straw hay bales, gravel or rock-lined drainages, water check bars, and broadcast straw, can be used. BMPs shall be made of certified weed-free materials. Straw wattles, if used, shall be made of biodegradable fabric (e.g., burlap) and free of monofilament netting. At no time shall silt-laden runoff be allowed to enter any drainages or other sensitive areas.

d. All fueling and maintenance of vehicles and other equipment and staging areas shall occur at least 100 feet from any drainages and other water features, including Pilarcitos Creek. Crew members shall ensure that contamination of habitat does not occur during such operations. Prior to the onset of work, the construction contractor shall prepare a plan to be approved by the City before construction begins to allow a prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

e. All exposed surfaces shall be wetted periodically to prevent significant dust.

f. All stockpiled soil shall be covered during periods of rain.

g. The following BMPs shall be implemented to limit the spread of invasive species into sensitive habitats:

    i. All ground-disturbing equipment used adjacent to the riparian habitat shall be washed (including weeks, tracks, and undercarriages) at a legally operating equipment yard both before and after being used at the site;

    ii. All applicable construction materials used on-site, such as straw wattles, mulch, and fill material, shall be certified weed free;

    iii. The project shall follow the SMCWPPP and a SWPPP as per the NPDES *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Construction General Permit; Water Board Order No. 2009-0009-DWQ) if applicable;

    iv. All disturbed soils shall be stabilized and planted with a native seed mix from a local source following construction;

v. If excavating, soil and vegetation removed from densely weed-infested areas (for example, dense poison hemlock infestations or cape ivy infestations) shall not be used in general soil stockpiles and shall not be redistributed as topsoil cover for the newly filled areas. All weed-infested soil shall be disposed of off-site at a landfill.

BIO-4 The following measures shall be implemented to minimize impacts to nesting birds, as required by the MBTA and California Fish and Game Code:

a. If project activities, including, but not limited to, grubbing and grading, are conducted during nesting bird season (generally February 15 to September 15), preconstruction nest surveys shall be conducted in and near the project (within 500 feet for large raptors and 300 feet for all other birds) by a qualified biologist within 7 days of the start of construction. If nesting birds are identified during the preconstruction survey, then the project shall be modified (i.e., a no-work exclusion buffer of appropriate size [to be determined by the qualified project biologist] shall be erected around active nests) and/or delayed as necessary to avoid impacts to the identified nests, eggs, and/or young. Disturbing active nests must be avoided until young birds have fledged.

b. If construction activities shall not be initiated until after the start of the nesting season, all potential nesting substrates (e.g., bushes, trees, grasses, and other vegetation) that are scheduled to be removed by the project shall be removed prior to the start of the nesting season (e.g., prior to February 15), to the extent feasible. This shall preclude the initiation of nests in this vegetation and prevent the potential delay of the project due to the presence of active nests in these substrates.

BIO-5 The following measures shall be implemented to minimize impacts to heritage trees:

a. During detailed design of the project, removal of trees protected by the City heritage tree ordinance shall be avoided and minimized to the extent feasible. If tree removal is necessary, it is recommended that a certified arborist conduct a tree survey to determine the number and health of heritage trees within the developed habitat of the project area. Where removal of trees cannot be avoided, the City shall comply with the standards of the City heritage tree ordinance, including the planting of replacement trees where feasible and approval from the City Manager.

BIO-6 The following measures shall be implemented to minimize potential impacts to individual roosting bats:

a. Pre-Construction Bat Survey. Prior to tree removal, a qualified bat biologist shall conduct a visual survey of the project area to identify if bats are roosting within trees within the project area. Roost sites shall be avoided during tree removal. If no roosting sites or bats are observed during the survey no further mitigation is necessary.

b. If roosting bats or indications of bat roosts are observed within project trees to be removed, tree removal shall be conducted under the supervision of a qualified bat biologist. During tree removal and where potential bat roosts were identified, a qualified bat biologist shall be present and tree removal shall begin with portions of the tree that do not provide suitable roost habitat (e.g., low limbs lacking

forage). Trees shall be disassembled at a speed in coordination with the on-site qualified bat biologist that allows any roosting bats to vacate the tree.

BIO-7 The following measures shall be implemented to minimize potential impacts to San Francisco dusky-footed woodrat nests:

a. Focused surveys for San Francisco dusky-footed woodrat nests within the riparian habitat associated with Pilarcitos Creek and the marsh habitat shall be conducted within 7 days of the start of construction. If no nests are found, then no further mitigation shall be warranted. If nests are found, then Mitigation Measures b and c shall be implemented.

b. Dusky-footed woodrats are year-round residents. Therefore, avoidance mitigation is limited to designing the project to avoid direct impacts on woodrat nests to the extent feasible. Ideally, a minimum 10-foot buffer should be maintained between project construction activities and each nest to avoid disturbance. In some situations, a smaller buffer may be allowed if in the opinion of the qualified biologist removing the nest would be a greater impact than that anticipated due to project activities. If nests are observed within riparian habitat and this habitat shall be avoided by the project, high-visibility fencing shall be installed around these woodrat nests to keep workers, construction equipment, and construction materials out of the area where the nests are located.

c. If avoidance of occupied nests is not feasible, the woodrats shall be evicted from their nests prior to the removal of the nests and onset of ground-disturbing activities to avoid injury or mortality of the woodrats. A qualified biologist shall disturb the woodrat nest to the degree that all woodrats leave the nest and seek refuge outside of the project activity area. Subsequently, the nest sticks shall be relocated; these materials shall be piled at the base of a nearby tree or shrub outside of the impact area. The spacing between relocated nests shall not be less than 20 feet, unless a qualified biologist has determined that the habitat can support higher densities of nests.

2.5 Cultural Resources

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?	☐	☐	☐	☒
(b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	☐	☒	☐	☐
(c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

Environmental Evaluation

SWCA conducted a cultural resources investigation that included background research, a sacred lands file (SLF) search, and a field survey in support of the project. SWCA presented the findings of this investigation in a cultural resources memorandum in October 2021. In addition, SWCA conducted a historical resources evaluation of the existing farmhouse and adjacent garage in November 2021. The information below is based on these two memoranda.

a. Would the project cause a substantial adverse change in significance of a historical resource as defined in State CEQA Guidelines §15064.5?

A significant impact would occur if the project were to impact a historical resource defined as (1) a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (CRHR); (2) a resource included in a local register of historical resources, as defined in Section 5020.1(k) of the PRC, or (3) any object, building, structure, site, area, place, record, or manuscript a lead agency determines to be historically significant.[38]

A review of the records received from the Northwest Information Center (NWIC) and historical maps suggest that there is one built environment resources within the project area. These resources were previously determined to be ineligible for inclusion in the National Register of Historic Places (NRHP) or CRHR, and survey confirmed that two of these resources are, in fact, located outside of the project area. The third built-environment property is a one-story Ranch House-style residence constructed in 1961; it is currently used as offices by City staff. The residence would not be altered, relocated, or demolished as part of the project. The residence was previously evaluated in 1998 before it had reached the 50-year mark, generally signaling the need for evaluation. SWCA completed a due-diligence historic resource evaluation to ascertain the current historic resource status of the residence. The due-diligence evaluation determined that the subject property is not eligible at the federal, state, or local level and therefore does not qualify as a historical resource pursuant to CEQA. Therefore, the proposed project would not result in significant adverse impacts to historical resources, and no impact would occur.

b. Would the project cause a substantial adverse change in significance of an archaeological resource pursuant to State CEQA Guidelines §15064.5?

A significant adverse effect would occur if grading or excavation activities associated with a project were to disturb previously unknown archaeological resources. The project site is mapped as archaeologically sensitive on the LCLUP Archaeological Sensitivity Areas Map.[39] The NWIC-conducted records search indicated that there is one previously recorded archaeological resource within the project area. The SWCA intensive archaeological pedestrian survey did not result in the identification of surface constituents of this resource. However, the absence of known archaeological resources on the surface does not preclude their existence at the subsurface level. Although the project site is previously disturbed, with project activities to include grading and limited excavation for new utilities and road and slab foundations for new structures, subsurface deposits related to this resource may be encountered during ground-disturbing activities. Therefore, the City is presently conducting archaeological testing for the purpose of gaining additional information regarding the presence or absence of cultural constituents

[38] 14 CCR Section 15064.5. September 17, 2021. Available at: https://casetext.com/regulation/california-code-of-regulations/title-14-natural-resources/division-6-resources-agency/chapter-3-guidelines-for-implementation-of-the-california-environmental-quality-act/article-5-preliminary-review-of-projects-and-conduct-of-initial-study/section-150645-determining-the-significance-of-impacts-to-archaeological-and-historical-resources. Accessed September 30, 2021.

[39] City of Half Moon Bay. 2020. *Local Coastal Land Use Plan. 2020 Comprehensive Update. Chapter 8. Cultural Resources, Figure 8-1. Archaeological Sensitivity Areas.* Available at https://www.half-moon-bay.ca.us/DocumentCenter/View/3784/Full-Combined-2020-HMB-LCLUP. Accessed September 30, 2021.

within the parcel, the results of which will be included in the Final IS/MND. Based on the available information, it is considered likely that the archaeological testing will provide negative results. However, in the event that cultural materials are identified during archaeological testing, these materials will be cataloged and subject to in-field analysis, and the records and results will be presented in a report to be submitted to the NWIC. The level of analysis will be scaled appropriately based on the volume and likely significance of materials collected. Identification of a long-term cultural repository for recovered archaeological materials is not anticipated at this time. However, if archaeological material is found to require curation in a storage facility, the City will coordinate with a qualified curatorial facility as defined in the Curation of Federally-Owned and Administered Archaeological Collections (36 Code of Federal Regulations [CFR] Part 79) and the State of California Guidelines for the Curation of Archaeological Collections (1993).

Prior to the initiation of project activities, an environmental awareness training will be presented by a qualified archaeologist (CUL-1). This training will detail the types of cultural resources that may be encountered, as well as procedures to occur in the event of accidental discovery, in agreement with the standard unanticipated discovery condition, below. Mitigation Measure CUL-2 will develop and implement a cultural resources monitoring plan (CRMP) for all ground-disturbing activities.

Standard Condition: *If undiscovered cultural resources are encountered during project implementation, all work within 50 feet of the discovery shall be stopped. The project applicant will retain a qualified archaeologist to assess the finds to determine whether they qualify as an historical or unique archaeological resource as defined by CEQA Guidelines § 15064.5. If the find is determined to be an historical or unique archaeological resource, avoidance is preferred. However, if avoidance is not feasible, measures to avoid adverse effects shall developed and mitigation implemented. No work shall proceed within 50-feet of the find until the qualified archaeologist, the project applicant, and the City are in written agreement that avoidance or mitigation measures have been satisfied.*

Potential impacts to archaeological resources would be considered less than significant with the implementation of the standard condition, Mitigation Measure CUL-1, and Mitigation Measure CUL-2.

c. Would the project disturb any human remains, including those interred outside of formal cemeteries?

A significant adverse effect would occur if grading or excavation activities associated with a project were to disturb previously interred human remains.

The disposition of burials falls first under the general prohibition on disturbing or removing human remains under California Health and Safety Code Section 7050.5. More specifically, remains suspected to be Native American are treated under State CEQA Guidelines Section 15064.5, and California PRC Section 5097.98 illustrates the process to be followed in the event that remains are discovered. If human remains are discovered during construction, no further disturbance to the site shall occur, and the County of San Mateo Coroner must be notified (CCR 15064.5 and PRC 5097.98).

The records search conducted for the project did not reveal any known Native American burial sites. The absence of Native American sacred places does not preclude their existence at the subsurface level. Project activities include grading and limited excavation to install the new utilities and road and slab foundations for new structures. Therefore, subsurface deposits related to this resource may be encountered during ground-disturbing activities. Environmental impacts may result from project discovery of unrecorded human remains during grading and excavation. Although not anticipated, it is possible that discoveries of human remains may occur during ground-disturbing activities associated with project construction. Disturbance of unanticipated human remains would be a potentially significant impact. In the event that previously undiscovered human remains are encountered during the project,

the project would be required to implement the following standard City condition of approval that is applicable to all CDPs:

Standard Condition: *Pursuant to Section 7050.5 of the Health and Safety Code and Section 5097.94 of the Public Resources Code, in the event of the discovery of human remains during construction, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains. The County Coroner shall be notified immediately and shall make a determination as to whether the remains are Native American. If the Coroner determines that the remains are not subject to his authority, he shall notify the NAHC who shall attempt to identify descendants of the deceased Native American(s). If no satisfactory agreement can be reached as to the disposition of the remains pursuant to this State law, then the permittee shall reinter the human remains, and items associated with Native American burials on the property in a location not subject to further subsurface disturbance.*

With implementation of the above standard condition of approval, and Mitigation Measures CUL-1 and CUL-2, the project would have a less-than-significant impact to human remains.

Mitigation Measures

There is one recorded archeological resource in the project area. The following measures are provided to avoid and/or reduce impacts to a less-than-significant level in the event unknown or subsurface resources are encountered during project implementation.

CUL-1 Prior to the start of the project, all construction crew members will attend an environmental awareness training. This environmental awareness training will be conducted by a qualified archaeologist and will address cultural situations that may be encountered. An archaeologist will prepare an archaeological brochure to be distributed to the construction crew at the on-site environmental awareness training. The brochure will identify the types of cultural resources that may be encountered and the procedures to be followed in the event of accidental discovery.

CUL-2 The project will develop and implement a cultural resources monitoring plan (CRMP) for all ground-disturbing activities. The CRMP shall include provisions for stop-work by the archaeologist, ownership and proper handling of archaeological resources upon and following discovery, reporting format and frequency, and a project specific communications plan will need to be completed prior to start of work.

2.6 Energy

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
(b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

Environmental Evaluation

a. Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Energy use during project construction would be short term and temporary. Construction of the project would require the use of construction equipment and worker vehicles that would use energy. There are no established thresholds of significance for construction-related energy use; therefore, energy use during construction activities was not estimated. As discussed in Section 2.8, Greenhouse Gas Emissions, the project would implement the following BMPs, as required by the BAAQMD and the California Green Buildings Standard to reduce construction-related GHG emissions, which would also improve energy efficiency:

- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxic Control Measures in 13 CCR Section 2485). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- To the extent feasible, off-road construction diesel engines shall meet Tier 3 or Tier 4 California Emission Standards for Off-Road Compression-Ignition Engines.
- At least 65 percent of all construction waste or demolition material shall be recycled.[40]

Recycling construction waste would reduce the amount of energy used in the production of new materials.

Due to the relatively small scale and short duration of construction activities, the project would not result in the wasteful, inefficient, or unnecessary consumption of energy resources, and construction impacts would be less than significant.

Operation of the Corporation Yard would not change as a result of the project. The new solar field would require minimal maintenance, including panel washing and manual vegetation removal. The facility would be monitored remotely, and maintenance activities would only be conducted when needed. Maintenance activities would not require excessive or wasteful use of energy that could lead to potentially significant environmental impacts. Consumption of energy during operation would be less than or equal to the amount of renewable energy generated by the solar facility. Electricity generated by the solar field would be used to make operation of the Corporation Yard carbon neutral. Therefore, the project would not result in the wasteful or inefficient use of energy, and this impact would be less than significant.

b. Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Operation of the project would have little or no new energy use, and energy use during project construction would be short term and temporary. Therefore, the project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and no impact would occur.

[40] California Department of Resources Recycling and Recovery (CalRecycle), 2002. *Frequently Asked Questions: California Green Building Code.* Available at: https://www.calrecycle.ca.gov/lgcentral/library/canddmodel/instruction/faq#diversion. Accessed September 9, 2021.

2.7 Geology and Soils

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
(i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
(ii) Strong seismic ground shaking?	☐	☐	☒	☐
(iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
(iv) Landslides?	☐	☐	☐	☒
(b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
(c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
(d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☐	☒
(e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
(f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

Environmental Evaluation

a. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

The project site is located in a seismically active region, and moderate to strong earthquakes can occur on numerous local faults. Surface rupture is defined as surface displacement that occurs along the surface trace of the causative fault during an earthquake. The project site is approximately 2.5 miles east the

San Gregorio-Seal Cove Fault Zone[41] and 4.5 miles west the San Andreas Fault Zone.[42] No known active faults cross the project site, and the project site is not located within a currently designated Alquist-Priolo Earthquake Fault Zone.[43] Based on these considerations, the potential for surface rupture at the project site is considered low. The project would upgrade the existing facilities at the Corporation Yard, including construction of a solar field. It would not construct any facilities for human habitation. Since the project is over 2 miles from the nearest known earthquake fault, the project would have no impacts related to rupture of a known earthquake fault.

ii. Strong seismic ground shaking?

The project site has experienced generally moderate-to-high levels of shaking during past earthquakes. The site's relatively close proximity to two active faults (2.5 miles from the San Gregorio-Seal Cove Fault and 4.5 miles from the San Andreas Fault Zone) means it would likely experience moderate to occasionally high ground shaking from future earthquakes.

The design and construction of the project is required to comply with the building codes related to seismic risk such as the California Building Code (CBC) and Half Moon Bay Municipal Code, which incorporates the International Building Code. The City would be required to submit a soils report in order to obtain a building permit from the City Community Development Department, which would ensure that project plans and specifications comply with the CBC and local amendments to the code, where applicable. Among many seismic requirements, the CBC requires foundations and structures to be designed and constructed to withstand the ground motions (i.e., peak ground accelerations [g]) that have a 10 percent chance of being exceeded in 50 years (equivalent to a 1/475 annual chance of being exceeded). The project area is estimated to have a 10 percent probability of experiencing a ground motion of 0.513 g in 50 years, which is an intensity that would present severe perceived shaking and has the potential to cause moderate to heavy structural damage.[44]

The project would upgrade the existing facilities at the Corporation Yard, including construction of a solar field. It would not construct any facilities for human habitation. The 2019 CBC and standard geotechnical engineering practice requires identification of seismic design parameters to inform all earthwork requirements, foundation designs, and concrete/building material specifications. Design and construction of the project in accordance with the CBC would be sufficient to ensure public exposure to earthquake risks would remain minimal. Therefore, this impact would be less than significant

[41] California Department of Conservation (CDOC). 1976. State of California Special Studies Zones, Half Moon Bay Quadrangle. CDOC, Division of Mines and Geology. Available at: https://maps.conservation.ca.gov/cgs/informationwarehouse/. Accessed September 10, 2021.

[42] California Department of Conservation (CDOC). 1974, 2019. Earthquake Zones of Required Investigation, Woodside Quadrangle. CDOC, California Geological Survey. Available at: https://maps.conservation.ca.gov/cgs/informationwarehouse/. Accessed September 10, 2021.

[43] California Department of Conservation (CDOC). 1974, 2019. Earthquake Zones of Required Investigation, Woodside Quadrangle. CDOC, California Geological Survey. Available at: https://maps.conservation.ca.gov/cgs/informationwarehouse/. Accessed September 10, 2021.

[44] California Department of Conservation (CDOC). 2008. Ground Motion Interpolator Website. CDOC, California Geological Survey. Available at: https://www.conservation.ca.gov/cgs/ground-motion-interpolator. Accessed September 10, 2021.

iii. Seismic-related ground failure, including liquefaction?

The project site has a low-to-medium potential for liquefaction.[45] As discussed above, the City would be required to submit a soils report that complies with the CBC. As stated above, 2019 CBC and standard geotechnical engineering practice requires identification of seismic design parameters to inform all earthwork requirements, foundation designs, and concrete/building material specifications. Design and construction of the project in accordance with the CBC would be sufficient to ensure public exposure to risks related to seismic-induced ground failure would remain minimal. Therefore, this impact would be less than significant.

iv. Landslides?

The project site is essentially flat and has no landslide potential. No impact would occur.

b. Would the project result in substantial soil erosion or the loss of topsoil?

A significant impact would occur if a project would expose large areas to the erosional effects of wind and water for a protracted period of time, resulting in substantial erosion and/or the loss of topsoil. The project site has a low-to-moderate erosion risk.[46] Since the majority of the project work area is essentially flat, clearing, excavation, and grading activities at the project site are unlikely to result in significant short-term erosion impacts. In addition, project construction would comply with the SMCWPPP, which would include BMPs to prevent stormwater erosion from leaving the site. The project would replace gravel and dirt roads and parking areas with a paved road and two paved parking areas, reducing the overall operational erosion potential of the Corporation Yard. Therefore, impacts related to soil erosion would be less than significant.

The project would not require large amounts of excavation for road and construction of Corporation Yard improvements. The project would require a total of approximately 1,475 cubic yards of cut and 3,810 CY of fill. Approximately 590 cubic yards of soil and debris would be hauled off-site for disposal.

As required by the San Francisco RWQCB and the SMCWPPP, the project would implement BMPs to reduce erosion during construction. Since the total area of disturbance is more than 1 acre (approximately 1.78 acres), the City would be required to implement a SWPPP, according to the requirements of the San Francisco Bay RWQCB Municipal Regional Stormwater NPDES Permit and the SMCWPPP. The plan would include BMPs to control erosion and sedimentation impacts and stabilize disturbed bare earth areas. Any bare earth areas would be reseeded prior to the end of construction. Section 2.10, Hydrology and Water Quality, provides additional information about the SWPPP and Municipal Regional Stormwater NPDES Permit requirements and related permits.

The addition of approximately 54,260 square feet (1.25 acres) of impervious surface area for Corporation Yard improvements and access road could increase the stormwater runoff volume and rate compared with existing conditions, which could in turn accelerate soil erosion and loss of topsoil if stormwater were conveyed into Pilarcitos Creek. The City has developed the GIP, which requires construction projects to prioritize green infrastructure to capture stormwater. Stormwater from the project site flows overland to Pilarcitos Creek. Stormwater runoff would be directed into new vegetated channels or swales, which

[45] City of Half Moon Bay. 2014. *Plan Half Moon Bay. Existing Conditions, Trends and Opportunities Assessment Report*. Figure 5-13, Liquefaction Susceptibility. Available at: General Plan | Half Moon Bay, CA (half-moon-bay.ca.us). Accessed September 10, 2021.

[46] City of Half Moon Bay. 2014. *Plan Half Moon Bay. Existing Conditions, Trends and Opportunities Assessment Report*. Figure 5-10, Erosion Risk. Available at: General Plan | Half Moon Bay, CA (half-moon-bay.ca.us). Accessed September 10, 2021

would provide biotreatment of stormwater prior to entering Pilarcitos Creek and meet the requirements of the GIP.[47] All disturbed areas would be reseeded prior to the end of construction. The new drainages would be adequate to handle the additional volume of stormwater from 1.25 acres of impervious surface area. Therefore, impacts resulting from water-related erosion would be less than significant.

c. Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

The work area of the project site is essentially flat and has no potential for landslide and little potential for lateral spreading. Farallone loam, Gazos and Lobitos soils, and Tierra loam, which underlay the majority of the project site, have moderate potential for liquefaction. Farallone coarse sandy loam has low potential for liquefaction. Seismic settlement is not mapped for the project area, but considering the alluvial nature of most soils within the planning area, there is potential for seismic settlement.[48] All new roads and structures would meet the requirements of the CBC and be engineered to meet requirements for seismic and geotechnical stability. This impact would be less than significant.

d. Would the project be located on expansive soil, as defined in Table 18 1 B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

The expansion potential of soils underlying the project area varies but is generally considered low to moderate, depending on the clay content. The Farallone loam, Gazos and Lobitos soils, and Tierra loam have generally low clay content; therefore, the project would have a low-to-moderate shrink-swell potential.[49]

The project would comply with the Uniform Building Code and would include a geotechnical analysis of the underlying soils and recommendations to avoid damage related to expansive soils. Therefore, this impact would be less than significant.

e. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

The Corporation Yard is tied into the City sewer system. The project would not use septic tanks or alternative wastewater disposal systems; therefore, no impact would occur.

f. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Geologic units from a geological map of the county were analyzed for their potential paleontological sensitivity. Paleontological sensitivity is defined as the potential for a geological unit to produce scientifically significant fossils. In *Standard Procedures for the Assessment and Mitigation of Adverse*

[47] City of Half Moon Bay. 2019. *City of Half Moon Bay Green Infrastructure Plan.* Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/2305/HalfMoonBayGIPlan09-2019Final1. Accessed April 23, 2021.

[48] City of Half Moon Bay. 2014. *Plan Half Moon Bay. Existing Conditions, Trends and Opportunities Assessment Report*. Available at: General Plan | Half Moon Bay, CA (half-moon-bay.ca.us). Accessed September 10, 2021

[49] U.S. Department of Agriculture Natural Resources Conservation Service (NRCS). 2021. Web Soil Survey. Available at: https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm. Accessed November 12, 2021.

Impacts to Paleontological Resources,[50] the Society of Vertebrate Paleontology (SVP) defines four categories of paleontological sensitivity (potential) for rock units: high, low, undetermined, and no potential. No records searches or field surveys were conducted as part of the paleontological review. The project is located in the geologic units Qyf and Qmt. These are Pleistocene era and described as younger alluvial fan deposits and marine terrace deposits.[51] There have been no paleontological resources discovered in the project area, and the project would include only minor grading for roads, parking areas, and foundations; therefore, the project is unlikely to disturb a paleontological resource.

The 2020 LCLUP indicates that no paleontological resources of known significance have been identified in the City, and they are extremely limited in the entire county coastal zone.[52] The project has the potential to impact paleontological resources if the work affects sensitive, previously undisturbed surficial sediment or sedimentary rock. The potential for significant paleontological discovery and impact are anticipated to be low within the proposed work area because the project is on flat land and includes minor grading. In the unlikely event that a paleontological resource is discovered, the City would implement Mitigation Measure GEO-1. As a result, project activities would not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature, and impacts would be less than significant with mitigation.

Mitigation Measures

GEO-1 In the unlikely event that a paleontological resource is discovered, the City shall comply with PRC Division 5, Chapter 1.7, Section 5097.5, and Division 20, Chapter 3, Section 30244, which prohibit the removal, without permission, of any paleontological site or feature from lands under the jurisdiction of the State or any county, city, district, authority, or public corporation, or any agency thereof. To be consistent with these PRC sections, in the event that paleontological resources are exposed during construction, work in the immediate vicinity of the find must stop until a qualified paleontologist can evaluate the significance of the find. Construction activities may continue in other areas. If the discovery proves significant under the provisions of CEQA, the paleontologist shall prescribe and the City shall implement additional measures, such as testing or data recovery, to avoid impacts to the resources.

2.8 Greenhouse Gas Emissions

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐

[50] Society of Vertebrate Paleontology (SVP). 2010. *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources*. SVP Impact Mitigation Guidelines Revision Committee. Available at: https://vertpaleo.org/wp-content/uploads/2021/01/SVP_Impact_Mitigation_Guidelines.pdf. Accessed November 2021.

[51] U.S. Geological Survey (USGS). 1983. *Geologic Map of San Mateo County, California*. Available at: https://ngmdb.usgs.gov/Prodesc/proddesc_49.htm. Accessed November 12, 2021.

[52] City of Half Moon Bay. 2020. *Local Coastal Land Use Plan. 2020 Comprehensive Update. Chapter 8. Cultural Resources.* Available at https://www.half-moon-bay.ca.us/DocumentCenter/View/3784/Full-Combined-2020-HMB-LCLUP. Accessed November 12, 2021.

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

Environmental Evaluation

a. Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

GHGs are compounds in the earth's atmosphere that play a critical role in determining the earth's surface temperature. Specifically, these gases allow high-frequency solar radiation to enter the earth's atmosphere, but retain the low-frequency energy, which is radiated back from the earth to space, resulting in a warming of the atmosphere. This phenomenon is known as the greenhouse effect. Increased concentrations of GHGs in the earth's atmosphere are thought to be linked to global climate change, causing rising surface temperatures, melting icebergs and snowpack, rising sea levels, and the increasing frequency and magnitude of severe weather. GHGs include carbon dioxide (CO_2), methane, ozone, water vapor, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Although CO_2 is the most abundant GHG, other GHGs are less abundant but have higher global warming potential than CO_2. Thus, emissions of other GHGs are frequently expressed in the equivalent mass of CO_2, denoted as carbon dioxide equivalent (CO_2e). GHGs are the result of natural and anthropogenic activities. Forest fires, decomposition, industrial processes, landfills, and consumption of fossil fuels for power generation, transportation, heating, and cooking are the primary sources of GHG emissions.

The project would construct improvements to the City's existing Corporation Yard, including the addition of an electrical energy generating solar field. Based on the size of the project, there would be minimal construction-related GHG emissions. Construction of the project would require the use of construction equipment and worker vehicles that would generate GHG emissions. As previously described in Section 2.3.a, the BAAQMD has not established screening thresholds for construction-related GHG emissions general light industry projects. Therefore, GHG emissions during construction activities were not estimated. The project is relatively small compared with other screening criteria and would result in approximately 1.78 acres of ground disturbance. To reduce emissions, the BAAQMD requires that all project applicants ensure that all off-road vehicles and equipment comply with Transportation Control Measure TR22 of the *2017 Clean Air Plan*, which requires all off-road engines to comply with Tier 3 or Tier 4 standards.[53] The project would comply with all measures required by the BAAQMD *CEQA Air Quality Guidelines*.[54] These include the following for GHG reduction:

- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxic Control Measures in 13 CCR Section 2485). Clear signage shall be provided for construction workers at all access points.

[53] The EPA and CARB established emission standards for new engines found in off-road equipment. There are four tiers of emission standards, which become increasingly more stringent the higher the tier. Tier 3 and 4 emission standards are met through advanced engine design with no or minimal use of exhaust gas after combustion

[54] Bay Area Air Quality Management District (BAAQMD). 2017. *California Environmental Quality Act Air Quality Guidelines.* Available at: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed April 23, 2021.

- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- To the extent feasible, off-road construction diesel engines shall meet Tier 3 or Tier 4 California Emission Standards for Off-Road Compression-Ignition Engines.

Compliance with the required BAAQMD measures combined with the size of the project would ensure that impacts are less than significant. In addition, the project would implement the following BMP to further reduce construction-related GHG emissions, as required by the California Green Building Standards Code:

- At least 65 percent of all construction waste or demolition material shall be recycled.[55]

With implementation of BMPs required by the BAAQMD and California Green Building Standards Code, construction-related GHG emissions would be less than significant.

As previously described in Section 2.3.a, the BAAQMD has established screening thresholds for operational GHG emissions from general light industry projects at 121,000 square feet. The project would create approximately 8,360 square feet of new facilities, including 6,750 square feet for the tension fabric warehouse and 1,880 square feet for the materials and waste enclosure. However, operational activities and emissions at the Corporation Yard would not change as a result of the project. The new solar field would offset electrical use, creating a zero carbon footprint for the Corporation Yard. Therefore, operational activities would have no impact on GHG emissions.

b. Would the project conflict with an applicable plan, policy or regulations adopted for the purpose of reducing the emissions of greenhouse gases?

The project would upgrade existing facilities at the City's Corporation Yard and construct a new solar field, which would create minimal construction-related GHG emissions and would not change operational GHG emissions. Therefore, the project would not conflict with an applicable plan, policy, or regulation related to GHGs, and no impact would occur.

2.9 Hazards and Hazardous Materials

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
(b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐

[55] California Department of Resources Recycling and Recovery (CalRecycle), 2002. *Frequently Asked Questions: California Green Building Code.* Available at: https://www.calrecycle.ca.gov/lgcentral/library/canddmodel/instruction/faq#diversion. Accessed April 23, 2021.

	Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
(d)	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
(e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
(f)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
(g)	Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒

Environmental Evaluation

a. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

A significant impact may occur if a project would involve the use or disposal of hazardous materials as part of its routine operations or would have the potential to generate toxic or otherwise hazardous emissions that could adversely affect sensitive receptors.

Construction of the project would involve the transport, use, and disposal of potentially hazardous materials. These materials include paints, adhesives, surface coatings, cleaning agents, fuels, and oils that are typically associated with development of any construction project. As described in Chapter 1, Project Description, construction activities would be temporary, lasting approximately 4 to 6 months. These temporary construction activities involving the use, transport, storage, and disposal of hazardous materials would be conducted in compliance with all health and safety requirements, such as County and City General Plan policies, CCR Sections 337 through 340, Chapter 6.95 of California Health and Safety Code Article 1, and CCR Title 19, Public Safety, Division 2 (if required). Because the City and contractor would comply with applicable regulations and laws pertaining to the transport, storage, use, and disposal of potentially hazardous materials, the exposure of the public, construction workers, and environment to hazardous materials would be less than significant.

Operation at the Corporation Yard would not change as a result of the project. The project would result in better storage facilities for the hazardous materials stored on-site (primarily a small amount of fuel, less than 100 gallons of fuel stored in appropriate containers); therefore, no operational impact would occur.

b. Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

A significant impact may occur if a project could create an upset or accident condition involving hazardous materials. No hazardous contamination sites are located within the vicinity of the project site. The closest hazardous contamination site is approximately 0.35 mile southwest of the project area, and thus there is no reasonably foreseeable release of hazardous materials from existing hazardous contamination.[56,57] Construction of the project would use small amounts of hazardous materials, such as diesel fuel. The BMPs implemented for the SMCWPPP (discussed further in Section 2.10, Hydrology and Water Quality) would contain minor spills during construction. Operation of the Corporation Yard would not change as a result of the project, with the exception of operation of the new solar field. Therefore, the project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment, and the impact would be less than significant.

c. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

A project-related significant adverse effect may occur if a project site is within 0.25 mile of an existing or proposed school site, and the project is projected to release hazardous emissions that would exceed regulatory thresholds and would pose a health hazard. The closest school is Half Moon Bay High School, located approximately 0.20 mile northwest of the project. As discussed under Sections 2.9.a and 2.9.b above, the project would comply with applicable regulations and laws pertaining to the transport, storage, use, and disposal of potentially hazardous materials, and would not create a significant hazard to the public or the environment related to hazardous materials. Therefore, the project would not handle hazardous materials in a way that would emit hazardous emissions. Common handling of small amounts of materials such as vehicle fuel is unlikely to impact the high school located uphill of the project. Therefore, this impact would be less than significant.

d. Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would it create a significant hazard to the public or the environment?

California Government Code Section 65962.5 requires various State agencies to compile lists of hazardous waste disposal facilities, unauthorized release from underground storage tanks, contaminated drinking water wells, and solid waste facilities from which there is known migration of hazardous waste, and to submit such information to the Secretary for Environmental Protection on at least an annual basis. In meeting the provisions in California Government Code Section 65962.5, commonly referred to as the "Cortese List," database resources such as EnviroStor and GeoTracker provide information regarding identified facilities. According to EnviroStor[58] and GeoTracker,[59] no hazardous contamination sites are

[56] State Water Resources Control Board (State Water Board). 2021. GeoTracker. Available at: https://geotracker.waterboards.ca.gov/map/. Accessed September 10, 2021.

[57] California Department of Toxics Substances Control (DTSC). 2021. EnviroStor. Available at: https://www.envirostor.dtsc.ca.gov/public/map. Accessed September 10, 2021.

[58] California Department of Toxics Substances Control (DTSC). 2021. EnviroStor. Available at: https://www.envirostor.dtsc.ca.gov/public/map. Accessed September 10, 2021.

[59] State Water Resources Control Board (State Water Board). 2021. GeoTracker. Available at: https://geotracker.waterboards.ca.gov/map/. Accessed September 10, 2021.

located within the vicinity of the project site. The closest hazardous contamination site is approximately 0.35 mile southwest of the project area, and thus there is no reasonably foreseeable release of hazardous materials from existing hazardous contamination. Therefore, no impact would occur.

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

The project site is not located within an airport land use plan or within 2 miles of a public airport. Therefore, the project would not result in a safety hazard for people using the project area, and no impact would occur.

f. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

A significant impact may occur if a project were to interfere with roadway operations used in conjunction with an emergency response plan or emergency evacuation plan or would generate sufficient traffic to create traffic congestion that would interfere with the execution of such a plan.

The nearest emergency evacuation route is SR-92.[60] SR-1 and SR-92 provide the only evacuation routes into and out of the City. Construction of the Corporation Yard upgrades would result in minimal amounts of traffic related to worker trips, delivery of materials, and disposal of excavated soils. The project would be constructed at the eastern end of Stone Pine Road, approximately 0.1 mile south of SR-92. Construction traffic would not impede public access and would not interfere with any adopted emergency response plan or emergency evacuation plan. The proposed improvements to the Corporation Yard would not generate additional traffic. Construction activities and staging would occur on the project parcel and would not affect the public right-of-way. As required by Section 506.1.4 of the Fire Code Ordinance, the electric gate would be provided with Key Switch for fire access. Therefore, the project would not impair the implementation of or physically interfere with an emergency response plan or emergency evacuation plan, and no impact would occur.

g. Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

A significant impact may occur if a project is located in proximity to wildland areas and would pose a potential fire hazard, which could affect persons or structures in the area in the event of a fire. The project is served by the Coastside Fire Protection District (CFPD). The Half Moon Bay Fire Station is approximately 1.2 miles southwest of the project area.

The project site is located on the eastern edge of an established residential development and is located adjacent to a Very High Fire Hazard Severity Zone (VHFHSZ).[61] The closest VHFHSZ is at the eastern edge of the property. According to the Association of Bay Area Governments, the majority of the project area is also in the wildland urban interface (WUI).[62] The WUI is best described as an area where housing developments are interspersed in an area dominated by wildland vegetation subject to wildfire.

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[60] City of Half Moon Bay. 2013. *General Plan. Circulation Element.* Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/187/2013-Circulation-Element-PDF. Accessed November 12, 2021.

[61] California Department of Forestry and Fire Protection (CAL FIRE). 2007. Fire Hazard Severity Zone Viewer. Available at: https://egis.fire.ca.gov/FHSZ/. Accessed September 10, 2021.

[62] Association of Bay Area Governments. 2020. Wildland-Urban Interface Fire Threat Interactive Map. Available at: https://mtc.maps.arcgis.com/home/item.html?id=d45bf08448354073a26675776f2d09cb. Accessed September 10, 2021.

However, the improvements to the existing Corporation Yard facilities would improve the safety of the Corporation Yard by including upgrades to meet CFPD requirements, particularly new water service, sprinklers, and fire hydrant. The paved access road would improve access for emergency vehicles. Therefore, the project would not expose more people or infrastructure to danger from wildland fires, and no impact would occur.

2.10 Hydrology and Water Quality

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
(b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒
(c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
(i) Result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
(ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	☐	☐	☒	☐
(iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
(iv) Impede or redirect flood flows?	☐	☐	☐	☒
(d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
(e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

Environmental Evaluation

a. Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Activities associated with construction of the project could have a significant impact if they resulted in violation of waste discharge requirements under the San Francisco Bay RWCQB's Municipal Regional Stormwater NPDES Permit from contaminated runoff entering the stormwater system.

The SMCWPPP is a partnership of the City and County Association of Governments, each incorporated city and town in the county, and the County, which share a common NPDES permit. The Municipal

Regional Stormwater NPDES Permit was issued by the San Francisco Bay RWQCB[63] in compliance with the San Francisco Bay Basin Water Quality Control Plan[64] and the NPDES Program. Participating agencies (including the County and City) must comply with the provisions of the countywide permit by ensuring that new development and redevelopment mitigate, to the maximum extent practicable, water quality impacts from stormwater runoff during both construction and operational periods of projects.

CONSTRUCTION

Construction of the Corporation Yard improvements would be required to implement a SWPPP under the State Water Boards Construction General Permit Order 2009-009-DWQ,[65] Municipal Regional Stormwater NPDES Permit,[66] and SMCWPPP.[67] The SWPPP must include site-specific BMPs that are designed to prevent runoff from construction areas to reduce potential impacts to surface water quality during project construction. The SWPPP would also include design elements and BMPs for construction areas, such as fueling and equipment washing areas and trash and hazardous material storage areas. No construction would occur during major rain events, minimizing any chance of runoff from the site. Major rain events would be considered as a prediction of 0.25 inch or more in 24 hours.

Construction of the Corporation Yard improvements would require excavation and grading for the access road and parking areas and foundations for the new warehouse and materials enclosure. Excavation would also be required for the solar panel supports and fenceposts. Excavation and grading could result in an increase in erosion and sedimentation from the project area into Pilarcitos Creek. Construction materials and construction waste, such as old asphalt and other debris, could enter Pilarcitos Creek. The freshwater marsh located in the northwest corner of the project site is upslope of construction areas, would be fenced, and would not be impacted. Construction activities associated with the Corporation Yard improvements would require the presence of construction vehicles, heavy equipment and materials, and construction crews. In addition to stormwater runoff and potential resulting water quality and sedimentation impacts, there is the potential for hazardous materials, including petroleum products associated with diesel vehicle and equipment use and contaminants from paving materials, concrete mixing, pouring and washout, and sanitary facilities, to enter Pilarcitos Creek and contribute pollutants to Pilarcitos Creek that can affect water quality and may violate water quality standards if left uncontrolled. Construction activities for the Corporation Yard improvements would last approximately 4 to 6 months and would occur only during dry weather conditions to the extent feasible.

[63] San Francisco Regional Water Quality Control Board (RWQCB). 2015. *Municipal Regional Stormwater NPDES Permit.* California Regional Water Quality Control Board, San Francisco Bay Region. Order No. R2-2015-0049. NPDES Permit No. CAS612008. November 19. Available at: https://www.cleanwaterprogram.org/images/uploads/R2-2015-0049.pdf. Accessed November 15, 2021.

[64] San Francisco Regional Water Quality Control Board (RWQCB). 2017. *San Francisco Bay Basin Water Quality Control Plan.* California Regional Water Quality Control Board, San Francisco Bay Region. May 4. Available at: https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/planningtmdls/basinplan/web/docs/BP_all_chapters.pdf. Accessed November 15, 2021.

[65] California Water Boards. 2021. *Construction Stormwater Program Website*. Available at: https://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.html. Accessed November 15, 2021.

[66] San Francisco Regional Water Quality Control Board (RWQCB). 2015. *Municipal Regional Stormwater NPDES Permit.* California Regional Water Quality Control Board, San Francisco Bay Region. Order No. R2-2015-0049. NPDES Permit No. CAS612008. November 19. Available at: https://www.cleanwaterprogram.org/images/uploads/R2-2015-0049.pdf. Accessed November 15, 2021.

[67] County of San Mateo. 2020. *San Mateo Countywide Water Pollution Prevention Program. Construction Webpage*. Available at: https://www.flowstobay.org/construction. Accessed November 15, 2021.

The project would be required to comply with the Construction General Permit and SMCWPPP and to develop a SWPPP. The project would create approximately 54,260 square feet of new impervious surface. Stormwater BMPs under the SWPPP include, but are not limited to:

- Attach the SMCWPPP's construction BMP plan sheet to project plans and require the contractor to implement applicable BMPs on the plan sheet.
- Create temporary erosion controls to stabilize all denuded areas until permanent erosion controls are established.
- Perform clearing and earth-moving activities only during dry weather.
- Trap sediment on-site using BMPs, such as sediment basins or traps, earthen dikes or berms, silt fences, check dams, compost blankets or jute mats, covers for soil stockpiles, etc.
- Protect adjacent properties and undisturbed areas from construction impacts using vegetative buffer strips, sediment barriers, dikes, mulching, or other areas, as appropriate.
- Limit construction access routes and stabilize designated access points.
- Do not clean, fuel, or maintain vehicles on-site, except in a designated area where wash water is confined and treated.
- Store, handle, and dispose of construction materials/wastes properly to prevent contact with stormwater.
- Train and provide instruction to all employees/subcontractors regarding construction SWPPP BMPs.
- Control and prevent the discharge of all potential pollutants, including pavement cutting wastes, paints, concrete, petroleum products, chemicals, wash water or sediments, rinse water from architectural copper, and non-stormwater discharges to storm drains or watercourses.

Implementation of the SWPPP, as required by law, would prevent construction of the Corporation Yard upgrades from violating any water quality standards or waste discharge requirements or otherwise substantially degrading surface water or groundwater quality, and would reduce potentially significant impacts to a less-than-significant level.

OPERATION

The project would add approximately 54,260 square feet (1.25 acres) of impervious surface area to the Corporation Yard. This additional impervious surface area would increase the stormwater runoff volume and rate compared with existing conditions, which could in turn accelerate soil erosion and loss of topsoil if stormwater were conveyed onto adjacent undeveloped land.

The project would be required to comply with the C.3 Regulated Projects Checklist, as required by the SMCWPPP. A C.3 regulated project is one that creates or replaces 10,000 or more square feet of impervious surface.

In addition, the project would be required to adhere to the City's Low Impact Development requirements. The City has developed the GIP, which requires construction projects to prioritize green infrastructure to capture stormwater. Stormwater from the project site drains overland to Pilarcitos Creek. Stormwater runoff would be channeled through swales or channels lined with natural vegetation before entering Pilarcitos Creek, which would provide biotreatment of stormwater and meets the requirements of the

GIP.[68] Under the GIP and C.3 Regulated Projects Guide, the swales or channels would be sized to contain a flow of runoff resulting from a rainfall intensity of 0.2 inch per hour. This method of sizing requires the surface treatment area to be 4 percent of the total impervious surface area.[69] The Corporation Yard, including the approximately 54,260 square feet of new impervious surface area, would have total of approximately 57,165 square feet of impervious surface area (including the new construction and existing house and barn). Therefore, the project would require approximately 2,286 square feet (4 percent) of stormwater channels.

The project would remove the existing materials enclosure, which is within the 50-foot riparian buffer area, and construct a new materials enclosure that is outside of the 50-foot riparian buffer and drained to the sewer system; therefore, pollutant runoff from the materials enclosure would be reduced or eliminated. Therefore, project operation would not violate any water quality standards or waste discharge requirements or degrade water quality, and operational impacts would be less than significant.

Erosion and sedimentation may temporarily increase post-construction because of soils that have been loosened and changes in drainage patterns. Improvements to the Corporation Yard could temporarily result in an increase in the levels of urban pollutants and litter entering Pilarcitos Creek. Pollutants in post-construction runoff from the Corporation Yard could include sediment and materials such as vehicle fuel, oils, and lubricants used in Corporation Yard vehicles. However, all earth-moving aspects of the project is anticipated to be completed by October 15, which is the start of the rainy season. The construction of the warehouse may be completed at a later date. Therefore, the project site is anticipated to be stabilized by reseeding with native seeds prior to October 15. If the project is not completed and stabilized by October 15, the contractor would employ the required site-specific BMPs included in the SWPPP that are designed to prevent runoff from construction areas (see Appendix A). Once complete; construction equipment, building materials, and chemicals, including cleaning materials and fuel, oils, and lubricants, would be stored inside the warehouse, and the location and drainage of new materials enclosure would lead to an overall decrease in runoff pollutants. Therefore, post-construction runoff from the Corporation Yard improvements would not result in a violation of any water quality standards or waste discharge requirements, and this impact would be less than significant.

b. Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

A potentially significant impact would occur if a project includes deep excavations resulting in the potential to interfere with groundwater movement, the withdrawal of groundwater, or paving of existing permeable surfaces important to groundwater recharge. The project would include minor excavation and grading (to a maximum depth of 5 feet) for roads, a parking area, and concrete foundations for the warehouse and materials enclosure, which would not impact the groundwater table. No impact would occur from excavation.

Project construction would be served by the Coastside County Water District (CCWD) water supply system. The Corporation Yard has existing water service from CCWD. Additional operational water use would include periodic washing of solar panels, which would require approximately 2,000 gallons per year over existing use. The project would upgrade existing Corporation Yard facilities. It would not

[68] City of Half Moon Bay. 2019. *City of Half Moon Bay Green Infrastructure Plan.* Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/2305/HalfMoonBayGIPlan09-2019Final1. Accessed November 15, 2021.

[69] San Mateo Countywide Water Pollution Prevention Program. January 2020. *C.3 Regulate Projects Guide.* Available at: https://www.flowstobay.org/wp-content/uploads/2020/03/SMCWPPP-C.3-Regulated-Project-Guide-High-Res_021220_0.pdf. Accessed November 15, 2021.

increase the density or population of the City and would not reduce water supply reliability or impact groundwater withdrawal. Development of the project would not include any groundwater wells.

The project area is located within the State Water Board San Francisco Bay Hydrologic Region. The project area is underlain by an alluvial aquifer referred to as the Half Moon Bay Terrace groundwater basin, which supplies limited water for domestic and municipal uses (golf courses). Groundwater in the project area flows from east to west, discharging into the Pacific Ocean.[70,71]

The project would result in an increase in impervious surface area, adding approximately 64,000 square feet (1.47 acres) of impervious surface area to the existing Corporation Yard. Impervious surfaces prevent the infiltration of runoff into the underlying soil and can interfere with groundwater recharge. According to the CCWD, there are no municipal water supply wells in the vicinity of the project.[72] Runoff from the Corporation Yard drains to Pilarcitos Creek or percolates into the groundwater table. Therefore, the project would not substantially interfere with groundwater recharge, and no impact would occur.

c. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i. Result in substantial erosion or siltation on- or off-site?

Planned earthwork and grading activities on the project site would involve a total cut and fill of approximately 5,285 cubic yards. The project site slopes gradually to the southwest to Pilarcitos Creek, and all project components would be required to implement erosion control measures as discussed under Section 2.10.a.

Construction of the project would include implementation of SWPPP BMPs under the State Water Board General Construction Permit and SMCWPPP. In addition, the project would comply with Mitigation Measure BIO-3 to minimize impacts to Pilarcitos Creek. The existing impoundment in the northwest corner of the project area is upslope of the construction areas and would be protected during construction. As discussed under Section 2.10.a, operational stormwater flows would continue to be directed to Pilarcitos Creek through new vegetated channels or swales. Operation of the project would result in an increase of impervious surface compared with existing conditions (approximately 54,260 square feet). However, this includes replacing two existing unpaved access roads and parking/materials storage areas with paved surfaces. The existing unpaved areas are potentially more susceptible to erosion. The Corporation Yard improvements would include construction of vegetated stormwater channels that would have adequate capacity for the increase in drainage; therefore, the project would not substantially alter the existing drainage pattern in a manner that would cause erosion. The project site would not alter the course of a stream or river. Therefore, the project would not substantially alter the existing drainage pattern of the site resulting in substantial erosion or siltation, and the impact would be less than significant.

[70] California Department of Water Resources (DWR). 2021. Groundwater Basin Boundary Assessment Tool. Available at: https://gis.water.ca.gov/app/bbat/. Accessed November 15, 2021.

[71] California Department of Water Resources (DWR). 2014. *Bulletin 118 – Half Moon Bay Terrace Groundwater Basin*. Available at: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/2003-Basin-Descriptions/2_022_HalfMoonBayTerrace.pdf. Accessed April 26, 2021.

[72] Coastside County Water District (CCWD). 2020. *District Maps Webpage.* Available at: http://www.coastsidewater.org/distribution/district-maps.html. Accessed November 15, 2021.

ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

A significant impact may occur if a project results in increased runoff volumes during construction or operation of the project that would result in flooding conditions affecting the project site or nearby properties. There are no flooding hazards in the project area. As described in Sections 2.10.a and 2.10.b, the project would result in a relatively small increase in impervious surface area (approximately 64,000 square feet) and would construct new vegetated stormwater swales or channels that would have adequate capacity to contain runoff from the additional square footage. Therefore, the project would not increase the rate or amount of surface runoff in a manner that would result in flooding, and the impact would be less than significant.

iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Stormwater from the project site flows overland to Pilarcitos Creek, which is in an area of minimal flood hazard, and FEMA maps do not show a flood hazard zone outside the banks of Pilarcitos Creek downstream of the project.[73] There is no known history of flooding from Pilarcitos Creek on the project site.[74] As described in Sections 2.10.a and 2.10.b, the project would result in a relatively small increase in impervious surface area (approximately 54,260 square feet). Stormwater improvements would meet the requirements of the City's GIP and have capacity to contain runoff from the increase in impervious surface area. Therefore, the project would not increase the rate or amount of surface runoff in a manner that would exceed the capacity of the City's stormwater system, and the impact would be less than significant.

iv. Impede or redirect flood flows?

A significant impact may occur if a project were located in a flood hazard area and would impede or redirect flood flows. The project is not mapped in a flood hazard zone and is not located in an area with known localized flooding issues;[75] therefore, the project would not impede or redirect flood flows, and no impact would occur.

d. Would the project in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

The project is not located in a flood hazard or seiche zone.[76] The project is approximately 1.2 miles from the Pacific Ocean. According to the Department of Conservation *San Mateo County Tsunami Hazard Areas* viewer, tsunami floodwaters would travel up Pilarcitos Creek to within 100 feet of the project site

[73] Federal Emergency Management Agency (FEMA). 2020. FEMA Flood Map Service Center. Available at: https://msc.fema.gov/portal/search?AddressQuery=909%20Grandview%20Boulevard%20Half%20Moon%20Bay%20CA#searchresultsanchor. Accessed November 15, 2021

[74] Seeley, Todd, Director of Public Works, City of Half Moon Bay. 2021. Personal Communication. Response to RFI #3.

[75] Federal Emergency Management Agency (FEMA). 2020. FEMA Flood Map Service Center. Available at: https://msc.fema.gov/portal/search?AddressQuery=909%20Grandview%20Boulevard%20Half%20Moon%20Bay%20CA#searchresultsanchor. Accessed November 15, 2021.

[76] City of Half Moon Bay. 2014. *Plan Half Moon Bay. Existing Conditions, Trends, and Opportunities Assessment*. pp. 5-79 to 5-87. Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/174/HMB-Existing-Conditions-Report-PDF. Accessed November 15, 2021.

and 1,000 feet of existing Corporation Yard facilities but would not enter the project site.[77] The project would upgrade existing Corporation Yard facilities but would not change existing operations at the Corporation Yard. Therefore, the project would not risk the release of pollutants due to project inundation from a tsunami, and no impact would occur.

e. Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

The project is located in the Lower Pilarcitos Creek Subbasin of the Half Moon Bay Terrace groundwater basin. The Half Moon Bay Terrace groundwater basin does not have a sustainable groundwater management plan and is on the list of groundwater basins with low priority for developing such a plan. The project would rely on municipal water sources for construction operation and would not obstruct groundwater recharge. Therefore, the project would not conflict with or obstruct implementation of a sustainable groundwater management plan, and no impact would occur.

The project would abide by all requirements of the SMCWPPP, San Francisco Bay RWQCB Municipal Regional Stormwater NPDES Permit, and the City's GIP.[78,79] The project would not conflict with the Water Quality Control Plan for the San Francisco Bay Basin because it would comply with all applicable requirements of both the Municipal Regional Stormwater NPDES Permit and the SMCWPPP permit, and no impact would occur.

Mitigation Measures

The project shall comply with Mitigation Measure BIO-3 to minimize impacts to wetlands and waters.

2.11 Land Use and Planning

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Physically divide an established community?	☐	☐	☐	☒
(b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

[77] State of California. 2021. *Tsunami Hazard Area Map. San Mateo County.* Produced by California Geological Survey, California Governor's Office of Emergency Services, and AECOM. Available at: https://www.conservation.ca.gov/cgs/tsunami/maps/san-mateo. Accessed November 15, 2021.

[78] San Francisco Regional Water Quality Control Board (RWQCB). 2015. *Municipal Regional Stormwater NPDES Permit.* Order No. R2-2015-0049. NPDES Permit No. CAS612008. Available at: https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/stormwater/Municipal/R2-2015-0049.pdf. Accessed November 15, 2021.

[79] City of Half Moon Bay. 2019. *City of Half Moon Bay Green Infrastructure Plan.* Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/2305/HalfMoonBayGIPlan09-2019Final1. Accessed November 15, 2021.

Environmental Evaluation

a. Would the project physically divide an established community?

The project would upgrade the existing Corporation Yard facilities. It would not include any lot line adjustment or change in existing parcels. It would not physically divide an established community, and no impact would occur.

b. Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

A project would normally have a significant impact related to land use consistency if it would be inconsistent with the General Plan or its elements, a local coastal plan, or adopted environmental goals or policies, or if it would require a General Plan amendment or zone change.

The project would upgrade the City's existing Corporation Yard facilities and enhance environmental protections. The property is currently zoned as Urban Reserve (U-R) and, under the LCLUP, is designated as Public Facilities and Institutions, which includes educational, governmental, agricultural, habitat restoration, and institutional uses, such as public works and utilities yards and maintenance buildings. The LCLUP recommends rezoning this property to Public/Quasi Public (P-S). Per CCC guidance, the LCLUP is the primary guiding land use document and takes precedence when there are inconsistencies between the LCLUP and the zoning code. The proposed improvements to the City-owned property are consistent with the LCLUP land use designation and the Public/Quasi Public (P-S) zoning designation. The project is located within the California Coastal Zone.

The project would add a solar field that would provide electricity to the existing Corporation Yard facilities. The Corporation Yard would eliminate natural gas service upon completion of solar (PV) facilities. The project would allow the City to increase sustainability and shift away from fossil fuels by providing solar electrical energy to its Corporation Yard.

As shown in Table 2.11-1, the project was reviewed for consistency with policies relating to the 2020 LCLUP and City Zoning Ordinance (Title 18),[80] and the project was found to be consistent with City policies and development regulations. With the exception of the new solar field, the project would not change operations at the existing Corporation Yard, which is an approved use under the LCLUP Public Facilities and Institutions land use category. As discussed in Section 2.4, Biological Resources, the project would comply with policies related to ESHAs, special-status species, and heritage trees, and would improve protection of sensitive habitat and species by relocating the materials enclosure out of the 50-foot riparian setback and constructing a wildlife corridor with frog/snake tunnels under the access road. Operationally, the project would improve the City's sustainability by increasing reliance on solar energy and would not otherwise conflict with any other environmental policy expressed in the 2020 LCLUP. Additionally, the project does not propose any other new, expanded, or modified land use in the project area and would not conflict with the existing and surrounding uses. Therefore, the project would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

[80] City of Half Moon Bay. 2020. *Local Coastal Land Use Plan. 2020 Comprehensive Update. Chapter 2. Development.* Available at https://www.half-moon-bay.ca.us/DocumentCenter/View/3784/Full-Combined-2020-HMB-LCLUP. Accessed November 15, 2021.

Table 2.11-1. Project Consistency with LCLUP Policies and Municipal Code

Policy or Code	Consistency
Policy 2-24. Infrastructure Capacity and Design. Design public infrastructure, including water, sewer, stormwater management, communications, energy, and transportation systems, to meet the needs of anticipated development without inducing growth, support new technology, and shift away from fossil fuels. Infrastructure shall be designed according to best practices for sustainability, maintenance, aesthetics, resilience, and durability. As applicable, new infrastructure shall be undergrounded.	Consistent. The project would remove existing gas infrastructure and include a solar field, which would generate adequate electrical energy to achieve a net zero carbon footprint for the Corporation Yard.
Policy 6-8. Biological Study. For development proposed in and adjacent to ESHA and projects for which the preliminary biological inventory indicates the presence or potential for sensitive species or habitat, require the preparation of a detailed biological study by a City-approved, qualified professional to be submitted prior to development review and prior to any ground disturbance.	Consistent: The existing access road crosses a wildlife corridor potentially used by California red-legged frog. The City and its consultants prepared a BRR and preliminary wetland delineation. On the basis of these, the City consulted with an expert on California red-legged frog to design a wildlife corridor to protect special-status snakes and frogs from the new access road (see Section 2.4, Biological Resources).
Policy 6-15. Wildlife Corridors. Preserve, protect, and enhance wildlife corridors, including watercourses, connecting ESHA and open space areas to allow for seasonal migration as well as daily movements for foraging and dispersal.	Consistent: The existing access road crosses a wildlife corridor potentially used by California red-legged frog. The City consulted with an expert on California red-legged frog to design a wildlife corridor to protect special-status snakes and frogs from the new access road (see Section 2.4, Biological Resources).
Policy 6-18. Standards in Terrestrial ESHA and Terrestrial ESHA Buffers. Site and design new development permitted in or adjacent to terrestrial ESHA to avoid adverse impacts to ESHA. Methods for avoiding impacts include, but are not limited to, utilizing raised boardwalks, installing informative signage and exclusion fencing, and implementing construction best management practices.	Consistent: The new access road includes a fenced wildlife corridor with frog/snake tunnels under the road to protect ESHAs, potential ESHAs, and special-status frogs and snakes (see Section 1.5, Proposed Project).
Policy 6-41. Wetland Buffer Zones. Wetland buffer zones for proposed development shall extend a minimum of 100 feet landward from the edge of the delineated wetland.	Consistent. The project would provide a 100-foot buffer zone around the existing freshwater marsh impoundment. Removal of the existing fencing within the 100-foot buffer zone would increase the habitat available to special-status species and assist in directing them into the wildlife corridor.
Policy 6-49. Riparian Corridor Buffers. Buffer zones shall be required for development proposed along both sides of riparian corridors to provide habitat protection and space for meander belts and vegetation growth. Riparian buffer zones shall apply as follows: a. For all perennial watercourses (i.e., Pilarcitos Creek), buffer zones shall extend a minimum of 50 feet from the outer limit of the riparian vegetation or 100 feet from the top of bank, whichever is greater.	Consistent. The project would provide a 50-foot buffer zone around the existing riparian corridor and would relocate the materials enclosure outside of the 50-foot buffer zone.
Municipal Code 7.40 Heritage Trees. The Heritage Tree Ordinance requires permits for the removal of heritage trees and replacement of such trees on a one-to-one basis. It also requires a tree protection plan be prepared by a certified arborist if grading, excavation, demolition, or construction activity is performed within the drip line of a heritage tree.	Consistent. The project would remove 12 trees and replace them at a 1-to-1 ratio. Mitigation Measure BIO-5 would require compliance with the Heritage Tree Ordinance. The City would have a tree protection plan prepared by a certified arborist prior to construction.

2.12 Mineral Resources

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
(b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Environmental Evaluation

a. Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

A significant impact may occur if a project site is located in an area used or available for extraction of a regionally important mineral resource, if a project would convert an existing or future regionally important mineral extraction use to another use, or if a project would affect access to a site used or potentially available for regionally important mineral resource extraction.

The project is located in an area zoned Mineral Resource Zone (MRZ)-3 for aggregate mineral resources.[81] MRZ-3 is defined as an area containing mineral deposits, the significance of which cannot be evaluated from available data. Neither the project site nor the surrounding area is identified as an area containing mineral deposits of statewide or regional significance. The closest identified aggregate resource section is at Pilarcitos Quarry, approximately 2.2 miles northeast. Therefore, no impacts to mineral resources of statewide or regional significance would occur.

b. Would the project result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

A significant impact would occur if a project were located in an area used or available for extraction of a locally important mineral resource and the project converted an existing or potential future locally important mineral extraction use to another use, or if a project affected access to a site in use or potentially available for locally important mineral resource extraction.

Neither the project site nor the surrounding area is identified as an area containing mineral deposits of local significance.[82] Therefore, no impacts to mineral resources of local significance would occur.

[81] California Department of Mines and Geology (CDMG). 1982. Mineral Resource Sectors. South San Francisco Bay Production-Consumption Region, Half Moon Bay Quadrangle, Special Report 143, Plate 2.3 and Plate 2.73. Available at: https://maps.conservation.ca.gov/cgs/informationwarehouse/index.html?map=mlc. Accessed November 15, 2021.

[82] City of Half Moon Bay. 2014. *Plan Half Moon Bay. Existing Conditions, Trends, and Opportunities Assessment.* Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/174/HMB-Existing-Conditions-Report-PDF. Accessed November 2021.

2.13 Noise

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
(b) Result in generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
(c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Environmental Evaluation

a. Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

The residential uses west of the project area represent the majority of the sensitive receptors in the vicinity of the project. The nearest residences are approximately 75 feet from the project site.

The City has established restrictions limiting construction and similar noise-generating activities from 7:00 a.m. to 6:00 p.m., Monday through Friday; 8:00 a.m. to 6:00 p.m., Saturdays; and 10:00 a.m. to 6:00 p.m., Sundays and holidays. The City Engineer may approve exceptions to these hours, if necessary, to facilitate the orderly completion of work and minimize disruption to the community.[83] The project contractor would be required to comply with construction hour restrictions.

Construction activities would generate noise that would vary over the 4-to-6-month construction period and would include equipment such as milling machine, paver, dump truck, asphalt trucks, cement mixer, motor grader, scraper, bulldozer, backhoe, boom truck, forklift, rubber-tired loader, motor grader, steel drum roller, crane or scissor lift, water truck, and hand tools such as saws and hammers. Much of this equipment is kept on-site. There would be secondary noise from construction worker vehicles and vendor deliveries. During construction, noise-generating activities would be limited to the allowable hours in the City's noise ordinance. No nighttime construction would occur. Because construction noise would comply with local noise regulations, impacts related to construction noise would be less than significant.

The existing activities of the Corporation Yard would not change as a result of the project, with the exception of the new solar yard. The solar panels would be fixed and would not emit noise. Therefore,

[83] City of Half Moon Bay. 2019. *Chapter 14.40. Hours of Construction.* Available at: https://www.codepublishing.com/CA/HalfMoonBay/#!/HalfMoonBay14/HalfMoonBay1440.html#14.40. Accessed April 21, 2021.

stationary or operational noise would not change compared with existing conditions, and no operational impacts would occur.

b. Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Construction activities (e.g., ground-disturbing activities, including movement of heavy construction equipment and hauling of demolition debris and soil from the project site) may generate localized groundborne vibration and noise. Blasting or pile-driving activities would not occur during construction of the project. Generally, construction-related groundborne vibration is not expected to extend beyond 25 feet from the generating source. The activities closest to the adjacent residences include constructing a new roadway and gate entrance for the Corporation Yard, and installing wildlife fencing around the impoundment in the northwest corner of the property. Construction equipment for the roadway could include a compactor machine (vibratory pad or drum roller). The closest sensitive receptors are residences approximately 75 feet from the western edge of the project area. Based on the distance of more than 25 feet to sensitive receptors, groundborne vibration from on-site construction is not anticipated for residences. Hauling of soils and debris could generate vibrations along local haul routes. The project is anticipated to require a total of between 49 and 74 round-trip trucks trips over the 4- to-6-month construction period depending on truck capacity; approximately 49 haul truck round trips based on a 12-CY capacity truck, 59 round trip truck trips based on a 10-CY capacity truck, or 74 round trip truck trips based on an 8-CY capacity truck. The project would be required to adhere to the City Noise Ordinance as a standard condition of approval. Therefore, any annoyance to residents along local haul routes would be short term and temporary, and impacts related to groundborne noise or vibration would be less than significant.

Operations at the existing Corporation Yard would not change as a result of the project; therefore, no impacts related to operational vibrations would occur.

c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

The project is located approximately 4.3 miles from the nearest airport, Half Moon Bay Airport. It is not located within an area with an airport land use plan or within 2 miles of an airport; therefore, no impact would occur.

2.14 Population and Housing

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
(b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Environmental Evaluation

a. Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

City and County General Plans develop growth plans and projections for the areas in their jurisdictions. A significant impact would occur if a project included a General Plan amendment, which could result in an increase in population over that projected in the adopted General Plan, or if a project would induce substantial growth on the project site or surrounding area.

Construction job opportunities created as a result of the project are not expected to result in substantial population growth in the area. The work requirements of most construction projects are highly specialized so that construction workers remain at a job site only for the time frame during which their specific skills are needed. Additionally, the construction workers would likely be supplied from the region's labor pool. Construction workers would not be likely to relocate their household as a consequence of working on the project, and as such, significant housing or population impacts would not result from construction of the project. Therefore, there would be no construction-related population growth, and no impact would occur.

The project would construct improvements to the City's existing Corporation Yard. Operations at the Corporation Yard would not change as a result of the project, and the project would not result in an increase in employment. Therefore, the project would not introduce new persons to the population, and no impact would occur.

b. Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

The project would upgrade facilities at the City's existing Corporation Yard. Therefore, the project would not displace people or housing, and no impact would occur.

2.15 Public Services

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
(a) Fire protection?	☐	☐	☐	☒
(b) Police protection?	☐	☐	☐	☒
(c) Schools?	☐	☐	☐	☒
(d) Parks?	☐	☐	☐	☒
(e) Other public facilities?	☐	☐	☐	☒

Environmental Evaluation

a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection?

The project would upgrade existing facilities at the City's existing Corporation Yard; therefore, it would not increase the population in the area or introduce a hazard and would not increase the need for fire protection services. The existing water distribution system on-site would be upgraded to include fire hydrants and sprinklers and would require approval from the CFPD.

A significant impact may occur if the CFPD could not adequately serve a project, and a new or physically altered fire station would be necessary. The project area receives fire protection services from the CFPD, a California Department of Forestry and Fire Protection (CAL FIRE) agency. The CFPD has three fire stations, the nearest of which (Fire Station 40) is at 1911 Main Street, Half Moon Bay, approximately 1.2 miles southwest of the project site. Fire Station 40 is staffed with one fire captain and two fire apparatus engineers and can provide a minimum response time of 2 minutes and maximum response time of 8 minutes to all portions of the City.[84,85] The project would not increase population or cause an increase in employees, and no impact to fire protection services would occur.

b. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for police protection?

A significant impact may occur if the San Mateo County Sheriff's Department (Sheriff's Department), could not adequately serve a project, and a new or physically altered sheriff or police station would be necessary. The project area receives law enforcement services from the Coastside Patrol Bureau of the Sheriff's Department. The Coastside Patrol Bureau provides law enforcement services for over 60 percent of San Mateo County, including Half Moon Bay; has two substations, located in Half Moon Bay and Moss Beach; and is staffed with 27 full-time Deputy Sheriffs, four Sergeants, and one Lieutenant, as well as two full-time Community Policing deputies. The Half Moon Bay Substation is located approximately 0.9 mile southeast of the project site.

The project would upgrade existing facilities at the City's existing Corporation Yard; therefore, it would not increase the population in the area or introduce a hazard. The project would not cause an increase in employees. Therefore, the project would not increase the demand for public services, including police protection, and no impacts to police protection would occur.

[84] Coastside Fire Protection District (CFPD). 2008. About Us. Available at: https://www.coastsidefire.org/about-us. Accessed October 18, 2021.

[85] City of Half Moon Bay. 2020. *Local Coastal Land Use Plan. 2020 Comprehensive Update. Chapter 7.Environmental Hazards.* Available at https://www.half-moon-bay.ca.us/DocumentCenter/View/3784/Full-Combined-2020-HMB-LCLUP. Accessed October 18, 2021.

c. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for schools?

The project area is served by the Cabrillo Unified School District (CUSD). A significant impact may occur if the CUSD could not adequately serve a project, and a new or physically altered school or schools would be necessary. The CUSD has four elementary schools, one middle school, one high school, one alternative high school, and an adult education program. Between 2017 and 2019, enrollment in the district as a whole declined by approximately 200 students.[86] Enrollment in the school district as a whole is expected to decline by 51 elementary, 94 middle school, and 96 high school students, for a combined drop of 241 students between 2020 and 2024.[87]

The project would upgrade existing facilities at the City's existing Corporation Yard; therefore, it would not increase the population in the area or cause an increase in employees. The project would not increase the demand for public services, including schools, and no impact would occur.

d. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for parks?

A significant impact may occur if the project would result in the need for new or improved parks. Parks and recreation facilities that could be used by the residents of the project include parks operated by the City (Coastal Trail, Frenchman's Creek Park, Kehoe Park, Carter Park, Fernandez Park, Mac Dutra Plaza, Oak Avenue Park, Ocean View Park, Skate Park, and Smith Field), the County Parks Department (Pillar Point Bluff, Quarry Park, Mirada Surf, Moss Beach Park, Fitzgerald Marine Reserve, and Devil's Slide Trail are located between Half Moon Bay and Montara; and Tunitas Creek Beach, Memorial Park, Pescadero Creek Park, and Sam McDonald Park are located south of the City),[88] the California Department of Parks and Recreation (Half Moon Bay State Beach, including Dunes, Roosevelt, and Venice beaches; Montara State Beach and Gray Whale Cove State Beach to the north; and Burleigh H. Murray Ranch, Cowell Ranch State Beach, Año Nuevo State Park, and Big Basin Redwoods State Park to the south),[89] and Midpeninsula Regional Open Space District (Purisima Creek Redwoods, Skyline Ridge, and La Honda Creek Preserves on or near the coast).[90]

The City completed a Parks Master Plan in January 2019. The Master Plan provides planning for a 15-year period (2018 to 2033). The City currently provides approximately 5 acres of developed parks per

[86] Cabrillo Unified School District (CUSD). 2019. *Cabrillo Unified School District Audit Report*. June 30. Available at: https://app.eduportal.com/documents/view/739216. Accessed October 18, 2021.

[87] Enrollment Projection Consultants. 2020. Enrollment Forecast Findings and Projections. October 31. Available at: https://www.cabrillo.k12.ca.us/UserFiles/Servers/Server_18664976/File/Budget%20Advisory/2020-21%20Forecast%20Demographer%20Report%20for%20CUSD%20for%20Board%20Meeting.pdf. Accessed April 21, 2021.

[88] County of San Mateo Parks Department. 2021. County Parks by Location. Available at: https://parks.smcgov.org/county-parks. Accessed October 18, 2021.

[89] California Department of Parks and Recreation. 2020. Find a California State Park. Available at: https://www.parks.ca.gov/ParkIndex/. Accessed October 18, 2021.

[90] Mid-Peninsula Open Space Trust. 2020. Find an Open Space Preserve. Available at: https://www.openspace.org/preserves. Accessed October 18. 2021.

1,000 residents, which includes pocket and neighborhood parks and community and special parks. It does not include trails, county parks, natural open spaces, or beaches in the project area. The recommended standard identified in Chapter 5, Coastal Access and Recreation, of the 2020 LCLUP and the draft General Plan Healthy Community Element is 5 acres per 1,000 people.[91]

The project would upgrade existing facilities at the City's Corporation Yard; therefore, it would not increase the population or the number of employees in the area. The project would not create a need for new or improved parks. No impact would occur.

e. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for other public facilities?

A significant impact may occur if the project would result in the need for other new or improved public facilities. Other public facilities include the Half Moon Bay Library, which is part of the San Mateo County Libraries system. The Half Moon Bay Library, rebuilt in 2018, is a 22,000-square-foot facility that serves a 270-square-mile area. The new library provides both physical and digital collections from the San Mateo County Libraries system; technology services, including three-dimensional (3D) printing; free Wi-Fi hotspots; multilingual collections; literacy services; online high school; and space for community programs and events.[92]

The project would upgrade existing facilities at the City's Corporation Yard; therefore, it would not increase the population or the number of employees in the area. Therefore, the project would not increase the demand for public services, including libraries, and no impact would occur.

2.16 Recreation

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
(b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

[91] City of Half Moon Bay. 2019. *Parks Master Plan.* Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/2161/Final-Master-Plan_12419v6. Accessed October 18, 2021.

[92] City of Half Moon Bay. 2020. Half Moon Bay Library. Available at: https://www.half-moon-bay.ca.us/322/Library. Accessed October 18, 2021.

Environmental Evaluation

a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

A project would result in a significant impact to parks and recreation services if it would result in a significant increase in population from adding residential units. The project would upgrade existing facilities at the City's Corporation Yard; therefore, it would not increase the population or the number of employees in the area. Therefore, the project would not increase the use of existing parks, and no impact would occur.

b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

The project would upgrade existing facilities at the City's Corporation Yard; therefore, it would not increase the population or number of employees in the area. The project does not include recreational facilities and would not require the construction or expansion of recreational facilities. No impact would occur.

2.17 Traffic and Circulation

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☐	☒
(b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☐	☒
(c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
(d) Result in inadequate emergency access?	☐	☐	☐	☒

Environmental Evaluation

REGIONAL AND LOCAL ACCESS

Regional access is provided by SR-92, located adjacent to and north of the project site, and SR-1, located approximately 0.5 mile west of the project. SR-1 and SR-92 are the only roads that provide connections to other parts of the county. Most neighborhoods connect to SR-1 but do not connect with each other. Local access is provided by Main Street and Stone Pine Road. Traffic on SR-92, SR-1, and Main Street can back up during peak hours, including rush hours on weekdays and tourist traffic on weekends.

PUBLIC TRANSIT

The project site is served by San Mateo County Transit District(SamTrans) Bus Routes 17 and 294, which have stops approximately 0.1 mile north at Hilltop Mobile Home Park, 0.37 mile southwest at the junction of Main Street and Kelly Avenue, 0.4 mile northwest on SR-92 between Main Street and SR-1, and on Main Street between SR-92 and SR-1. The bus routes offer connections to Linda Mar in the City of Pacifica (via Bus Route 17) and Hillsdale Caltrain Station in the City of San Mateo (via Bus Route 294).

PEDESTRIAN/BICYCLE TRANSIT

The City's existing multi-use trails—including the California Coastal Trail, Naomi Patridge Trail, and Pilarcitos Creek Trail—provide linkages that support coastal access for bicyclists and pedestrians. The project site is approximately 0.5 mile east of the Naomi Patridge Trail, which is a multi-use trail that parallels SR-1. The Naomi Patridge Trail is currently approximately 3.4 miles long and extends from Wavecrest Road in the south to Ruisseau Francais Avenue in the north on the west side, and from Ruisseau Francais Avenue to Roosevelt Boulevard on the east side. The nearest connection to the Naomi Patridge Trail is the Pilarcitos Creek Trail, approximately 0.36 mile west of the project site. The City plans to extend the Pilarcitos Creek Trail as a Class I multi-use trail from the California Coastal Trail in the west to John L. Carter Memorial Park in the east.[93,94] As discussed in Section 1.4, Land Use and Zoning, as a condition of the City's purchase agreement with POST, the City agreed to develop a public access trail adjacent to Pilarcitos Creek from the project property to connect to Carter Park (see Figure 1-3).[95] The proposed project solely addresses upgrades to the City's Corporation Yard. Development of a public trail is not part of the proposed project but would be pursued under a future project.

In addition to the Naomi Patridge Trail, the project is approximately 1.1 miles east of the 11.5-mile California Coastal Trail, a paved, Class 1 multi-use path that extends from Seymour Bridge 4.7 miles north to Pillar Point Harbor. An additional, partially paved segment of the trail extends approximately 2 miles south from Seymour Bridge to the Ritz Carlton Hotel. In the south, the multi-use path connects to the Cowell-Purisima Coastal Trail, an additional 3.6-mile segment of the California Coastal Trail.[96]

a. Would the project conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Under the 2019 revisions to the State CEQA Guidelines, changes to Levels of Service are no longer identified as an impact under CEQA. The new 2019 State CEQA Guidelines require analysis of impacts related to vehicle miles traveled (VMT) as a result of a project. VMT is the amount and distance of automobile traffic attributable to a project. The project would upgrade facilities at the existing Corporation Yard. It would not generate new operational traffic. Therefore, the project would not conflict with any plan, ordinance, or policy related to transportation, and no impact would occur.

[93] City of Half Moon Bay. 2020. *Local Coastal Land Use Plan. 2020 Comprehensive Update. Chapter 2.3 Coastal Access and Recreation.* Available at https://www.half-moon-bay.ca.us/DocumentCenter/View/2337/Chapter-23-Coastal-Access-and-Recreation. Accessed October 18, 2021.

[94] City of Half Moon Bay. 2019. *City of Half Moon Bay Bicycle and Pedestrian Master Plan.* Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/2243/Bicycle-and-Pedestrian-Master-Plan-Final?bidId=. Accessed October 18, 2021.

[95] City of Half Moon Bay. 2020. 880 Stone Pine Purchase and Sale Agreement between Peninsula Open Space Trust and City of Half Moon Bay.

[96] Peninsula Open Space Trust. 2020. *Cowell-Purisima Coastal Trail webpage.* Available at: https://openspacetrust.org/hike/cowell-purisima-trail/. Accessed October 18, 2021.

Project construction would result in vehicle worker trips, haul trips, and vendor trips. The cut and fill could generate a total of about 49 to 74 haul trips over the 4- to-6-month construction period. The increase in traffic as a result of worker and haul trips would negligibly increase traffic at nearby traffic intersections and roadway segments, and would not conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness. In addition, haul and vendor trips would primarily occur during off-peak hours (9:00 a.m. to 3:00 p.m.). No impact would occur.

b. Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

State CEQA Guidelines Section 15064.3 includes criteria for analyzing transportation impacts. Under Section 15064.3(b)(2), for transportation projects:

> Transportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact.

The project would upgrade facilities at the City's existing Corporation Yard. It would not increase the number of employees or the amount of vehicle use at the Corporation Yard and thus would not impact VMT. Therefore, the project would be consistent with State CEQA Guidelines Section 15064.3, and no impact would occur.

c. Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The project does not include any design features that would increase hazards. The project would upgrade facilities at the existing Corporation Yard, including construction of a paved access road and paved parking areas. The road alignment is still under review but would be designed to avoid sharp curves and be safe for Corporation Yard, emergency vehicle, and other traffic. The use of the road would be limited to Corporation Yard operations. Therefore, no impact would occur.

d. Would the project result in inadequate emergency access?

The project would upgrade facilities at the existing Corporation Yard, including construction of a paved access road and paved parking areas. The access road would be built to CFPD requirements, and as required by Section 506.1.4 of the City's Fire Code Ordinance, the electric gate would be provided with a key switch for fire access. Therefore, the project does not have any elements that would result in inadequate emergency service, and no impact would occur.

2.18 Tribal Cultural Resources

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				

	Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(i)	Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☐	☐	☒
(ii)	A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☐	☒

Environmental Evaluation

a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?

ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

Under Assembly Bill (AB) 52, Native American correspondence and tribal consultation would be performed by the City. To date, there has been no response from tribal representatives regarding AB 52, and there are no known Tribal Cultural Resources within the project. Therefore, the project will have no impact to Tribal Cultural Resources.

2.19 Utilities and Service Systems

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
(a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
(b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
(c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
(d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
(e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

Environmental Evaluation

a. Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

WATER

Water for project construction and operation is supplied by the CCWD, which obtains its water supply from four sources. Water contained in Pilarcitos Lake and Crystal Springs Reservoir is purchased from the San Francisco Public Utilities Commission (SFPUC), and local water supplies are drawn from Pilarcitos Well Field and the Denniston Project (well and surface water). The CCWD serves 18,738 people in a 14-square-mile area, which has an average demand of 1.83 million gallons per day (mgd).[97] The CCWD has an Individual Supply Guarantee of 2.175 mgd, or approximately 794 million gallons per year, from the SFPUC, and purchases an average of 511 million gallons per year. In addition to the water from the SFPUC, CCWD obtains approximately 256 million gallons per year, or 0.70 mgd, from local sources during a non-drought year.[98] Per capita use in the district is approximately 57 and 110 gallons per capita per day for residential and gross water uses, respectively.

[97] Bay Area Water Supply and Conservation Agency. 2020. Coastside County Water District Service Area Webpage. Available at: http://bawsca.org/members/profiles/coastside. Accessed October 20, 2021.

[98] Coastside County Water District (CCWD). 2021. *2020 Urban Water Management Plan.* Available at: https://www.coastsidewater.org/reports_and_studies/2020-Urban-Water-Management-Plan.pdf. Accessed October 20, 2021.

Construction activities would require a minimal amount of water for dust control and cement mixing. Water would be delivered to the project site by water truck. Operations at the Corporation Yard would not change as a result of the project with one exception—the solar field would require maintenance, including periodic washing of solar panels. Panel washing is expected to occur approximately twice a year and would require approximately 2,000 gallons of water per year, which is less than 0.001 percent of CCWD's annual supply. Therefore, the project would not result in the relocation or construction of new or expanded water treatment facilities, and no impact would occur.

WASTEWATER

Wastewater collection and treatment is provided by Sewer Authority Mid-Coastside (SAM), which receives average dry weather flow of approximately 1.5 mgd. The plant has capacity to treat up to 4 mgd in average dry weather flow and 15 mgd in peak wet weather flow (which includes infiltration of stormwater). The plant has not experienced flows that reached or exceeded maximum peak wet weather capacity since its expansion in the late 1990s.[99]

Construction of the project would produce minimal wastewater from construction crew use of portable toilets. The project would add two bathroom/shower rooms in the new warehouse; however, it would not change the number of Corporation Yard staff who currently use facilities in the existing on-site building. The project would also relocate the materials enclosure and add a French drain with connection to the existing sanitary sewer. The materials enclosure would be roofed, and the French drain would drain the enclosed area; therefore, the volume of drainage would be minimal. Therefore, operation of the project would produce a minimal permanent change in wastewater production, and the project would not result in the relocation or construction of wastewater treatment facilities. No impact would occur.

STORMWATER

The project would demolish the existing trash and materials storage area, which is undrained and located partially within the 50-foot riparian buffer zone. This would be replaced by a new materials enclosure that would be roofed and supplied with a French drain connecting to the sanitary sewer system, thus drainage from the materials enclosure would not enter the storm drain system. The project would include a total of 54,260 square feet of new impervious surface area, which would drain by overland flow toward Pilarcitos Creek. The project would also include drainage improvements that meet the requirements of the GIP[100] to prevent sediment-laden runoff to Pilarcitos Creek. Therefore, the construction of new storm drainage facilities would not cause significant environmental impacts, and this impact would be less than significant.

The project would be required to implement a SWPPP under the Municipal Regional Stormwater NPDES Permit[101] and the SMCWPPP.[102] The SWPPP must include site-specific BMPs that are designed to prevent runoff from construction areas to reduce potential impacts to surface water quality during project construction. The plan would also include design elements and BMPs for construction areas, such as

[99] Sewer Authority Mid-Coastside (SAM). 2019. *Sewer System Management Plan.* Available at: https://samcleanswater.org/vertical/sites/%7B1307B359-C05A-436D-AC1C-9EB8D6FFB4A3%7D/uploads/Item_4D_Attachment_B_SSMP_2019(2).pdf. Accessed October 21, 2021.

[100] City of Half Moon Bay. 2019. *City of Half Moon Bay Green Infrastructure Plan*. September. Available at: https://www.half-moon-bay.ca.us/DocumentCenter/View/2305/HalfMoonBayGIPlan09-2019Final1. Accessed October 21, 2021.

[101] San Francisco Regional Water Quality Control Board (RWQCB). 2015. Municipal Regional Stormwater NPDES Permit. Order No. R2-2015-0049. NPDES Permit No. CAS612008. Available at: https://www.cleanwaterprogram.org/images/uploads/R2-2015-0049.pdf. Accessed October 21, 2021.

[102] County of San Mateo. 2020. San Mateo Countywide Water Pollution Prevention Program. Construction Webpage. Available at: https://www.flowstobay.org/construction. Accessed October 21, 2021.

fueling and equipment washing areas, and trash and hazardous material storage areas. Therefore, construction impacts would be less than significant.

GAS AND ELECTRICITY

New electrical demands would include facilities in the warehouse (roll up doors, power tool outlets, lighting, etc.), two automatic rolling gates, and night lighting at the warehouse; materials enclosure; and gate entrance. The solar field would be used to supply electricity to the Corporation Yard, and the project would result in net zero electricity use at the project site. Therefore, no impact related to electricity use would occur.

The project would not result in a change in Corporation Yard activities or personnel and would remove existing gas infrastructure; therefore, no impact related to natural gas use would occur.

TELECOMMUNICATIONS

The project would upgrade facilities and add a solar field at the City's existing Corporation Yard. The project would extend new telecommunications infrastructure (provided by Comcast) to the warehouse; however, it would not change existing telecommunications use.

b. Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

As required by the California Department of Water Resources (DWR), CCWD has analyzed the long-term reliability and vulnerability of its water supplies and developed a combination of supply alternatives and conservation planning efforts to meet the water supply needs of its customers. CCWD has developed water supply estimates for normal year, single dry year, and multiple dry year scenarios. Table 2.19-1 shows the projected water balance for a normal dry year through 2045. Table 2.19-2 shows the water balance for the first 5 years of a multiple dry year sequence under the *2020 Urban Water Management Plan*.[103]

As shown in Table 2.19-1, CCWD has adequate water supplies to meet a normal year demand.

As shown in Table 2.19-2, CCWD's multiple dry year supplies are not adequate to meet projected multiple dry year demands. Significant supply shortfalls, ranging from 22 to 29 percent in the first year of the 5-year dry period to 53 to 59 percent in the fifth year of the 5-year dry period, are projected. This shortfall is primarily due to significant cutbacks in CCWD's supply from the SFPUC.

Table 2.19-1. CCWD Water Supply and Demand Estimates for Normal Water Years

Drought Year	Supply/Demand Totals[1]	2025	2030	2035	2040	2045
First Year	Supply Totals	767	760	752	741	741
	Demand Totals[2]	704	697	690	668	664
	Difference	*63*	*63*	*63*	*74*	*77*

[1] All numbers are in million gallons per year.

Source: CCWD (2021), Table 7-12. Normal Year Supply and Demand Comparison (DWR Table 7-2 Retail).

[103] Coastside County Water District (CCWD). 2021. *2020 Urban Water Management Plan.* Available at: https://www.coastsidewater.org/reports_and_studies/2020-Urban-Water-Management-Plan.pdf. Accessed October 20, 2021.

Table 2.19-2. CCWD Water Supply and Demand Estimates for Multiple Dry Years

Drought Year	Supply/Demand Totals[1,2]	2025	2030	2035	2040	2045
First Year	Supply Totals	533	529	522	518	471
	Demand Totals	704	697	690	668	664
	Difference	*-171*	*-168*	*-168*	*-150*	*-193*
Second Year	Supply Totals	416	409	405	401	398
	Demand Totals	704	697	690	668	664
	Difference	*-288*	*-288*	*-285*	*-267*	*-266*
Third Year	Supply Totals	376	369	365	361	358
	Demand Totals	704	697	690	668	664
	Difference	*-328*	*-328*	*-325*	*-307*	*-306*
Fourth Year	Supply Totals	348	341	337	301	290
	Demand Totals	704	697	690	668	664
	Difference	*-356*	*-356*	*-353*	*-367*	*-374*
Fifth Year	Supply Totals	331	324	298	284	273
	Demand Totals	704	697	690	668	664
	Difference	*-373*	*-373*	*-393*	*-384*	*-391*

[1] All numbers are in million gallons per year.

[2] CCWD's multiple dry year demands are assumed to be the same as CCWD's normal year demands.

Source: CCWD (2021), Table 7-18. Multiple Dry Year Supply and Demand Comparison (DWR Table 7-4 Retail).

In Table 2.19-2, CCWD's multiple dry year demands are assumed to be the same as CCWD's normal year demands. However, CCWD has developed a Water Shortage Contingency Plan that includes specific actions to reduce water consumption and losses. Specific actions are triggered by specific percent supply storages and include expanding public information campaigns, restricting landscape irrigation, implementing moratoriums on new connections, implementing drought rate structures or surcharges, increasing water waste patrols, and reducing system water loss. The District intends for its Water Shortage Contingency Plan to be an adaptive management plan so that it may assess response action effectiveness and adapt to foreseeable and unforeseeable events. CCWD assumes that under any given stage of water shortage, the identified actions would reduce the supply deficit up to and greater than a 50 percent shortage.

Construction activities would require a minimal amount of water for dust control and cement mixing. Water would be delivered to the project site by water truck.

Existing operational activities and water use under the project would not change from existing conditions with one exception. Maintenance of the solar panels would include washing them approximately twice a year. This would be expected to use approximately 2,000 gallons of water per year, which is less than 0.001 percent of the normal water use from the CCWD supply.

The minimal change from existing water use, combined with the City's Water Shortage Contingency Plan, would ensure that impacts related to increased water demand would remain less than significant.

c. Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

As discussed under Section 2.19.a, SAM receives average dry weather flow of approximately 1.5 mgd and has a wastewater treatment plant capacity of up to 4 mgd in average dry weather flow.[104] The project would not change the existing uses or personnel at the Corporation Yard and would result in a minimal increase in wastewater production, primarily from the French drain under the materials enclosure; therefore, impacts related to increased wastewater production would be less than significant.

d. Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Solid waste pickup is provided to the project area and City by Republic Services, which provides pickup of residential and commercial garbage, recyclable material, and organic waste, as well as motor oil, oil filters, and batteries. Republic Services also has drop-off locations for electronic waste and hazardous materials, including medications and paint.[105]

Solid waste goes to the Corinda Los Trancos Ox Mountain Sanitary Landfill for recycling, composting, and disposal. The landfill is permitted to receive 3,598 tons of waste per day and has an anticipated closure date of 2034.[106,107] In the second quarter of 2019, the landfill received an average of 160,253 tons of solid waste (approximately 1,780 tons per day, or 49 percent of its permitted throughput).

CONSTRUCTION

The trash and materials storage area is used by the City to hold construction soils, gravel, and debris for use at other construction sites and holding before recycling. Construction of the project would require clearing and grubbing, and soils excavation resulting in approximately 590 cubic yards of soil and debris to be hauled off-site for disposal over a 4-month period. This would weigh between 620 tons and 885 tons (between approximately 7.3 and 10.4 tons/day, or between 0.20 percent and 0.28 percent of Ox Mountain Landfill's permitted daily tonnage of 3,598 tons/day.[108,109] The project contractor would be required to

[104] Sewer Authority Mid-Coastside (SAM). 2019. *Sewer System Management Plan.* Available at: https://samcleanswater.org/vertical/sites/%7B1307B359-C05A-436D-AC1C-9EB8D6FFB4A3%7D/uploads/Item_4D_Attachment_B_SSMP_2019(2).pdf. Accessed October 21, 2021.

[105] Republic Services. 2021. Republic Services of Half Moon Bay, CA Webpage. Available at: https://www.republicservices.com/municipality/half-moon-bay-ca#resi. Accessed October 21, 2021.

[106] Asphalt or concrete construction debris is approximately 2,400 pounds per cubic yard. Dry earth construction debris is approximately 2,100 pounds per cubic yard. Reference: California Department of Resources Recycling and Recovery (CalRecycle). 2018. *Solid Waste Cleanup Program Weights and Volumes for Project Estimates*. Available at: https://www.calrecycle.ca.gov/swfacilities/cdi/tools/calculations. Accessed October 21, 2021.

[107] California Department of Resources Recycling and Recovery (CalRecycle). 2017. SWIS Facility Detail. Corinda Los Trancos (Ox Mtn) (41-AA-0002). Available at: https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/1561?siteID=3223. Accessed October 21, 2021.

[108] Construction Debris, Wood, Uncompacted is estimated to weigh between 2,100 pounds and 3,000 pounds per cubic yard. Reference: California Department of Resources Recycling and Recovery (CalRecycle). 2018. *Calculations - Solid Waste Cleanup Program Weights and Volumes for Project Estimates.* Available at: https://www.calrecycle.ca.gov/swfacilities/cdi/tools/calculations. Accessed January 11, 2022.

[109] California Department of Resources Recycling and Recovery (CalRecycle). 2021. *SWIS Facility/Site Activity Details. Corinda Los Trancos Landfill (Ox Mnt) (41-AA-0002).* Available at: https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/1561?siteID=3223. Accessed January 11, 2022.

prepare and submit a Construction and Demolition Waste Management Plan to the City for review and approval. Under the plan, the project Contactor would be required to identify types and amounts of materials that could feasibly be reused, salvaged, or recycled, and would note the procedures intended to be used. The Waste Management Plan must be approved by the City prior to project construction.[110] Therefore, impacts related to construction would be less than significant.

The landfill has a remaining capacity of approximately 45 million cubic yards and is expected to operate until 2034.[111] The landfill would accept clean fill for daily cover and would have adequate capacity to serve the construction phase of the project because the construction phase of the project would be temporary and would generate a limited amount of solid waste. Development of the required Waste Management Plan would further reduce this less-than-significant impact.

OPERATION

The project would remove and replace the existing trash and materials storage area with a roofed and drained materials enclosure. With the exception of the new solar field, the project would not alter existing activities or personnel at the Corporation Yard; therefore, no operational impacts would occur.

e. Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

The City would be required to comply with all federal, State, and local ordinances for water, energy, and waste reduction and management, including, but not limited to, the City Municipal Code Chapter 14.50, Requirement for Construction and Demolition Waste Recycling; Waste Management Plan for construction debris; and SMCWPPP. Therefore, the project would comply with all federal, State, and local management and reduction statutes and regulations, and no impact would occur.

2.20 Wildfire

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
(a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
(b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
(c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒

[110] City of Half Moon Bay. 2019. *Half Moon Bay Municipal Code. Chapter 14.50. Requirement for Construction and Demolition Waste Recycling.* Available at: https://www.codepublishing.com/CA/HalfMoonBay/#!/HalfMoonBay14/HalfMoonBay1450.html#14.50. Accessed October 21, 2021.

[111] California Department of Resources Recycling and Recovery (CalRecycle). 2017. SWIS Facility Detail. Corinda Los Trancos (Ox Mtn) (41-AA-0002). Available at: https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/1561?siteID=3223. Accessed October 21, 2021.

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

Environmental Evaluation

a. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

A significant impact may occur if a project is located in proximity to wildland areas and would pose a potential fire hazard, which could affect persons or structures in the area in the event of a fire. The project area is located on the eastern edge of City limits adjacent to the coastal hills. It is adjacent to both a VHFHSZ in a State Responsibility Area to the northeast and a VHFHSZ in a Local Responsibility Area to the north and northwest.[112] However, the majority of the project site and its surrounding area is located in a WUI.[113] The project would upgrade and replace existing infrastructure at the City's Corporation Yard, including the addition of water lines, fire hydrants, and sprinklers, which would meet both federal and City codes.

The existing Corporation Yard facilities include five mobile trailers and one emergency supply trailer on the site. These trailers contain emergency supplies for Corporation Yard employees as well as emergency supplies for other agencies including, but not limited to, the American Red Cross, the San Mateo Coastside Medical Reserve Corps, and the Peninsula Humane Society. These trailers would be retained on-site and relocated to the northeastern corner of the site, north of the existing garage. The new security gates would be equipped with "Knox," key-operated emergency entry devices as required by the CFPD regulations. Therefore, in the event of an emergency, access to these trailers would be available local emergency services. Therefore, the project would not substantially impair an adopted emergency response plan or emergency evacuation plan, and this impact would be less than significant.

b. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

The project area is located in a WUI and adjacent to both VHFHSZ areas in a State Responsibility Area and a Local Responsibility Area.[114] The Corporation Yard site is relatively flat. The project would upgrade Corporation Yard facilities, including upgrades to water service, sprinklers, and fire hydrants that would meet CFPD requirements. It would not add any elements that would exacerbate wildfire risk and

[112] California Department of Forestry and Fire Protection (CAL FIRE). 2007. *Fire Hazard Severity Zone Viewer*. Available at: https://egis.fire.ca.gov/FHSZ/. Accessed October 21, 2021.

[113] Association of Bay Area Governments (ABAG). 2020. Wildland-Urban Interface Fire Threat Interactive Map. Available at: https://mtc.maps.arcgis.com/home/webmap/viewer.html?useExisting=1&layers=d45bf08448354073a26675776f2d09cb&layerId=0. Accessed October 21, 2021.

[114] California Department of Forestry and Fire Protection (CAL FIRE). 2007. *Fire Hazard Severity Zone Viewer*. Available at: https://egis.fire.ca.gov/FHSZ/. Accessed October 21, 2021.

would not be occupied; therefore, it would not expose project occupants to fire hazards, and no impact would occur.

c. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

The project area is located on the eastern edge of the city, adjacent to the coastal hills. The project is not located in an identified VHFHSZ but is located in the WUI. The project would upgrade existing infrastructure at the City's Corporation Yard, including the addition of new fire hydrants and sprinkler systems meeting the requirements of National Fire Protection Association Code (NFPA) 13 (2013 edition) and CFPD. The project would be required to conform to the following Fire Prevention Bureau Standards:

- DI-006 Commercial Sprinkler Requirements
- DI-007 Solar Photovoltaic Systems
- Fire Code Ordinance No. 2019-03 (including FPE-001 Standard Hydrants, FPE-002 Fire Lanes and F.D. Connections.[115]

The project would upgrade existing facilities at the Corporation Yard; therefore, the project would not require the installation or maintenance of new infrastructure that may exacerbate fire risk, and no impact would occur.

d. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

The project area is located on the eastern edge of the city, adjacent to the coastal hills. The project is located adjacent to an identified VHFHSZ, and the majority of the parcel is also located in a WUI.[116] The project is an infrastructure project that would replace and upgrade existing facilities in the City's Corporation Yard, including installing fire hydrants and sprinkler systems as required by the CFPD. The project is not located in a flood zone or landslide hazard zone. Therefore, the project would not expose people or structures to significant risks as a result of post-fire instability including downslope or downstream flooding or landslides, and no impact would occur.

[115] Coastside Fire Protection District (CFPD). 2021. *Fire Prevention Bureau Standards Webpage.* Available at: https://www.coastsidefire.org/fire-prevention-bureau-standards. Accessed October 21, 2021.

[116] Association of Bay Area Governments (ABAG). 2020. Wildland-Urban Interface Fire Threat Interactive Map. Available at: https://mtc.maps.arcgis.com/home/webmap/viewer.html?useExisting=1&layers=d45bf08448354073a26675776f2d09cb&layerId=0. Accessed November 15, 2021.

2.21 Mandatory Findings of Significance

Environmental Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
(b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐
(c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Environmental Evaluation

a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

The project site is located on the eastern edge of the City adjacent to Pilarcitos Creek and SR-92 and includes existing Corporation Yard facilities. The habitat surrounding the work area consists of asphalted roadways, a residential community, a commercial center, Pilarcitos Creek, agricultural operations, and undeveloped land. There are three ESHAs and one potential ESHA in the project area and two potential special-status species (California red-legged frog and San Francisco garter snake) in the project footprint. Mitigation Measure BIO-1 would be implemented to protect plants and wildlife in the area, and Mitigation Measures BIO-2 through BIO-5 would be implemented to protect special-status wildlife, migrating reptiles and amphibians, wetlands, nesting birds, and heritage trees; therefore, the project would have a less-than-significant impact on biological resources. There are no known historic resources in the project area, and the City's Standard Conditions would protect previously undiscovered historical resources; therefore, the project would have no impact on historic resources. The project would have a less-than-significant impact on archaeological resources and human remains with implementation of Standard Conditions and Mitigation Measures CUL-1. As described in this document, the project would not degrade the quality of the environment, reduce or threaten any fish or wildlife species (endangered or otherwise), or eliminate important examples of the major periods of California history or pre-history. Therefore, impacts from the project would be less than significant with mitigation incorporated.

b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects?

The project would have less-than-significant construction impacts to aesthetics, air quality, biology, cultural resources, energy, geology and soils, GHGs, hazards, hydrology and water quality, land use, noise, recreation, traffic, tribal cultural resources, and utilities. Cumulative impacts are assessed as follows:

- Aesthetics. Temporary construction impacts to scenic resources and the visual character of a public view would be limited to the view from SR-92, which is mostly blocked by cypress trees. Construction impacts would be short-term and temporary, lasting approximately 4 to 6 months, and would be limited to the imposition of construction vehicles and equipment on the area. Because of the small size and limited duration of project construction, removal of multiple existing storage containers, the placement of the new warehouse near existing buildings and as far from SR-92 as possible to reduce visual massing, the use of neutral tone colors and materials, and planting of replacement trees on the property to screen facilities, project construction would not add to cumulatively considerable visual impacts.
- Air Quality and GHG. According to the BAAQMD's CEQA Guidelines, if a project's emissions levels exceed the identified significance thresholds for air quality and GHGs, the emissions would be cumulatively considerable. Construction emissions for the project would not exceed BAAQMD thresholds of significance. Operationally, the project would not result in an increase in employees or intensity of use. Therefore, construction and operational impacts would not be cumulatively considerable.
- Biological Resources. The project could have potentially significant impacts to special-status species, ESHAs, and nesting birds. However, a biological monitor would be on-site during construction, and Mitigation Measures BIO-1 through BIO-5 identified for impacts to biological resources would fully mitigate all potentially significant biological impacts from construction to a less-than-significant level. The wildlife corridor improvements would potentially result in a net benefit for California red-legged frogs and San Francisco garter snakes. Therefore, construction and operational impacts to biological resources would not contribute to cumulatively considerable impacts.
- Cultural and Tribal Cultural Resources. As described in Section 2.5, Cultural Resources, and 2.18, Tribal Cultural Resources, the project area is undergoing an archeological dig investigation, but there is no indication of any significant tribal or cultural resources located in the project area. The proposed project would require the cessation of construction activities following the discovery of any previously unidentified cultural resource. The potential impacts remaining after cessation of proposed project activities would be negligible and would not contribute to an incremental impact. Therefore, the project would not cause impacts that could be cumulatively considerable.
- Energy. There are no established thresholds of significance for construction-related energy use. Cumulative impacts to energy resources would occur if the proposed project would add to a substantial aggregation of impacts related to wasteful, inefficient, or unnecessary energy consumption or conflict with a state or local plan for renewable energy or efficiency. Projects in the County are required to comply with the BAAQMD and the California Green Buildings Standard to reduce construction-related GHG emissions, which also reduces energy use. In addition, all projects in the County are required to comply with the County Waste Management Plan by recycling at least 65 percent of all construction waste or demolition material. In addition,

the project would construct a solar field to provide electrical energy to the Corporation Yard facilities. Therefore, the project would not contribute to a cumulatively considerable impact on energy use.

- Geology and Soils. As described in Section 2.7, Geology and Soils, there is no indication of any paleontological resources located in the project area. The proposed project would require the cessation of construction activities following the discovery of any previously unidentified paleontological resource. The potential impacts remaining after cessation of proposed project activities would be negligible and would not contribute to an incremental impact. Therefore, the project would not cause impacts that could be cumulatively considerable.
- Hydrology and Water Quality. Project construction could cause runoff to Pilarcitos Creek that could violate water quality standards and result in erosion or siltation. However, implementation of a SWPPP and compliance with the SMCWPPP BMPs, which is a standard condition of approval, would prevent contaminated stormwater runoff from entering Pilarcitos Creek. Therefore, project construction would not contribute to cumulative water quality impacts in Pilarcitos Creek.
- Land Use. The project would upgrade existing Corporation Yard facilities, including the addition of a solar field. With the exception of the project-specific solar field, the project would not add new uses or employees to the Corporation Yard. The project would allow the City to develop the approximately 4-acre area with a new land use or uses at a later date. Potential uses for the remainder area that are currently under consideration include, but are not limited to, a community garden, parking for the trail easement, and low-income housing. Given the relatively small size of the parcel, future development would be unlikely to have impacts that are cumulatively considerable.
- Noise. Temporary noise impacts from project construction would be limited to the area of Stone Pine Road, the Hilltop Mobile Home Park, and Spanish Town, and construction hours would meet City requirements. Construction impacts would be short-term and temporary, lasting 4 to 6 months. Because of the temporary nature and short duration of project construction, project construction would not contribute to cumulatively considerable impacts.
- Utilities and Service Systems. Project construction would produce approximately 590 cubic yards of debris to be hauled off-site for disposal. The project contractor would be required to identify types and amounts of materials that could feasibly be reused, salvaged, or recycled, and to note the procedures intended to be used. The Waste Management Plan must be approved by the City prior to project construction.[117] Solid waste goes to the Corinda Los Trancos Ox Mountain Sanitary Landfill for recycling, composting, and disposal, which is permitted to receive 3,598 tons of waste per day.[118] The total amount of construction waste from the project would be small, less than 0.1 percent of the 608,086 tons received at the Ox Mountain Landfill in 2019. In addition, the project would comply with the County Waste Management Plan by recycling at least 65 percent of all construction waste or demolition material. Therefore, solid waste from project construction would not contribute to a cumulatively considerable impact.

[117] City of Half Moon Bay. 2019. *Half Moon Bay Municipal Code. Chapter 14.50. Requirement for Construction and Demolition Waste Recycling.* Available at: https://www.codepublishing.com/CA/HalfMoonBay/#!/HalfMoonBay14/HalfMoonBay1450.html#14.50. Accessed November 15, 2021.

[118] California Department of Resources Recycling and Recovery (CalRecycle). 2017. SWIS Facility Detail. Corinda Los Trancos (Ox Mtn) (41-AA-0002). Available at: https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/1561?siteID=3223. Accessed November 15, 2021.

Given the small size of the project, its limited duration, and mitigation measures to reduce all potential impacts, the incremental construction effects of upgrading the Corporation Yard facilities would not contribute to a cumulatively considerable impact.

Because the project is limited to upgrading the existing Corporation Yard facilities and adding approximately 64,000 square feet, or 1.47 acres, of additional impervious surface, the project would have few permanent impacts. These would include stormwater runoff from an additional 1.47 acres of impervious pavement. The new paved access road would be wider, but it would replace the existing unpaved loop access road; therefore, there would be minimal net change in acreage of disturbed grassland habitat. The project would improve the facilities of the Corporation Yard and remove the existing materials enclosure from the 50-foot riparian setback. It would also include a solar field for electricity but would not otherwise alter its existing operational use. The project site is not in a flood hazard zone and there is no recorded flood hazard in the project area. The project would implement stormwater drainage that meets the requirements of the City's GIP and has adequate capacity to carry runoff from projected development of the plan area. Therefore, the additional runoff would not contribute to a cumulatively considerable impact. Since the ruderal grassland may hold a wildlife corridor for California red-legged frog, the wildlife corridor would be improved, fenced, and provided with frog/snake tunnels under the access road; therefore, the project would decrease the chance of impacts to sensitive species. Therefore, the project would not contribute to a cumulatively considerable impact.

c. Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?

A significant impact may occur if a project has the potential to result in significant impacts, as discussed in the previous sections. Replacing Corporation Yard facilities is of benefit to City staff and the community. As described throughout this environmental impact analysis, with implementation of mitigation measures (where applicable), the project would not result in any significant impacts. Therefore, the project would not have the potential to result in substantial adverse effects on human beings, and impacts would be less than significant with mitigation incorporated.

CHAPTER 3. PREPARERS OF THE INITIAL STUDY AND MITIGATED NEGATIVE DECLARATION

3.1 Lead Agency

City of Half Moon Bay
Public Works Department
501 Main Street
Half Moon Bay, California 94019

Todd Seeley, Public Works Superintendent
Douglas Garrison, Senior Planner
John Doughty, Director of Public Works
Jill Ekas, Community Development Director

3.2 Project Applicant

City of Half Moon Bay

3.3 Environmental Consultants (CEQA)

SWCA Environmental Consultants
60 Stone Pine Road Suite 100
Half Moon Bay, California 94019

Jessica Henderson-McBean, Project Manager/Biologist
Juliet Bolding, Planner
Erika Sagrafena, Planning Team Lead
Liz Haines and Peggy Ford, Senior Technical Editors

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APPENDIX A

Preliminary Site Design Plans

CITY OF HALF MOON BAY
CORPORATION YARD

880 STONE PINE ROAD, HALF MOON BAY, CA 94019

PROJECT NUMBER: 202005

60% CONSTRUCTION DOCUMENTS

ISSUE DATE: NOVEMBER 01, 2021

SYMBOLS LEGEND

GRID LINE REFERENCE

DRAWING TITLE

INTERIOR ELEVATION

SECTION KEY

DETAIL SECTION KEY

DETAIL PLAN KEY

DRAWING REVISION

SPOT ELEVATION

ELEVATION TARGET

DOOR NUMBER

KEYNOTE

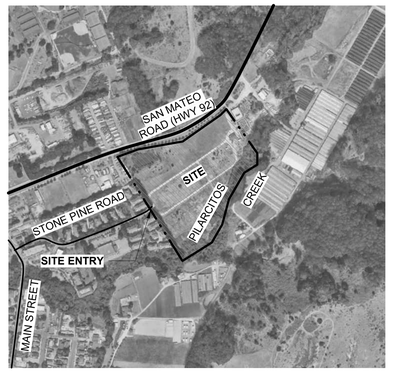
GENERAL NOTES

1. THE CONTRACTOR SHALL CAREFULLY STUDY AND COMPARE THE CONTRACT DOCUMENTS WITH EACH OTHER AND SHALL AT ONCE REPORT TO THE ARCHITECT ERRORS, INCONSISTENCIES OR OMISSIONS DISCOVERED. IF THE CONTRACTOR PERFORMS ANY CONSTRUCTION ACTIVITY KNOWING IT INVOLVES A RECOGNIZED ERROR, INCONSISTENCY OR OMISSION IN THE CONTRACT DOCUMENTS WITHOUT SUCH NOTICE TO THE ARCHITECT, THE CONTRACTOR SHALL ASSUME APPROPRIATE RESPONSIBILITY FOR SUCH PERFORMANCE AND SHALL BEAR AN APPROPRIATE AMOUNT OF THE ATTRIBUTABLE COSTS FOR CORRECTION.
2. WHERE NEW CONSTRUCTION ABUTS EXISTING CONSTRUCTION TO REMAIN, ALL CONDITIONS AFFECTING WORK PROGRESS AND CONFORMANCE TO PLANS AND SPECIFICATIONS SHALL BE VERIFIED BY CONTRACTOR PRIOR TO START OF WORK.
3. WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALED MEASUREMENTS. WHERE DISCREPANCIES IN DIMENSIONS OCCUR THEY SHALL BE REPORTED TO THE ARCHITECT FOR RESOLUTION.
4. ALL WORK AND MATERIALS SHALL BE IN ACCORD WITH THE LATEST RULES AND REGULATIONS OF ALL APPLICABLE STATE AND/OR LOCAL CODES, LAWS, ORDINANCES, STATUTES AND REGULATIONS. NOTHING IN THE DRAWINGS OR SPECIFICATIONS SHALL BE CONSTRUED AS REQUIRING OR PERMITTING WORK CONTRARY TO THESE RULES, REGULATIONS, AND CODES.
5. THE DRAWINGS INDICATE LOCATIONS, DIMENSIONS, AND TYPICAL DETAILS OF CONSTRUCTION. THE DRAWINGS DO NOT ILLUSTRATE EVERY CONDITION; WORK NOT EXPRESSLY DETAILED SHALL BE OF CONSTRUCTION SIMILAR TO PARTS THAT ARE DETAILED. WHERE DISCREPANCIES OCCUR, THEY SHALL BE REPORTED TO THE ARCHITECT FOR RESOLUTION.
6. SITE BOUNDARY LINES, BOUNDARY DIMENSIONS, BOUNDARY DECLINATIONS, AND EXISTING GRADES ARE BASED UPON THE SURVEY DRAWING. THE CONTRACTOR SHALL BE DEEMED TO HAVE INSPECTED THE SITE AND SATISFIED HIMSELF AS TO ACTUAL GRADES, LEVELS, DIMENSIONS, AND DECLINATIONS AND THE TRUE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED.
7. MASONRY DIMENSIONS ARE GIVEN TO THE NOMINAL FACE OF MASONRY.
8. DIMENSIONS ARE TO BE FACE OF FINISH UNLESS OTHERWISE NOTED. DO NOT SCALE THE DRAWINGS. LAY OUT WORK FOLLOWING WRITTEN DIMENSIONS. IF WRITTEN DIMENSIONS ARE LACKING, NOTIFY THE ARCHITECT AT ONCE. IF NO LOCATING DIMENSIONS ARE SHOWN, DOOR OPENINGS ARE LOCATED BY THE DOOR DETAILS.
9. DIMENSIONS AND ELEVATIONS ON THESE DRAWINGS REFER TO BUILDING DATUM, UNLESS OTHERWISE NOTED.
10. THE CONTRACTOR SHALL VISIT THE SITE AND VERIFY ALL EXISTING CONDITIONS BEFORE BIDDING.
11. ALL WORK SHOWN IS ASSUMED TO BE NEW UNLESS NOTED AS EXISTING.

PROJECT DATA & CODE SUMMARY

A.P.N.:	056-260-180
LOT SIZE:	PARCEL ONE - 14.66 ACRES (638,792 SQ. FT.) PARCEL TWO - 5.67 ACRES (246,792 SQ. FT.)
AREA OF WORK:	WORKSHOP / STORAGE BUILDING 6,750 SF TRASH / MATERIAL STORAGE ENCLOSURE 1,880 SF
OCCUPANCY:	S1 - WORKSHOP / STORAGE BUILDING U - TRASH / MATERIAL STORAGE ENCLOSURE
NUMBER OF STORIES:	1-STORY
BUILDING CONSTRUCTION:	TYPE V: WORKSHOP / STORAGE BUILDING TYPE V: TRASH / MATERIAL STORAGE ENCLOSURE
SPRINKLERED:	WORKSHOP / STORAGE BUILDING - SPRINKLERED TRASH / MATERIAL STORAGE ENCLOSURE - SPRINKLERED
BUILDING HEIGHT:	19' - 0" - WORKSHOP / STORAGE BUILDING
APPLICABLE CODES:	AMERICANS WITH DISABILITIES ACT ("ADA") COMPLIANCE REQUIRED FOR SITE AND STOR. ACCESS; 2019 CALIFORNIA BUILDING CODE ("CBC").

PROJECT LOCATION



SHEET INDEX

ADMINISTRATIVE	
A000	COVER SHEET
A001	ACCESS COMPLIANCE PLAN
A002X	TOPOGRAPHIC SURVEY (1 OF 2 - BKF - FOR REFERENCE ONLY)
A003X	TOPOGRAPHIC SURVEY (2 OF 2 - BKF - FOR REFERENCE ONLY)
ARCHITECTURE	
A100	DEMOLITION SITE PLAN
A101	SITE PLAN
A201	SITE PLAN ENLARGED
A401	WORKSHOP / STORAGE BUILDING PLANS AND ELEVATIONS
A402	TRASH / STORAGE ENCLOSURE PLANS AND ELEVATIONS
A800	DOOR AND FINISH SCHEDULE
A801	EXTERIOR DETAILS
CIVIL	
C1.0	HORIZONTAL CONTROL
C2.0	GRADING PLAN
C3.0	UTILITY PLAN
C4.0	EROSION CONTROL PLAN
C4.1	EROSION CONTROL DETAILS
C4.2	EROSION CONTROL DETAILS
C5.0	CONSTRUCTION DETAILS
C5.1	CONSTRUCTION DETAILS
C5.2	CONSTRUCTION DETAILS
C5.3	CONSTRUCTION DETAILS

PROJECT SCOPE

THE PROJECT SCOPE INCLUDES A NEW PAVED ACCESS ROAD FROM THE WEST OF THE SITE AT STONE PINE ROAD TO A NEW LOOP ROAD IN THE CORPORATION YARD AT THE EAST END OF THE SITE. PROJECT SCOPE ALSO INCLUDES A NEW STEEL SECURITY FENCE AT THE YARD PERIMETE. THE PERIMETER SECURITY FENCE WILL HAVE A ROLLING GATE AT THE YARD ENTRY WITH KEY CARD ACCESS.

PARKING FOR STAFF AND A CHAINLINK FENCED PARKING AREA FOR SERVICE VEHICLES ARE TO BE PROVIDED INSIDE THE YARD PERIMETER.

THE NEW STRUCTURES ARE TO BE BUILT ON SITE. THESE INCLUDE A WORKSHOP / STORAGE BUILDING AND A COVERED TRASH / MATERIAL STORAGE ENCLOSURE. THE WORKSHOP / STROAGE BUILDING IS TO BE AN OWNER FURNISHED / CONTRACTOR INSTALLED TENSION FABRIC STRUCTURE INSTALLED ON SLAB ON GRADE WITH PERIMETER FOUNDATIN. THE WORKSHOP STORAGE BUILDING WILL INCLUDE NEW OFFICE SPACE, RESTROOMS, AND LOCKER ROOMS.

A SOLAR ARRAY IS TO BE INSTALLED NORTH OF THE LOOP ROAD. THE SOLAR ARRAY IS TO BE DESIGN BUILD AND PROVIDE POWER TO THE CORPORATION YARD. THE SOLAR ARRAY SYSTEM WILL BE INTERCONNECTED TO THE NEW PG+E MAIN ELECTRICAL SERVICE.

DEFERRED SUBMITTALS

1. TENSION FABRIC BUILDING STRUCTURE
2. FIRE SPRINKLER AND ALARM SYSTEM
3. SOLAR ARRAY

ABBREVIATIONS

d	PENNY (NAIL)	BC	BOTTOM OF CURB	DBL.	DOUBLE	F.A.	FIRE ALARM	INSUL.	INSULATION	(N)	NEW	S	SOUTH	V.T.	VINYL TILE
PL	PROPERTY LINE	BTW.	BETWEEN	D.D	DECK DRAIN	F.E.	FIRE EXTINGUISHER	INT.	INTERIOR	N.	NORTH	SCH.	SCHEDULE	VERT.	VERTICAL
&	AND	BD.	BOARD	DEMO.	DEMOLISH	F.E.C.	FIRE EXTINGUISHER CABINET	ISA	INTERNATIONAL SYMBOL OF ACCESSIBILITY	N.I.C.	NOT IN CONTRACT	SECT.	SECTION	VEST.	VESTIBULE
∠	ANGLE	BITUM.	BITUMINOUS	DEPT.	DEPARTMENT	F.H.	FIRE HYDRANT			NO.	NUMBER	S.E.D.	SEE ELECTRICAL DRAWINGS	V.I.F.	VERIFY IN FIELD
@	AT	BLDG.	BUILDING	DET.	DETAIL	F.F.	FINISH FLOOR			NOM.	NOMINAL	SF.	SQUARE FOOT, SQUARE FEET		
CL	CENTERLINE	BLK.	BLOCK	D.F.	DOUGLAS FIR, DRINKING FOUNTAIN	F.H.C.	FIRE HOSE CABINET	JAN.	JANITOR	N.T.S.	NOT TO SCALE	SIM.	SIMILAR		
⌀	DIAMETER, ROUND	BLKG.	BLOCKING	DIAM.	DIAMETER	FIN.	FINISH	JST.	JOIST			S.L.D.	SEE LANDSCAPE DRAWINGS	W	WIDE
⊥	PERPENDICULAR	BLW.	BELOW	DIAG.	DIAGONAL	FIXT.	FIXTURE	J.H.	JOIST HANGER	O.A.	OVERALL	S.M.	SHEET METAL	W.	WEST
#	POUND, NUMBER	BM.	BEAM	DIM.	DIMENSION	FLR.	FLOOR	JT.	JOINT	O.C.	ON CENTER	S.M.D.	SEE MECH. DRAWINGS	W/	WITH
(E)	EXISTING	B.O.	BOTTOM OF	DISP.	DISPENSER	F.O.	FACE OF			OD	OVERFLOW DRAIN	SPEC.	SPECIFICATION	W.C.	WATER CLOSET
(N)	NEW	B.S.	BOTTOM OF SILL	DN.	DOWN	F.O.C.	FACE OF CONCRETE	KIT.	KITCHEN	O.D.	OUTSIDE DIAMETER	SQ.	SQUARE	W.I.	WROUGHT IRON
		B.R.	BOTTOM OR RISER	D.O.	DOOR OPENING	F.O.F.	FACE OF FINISH			O.F.C.I.	OWNER FURNISHED CONTRACTOR INSTALLED		SQUARE FOOT, SQUARE FEET	WD.	WOOD
		B.O.C.	BOTTOM OF CURB	DR.	DOOR	FPRF.	FIREPROOF	LAV.	LAVATORY			S.S.	STAINLESS STEEL	W.F.	WIDE FLANGE
		BOT.	BOTTOM	DWG.	DRAWING	FRMG.	FRAMING	LOC.	LOCATION	O.F.O.I.	OWNER FURNISHED OWNER INSTALLED	S.S.D.	SEE STRUCTURAL DRAWINGS	W.O.	WHERE OCCURS
		B.U.R.	BUILT-UP ROOFING			FT.	FOOT, FEET	LT.	LIGHT	OFF.	OFFICE	STD.	STANDARD	W/O	WITHOUT
A.B.	ANCHOR BOLT					GA.	GAUGE			O.H.	OVERHEAD	STL.	STEEL	WP.	WATERPROOF
ABV.	ABOVE	CLG.	CEILING	EA.	EACH	GALV.	GALVANIZED	MACH.	MACHINE	OPNG.	OPENING	STOR.	STORAGE	WP, TYPE 1 (ETC.)	WATERPROOFING TYPE 1 (ETC.)
A.C.	ASPHALTIC CONCRETE	CLO.	CLOSET	ELECT.	ELECTRICAL	GB.	GRAB BAR	MAX.	MAXIMUM	OPP.	OPPOSITE	STRUCT.	STRUCTURAL	WR	WATER RESISTANT
A/C	AIR CONDITIONING	CLR.	CLEAR	EL.	ELEVATION	GWB.	GYPSUM WALL BOARD	MECH.	MECHANICAL					W.S.	WOOD SCREW
ACOUS.	ACOUSTICAL	COL.	COLUMN	ELEV.	ELEVATOR	GL.	GLASS	MEMB.	MEMBRANE	PLUMB.	PLUMBING	THR.	THRESHOLD	WSCT.	WAINSCOT
A.D.	AREA DRAIN	COMP.	COMPOSITION	EMER.	EMERGENCY	GND.	GROUND	MFR.	MANUFACTURER	PREFAB.	PRE-FABRICATED	T.B.D	TO BE DETERMINED		WEIGHT
ADJ.	ADJUSTABLE, ADJACENT	CONC.	CONCRETE	ENCL.	ENCLOSURE	GR.	GRADE	MH.	MANHOLE	PT.	POINT; PAINT	T.O.	TOP OF	WT./F.	WELDED WIRE FABRIC
A.F.F.	ABOVE FINISH FLOOR	C.M.U.	CONCRETE MASONRY UNIT	E.P.	ELECTRICAL PANEL	GYP.	GYPSUM	MIN.	MINIMUM	PTD	PAINTED	T.O.B.	TOP OF BENCH		
AGGR.	AGGREGATE	CONN.	CONNECTION	EQ.	EQUAL			MIR.	MIRROR	PTN, PART.	PARTITION	T.O.C	TOP OF CONCRETE		
ALUM.	ALUMINUM	CONST.	CONSTRUCTION	EQUIP.	EQUIPMENT	H.R.	HAND RAIL	MISC.	MISCELLANEOUS			T.O.S.	TOP OF STRUCTURE		
ALT.	ALTERNATE	CONT.	CONTINUOUS	(E)	EXISTING	H.B.	HOSE BIBB	M.O.	MASONRY OPENING	REF.	REFERENCE	T.O.W.	TOP OF WALL		
A.P.	ACCESS PANEL	CORR.	CORRIDOR	EXPO.	EXPOSED	HDR.	HEADER	MTD.	MOUNTED	REQ'D	REQUIRED	TYP.	TYPICAL		
APPROX.	APPROXIMATE	C.T.	CERAMIC TILE	EXP.	EXPANSION	HORIZ.	HORIZONTAL	MTL.	METAL	RESIL.	RESILIENT				
ARCH.	ARCHITECT	CNTR.	COUNTER	EXT.	EXTERIOR	HR.	HOUR	MTL.	METAL SIDING	RET.	RETAINING	UNF.	UNFINISHED		
ASPH.	ASPHALT	CTR.	CENTER			HSS	HOLLOW STRUCTURAL STEEL	MUL.	MULLION	REV.	REVISION, REVISED	U.O.N.	UNLESS OTHERWISE NOTED		
						HT.	HEIGHT			RM.	ROOM	UR.	URINAL		

els architecture+ urban design

PROJECT:
CITY OF HALF MOON BAY
CORPORATION YARD

PROJECT NUMBER:
202005

CLIENT:
CITY OF HALF MOON BAY
880 STONE PINE ROAD, HALF MOON BAY, CA 94019

PROJECT TEAM:

ARCHITECT:
ELS ARCHITECTURE AND URBAN DESIGN
2040 Addison Street
Berkeley, CA 94704
P: 510.549.2929

CIVIL ENGINEER (SEPARATE CONTRACT):
BKF ENGINEERS
255 Shoreline Drive, Suite 200
Redwood City, CA 94065
P: 650.482.6300

ENVIRONMENTAL CONSULTANT:
SWCA
95 3rd St. 2nd Floor
San Francisco, CA 94103
P: 415.536.2883

STRUCTURAL ENGINEER:
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MECHANICAL / PLUMBING ENGINEER:
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1624 Franklin St. #1300
Oakland, CA 94612
P: 510.474.0379

ELECTRICAL ENGINEER:
OMM CONSULTING
4340 Redwood Hwy #245
San Rafael, CA 94903

COST ESTIMATOR:
MACKS
1900 Powell St #470
Emeryville, CA 94608

REVISION

NUMBER	DATE	DESCRIPTION

ISSUE:
60% CONSTRUCTION DOCUMENTS

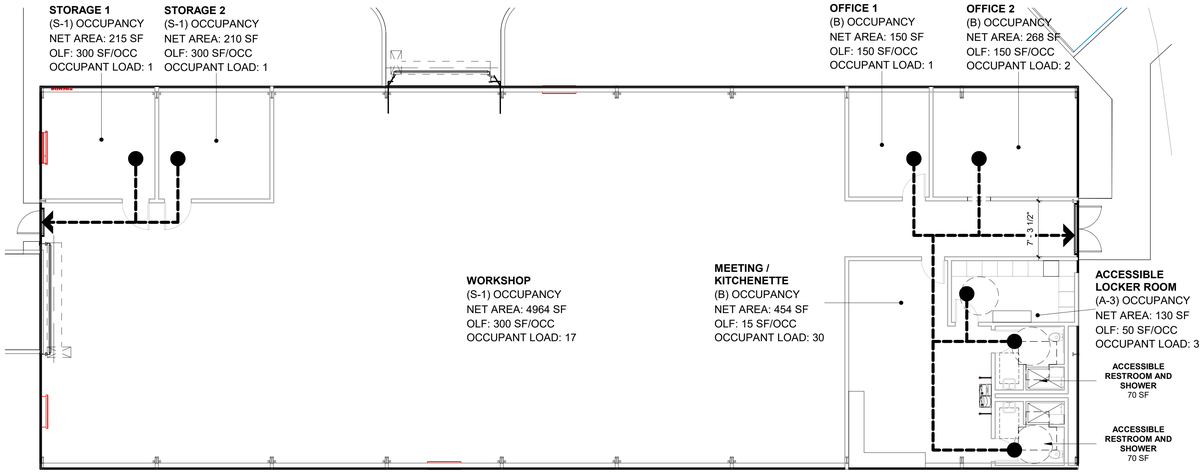
DATE:
11 / 01 / 2021

STAMP:

NOT FOR CONSTRUCTION

SHEET TITLE:
COVER SHEET

SHEET NUMBER:
A000



1 WORKSHOP / STORAGE BLDG. - EGRESS & ACC. PATH PLAN
1/8" = 1'-0"

LEGEND

EGRESS PATH

ACCESSIBLE PATH OF TRAVEL

ACCESSIBLE POINT OF ORIGIN

els architecture+ urban design

PROJECT:

CITY OF HALF MOON BAY

CORPORATION YARD

PROJECT NUMBER:
202005

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CITY OF HALF MOON BAY
880 STONE PINE ROAD, HALF MOON BAY, CA 94019

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REVISION

NUMBER	DATE	DESCRIPTION

ISSUE:
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DATE:
11 / 01 / 2021

STAMP:

NOT FOR CONSTRUCTION

SHEET TITLE:
ACCESS COMPLIANCE PLAN

SHEET NUMBER:
A001

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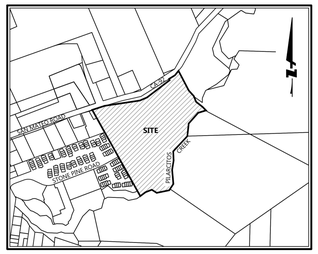
A.L.T.A. / N.S.P.S. LAND TITLE SURVEY

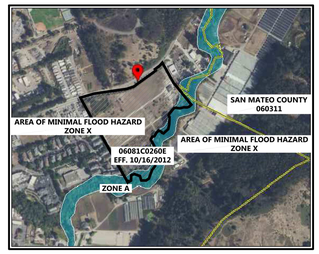
OF THE LANDS OF:

CITY OF HALF MOON BAY, A MUNICIPAL CORPORATION

AS DESCRIBED IN THE CLTA STANDARD COVERAGE POLICY OF TITLE INSURANCE
PREPARED BY: OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY
FILE NUMBER: 0626031179-AC
POLICY NUMBER: A04201-FTYA-171971
DATED: JANUARY 15TH, 2021 AT 5:42:00 PM



VICINITY MAP
(NOT TO SCALE)



FEMA MAP DETAIL
(NOT TO SCALE)

REFERENCED POLICY OF TITLE INSURANCE

TITLE COMPANY:	OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY
FILE NUMBER:	0626031179-AC
POLICY NUMBER:	A04201-FTYA-171971
DATED:	JANUARY 15TH, 2021 AT 5:42:00 PM
NATURE OF TITLE:	FEE
TITLE VESTED IN:	CITY OF HALF MOON BAY, A MUNICIPAL CORPORATION
PROPERTY ADDRESS:	880 STONE PINE ROAD, HALF MOON BAY, CA (PROVIDED BY THE CLIENT)
ASSESSOR'S PARCEL NO.:	056-260-180

OVERALL SITE INFORMATION

FLOOD ZONES:	ZONE A - WITHOUT BASE FLOOD ELEVATION (BFE)
	ZONE X - AREA OF MINIMAL FLOOD HAZARD
	FEMA FLOOD INSURANCE RATE MAP NUMBER: 06081C0260E EFFECTIVE DATE: OCTOBER 16, 2012
ZONING:	URBAN RESERVE (U-R)

LEGAL DESCRIPTION

THE LAND REFERRED TO IN THIS POLICY IS SITUATED IN THE COUNTY OF SAN MATEO, CITY OF HALF MOON BAY, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

PARCEL ONE:

BEGINNING AT A STAKE STANDING IN THE FENCE IN THE EASTERLY LINE OF THE HALF MOON BAY AND SAN MATEO COUNTY ROAD WHICH SAID STAKE BEARS FROM THE POINT OF INTERSECTION OF THE EASTERLY LINE OF THE HALF MOON BAY AND SAN MATEO COUNTY ROAD AND THE NORTHERLY LINE OF THE AMESPORT ROAD, THE FOLLOWING COURSES AND DISTANCES, VIZ: NORTH 68-1/2° EAST 14.60 CHAINS AND NORTH 72-1/2° EAST 4.81 CHAINS AND RUNNING THENCE ALONG THE EASTERLY LINE OF SAID HALF MOON BAY AND SAN MATEO COUNTY ROAD THE FOLLOWING COURSES AND DISTANCES, VIZ: NORTH 72-3/4° EAST 4.42 CHAINS, NORTH 77° EAST 3.94 CHAINS, NORTH 67-3/4° EAST 1.08 CHAINS NORTH 60-1/2° EAST 0.80 CHAINS; THENCE SOUTH 30° EAST 9.95 CHAINS TO THE CENTER OF PILARCITOS CREEK, THENCE DOWN THE CENTER OF SAID CREEK SOUTH 13° WEST 3.00 CHAINS, SOUTH 5.30 CHAINS, SOUTH 77-3/4° WEST 5.03 CHAINS, SOUTH 68-3/4° WEST 0.30 CHAINS, THENCE LEAVING THE CENTER OF SAID CREEK AND RUNNING NORTH 30° WEST 17.60 CHAINS TO THE POINT OF BEGINNING.

PARCEL TWO:

BEGINNING AT A 6" X 6" POST STANDING IN THE EASTERLY LINE OF THE HALF MOON BAY AND SAN MATEO COUNTY ROAD, AT A POINT WHICH IS THE NORTHWESTERLY CORNER OF THE LANDS OF JAMES HATCH, AND ALSO BEING THE SOUTHWESTERLY CORNER OF THE LAND OF WM. PRINGLE; THENCE THE FOLLOWING COURSES AND DISTANCES; VIZ: SOUTH 46° WEST 3.85 CHAINS, SOUTH 20-1/4° WEST 1.51 CHAINS, SOUTH 29° WEST 6.03 CHAINS AND SOUTH 39-3/4° WEST 0.81 CHAINS TO A STAKE AND TRUE POINT OF BEGINNING OF THE PROPERTY HEREIN DESCRIBED RUNNING FROM SAID STAKE AS FOLLOWS: SOUTH 30° EAST 4.18 CHAINS TO AN ALDER TREE OF 12 INCHES DIAMETER ON EDGE OF BANK SOUTH 40° EAST 1.27 CHAINS TO THE CENTER OF PILARCITOS CREEK AND THENCE DOWN THE CENTER OF SAID CREEK AS FOLLOWS, SOUTH 40° EAST 3.70 CHAINS SOUTH 68-1/2° WEST 3.83 CHAINS, SOUTH 15-1/4° WEST 2.82 CHAINS, SOUTH 62° WEST 0.73 CHAINS, SOUTH 49° WEST 0.90 CHAINS; THENCE LEAVING SAID PILARCITOS CREEK AND RUNNING NORTH 30° WEST 9.95 CHAINS TO A STAKE IN THE EASTERLY LINE OF HALF MOON BAY AND SAN MATEO COUNTY ROAD, AND RUNNING ALONG THE EASTERLY LINE OF SAID ROAD AS FOLLOWS: NORTH 58° EAST 4.05 CHAINS NORTH 52-3/4° EAST 1.48 CHAINS, NORTH 39-3/4° EAST 0.72 CHAINS TO THE POINT OF BEGINNING.

EXCEPTING THEREFROM:

A PORTION OF PARCEL ONE AND PARCEL TWO AS DESCRIBED IN THAT GRANT DEED FROM NURSERYMEN'S EXCHANGE, INC. TO THE CITY OF HALF MOON BAY, RECORDED ON OCTOBER 18, 2004, AS DOCUMENT NO. 2004-206677, OFFICIAL RECORDS OF SAN MATEO COUNTY, SITUATE IN THE CITY OF HALF MOON BAY, COUNTY OF SAN MATEO, STATE OF CALIFORNIA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE MOST WESTERLY CORNER OF SAID PARCEL ONE, ALSO LYING ON THE SOUTHERLY RIGHT-OF-WAY LINE OF ROUTE 92 (FORMERLY KNOWN AS ROUTE 105A) ALSO KNOWN AS SAN MATEO ROAD (FORMERLY HALF MOON BAY ROAD); NORTH 73° 38' 04" EAST 169.93 FEET TO THE TRUE POINT OF BEGINNING; THENCE CONTINUING ALONG SAID SOUTHERLY RIGHT OF WAY LINE OF ROUTE 92 THE FOLLOWING SIX (6) COURSES AND DISTANCES: (1) NORTH 73° 38' 04" EAST, 121.88 FEET, NORTH 77° 53' 28" EAST 259.67 FEET, (3) NORTH 68° 33' 21" EAST, 71.61 FEET, (4) NORTH 61° 25' 06" EAST, 52.50 FEET TO THE NORTHEASTERLY LINE OF SAID PARCEL ONE, (5) NORTH 58° 52' 19" EAST, 267.25 FEET, AND (6) NORTH 53° 33' 13" EAST, 25.26 FEET; THENCE ACROSS SAID PARCEL TWO AND PARCEL ONE THE FOLLOWING FOUR (4) COURSES AND DISTANCES: (1) SOUTH 33° 42' 36" EAST 18.78 FEET, (2) SOUTH 53° 53' 26" WEST, 326.40 FEET, (3) SOUTH 71° 33' 23" WEST, 86.92 FEET, AND (4) SOUTH 81° 43' 04" WEST, 401.12 FEET TO THE TRUE POINT OF BEGINNING.

EXCEPTIONS TO COVERAGE

1. TAXES AND ASSESSMENTS, GENERAL AND SPECIAL, FOR THE FISCAL YEAR 2020 - 2021, AS FOLLOWS:

   ASSESSOR'S PARCEL NO : 056-260-180
   BILL NO. : 2020-334628
   CODE NO. : 17-005
   1ST INSTALLMENT : $7.57 MARKED PAID
   2ND INSTALLMENT : $7.57 NOT MARKED PAID
   LAND VALUE : $125,770.00
   NOT A SURVEY MATTER

2. THE LIEN OF SUPPLEMENTAL TAXES, IF ANY, ASSESSED PURSUANT TO THE PROVISIONS OF SECTION 75, ET SEQ., OF THE REVENUE AND TAXATION CODE OF THE STATE OF CALIFORNIA.

   PAID CURRENT TO THE DATE OF THIS POLICY
   NOT A SURVEY MATTER

3. THE HEREIN DESCRIBED PROPERTY LIES WITHIN THE PROPOSED BOUNDARIES OF THE FOOTHILL BOULEVARD ASSESSMENT DISTRICT, AS DISCLOSED BY ASSESSMENT MAP RECORDED APRIL 27, 1989, IN BOOK 10 OF ASSESSMENT MAPS AT PAGE 1.
   NOT A SURVEY MATTER

4. WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT SHOWN BY THE PUBLIC RECORDS.
   NOT A SURVEY MATTER

5. AN EASEMENT AFFECTING THAT PORTION OF SAID LAND AND FOR THE PURPOSES STATED HEREIN AND INCIDENTAL PURPOSES AS PROVIDED IN THE FOLLOWING

   INSTRUMENT : DEED
   GRANTED TO : PACIFIC GAS AND ELECTRIC COMPANY, A CALIFORNIA CORPORATION
   FOR : PIPE LINES
   DATED : SEPTEMBER 21, 1966
   RECORDED : NOVEMBER 16, 1966 IN BOOK 5238 OF OFFICIAL RECORDS, PAGE 741 UNDER RECORDER'S SERIAL NUMBER 97204A
   AFFECTS : A 30 FOOT STRIP ALONG THE NORTHWESTERLY LINE

   UPON THE TERMS AND CONDITIONS CONTAINED THEREIN.
   PLOTTED

6. AN EASEMENT AFFECTING THAT PORTION OF SAID LAND AND FOR THE PURPOSES STATED HEREIN AND INCIDENTAL PURPOSES AS PROVIDED IN THE FOLLOWING

   INSTRUMENT : DEED
   GRANTED TO : PACIFIC GAS AND ELECTRIC COMPANY, A CALIFORNIA CORPORATION
   FOR : PIPE LINE
   DATED : OCTOBER 20, 1969
   RECORDED : NOVEMBER 20, 1969 IN BOOK 5717 OF OFFICIAL RECORDS, PAGE 539 UNDER RECORDER'S SERIAL NUMBER 81251AC
   AFFECTS : A 20-FOOT STRIP ALONG A PORTION OF THE NORTHEASTERLY LINE

   UPON THE TERMS AND CONDITIONS CONTAINED THEREIN.
   PLOTTED

7. AN EASEMENT AFFECTING THAT PORTION OF SAID LAND AND FOR THE PURPOSES STATED HEREIN AND INCIDENTAL PURPOSES AS PROVIDED IN THE FOLLOWING

   INSTRUMENT : DEED OF EASEMENT
   GRANTED TO : COASTSIDE COUNTY WATER DISTRICT
   FOR : WATER MAINS
   RECORDED : APRIL 6, 1988 IN OFFICIAL RECORDS UNDER RECORDER'S SERIAL NUMBER 88041155
   AFFECTS : AS DESCRIBED THEREIN

   UPON THE TERMS AND CONDITIONS CONTAINED THEREIN.
   PLOTTED

8. OIL, MINERAL, GAS RIGHTS AS RESERVED IN THE INSTRUMENT

   ENTITLED : GRANT DEED
   BY AND BETWEEN : CORPORATION OF THE PRESIDING BISHOP OF THE CHURCH OF JESUS CHRIST OF LATTER DAY SAINTS
   RECORDED : APRIL 18, 1988 IN OFFICIAL RECORDS, UNDER RECORDER'S SERIAL NUMBER 88045683
   NOT PLOTTED - BLANKET IN NATURE

9. ANY RIGHTS, EASEMENTS, INTERESTS OR CLAIMS WHICH MAY EXIST OR ARISE BY REASON OF OR REFLECTED BY THE FACTS SHOWN ON THE PLAT OF A SURVEY MADE BY MACLEOD AND ASSOCIATES, CIVIL ENGINEERING/LAND SURVEYING, ON AUGUST 28, 2004, DESIGNATED JOB NO. 2314-04, AS FOLLOWS:

   A) POND, SHED AND CATWALK IN THE NORTHWESTERLY PORTION OF PARCEL ONE
   B) MANHOLE (PARCELS ONE AND TWO)
   C) DIRT AND GRAVEL ROADS TRAVERSING PORTIONS OF PARCELS ONE AND TWO
   D) FIRE HYDRANT 0.4' ENCROACHMENT (PARCEL ONE)
   E) GUY ANCHOR 3.5' ENCROACHMENT (PARCEL ONE)
   F) PG & E BOX WITH 3 GUARD POST, 1.9' ENCROACHMENT (PARCEL ONE)
   G) GUARD POST 3.1' ENCROACHMENT (PARCEL ONE)
   H) UTILITY POLE 1.2' ENCROACHMENT (PARCEL ONE)
   I) UTILITY POLE 0.3' ENCROACHMENT (PARCEL ONE)
   J) GUY ANCHOR 9.9' AND 10.2' ENCROACHMENTS (PARCEL ONE)
   K) GUY ANCHOR 26.3' ENCROACHMENT (PARCEL ONE)
   L) FENCE ANGLE POINT 0.5' ENCROACHMENT (PARCEL ONE)
   M) GATE POST 0.3' ENCROACHMENT (PARCEL ONE)
   N) STORM DRAIN LINES 8', 10', 12', 14' AND 16' (PARCELS ONE AND TWO)
   O) ELECTRIC BOXES, UTILITY POLES, GUY ANCHORS, AREA DRAINS, TELEPHONE AND ELECTRIC LINES, WATER BOXES, CATCH BASINS, STORM DRAIN PUMPS AFFECTING PORTIONS OF PARCELS ONE AND TWO
   P) ASPHALT CONCRETE PAVEMENT DRIVEWAY (PARCEL TWO)
   Q) LIGHT POLE, PP AND GM (NOT EXPLAINED ON SURVEY) AFFECTING PARCEL TWO
   R) GASLINE SIGNS (PARCEL TWO)
   NOT A SURVEY MATTER

10. TERMS AND PROVISIONS AS CONTAINED IN AN INSTRUMENT,

    ENTITLED : INDEMNIFICATION AGREEMENT
    EXECUTED BY : CITY OF HALF MOON BAY, A MUNICIPAL CORPORATION
    RECORDED : OCTOBER 18, 2004 IN OFFICIAL RECORDS UNDER RECORDER'S SERIAL NUMBER 2004-206679

    NOTE: REFERENCE IS MADE TO SAID INSTRUMENT FOR FULL PARTICULARS.
    NOT A SURVEY MATTER

11. TERMS AND PROVISIONS AS CONTAINED IN AN INSTRUMENT,

    ENTITLED : GRANT DEED
    EXECUTED BY : PENINSULA OPEN SPACE TRUST, A CALIFORNIA NON-PROFIT PUBLIC BENEFIT CORPORATION AND THE CITY OF HALF MOON BAY, A MUNICIPAL CORPORATION
    DATED : JANUARY 13, 2021
    RECORDED : JANUARY 15, 2021 IN OFFICIAL RECORDS UNDER RECORDER'S SERIAL NUMBER 2021-007593
    RETURNED TO ADDRESS : 501 MAIN STREET, HALF MOON BAY, CA 94019
    NOT A SURVEY MATTER

12. TERMS AND PROVISIONS AS CONTAINED IN AN INSTRUMENT,

    ENTITLED : MEMORANDUM OF AGREEMENTS
    EXECUTED BY : PENINSULA OPEN SPACE TRUST, A CALIFORNIA NON-PROFIT PUBLIC BENEFIT CORPORATION AND THE CITY OF HALF MOON BAY, A MUNICIPAL CORPORATION
    DATED : JANUARY 13, 2021
    RECORDED : JANUARY 15, 2021 IN OFFICIAL RECORDS UNDER RECORDER'S SERIAL NUMBER 2021-007594
    RETURNED TO ADDRESS : 222 HIGH STREET, PALO ALTO, CA 94403
    NOT A SURVEY MATTER

13. TERMS AND PROVISIONS AS CONTAINED IN AN INSTRUMENT,

    ENTITLED : CONSERVATION TRAIL EASEMENT
    EXECUTED BY : PENINSULA OPEN SPACE TRUST, A CALIFORNIA NON-PROFIT PUBLIC BENEFIT CORPORATION AND THE CITY OF HALF MOON BAY, A MUNICIPAL CORPORATION
    DATED : JANUARY 13, 2021
    RECORDED : JANUARY 15, 2021 IN OFFICIAL RECORDS UNDER RECORDER'S SERIAL NUMBER 2021-007595
    RETURNED TO ADDRESS : 222 HIGH STREET, PALO ALTO, CA 94403
    PLOTTED

ALTA SURVEY NOTES

1. THE **BOLDTYPE** COMMENTS ARE ADDED BY THE PROFESSIONAL LAND SURVEYOR.
2. ALL DISTANCES AND DIMENSIONS ARE IN U.S. SURVEY FEET AND DECIMALS THEREOF.
3. DIMENSIONAL TIES TO IMPROVEMENTS ARE 90° TO THE PROPERTY LINE(S) UNLESS OTHERWISE NOTED.
4. "IN" AND "OUT" AS SHOWN ON THIS SURVEY INDICATE THE DISTANCE INSIDE OR OUTSIDE OF THE SUBJECT PROPERTY, RESPECTIVELY.
5. THE DATES OF THE FIELD SURVEY ARE AS FOLLOWS: AUGUST 4, 5, 7, & 10, 2020, AND MARCH 10, 2021.
6. THE SUBJECT PROPERTY HAS DIRECT VEHICULAR ACCESS TO AND FROM STONE PINE ROAD, A PUBLICLY DEDICATED RIGHT OF WAY, AND SAN MATEO ROAD - CALIFORNIA STATE ROUTE 92, A STATE HIGHWAY, AS SHOWN ON THE SURVEY HEREON WHERE INDICATED BY ARROW LABELED "SITE ACCESS."
7. IN REFERENCE TO ITEM 2 OF TABLE "A", THE ADDRESS OF THE SUBJECT PROPERTY IS AS FOLLOWS: 880 STONE PINE ROAD, HALF MOON BAY, CA (PROVIDED BY THE CLIENT).
8. IN REFERENCE TO ITEM 3 OF TABLE "A", THE SUBJECT PROPERTY HAS BEEN DETERMINED TO BE WITHIN FLOOD ZONES "X" AND "A", AS STATED ON THIS SHEET.
9. IN REFERENCE TO ITEM 4 OF TABLE "A", THE GROSS LAND AREA OF THE SUBJECT PROPERTY IS AS FOLLOWS: PTR PARCEL ONE: 638,815± SQ.FT. OR 14.67 ACRES; PTR PARCEL TWO: 246,765± SQ.FT. OR 5.66 ACRES.
10. IN REFERENCE TO ITEM 5 OF TABLE "A", VERTICAL RELIEF AS SHOWN ON SHEET 2 IS THE PRODUCT OF AN AERIAL SURVEY PERFORMED BY VERTICAL MAPPING RESOURCES OF MESA, ARIZONA ON AUGUST 6, 2020. THE CONTOUR INTERVAL IS 1 FOOT. THE VERTICAL DATUM AND BENCHMARK USED ARE STATED BELOW.
11. IN REFERENCE TO ITEMS 6(A) AND 6(B) OF TABLE "A", CURRENT ZONING CLASSIFICATION AS SHOWN ON THIS SHEET. SAID INFORMATION WAS OBTAINED FROM THAT CERTAIN "HALF MOON BAY ZONING MAP" DATED JUNE 2015 AND AVAILABLE ON THE CITY'S WEBSITE. NO ZONING REPORT OR LETTER WAS PROVIDED TO THE SURVEYOR BY THE CLIENT.
12. IN REFERENCE TO ITEMS 7(A), 7(B)(1), AND 7(C) OF TABLE "A", AS SHOWN ON THE SURVEY HEREON.
13. IN REFERENCE TO ITEM 8 OF TABLE "A", AS SHOWN ON THE SURVEY HEREON.
14. IN REFERENCE TO ITEM 9 OF TABLE "A", NO PARKING STALLS OF ANY KIND WERE OBSERVED AT THE TIME OF THE SURVEY.
15. IN REFERENCE TO ITEM 11 OF TABLE "A", SEE THE **UTILITY NOTE** BELOW.
16. IN REFERENCE TO ITEM 13 OF TABLE "A", AS SHOWN ON THE SURVEY HEREON.
17. IN REFERENCE TO ITEM 14 OF TABLE "A", THE WESTERLY CORNER OF THE SUBJECT PROPERTY IS LOCATED APPROXIMATELY 1300 FEET NORTHEASTERLY OF THE INTERSECTION OF SAN MATEO ROAD - CALIFORNIA STATE ROUTE 92 AND MAIN STREET.
18. IN REFERENCE TO ITEM 16 OF TABLE "A", NO EVIDENCE OF RECENT EARTH MOVING WORK AND BUILDING CONSTRUCTION WERE OBSERVED IN THE PROCESS OF CONDUCTING THE FIELD WORK.
19. IN REFERENCE TO ITEM 17 OF TABLE "A", NO EVIDENCE OF RECENT OR PROPOSED STREET RIGHT OF WAY CHANGES WERE OBSERVED IN THE PROCESS OF COMPLETING THE FIELD SURVEY, NOR PROVIDED TO THE UNDERSIGNED SURVEYOR.

UTILITY STATEMENT

UTILITIES SHOWN ON THIS SURVEY ARE BASED UPON SURFACE OBSERVATIONS. NO WARRANTIES ARE EXPRESSED OR IMPLIED CONCERNING THE EXISTENCE, SIZE, DEPTH, CONDITION, CAPACITY, OR LOCATION OF ANY UTILITY EXISTING ON THE SITE, WHETHER PRIVATE, MUNICIPAL, OR PUBLIC OWNED. CONTRACTOR(S) SHALL VERIFY ALL UTILITIES PRIOR TO ANY AND ALL CONSTRUCTION ACTIVITIES.

BENCHMARK STATEMENT

THE ELEVATIONS SHOWN ON THIS SURVEY ARE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) ELEVATIONS BASED UPON GPS OBSERVATIONS PERFORMED BY BKF ON AUGUST 4, 2020.

THE FOUND 2.5" BRASS DISK STAMPED "RCE 13776" IN MONUMENT WELL AT THE CENTER OF THE CUL-DE-SAC OF STONE PINE ROAD, PER (R2), WAS TAKEN AS THE SITE BENCHMARK FOR THIS SURVEY.

ELEVATION = 75.986

BASIS OF BEARINGS

THE BEARINGS SHOWN ARE BASED ON THE NORTH AMERICAN DATUM OF 1983 (NAD83), EPOCH 2011, ZONE 3 BASED UPON GPS OBSERVATIONS OF BKF POINT NO. 1, A SET COTTON SPINDLE, AND BKF POINT NO. 2, A SET HUB AND TACK AS SAID POINTS ARE SHOWN HEREON, PERFORMED BY BKF ON AUGUST 4, 2020.

THE BEARING OF SOUTH 42° 29' 36" WEST FROM SAID BKF POINT NO. 1 TO SAID BKF POINT NO. 2, AS SHOWN HEREON, WAS TAKEN AS THE BASIS OF BEARINGS FOR THIS MAP.

SURVEYORS STATEMENT

TO: CITY OF HALF MOON BAY, A MUNICIPAL CORPORATION
TO: OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES OPTIONAL ITEMS 2, 3, 4, 5, 6(A), 6(B), 7(A), 7(B)(1), 7(C), 8, 9, 11 (SURFACE UTILITIES ONLY), 13, 14, 16, 17, 19 AND 20 ($1 MILLION PROFESSIONAL LIABILITY INSURANCE) OF TABLE A THEREOF.

THE FIELD WORK WAS COMPLETED ON MARCH 10, 2021.

PROFESSIONAL LAND SURVEYOR
DAVID C. JUNGMANN
No. 9267
STATE OF CALIFORNIA
PRELIMINARY

DAVID C. JUNGMANN, P.L.S. 9267

03/18/2021
DATE

BKF
255 SHORELINE DR., SUITE 200
REDWOOD CITY, CA 94065
(650) 482-6300
www.bkf.com

STATE OF CALIFORNIA

A.L.T.A./N.S.P.S. LAND TITLE SURVEY
OF THE LANDS OF
CITY OF HALF MOON BAY, A MUNICIPAL CORPORATION
COUNTY OF SAN MATEO

CITY OF HALF MOON BAY

Revisions

No.		

Date: 2021-03-18
Scale:
Design: JMS
Drawn: DCJ
Approved:
Job No: 20150199-53

Drawing Number:
ALTA
2 OF 2

DRAWING NAME: K:\2015\150199-53_HMB-Corp-Yd\SurMapping\ALTA\150199_V-ALTA_2021-03-18_C3D18_JMS.dwg
PLOT DATE: 03-18-21 PLOTTED BY: Jason

els
architecture+
urban design

PROJECT:
CITY OF HALF MOON BAY
CORPORATION YARD

PROJECT NUMBER:
202005

CLIENT:
CITY OF HALF MOON BAY
880 STONE PINE ROAD, HALF MOON BAY, CA 94019

PROJECT TEAM:

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COST ESTIMATOR:
MACKS
1900 Powell St #470
Emeryville, CA 94608

REVISION

NUMBER	DATE	DESCRIPTION

ISSUE:
60% CONSTRUCTION DOCUMENTS

DATE:
11 / 01 / 2021

STAMP:

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SHEET TITLE:
TOPOGRAPHIC SURVEY (1 OF 2 - BKF - FOR REFERENCE ONLY)

SHEET NUMBER:
A002X

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LINE TABLE			RECORD LINE TABLE	
LINE NO.	DIRECTION	LENGTH	RECORD DIRECTION	RECORD LENGTH
L1	S47°25'02"W	36.52'	(S46°33'28"W)(R2)	(36.53')(R2)
L2	S71°31'17"W	26.85'	(S70°39'43"W)(R2)	(26.86')(R2)
L3	N87°28'52"W	38.62'	(N88°20'26"W)(R2)	(38.63')(R2)
L4	S74°52'52"W	49.37'	(S74°01'18"W)(R2)	(49.39')(R2)
L5	N81°09'28"W	50.08'	(N82°01'02"W)(R2)	(50.10')(R2)
L6	S72°32'08"W	24.33'	(S71°40'34"W)(R2)	(24.34')(R2)
L7	S39°14'12"W	85.57'	(S38°22'38"W)(R2)	(85.60')(R2)
L8	S20°14'46"W	22.43'	(S19°23'12"W)(R2)	(22.44')(R2)
L9	S30°07'13"E	22.83'	(S30°58'47"E)(R2)	(22.84')(R2)
L10	S02°39'36"W	85.73'	(S01°48'02"W)(R2)	(85.76')(R2)
L11	S11°24'28"W	57.62'	(S10°32'54"W)(R2)	(57.64')(R2)
L12	S47°43'04"W	76.92'	(S46°51'30"W)(R2)	(76.95')(R2)
L13	N68°00'29"W	12.29'	(N68°52'03"W)(R2)	(12.22')(R2)
L14	N68°00'29"W	8.90'	(N68°52'03"W)(R2)	(8.98')(R2)
L15	N24°18'13"W	12.34'	(N25°09'47"W)(R2)	(12.34')(R2)
L16	N66°42'59"W	38.40'	(N67°34'33"W)(R2)	(38.41')(R2)
L17	S42°15'35"W	42.60'	(S41°24'01"W)(R2)	(42.61')(R2)
L18	S29°04'36"W	42.58'	(S28°13'02"W)(R2)	(42.59')(R2)
L19	S75°58'13"W	28.14'	(S75°06'39"W)(R2)	(28.15')(R2)
L20	S27°39'47"W	34.46'	(S26°48'13"W)(R2)	(34.47')(R2)
L21	S26°43'24"E	145.40'	(S27°34'58"E)(R2)	(145.45')(R2)
L22	S07°30'40"W	54.02'	(S06°39'06"W)(R2)	(54.04')(R2)
L23	S22°45'40"W	36.27'	(S21°54'06"W)(R2)	(36.28')(R2)
L24	S03°51'49"E	104.20'	(S04°43'23"E)(R2)	(104.24')(R2)
L25	S37°46'25"W	61.71'	(S36°54'51"W)(R2)	(61.73')(R2)
L26	S19°33'41"W	107.45'	(S18°42'07"W)(R2)	(107.49')(R2)
L27	S56°13'06"W	40.18'	(S55°21'32"W)(R2)	(40.19')(R2)
L28	S88°49'22"W	58.28'	(S87°57'48"W)(R2)	(58.30')(R2)
L29	N17°07'56"W	56.88'	(N17°59'30"W)(R2)	(56.90')(R2)
L30	N71°05'20"W	72.28'	(N71°56'54"W)(R2)	(72.31')(R2)
L31	S66°47'43"W	39.70'	(S65°56'09"W)(R2)	(39.71')(R2)
L32	S02°07'42"W	62.88'	(S01°16'08"W)(R2)	(62.90')(R2)
L33	S58°53'58"W	25.72'	(S58°02'24"W)(R2)	(25.73')(R2)
L34	N57°38'51"W	11.15'	(N58°30'25"W)(R2)	(11.15')(R2)
L35	S36°00'41"W	15.01'	(S35°09'07"W)(R2)	(15.02')(R2)
L36	S29°20'59"E	30.00'	(S30°12'40"E)(R2)	(30.00')(R2)
L37	N60°39'01"E	31.63'	(N59°47'20"E)(R2)	(31.50')(R2)
L38	N53°33'13"E	25.26'	(N53°33'13"E)(R1)(R3)	(25.26')(R1)
L39	N58°52'19"E	47.99'	(N58°52'19"E)(R1)(R3)	(R3: 14.628m) = 47.99'
L40	N52°28'49"E	12.50'	(S52°28'49"W)(R3)	(R3: 3.811m) = 12.50'
L41	N57°32'14"E	57.76'	(S57°32'14"W)(R3)	(R3: 17.604m) = 57.76'
L42	N57°07'31"E	113.58'	(N57°07'31"E)(R3)	(R3: 34.616m) = 113.58'
L43	N58°44'09"E	49.57'	(S58°44'09"W)(R3)	(R3: 15.108m) = 49.57'
L44	N76°15'07"E	85.66'	(S76°15'07"W)(R3)	(R3: 26.108m) = 85.66'
L45	N78°26'58"E	56.56'	(S78°26'58"W)(R3)	(R3: 17.237m) = 56.56'
L46	N82°41'18"E	113.17'	(S82°41'18"W)(R3)	(R3: 34.491m) = 113.17'
L47	N73°38'04"E	98.77'	(N73°38'04"E)(R3)	(R3: 30.104m) = 98.77'
L48	N73°38'04"E	121.87'	(N73°38'04"E)(R1) (N72°45'00"E)(R2)	(121.88')(R1)
L49	N77°53'28"E	259.68'	(N77°53'28"E)(R1) (N77°00'00"E)(R2)	(259.67')(R1) (260.04')(R2)
L50	N68°33'21"E	71.61'	(N68°33'21"E)(R1) (N67°45'00"E)(R2)	(71.61')(R1) (71.28')(R2)
L51	N61°25'06"E	52.50'	(N61°25'06"E)(R1) (N60°30'00"E)(R2)	(52.50')(R1) (52.80')(R1)

LEGEND

◉	FOUND STREET MONUMENT AS NOTED
●	FOUND MONUMENT AS NOTED
△	CONTROL POINT AS NOTED
	SITE BENCHMARK
Ⓔ	DENOTES REFERENCE TO IN/OUT TABLE
	FIRE HYDRANT
GM	GAS METER
	JOINT POLE
S	SANITARY SEWER MANHOLE
	SIGN
☼	SITE LIGHT
S	STORM DRAIN MANHOLE
	VALVE, AS NOTED

AC	ASPHALTIC CONCRETE
AL	AREA LIGHT
APN	ASSESSOR'S PARCEL NUMBER
BLDG	BUILDING
BOL	BOLLARD
BW	BACK OF WALK
CATV	CABLE TELEVISION
CL	CENTERLINE
CONC	CONCRETE
COR	CORNER
CUL	CULVERT
DI	DRAIN INLET
DN	DOCUMENT NUMBER
DW	DRIVEWAY
EB	ELECTRIC BOX
ELEC	ELECTRIC
EOW	EDGE OF PATH/WALK
EV	ELECTRIC VAULT
EX. NO.	EXCEPTION NUMBER
FC	FACE OF CURB
FH	FIRE HYDRANT
FNC	FENCE
GBOX	GAS BOX
GM	GAS METER
GV	GAS VALVE
HCR	HANDICAP RAMP
HDB	HEADERBOARD
HT	HEIGHT
LS	LICENSED SURVEYOR
m	METERS
MON	MONUMENT
OH	OVERHANG
O.R.	OFFICIAL RECORDS
PL	PROPERTY LINE
POB	POINT OF BEGINNING
(R#)	DENOTES RECORDED REFERENCE
(R3: #m)	DENOTES DISTANCE MATCHING RECORD CONVERTED FROM GRID DISTANCES IN METERS TO GROUND U.S. SURVEY FEET
RCE	REGISTERED CIVIL ENGINEER
R/W	RIGHT-OF-WAY
SD	STORM DRAIN
SQ. FT.	SQUARE FEET
SSMH	SANITARY SEWER MANHOLE
TPOB	TRUE POINT OF BEGINNING
TRAN	TRANSFORMER
UB	UTILITY BOX
VG	VALLEY GUTTER
WV	WATER VALVE

LINETYPES

- SUBJECT BOUNDARY LINE
- LOT LINE
- EASEMENT LINE
- BUILDING STRUCTURE
- EDGE OF CONCRETE OR PAVEMENT
- FENCE LINE
- MONUMENT LINE
- OVERHEAD WIRES
- TIE/RADIAL LINE
- TOP OF CURB

IN/OUT TABLE

1. FC - 0.2' OUT
2. SIGN 5.2' IN; FH 4.4' IN
3. FC 0.1' IN
4. EV 1.5' IN
5. EB 2.6' IN
6. FNC COR 6.9' IN
7. FC CROSSES PL
8. BW CROSSES PL
9. SIGN 4.4' OUT
10. FNC COR 0.7' IN
11. GV 0.4' IN
12. BW 3.4' OUT
13. FNC CROSSES PL
14. FNC 5.3' IN
15. FNC CROSSES PL
16. FNC 1.0' OUT
17. FNC CROSSES PL
18. FNC COR 1.3' IN (DIRECT)
19. FNC COR 1.1' IN
20. EOW CROSSES PL
21. GBOX 0.4' IN
22. EB 0.4' IN
23. EB CROSSES PL
24. AC CROSSES PL
25. FNC COR 8.7' IN
26. AC CROSSES PL
27. AC CROSSES PL
28. GM 7.9' OUT
29. AC CROSSES PL
30. BLDG COR 9.1' OUT
31. FNC CROSSES PL
32. FNC END 1.1' OUT
33. VG CROSSES PL
34. FNC END 1.0' OUT
35. BOL 3.7' OUT; SSMH 6.4' OUT
36. BOL 3.8' OUT; SSMH CENTER 6.1' OUT
37. AL 3.1' OUT; FNC END 0.4' OUT
38. GATE (CLOSED) ON PL
39. FNC END 0.9' OUT
40. FNC CROSSES PL
41. FNC 0.6' IN
42. BLDG COR 4.9' OUT
43. BLDG COR 4.0' OUT
44. BLDG COR 3.4' OUT
45. BLDG COR 3.6' OUT
46. BLDG COR 3.0' OUT
47. BLDG COR 3.2' OUT
48. FNC CROSSES PL
49. AC COR 1.4' OUT
50. FNC COR 0.1' OUT
51. GBOX ON PL

RECORD REFERENCES

(R1) GRANT DEED RECORDED OCTOBER 1, 2009 AS DOCUMENT NUMBER 2009-131257, OFFICIAL RECORDS OF SAN MATEO COUNTY.

(R2) RECORD OF SURVEY RECORDED APRIL 5, 2005 IN BOOK 27 OF LLS MAPS AT PAGE 40, OFFICIAL RECORDS OF SAN MATEO COUNTY.

(R3) RECORD OF SURVEY NO. 2460 RECORDED OCTOBER 10, 2013 IN BOOK 38 OF LLS MAPS AT PAGES 99-102/OFFICIAL RECORDS OF SAN MATEO COUNTY.

SURVEYOR'S NOTE

RECORD DISTANCES PER (R3) ARE GRID DISTANCES IN METERS. (R3: #m) DENOTES DISTANCE MATCHING RECORD CONVERTED FROM GRID METERS TO GROUND U.S. SURVEY FEET. TO OBTAIN GROUND DISTANCES IN METERS, MULTIPLY (R3) GRID DISTANCES BY 1.000059093, AS STATED ON (R3). TO OBTAIN GROUND DISTANCES IN U.S. SURVEY FEET, MULTIPLY GROUND DISTANCES IN METERS BY THE CONVERSION FACTOR OF (3937/1200).

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www.bkf.com

STATE OF CALIFORNIA

A.L.T.A./N.S.P.S. LAND TITLE SURVEY
OF THE LANDS OF
CITY OF HALF MOON BAY, A MUNICIPAL CORPORATION
COUNTY OF SAN MATEO

CITY OF HALF MOON BAY

Revisions	No.	Date:	2021-03-18
		Scale:	1" = 60'
		Design:	JMS
		Drawn:	DCJ
		Approved:	
		Job No:	20150199-S3

Drawing Number:
ALTA
2 OF 2

els architecture+ urban design

PROJECT:
CITY OF HALF MOON BAY
CORPORATION YARD

PROJECT NUMBER:
202005

CLIENT:
CITY OF HALF MOON BAY
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COST ESTIMATOR:
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Emeryville, CA 94608

REVISION

NUMBER	DATE	DESCRIPTION

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DATE:
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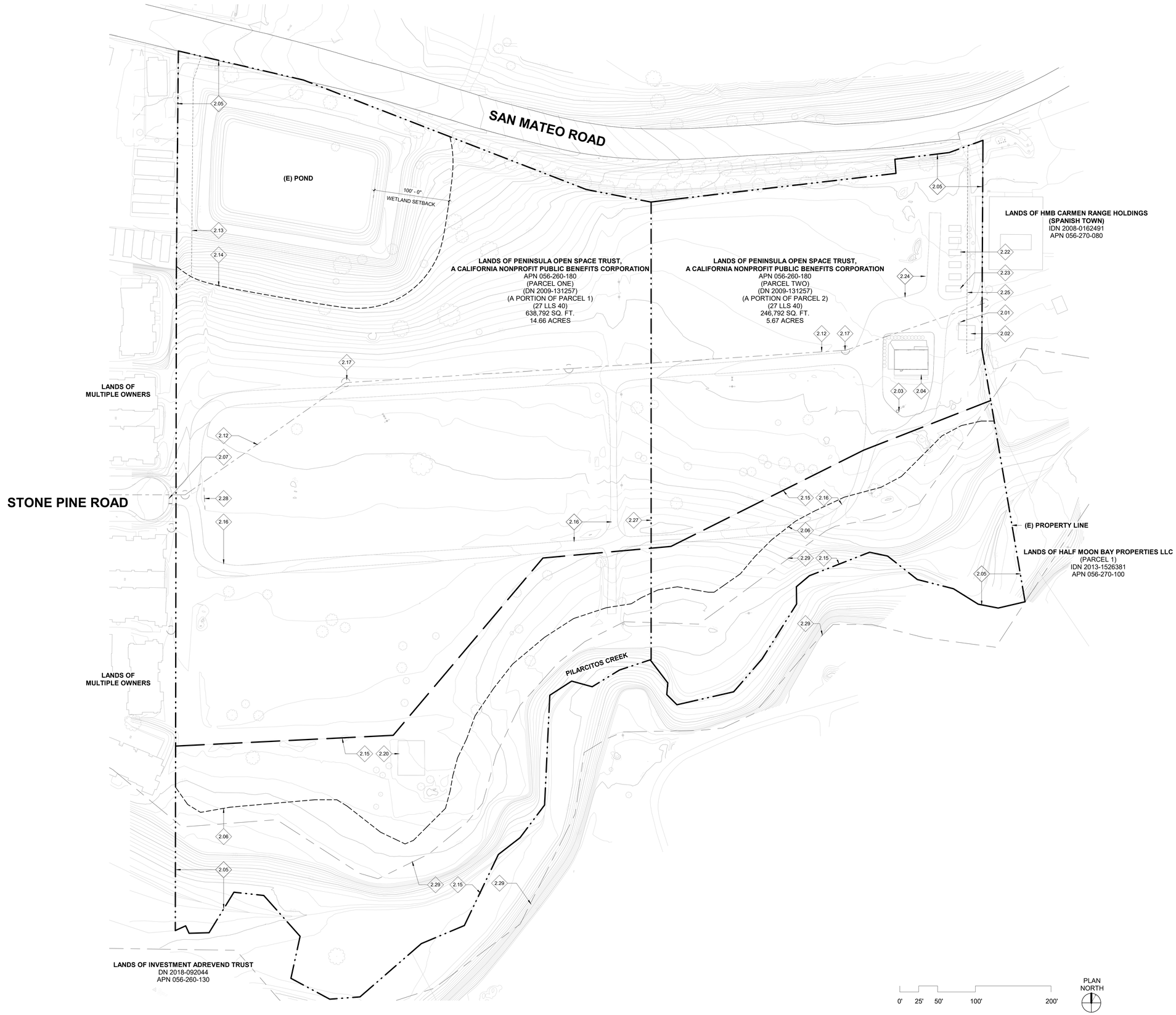
STAMP:

NOT FOR CONSTRUCTION

SHEET TITLE:
TOPOGRAPHIC SURVEY (2 OF 2 - BKF - FOR REFERENCE ONLY)

SHEET NUMBER:
A003X

DRAWING NAME: K:\2015\150199-S3_JMB-Corp-Yd\SUR\Mapping\ALTA\150199_V-ALTA_2021-03-18_(3018_JMS.dwg
PLOT DATE: 03-18-21 PLOTTED BY: jmm



1 DEMOLITION SITE PLAN
1" = 50'-0"

SHEET NOTES

1. VERIFY ALL CONDITIONS IN THE FIELD PRIOR TO THE START OF CONSTRUCTION. BRING DISCREPANCIES TO THE ATTENTION OF THE ARCHITECT PRIOR TO PROCEEDING WITH THE WORK.
2. ALL BUILDING AND SITE FEATURES TO REMAIN UNLESS OTHERWISE NOTED.

KEYNOTES

2.01	(E) GAS METER, S.C.D.
2.02	(E) BARN
2.03	(E) MAIN ELECTRICAL SERVICE TRANSIT
2.04	(E) HOUSE, DECK, AND GARDEN; N.I.C.
2.05	PROPERTY LINE
2.06	RIPARIAN SETBACK
2.07	(E) SITE ENTRY
2.12	(E) SEWER LINE (10 FEET WIDE), S.C.D.
2.13	CCWD EASEMENT, S.C.D.
2.14	WETLAND SETBACK
2.15	EX. NO. 13 CONSERVATION TRAIL EASEMENT (DN 2021-007595), S.C.D.
2.16	(E) DIRT PATH TO BE ABANDONED
2.17	(E) SANITARY SEWER MANHOLE, TYP., S.C.D.
2.20	(E) CONCRETE PAD
2.22	(E) MOBILE TRAILER, TYP. FOR (5)
2.23	(E) STORAGE CONTAINER
2.24	(E) DIRT PATH
2.25	PG&E EASEMENT, S.C.D.
2.27	RELOCATED PROPERTY LINE
2.28	(E) SIGN TO BE REMOVED
2.29	FEMA BASE FLOOD ELEVATION BOUNDARY, S.C.D.

LEGEND

- DEMOLISHED ITEM
- RIPARIAN SETBACK / WETLAND SETBACK
- FENCE
- PROPERTY LINE
- SEWER LINE
- CCWD / PG&E EASEMENT
- (E) EX. NO. 13 CONSERVATION TRAIL EASEMENT
- FLOOD LINE

els architecture+ urban design

PROJECT:

CITY OF HALF MOON BAY

CORPORATION YARD

PROJECT NUMBER:
202005

CLIENT:
CITY OF HALF MOON BAY
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DATE:
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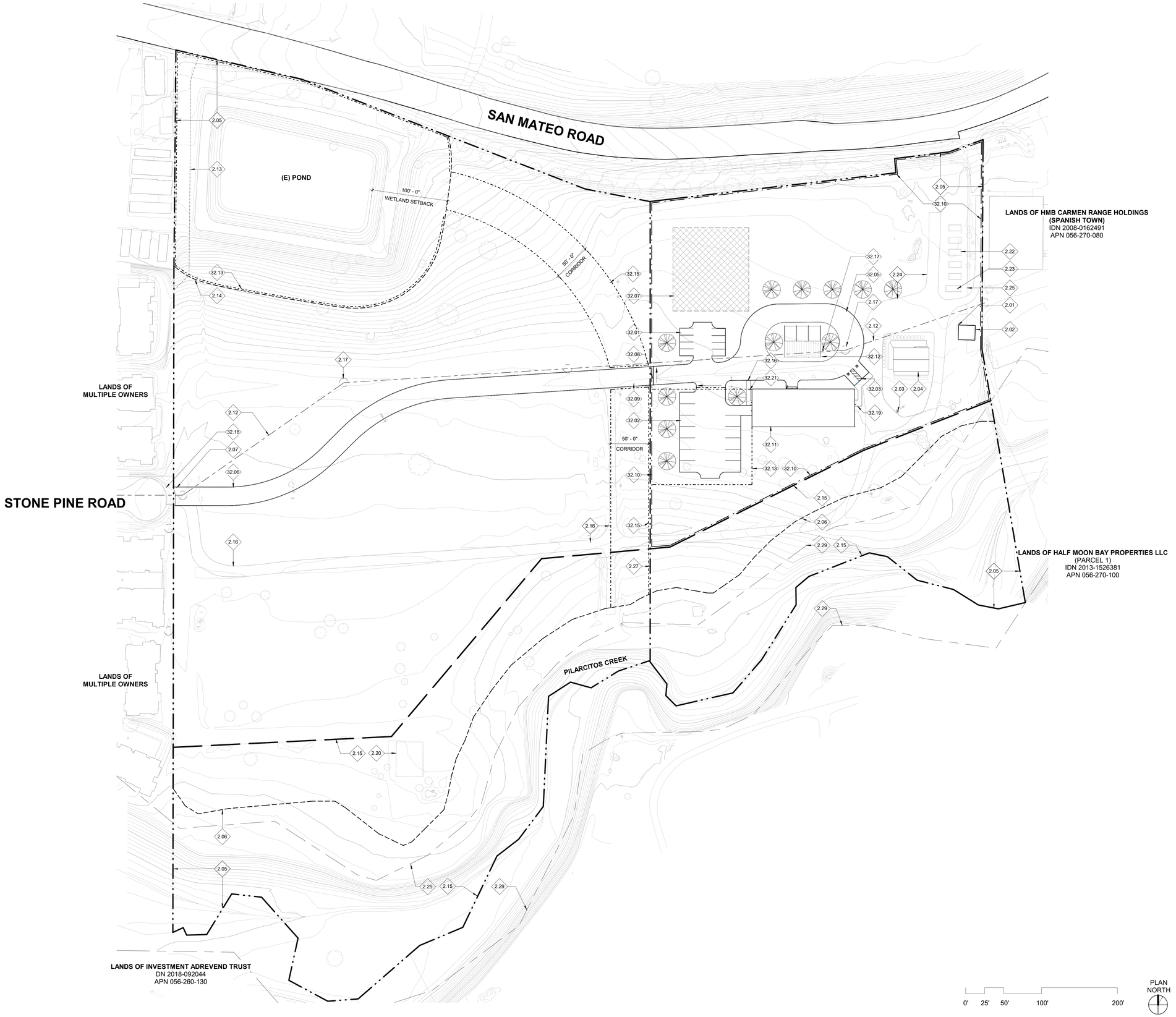
SHEET TITLE:
DEMOLITION SITE PLAN

SHEET NUMBER:
A100



1 SITE PLAN
1" = 50'-0"

SHEET NOTES

1. VERIFY ALL CONDITIONS IN THE FIELD PRIOR TO THE START OF CONSTRUCTION. BRING DISCREPANCIES TO THE ATTENTION OF THE ARCHITECT PRIOR TO PROCEEDING WITH THE WORK.
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2.25	PG&E EASEMENT, S.C.D.
2.27	RELOCATED PROPERTY LINE
2.29	FEMA BASE FLOOD ELEVATION BOUNDARY, S.C.D.
32.01	EMPLOYEE PARKING, S.C.D.
32.02	SERVICE VEHICLE PARKING, S.C.D.
32.03	ACCESSIBLE PARKING, S.C.D.
32.05	ASPHALT PAVED LOOP ROAD. ALLOW CLEARANCE OF 20' FOR EMERGENCY VEHICLE ACCESS., S.C.D.
32.06	ASPHALT ROAD, S.C.D.
32.07	SOLAR ARRAY 11,000 SF, S.E.D.
32.08	ROLLING GATE WITH AUTOMATIC OPENER/CLOSER AND KEYCARD ENTRY
32.09	TRAFFIC RATED CULVERT UNDER ROAD, REINFORCED CONCRETE, 6" - 8" CLEAR
32.10	8' STEEL FENCE
32.11	WORKSHOP / STORAGE BUILDING, 50' x 135' TENSION FABRIC BUILDING STRUCTURE, SPRINKLERED
32.12	TRASH / STORAGE STRUCTURE
32.13	6' CHAINLINK FENCE
32.15	WILDLIFE EXCLUSIONARY FENCE: 4' CHAINLINK FENCE WITH 12" - 24" VINYL SLATS AT BOTTOM OF FENCING
32.16	WALKWAY, S.C.D.
32.17	HOSE BIB, S.P.D.
32.18	FIRE HYDRANT, S.C.D.
32.19	ACCESSIBLE WALKWAY, S.C.D.
32.21	PERSONAL GATE

LEGEND

- RIPARIAN SETBACK / WETLAND SETBACK
- FENCE
- PROPERTY LINE
- SEWER LINE
- CCWD / PG&E EASEMENT
- (E) EX. NO. 13 CONSERVATION TRAIL EASEMENT
- FLOOD LINE
- SOLAR ARRAY AREA

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SHEET TITLE:
SITE PLAN

SHEET NUMBER:
A101



1 ENLARGED SITE PLAN
1" = 20'-0"

SHEET NOTES

1. VERIFY ALL CONDITIONS IN THE FIELD PRIOR TO THE START OF CONSTRUCTION. BRING DISCREPANCIES TO THE ATTENTION OF THE ARCHITECT PRIOR TO PROCEEDING WITH THE WORK.
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KEYNOTES

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2.02	(E) BARN
2.03	(E) MAIN ELECTRICAL SERVICE TRANSIT
2.04	(E) HOUSE, DECK, AND GARDEN; N.I.C.
2.05	PROPERTY LINE
2.06	RIPARIAN SETBACK
2.12	(E) SEWER LINE (10 FEET WIDE), S.C.D.
2.15	EX. NO. 13 CONSERVATION TRAIL EASEMENT (DN 2021-007595), S.C.D.
2.16	(E) DIRT PATH TO BE ABANDONED
2.17	(E) SANITARY SEWER MANHOLE, TYP., S.C.D.
2.22	(E) MOBILE TRAILER, TYP. FOR (5)
2.23	(E) STORAGE CONTAINER
2.24	(E) DIRT PATH
2.25	PG&E EASEMENT, S.C.D.
2.27	RELOCATED PROPERTY LINE
2.29	FEMA BASE FLOOD ELEVATION BOUNDARY, S.C.D.
32.01	EMPLOYEE PARKING, S.C.D.
32.02	SERVICE VEHICLE PARKING, S.C.D.
32.03	ACCESSIBLE PARKING, S.C.D.
32.05	ASPHALT PAVED LOOP ROAD. ALLOW CLEARANCE OF 20' FOR EMERGENCY VEHICLE ACCESS., S.C.D.
32.06	ASPHALT ROAD, S.C.D.
32.07	SOLAR ARRAY 11,000 SF, S.E.D.
32.08	ROLLING GATE WITH AUTOMATIC OPENER/CLOSER AND KEYCARD ENTRY
32.10	8' STEEL FENCE
32.11	WORKSHOP / STORAGE BUILDING, 50' x 135' TENSION FABRIC BUILDING STRUCTURE, SPRINKLERED
32.12	TRASH / STORAGE STRUCTURE
32.13	6' CHAINLINK FENCE
32.14	TREE, PROPOSED LOCATION, TYP., FOR (12), N.I.C., INSTALLED BY PG&E
32.16	WALKWAY, S.C.D.
32.17	HOSE BIB, S.P.D.
32.19	ACCESSIBLE WALKWAY, S.C.D.
32.21	PERSONAL GATE

LEGEND

- RIPARIAN SETBACK / WETLAND SETBACK
- FENCE
- PROPERTY LINE
- SEWER LINE
- CCWD EASEMENT
- (E) EX. NO. 13 CONSERVATION TRAIL EASEMENT
- ACCESSIBLE PATH OF TRAVEL
- FLOOD LINE
- SOLAR ARRAY AREA

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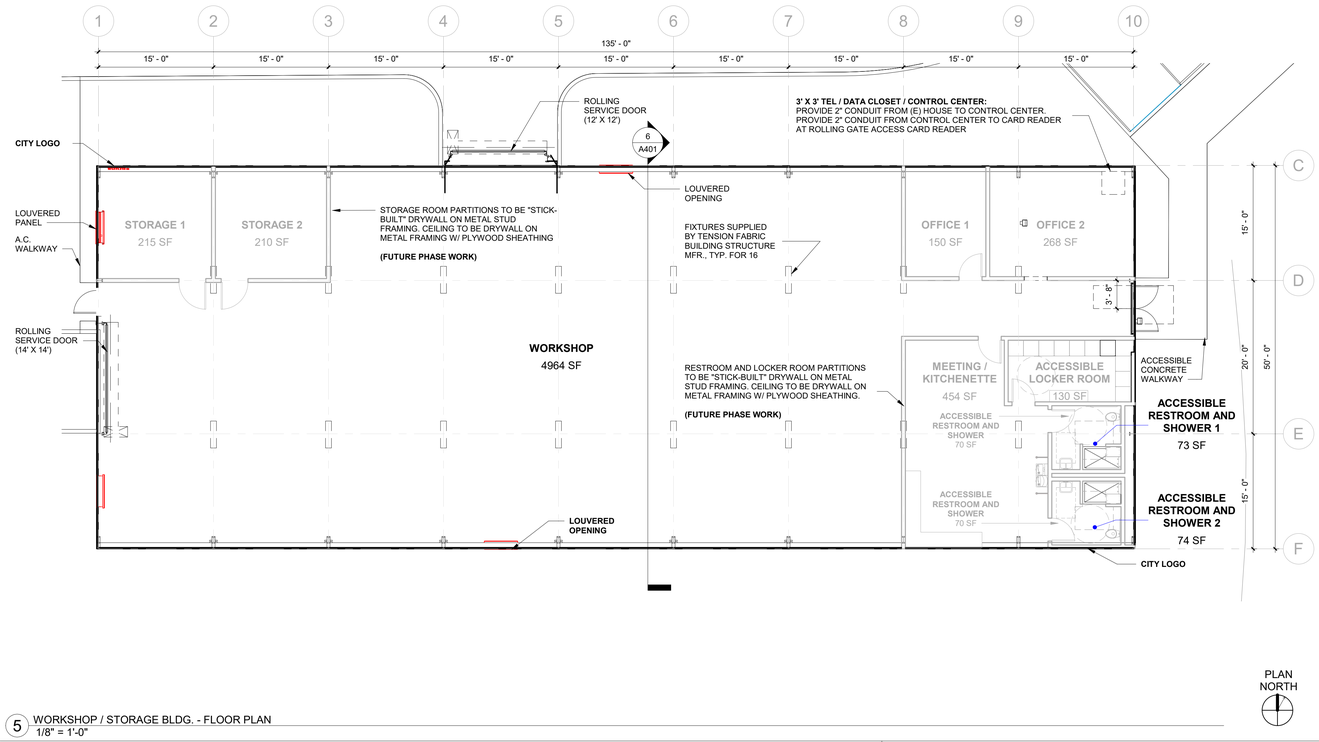

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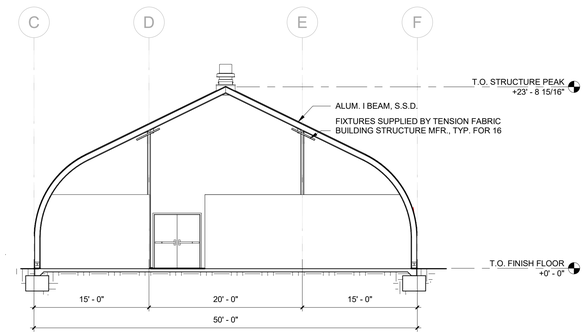

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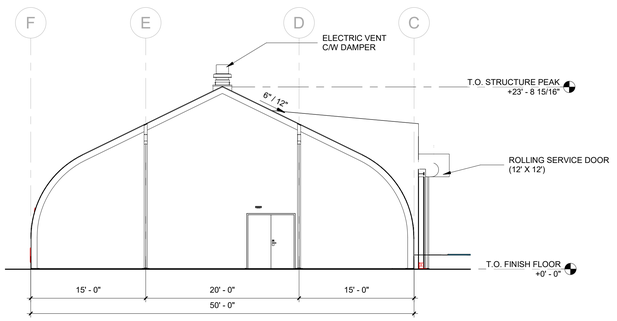

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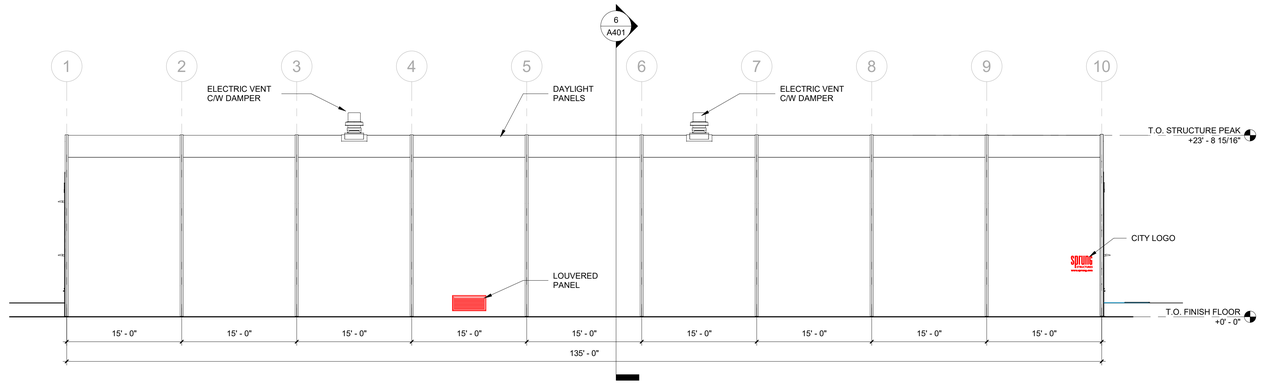

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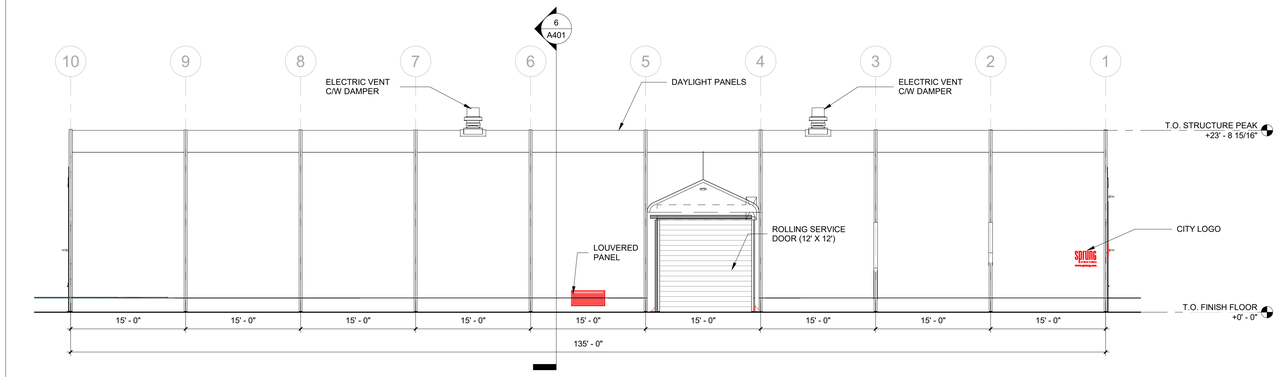

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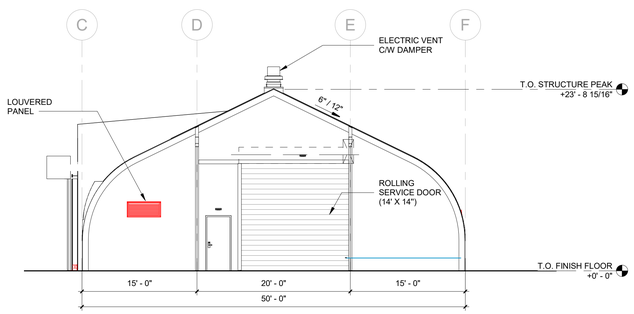

1 WORKSHOP / STORAGE BLDG. - EAST ELEVATION
1/8" = 1'-0"

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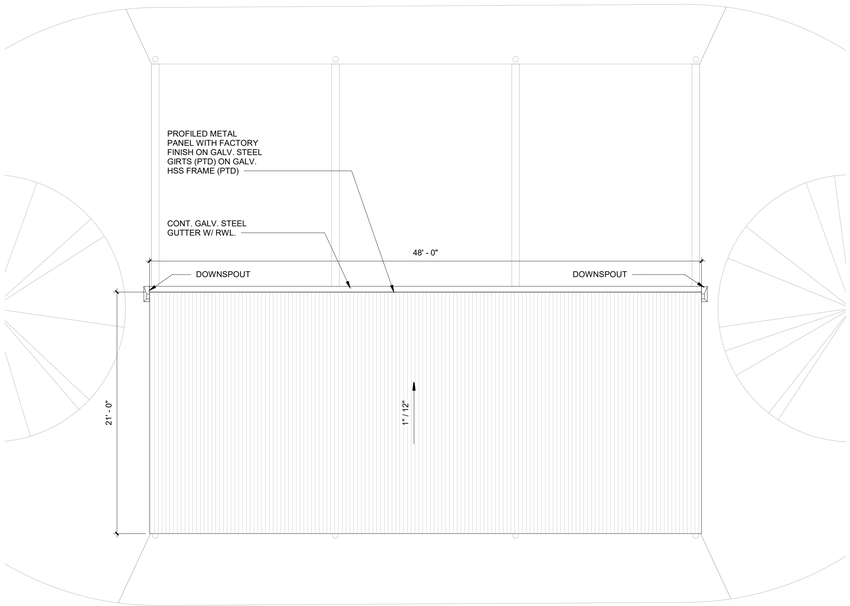

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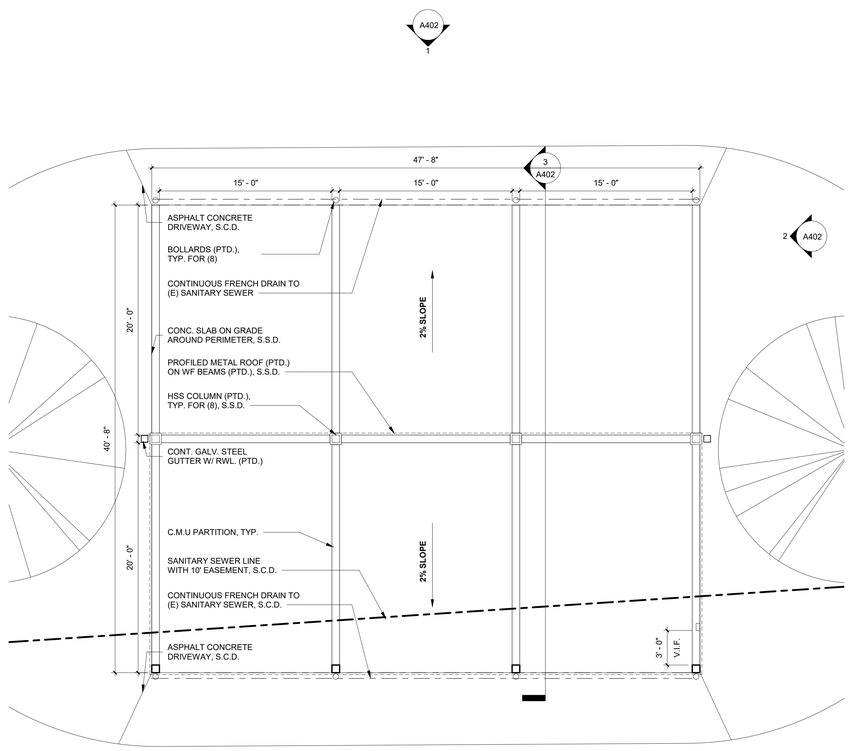
3/16" = 1'-0"



4 TRASH / STORAGE ENCLOSURE - FLOOR PLAN
3/16" = 1'-0"

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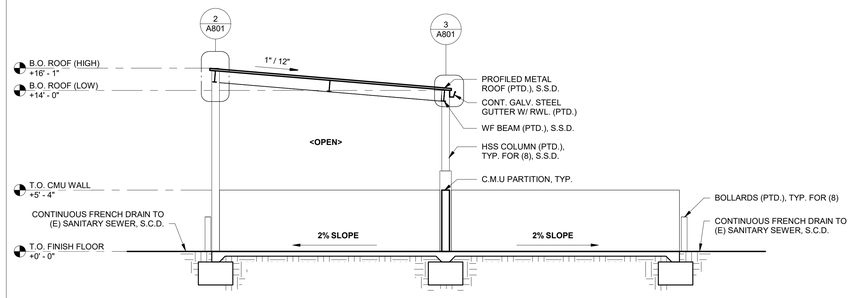

3 TRASH / STORAGE ENCLOSURE - SECTION
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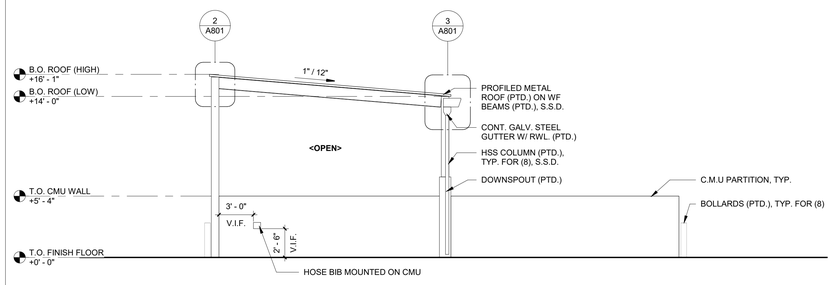
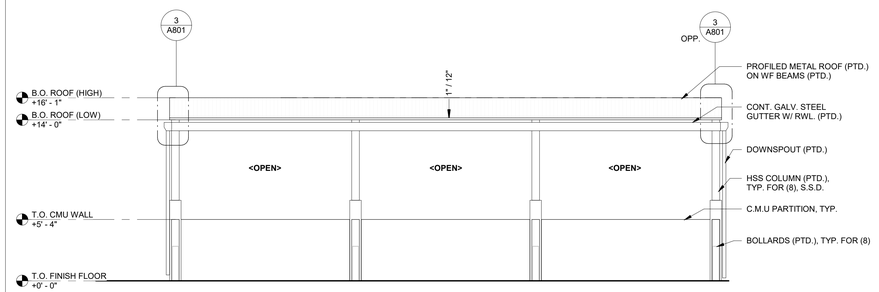


NOTE: OPP. AND TYP. FOR EAST ELEVATION

2 TRASH / STORAGE ENCLOSURE - WEST ELEVATION
3/16" = 1'-0"



1 TRASH / STORAGE ENCLOSURE - SOUTH ELEVATION
3/16" = 1'-0"

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ROOM FINISH SCHEDULE

ROOM NUMBER	ROOM NAME	FLOOR FINISH	BASE FINISH	WALL FINISH	CEILING FINISH	CEILING HEIGHT	COMMENTS
1	WORKSHOP						
2	STORAGE 1						
3	STORAGE 2						
4	OFFICE 1						
5	OFFICE 2						
6	ACCESSIBLE LOCKER ROOM						
7	MEETING / KITCHENETTE						
8	ACCESSIBLE RESTROOM AND SHOWER 1						
9	ACCESSIBLE RESTROOM AND SHOWER 2						

DOOR SCHEDULE

DOOR #	OPENING DOOR SIZE			FIRE RATING	DOOR			FRAME			HDWR GROUP	COMMENTS
	WIDTH	HEIGHT	THICKNESS		TYPE	MATERIAL	FINISH	TYPE	MATL	FIN		
52	3' - 6"	7' - 0"	2"									
53	3' - 6"	7' - 0"	2"									
67	3' - 0"	7' - 0"	2"									
68	3' - 0"	7' - 0"	2"									
73	3' - 0"	6' - 8"	2"									
75	0' - 0"	0' - 0"										
76	3' - 0"	7' - 0"	2"									
78	3' - 0"	7' - 0"	2"									

PAINT SCHEDULE**

KEY	DESCRIPTION	COLOR	LOCATION
P1	BASE BUILDING	TBD	
P2	BASE BUILDING ACCENT	TBD	
P3	ACCENT 1	TBD	
P4	ACCENT 2	TBD	
P5	ACCENT 3	TBD	
P6	ACCENT 4	TBD	
P7	ACCENT 5	TBD	
P8	STRIPING	TBD	
PA*	ACCENT DOORS		

**PAINT SCHEDULE DENOTES COLOR/DESIGN INTENT ONLY, SEE SPECIFICATION ON REQUIRED PAINT TYPE BY SUBSTRATE APPLICATION. PROVIDE COLOR MATCHING FOR A NON-BENJAMIN MOORE PAINT PRODUCTS.

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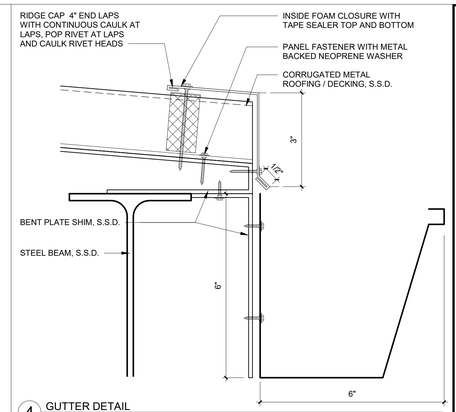
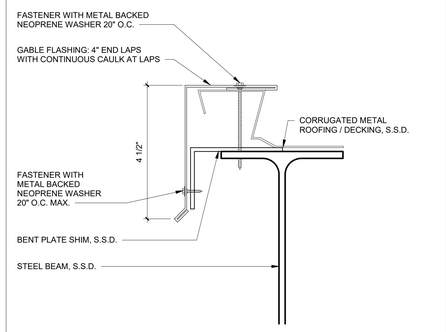


4 GUTTER DETAIL
6" = 1'-0"



3 FLASHING DETAIL @ ROOF FASCIA
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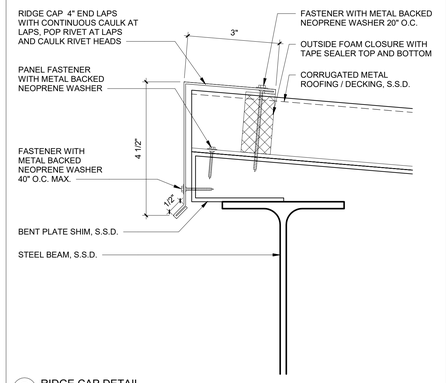

2 RIDGE CAP DETAIL
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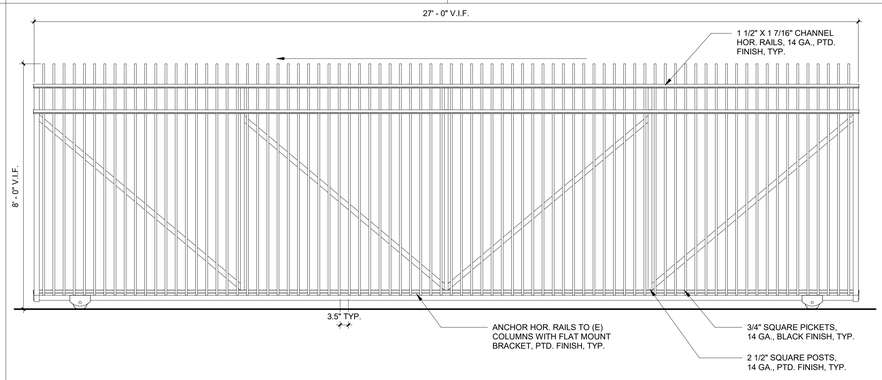
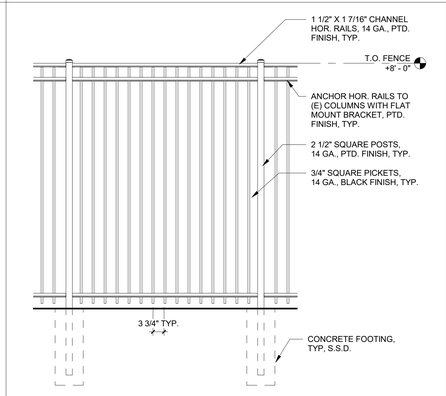


5 STEEL ROLL GATE - FRONT ELEVATION
1/2" = 1'-0"



1 STEEL FENCE PANEL - FRONT ELEVATION
1/2" = 1'-0"

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APPENDIX B

Biological Evaluations

APPENDIX B1

Biological Resources Report

880 Stone Pine Road Project

H.T. Harvey & Associates











H. T. HARVEY & ASSOCIATES
Ecological Consultants
50 years of field notes, exploration, and excellence

880 Stone Pine Road Project
Biological Resources Report

Project #4182-03

Prepared for:

John Doughty
City of Half Moon Bay
501 Main Street
Half Moon Bay, CA 94019

Prepared by:

H. T. Harvey & Associates

June 25, 2021

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Table of Contents

Section 1. Introduction 1
1.1 Project Location 1
1.2 Project Description 1
Section 2. Methods 4
2.1 Background Review 4
2.2 Site Visit 7
Section 3. Regulatory Setting 8
3.1 Federal 8
3.1.1 Clean Water Act 8
3.1.2 Federal Endangered Species Act 10
3.1.3 Magnuson-Stevens Fishery Conservation and Management Act 11
3.1.4 Federal Migratory Bird Treaty Act 11
3.2 State 12
3.2.1 Clean Water Act Section 401/Porter-Cologne Water Quality Control Act 12
3.2.2 California Endangered Species Act 13
3.2.3 California Environmental Quality Act 14
3.2.4 California Fish and Game Code 15
3.2.5 State Requirements to Control Construction-Phase and Post-construction Water Quality Impacts 17
3.2.6 California Coastal Act 18
3.3 Local 19
3.3.1 City of Half Moon Bay Local Coastal Program Land Use Plan 19
3.3.2 Half Moon Bay Protected Trees 21
Section 4. Environmental Setting 22
4.1 General Biological Study Area Description 22
4.2 Hydrology 22
4.3 Soils 23
4.4 Biotic Habitats 23
4.4.1 California Annual Grassland 24
4.4.2 Developed/Landscaped 25
4.4.3 Riparian Woodland 26
4.4.4 Perennial Freshwater Marsh 27
4.4.5 Aquatic Riverine 28
Section 5. Special-Status Species and Sensitive Habitats 29
5.1 Special-Status Plant Species 29
5.2 Special-Status Animal Species 30
5.2.1 Federal and State Endangered and Threatened Species 31
5.2.2 California Species of Special Concern 35
5.2.3 State Fully Protected Species 37
5.3 Sensitive Natural Communities, Habitats, and Vegetation Alliances 38
5.4 Non-Native and Invasive Species 41
Section 6. Impacts and Mitigation Measures 42
6.1 Approach to the Analysis 42
6.2 Impacts on Special-Status Species 43
6.2.1 Impacts on Common Plant and Animal Species (Less than Significant) 43
6.2.2 Impacts on Special-Status Plants (Less than Significant with Mitigation) 44
6.2.3 Impacts on the California Red-legged Frog and San Francisco Garter Snake (Less than Significant with Mitigation) 47

6.2.4 Impacts on the Central California Coast Steelhead and the Western Pond Turtle (Less than Significant with Mitigation) 52
6.2.5 Impacts on the San Francisco Dusky-footed Woodrat (Less than Significant with Mitigation) 52
6.2.6 Impacts on Nonbreeding Special-Status Animals (Less than Significant) 53
6.2.7 Impacts on the San Francisco Common Yellowthroat, Yellow Warbler, and Raptors, Including the White-tailed Kite (Less than Significant) 53
6.3 Impacts on Sensitive Communities 55
6.3.1 Impacts on Riparian Habitat or Other Sensitive Natural Communities (Less than Significant with Mitigation) 55
6.3.2 Impacts Caused by Non-Native and Invasive Species (Less than Significant with Mitigation) 57
6.4 Impacts on Wetlands 58
6.4.1 Impacts on Wetlands and Waters (Less than Significant with Mitigation) 58
6.5 Impacts on Wildlife Movement 60
6.5.1 Impacts on Wildlife Movement: (Less than Significant with Mitigation) 61
6.6 Impacts due to Conflicts with Local Policies 61
Impacts to Heritage Trees per 61
6.6.1 Municipal Code Section 7.40 (Less than Significant with Mitigation) 61
6.7 Impact due to Conflicts with an Adopted Habitat Conservation Plan 62
Section 7. References 63

Figures

Figure 1. Vicinity Map 2
Figure 2. Biological Study Area 3
Figure 3. Special-Status Plant Species CNDDB Records 5
Figure 4. Special-Status Animal Species CNDDB Records 6
Figure 5. Habitat Types/Land Uses 9

Tables

Table 1. Soils within the Project Site 23
Table 2. Habitat Types/Land Uses in the Biological Study Area and Project Site 23

Appendices

Appendix A. Plants Observed A-1
Appendix B. Special-Status Plants Considered for Potential Occurrence B-1
Appendix C. Special-Status Animals Considered for Potential Occurrence C-1

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Section 1. Introduction

This report describes the biological resources present on the site at 880 Stone Pine Road in Half Moon Bay, California, where the City of Half Moon Bay (City) is considering future development; the potential biological impacts of future development activities; and measures necessary to reduce these impacts to less-than-significant levels under the California Environmental Quality Act (CEQA).

1.1 Project Location

The project site is located at 880 Stone Pine Road in Half Moon Bay, San Mateo County (Figure 1). It is located within the *Half Moon Bay California* 7.5-minute USGS quadrangle. The site is located between State Route (SR) 92 and Pilarcitos Creek near downtown Half Moon Bay. The site was previously used as a plant nursery and is now a public works yard.

For the purposes of our description of existing biological resources and potential impacts from future development, we identified a Biological Study Area (BSA) of approximately 44 acres that included the 21-acre project site itself as well as surrounding areas within 200 feet of the project boundary (Figure 2). The purpose of providing this BSA was to conform to the City of Half Moon Bay's Local Coastal Program requirements under Policy 6-8.

1.2 Project Description

The City is considering developing the public works yard at 880 Stone Pine Road. A specific project description has not been proposed for the development, and therefore specific impact locations have not been defined. It is conceivable that future development activities may disturb the majority of the site, although the City does not intend to disturb Pilarcitos Creek, a perennial marsh in the northwest corner of the site, or any Environmentally Sensitive Habitat Area (ESHA) avoidance buffers required by the City's Local Coastal Program. The project could also include limited impacts to riparian habitat and the riparian buffer associated with Pilarcitos Creek allowed under the City's Local Coastal Program, notably the creation of paths, trails, or other environmentally related educational uses (J. Doughty, pers. comm.).



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Figure 1. Vicinity Map
880 Stone Pine Road Biological Resources Report (4182-03)
June 2021



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Figure 2. Biological Study Area
880 Stone Pine Road Biological Resources Report (4182-03)
June 2021

Section 2. Methods

2.1 Background Review

Prior to conducting field work, H. T. Harvey & Associates ecologists reviewed available background information pertaining to the biological resources on and in the vicinity of the BSA. Information was compiled and subsequently compared against site conditions during field surveys. The following sources were consulted:

- California Natural Diversity Database (CNDDB) record search for the *Half Moon Bay, California* U.S. Geological Survey (USGS) 7.5-minute quadrangle (where the BSA occurs) and the surrounding five quadrangles: *Montara Mountain, San Mateo, Woodside, San Gregorio, and La Honda* (CNDDB 2021)
- eBird record search for the *Half Moon Bay, California* U.S. Geological Survey (USGS) 7.5-minute quadrangle (where the BSA occurs) and the surrounding five quadrangles: *Montara Mountain, San Mateo, Woodside, San Gregorio, and La Honda* (Cornell Lab of Ornithology 2021)
- CNPS Rare Plant Program Inventory of Rare and Endangered Plants of California for the 7-5-minute quadrangles listed above (CNPS 2021) for Ranks 1-4 and for San Mateo County for Rank 4 species, for which records are not always maintained at the quadrangle level
- USFWS Information for Planning and Consultation tool (USFWS 2021a)
- Aerial photographs obtained from Google Earth Pro (Google, Inc. 2021)
- U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) Web Soil Survey for soil types (NRCS 2021)
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory for any existing aquatic features, including wetlands, streams, and sloughs (USFWS 2014)
- The Jepson Manual: Vascular Plants of California, Second Edition (Baldwin et al. 2012)
- Half Moon Bay Riparian and Wetland Mitigation Site, Preliminary Mitigation and Monitoring Plan (H. T. Harvey & Associates and RMC 2010)
- Administrative Draft, Half Moon Bay Community Park and Analysis Report, Biological Section (H. T. Harvey & Associates 2005)

For the purposes of this report, the vicinity of the BSA is defined as the area within a 5-mile (mi) radius of the BSA. A map of CNDDB records of special-status plants and natural communities of concern, and a map of CNDDB records of special-status animals, are included as Figures 3 and 4, respectively. These generalized maps show areas where special-status species are known to occur or have occurred historically.

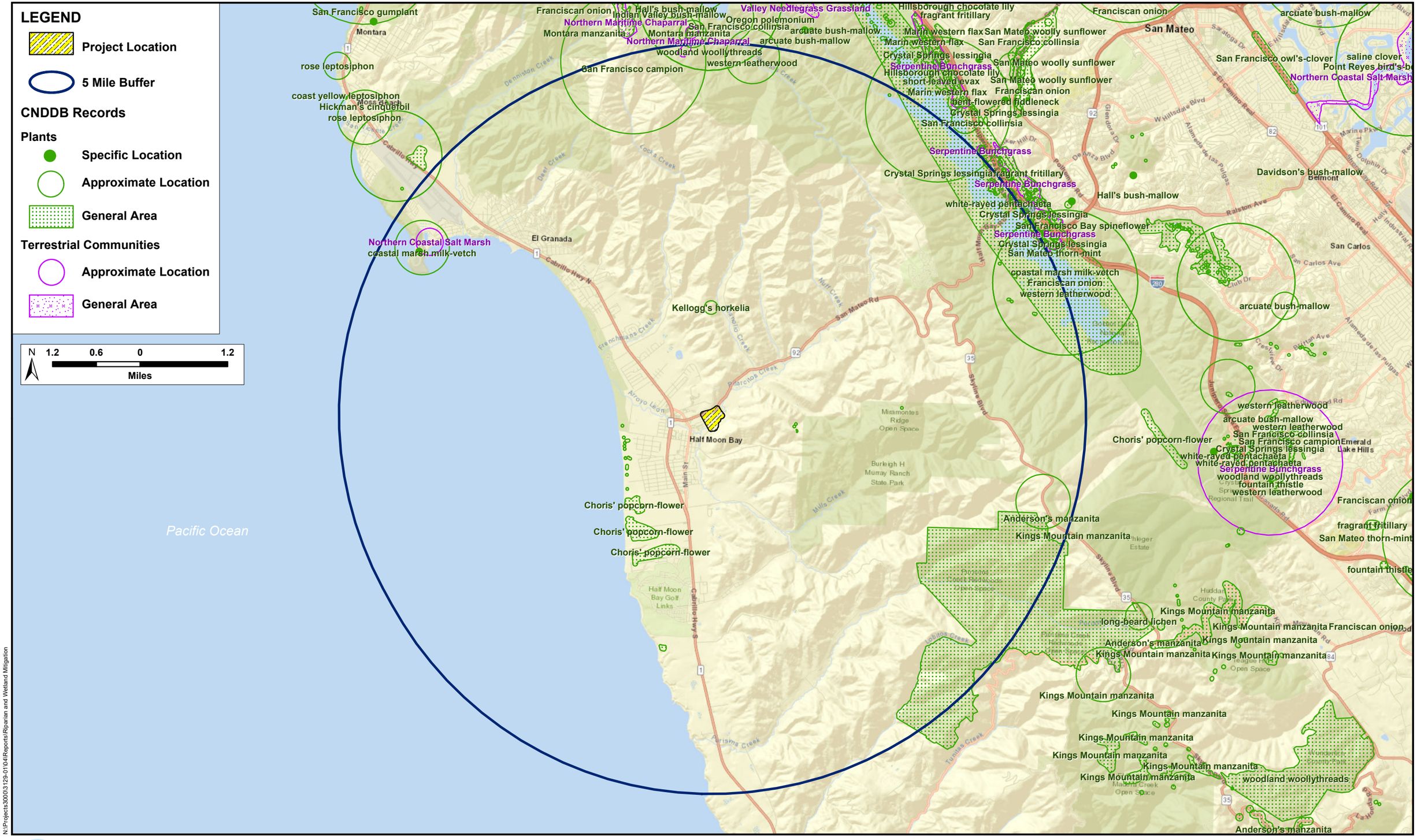

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Figure 3. Special-Status Plant Species CNDDB Records

880 Stone Pine Road Biological Resources Report (4182-03)
June 2021

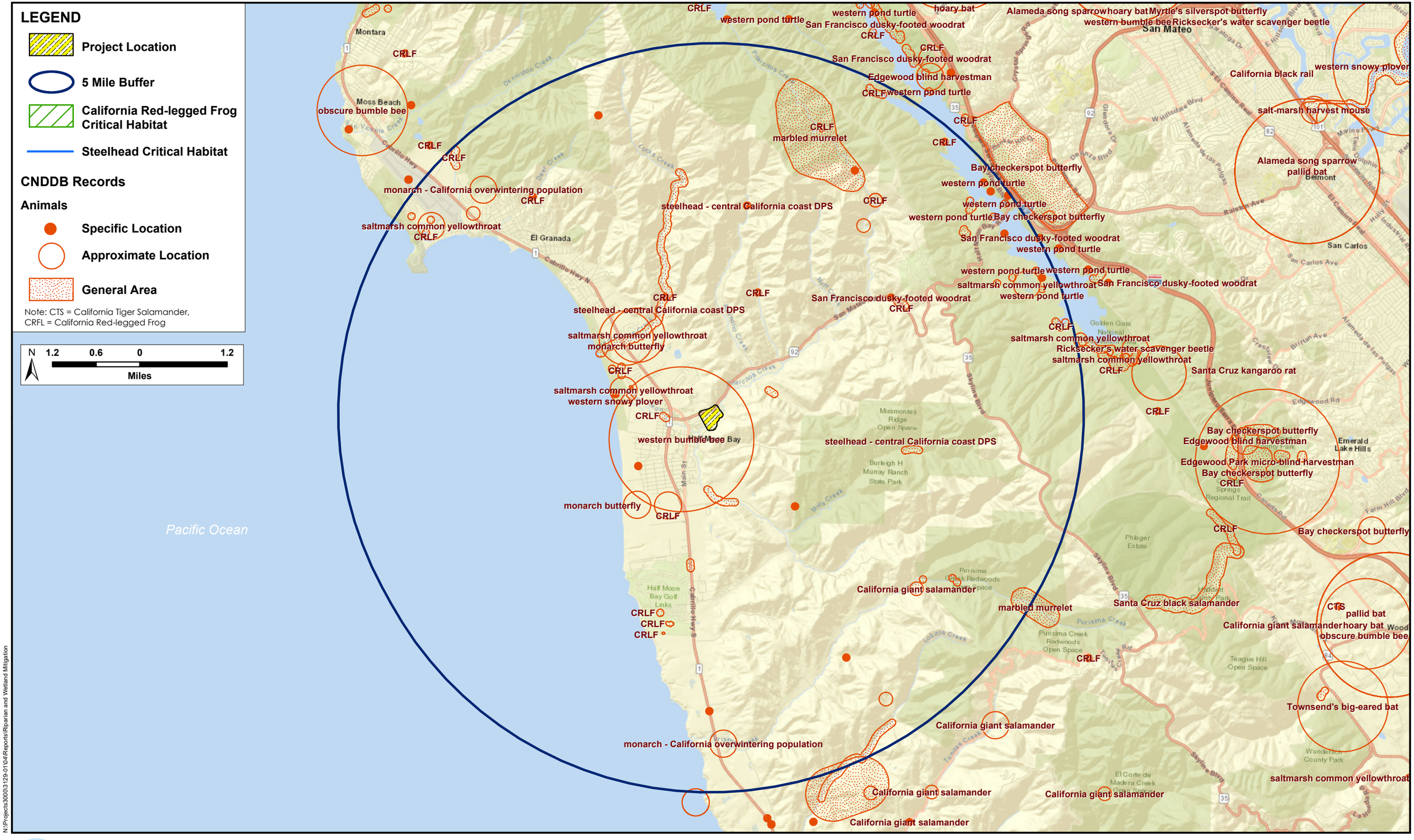

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Figure 4. Special-Status Animal Species CNDDB Records

880 Stone Pine Road Biological Resources Report (4182-03)
June 2021

Following our site visits, we also reviewed the City's *Local Coastal Land Use Plan 2020 Comprehensive Update* (City of Half Moon Bay 2020) for information on biological resources and City land use policies related to coastal resources.

2.2 Site Visit

A reconnaissance-level field survey of the BSA was conducted by H. T. Harvey & Associates senior wildlife ecologist Jeff Wilkinson, Ph.D., and by H. T. Harvey & Associates plant and wetland ecologist David Gallagher, M.S., on June 8, 2018. The purpose of this survey was to (1) assess existing biotic habitats and plant and animal communities in the BSA, (2) assess the BSA for its potential to support special-status species and their habitats, and (3) preliminarily identify potential jurisdictional habitats within the BSA, such as Waters of the U.S./State.

On June 12, 2020, H. T. Harvey & Associates plant ecologist, Mark Bibbo, M.S., performed a technical delineation of wetlands and other waters in the study area, in accordance with the *Corps of Engineers 1987 Wetlands Delineation Manual* (Corps Manual; Environmental Laboratory 1987). Additionally, the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (Regional Supplement) (USACE 2010) was followed to document site conditions relative to hydrophytic vegetation, hydric soils, and wetland hydrology. Mr. Bibbo mapped the extent and distribution of wetlands and other waters of the U.S. that may be subject to regulation under Section 404 of the Clean Water Act (CWA) as well as waters of the state that may be subject to regulation under the Porter Cologne Water Quality Control Act, which is administered by the RWQCB. The study area was also surveyed for areas that meet the physical criteria of a wetland according to the California Coastal Commission (CCC), as well as aquatic and riparian habitat that may be subject to regulation under Sections 1600-1607 of the California Fish and Game Code, which is administered by CDFW.

H. T. Harvey & Associates mapped biotic habitats within the BSA using a combination of field observations, recorded via the Apple iPad geographic information systems (GIS) Kit Pro application and aerial imagery signatures. Habitat types were distinguished using natural community descriptions discussed in Holland (1986) and Sawyer et al. (2009). Plant species within each habitat were identified using Baldwin et al. (2012). Habitat acreages were calculated using GIS and aerial imagery interpretation.

Section 3. Regulatory Setting

Biological resources in the BSA are regulated by a number of federal, state, and local laws and ordinances, as described below.

3.1 Federal

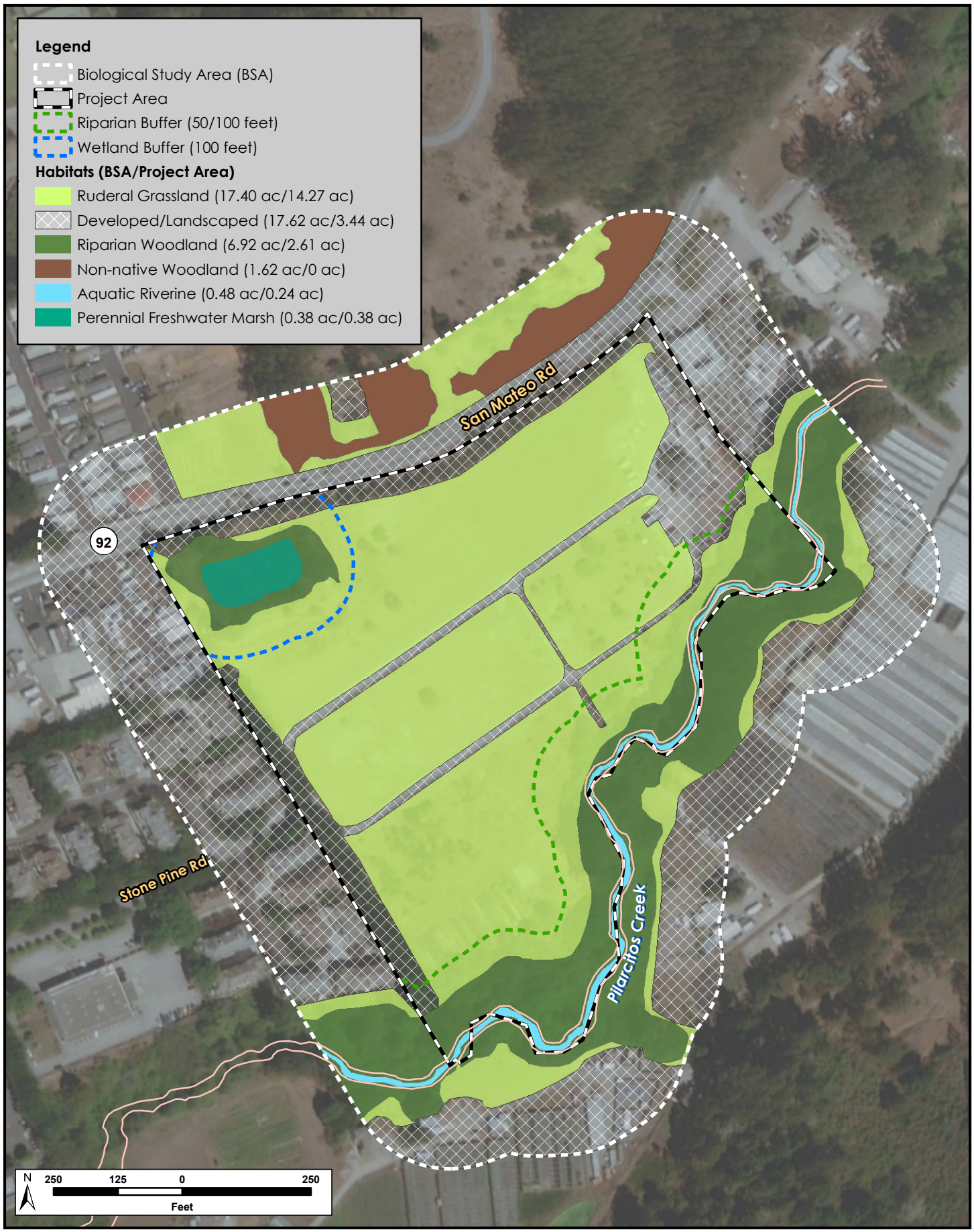
3.1.1 Clean Water Act

As part of its mandate under Section 404 of the CWA, the EPA regulates the discharge of dredged or fill material into "waters of the U.S." Waters of the U.S. include territorial seas, tidal waters, and non-tidal waters in addition to wetlands and drainages that support wetland vegetation, exhibit ponding or scouring, show obvious signs of channeling, or have discernible banks and high-water marks. Wetlands are defined as those areas "that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3(b)). The discharge of dredged or fill material into waters of the U.S. is prohibited under the CWA except when it follows Section 404 of the CWA. Enforcement authority for Section 404 was given to the USACE, which it accomplishes under its regulatory branch. The EPA has veto authority over the USACE's administration of the Section 404 program and may override a USACE decision with respect to permitting.

The USACE has specific guidelines for determining the extent of its jurisdiction. The methods of delineating USACE jurisdiction are defined in the 1987 Wetlands Delineation Manual (Environmental Laboratory, 1987), and the Arid West Manual (USACE 2008). The methods of delineating USACE jurisdiction are defined in the manuals and require examination of three parameters (soil, hydrology, and vegetation).

Substantial impacts to waters of the U.S. may require an Individual Permit. Projects that only minimally affect waters of the U.S. may meet the conditions of one of the existing Nationwide Permits, if other conditions of the permit are satisfied. A water quality certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions. The State Water Resources Control Board (SWRCB) is the state agency (together with the Regional Water Quality Control Boards [RWQCBs]) charged with implementing water quality certification in California.

Project Applicability: Field surveys in 2018 and 2020 identified two biotic habitats which may be considered waters of the U.S./state and subject to jurisdiction by the USACE. Waters of the U.S./state include perennial aquatic riverine within the bed of Pilarcitos Creek, and a perennial freshwater marsh (Figure 5).



N:\Projects4100\4182-01103\Reports\BRR\Figure 5 Vegetation Communities.mxd

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Figure 5. Habitat Types/Land Uses

880 Stone Pine Road Biological Resources Report (4182-03)

June 2021

There are several dilapidated concrete channels and culverts present within the BSA that were excavated in uplands and were once part of the irrigation infrastructure from previous plant nursery operations. At the time of the site visits, these culverts and channels were vegetated with upland plant species and there was no evidence of inundation or water movement; therefore, these culverts and channels likely to do not convey water and would not be considered Waters of the U.S./state.

It is anticipated that any project proposed within the BSA would not involve impacts to Pilarcitos Creek below the OHWM, and per direction from the City, no impacts to the perennial freshwater marsh are anticipated. Therefore, we do not expect the project to need a USACE Section 404 permit.

3.1.2 Federal Endangered Species Act

The Federal Endangered Species Act (FESA) protects federally listed wildlife species from harm or "take", which is broadly defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct." Take can also include habitat modification or degradation that directly results in death or injury of a listed wildlife species. An activity can be defined as "take" even if it is unintentional or accidental. Listed plant species are provided less protection than listed wildlife species. Listed plant species are legally protected from take under FESA only if they occur on federal lands.

The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) have jurisdiction over federally listed, threatened, and endangered species under FESA. The USFWS also maintains lists of proposed and candidate species. Species on these lists are not legally protected under FESA, but may become listed in the near future and are often included in their review of a project.

Project Applicability: Pilarcitos Creek is designated as critical habitat for the federally threatened Central California Coast steelhead (*Oncorhynchus mykiss irideus*) Distinct Population Segment (NMFS 2005), and this species has been documented in Pilarcitos Creek (CDFW 2013, Center for Ecosystem Management and Restoration 2008, NMFS 2015). However, this segment of the creek does not support suitable spawning, rearing, or feeding habitat during most of the year due to the lack of channel complexity, appropriately-sized gravel, or connectivity with the adjacent floodplain, as well as high stream temperatures. Furthermore, the majority of habitat in the Pilarcitos Creek watershed is in poor condition (Phillip Williams & Associates 2008). Therefore, steelhead are expected to occur in the reach of Pilarcitos Creek within the BSA very infrequently and in low numbers during migration, if they are present at all. The federally endangered Central California Coast coho salmon (*Oncorhynchus kisutch*) may have historically occurred in Pilarcitos Creek, and the creek is designated habitat for this species (NMFS 1999). However, recent surveys and monitoring have not detected this species in the creek (CDFW 2013, Hager 2011 as cited in NMFS 2015), and this species is not currently known or expected to occur here. Because the project is not expected to impact the creek itself, we do not expect that FESA consultation with NMFS will be necessary for future project activities.

The federally threatened California red-legged frog (*Rana draytonii*) is known to occur in the BSA. California red-legged frog adults and juveniles were observed in the perennial freshwater marsh in the BSA in 2005 (H.

T. Harvey & Associates and RMC 2010). In addition, adults and larvae have been found in a breeding pond in the vicinity of Pilarcitos Creek about 1.3 mi northwest of the BSA as recently as 2016, and California red-legged frog adults were observed in Pilarcitos Creek about 0.5 mi west of the BSA in 2006 (CNDDB 2021). The federally endangered San Francisco garter snake (*Thamnophis sirtalis tetrataenia*) has been recorded approximately 0.5 mi northwest of the BSA in Pilarcitos Creek and adjacent wetland areas (CNDDB 2021). Suitable dispersal and foraging habitat for these two species occurs within the BSA. Implementation of avoidance and minimization measures will minimize the potential for the project to result in take of these species, though impacts to habitat and the possible need for relocation of individual red-legged frogs from the BSA (to avoid injury or mortality) could potentially constitute take, thus necessitating FESA consultation with the USFWS.

Six federally listed plant species are known to occur in the nine-quadrangle area encompassing the BSA (CNPS 2021, CNDDB 2021): (1) San Mateo thornmint (*Acanthomintha duttonii*), endangered; (2) Crystal Springs fountain thistle (*Cirsium fontinale* var. *fontinale*), endangered; (3) San Mateo woolly sunflower (*Eriophyllum latilobum*), endangered; (4) Marin western flax (*Hesperolinon congestum*), threatened; (5) white-rayed pentachaeta (*Pentachaeta bellidiflora*), endangered; and (6) Hickman's cinquefoil (*Potentilla hickmanii*), endangered. While Hickman's cinquefoil can occur in perennial freshwater marshes, due to a lack of a suitable vegetation associations, the highly restricted range of this species, and it not being observed during surveys by qualified botanists in June 2018 and 2020, it is considered absent from the BSA. There is no suitable habitat for the remaining five species within the BSA, and therefore these five federally listed plant species are also considered absent from the BSA.

3.1.3 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act governs all fishery management activities that occur in federal waters within the United States' 200-nautical-mile limit. The Act establishes eight Regional Fishery Management Councils responsible for the preparation of fishery management plans (FMPs) to achieve the optimum yield from U.S. fisheries in their regions. These councils, with assistance from the NMFS, establish Essential Fish Habitat (EFH) in FMPs for all managed species. Federal agencies that fund, permit, or implement activities that may adversely affect EFH are required to consult with the NMFS regarding potential adverse effects of their actions on EFH, and respond in writing to recommendations by the NMFS.

Project Applicability: The Pacific Fishery Management Council (1999) identified Pilarcitos Creek as providing EFH for the coho salmon. However, as noted above, this species has not been recorded in the Pilarcitos Creek watershed during recent surveys (CDFW 2013, Hager 2011 as cited in NMFS 2015). As a result, this species is not currently known or expected to occur here, though NMFS may consider the creek to represent EFH based on the Pacific Fishery Management Council's description of EFH (1999).

3.1.4 Federal Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA), 16 U.S.C. Section703, prohibits killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. The MBTA

protects whole birds, parts of birds, and bird eggs and nests, and prohibits the possession of all nests of protected bird species whether they are active or inactive. An active nest is defined as having eggs or young, as described in its June 14, 2018 memorandum "Destruction and Relocation of Migratory Bird Nest Contents." Nest starts (nests that are under construction and do not yet contain eggs) and inactive nests are not protected from destruction.

Project Applicability: All native bird species that occur in the BSA are protected under the MBTA.

3.2 State

3.2.1 Clean Water Act Section 401/Porter-Cologne Water Quality Control Act

The SWRCB works in coordination with the nine RWQCBs to preserve, protect, enhance, and restore water quality. Each RWQCB makes decisions related to water quality for its region, and may approve, with or without conditions, or deny projects that could affect waters of the State. Their authority comes from the CWA and the State's Porter-Cologne Water Quality Control Act (Porter-Cologne). Porter-Cologne broadly defines waters of the State as "any surface water or groundwater, including saline waters, within the boundaries of the state." Because Porter-Cologne applies to any water, whereas the CWA applies only to certain waters, California's jurisdictional reach overlaps and may exceed the boundaries of waters of the U.S. For example, Water Quality Order No. 2004-0004-DWQ states that "shallow" waters of the State include headwaters, wetlands, and riparian areas. Moreover, the San Francisco Bay Region RWQCB's Assistant Executive Director, has stated that, in practice, the RWQCBs claim jurisdiction over riparian areas. Where riparian habitat is not present, such as may be the case at headwaters, jurisdiction is taken to the top of bank.

On April 2, 2019, the SWRCB adopted the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State. In these new guidelines, riparian habitats are not explicitly described as waters of the state but instead as important buffer habitats to streams that conform to the State Wetland Definition. The Procedures for Discharges of Dredged or Fill Material to Waters of the State describe riparian habitat buffers as important resources that may be included in required mitigation packages for permits for impacts to waters of the state, as well as areas requiring permit authorization from the RWQCBs for impacts. The RWQCBs may impose mitigation requirements even if the USACE does not, and it should be noted that the State of California's jurisdiction to regulate its water resources is much broader than that of the federal government. The SWRCB works in coordination with the RWQCBs to preserve, protect, enhance, and restore water quality. Each RWQCB makes decisions related to water quality for its jurisdiction and has the authority to approve, with or without conditions, or deny projects that could affect waters of the state under CWA Section 401 and Porter-Cologne.

Pursuant to the CWA, projects that are regulated by the USACE must also obtain a Section 401 Water Quality Certification permit from the RWQCB. This certification ensures that the proposed project will uphold state water quality standards. Because California's jurisdiction to regulate its water resources is much broader than that of the federal government, proposed impacts on waters of the State require Water Quality Certification

even if the area occurs outside of USACE jurisdiction. Moreover, the RWQCB may impose mitigation requirements even if the USACE does not. Under the Porter-Cologne, the SWRCB and the nine regional boards also have the responsibility of granting CWA National Pollutant Discharge Elimination System (NPDES) permits and Waste Discharge Requirements for certain point-source and non-point discharges to waters. These regulations limit impacts on aquatic and riparian habitats from a variety of urban sources.

Project Applicability: Field surveys in 2018 and 2020 identified three biotic habitats which may be considered waters of the state and subject to jurisdiction by the RWQCB. Waters of the state include aquatic riverine, perennial freshwater marsh, and portions of riparian woodland, where riparian trees are rooted below the tops of the banks of Pilarcitos Creek or the perennial freshwater marsh impoundment (Figure 5). Although no impacts to Pilarcitos Creek or the perennial freshwater marsh are anticipated, Waste Discharge Requirements from the RWQCB would be needed if the project were to impact any riparian trees rooted below the tops of the banks of these waterbodies.

3.2.2 California Endangered Species Act

The California Endangered Species Act (CESA; California Fish and Game Code, Chapter 1.5, Sections 2050-2116) prohibits the take of any plant or animal listed or proposed for listing as rare (plants only), threatened, or endangered. In accordance with CESA, the CDFW has jurisdiction over state-listed species (Fish and Game Code 2070). The CDFW regulates activities that may result in "take" of individuals (i.e., "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill"). Habitat degradation or modification is not expressly included in the definition of "take" under the California Fish and Game Code. The CDFW, however, has interpreted "take" to include the "killing of a member of a species which is the proximate result of habitat modification."

Project Applicability: As noted previously, the Central California Coast coho salmon, which is state listed as endangered, is not expected to occur in the reach of Pilarcitos Creek within the BSA. The state endangered San Francisco garter snake is present within the vicinity of the BSA, and suitable habitat is present in the BSA. Implementation of avoidance and minimization measures will avoid take of these species as defined by CESA.

The Santa Cruz Mountains subpopulation of mountain lion (*Puma concolor*) – recently accepted by the California Fish and Game Commission as a candidate species, warranted for listing under CESA (California Fish and Game Commission 2020) – is known to occur year-round within the surrounding vicinity of the BSA (Santa Cruz Puma Project 2018). Movement records of multiple mountain lions fitted with GPS-enabled wildlife-tracking collars have shown individual lions moving through the surrounding area of the BSA over the past 10 years (Santa Cruz Puma Project 2018). The BSA does not provide suitable breeding and denning habitat due to the level and frequency of human disturbances that occur within or near the BSA. Thus, individual mountain lions are expected to occur within the BSA very infrequently, if at all, and then only as transients as they move across their extensive home ranges. As a result, no take of this species (as defined by CESA) will result from the project.

There are seven state endangered, threatened, or candidate plant species that occur within the project vicinity with the potential to occur in the BSA. They include San Mateo thorn-mint, Crystal Springs fountain thistle, San Mateo woolly sunflower, white-rayed pentachaeta, Hickman's cinquefoil, Marin western flax, and coast yellow leptosiphon (*Leptosiphon croceus*). One state rare plant species protected under the California Native Plant Protection Act, Dudley's lousewort (*Pedicularis dudleyi*), is known to occur in the project region. Of these eight state listed or state rare plants, no species are anticipated to occur within the BSA. As mentioned above, suitable serpentine and or coastal scrub and prairie habitats are not present for the six species that are also federally listed. Coast yellow leptosiphon is found only on coastal bluffs, which are not present in the BSA, and Dudley's lousewort is found in redwood forest and chaparral habitats that are absent from the BSA, while the grasslands on site are too disturbed to be able to support the species. Additionally, no individuals of any state listed or rare species were observed during the field surveys conducted by qualified botanists in June 2018 and 2020. Therefore, state-listed or state-rare plants are considered absent and will not be impacted by the project.

3.2.3 California Environmental Quality Act

CEQA is a state law that requires state and local agencies to document and consider the environmental implications of their actions and to refrain from approving projects with significant environmental effects if there are feasible alternatives or mitigation measures that can substantially lessen or avoid those effects. CEQA requires the full disclosure of the environmental effects of agency actions, such as approval of a general plan update or the projects covered by that plan, on resources such as air quality, water quality, cultural resources, and biological resources. The State Resources Agency promulgated guidelines for implementing CEQA are known as the State CEQA Guidelines.

Section 15380(b) of the State CEQA Guidelines provides that a species not listed on the federal or state lists of protected species may be considered rare if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definitions in FESA and CESA and the section of the California Fish and Game Code dealing with rare or endangered plants and animals. This section was included in the guidelines primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on a species that has not yet been listed by either the USFWS or CDFW or species that are locally or regionally rare.

The CDFW has produced three lists (amphibians and reptiles, birds, and mammals) of "species of special concern" that serve as "watch lists". Species on these lists are of limited distribution or the extent of their habitats has been reduced substantially, such that threat to their populations may be imminent. Thus, their populations should be monitored. They may receive special attention during environmental review as potential rare species, but do not have specific statutory protection. All potentially rare or sensitive species, or habitats capable of supporting rare species, are considered for environmental review per the CEQA Section 15380(b).

The CNPS, a non-governmental conservation organization, has developed CRPRs for plant species of concern in California in the Inventory of Rare and Endangered Plants (CNPS 2017). The CRPRs include lichens, vascular, and non-vascular plants, and are defined as follows:

- CRPR 1A Plants considered extinct.
- CRPR 1B Plants rare, threatened, or endangered in California and elsewhere.
- CRPR 2A Plants considered extinct in California but more common elsewhere.
- CRPR 2B Plants rare, threatened, or endangered in California but more common elsewhere.
- CRPR 3 Plants about which more information is needed - review list.
- CRPR 4 Plants of limited distribution-watch list.

The CRPRs are further described by the following threat code extensions:

- .1—seriously endangered in California;
- .2—fairly endangered in California;
- .3—not very endangered in California.

Although the CNPS is not a regulatory agency and plants on these lists have no formal regulatory protection, plants appearing as CRPR 1B or 2 are, in general, considered to meet CEQA's Section 15380 criteria, and adverse effects on these species may be considered significant. Impacts on plants that are listed by the CNPS as CRPR 3 or 4 are also considered during CEQA review, although because these species are typically not as rare as those of CRPR 1B or 2, impacts on them are less frequently considered significant.

Compliance with CEQA Guidelines Section 15065(a) requires consideration of natural communities of special concern, in addition to plant and wildlife species. Vegetation types of "special concern" are tracked in Rarefind (CNDDB 2021). Further, the CDFW ranks sensitive vegetation alliances based on their global (G) and state (S) rankings analogous to those provided in the CNDDB. Global rankings (G1–G5) of natural communities reflect the overall condition (rarity and endangerment) of a habitat throughout its range, whereas S rankings reflect the condition of a habitat within California. If an alliance is marked as a G1–G3, all the associations within it would also be of high priority. The CDFW provides the Vegetation Classification and Mapping Program's currently accepted list of vegetation alliances and associations (CDFG 2010a).

Project Applicability: All potential impacts on biological resources will likely be considered during CEQA review of any proposed project. This Biological Resources Report assesses these impacts to facilitate project planning and CEQA review of a project by the City. Project impacts are discussed in Section 6 below.

3.2.4 California Fish and Game Code

Ephemeral and intermittent streams, rivers, creeks, dry washes, sloughs, blue line streams on USGS maps, and watercourses with subsurface flows fall under CDFW jurisdiction. Canals, aqueducts, irrigation ditches, and other means of water conveyance may also be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife. A *stream* is defined in Title 14, California Code of

Regulations Section 1.72, as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and that supports fish and other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation." Using this definition, the CDFW extends its jurisdiction to encompass riparian habitats that function as part of a watercourse. California Fish and Game Code Section 2786 defines *riparian habitat* as "lands which contain habitat which grows close to and which depends upon soil moisture from a nearby freshwater source." The lateral extent of a stream and associated riparian habitat that would fall under the jurisdiction of the CDFW can be measured in several ways, depending on the particular situation and the type of fish or wildlife at risk. At minimum, the CDFW would claim jurisdiction over a stream's bed and bank. In areas that lack a vegetated riparian corridor, CDFW jurisdiction would be the same as USACE jurisdiction. Where riparian habitat is present, the outer edge of riparian vegetation is generally used as the line of demarcation between riparian and upland habitats.

Pursuant to California Fish and Game Code Section 1603, the CDFW regulates any project proposed by any person that will "substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds." California Fish and Game Code Section 1602 requires an entity to notify the CDFW of any proposed activity that may modify a river, stream, or lake. If the CDFW determines that proposed activities may substantially adversely affect fish and wildlife resources, a Lake and Streambed Alteration Agreement (LSAA) must be prepared. The LSAA sets reasonable conditions necessary to protect fish and wildlife, and must comply with CEQA. The applicant may then proceed with the activity in accordance with the final LSAA.

Specific sections of the California Fish and Game Code describe regulations pertaining to protection of certain wildlife species. For example, Code Section 2000 prohibits take of any bird, mammal, fish, reptile, or amphibian except as provided by other sections of the code.

The California Fish and Game Code Sections 3503, 3513, and 3800 (and other sections and subsections) protect native birds, including their nests and eggs, from all forms of take. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "take" by the CDFW. Raptors (i.e., eagles, hawks, and owls) and their nests are specifically protected in California under Code Section 3503.5. Section 3503.5 states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto."

Bats and other non-game mammals are protected by California Fish and Game Code Section 4150, which states that all non-game mammals or parts thereof may not be taken or possessed except as provided otherwise in the code or in accordance with regulations adopted by the commission. Activities resulting in mortality of non-game mammals (e.g., destruction of an occupied nonbreeding bat roost, resulting in the death of bats), or disturbance that causes the loss of a maternity colony of bats (resulting in the death of young), may be considered "take" by the CDFW.

Project Applicability: Field surveys in 2018 and 2020 identified two biotic habitats which may be subject to CDFW jurisdiction under Sections 1600-1603 of the California Fish and Game Code. The habitats include the aquatic riverine habitat within the bed of Pilarcitos Creek, and riparian woodland adjacent to Pilarcitos Creek (Figure 5). Most native bird, mammal, and other wildlife species that occur in the BSA and in the immediate vicinity are protected by the California Fish and Game Code.

3.2.5 State Requirements to Control Construction-Phase and Post-construction Water Quality Impacts

3.2.5.1 Construction Phase

Projects in California must comply with state requirements to control the discharge of storm water pollutants under the National Pollutant Discharge Elimination System (NPDES) Statewide Storm Water Permit (SWRCB Order No. 2014-0077-DWQ, as amended) and the Statewide Construction General Permit (SWRCB Order No. 2009-0009-DWQ, as amended). Prior to the start of construction/demolition, a Notice of Intent must be filed with the SWRCB describing the project. A Storm Water Management Plan (SWMP) must be developed and maintained during the project and must include the use of best management practices (BMPs) to protect water quality until the site is stabilized.

Standard permit conditions under these permits require that the applicant utilize various measures, including on-site sediment control BMPs, damp street sweeping, temporary cover of disturbed land surfaces to control erosion during construction, and utilization of stabilized construction entrances and/or wash racks. Additionally, both the Construction General Permit and Statewide Storm Water Permit do not extend coverage to projects if stormwater discharge-related activities are likely to jeopardize the continued existence, or result in take of any federally listed endangered or threatened species.

Project Applicability: The project will comply with the NPDES Statewide Storm Water Permit and Statewide Construction Permit; thus, construction-phase activities would not result in detrimental water quality effects on biological/regulated resources.

3.2.5.2 Post-construction Phase

In many Bay Area counties, including San Mateo County, projects must also comply with the San Francisco Bay RWQCB's Municipal Regional Stormwater NPDES Permit (Water Board Order No. R2-2009-0074, as amended). These policies, which are in line with the Statewide Storm Water Permit measures, require that all projects implement BMPs and incorporate Low Impact Development practices into project design that will prevent stormwater runoff pollution, promote infiltration, and hold/slow down the volume of water coming from a site. In order to meet these permit and policy requirements, projects must incorporate features such as increased pervious surfaces, installing tree planters, grassy swales, and bioretention or detention basins.

Project Applicability: The project will comply with the Municipal Regional Stormwater NPDES Permit and the NPDES Statewide Storm Water Permit requirements. Therefore, post-construction activities would not result in detrimental water quality effects on biological/regulated resources.

3.2.6 California Coastal Act

The California Coastal Act of 1976, administered by the California Coastal Commission, was created to provide long-term protection of California's 1,100-mile coastline for the benefit of future generations. Integral to the Coastal Act are its policies which provide for protection and expansion of public access to the shoreline and recreational opportunities and resources; protection, enhancement and restoration of environmentally sensitive habitats, including intertidal and nearshore waters, wetlands, bays, estuaries, riparian habitat, certain woodlands and grasslands, streams, lakes and habitat for rare or endangered plants or animals; protection of productive agricultural lands, commercial fisheries and archaeological resources; protection of the scenic beauty of coastal landscapes and seascapes; practical establishment of urban-rural boundaries and directing new housing and other development into areas with adequate services to avoid wasteful urban sprawl and leapfrog development; environmentally sound expansion of existing industrial ports and electricity-generating power plants, as well as for the siting of coastal dependent industrial uses; and protection against loss of life and property from coastal hazards.

The following are definitions given for specific ecological features that fall within the purview of the California Coastal Act: §30121 defines a wetland as: lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, or fens; Commission Regulation §13577(b) elaborates: wetlands are lands where the water table is at near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent or drastic fluctuation of surface water levels, wave action, water flow, turbidity or high concentrations of salt or other substance in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year and their location within, or adjacent to, vegetated wetlands or deep-water habitats…; §30107.5 defines an Environmentally Sensitive Habitat Area as any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.

Under the Coastal Act, local governments that lie in whole or in part within the Coastal Zone are required to prepare Local Coastal Programs (LCPs; Cal. Pub. Res. Code §30500). LCPs identify the location, type, densities, and other ground rules for future development in the coastal zone. Each LCP includes a land-use plan and its implementing measures. The Coastal Commission helps shape each LCP and then formally reviews them for consistency with Coastal Act standards. Once finalized, coastal permitting authority is transferred to the local government, with the exception of proposed development on the immediate shoreline, which stays with the Commission. In developing an LCP, a local government may choose to recognize specific botanical or wildlife resources as locally rare and that therefore garner protection.

Project Applicability: The entire BSA is within the Coastal Zone and subject to the City of Half Moon Bay Local Coastal Program. Projects approved by the City of Half Moon Bay under its LCP within Coastal Commission Appeals Jurisdiction are appealable to the Coastal Commission. The site is within the CCC Appeals Jurisdiction. See below for more details.

3.3 Local

3.3.1 City of Half Moon Bay Local Coastal Program Land Use Plan

Under the California Coastal Act, the California Coastal Commission (CCC) regulates development in the coastal zone, including land and water use. Any activities within the coastal zone that affect aquatic resources, including wetlands, require a coastal development permit from either the CCC or a certified Local Coastal Program (LCP; Division 20 of the Public Resources Code). The CCC is responsible for protecting coastal resources and assessing potential impacts on wetlands and other waters subject to regulation under the California Coastal Act (Sections 30330-30344). The BSA is within the jurisdiction of Half Moon Bay's LCP. The City recently updated its LCP (City of Half Moon Bay 2020); it was adopted by the City Council in October 2020 and certified by the CCC in April 2021. Projects approved by the city of Half Moon Bay under its LCP within the Coastal Commission Appeals Jurisdiction are appealable to the Coastal Commission. The site is within the CCC Appeals Jurisdiction.

City of Half Moon Bay Environmentally Sensitive Habitat Areas (ESHAs). The City of Half Moon Bay LCP Land Use Plan (2020) includes provisions for protection of Environmentally Sensitive Habitat Areas (ESHAs). More specifically, The Half Moon Bay LCP prohibits any land use or development that would have significant adverse impact on sensitive habitat areas. Development in areas adjacent to sensitive habitats shall be sited and designated to prevent impacts that could significantly degrade the sensitive habitats. Section 18.38 of the Half Moon Bay Municipal Code (City of Half Moon Bay 2021) defines sensitive habitats as any area in which plant or animal life or their habitats are either rare or especially valuable and any area that meets one of the following criteria:

- Habitats containing or supporting rare and endangered species as defined by the State Fish and Game Commission.
- All perennial and intermittent streams and their tributaries.
- Riparian areas.
- Wetlands, coastal tidelands and marshes, lakes and ponds and adjacent shore habitats.
- Coastal and offshore areas containing breeding or nesting sites and coastal areas used by migratory and resident water-associated birds for resting areas and feeding, including sea cliff faces.
- Areas used for scientific study and research concerning fish and wildlife, and existing game or wildlife refuges and reserves.

- Sand dunes.
- Marine habitats, including rocky intertidal zones.
- Sea cliffs.

Wetlands are broadly defined in Section 30121 of the California Coastal Act: "Lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, or fens."

The Coastal Commission provides further specificity in their wetlands definitions to guide the process of wetland delineation. The CCC's regulations (California Code of Regulations Title 14 (14 CCR)) establish a one parameter definition that only requires evidence of a single parameter (hydrology, hydric soils, or hydophytic vegetation) to establish wetland conditions:

"Wetlands shall be defined as land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent or drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salt or other substance in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year and their location within, or adjacent to, vegetated wetlands or deep-water habitats."

In contrast to the single-parameter definition that requires evidence of only one of three wetland indicators (hydrophytic vegetation, hydric soils, or saturated substrate), the USACE uses a three parameter definition that requires evidence of all three wetland indicators in order to classify an area as wetland. As a result, more areas qualify as wetlands under the Coastal Act than under the federal Clean Water Act. The LCP is consistent with the Coastal Act, and therefore uses the single-parameter definition.

The City of Half Moon Bay LCP defines "Riparian Area and Corridor" as an association of primarily native riparian plant and animal species within or adjacent to a watercourse. The boundary of a riparian corridor is defined by the limit of riparian vegetation or top of bank, or other confining topography, whichever is greater. The limit of riparian vegetation is determined by the drip line of canopy trees or the limit of riparian shrubs or herbaceous vegetation. This vegetation is generally interconnected by surface or subsurface flow within the watercourse. Within these boundaries, the intent of the LCP is to protect the ecosystem and any wildlife species it supports as whole, including the understory and emergent vegetation, the soil microbiology, and the water itself.

The LCP includes many measures to protect riparian habitat in Chapter 6, and defines a buffer of 50 feet outward from the limit of riparian vegetation along perennial streams or 100 feet from top of bank, whichever is greater (6-17 (a)) (Figure 5).

Project Applicability: The BSA is within the jurisdiction of the Half Moon Bay LCP and within the Coastal Zone. In accordance with the Coastal Act, many different types of projects including subdivisions, road extensions, grading, design review, and conditional use permits may require a Coastal Development Permit (CDP) to ensure that development within the Coastal Zone is consistent with all Local Coastal Program policies and the public access and public recreation policies of the Coastal Act. Field surveys in 2018 and 2020 identified four potential ESHAs which may be subject to jurisdiction under the Half Moon Bay LCP. These potential ESHAs include a perennial aquatic riverine habitat in the bed of Pilarcitos Creek, a perennial freshwater marsh, riparian woodland associated with Pilarcitos Creek, and riparian woodland (based on species composition, not due to being adjacent to a stream) adjacent to the perennial freshwater marsh impoundment.

3.3.2 Half Moon Bay Protected Trees

The City of Half Moon Municipal Code contains regulations protecting heritage trees. According to Chapter 7.40 a "heritage tree" means:

- A tree located on public or private property, exclusive of eucalyptus, with a trunk diameter of twelve inches or more, or a circumference of at least thirty-eight inches measured at forty-eight inches above ground level.
- A tree or stand of trees so designated by resolution of the city council based on its finding of special historical, environmental or aesthetic value, including a resolution adopted under former Chapter 12.16 of the City of Half Moon Bay Zoning Code.
- A tree located within the public right-of-way along the entire length of Main Street or along Kelly Avenue between San Benito Street and Highway 1. (Ord. C-2013-02 §1, 2013: Ord. C-2-12 §5, 2012: Ord. C-10-11 §1(part), 2011)

The removal of one or more heritage trees or major pruning as described in Section 7.40.040 requires a permit pursuant to procedures established by the city manager and requires the payment of a fee established by the city council. Additionally, the removal of a heritage tree pursuant to a permit issued under this chapter shall be replaced on a one-for-one basis with a minimum size twenty-four-inch-box specimen tree of a species and in a location approved by the city manager or his or her designee (Ord. C-10-11 §1(part), 2011).

Project Applicability: The BSA potentially includes heritage trees. Species include planted Monterey cypress (*Hesperocyparis macrocarpa*) and planted Monterey pine (*Pinus radiata*), mainly along the western edge of the BSA. Over 100 trees are present on the site; determining the heritage status of individual trees based on trunk size was not within the scope of this report. During detailed design of the project, removal of trees protected by the City heritage tree ordinance will be avoided and minimized to the extent feasible. Where removal of trees cannot be avoided, the project proponent will comply with the standards of the City heritage tree ordinance, including the planting of replacement trees where feasible and approval from the City Manager.

Section 4. Environmental Setting

4.1 General Biological Study Area Description

The approximately 21-acre (ac) project site is the site of a former plant nursery. A man-made impoundment is located in the northwest corner of the site. Additionally, there is infrastructure present from former nursery operations, including several unused dilapidated buildings, areas with black ground plastic (adjacent to the riparian woodland along Pilarcitos Creek), several vaulted culverts, concrete-lined ditches, and irrigation pumps and pipes. During the June 2018 site visit, a large portion of the grassland had been recently mowed. Also, sections of the grassland were covered in wood chips. As such, the ground cloths and mulch inhibit vegetation growth. The BSA is bounded on the west by high-density development associated with the City of Half Moon Bay; on the north by SR 92, a heavily used road between Half Moon Bay and Interstate 280; on the east, between SR 92 and Pilarcitos Creek, and on both sides of Pilarcitos Creek, by various small agricultural parcels with associated infrastructure and development; and on the south by agricultural parcels along Pilarcitos Creek that opens to rural land, with the Miramontes Ridge Open Space Reserve to the southeast.

The climate at the BSA is coastal Mediterranean, with most rain falling in the winter and spring. Fog and cool temperatures are common in the summer. The mean annual precipitation for the Half Moon Bay area is 28.98 inches with the majority of the rainfall occurring between the months of November and April. (WorldClimate.com 2021). Elevations within the BSA range from approximately 60 ft) to 110 ft above sea level (WGS84) (Google, Inc. 2021).

4.2 Hydrology

Pilarcitos Creek, a 13.5-mile perennial stream that flows from the western slopes of the Santa Cruz Mountains through Pilarcitos Canyon and discharges into the Pacific Ocean, meanders through the southern edge of the BSA. The creek drains approximately 30 square miles and has numerous tributaries. The BSA is approximately 1.7 mi upstream from the mouth of the creek.

A manmade impoundment approximately 200 ft by 110 ft is located in the northwest corner of the BSA. The impoundment is a raised earthen embankment design and sits at an elevation of 114 ft (WGS84). Water was previously pumped into this impoundment from Pilarcitos Creek to be used by the nursery for its operations (H. T. Harvey & Associates and RMC 2010). The pump appears to be currently inactive. However, the impoundment continues to hold water and extensive emergent vegetation and is classified as perennial freshwater marsh habitat.

4.3 Soils

Based on a review of available soil survey maps for the area including those by the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS), the BSA is generally comprised of coarse sandy loam soils adjacent to Pilarcitos Creek, such as the Farallone soil series, and grade to finer textured clay loams, such as the Tierra soil series, upslope to SR 92 (NRCS 2021a). Soils across the BSA are generally greater than 60 inches in depth with the exception of areas in the northeastern portion of the site containing Gazos (GoF3 and Gv) soils, which are less than 30 inches to a root-restrictive layer. The Farallone loam, nearly level, Gullied land, Gullied land (Gazos-Lobitos soil material), and Tierra clay loam, moderately steep, eroded soil series (totaling 12.3 acres) are listed as hydric in San Mateo County on the National Hydric Soils List (NRCS 2021b). There are eight major soil series within the BSA and are summarized in Table 1 below:

Table 1. Soils within the Project Site

Soil Series	Acreage	Hydric
Farallone loam, nearly level (FaA)	8.8	Yes
Tierra loam, steep, severely eroded (TeE3)	3.1	No
Farallone coarse sandy loam, moderately steep, eroded (FcD2)	4.5	No
Gazos and Lobitos soils, steep and very steep, severely eroded(GoF3)	1.3	No
Gullied land (alluvial soil material; Gu)	1.7	Yes
Tierra loam, sloping, eroded (TeC2)	1.1	Yes
Gullied land (Gazos-Lobitos soil material; Gv)	0.7	Yes
Tierra clay loam, moderately steep, eroded (TcD2)	0.1	No

4.4 Biotic Habitats

Reconnaissance-level surveys identified six habitat types/land uses in the BSA/project site (Figure 5): ruderal grassland, developed/landscaped, riparian woodland, perennial freshwater marsh, aquatic riverine, and non-native woodland. These habitat types are depicted in Figure 5, and the acreages of each habitat type within the larger BSA and in the project boundaries are provided in Table 2. These habitats are described in detail below, and plant species observed during the reconnaissance survey are listed in Appendix A.

Table 2. Habitat Types/Land Uses in the Biological Study Area and Project Site

Habitat Type	BSA	Project Site
Ruderal Grassland	17.40	14.27
Developed/Landscaped	17.62	3.44
Riparian Woodland	6.92	2.61
Non-native Woodland	1.62	0.00
Aquatic Riverine	0.48	0.24
Perennial Freshwater Marsh	0.38	0.38

Total	44.42	20.94

4.4.1 California Annual Grassland

Vegetation. Ruderal (i.e., disturbed) annual grassland habitat occupies most of the BSA (Photo 1). At the time of the reconnaissance survey, this habitat was dominated by non-native grasses and forbs such as wild oat (*Avena* sp.), Italian rye grass (*Festuca perennis*), ripgut brome (*Bromus diandrus*), Italian thistle (*Carduus pycnocephalus*), bristly ox-tongue (*Helminthotheca echioides*) and Chile tarweed (*Madia sativa*). Of these, Italian rye-grass and bristly ox-tongue are technically scored as facultative hydrophytes (Lichvar et al. 2016), or plants that sometimes occur in wetlands and sometimes occur in uplands, and both can potentially indicate moist conditions. However, Italian rye-grass often dominates upland areas as well, especially along the coast where frequent fog occurs, without indicating wetlands, and bristly ox-tongue is an invasive weed that can simply indicate disturbance and infestation. Additionally, there were scattered small patches of other facultative hydrophytic vegetation, including curly dock (*Rumex crispus*), poison hemlock (*Conium maculatum*), and bird's foot trefoil (*Lotus corniculatus*), all occurring in upland habitat positions and intermixed with upland grassland species. Similarly, scattered arroyo willow (*Salix lasiolepis*) and red alder (*Alnus rubra*) occur in the grassland in upland areas, and likely were able to establish due to irrigation, as no indicators of hydric soils or wetland hydrology occur in these areas. Many of the non-native species present on site are ranked as moderately invasive by the California Invasive Plant Council (Cal-IPC 2021). For example, Italian thistle has substantial and apparent, but not severe ecological impacts on physical processes, plant and animal communities, and vegetation structure (Cal-IPC 2021).



Photo 1. Ruderal grassland occurs in most of the BSA.

Wildlife. Wildlife use of California annual grasslands in the BSA is limited by frequent human disturbance, an abundance of non-native and invasive species, and isolation of the grassland habitat remnants from more extensive grasslands. As a result, wildlife species associated with more extensive grasslands, such as the grasshopper sparrow (*Ammodramus savannarum*) and western meadowlark (*Sturnella neglecta*), are absent from the small patches of grassland in the BSA. Most of the bird species using this habitat during the breeding season most likely nest in nearby landscaped, freshwater marsh, or riparian areas, using the California annual grassland only for foraging. Such species include the mourning dove (*Zenaida macroura*), lesser goldfinch (*Spinus psaltria*), dark-eyed junco (*Junco hyemalis*), American crow (*Corvus brachyrhynchos*), and Brewer's blackbird (*Euphagus cyanocephalus*). Similarly, a few species nesting on nearby buildings, such as the barn swallow (*Hirundo rustica*), rock pigeon (*Columba livia*), black phoebe (*Sayornis nigricans*), and European starling (*Sturnus vulgaris*), also forage on or over the California annual grassland habitat. Several other species of birds use the California annual grassland during the nonbreeding season. These species, which include the golden-crowned sparrow (*Zonotrichia*

atricapilla), savannah sparrow (*Passerculus sandwichensis*), and white-crowned sparrow (*Zonotrichia leucophrys*), forage on the ground or in herbaceous vegetation, primarily for seeds.

Few species of reptiles and amphibians occur in the California annual grassland in the BSA due to its disturbed nature and low habitat heterogeneity. Nevertheless, reptiles such as the western fence lizard (*Sceloporus occidentalis*) and gopher snake (*Pituophis melanoleucus*) occur in this habitat type, and amphibians such as the Pacific chorus frog (*Hyliola regilla*) and western toad (*Anaxyrus boreas*), which might breed in the perennial freshwater marsh in the BSA, might also forage here. Small mammals expected to be present include the native western harvest mouse (*Reithrodontomys megalotis*) and nonnative house mouse (*Mus musculus*), Norway rat (*Rattus norvegicus*), and black rat (*Rattus rattus*). Small burrowing mammals, such as the Botta's pocket gopher (*Thomomys bottae*) and California ground squirrel (*Spermophilus beecheyi*), are likely present, and larger mammals, such as the striped skunk (*Mephitis mephitis*), Virginia opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), and black-tailed jackrabbit (*Lepus californicus*) are also likely to occur here.

4.4.2 Developed/Landscaped

Vegetation. Developed/landscaped habitat includes areas where permanent structures and/or pavement have been placed along with planted landscaping. Such landscaping includes native Monterey pine and Monterey cypress trees. However, these trees have been installed as part of a landscape plan and do not naturally occur on site. The developed/landscaped habitat type occurs along the northeastern edge of the BSA and consists of several buildings, Conex storage containers, and dirt parking areas. The buildings are in active use by the City of Half Moon Bay (Photo 2). Additionally, there are several unused dilapidated structures, including unused concrete channels and culverts present within the grassland and adjacent to the riparian habitat. The landscaping occurs along the west, east, and north perimeters of the BSA and is dominated by up to 200 planted Monterey cypress and Monterey pine trees.



Photo 2. Developed/landscaped habitat in the northeast corner of the BSA.

Wildlife. The wildlife most often associated with developed/landscaped areas are those that are tolerant of periodic human disturbances, including introduced species such as the European starling, rock pigeon, house mouse, Norway rat, and black rat. Numerous common, native species are also able to utilize these habitats, especially the landscaped areas, including the western fence lizard, striped skunk, and a variety of birds, such as the American crow, Anna's hummingbird (*Calypte anna*), California towhee (*Melozone crissalis*), bushtit (*Psaltriparus minimus*), and California scrub-jay (*Aphelocoma californica*). In addition, unused dilapidated structures present within the grassland and adjacent to the riparian habitat, may be attractive to other nesting and/or roosting bird species in the area, such as the black phoebe. Further, the several Monterey cypress and Monterey pine trees

along the around the west, east, and north perimeters of the BSA may provide suitable nesting habitat for raptors, such as red-tailed hawks (*Buteo jamaicensis*). An examination of trees and structures in the BSA did not detect any large cavities that might provide suitable bat roosting habitat. Therefore, large roosting or maternity colonies of bats are not expected to occur in the BSA.

4.4.3 Riparian Woodland

Vegetation. Riparian woodland habitat is found along Pilarcitos Creek and around the perennial freshwater marsh. Trees observed in the riparian woodland habitat along Pilarcitos Creek include arroyo willow, red willow (*Salix laevigata*), red alder, and blue gum (*Euclayptus globulus*). The understory is an impenetrable thicket of Himalayan blackberry (*Rubus armeniacus*), cape ivy (*Delairea odorata*), poison hemlock, common horsetail (*Equisetum arvense*), French broom (*Genista monspessulana*), hoary nettle (*Urtica dioica* ssp. *holosericea*), bristly ox-tongue, pampass grass (*Cortaderia jubata*), and Italian rye grass (Photo 3).



Photo 3. Riparian habitat along Pilarcitos Creek (in the background), which runs along the entire southern edge of the BSA.

The dominant tree in the riparian woodland surrounding the perennial freshwater marsh is arroyo willow (*Salix lasiolepis*). While this area is not adjacent to a flowing watercourse or associated with a bed and banks drainage, the species composition is similar to nearby riparian woodland along Pilarcitos Creek and most resembles a riparian woodland habitat as described in the City's LCP (2020). Species observed in the understory include poison hemlock, Italian rye grass, Himalayan blackberry, pampass grass, Italian thistle, and common velvetgrass (*Holcus lanatus*).

Many of these non-native forb species are ranked as highly or moderately invasive by the California Invasive Plant Council (Cal-IPC 2021). For example, cape ivy, pampas grass, French broom, and Himalayan blackberry are classified as highly invasive and have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Species such as poison hemlock, Italian thistle, and common velvetgrass are classifies as moderately invasive and have substantial and apparent, but not severe ecological impacts on physical processes, plant and animal communities, and vegetation structure (Cal-IPC 2021).

Wildlife. The riparian woodland provides suitable nesting habitat for a variety of common, resident bird species such as the California scrub-jay, American robin (*Turdus migratorius*), American crow, lesser goldfinch, and bushtit. Numerous species of migratory birds also use this riparian woodland. These include species such as

the black-headed grosbeak (*Pheucticus melanocephalus*), Wilson's warbler (*Cardellina pusilla*), and Swainson's thrush (*Catharus ustulatus*) that breed in this habitat but migrate south for winter, and the ruby-crowned kinglet (*Regulus calendula*), Townsend's warbler (*Setophaga townsendi*), and hermit thrush (*Catharus guttatus*) that occur here only in winter. The red-shouldered hawk (*Buteo lineatus*) and Cooper's hawk (*Accipiter cooperii*) may use larger trees along the riparian woodland corridors for nesting. However, no old raptor nests were detected within the riparian woodland habitat during the reconnaissance survey.

Arboreal salamanders (*Aneides lugubris*), western fence lizards, and western skinks (*Eumeces skiltonianus*) are expected to occur in riparian habitat in the BSA. Additional wildlife species that are common within riparian woodland areas in urban settings include the striped skunk and raccoon, and the non-native Virginia opossum and eastern gray squirrel (*Sciurus carolinensis*), all of which may use the trees for roosting, foraging, and nesting opportunities. Individual bats may be attracted to riparian areas to roost in trees. However, examination of the trees along the banks of Pilarcitos Creek and in the BSA did not detect any large cavities that might provide suitable habitat for a large roosting or maternity colony of bats.

4.4.4 Perennial Freshwater Marsh

Vegetation. The perennial freshwater marsh occurs within an impoundment in the northwest corner of the BSA. The impoundment was constructed between 1987 and 1991 (Google Inc. 2021; NETR 2021), used for irrigation purposes, and was filled by an on-site water pump (Photo 4). At the time of the site visit, the water pump appeared non-functional and is not likely used to currently pump water into the marsh. Thus, the hydrology that feeds the marsh is likely a combination of a groundwater table and surface runoff. The marsh was ponded during the site visits at a depth of approximately 2 ft, and was dominated by common cattail (*Typha latifolia*). Based on the berms enclosing the impoundment, maximum ponding depth is approximately 4 ft, though without water being pumped into the basin it is likely that it does not pond at that depth currently. Other species observed include duckweed (*Lemna* sp.), rabbitsfoot grass (*Polypogon monspeliensis*), and tall flatsedge (*Cyperus eragrostis*). The marsh is surrounded by riparian woodland (see Section 4.4.3 above), and is fenced off from the rest of the parcel.



Photo 4. Dense cattail-dominated perennial freshwater marsh in the west side of the BSA. Riparian habitat surrounds the marsh.

Wildlife. Normally, the presence of a perennial freshwater marsh on a site would provide habitat for a diverse suite of wetland-associated wildlife species. However, the relatively small size, scarcity of open water, and dynamic ponding depth of the perennial freshwater marsh in the BSA preclude many wetland and aquatic

wildlife species from using these features. Waterbirds such as ducks, gulls, and terns are not expected to occur in this freshwater perennial marsh. Similarly, passerine birds associated with more extensive wetlands, such as the marsh wren (*Cistothorus palustris*), are not expected to nest here, although the San Francisco common yellowthroat (*Geothlypis trichas sinuosa*) could nest in this marsh. Amphibians such as the Pacific chorus frog, western toad, and the federally threatened California red-legged frog may breed here, and the federally and state endangered San Francisco garter snake may forage here. Terrestrial species that occur in adjacent habitats, such as house finches (*Haemorhous mexicanus*), bushtits, yellow-rumped warblers (*Setophaga coronata*), black phoebes, and sparrows, will forage occasionally in the freshwater wetland vegetation.

4.4.5 Aquatic Riverine

Vegetation. Within the BSA, Pilarcitos Creek is a perennial freshwater stream with a connection to groundwater. It flows overland through the southern portion of the BSA (Photo 5). It originates approximately 12 mi northeast of the BSA on the eastern flanks of Montara Mountain in the Santa Cruz Mountains, then flows south through Pilarcitos Canyon before turning westward to enter the BSA. The creek exits the BSA near the southwestern boundary and discharges into the Pacific Ocean approximately 1.7 mi downstream of the BSA. Within the BSA, Pilarcitos Creek flows through dense riparian woodland and provides unvegetated aquatic habitat. Pilarcitos Creek has been identified as a USGS blue-line stream course as well as a USFWS palustrine resource, and as of June of 2018 and 2019, was flowing up to 10 inches (in) deep within a 6-ft wide channel.



Photo 5. Pilarcitos Creek, which runs through the BSA along the southern boundary.

Wildlife. The aquatic habitat within Pilarcitos Creek supports native fish species such as the California roach (*Hesperoleucus symmetricus*), hardhead (*Mylopharodon conocephalus*), and threespine stickleback (*Gasterosteus aculeatus*). In addition, the federally threatened Central California Coast steelhead and California red-legged frog, and federally and state endangered San Francisco garter snake have been documented within Pilarcitos Creek (CDFW 2013, CNDDB 2021). Pacific chorus frogs, California newts (*Taricha torosa*), western pond turtles (*Actinemys marmorata*), non-native bullfrogs (*Lithobates catesbeianus*) and crayfish (*Pacifastacus leniusculus*) may be present in the creek, and birds such as the green heron (*Butorides virescens*), and belted kingfisher (*Ceryle alcyon*) likely forage in the creek. Bats forage aerially on insects over Pilarcitos Creek. During the reconnaissance survey, two unidentified species of bat were observed foraging amongst the trees along the edge of the channel, just upstream from the BSA.

Section 5. Special-Status Species and Sensitive Habitats

CEQA requires assessment of the effects of a project on species that are protected by state, federal, or local governments as "threatened, rare, or endangered"; such species are typically described as "special-status species". For the purpose of the environmental review of the project, special-status species have been defined as described below. Impacts on these species are regulated by some of the federal, state, and local laws and ordinances described in Section 3.0 above.

For purposes of this analysis, "special-status" plants are considered plant species that are:

- Listed under FESA as threatened, endangered, proposed threatened, proposed endangered, or a candidate species.
- Listed under CESA as threatened, endangered, rare, or a candidate species.
- Listed by the CNPS as CRPR 1A, 1B, 2, 3, or 4.

For purposes of this analysis, "special-status" animals are considered animal species that are:

- Listed under FESA as threatened, endangered, proposed threatened, proposed endangered, or a candidate species.
- Listed under CESA as threatened, endangered, or a candidate threatened or endangered species.
- Designated by the CDFW as a California species of special concern.
- Listed in the California Fish and Game Code as fully protected species (fully protected birds are provided in Section 3511, mammals in Section 4700, reptiles and amphibians in Section 5050, and fish in Section 5515).

Information concerning threatened, endangered, and other special-status species that potentially occur in the BSA was collected from several sources and reviewed by H. T. Harvey & Associates biologists as described in Section 2.1 above. Figure 3 depicts CNDDB records of special-status plant species in the general vicinity of the BSA and Figure 4 depicts CNDDB records of special-status animal species. These generalized maps show areas where special-status species are known to occur or have occurred historically.

5.1 Special-Status Plant Species

A list of 73 special-status plant species thought to have some potential for occurrence within the BSA was compiled using the CNPS rare plant inventory (CNPS 2021) and CNDDB records (CNDDB 2021). Analysis of the documented habitat requirements and occurrence records of these plants, and our plant ecologist's knowledge of sensitive species considered, allowed us to reject 72 of the 73 species as not having a reasonable potential to occur within the BSA for at least one of the following reasons: (1) lack of suitable habitat types; (2) absence of specific microhabitat or edaphic requirements, such as serpentine soils; (3) the species is presumed

extirpated or is not expected to occur in the Project vicinity due to range; and/or (4) the site is too disturbed to be expected to support the species. As the BSA is largely composed of historically manipulated agricultural land, as well as areas with little habitat value (developed land cover), the BSA does not have the capacity to support most special-status plants. Additionally, large sections of the BSA appear to be covered with wood chips as well as regularly mowed. The CNDDB shows records for the CNPS-ranked species coastal marsh milk-vetch (*Astragalus pycnostachyus* var. *pycnostachyus*), Kellogg's horkelia *(Horkelia uneate* subsp. *sericea*), Choris's popcorn-flower (*Plagiobothrys chorisianus var. chorisianus*), Kings Mountain manzanita (*Arctostaphylos regismontana*), Anderson's manzanita (*Arctostaphylos andersonii*), Franciscan onion (*Allium peninsulare* var. *franciscanum*), western leatherwood (*Dirca occidentalis*), and Crystal Springs lessingia (*Lessingia arachnoidea*) occurring within 5 miles of the BSA. However, no suitable salt marsh habitat (coastal marsh milk-vetch), coastal prairie habitat (Choris's popcorn-flower), scrub or chaparral habitat or sandy soils (manzanita species and Kellogg's horkelia), or serpentine soils (Franciscan onion, Crystal Springs lessingia) occur within the BSA, and the site is too disturbed to support western leatherwood, which was also not observed on site during reconnaissance surveys. Therefore, despite nearby records, all of these species are considered absent from the BSA.

Appendix B lists these plants along with the basis for the determination of absence. Suitable habitat and edaphic requirements were determined to be present in the BSA for one plant species, Harlequin lotus (*Hosackia gracilis*), which is discussed in detail below.

Harlequin lotus, CNPS List: 4.2. Harlequin lotus is a perennial rhizomatous herb in the legume (Fabaceae) family that occurs in wetlands, wet roadside ditches, and mesic areas in many plant communities (CNPS 2021); therefore, this species could occur within the perennial freshwater marsh and surrounding riparian woodland, the riparian woodland along Pilarcitos Creek, the ephemeral ditch, and possibly mesic areas within the California annual grassland. However, it was not observed during the field-level reconnaissance survey conducted in June 2018 at the height of its bloom period. It has a CRPR of 4.2 (i.e., watch list for plants of limited distribution or are infrequent throughout a broader area in California; moderately threatened in California). It is known mainly from coastal areas as far north as Del Norte County and as far south as San Luis Obispo County. It is threatened by development, grazing, feral pigs, habitat alteration, and competition. This species is thought to be a larval food plant of the federally endangered lotis blue butterfly (*Lycaeides argyrognomon* ssp. *lotis*). Within San Mateo County, recent recorded occurrences are from coastal prairie and coastal scrub habitats within Año Nuevo State Park as well as McNee Ranch State Park., near Montara. The blooming period for this species extends from March through July. Although this species was not observed during its blooming period during reconnaissance surveys, the dense riparian woodland provides at least marginally suitable habitat on the lower banks. A focused survey would be necessary to definitively confirm presence of absence, though such a survey is necessary only if an LCP-compatible use is proposed within the riparian corridor.

5.2 Special-Status Animal Species

The legal status and likelihood of occurrence in the BSA of special-status animal species known to occur, or potentially occurring, in the region of the BSA are presented in Appendix C. Most of the special-status species

listed in Appendix C are not expected to occur in the BSA because it lacks suitable habitat, is outside the known range of the species, and/or is isolated from the nearest known extant populations by development or otherwise unsuitable habitat. Animal species not expected to occur in the BSA for these reasons include the Bay checkerspot butterfly (*Euphydryas editha bayensis*), mission blue butterfly (*Plebejus icarioides missionensis*), Myrtle's silverspot butterfly (*Speyeria zerene myrtleae*), San Bruno elfin butterfly (*Callophrys mossii bayensis*), Crotch bumble bee (*Bombus crotchii*), western bumble bee (*Bombus occidentalis*), Delta smelt (*Hypmesus transpacificus*), longfin smelt (*Spirinchus thaleichthys*), tidewater goby (*Eucyclogobius newberryi*), California giant salamander (*Dicamptodon ensatus*), California tiger salamander (*Ambystoma californiense*), foothill yellow-legged frog (*Rana boylii*), Santa Cruz black salamander (*Aneides niger*), American badger (*Taxidea taxus*), salt marsh harvest mouse (*Reithrodontomys raviventris*), Alameda song sparrow (*Melospiza melodia pusillula*), bank swallow (*Riparia riparia*), burrowing owl (*Athene cunicularia*), and marbled murrelet (*Brachyramphus marmoratus*).

Six special-status animal species have the potential to occur in the BSA only as visitors, migrants, or transients, but are not expected to reside or breed, or occur in large numbers, or otherwise make substantial use of the BSA. These species include the monarch butterfly (*Danaus plexippus*), pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), American peregrine falcon (*Falco peregrinus anatum*), northern harrier (*Circus cyaneus*), and mountain lion.

Expanded descriptions are provided below for seven species that could potentially breed in the BSA or for which additional information is necessary due to the species' frequency or regularity of occurrence in the BSA.

5.2.1 Federal and State Endangered and Threatened Species

Central California Coast Steelhead (*Oncorhynchus mykiss irideus*). Federal Listing Status: Threatened; State Listing Status: None. The Central California Coast (CCC) steelhead DPS was listed as a threatened species on August 18, 1997 (NMFS 1997), and the threatened status was reaffirmed on January 5, 2006 (NMFS 2006). Critical habitat was designated for the CCC steelhead DPS on September 2, 2005 (NMFS 2005), and a final recovery plan was published in October 2016. Similar to CCC coho salmon, steelhead populations in many areas have declined due to degradation of spawning habitat, introduction of barriers to upstream migration, over-harvesting by recreational fisheries, and reduction in winter flows due to damming and spring flows due to water diversions (NMFS 1997). In addition, non-native fish species, such as striped bass (*Morone saxatilis*), common carp (*Cyprinus carpio*), and white catfish (*Ameiurus catus*), may pose risks to native steelhead populations through predation, competition, and habitat modification. Increasing predation pressure at river mouths and in the ocean from the growing California sea lion population is also posing significant risk to CCC steelhead.

Steelhead are found along the entire Pacific Coast of the United States. The CCC steelhead DPS includes all naturally spawned populations of steelhead in coastal streams from the Russian River (inclusive) to Aptos Creek (inclusive), and the drainages of San Francisco, San Pablo, and Suisun Bays eastward to Chipps Island at the confluence of the Sacramento and San Joaquin Rivers; and tributary streams to Suisun Marsh including Suisun

Creek, Green Valley Creek, and an unnamed tributary to Cordelia Slough (commonly referred to as Red Top Creek), exclusive of the Sacramento-San Joaquin River Basin of the California Central Valley.

Steelhead in the CCC DPS are winter-spawning steelhead, maturing in the ocean and spawning shortly after entering freshwater. Winter steelhead enter rivers and streams in the late fall and winter months when higher flows and associated lower water temperatures occur. Adult female steelhead will prepare a redd (or nest) in a gravel-bottomed, fast-flowing, well-oxygenated rivers and streams. Preferred streams typically support dense canopy cover that provides shade, woody debris, and organic matter, and are usually free of rooted or aquatic vegetation. The length of the incubation period is dependent on water temperature. Fry emerge from the gravel, and rear along the stream margins, moving gradually into pools and riffles as they grow larger. Young juveniles feed primarily on aquatic invertebrate drift.

In California, juveniles usually live in freshwater for 2 years (Barnhart 1986) with a range of one to 3 years (Shapovalov and Taft 1954, Busby et al. 1996) then smolt and migrate to the sea; because of this multi-year rearing time period, steelhead can only spawn in tributaries that maintain suitable temperature and other water quality parameters year-round. Most downstream smolt migration takes place between February and June. Fukushima and Lesh (1998) report the peak timing of steelhead smolt outmigration in Central California occurs in March, April, and May, while Barnhart (1986) reports most steelhead smolts in California enter the sea in March and April.

In a recent survey of coastal drainages south of San Francisco Bay, steelhead populations were either extinct or reduced in size from historical levels in at least half of the 168 surveyed mainstem streams and primary tributaries (Titus et al. in prep). In addition, only 14 percent of the streams had steelhead present where there was no discernible, significant change from historical production levels. Steelhead in most tributaries to San Francisco and San Pablo bays have been virtually extirpated (McEwan and Jackson 1996).

CCC Steelhead are known to occur in Pilarcitos Creek (CDFW 2013, CNDDB 2021); however, passage upstream is impeded at multiple culverts, and the Pilarcitos Creek Watershed Assessment Plan identified the majority of habitat in the watershed to be in "poor" condition (Phillip Williams & Associates 2008). Opportunities to protect and restore fish passage and habitat connectivity within the watershed, such as road crossing improvements, have been developed and are being implemented under the watershed assessment plan. This effort could improve habitat conditions and increase the local presence of adult and juvenile CCC steelhead.

Habitat conditions in the BSA are suitable to support freshwater migration of adult and juvenile CCC steelhead. The BSA does not support suitable habitat for spawning, rearing, or feeding during most times of the year due to the lack of channel complexity, gravels, or connectivity with an adjacent floodplain. As a result, steelhead are only present in the section of Pilarcitos Creek in the BSA during upstream and downstream migration, which occurs late fall into spring.

Designated critical habitat for CCC steelhead includes aquatic habitat within the BSA (NMFS 2005). One of the primary constituent elements (PCEs) of critical habitat essential to the conservation of the species is present within the BSA. This PCE consists of freshwater migration corridors free of obstruction with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival. These features are essential to conservation because without them juveniles cannot use the variety of habitats that allow them to avoid high flows, avoid predators, successfully compete, begin the behavioral and physiological changes needed for life in the ocean, and reach the ocean in a timely manner. Similarly, these features are essential for adults because they allow fish in a nonfeeding condition to successfully swim upstream, avoid predators, and reach spawning areas on limited energy stores. PCEs for CCC steelhead that do not occur in the BSA include freshwater spawning and rearing, as well as estuarine and marine habitats.

California Red-legged Frog (*Rana draytonii*). Federal Listing Status: Threatened; State Listing Status: Species of Special Concern. California red-legged frogs inhabit perennial freshwater pools, streams, and ponds throughout the Central California Coast Range as well as isolated portions of the western slopes of the Sierra Nevada (Fellers 2005). Their preferred breeding habitat consists of deep perennial pools with emergent vegetation for attaching egg clusters (Fellers 2005), as well as shallow benches to act as nurseries for juveniles (Jennings and Hayes 1994). Nonbreeding frogs may be found adjacent to streams and ponds in grasslands and woodlands, and may travel up to 2 mi from their breeding locations across a variety of upland habitats (Bulger et al. 2003, Fellers and Kleeman 2007).

The historical distribution of California red-legged frogs extended from the city of Redding in the Central Valley and Point Reyes National Seashore along the coast, south to Baja California, Mexico. The species' current distribution includes isolated locations in the Sierra Nevada and the San Francisco Bay area, and along the central coast (USFWS 2002). The California red-legged frog was listed as threatened in June 1996 (USFWS 1996) based largely on a significant range reduction and continued threats to surviving populations (Miller 1994). Revised critical habitat was designated in March 2010 (USFWS 2010a). No critical habitat for this species overlaps the BSA, but critical habitat Unit SNM-1 (San Mateo) is located approximately 0.08 mi southeast of the BSA (Figure 5; USFWS 2010a).

California red-legged frog adults and larvae have been found in a breeding pond in the vicinity of Pilarcitos Creek about 1.3 mi northwest of the BSA as recently as 2016, California red-legged frog adults were observed in Pilarcitos Creek about 0.5 mi west of the BSA in 2006, and California red-legged frog adults and juveniles were observed in the perennial freshwater marsh in the BSA in 2005 (H. T. Harvey & Associates and RMC 2010, CNDDB 2021). Due to the presence of juvenile frogs, it is likely there was active breeding in the perennial freshwater marsh during the observations. Since these observations, no recent species-specific surveys of this species have been conducted in the BSA.

If still present, California red-legged frog use of the site would be foraging and dispersal in Pilarcitos Creek and foraging, dispersal, and possibly breeding in the perennial freshwater marsh. The use of this species of the BSA

outside of these habitats would be for upland dispersal in the annual grassland between the perennial freshwater marsh and the creek, but they may disperse elsewhere as well. It is therefore possible that California red-legged frogs could disperse throughout the entire BSA. Frogs are most likely to disperse in the spring and early summer when juveniles would leave the pond, and adults may move to and from the perennial freshwater marsh during warm winter rains. During the wet season, frogs may be found in upland areas around the creek and marsh. They are generally considered to forage up to 300 feet from aquatic habitat.

San Francisco Garter Snake (*Thamnophis sirtalis tetrataenia*). Federal Listing Status: Endangered; State Listing Status: Endangered. The historical distribution of the San Francisco garter snake included wetland areas on the San Francisco peninsula from the San Francisco County line south along the eastern and western foothills of the Santa Cruz Mountains to at least Upper Crystal Springs Reservoir and Año Nuevo Point in San Mateo County, and Waddell Creek in Santa Cruz County. Today, the San Francisco garter snake is restricted to San Mateo County and has been found in creeks in Half Moon Bay (H. T. Harvey & Associates 1999).

The San Francisco garter snake is a medium-sized snake that occurs in a number of aquatic and terrestrial habitats throughout their range. Juveniles and adults have been observed in natural lagoons, dune ponds, pools in or next to streams, streams, marshlands, sag ponds, and springs, as well as human-created stock ponds, canals, golf course ponds, irrigation ponds, sand and gravel pits (containing water), and large reservoirs (USFWS 1985). The presence of adjacent upland areas with abundant small mammal burrows is also important as hibernation sites for snakes during the winter (Larsen 1994). The most abundant populations of snakes are found in natural sag ponds or artificial waterways that have been allowed to develop a dense cover of vegetation such as willows, bulrushes, cattails, and tules and have dense populations of Pacific tree frogs (Barry 1993, 1994).

San Francisco garter snakes are most active from March to September although they can be observed during any month of the year (Barry 1994, Larsen 1994). Adults mate during the spring (March-April) and fall (September-November), with the latter breeding period characterized by reproductive aggregations of several males and one female. Neonates, which are normally 7-8 inches in total length, are usually born alive in litters of 1-35 (average 16) during late July to early August, although litters can be born as late as early September.

The San Francisco garter snake population in San Mateo County has been severely reduced throughout most of its range due to habitat loss and development; however, the Project region still supports an extant population of the species. San Francisco garter snakes have been documented within the region of the BSA as recently as 2008. Exact CNDDB locations of San Francisco garter snakes are suppressed because of concern about illegal collection of the species. However, there are two CNDDB records for the Half Moon Bay USGS quadrangle, both associated with Pilarcitos Creek, the closest one at approximately 0.5 mi downstream of the BSA in 2004 (CNNDB 2021). Because the primary prey species of the snake is the California red-legged frog, an established population of California red-legged frogs in the perennial freshwater marsh would elevate the likelihood that

the snake could occur in the BSA. Nevertheless, it is difficult to estimate or determine the likelihood of the snake occurring in the BSA in the absence of detailed surveys or further confirmed observations nearby.

San Francisco garter snakes can move into upland habitats during summer to prey on amphibians aestivating in small mammal burrows (Barry 1993). They could potentially forage on amphibians in Pilarcitos Creek and the perennial freshwater marsh and disperse and/or aestivate throughout the BSA. The San Francisco garter snake is therefore considered potentially present throughout the BSA.

5.2.2 California Species of Special Concern

Western Pond Turtle (*Actinemys marmorata*). Federal Listing Status: None; State Listing Status: Species of Special Concern. The western pond turtle occurs in ponds, streams, and other wetland habitats in the Pacific slope drainages of California and northern Baja California, Mexico (Bury and Germano 2008). The central California population was historically present in most drainages on the Pacific slope (Jennings and Hayes 1994), but streambed alterations and other sources of habitat destruction, exacerbated by frequent drought events, have caused substantial population declines throughout most of the species' range (Stebbins 2003). Ponds or slack-water pools with suitable basking sites (such as logs) are an important habitat component for this species, and western pond turtles do not occur commonly along high-gradient streams. Females lay eggs in upland habitats, in clay or silty soils in unshaded (often south-facing) areas up to 0.25 mi from aquatic habitat (Jennings and Hayes 1994). Juveniles feed and grow in shallow aquatic habitats (often creeks) with emergent vegetation and ample invertebrate prey. Nesting habitat is typically found within 600 ft of aquatic habitat (Jennings and Hayes 1994), but if no suitable nesting habitat can be found close by, adults may travel overland considerable distances to nest. Threats to the western pond turtle include impacts to nesting habitat from agricultural and grazing activities, human development of habitat, and increased predation pressure from native and nonnative predators as a result of human-induced landscape changes.

The reach of Pilarcitos Creek within and adjacent to the BSA is degraded due to surrounding development; however, suitable basking and foraging habitat for pond turtles is present in these areas. However, suitable nesting habitat for pond turtles is not present in the BSA in upland areas adjacent to Pilarcitos Creek, because the riparian habitat is too dense for nest construction and the adjacent upland grassland habitat habitat is degraded and frequently disturbed due to the human usage of the area. In addition, the nearest CNDDB recorded observations are over 4 mi from the BSA in the area of the Crystal Springs Reservoir (CNDDB 2021). Thus, there is some potential for pond turtles to be present in the BSA, though they are likely present in low numbers and/or infrequently as dispersers but not as resident turtles prone to breeding and nesting in the upland habitats adjacent to the creek. The perennial freshwater marsh is too shallow, with emergent vegetation too thick, to be considered suitable aquatic foraging habitat for this species.

San Francisco Dusky-footed Woodrat (*Neotoma fuscipes annectens*). Federal Listing Status: None; State Listing Status: Species of Special Concern. The San Francisco dusky-footed woodrat occurs in a variety of woodland and scrub habitats from the San Francisco Peninsula south to the Pajaro River in Monterey County (Hall 1981, Zeiner et al. 1990b). Woodrats prefer riparian and oak woodland forests with dense

understory cover, or thick chaparral habitat (Lee and Tietje 2005). Although woodrats are locally common in many areas, habitat conversion and increased urbanization, as well as increasing populations of introduced predators, such as domestic cats (*Felis catus*), pose substantial threats to this subspecies (H. T. Harvey & Associates 2008). Dusky-footed woodrats build large, complex nests of sticks and other woody debris, which may be maintained by a series of occupants for several years (Carraway and Verts 1991). Woodrats also are very adept at making use of human-made structures, and can nest in electrical boxes, pipes, wooden pallets, and even portable storage containers. Woodrat nest densities increase with canopy density and with the presence of poison oak (Carraway and Verts 1991). Although the San Francisco dusky-footed woodrat is described as a generalist omnivore, individuals may specialize on local plants that are available for forage (Haynie et al. 2007). The breeding season for the dusky-footed woodrat begins in February and sometimes continues through September, with females bearing a single brood of one to four young per year (Carraway and Verts 1991).

A San Francisco dusky-footed woodrat nest was observed near Pilarcitos Creek over 3 mi east-northeast of the BSA in 2007 (CNDDB 2021). The riparian forest in the BSA provides suitable habitat for dusky-footed woodrats. Although no nests were observed in the riparian woodland habitat in the BSA during the reconnaissance survey, this species could potentially nest and forage in, and disperse through, the riparian habitat along Pilarcitos Creek and around the freshwater marsh.

San Francisco Common Yellowthroat (*Geothlypis trichas sinuosa*). Federal Listing Status: None; State Listing Status: Species of Special Concern. The San Francisco common yellowthroat inhabits emergent vegetation and nests in fresh and brackish marshes and moist floodplain vegetation around the San Francisco Bay. Common yellowthroats will use small and isolated patches of habitat as long as groundwater is close enough to the surface to encourage the establishment of dense stands of rushes (*Scirpus* and *Juncus* spp.), cattails, willows, and other emergent vegetation (Nur et al. 1997, Gardali and Evens 2008). Ideal habitat, however, is composed of extensive, thick riparian, marsh, or herbaceous floodplain vegetation in perpetually moist areas, where few or no brown-headed cowbirds are present (Menges 1998). San Francisco common yellowthroats nest primarily in fresh and brackish marshes, although they will also nest in salt marsh habitats that support tall vegetation (Guzy and Ritchison 1999). This subspecies builds open-cup nests low in the vegetation, and nests from mid-March through late July (Guzy and Ritchison 1999, Gardali and Evens 2008).

The San Francisco common yellowthroat is one of approximately 12 subspecies of common yellowthroat recognized in North America, two of which occur in the region of the BSA: the California Species of Special Concern, *G. t. sinuosa*, and the widespread subspecies, *G. t. arizela*. Common yellowthroats nesting in the BSA are likely of the special-status *sinuosa* subspecies, but intergrades between the two subspecies may also occur in this area (SFBBO 2012). Because subspecies cannot be reliably distinguished in the field, determination of the presence of the San Francisco common yellowthroat can be achieved only by locating birds that are actively nesting within the breeding range known for the subspecies.

Nesting San Francisco common yellowthroats have been recorded in the vicinity of the BSA (Sequoia Audubon Society 2001), and observations of individuals have been recorded within the Pilarcitos Creek riparian habitat

less than a mile west of the BSA as recently as 2017 (Cornell Lab of Ornithology 2021). The species may nest in taller vegetation within the perennial freshwater marsh in the BSA, and possibly in riparian habitat along Pilarcitos Creek and around the marsh.

Yellow Warbler (*Setophaga petechia*). Federal Listing Status: None; State Listing Status: Species of Special Concern. In California, the yellow occupies wooded riparian habitats (Heath 2008). This species prefers riparian corridors with an overstory of mature cottonwoods and sycamores, a midstory of box elder and willow, and a substantial shrub understory (Bousman 2007), particularly in areas with more open space adjacent to the riparian habitat. Yellow warblers construct open-cup nests in upright forks of shrubs or trees in dense willow thickets or other dense vegetation (Lowther et al. 1999).

The yellow warbler is an uncommon to rare breeder in wooded riparian habitats, occurring primarily in association with alders and willows, in San Mateo County. Riparian woodlands in the County provide suitable nesting and foraging habitat for this species, but the species is scarce and local, being particularly scarce as a breeder on the immediate coast (Sequoia Audubon Society 2001). Nevertheless, it is possible that one or two pairs could potentially breed in riparian habitat in the BSA along Pilarcitos Creek and around the marsh. Otherwise, this species is expected to occur as a common migrant in the BSA during the spring and fall.

5.2.3 State Fully Protected Species

White-tailed Kite (*Elanus leucurus*). Federal Listing Status: None; State Listing Status: Fully Protected. In California, white-tailed kites can be found in the Central Valley and along the coast in grasslands, agricultural fields, cismontane woodlands, and other open habitats (Zeiner et al. 1990a, Dunk 1995, Erichsen et al. 1996). White-tailed kites are year-round residents of the state, establishing nesting territories that encompass open areas with healthy prey populations and snags, shrubs, trees, or other substrates for nesting (Dunk 1995). Nonbreeding birds typically remain in the same area over the winter, although some movements do occur (Polite 1990). The presence of white-tailed kites is closely tied to the presence of prey species, particularly voles, and prey base may be the most important factor in determining habitat quality for white-tailed kites (Dunk and Cooper 1994, Skonieczny and Dunk 1997). Although the species recovered after population declines during the early 20th century, its populations may be exhibiting new declines because of recent increases in habitat loss and disturbance (Dunk 1995, Erichsen et al. 1996).

White-tailed kites are common residents in the vicinity of the BSA where open grassland, ruderal, or agricultural habitats are present. Large trees on and adjacent to the BSA provide suitable nesting sites. The open habitats (e.g., ruderal grasslands and agricultural areas) on and adjacent to the BSA provide potential foraging opportunities for this species. Although the developed nature and high levels of human disturbance within the BSA make it less attractive to nesting kites, an individual was observed in the vicinity of the perennial freshwater marsh in 2014 (Cornell Lab of Ornithology 2021), and this species could potentially nest and forage in the BSA.

5.3 Sensitive Natural Communities, Habitats, and Vegetation Alliances

Natural communities have been considered part of the Natural Heritage Conservation triad, along with plants and animals of conservation significance, since the state inception of the Natural Heritage Program in 1979. The CDFW determines the level of rarity and imperilment of vegetation types, and tracks sensitive communities in its Rarefind database (CNDDB 2021). Global rankings (G) of natural communities reflect the overall condition (rarity and endangerment) of a habitat throughout its range, whereas state (S) rankings reflect the condition of a habitat within California. Natural communities are defined using NatureServe's standard heritage program methodology as follows (CDFG 2007):

- G1/S1: Less than 6 viable occurrences or less than 2,000 ac.
- G2/S2: Between 6 and 20 occurrences or 2,000 to 10,000 ac.
- G3/S3: Between 21 and 100 occurrences or 10,000 to 50,000 ac.
- G4/S4: The community is apparently secure, but factors and threats exist to cause some concern.
- G5/S4: The community is demonstrably secure to ineradicable due to being common throughout the world (for global rank) or the state of California (for state rank).

State rankings are further described by the following threat code extensions:

- S1.1: Very threatened
- S1.2: Threatened
- S1.3: No current threats known

In addition to tracking sensitive natural communities, the CDFW also ranks vegetation alliances, defined by repeating patterns of plants across a landscape that reflect climate, soil, water, disturbance, and other environmental factors (Sawyer et al. 2009). If an alliance is marked G1-G3, all the vegetation associations within it will also be of high priority (CDFG 2007). The CDFW provides the Vegetation Classification and Mapping Program's (VegCAMP) currently accepted list of vegetation alliances and associations (CDFG 2010a).

Impacts on CDFW sensitive natural communities, vegetation alliances/associations, or any such community identified in local or regional plans, policies, and regulations, must be considered and evaluated under CEQA (Title 14, Division 6, Chapter 3, Appendix G of the California Code of Regulations). Furthermore, aquatic, wetland and riparian habitats are also protected under applicable federal, state, or local regulations, and are generally subject to regulation, protection, or consideration by the USACE, RWQCB, CDFW, USFWS, and/or the Half Moon Bay LCP.

Sensitive Natural Communities. There are no CDFW-classified sensitive natural communities within the BSA, However, there are two sensitive natural communities identified in the CNDDB within five miles of the BSA:

- **Northern maritime chaparral**. Northern maritime chaparral is characterized by a dense, nearly impenetrable shrub cover composed of several species. Characteristic species include chamise (*Adenostoma fasciculatum*), buckbrush (*Ceanothus cuneatus*) as well as other *Ceanothus* species, black sage (*Salvia mellifera*), and several species of manzanitas (*Manzanita* sp.). Northern maritime chaparral is not present within the BSA because none of the characteristic plant species that make up this community are present.
- **Northern coastal salt marsh**. Northern coastal salt marsh is characterized is wetland community dominated by herbaceous to sub-shrub salt-tolerant hydrophytes that typically forms a dense mat of vegetation up to three feet high. Characteristic species include pickleweed (*Salicornia* sp.), cordgrass (*Spartina* sp.), and salt grass (*Distichlis spicata*). Northern coastal salt marsh is not present within the BSA because none of the characteristic plant species that make up this community are present.

Sensitive Vegetation Alliances. There is one CDFW classified sensitive vegetation alliances within the BSA. Impacts to these plant communities may be considered significant under CEQA. Sensitive plant communities identified by CDFW within the BSA include the red willow-arroyo willow vegetation alliance, which is found within the riparian woodland along Pilarcitos Creek (Figure 3). This plant community has been identified by CDFW as "G4 S3", which means that it is rare and threatened throughout its range in California but is apparently secure throughout its range outside of California. This vegetation alliance occurs within the riparian woodland in the BSA.

Waters of the U.S./State. Pilarcitos Creek (aquatic riverine) and the perennial freshwater marsh would be considered waters of the U.S./state. Any impacts on verified waters of the U.S./state within the BSA would require a Section 404 permit from the USACE and Section 401 Water Quality Certification from the San Francisco RWQCB. Additionally, the RWQCB would also consider the riparian woodland above the OHWMs of the stream and surrounding the marsh, out to the dripline of all trees rooted within the top of bank, as important, regulated buffers to waters of the State (Figure 5). Also, Pilarcitos Creek and the full extent of its riparian canopy would be subject to lake and streambed jurisdiction administered by CDFW under Section 1600 et seq. of State Fish and Game Code (see Section 5.4).

Environmentally Sensitive Habitat Areas. The BSA contains several ESHAs or sensitive coastal resource areas:

- **Perennial freshwater stream**. Pilarcitos Creek is a perennial freshwater stream and is classified as a sensitive habitat by the Half Moon Bay LCP and is also subject to lake and streambed jurisdiction under Section 1600 et seq. of State Fish and Game Code (see Section 5.4).

- **Riparian woodland**. The riparian woodland along Pilarcitos Creek and surrounding the perennial freshwater marsh is classified as sensitive habitat by the Half Moon Bay LCP and the riparian canopy along Pilarcitos Creek is also subject to riparian jurisdiction under Section 1600 et seq. of State Fish and Game Code.

- **Perennial freshwater marsh.** The perennial freshwater marsh is classified as a sensitive wetland habitat by the Half Moon Bay LCP.

- **Potential one-parameter wetlands.** Throughout the California annual grassland habitat there are scattered patches of hydrophytic vegetation, including curly dock, poison hemlock, and bird's foot trefoil. Both curly dock and bird's foot trefoil are classified as *facultative* species (commonly occurs as either a hydrophyte or non-hydrophyte); poison hemlock is classified as a *facultative wetland* species (usually a hydrophyte but occasionally found in uplands) (Lichvar et al. 2016). CCC's regulations (California Code of Regulations Title 14 (14 CCR)) establish a one parameter definition that only requires evidence of a single parameter (hydrology, hydric soils, or hydrophytic vegetation) to establish wetland conditions. However, these species grow in both wetlands as hydrophytes and uplands as non-hydrophytes; therefore, these species may not be reliable indicators of wetlands. A formal delineation and analysis was conducted in in June 2020 and determined that none of the areas of scattered hydrophytic vegetation occurred in wetland landscape positions, some areas clearly indicated disturbance rather than wetland conditions (e.g., poison hemlock), all occurred intermixed with upland species, and none of these areas indicated the presence of a hydrophytic vegetation community, hydric soils, or wetland hydrology (H. T. Harvey & Associates 2020). Therefore, no one-parameter CCC wetlands outside of the riverine, wetland, or riparian habitats above were identified within the BSA.

- **Wild strawberry habitat**. Wild strawberry habitat is also included as a sensitive habitat in the Zoning Code and Local Coastal Program and is defined as "any undeveloped areas within one half mile of the coast" (City of Half Moon Bay 2021). The BSA is approximately 1.2 mi from the coast and therefore does not meet the definition of wild strawberry habitat due to its distance from the coast. Additionally, no strawberry plants were observed during the reconnaissance-level field survey in June 2018.

- **Bluffs, cliffs, and sea cliffs**. As defined in Section 18.38.060 of the City Code, a bluff or cliff is a scarp or a steep face of rock, decomposed rock, sediment or soil resulting from erosion, faulting, or folding of the land mass with a vertical relief of ten feet or more. A sea cliff is defined as a cliff whose toe is subject to marine erosion. There is no bluff, cliff, or sea cliff habitat present within the BSA.

Critical Habitat. Pilarcitos Creek is designated as critical habitat for the federally Threatened Central California Coast steelhead Distinct Population Segment. Critical habitat for the Central California Coast steelhead DPS was designated on September 2, 2005 and includes all river reaches and estuarine areas accessible to listed steelhead in coastal river basins from the Russian River in Sonoma County to Aptos Creek in Santa Cruz County. The San Mateo Hydrologic Unit includes the coastal streams in San Mateo County from San Pedro Creek near Pacifica to Butano Creek near Año Nuevo and the Santa Clara Hydrologic Unit includes South Bay creeks from San Francisquito Creek in Palo Alto eastward to Coyote Creek (NMFS 2005).

5.4 Non-Native and Invasive Species

Several non-native, invasive plant species occur in the BSA in the California annual grassland and riparian woodland habitat. Of these, pampas grass, cape ivy, French broom and Himalayan blackberry have the potential to cause the most severe ecological impacts, as these species can invade and degrade the margins of sensitive wetland habitat, and are rated high by the Cal-IPC (Cal-IPC 2021). In addition, creeping capeweed (*Arctotheca prostrata*), ripgut brome, Italian thistle, poison hemlock, silverleaf cotoneaster (*Cotoneaster pannosus*), dogtail grass (*Cynosurus echinatus*), Italian rye grass, bristly ox-tongue, common velvetgrass, Mediterranean hoary mustard (*Hirschfeldia incana*), meadow barley (*Hordeum murinum*), common sheep sorrel (*Rumex acetsosella*), and field hedge parsley (*Torilis arbvensis*) were observed in the BSA, are rated as limited to moderate and can have substantial and apparent ecological impacts if they spread into native, sensitive habitats (Cal-IPC 2021).

Section 6. Impacts and Mitigation Measures

CEQA and the State CEQA Guidelines provide guidance in evaluating impacts of projects on biological resources and determining which impacts will be significant. The Act defines "significant effect on the environment" as "a substantial adverse change in the physical conditions which exist in the area affected by the proposed project."

Appendix G of State CEQA Guidelines provides a checklist of other potential impacts to consider when analyzing the significance of project effects. The impacts listed in Appendix G (Chapter IV) may or may not be significant, depending on the level of the impact. For biological resources, these impacts include whether the project would:

A. "have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service"

B. "have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service"

C. "Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means"

D. "interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites"

E. "conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance"

F. "conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan"

6.1 Approach to the Analysis

As described in Section 1.1, specific project activities and locations have not been defined. However, no disturbance of Pilarcitos Creek or the perennial freshwater marsh in the northwest corner of the BSA, or use of the riparian habitat or buffer associated with Pilarcitos Creek beyond existing allowed use under the City's LCP, is anticipated. Allowed uses include 1) education and research, 2) consumptive uses as provided for in the Fish and Game Code and Title 14 of the California Administrative Code, 3) fish and wildlife management activities, 4) trails and scenic overlooks on public land(s), and 5) necessary water supply projects. Also, when no feasible or practicable alternative exists, other uses may include 1) stream-dependent aquaculture provide

that non-stream-dependent facilities locate outside of corridor, 2) flood control projects where no other method for protecting existing structures in the flood plain is feasible and where such protection is necessary for public safety or to protect existing development, 3) bridges when supports are not in significant conflict with corridor resources, 4) pipelines and storm water runoff facilities, 5) improvement, repair or maintenance of roadways or road crossings, and 6) agricultural uses, provided no existing riparian vegetation is removed, and no soil is allowed to enter stream channels.

The only allowed uses in riparian habitat and the associated buffer being considered by the City for this project will be path, trail, or other environmental related educational uses (J. Doughty, pers. comm.). Therefore, the following impact analysis was prepared assuming project development could occur in any portion of the BSA, except for Pilarcitos Creek and the perennial freshwater marsh in the northwest corner of the BSA, but with possible limited disturbance within the riparian habitat/buffers associated with the perennial freshwater marsh and/or Pilarcitos Creek from allowed uses.

6.2 Impacts on Special-Status Species: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS

6.2.1 Impacts on Common Plant and Animal Species (Less than Significant)

The common (non-special-status) plant and animal species that occur in the BSA could experience a direct loss of habitat due to project activities, which could potentially result in the mortality, injury, disturbance, and displacement of individuals of some of these species. The plant species observed in the BSA during the reconnaissance surveys (Appendix A) are not regulated under state or federal laws or listed species by the CNPS. All native plant species found in the BSA are regionally abundant and common in California. As such, impacts on these species from project activities do not constitute a significant impact and require no compensatory mitigation.

The common animal species that occur in the BSA are regionally abundant, and can be found in habitats throughout the City of Half Moon Bay and San Mateo County. For instance, the common ants, bees, wasps, flies, butterflies, and spiders in the BSA are found in abundance in vegetated areas in the region such as yards, parks, riparian areas, and grasslands. Non-special-status amphibians, such as western toads and arboreal salamanders, are found along streams, ponds, and lakes in the region, and the common reptiles that occur in the BSA, such as western fence lizards and western skinks, are abundant in the grasslands of San Mateo County.

Implementation of the project would result in the loss of a small amount of nesting and foraging habitat for common native birds, which would result in a decline in the number of species and pairs of birds that currently nest and/or forage in the BSA. However, the terrestrial habitats in the BSA (i.e., California annual grassland,

developed, ephemeral drainage, perennial freshwater marsh, and riparian forest) represent a very small proportion of the habitats that support these species regionally. For instance, residences, yards, and parks throughout the City of Half Moon Bay provide habitat for the common "backyard" species of birds that occur in the BSA (e.g., American robin) and riparian-associated birds (e.g., bushtits and lesser goldfinch) inhabit riparian habitat adjacent to the numerous streams flowing through the county. Thus, the habitats in the BSA represent only a very small proportion of suitable habitats available to these species regionally. Even more importantly, because th project would retain all trees associated with Pilarcitos Creek, birds are expected to continue to nest and forage there once project construction is completed. Although overall fewer pairs of birds might nest and forage in the BSA following project development, the temporary disturbance of habitat does not rise to the level of a *substantial* impact under CEQA for any of these species.

All of the native terrestrial mammals in the BSA (e.g., striped skunks and raccoons) are also abundant in the county, inhabiting grasslands and woodlands throughout the region. Because these species are regionally abundant, are present in widely available habitats in the region, and may continue to be present in the BSA following construction, any project would impact only a small proportion of their regional populations. Such loss of regionally abundant common wildlife species does not achieve the threshold of a *substantial* reduction in the regional habitat of these species, and thus these impacts are less than significant under CEQA.

Several of the common wildlife species that occur in the BSA are not native to California. These include non-native mammals such as the Virginia opossum, Norway rat, and house mouse. Many of these non-native species have been introduced to the natural areas in the region, or have invaded natural and developed areas because they thrive in the presence of humans. These non-native species influence natural ecosystems in many ways, such as by competing with native species for food, territories, and other resources; altering habitats; transmitting diseases; and preying upon native species. Due to these factors, these non-native species act to reduce the abundance and diversity of native species that occur in areas in the region, including the BSA. Therefore, impacts on these non-native species resulting from a project do not constitute an adverse effect under CEQA.

6.2.2 Impacts on Special-Status Plants (Less than Significant with Mitigation)

One plant species, harlequin lotus, categorized by the CNPS as a CRPR 4.2, has the potential to occur within the more mesic areas of the riparian habitat along Pilarcitos Creek (Figure 5, Section 5.1, Appendix B). If present, project development may affect harlequin lotus due to disturbance of individuals within the populations and disturbance or destruction of suitable habitat. Direct impacts could include grading or filling areas supporting these species, trampling or crushing of plants, and soil compaction. Indirect impacts could include increased mobilization of dust onto plants, which can affect their photosynthesis and respiration, or changes to hydrology supporting these plants within adjacent wetlands due to grading or construction in nearby habitats.

Harlequin lotus has a limited distribution in California. The statewide population includes at least 357 extant occurrences (CNPS 2021), and of these, approximately 37 occur within San Mateo County. Given that San Mateo County is at the southern limits of its documented range and Harlequin lotus is threatened by

development, grazing, feral pigs, habitat alteration, and competition from non-native species, conservation of existing populations of this species could be essential for preserving its genetic resources and ensuring its persistence in the County.

If this species is present and impacts occur to 10% or less of its population (by individuals or occupied area) within the BSA, such a low level of impacts would not be expected to cause the extirpation of such a population, as long as the remaining plants were avoided and protected by a no-disturbance buffer. However, due to the regional rarity of this species, impacts to more than 10% of a population of this species could contribute to a reduction in these species' range or genetic resources, which would be considered significant under CEQA. Implementation of the following mitigation measures will reduce impacts on harlequin lotus to a less-than-significant level.

Mitigation Measure 1. Pre-Activity Surveys for Harlequin Lotus. Prior to initial ground disturbance within any riparian habitat related to the project, and during the appropriate blooming period (March-July), a focused survey for harlequin lotus will be conducted within suitable habitat in the impact footprint and a 50-ft buffer around the impact footprint. This buffer may be increased by the qualified plant ecologist depending on site-specific conditions and activities planned in the area (i.e., if the plant ecologist determines that project activities could have greater indirect impacts), but must be at least 50 ft wide. Situations for which a greater buffer may be required include proximity to proposed activities expected to generate large volumes of dust, such as grading; potential for project activities to alter hydrology supporting the habitat for the species in question; or proximity to proposed structures that may shade areas farther than 50 ft away. Surveys are to be conducted in a year with near-average or above-average precipitation, or a reference population must be assessed to confirm that the plant would have been detectable during the survey year. The purpose of the survey will be to assess the presence or absence of the harlequin lotus. If this species is not found in the impact area or the identified buffer, then no further mitigation will be warranted. If harlequin lotus is found in the impact area or identified buffer, then Mitigation Measures 2 and 3 will be implemented.

Mitigation Measure 2. Avoidance Buffers. To the extent feasible, and in consultation with a qualified plant ecologist, the project proponent will design and construct the project to avoid completely impacts on harlequin lotus within the project site or within the identified buffer of the impact area. Avoided special-harlequin lotus plant populations will be protected by establishing and observing the identified buffer between plant populations and the impact area. All such populations located in the impact area or the identified buffer, and their associated designated avoidance areas, will be clearly depicted on any construction plans. In addition, prior to initial ground disturbance or vegetation removal, the limits of the identified buffer around harlequin lotus to be avoided will be flagged or fenced. The flagging will be maintained intact and in good condition throughout project-related construction activities.

If complete avoidance is not feasible and more than 10% of a population (by occupied area or individuals) would be impacted as determined by a qualified plant ecologist, Mitigation Measure 3 will be implemented.

Mitigation Measure 3. Preserve Off-Site Populations of Special-Status Plant Species. If avoidance of harlequin lotus is not feasible and more than 10% of the population would be impacted, compensatory mitigation will be provided via the preservation, enhancement, and management of occupied habitat for the species, for example avoided portions of the impacted population. If too large of a proportion of an on-site population is impacted to provide this mitigation on-site, off-site habitat occupied by the affected species will be preserved and managed in perpetuity at a minimum 1:1 mitigation ratio (at least one plant preserved for each plant affected, and at least one occupied acre preserved for each occupied acre affected), for any impact over the 10% significance threshold.

Areas proposed to be preserved as compensatory mitigation for special-status plant impacts must contain verified extant populations of harlequin lotus that would be impacted. Mitigation areas will be managed in perpetuity to encourage persistence and even expansion of the preserved target species. Mitigation lands cannot be located on land that is currently held publicly for resource protection unless substantial enhancement of habitat quality will be achieved by the mitigation activities. The mitigation habitat will be of equal or greater habitat quality compared to the impacted areas, as determined by a qualified plant ecologist, in terms of soil features, extent of disturbance, vegetation structure, and dominant species composition, and will contain at least as many individuals of the species as are impacted by project activities. The permanent protection and management of mitigation lands will be ensured through an appropriate mechanism, such as a conservation easement or fee title purchase. A habitat mitigation and monitoring plan (HMMP) will be developed and implemented for the mitigation lands. That plan will include, at a minimum, the following information:

- a summary of habitat impacts and the proposed mitigation;
- a description of the location and boundaries of the mitigation site and description of existing site conditions;
- a description of measures to be undertaken to enhance (e.g., through focused management that may include removal of invasive species in adjacent suitable but currently unoccupied habitat) the mitigation site for the focal special-status species;
- a description of measures to transplant individual plants or seeds from the impact area to the mitigation site, if appropriate (which will be determined by a qualified plant or restoration ecologist);
- proposed management activities to maintain high-quality habitat conditions for the focal species;
- a description of habitat and species monitoring measures on the mitigation site, including specific, objective final and performance criteria, monitoring methods, data analysis, reporting requirements, monitoring schedule, etc. At a minimum, performance criteria will include demonstration that any plant population fluctuations over the monitoring period do not indicate a downward trajectory in terms of reduction in numbers and/or occupied area for the preserved mitigation population that can be attributed to management (i.e., that are not the result of local weather patterns, as determined by monitoring of a nearby reference population, or other factors unrelated to management); and

- contingency measures for mitigation elements that do not meet performance criteria.

The HMMP will be prepared by a qualified plant or restoration ecologist. Approval of the HMMP by the City will be required before the project impact occurs.

6.2.3 Impacts on the California Red-legged Frog and San Francisco Garter Snake (Less than Significant with Mitigation)

Individuals of the California red-legged frog are known to have occurred in Pilarcitos Creek, and in the perennial freshwater marsh in the BSA. Also, San Francisco garter snake is considered potentially present in Pilarcitos Creek, and may disperse to the perennial fresh water marsh in the BSA to forage due to the presence of California red-legged frog in the marsh. Therefore, impacts on these species are considered similar and thus will be discussed together. Direct impacts on the California red-legged frog and San Francisco garter snake could potentially occur due to project development immediately adjacent to the marsh habitat or within the riparian habitat associated with Pilarcitos Creek. If individuals of these species are present during construction activities, they may be crushed or injured by personnel or equipment. In addition, individuals may be crushed in their refugia by the passage of heavy equipment or trapped and suffocated. An increase in native and non-native predators attracted to the Project site due to trash left on the work site might result in increased mortality of individuals of these species. Due to the rarity of both species, project-related impacts on individual California red-legged frogs and San Francisco garter snakes would be significant.

The project may also result in the permanent loss or temporary disturbance of the riparian habitat associated with Pilarcitos Creek and buffers along the creek and around the marsh because of development activities. The marsh potentially provides breeding habitat for the California red-legged frog and foraging habitat for the San Francisco garter snake, and the riparian habitat provides foraging habitat for both species. Due to the potential presence of breeding and foraging habitat in the perennial freshwater marsh, and foraging habitat in the riparian habitat at the marsh and Pilarcitos Creek, the remaining annual grassland habitat is considered upland dispersal habitat for both the frog and snake. Project development of this annual grassland would permanently impact this upland dispersal habitat for both the frog and snake and could isolate a breeding population of California red-legged frog currently in the perennial freshwater marsh habitat from other nearby habitat for the species, such as Pilarcitos Creek. Therefore, the effects of even temporary habitat loss could substantially affect regional populations of these species, a significant impact. Implementation of Mitigation Measures 4 through 23 will reduce project impacts on both the California red-legged frog and San Francisco garter snake due to habitat loss and impacts on individuals to a less-than-significant level. In addition, implementation of these mitigation measures will ensure that take of individuals (e.g., handling, injury, or mortality) of the state fully protected San Francisco garter snake, which is prohibited by the California Fish and Game Code for construction projects such as this, will be avoided.

Mitigation Measure 4. Avoidance of California Red-legged Frog and San Francisco Garter Snake Foraging Habitat, and California Red-legged Frog and San Francisco Garter Snake Dispersal Habitat. To the extent feasible, the project proponent will design and construct the project to avoid completely impacts

on the marsh, riparian, and annual grassland habitats in the BSA. The avoided California red-legged frog and San Francisco garter snake habitat will be protected by establishing and observing an identified buffer between the habitat and the impact area following the LCP (City of Half Moon Bay 2020). Specifically, the buffer will be fifty ft outward from the limit of riparian vegetation along Pilarcitos Creek and the marsh. The identified buffer will be clearly depicted on any construction plans. In addition, prior to initial ground disturbance or vegetation removal, the limits of the identified buffer around the marsh, associated riparian habitat, and annual grassland to be avoided will be flagged or fenced. The flagging will be maintained intact and in good condition throughout project-related construction activities.

If complete avoidance is not feasible, Mitigation Measure 5 will be implemented.

Mitigation Measure 5. Preserve Onsite and/or Offsite Breeding, Foraging, and Dispersal Habitat for California Red-legged Frog and San Francisco Garter Snake. If avoidance of the marsh, riparian, and/or annual grassland habitats and associated buffers in the BSA are not feasible, compensatory mitigation will be provided via the preservation, enhancement, and management of potential California red-legged frog breeding and foraging habitat and San Francisco garter snake foraging habitat (for impacting the marsh and riparian habitats) and upland dispersal habitat (for impacting the upland grassland habitat). To compensate for impacts on the California red-legged frog and San Francisco garter snake, onsite and/or offsite habitat occupied by the frog and snake will be preserved and managed in perpetuity at a minimum 3:1 mitigation ratio for California red-legged frog breeding and foraging habitat and San Francisco garter snake foraging habitat (i.e., marsh and riparian habitats), and 1:1 mitigation ratio for upland dispersal habitat (annual grassland habitat and buffers associated with riparian habitat) for both species.

If the marsh habitat and associated riparian habitat are avoided, but the upland grassland between Pilarcitos Creek and the marsh is impacted to the extent that the marsh habitat and riparian habitat surrounding the marsh becomes isolated from Pilarcitos Creek, and frogs and snakes cannot disperse unencumbered between the creek and marsh, then a minimum 3:1 mitigation ratio for the acreage of the entire isolated marsh and riparian habitat around the marsh will be provided to compensate for loss of breeding and foraging habitat for California red-legged frog and foraging habitat for San Francisco garter snake. This higher mitigation ratio is required because the marsh and associated riparian habitat will be cut off from, and not available as breeding and foraging habitat for, the larger meta-populations of the California red-legged frog and San Francisco garter snake in the region that are using Pilarcitos Creek as a dispersal corridor. If, however, a designated portion of the upland habitat between Pilarcitos Creek and the marsh at a minimum of 50 ft in width is avoided, or if impacted, landscaped so that frogs and snakes can still freely disperse between the creek and marsh, then no mitigation ratio is required for the marsh habitat and associated riparian habitat since they will not be isolated. A minimum 1:1 mitigation ratio for upland dispersal habitat will still be required as compensation for the annual grassland within the BSA to be impacted.

Mitigation Measure 6. Obtain Agency Approval of Qualified Biologist. The qualifications of a biologist(s) experienced with the California red-legged frog and San Francisco garter snake, and who will provide

preconstruction surveys and monitoring for the project during construction, will be submitted to the USFWS and CDFW for review and written approval at least thirty (30) calendar days prior to the start of project activities.

Mitigation Measure 7. Install Wildlife Exclusion Barrier. A temporary wildlife exclusion barrier installation plan will be submitted to the USFWS and CDFW for approval. Prior to any ground disturbance in the impact area, the agency-approved temporary wildlife exclusion barrier will be installed along the limits of disturbance. An agency-approved biologist will inspect the area prior to installation of the barrier. The barrier will be designed to allow the California red-legged frog and San Francisco garter snake to leave the impact area and prevent them from entering the impact area, and will remain in place until all development activities have been completed. This barrier will be inspected daily and maintained and repaired as necessary to ensure that it is functional and is not a hazard to California red-legged frogs or San Francisco garter snakes on the outer side of the barrier.

Mitigation Measure 8. Conduct Preconstruction Survey. No more than twenty-four (24) hours prior to the date of initial ground disturbance, a preconstruction survey for the California red-legged frog and San Francisco garter snake will be conducted by an agency-approved biologist within the impact area. The survey will consist of walking the limits of impact to ascertain the possible presence of the species. The agency-approved biologist will investigate all potential areas that could be used by the California red-legged frog and San Francisco garter snake for feeding, breeding, sheltering, movement, and other essential behaviors. This includes an adequate examination of mammal burrows.

Mitigation Measure 9. Worker Environmental Awareness Program. All construction personnel will participate in a worker environmental awareness program. These personnel will be informed about the possible presence of all special-status species and habitats associated with the species identified here to be potentially present in the BSA and that unlawful take of the animal or destruction of its habitat is a violation of FESA and CESA. Prior to construction activities, the agency-approved biologist will instruct all construction personnel about (1) the description and status of the species; (2) the importance of their associated habitats; and (3) a list of measures being taken to reduce impacts on these species during project construction and implementation. A fact sheet conveying this information will be prepared for distribution to the construction crew and anyone else who enters the project site.

Mitigation Measure 10. Construction Monitoring. An agency-approved biologist will be onsite during all Project construction activities that may result in take of any special-status species. The agency-approved biologist will be given the authority to freely communicate verbally, by telephone, electronic mail, or in writing at any time with construction personnel, any other person(s) at the project site, otherwise associated with the project, the USFWS, the CDFW, or their designated agents. The agency-approved biologist will have oversight over implementation of all the conservation measures and will have the authority and responsibility to stop project activities if they determine any of the associated requirements are not being fulfilled. If the agency-

approved biologist exercises this authority, the USFWS and CDFW will be notified by telephone and electronic mail within twenty-four (24) hours.

Mitigation Measure 11. Vegetation Removal. All riparian vegetation that needs to be removed will be removed under the close supervision of an agency-approved biologist, who will survey for California red-legged frogs or San Francisco garter snakes immediately prior to and periodically during the vegetation removal.

Mitigation Measure 12. Prohibition of Firearms and Pets. No firearms will be allowed on the project site, except for Federal, state, local law enforcement, or security guards. No pets will be allowed on the project site.

Mitigation Measure 13. Pipe Inspection. All construction pipes, culverts, or similar structures that are stored at a construction site for one or more overnight periods will be either securely capped prior to storage or thoroughly inspected by the agency-approved biologist and/or the construction foreman/manager for animals before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a California red-legged frog or San Francisco garter snake is discovered inside a pipe or culvert by the agency-approved biologist or construction foreman/manager, the protocol in Mitigation Measure 15 will be followed.

Mitigation Measure 14. Steep-walled Holes and Trenches. To prevent inadvertent entrapment of the California red-legged frog or San Francisco garter snake during construction, the agency-approved biologist and/or construction foreman/manager will ensure that all excavated, steep-walled holes or trenches more than one foot deep are completely covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks and inspected by the agency-approved biologist. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals by the agency-approved biologist and/or construction foreman/manager. If at any time a trapped California red-legged frog or San Francisco garter snake is discovered by the agency-approved biologist or anyone else, the steps in Mitigation Measure 15 will be followed.

Mitigation Measure 15. Protocol if California Red-legged Frog or San Francisco Garter Snake is Encountered. If a California red-legged frog or San Francisco garter snake, or any animal that construction personnel believes may be either of these species, is encountered during project construction, the following will be followed:

- All work that could result in direct injury, disturbance, or harassment of the individual animal shall immediately cease.
- The foreman and agency-approved biologist will be immediately notified.
- The agency-approved biologist will determine if the animal is a California red-legged frog or San Francisco garter snake and if so will follow Mitigation Measure 16 for California red-legged frog or Mitigation Measure 17 for San Francisco garter snake.

Mitigation Measure 16. Relocation of California Red-legged Frogs. If any California red-legged frogs are found during implementation of Mitigation Measures 7, 8, 10-11, or 13-14 the agency-approved biologist will contact the USFWS to determine if moving any of the individuals is appropriate. In making this determination the USFWS will consider if an appropriate relocation site exists. If the USFWS approves moving animals, the project proponent will ensure the agency-approved biologist is given sufficient time to move the animals from the impact area before ground disturbance is initiated. Only agency-approved biologists will capture, handle, and move the California red-legged frog. The agency-approved biologist will monitor any relocated frog until it is determined that it is not imperiled by predators or other dangers.

Mitigation Measure 17. Monitor San Francisco Garter Snake. The agency-approved biologist will monitor any individual of the San Francisco garter snake encountered within the impact area but allow it to leave the impact area on its own. If the agency-approved biologist determines that the snake cannot leave on its own then the USFWS and CDFW will be consulted to determine if the snake can be captured and relocated to appropriate habitat on the outside of the impact area. No San Francisco garter snakes will be handled without explicit agency approval.

Mitigation Measure 18. Speed Limit. Project-related vehicles will observe a 15 mile-per-hour speed limit in all project areas, except on City and County roads, and State highways; this is particularly important on rainy nights when California red-legged frogs are most active.

Mitigation Measure 19. Daytime Restriction. Nighttime construction will be avoided.

Mitigation Measure 20. Food and Trash. To eliminate an attraction for the predators of the California red-legged frog and San Francisco garter snake, all food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in solid, closed containers (trash cans) and removed at the end of each working day from the entire construction site.

Mitigation Measure 21. Prohibition of Plastic Mono-filament Netting. Plastic mono-filament netting (erosion control matting), rolled erosion control products or similar material will not be used at the project site to prevent trapping California red-legged frogs, San Francisco garter snakes, or other species.

Mitigation Measure 22. Pesticide, Rodenticide, Herbicide Use. The use of pesticides, rodenticides, and herbicides in the impact area will be utilized in such a manner to prevent primary or secondary poisoning of the California red-legged frog and/or San Francisco garter snake potentially present in the BSA, and the depletion of food items on which they depend. All uses of such compounds will observe label and other restrictions mandated by the U.S. Environmental Protection agency, California Department of Food and Agriculture, and other appropriate State and Federal regulations, as well as additional project-related restrictions deemed necessary by the USFWS and CDFW.

6.2.4 Impacts on the Central California Coast Steelhead and the Western Pond Turtle (Less than Significant with Mitigation)

Both Central California Coast steelhead and western pond turtles may be present in Pilarcitos Creek within or downstream of the BSA. Because the project will not occur within Pilarcitos Creek in the BSA, direct impacts of construction-related activities on these species' habitat will not occur, and impacts on individuals are not expected except that during construction, minor and temporary increases in turbidity may occur. In addition, steelhead and western pond turtles might be killed or injured as a result of the spill of petrochemicals, hydraulic fluids, or solvents into Pilarcitos Creek. However, implementation of a storm water pollution prevention plan (SWPPP) with associated BMPs (see section 6.5.1) will minimize potential impacts on steelhead and western pond turtles as a result of increased turbidity and spills of hazardous materials into Pilarcitos Creek. In addition, western pond turtles may disperse from Pilarcitos Creek to the upland in the project site and be injured or killed by project related construction activities. However, implementation of Mitigation Measures 7-10 and 12-22 described above, for western pond turtles in addition to California red-legged frogs and San Francisco garter snakes, will reduce potential impacts on western pond turtles to less-than-significant levels.

6.2.5 Impacts on the San Francisco Dusky-footed Woodrat (Less than Significant with Mitigation)

San Francisco dusky-footed woodrats may be present, and could potentially nest, in the riparian habitat associated with Pilarcitos Creek and the perennial freshwater marsh in the BSA. Although impacts on riparian habitat are expected to be limited, if they occur at all, it is possible that limited impacts could occur to riparian habitat and the riparian buffer associated with Pilarcitos Creek allowed under the City's Local Coastal Program, notably the creation of paths, trails, or other environmentally related educational uses (J. Doughty, pers. comm.). If so, such impacts could result in destruction of nests, injury or mortality of woodrats (especially if occupied nests are present), and loss of woodrat habitat. Due to the regional abundance of woodrat habitat and the limited nature of impacts to this species' habitat anticipated to result from the project, impacts to this species' habitat is less than significant. Although San Francisco dusky-footed woodrats are also fairly abundant regionally, this species is important ecologically; woodrats serve as prey for a variety of predatory species, and woodrat nests provide dens and refugia for a variety of invertebrate, reptile, amphibian, and small mammal species. Therefore, impacts to individual woodrats and their nests would be significant. Implementation of Mitigation Measure 24 will reduce impacts on San Francisco dusky-footed woodrats to less-than-significant levels.

Mitigation Measure 23. Preconstruction Survey for San Francisco Dusky Footed Woodrat Nests. Focused surveys for San Francisco dusky-footed woodrat nests within the riparian habitat associated with Pilarcitos Creek and the marsh habitat will be conducted within 7 days of the start of construction. If no nests are found, then no further mitigation will be warranted. If nests are found, then Mitigation Measures 24 and 25 will be implemented.

Mitigation Measure 24. Disturbance-Free Buffers. Dusky-footed woodrats are year-round residents. Therefore, avoidance mitigation is limited to designing the project to avoid direct impacts on woodrat nests to the extent feasible. Ideally, a minimum 10-ft buffer should be maintained between project construction activities and each nest to avoid disturbance. In some situations, a smaller buffer may be allowed if in the opinion of the qualified biologist removing the nest would be a greater impact than that anticipated due to project activities. If nests are observed within riparian habitat and this habitat will be avoided by the project, high-visibility fencing will be installed around these woodrat nests to keep workers, construction equipment, and construction materials out of the area where the nests are located.

Mitigation Measure 25. Relocation of Nest Materials. If avoidance of occupied nests is not feasible, the woodrats will be evicted from their nests prior to the removal of the nests and onset of ground-disturbing activities to avoid injury or mortality of the woodrats. A qualified biologist will disturb the woodrat nest to the degree that all woodrats leave the nest and seek refuge outside of the project activity area. Subsequently, the nest sticks will be relocated; these materials will be piled at the base of a nearby tree or shrub outside of the impact area. The spacing between relocated nests will not be less than 20 ft, unless a qualified biologist has determined that the habitat can support higher densities of nests.

6.2.6 Impacts on Nonbreeding Special-Status Animals (Less than Significant)

The monarch butterfly, American peregrine falcon, pallid bat, Townsend's big-eared bat, northern harrier, and mountain lion may occur in the BSA as occasional foragers, visitors, migrants, or transients, but are not expected to breed (or roost, in the case of the two bat species) in the BSA due to a lack of suitable habitat, or to occur in the BSA frequently or in large numbers. Project construction would permanently alter the extent of foraging and dispersal habitat for these species in the BSA. However, the loss or conversion of this habitat would affect only a very small proportion of regionally available habitat for these species and would not adversely affect local or regional populations of these species. This loss of potential foraging or dispersal habitat would not rise to the CEQA standard of having a *substantial* adverse effect, and this impact would not constitute a significant impact on these species or their habitat under CEQA. Individuals of these species could potentially be disturbed if present in or adjacent to the project site during construction, but no injury or mortality of these species will occur, and disturbance of foraging or dispersing individuals of these species would be a less-than-significant impact.

6.2.7 Impacts on the San Francisco Common Yellowthroat, Yellow Warbler, and Raptors, Including the White-tailed Kite (Less than Significant)

The San Francisco common yellowthroat, yellow warbler, and white-tailed kite, all of which are considered special-status species, may nest and forage in the BSA. In addition, other raptors, such as the red-tailed hawk, red-shouldered hawk, and Cooper's hawk, could potentially nest on the project site and are identified as Unique Species in the Half Moon Bay Zoning Code. These species are assessed together because the impacts of the project on these species would be similar.

Heavy ground disturbance, noise, and vibrations caused by project development in the BSA could disturb nesting, foraging, or roosting individuals of these species, causing them to move away from impact areas. Although adult birds are not expected to be killed or injured, as they could easily fly from the impact area prior to such effects occurring, eggs or young in nests could be lost. In addition, construction disturbance during the nesting season (February 1 through August 31, for most species) could result in the incidental loss of eggs or nestlings, either directly through the destruction or disturbance of active nests or indirectly by causing the abandonment of nests.

Based on the extent of suitable habitat within the BSA and typical territory sizes of these species, no more than one or two pairs of raptors (considering all four aforementioned raptor species together) and one to three pairs of the San Francisco common yellowthroat and yellow warbler are expected to nest in the BSA. Therefore, the loss of suitable habitat and the potential loss of active nests potentially resulting from project activities would represent a very small fraction of the regional habitat and populations of these species and would not rise to the CEQA standard of having a *substantial* adverse effect. This type of impact would not be significant under CEQA for the species that could potentially nest in the project site due to the local and regional abundances of these species and/or the low magnitude of the potential impact of the project on these species (i.e., the project is only expected to impact one or two individual pairs of these species, which is not a significant impact to their regional populations). However, all native bird species, including San Francisco common yellowthroats, yellow warblers, and white-tailed kites, are protected from direct take by the MBTA and California Fish and Game Code. In addition, biological resources policies in the updated LCP include Policy 6-64, as follows:

> **Active Nest Monitoring.** Ensure construction and tree removal during nesting seasons (generally from February 1 to August 15) complies with the Migratory Bird Treaty Act, California Fish and Game Code, and other applicable regulations by surveying the project vicinity for active nests, avoiding disturbance if active nests are found by employing exclusion buffers or other methods recommended by a qualified biologist, and monitoring active nests until all young have fledged.

As a result, we recommend the following measures to avoid impacts to nesting birds and to comply with the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code.

Recommended Measure A. Avoidance. To the extent feasible, construction activities will be scheduled to avoid the nesting season. If construction activities are scheduled to take place outside the nesting season, all impacts to nesting birds protected under the MBTA and California Fish and Game Code will be avoided. The nesting season for most birds in San Mateo County extends from February 1 through August 15.

Recommended Measure B. Preconstruction Surveys and Nest Buffers. If it is not possible to schedule construction activities between August 16 and January 31, then preconstruction surveys for nesting birds will be conducted by a qualified ornithologist to ensure that no nests will be disturbed during project implementation. These surveys will be conducted no more than seven days prior to the initiation of construction activities. During this survey, the ornithologist will inspect all trees and other potential nesting habitats (e.g.,

shrubs, California annual grasslands, and buildings) in and immediately adjacent to the impact area for nests. If an active nest is found sufficiently close to work areas to be disturbed by these activities, the ornithologist will determine the extent of a construction-free buffer zone to be established around the nest (typically 300 ft for raptors and 100 ft for other species), to ensure that no nests of species protected by the MBTA and California Fish and Game Code will be disturbed during project implementation.

Recommended Measure C. Inhibition of Nesting. If construction activities will not be initiated until after the start of the nesting season, all potential nesting substrates (e.g., bushes, trees, grasses, and other vegetation) that are scheduled to be removed by the project be removed prior to the start of the nesting season (e.g., prior to February 1). This will preclude the initiation of nests in this vegetation, and prevent the potential delay of the project due to the presence of active nests in these substrates.

6.3 Impacts on Sensitive Communities: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFW or USFWS

6.3.1 Impacts on Riparian Habitat or Other Sensitive Natural Communities (Less than Significant with Mitigation)

Within the BSA, riparian woodland habitat is present along the banks of Pilarcitos Creek and forms a dense, wide thicket that extends up to 200 ft from the banks into the BSA. Also, riparian woodland habitat is present along the banks of the perennial freshwater marsh. The City's Zoning Code and Local Coastal Program includes riparian area and corridors as sensitive habitats. The City of Half Moon Bay Zoning Code defines the Riparian Buffer Zone as being 50 ft from the edge of the riparian canopy or 100 ft from top of bank, whichever is greater (shown on Figure 5). Additionally, all ecological systems associated with drainages (i.e., riparian habitat) and drainage and pond features with bed and bank topography may be regulated by Sections 1600-1616 of the California Fish and Game Code; therefore, the riparian habitat along Pilarcitos Creek and the perennial freshwater marsh may require an LSAA from the CDFW prior to project activities. Also, the riparian habitat along Pilarcitos Creek includes the red willow-arroyo willow vegetation alliance, which is classified as a sensitive vegetation alliance by CDFW. Project impacts to this habitat type could include riparian tree removal, direct loss of habitat around the perennial freshwater marsh, and compaction or understory removal to construct trails or other recreational or educational facilities within the Pilarcitos Creek corridor. Due to the ecological value of riparian habitats, such impacts would be significant.

Indirect impacts to these habitats will be minimized and avoided through compliance with the project SWPPP and MRP, as well as observance of the 50-foot riparian buffer zone. If project activities occur within the Riparian Buffer Zone or in riparian habitat, as allowed by the Half Moon Bay LCP, the project will mitigate impacts to riparian habitat and sensitive natural communities by implementing the following mitigation measures:

Mitigation Measure 26. Avoidance of Riparian Habitat. All riparian habitat and the 50-foot riparian buffer area to be avoided will be shown on project design plansets, and prior to project activities, these areas will be protected with high-visibility fencing. If a trail or similar facility will be installed within the riparian corridor of Pilarcitos Creek, trees to be avoided will be clearly marked for retention. The project will also comply with the MRP and General Construction permit to prevent increases in peak flow, erosion, or reduction in water quality for downslope waters, which will prevent stream downcutting, riparian bank erosion, or other dowstream impacts. If riparian vegetation is impacted, then Mitigation Measure 27 and/or 28 will be implemented.

Mitigation Measure 27. Pruning of Riparian Trees. If project activities require pruning of riparian trees or shrubs, a certified arborist will be retained to perform any necessary pruning to minimize harm to vegetation, avoid injury leading to tree death for trees intended to be retained, and ensure rapid regeneration. Pruning will be limited to the minimum area necessary.

Mitigation Measure 28. Riparian Habitat Compensatory Mitigation. If project activities require removal of riparian habitat, the project shall compensate for permanent loss of riparian habitat via preservation, enhancement, and management. Because all riparian habitat within the BSA provides foraging and dispersal habitat for California red-legged frog and San Francisco garter snake, mitigation ratios for impacts will be 3:1 for San Francisco garter snake foraging habitat, and 1:1 for dispersal habitat for both species (see Section 3.2, Mitigation Measure 5). Mitigation can include onsite and/or offsite habitat occupied by the frog and snake, and will be preserved and managed in perpetuity (e.g. for loss of riparian habitat surrounding the marsh, the riparian corridor along Pilarcitos Creek could have cape ivy removed and be restored with native vegetation, which will enhance habitat quality for special-status species).

Placement of new development within the Riparian Buffer Zone will be offset at a ratio of 1:1 through the installation of native riparian plantings within the unaffected portions of the buffer. Tree plantings will be native trees, such as arroyo willow, black cottonwood (*Populus trichocarpa*), or box elder (*Acer negundo*). Buffer plantings will be monitored for 5 years and the criteria for success will be 70% survival and no more than 5% cover of Cal-IPC rated moderate and high impact weed species (excluding common annual grasses).

Temporary impacts to riparian habitat shall be restored in place at a 1:1 ratio through re-establishment of original contours along banks, decompaction of compacted soils where necessary, and seeding with a native seed mix and native tree plantings, developed by a qualified restoration ecologist. The native seed mix will contain grass and forb species that occur in the project vicinity. Tree plantings will be native trees, such as arroyo willow, black cottonwood, or box elder. Temporary impact areas will be monitored for 2 years and the criteria for success will be 75% vegetation cover or more compared to pre-project conditions and no more than 5% cover of Cal-IPC-rated moderate and high impact weed species (excluding Cal-IPC-rated annual grasses). Any planting for impacts as described above will require the development of a Riparian Restoration Plan (RRP). The RRP will clearly enumerate project related impacts to the Riparian buffer and riparian woodland, and will be implemented for the mitigation lands. That plan will include, at a minimum, the following information:

- a summary of habitat impacts and the proposed mitigation;
- a description of the location and boundaries of the mitigation site and description of existing site conditions;
- a description of measures to be undertaken to enhance (e.g., through focused management that may include removal of invasive species in adjacent suitable but currently unoccupied habitat) the mitigation site for the focal special-status species;
- a description of measures to transplant individual plants or seeds from the impact area to the mitigation site, if appropriate (which will be determined by a qualified plant or restoration ecologist);
- proposed management activities to maintain high-quality habitat conditions for the focal species;
- a description of habitat and species monitoring measures on the mitigation site, including specific, objective final and performance criteria, monitoring methods, data analysis, reporting requirements, monitoring schedule, etc. At a minimum, performance criteria will include the survival requirements and restrictions on Cal-IPC rated weed infestations described above; and
- contingency measures for mitigation elements that do not meet performance criteria.

The RRP will be prepared by a qualified plant or restoration ecologist. Approval of the RRP by the City will be required before the project impact occurs.

6.3.2 Impacts Caused by Non-Native and Invasive Species (Less than Significant with Mitigation)

Several non-native, invasive plant species occur in the grassland and riparian habitats located throughout the BSA. Invasive species can spread quickly and can be difficult to eradicate. Many non-native, invasive plant species produce seeds that germinate readily following disturbance. Further, disturbed areas are highly susceptible to colonization by non-native, invasive species that occur locally, or whose propagules are transported by personnel, vehicles, and other equipment. Activities such as trampling, equipment staging, and vegetation removal are all factors that would contribute to disturbance. Areas of disturbance could serve as the source for promoting the spread of non-native species, which could degrade the ecological values of riparian habitat and adversely affect native plants and wildlife that occur there. Invasive species can have an adverse effect on native species and habitats in several ways, including by altering nutrient cycles, fire frequency and/or intensity, and hydrologic cycles; by creating changes in sediment deposition and erosion; by dominating habitats and displacing native species; by hybridizing with native species; and by promoting non-native animal species (Bossard et al. 2000).

Invasive species, such as French broom, Himalayan blackberry, cape ivy, and poison hemlock are already present within and adjacent to riparian habitats. However, project activities near existing riparian habitat could cause them to spread further into previously unoccupied areas within the riparian and grassland habitats.

Therefore, this impact is considered significant. Implementation of the following mitigation measure will reduce potential weed-related impacts on sensitive habitats and the species they support to a less-than-significant level.

Mitigation Measure 29. Invasive Species Best Management Practices (BMPs). The following BMPs will be implemented to limit the spread of invasive species into sensitive habitats:

- All ground disturbing equipment used adjacent to the riparian habitat will be washed (including weeks, tracks, and undercarriages) at a legally operating equipment yard both before and after being used at the site.
- All applicable construction materials used on site, such as straw wattles, mulch, and fill material, will be certified weed free.
- The project will follow a Stormwater Pollution Prevention Plan as per the NPDES *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Construction General Permit; Water Board Order No. 2009-0009-DWQ) if applicable.
- All disturbed soils will be stabilized and planted with a native seed mix from a local source following construction.
- If excavating, soil and vegetation removed from densely weed-infested areas (for example, dense poison hemlock infestations or cape ivy infestations) will not be used in general soil stockpiles and will not be redistributed as topsoil cover for the newly filled areas. All weed-infested soil will be disposed of off-site at a landfill or buried at least 2.5 ft below final grade.

6.4 Impacts on Wetlands: Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means

6.4.1 Impacts on Wetlands and Waters (Less than Significant with Mitigation)

Both Pilarcitos Creek and the perennial freshwater marsh present in the BSA may be subject to the regulatory jurisdiction of the USACE, RWQCB, and CDFW and may require CWA 401/404 permits and a LSAA from the CDFW prior to project activities. Additionally, the Zoning Code and Local Coastal Program includes wetlands as sensitive habitats. The City of Half Moon Bay Zoning Code defines the Wetland Buffer Zone as "one hundred feet, measured from the high water point, except that no buffer is required for man-made ponds and reservoirs used for agriculture".

Wetlands are relatively scarce regionally, and even small wetland areas make disproportionate contributions to water quality, groundwater recharge, watershed function, and wildlife habitat in the region. Thus, any permanent loss or temporary disturbance of wetland habitat because of the project would be considered significant under CEQA.

Project development also has the potential to cause indirect impacts on jurisdictional waters to changes in water quality. However, construction projects in California causing land disturbances that are equal to 1 ac or greater must comply with State requirements to control the discharge of stormwater pollutants under the NPDES *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Construction General Permit; Water Board Order No. 2009-0009-DWQ). Prior to the start of construction/demolition, a Notice of Intent must be filed with the State Water Board describing the project. A SWPPP must be developed and maintained during the project and it must include the use of BMPs to protect water quality until the site is stabilized. Standard permit conditions under the Construction General Permit require that the applicant utilize various measures including: on-site sediment control best management practices, damp street sweeping, temporary cover of disturbed land surfaces to control erosion during construction, and utilization of stabilized construction entrances and/or wash racks, among other factors.

A list of example BMPs include:

- Work areas that are temporarily impacted will be restored with respect to pre-existing contours and conditions, to the extent feasible, upon completion of work. Restoration work including re-vegetation and soil stabilization will be evaluated upon completion of work and performed, as needed.
- Store, handle, and dispose of construction materials and wastes properly, so as to prevent their contact with stormwater.
- Control and prevent the discharge of all potential pollutants, including solid wastes, paints, concrete, petroleum products, chemicals, wash water or sediment and non-stormwater discharges to storm drains and water courses.
- Avoid cleaning, fueling, or maintaining vehicles on site, except in a designated area in which run-off is contained and treated.
- Perform clearing and earth moving activities during dry weather to the maximum extent practical.
- Remove spoils promptly and avoid stockpiling of fill materials when rain is forecast. Cover soil stockpiles and other materials with a tarp or other waterproof material during qualifying rain events.
- Trash and construction related solid wastes must be deposited into a covered receptacle to prevent contamination and dispersal by wind.
- In the event of rain, all grading work is to cease immediately.
- Implement an erosion control plan during the wet season (October 15 through April 15), including, at a minimum, the following:
- During the rainy season, all paved areas will be kept clear of earth material and debris.
- Inlet protection will be installed at open inlets to prevent sediment from entering the storm drain system.
- Straw rolls will be placed at the toe of slopes, and along the down slope perimeter of the project area.

- The integrity and effectiveness of construction fencing and erosion control measures will be inspected on a daily basis. Corrective actions and repairs will be carried out immediately for fence breaches and ineffective BMPs.

A hazardous spill plan will be developed prior to construction of any equipment yards or similar development on the parcel. The plan will describe what actions will be taken in the event of a spill. The plan will also incorporate preventative measures to be implemented, such as vehicle and equipment staging, cleaning, maintenance, and refueling; and contaminant (including fuel) management and storage. In the event of a contaminant spill, work at the site will immediately cease until the contractor has contained, and mitigated the spill. The contractor will immediately prevent further contamination and notify appropriate authorities, and mitigate damage as appropriate. Adequate spill containment materials, such as oil diapers and hydrocarbon cleanup kits, shall be available on site at all times. Containers for storage, transportation, and disposal of contaminated absorbent materials will be provided in the project area.

In many Bay Area counties, including San Mateo County, projects may also have to comply with the *California Regional Water Quality Control Board, San Francisco Bay Region, Municipal Regional Stormwater NPDES Permit* (MRP) (Water Board Order No. R2-2015-0049). This MRP requires that all projects that meet certain criteria must implement BMPs and incorporate Low Impact Development practices into the design to prevent stormwater runoff pollution, promote infiltration, and hold/slow down the volume of water coming from a site after construction has been completed. To meet these permit and policy requirements, projects must incorporate the use of green roofs, impervious surfaces, tree planters, grassy swales, bioretention and/or detention basins, among other factors. These same features will be used to treat any stormwater that flows to the riverine habitat during large storm events. The perennial freshwater marsh wetland is protected from indirect water quality impacts by the constructed berms for the impoundment. Thus, impacts on water quality would be reduced to a level of less-than-significant.

The project does not proposed to impact wetlands directly by filling or grading, and there is no vegetation removal proposed within the wetlands on-site. Temporary impacts due to construction access or staging are also not proposed. However, in the absence of measures to ensure that accidental impacts do not occur, it is possible that construction equipment could impact wetlands inadvertently. Implementation of the following mitigation measure will ensure that no such impacts occur, reducing impacts due to permanent or temporary disturbance of wetlands to a less-than-significant level.

6.5 Mitigation Measure 29. Avoidance of Wetlands and Waters. All wetland habitat within 100 ft of project impact areas will be shown on project design plansets, and prior to project activities, these areas will be protected with high-visibility ESA fencing. Impacts on Wildlife Movement: Interfere substantially with the movement of any native resident or migratory fish or wildlife

species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites

6.5.1 Impacts on Wildlife Movement: (Less than Significant with Mitigation)

For many species, the landscape in the BSA is a mosaic of suitable and unsuitable habitat types. Environmental corridors are segments of land that provide a link between these different habitats while also providing cover. Development that fragments natural habitats (i.e., breaks them into smaller, disjunct pieces) can have a twofold impact on wildlife: first, as habitat patches become smaller they are unable to support as many individuals (patch size); and second, the area between habitat patches may be unsuitable for wildlife species to traverse (connectivity).

The BSA is situated adjacent to a housing development on its western border, SR 92 on its northern border, and a maintenance yard at its eastern end. This adjacent development currently restricts wildlife movement to and from habitats to the north, west, and east of the BSA. Thus, the study likely does not function as a high-quality movement corridor for most species, particularly special-status species. However, because Pilarcitos Creek runs along its southern border, wildlife are able to disperse into the BSA along this riparian corridor. Wildlife dispersing into or through the BSA are currently able to move between Pilarcitos Creek and the perennial freshwater marsh in the northwestern section of the BSA. Thus, any development of the intervening annual grassland between Pilarcitos Creek and the perennial freshwater marsh would result in isolating the marsh. For example, this isolation would most likely impact any California red-legged frog population currently utilizing the marsh as breeding habitat by restricting the species' ability to disperse to and from the marsh to other habitat patches for this species in the region connected by the creek (see Section 6.4.2 above). Therefore, any project activity that isolates the perennial marsh from Pilarcitos Creek would be considered significant under CEQA. However, implementation of Mitigation Measures 4 and 5 for California red-legged frogs and San Francisco garter snakes would reduce impacts on these and other species currently using the perennial marsh to a less-than significant level. Because the project does not propose to impact Pilarcitos Creek and will have little impact, if any, on the riparian habitat and associated buffer, wildlife will be able to continue moving through the site along the creek, and the project will not result in significant impacts to wildlife movement along the creek.

6.6 Impacts due to Conflicts with Local Policies: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance

6.6.1 Impacts to Heritage Trees per Municipal Code Section 7.40 (Less than Significant with Mitigation)

Per City of Half Moon Bay Municipal Code Section 7.40, Heritage Trees, a permit from the City Manager or his or her designee and payment of a fee are required for the removal of any trees which meets the definition of heritage tree, as defined in Section 3.4.2 above.

The BSA contains trees that likely meet the definition of a Heritage Tree. Because these trees are protected by the City of Half Moon Bay's heritage tree ordinance, their removal would meet the threshold of having a substantial adverse effect, and would be considered potentially significant under CEQA. Implementation of the following mitigation measure will reduce this impact to a less-than-significant level.

Mitigation Measure 30. During detailed design of the project, removal of trees protected by the City heritage tree ordinance will be avoided and minimized to the extent feasible. If tree removal is necessary, it is recommended that a certified arborist conduct a tree survey to determine the number and health of heritage trees within the developed habitat of the BSA. Where removal on trees cannot be avoided, the project proponent will comply with the standards of the City heritage tree ordinance, including the planting of replacement trees where feasible and approval from the City Manager.

6.7 Impact due to Conflicts with an Adopted Habitat Conservation Plan: Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan (No Impact)

The BSA is not located within an area covered by an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore, the project would not conflict with any such plans.

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Personal Communications

John Doughty of the City of Half Moon Bay in an email on July 6, 2018 to, and a conversation on August 27, 2018 with, Jeff Wilkinson of H. T. Harvey & Associates.

Appendix A. Plants Observed

Family	Scientific Name	Common Name	Wetland Indicator Status
Agavaceae	*Chlorogalum pomeridianum*	soap plant	UPL
Anacardiaceae	*Toxicodendron diversilobum*	poison oak	FAC
Apiaceae	*Conium maculatum*	poison hemlock	FAC
	Hydrocotyle verticillata	whorled marsh-pennywort	OBL
	Torilis arvensis	field hedge parsley	UPL
Araceae	*Lemna sp.*	duckweed	OBL
Araliaceae	*Hedera helix*	English ivy	FACU
Asteraceae	*Arctotheca prostrata*	creeping capeweed	UPL
	Baccharis pilularis	coyote brush	UPL
	Carduus pycnocephalus	Italian thistle	UPL
	Cirsium vulgare	bull thistle	FACU
	Deinandra corymbosa	coastal tarweed	UPL
	Delairea odorata	cape ivy	UPL
	Helminthotheca echioides	bristly ox-tongue	FAC
	Lactuca serriola	*prickly lettuce*	FACU
	Madia sativa	Chile tarweed	UPL
	Silybum marinum	milk thistle	UPL
Azollaceae	*Azolla filiculoides*	mosquito fern	OBL
Betulaceae	*Alnus rubra*	red alder	FAC
Brassicaceae	*Brassica nigra*	black mustard	UPL
	Hirschfeldia incana	Mediterranean hoary mustard	UPL
	Raphanus sativus	wild radish	UPL
Caryophyllaceae	*Silene gallica*	windmill pink	UPL
Cupressaceae	*Sequoia sempervirens*	coast redwood	UPL
Cyperaceae	*Carex barbarae*	Santa Barbara sedge	FAC
	Carex densa	dense sedge	OBL
	Cyperus eragrostis	tall flatsedge	FACW
Equisetaceae	*Equisetum arvense*	common horsetail	FAC
Fabaceae	*Acacia dealbata*	silver wattle	UPL
	Genista monspessulana	French broom	UPL
	Lotus corniculatus	bird's foot trefoil	FAC

Family	Scientific Name	Common Name	Wetland Indicator Status
	Lupinus arboreus	coastal bush lupine	UPL
	Trifolium angustifolium	narrow leaved clover	UPL
	Vicia villosa	hairy vetch	UPL
Fagaceae	*Quercus agrifolia*	coast live oak	UPL
Junacaeae	*Juncus effusus*	bog rush	FACW
	Juncus patens	common rush	FACW
	Juncus xiphoides	iris leaved rush	OBL
Lamiaceae	*Stachys bullata*	California hedge nettle	UPL
Linaceae	*Linum bienne*	narrow leaved flax	UPL
Myrtaceae	*Eucalyptus globulus*	blue gum	UPL
Pinaceae	*Hesperocyparis macrocarpa*	Monterey cypress	UPL
	Pinus radiata	Monterey pine	UPL
	Pseudotsuga menziesii	Douglas fir	FACU
Plataginaceae	*Plantago coronopus*	cutleaf plantain	FAC
Poaceae	*Agoseris stolonifera*	creeping bentgrass	FAC
	Aira caryophyllea	silvery hairgrass	FACU
	Avena sp.	wild oats	UPL
	Briza maxima	rattlesnake grass	UPL
	Briza minor	little quaking grass	FAC
	Bromus diandrus	ripgut brome	UPL
	Bromus hordeaceus	soft chess	FACU
	Cortaderia jubata	Pampas grass	FACU
	Cynosurus echinatus	dogtail grass	UPL
	Festuca perenne	Italian ryegrass	FAC
	Holcus lanatus	velvet grass	FAC
	Hordeum murinum	meadow barley	FAC
	Polypogon monspeliensis	rabbitsfoot grass	FACW
Polygonaceae	*Rumex acetosella*	sheep sorrel	FACU
	Rumex crispus	curly dock	FAC
Primulaceae	*Lysimachia arvensis*	scarlet pimpernel	FAC
Rosaceae	*Cotoneaster pannosus*	silverleaf cotoneaster	UPL
	Rubus armeniacus	Himalayan blackberry	FAC
	Rubus ursinus	California blackberry	FACU
Salicaceae	*Salix laevigata*	red willow	FACW
	Salix lasiandra	Pacific willow	FACW

Family	Scientific Name	Common Name	Wetland Indicator Status
	Salix lasiolepis	arroyo willow	FACW
Typhaceae	*Typha latifolia*	common cattail	OBL
Urticaceae	*Urtica dioica* ssp. *dioica*	stinging nettle	FAC

Appendix B. Special-Status Plants Considered for Potential Occurrence

Name	Status[1]	General Habitat Description	Potential for occurrence in the BSA[2]
Federal or State Endangered, Threatened, or Candidate Species			
San Mateo thornmint (*Acanthomintha duttonii*)	FE, SE, 1B.1	Annual herb. Occurs on serpentine in chaparral, valley and foothill grassland. Blooms April – June.	**Absen**t. There is no suitable habitat present within the BSA due to the absence of serpentine substrate. Also, this species is highly restricted in distribution and is known from only two extant natural occurrences and one introduced population in San Mateo county. Therefore, this species is determined to be absent from the BSA.
Fountain thistle (*Cirsium fontinale* var. *fontinale*)	FE, SE, 1B.1	Perennial herb. Occurs in serpentine seeps in chaparral openings and valley and foothill grassland. Blooms June – October.	**Absen**t. There is no suitable habitat for this species within the BSA due to lack of serpentine seeps in the BSA. Known only from the Crystal Springs Reservoir area within the Golden Gate National Recreation Area. Therefore, this species is determined to be absent from the BSA.
San Mateo woolly sunflower (*Eriophyllum latilobum*)	FE, SE, 1B.1	Perennial herb. Occurs on serpentine in cismontane woodland, often on roadcuts. Blooms May – June.	**Absent**. There is no suitable habitat for this species within the BSA due to lack of serpentine substrate. Also, this species is highly restricted in distribution and is known only from the Crystal Springs Reservoir area within the Golden Gate National Recreation Area. Therefore, this species is determined to be absent from the BSA.
Marin western flax (*Hesperolinon congestum*)	FT, CT, 1B.1	Annual herb. Occurs on serpentine substrate in chaparral and valley and foothill grassland. Blooms April – July.	**Absent**. No suitable habitat is present within the BSA due to lack of serpentine substrate. Known only from the Crystal Springs Reservoir area. Therefore, this species is determined to be absent from the BSA.
Coast yellow leptosiphon (*Leptosiphon croceus*)	SC; 1B.1	Annual herb. Occurs in coastal bluff scrub and coastal prairie. Blooms April – May.	**Absent**. There is no coastal bluff or scrub habitat present within the BSA. Also, this species is highly restricted in distribution and is known only from one population in Moss Beach. Therefore, this species is determined to be absent from the BSA.

Name	Status[1]	General Habitat Description	Potential for occurrence in the BSA[2]
White-rayed pentachaeta (*Pentachaeta bellidiflora*)	FE, CE, 1B.1	Annual herb. Occurs on serpentine substrate on cismontane woodland and valley and foothill grassland. Blooms March – May.	**Absent**. There is no suitable habitat for this species within the BSA due to lack of serpentine substrate. Also, this species is highly restricted in distribution and is Known only from the Crystal Springs Reservoir area and near Edgewood Park and Natural Preserve. Therefore, this species is determined to be absent from the BSA.
Hickman's cinquefoil (*Potentilla hickmanii*)	FE, SE, 1B.1, LCP	Perennial herb. Occurs in marshy areas within coastal bluff scrub and closed-cone coniferous forest. Also, vernally mesic meadows and seeps, and freshwater marshes and swamps. Blooms April – August	**Absent**. There is marginal freshwater marsh habitat for this species within the BSA. However, no suitable vegetation association is present. Additionally, this species is only known locally from Rancho Corral de Tierra area of the Golden Gate National Recreation Area. Therefore, this species is determined to be absent from the BSA.
CRPR Species and Locally Rare Species			
Blasdale's bent grass (*Agrostis blasdalei*)	1B.2	Perennial grass. Occurs in coastal scrub, dunes, and prairie. Blooms May – July.	**Absent**. There is no suitable coastal scrub, dune, or prairie habitat for this species within the BSA. Known only from coastal sites in southern San Mateo County. Therefore, this species is determined to be absent from the BSA.
Franciscan onion (*Allium peninsulare* var. *franciscanum*)	1B.2	Perennial herb. Occurs on hillsides in cismontane woodland and valley and foothill grassland with serpentine, clay, and volcanic soils. Blooms May – June.	**Absent.** There is no suitable habitat for this species within the BSA due to the ack of suitable soils,ck Only known locally from the Crystal Springs Reservoir area within the Golden Gate National Recreation Area. Therefore, this species is determined to be absent from the BSA.
Bent-flowered fiddleneck (*Amsinckia lunaris*)	1B.2	Annual herb. Coastal bluff scrub, cismontane woodland and valley and foothill grassland, often on serpentine soils. Blooms March – June.	**Absent.** There is no suitable habitat for this species within the BSA due tolack of serpentine soils. Only known locally from the Crystal Springs Reservoir area within the Golden Gate National Recreation Area. Additionally, there are no records of coastal occurrences. Therefore, this species is determined to be absent from the BSA.

Name	Status[1]	General Habitat Description	Potential for occurrence in the BSA[2]
California androsace (*Androsace elongata* ssp. *acuta*)	4.2	Annual herb. Occurs on dry grassy slopes in chaparral, foothill woodland, northern coastal scrub, and coastal sage scrub. Blooms February – April.	**Absent.** There is no suitable chaparral habitat for this species within the BSA. Additionally, there are no recent records of occurrences in San Mateo County. Therefore, this species is determined to be absent from the BSA.
Coast rock cress (*Arabis blepharophylla*)	4.3; LCP	Perennial herb. Occurs in broadleafed upland forest, coastal bluff scrub, coastal prairie, and coastal scrub. Blooms February – May.	**Absent**. There is no suitable forest, scrub, or prairie habitat for this species within the BSA. Only known locally from a coastal site in San Mateo County and from the Rancho Corral de Tierra area of the Golden Gate National Recreation Area. Therefore, this species is determined to be absent from the BSA.
Santa Cruz manzanita (*Arctostaphylos andersonii*)	1B.2	Occurs in openings and edges of broadleaved upland forest, chaparral, and North Coast coniferous forest. Blooms November – April.	**Absent**. There is no suitable forest or chaparral habitat for this species within the BSA. Vegetative material would have been detectable during the June 2018 site visit. Therefore, this species is determined to be absent from the BSA.
Montara manzanita (*Arctostaphylos montarensis*)	1B.2, LCP	Evergreen shrub. Occurs in maritime chaparral and coastal scrub. Blooms January– March.	**Absent**. There is no suitable chaparral habitat within the BSA. Vegetative material would have been detectable during the June 2018 site visit. Only known locally from higher elevations within the Golden Gate National Recreation Area. Therefore, this species is determined to be absent from the BSA.
Kings Mountain manzanita (*Arctostaphylos regismontana*)	1B.2	Evergreen shrub. Occurs on granite or sandstone in broadleaved upland forest, chaparral, and North Coast coniferous forest. Blooms January – April.	**Absent**. There is no suitable granite or sandstone substrate within the BSA. Vegetative material would have been detectable during the June 2018 site visit. Only known locally from higher elevations within open spaces east of Half Moon Bay. Therefore, this species is determined to be absent from the BSA.
Ocean bluff milk-vetch (*Astragalus nuttallii* var. *nuttallii*)	4.2	Perennial herb. Occurs in coastal bluff scrub and coastal dunes in rocky or sandy areas. Blooms all year.	**Absent.** There is no suitable coastal bluff or dune habitat within the BSA. Only known locally from several coastal sites in San Mateo County and the Presidio in San Francisco. Therefore, this species is determined to be absent from the BSA.

Name	Status[1]	General Habitat Description	Potential for occurrence in the BSA[2]
Coastal marsh milk-vetch (*Astragalus pycnostachyus* var. *pycnostachyus*)	1B.2	Perennial herb. Occurs in coastal salt marshes, seeps and mesic coastal dunes. Blooms April – October.	**Absent**. There is no salt marsh or coastal dune habitat for this species within the BSA. Only known locally from several coastal sites in San Mateo County. Therefore, this species is determined to be absent from the BSA.
Brewer's calandrinia (*Calandrinia breweri*)	4.2	Annual herb. Occurs in chaparral and coastal scrub. Blooms January – June.	**Absent.** There is no chaparral or coastal scrub habitat for this species within the BSA. Only known locally from the Crystal Springs Reservoir area. Therefore, this species is determined to be absent from the BSA.
Oakland star-tulip (*Calochortus umbellatus*)	4.2	Perennial herb. Occurs in open chaparral or woodland, usually on serpentine substrate. Blooms March – May.	**Absent.** There is no suitable chaparral or woodland habitat for this species within the BSA. Only known locally from several locations in the Santa Cruz Mountains. Therefore, this species is determined to be absent from the BSA.
Johnny-nip (*Castilleja ambigua* var. *ambigua*)	4.2	Annual herb. Occurs in mesic areas in coastal bluffs, coastal prairie, coastal scrub, and valley and foothill grassland. Also occurs in marshes and vernal pools. Blooms May – August.	**Absent.** There is marginal mesic grassland habitat present within the BSA. However, the grassland habitat is dominated by ruderal species. Additionally, no suitable vegetation association is present. Known locally from several coastal locations in San Mateo County. Therefore, this species is determined to be absent from the BSA.
Pappose tarplant (*Centromadia parryi* ssp. *parryi*)	1B.2	Annual herb. Occurs in coastal prairie, meadows and seeps coastal salt marshes and swamps and vernally mesic valley and foothill grassland often in alkaline soils. Blooms May – November.	**Absent**. There is no suitable mesic alkaline habitat present within the BSA. Only known locally from the Rancho Corral de Tierra area of the Golden Gate National Recreation Area. Therefore, this species is determined to be absent from the BSA.
San Francisco Bay spineflower (*Chorizanthe 4uspidate* var. *4uspidate*)	1B.2	Annual herb. Occurs on sandy soils in coastal bluff scrub, coastal dunes, coastal prairie, and coastal scrub.	**Absent.** There is no suitable habitat for this species within the BSA due to lack of sandy soils. Known from only one recent occurrence at Thorton State Beach near San Francisco. Therefore, this species is determined to be absent from the BSA.

Name	Status[1]	General Habitat Description	Potential for occurrence in the BSA[2]
Franciscan thistle (*Cirsium andrewsii*)	1B.2	Perennial herb. Occurs on mesic and sometimes serpentine substrates in broadleaved upland forest, coastal bluff scrub, coastal prairie, and coastal scrub. Blooms March – July.	**Absent**. There is no suitable habitat for this species within the BSA, due to the lack of fserpentinitic bedrock geology. This species is presumed extirpated from San Mateo County. Therefore, this species is determined to be absent from the BSA.
San Francisco collinsia (*Collinsia multicolor*)	1B.2	Annual herb. Occurs in moist, shady areas in closed cone coniferous forest and coastal scrub. Blooms March – May.	**Absent**. There is no suitable forest or coastal scrub habitat for this species within the BSA. There are no records of occurrences along the San Mateo coast. Therefore, this species is determined to be absent from the BSA.
Clustered lady's slipper (*Cypripedium fasciculatum*)	4.2	Perennial herb. Occurs in mesic, shady areas of conifer forests. Blooms March – July.	**Absent.** Known from several locations in the Santa Cruz Mountains, but there is no suitable habitat for this species within the BSA, so this species is considered absent from the BSA.
Mountain lady's slipper (*Cypripedium montanum*)	4.2	Perennial herb. Occurs in moist areas and dry slopes in mixed evergreen and conifer forests. Blooms March – June.	**Absent.** Known from one non-specific location near La Honda in San Mateo County, but there is no suitable habitat for this species within the BSA, so this species is considered absent from the BSA.
Western leatherwood (*Dirca occidentalis*)	1B.2	Deciduous shrub. Occurs on mesic sites in broadleaved upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, North Coast coniferous forest, riparian scrub, and riparian woodland. Blooms January – April.	**Absent**. There is marginal habitat for this species within the BSA, and this species is known from higher elevation locations in the Santa Cruz Mountains in San Mateo County. Vegetative material would have been detectable during the June 2018 site visit and was not observed, so this species is considered absent from the BSA.
California bottle-brush (*Elymus californicus*)	4.3	Perennial grass. Occurs in broadleaved upland forest, cismontane woodland, north coast coniferous forest, and riparian woodland. Blooms May – November.	**Absent.** There is marginal habitat for this species within the BSA. Known from the Rancho Corral de Tierra area of the Golden Gate National Recreation Area. However, there are no records of occurrences along the San Mateo coast, so this species is considered absent from the BSA.

Name	Status[1]	General Habitat Description	Potential for occurrence in the BSA[2]
San Francisco wallflower (*Erysimum franciscanum*)	4.2; LCP	Perennial herb. Occurs on serpentine and granite substrate in coastal strand, northern coastal scrub, and valley grassland. Blooms March – June.	**Absent**. Known from the Crystal Springs Reservoir area. No suitable habitat for this species is present within the BSA due to lack of bedrock geology, so this species is considered absent from the BSA.
Beach strawberry (*Fragaria chiloensis*)	LCP	Perennial herb. Occurs near the coast in sandy soils often in road cuts, on coastal bluffs, and on cliffs. Blooms February – March.	**Absent**. There is no suitable habitat present within the BSA due to lack of sandy soils. This species would have been detectable during the June 2018 site visit and was not observed, so this species is considered absent from the BSA.
Stinkbells (*Fritillaria agrestis*)	4.2	Perennial herb. Occurs in clay soils on banks, depressions, and slopes in chaparral, valley grassland, and foothill woodland. Sometimes occurs in serpentine soils. Blooms March – June.	**Absent.** Known only from Año Nuevo State Park in southern San Mateo County. There is no suitable habitat present within the BSA, so this species is considered absent from the BSA.
Hillsborough chocolate lily (*Fritillaria biflora* var. *lneziana*)	1B.1	Perennial herb. Occurs on serpentine in cismontane woodland and valley and foothill grassland. Blooms March – April.	**Absent**. Known only from the Hillsborough area of San Mateo County. There is no suitable habitat for this species in the BSA due to lack of serpentine substrate, so this species is considered absent from the BSA.
Marin checker lily (*Fritillaria lanceolata* var. *tristulis*)	1B.1	Perennial herb. Occurs in coastal prairie, coastal scrub, and coastal bluff scrub. Blooms February –May.	**Absent**. Known mainly from Marin County. There is one non-specific occurrence in Rancho Corral de Tierra area of the Golden Gate National Recreation Area. There is no suitable habitat present within the BSA, so this species is considered absent from the BSA.
Fragrant fritillary (*Fritillaria liliacea*)	1B.2	Perennial herb. Occurs in cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland near the coast, on heavy clay and serpentine soils. Blooms February – April.	**Absent**. Known from the Crystal Springs area. There is no suitable habitat for this species within the BSA due to a lack of bedrock geology, so this species is considered absent from the BSA.

Name	Status[1]	General Habitat Description	Potential for occurrence in the BSA[2]
San Francisco gumplant (*Grindelia hirsutula* var. *maritima*)	1B.2	Perennial herb. Occurs on serpentine or sandy substrates in coastal bluff scrub, coastal scrub, and valley and foothill grassland. Blooms August – September.	**Absent**. Known from Mc Nee State Park area. There is no suitable habitat present within the BSA due to lack of sandy or serpentine substrates, so this species is absent from the BSA.
Short-leaved evax (*Hesperevax sparsiflora* var. *brevifolia*)	2.2	Annual herb. Occurs on sandy substrates in coastal bluff scrub and coastal dunes. Blooms March – June.	**Absent**. There is one non-specific occurrence from Rancho Corral de Tierra area of the Golden Gate National Recreation Area. There is no suitable habitat within the BSA due to the lack of serpentine or sandy substrates, so this species is absent from the BSA.
Kellogg's horkelia *Horkelia 7uneate* subsp. *sericea*)	1B.1	Annual herb. Occurs on sandy substrate in closed-cone coniferous forest, chaparral, coastal dunes, old sand hills, coastal scrub. Blooms April – September.	**Absent**. Known from near Rancho Corral de Tierra area of the Golden Gate National Recreation Area. There is no suitable habitat present within the BSA due to lack of sandy substrate, so this species is absent from the BSA.
Point Reyes horkelia (*Horkelia marinensis*)	1B.2	Perennial herb. Occurs on sandy substrates in coastal dunes, coastal prairie, and coastal scrub. Blooms May – September.	**Absent.** Known mainly from coastal areas in Santa Cruz County. There is one non-specific occurrence from Rancho Corral de Tierra area of the Golden Gate National Recreation Area. There is no suitable habitat present within the BSA due to lack of sandy substrate, so this species is absent from the BSA.
Harlequin lotus (*Hosackia gracilis*)	4.2	Perennial herb. Occurs in marshes, shores, ponds, ditches, wet areas in meadows in mixed evergreen forest, northern coastal scrub, and closed-cone pine Forest. Blooms March – July.	**Possible**. There is suitable habitat present within the BSA. Known from several locations along the San Mateo coast and the Crystal Springs Reservoir area. Could potentially occur in the riparian habitat along Pilarcitos Creek
Coast iris (*Iris longipetala*)	4.2	Perennial herb. Occurs in seeps and mesic areas in coastal prairie and lower montane coniferous forest.	**Absent.** Known from the Crystal Springs Reservoir area. There is no suitable habitat present within the BSA, so this species is absent from the BSA.

Name	Status[1]	General Habitat Description	Potential for occurrence in the BSA[2]
perennial goldfields (*Lasthenia californica* ssp. *Macrantha*)	1B.2	Perennial herb. Occurs in coastal dunes, coastal bluff scrub, coastal scrub, and grasslands along immediate coast. Blooms January – November.	**Absent**. Known from nearby open spaces along the San Mateo County Coast, but there is no suitable habitat present within the BSA, so this species is absent from the BSA.
Bristly leptosiphon (*Leptosiphon acicularis*)	4.2	Annual herb. Occurs in grassy areas in coastal prairie, chaparral, and foothill woodland. Blooms April – May.	**Absent.** Known from the Crystal Springs Reservoir area, but there is no suitable habitat present within the BSA, so this species is absent from the BSA.
Serpentine leptosiphon (*Leptosiphon ambiguous*)	4.2	Annual herb. Occurs in grassy areas on serpentine soils. Blooms April – May.	**Absent.** There is no suitable habitat present within the BSA due to lack of serpentine substrate. There are no records of occurrences along the San Mateo coast. This species is absent from the BSA.
Large-flowered leptosiphon (*Leptosiphon grandiflorus*)	4.2	Annual herb. Occurs in open grassy flats in coastal strand, foothill woodland, northern coastal scrub, coastal sage scrub, closed-cone pine forest, valley grassland, and coastal prairie, generally in sandy soil.	**Absent.** There is no suitable habitat present within the BSA, and there are no recent records occurrences in San Mateo County. Mainly known from Henry Coe State Park and the Mt. Hamilton area. This species is absent from the BSA.
Rose linanthus (*Leptosiphon rosaceus*)	1B.1	Annual herb. Occurs in coastal bluff scrub. Blooms April – June.	**Absent**. Known from the Pillar Point Bluff area, but there is no suitable habitat present within the BSA, so this species is absent from the BSA.
Crystal Springs lessingia (*Lessingia arachnoidea*)	1B.2	Annual herb. Occurs on serpentine in cismontane woodland, coastal scrub, and valley and foothill grassland. Blooms July – October.	**Absent**. Known from the Crystal Springs Reservoir area. There is no suitable habitat for this species within the BSA due to lack of serpentine substrate, so this species is absent from the BSA.

Name	Status[1]	General Habitat Description	Potential for occurrence in the BSA[2]
Woolly-headed lessingia (*Lessingia hololeuca*)	3	Annual herb. Occurs in broadleaved upland forest, coastal scrub, lower montane coniferous forest and valley and foothill grassland on clayey and serpentine substrates. Blooms June – October.	**Absent.** Known from the Crystal Springs Reservoir area. There is no suitable habitat for this species within the BSA due to lack of serpentine and clayey substrates, so this species is absent from the BSA.
Coast lily (*Lilium maritimum*)	1B.1	Perennial herb. Occurs in broadleaved upland forest, closed-cone coniferous forest, coastal prairie, coastal scrub, and freshwater marshes and swamps. Blooms May – July.	**Absent.** Known from Point Reyes National Seashore in Marin County. There is suitable habitat for this species within the BSA. However, this species is presumed extirpated from San Mateo County, so this species is absent from the BSA.
Ornduff's meadowfoam (*Limnanthes douglasii* var. *ornduffii*)	1B.2	Annual herb. Occurs in mesic meadows and seeps as well as agricultural fields in coastal prairie. Referred to as yellow meadowfoam in the LCP Blooms. March – May.	**Absent**. There is marginal habitat present within the BSA. However, this species is highly restricted in distribution and is known only from the Pillar Point Bluff area, so this species is absent from the BSA.
San Mateo tree lupine (*Lupinus arboreus* var. *eximius*)	3.2; LCP	Evergreen shrub. Occurs in chaparral and coastal scrub. Referred to as Davy's Bush Lupine in the LCP. Blooms April – July.	**Absent.** Known from McNee Ranch State Park and Montara mountain. There is no suitable habitat for this species within the BSA, so this species is absent from the BSA.
Indian Valley bush mallow (*Malacothamnus aboriginum*)	1B.2	Deciduous shrub. Occurs on rocky and often burned areas in chaparral and cismontane woodland. Blooms April – October.	**Absent.** There is one non-specific occurrence from Rancho Corral de Tierra area of the Golden Gate National Recreation Area. Known mainly from San Benito County. There is no suitable habitat for this species within the BSA due to lack of rocky substrate, so this species is absent from the BSA.
Arcuate bush mallow (*Malacothamnus arcuatus*)	1B.2	Evergreen shrub. Occurs in chaparral. Blooms April – September.	**Absent**. Known from the Crystal Springs Reservoir area. There is no suitable habitat for this species within the BSA. Vegetative material would have been detectable during the June 2018 site visit but none was seen. Therefore, this species is absent from the BSA.

Name	Status[1]	General Habitat Description	Potential for occurrence in the BSA[2]
Davidson's bush mallow (*Malacothamnus davidsonii*)	1B.2	Deciduous shrub. Occurs in chaparral, cismontane woodland, coastal scrub, and riparian woodland. Blooms June – January.	**Absent**. There is marginal habitat present within the BSA. However, this species is known only from locations in the Santa Cruz Mountains, so this species is absent from the BSA.
Hall's bush mallow (*Malacothamnus hallii*)	1B.2	Evergreen shrub. Occurs in open areas in chaparral and coastal scrub. Blooms May – September.	**Absent**. There is no suitable chaparral or coastal scrub habitat for this species within the BSA. Vegetative material would have been detectable during the June 2018 site visit. Additionally, this species is only known locally from locations in the Santa Cruz Mountains. Therefore, this species is determined to be absent from the BSA.
Marsh microseris (*Microseris paludosa*)	1B.2	Perennial herb. Occurs in moist areas in closed-cone coniferous forest, cismontane woodland, coastal scrub and valley and foothill grassland. Blooms April – June.	**Absent.** There is marginal mesic grassland habitat for this species within the BSA. However, this species is known only from one recent occurrence in San Mateo County, near Pescadero. Therefore, this species is determined to be absent from the BSA.
Elongate copper moss (*Mielichhoferia elongata*)	4.3	Moss. Occurs in broadleafed upland forest, chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, and subalpine coniferous forest on vernally mesic, acidic metamorphic rock.	**Absent.** There is no suitable metamorphic rock habitat for this species within the BSA. Known only from one non-specific location in southern San Mateo County. Therefore, this species is determined to be absent from the BSA.
Woodland woolythreads (*Monolopia gracilens*)	1B.2	Annual herb. Occurs on serpentine substrate in broadleaved upland forest, chaparral, cismontane woodland, north coast coniferous forest and valley and foothill grassland, usually in open areas. Blooms February – July	**Absent**. There is no suitable habitat for this species within the BSA due to lack of serpentine substrate. Only known locally from locations in the Santa Cruz Mountains. Therefore, this species is determined to be absent from the BSA.

Name	Status[1]	General Habitat Description	Potential for occurrence in the BSA[2]
Gairdner's yampah (*Perideridia gairdneri* ssp. *gairdneri*)	4.2; LCP	Perennial herb. Occurs in moist soils within broadleaved upland forest, chaparral, coastal prairie, valley and foothill grassland, and vernal pools. Blooms June – October.	**Absent**. There is marginal mesic grassland habitat for this species within the BSA. However, only known from the Crystal Springs Reservoir area and the Pescadero area. Additionally, no suitable vegetation association is present. Therefore, this species is determined to be absent from the BSA.
Dudley's lousewort (*Pedicularis dudleyi*)	1B.2	Perennial herb. Occurs in coastal chaparral and coniferous forest.Blooms April – June.	**Absent**. There is no suitable chaparral and forest habitat for this species within the BSA. Also, this species is known only from several locations in southern San Mateo County. Therefore, this species is determined to be absent from the BSA.
Choris's popcorn-flower (*Plagiobothrys chorisianus* var. *chorisianus*)	1B.2	Annual herb. Occurs in moist areas within coastal scrub and chaparral, Blooms March – June.	**Absent**. There is no suitable coastal scrub habitat for this species within the BSA. Only known locally from coastal scrub habitats along the San Mateo County Coast, including Half Moon Bay. Therefore, this species is determined to be absent from the BSA.
Monterey pine (*Pinus radiata*)	1B.1, LCP	Perennial evergreen tree. Occurs in Closed-cone coniferous forest and Cismontane woodland. Commonly planted as an ornamental throughout coastal California.	**Present as an ornamental.** The Monterey pines present within the BSA were planted as part of landscaping and do not naturally occur in the BSA. Only three native stands are known in CA, at Año Nuevo, Cambria, and the Monterey Peninsula. Therefore, native stands of Monterey pine are determined to be absent from the BSA.
Michael's rein orchid (*Piperia michaelii*)	4.2	Perennial herb. Occurs in coastal bluff scrub, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub, and lower montane coniferous forest. Blooms April – June.	**Absent.** There is no suitable woodland or chaparral habitat for this species within the BSA. Only known from coniferous forest locations in San Mateo County. Therefore, this species is determined to be absent from the BSA.
Oregon polemonium (*Polemonium carneum*)	2.2	Perennial herb. Occurs in coastal scrub and lower montane coniferous forest. Blooms from April – September	**Absent**. There is no suitable scrub or forest habitat for this species within the BSA. Only known locally from the Rancho Corral de Tierra area of the Golden Gate National Recreation Area. Therefore, this species is determined to be absent from the BSA.

Name	Status[1]	General Habitat Description	Potential for occurrence in the BSA[2]
Lobb's aquatic buttercup (*Ranunculus lobbii*)	4.2	Annual herb. Occurs in freshwater ponds, wetlands, and vernal pools. Blooms from February – May.	**Absent.** There is marginal habitat present within the BSA. Additionally, No suitable vegetation association is present. Only known locally form the Crystal Springs Reservoir area. Therefore, this species is determined to be absent from the BSA.
Hoffmann's sanicle (*Sanicula hoffmannii*)	4.3	Perennial herb. Occurs in broadleafed upland forest, coastal bluff scrub, chaparral, cismontane woodland, coastal scrub, and lower montane coniferous forest. Blooms March – May.	**Absent.** There is suitable chaparral or woodland habitat present within the BSA. Only known from several locations in southern San Mateo County. Therefore, this species is determined to be absent from the BSA.
Chaparral ragwort (*Senecio aphanactis*)	2B.2	Annual herb. Occurs in dry, open rocky areas in chaparral, cismontane woodland, and coastal scrub. Also occurs in alkaline flats. Blooms February – May.	**Absent.** There is no suitable chaparral or woodland habitat for this species within the BSA. Locally, there is only one non-specific occurrence near Purisima Creek Redwoods and Open Space Preserve. Therefore, this species is determined to be absent from the BSA.
San Francisco campion (*Silene verecunda* ssp. *Verecunda*)	1B.2, LCP	Perennial herb. Occurs on sandy substrate in coastal bluff scrub, chaparral, coastal prairie, coastal scrub, and valley and foothill grassland. Referred to as Dolores campion in the LCP Blooms February – August.	**Absent**. There is no suitable habitat for this species within the BSA due to lack of sandy substrate. Only known locally from the higher elevations within the Rancho Corral de Tierra area of the Golden Gate National Recreation Area. Therefore, this species is determined to be absent from the BSA.
Marsh zigadenus (*Toxicoscordion fontanum*)	4.2	Perennial herb. Occurs in vernally moist areas, marshes, and wetlands, often on serpentine soils in chaparral and mixed evergreen forest. Blooms April – July.	**Absent.** There is no suitable habitat for this species within the BSA due to lack of serpentine soils. Known from only one location near Crystal Spring Reservoir area. Therefore, this species is determined to be absent from the BSA.
Saline clover (*Trifolium.hydrophilum*)	1B.2	Annual herb. Occurs in salt marshes, mesic sites in valley and foothill grassland, and vernal pools on alkaline soils. Blooms April – June.	**Absent**. There is no suitable habitat for this species within the BSA due lack of alkaline soils. Additionally, there is only one non-specific occurrence for this species in San Mateo County. Therefore, this species is determined to be absent from the BSA.

Name	Status[1]	General Habitat Description	Potential for occurrence in the BSA[2]
San Francisco owl's clover (*Triphysaria floribunda*)	1B.2	Annual herb. Usually occurs on serpentine substrate in coastal prairie, coastal scrub, valley and foothill grassland. Blooms April – June.	**Absent**. There is no suitable habitat for this species within the BSA due to lack of serpentine substrate. Only known from the higher elevations within the Rancho Corral de Tierra area of the Golden Gate National Recreation Area. Therefore, this species is determined to be absent from the BSA.
Coastal triquetrella (*Triquetrella californica*)	1B.2	Moss. Occurs on soil in coastal bluff scrub and coastal scrub.	**Absent**. There is no suitable coastal scrub habitat present within the BSA. Only known from near Pilarcitos Lake in San Mateo County. Therefore, this species is determined to be absent from the BSA.
Methuselah's beard lichen (*Usnea longissima*)	4.2	Lichen. Occurs in broadleafed upland forest and North Coast coniferous forest.	**Absent.** There is no suitable forest habitat present within the BSA. Known from a single occurrence in the Santa Cruz Mountains near Purisima Creek Redwoods Open Space Reserve. Therefore, this species is determined to be absent from the BSA.

[1] Status definitions:

FE = federally listed as endangered.

FT = federally listed as threatened.

SE = state listed as endangered.

ST = state listed as threatened.

SC = State Candidate for listing

LCP = Species identified as rare, threatened or endangered and are located in the San Mateo County Coastal Zone as indicated in the City of Half Moon Bay Local Coastal Plan (1993).

California Rare Plant Rank (CRPR)

1A = plants presumed extirpated in California and either rare or extinct elsewhere.

1B = plants rare, threatened, or endangered in California and elsewhere.

2A = plants presumed extirpated in California, but common elsewhere.

2B = plants rare, threatened, or endangered in California, but more common elsewhere.

3 = plants about which more information is needed—a review list.

4 = plants of limited distribution—a watch list.

Threat code extension

.1 = seriously threatened in California.

.2 = fairly endangered in California.

.3 = not very endangered in California.

[2] Definitions regarding potential occurrence:

Possible =Species was not observed during the reconnaissance surveys, but suitable habitat is present (habitat type, soils, and elevation), and the species is known to occur in the project vicinity.

Absent = Suitable habitat is not present, or the project site is outside the species' local distribution or elevational range.

Appendix C. Special-Status Animals Considered for Potential Occurrence

Name	Status[1]	General Habitat Description	Potential for Occurrence in the BSA[2]
Federal or State Endangered, Threatened, or Candidate Species			
Bay checkerspot butterfly (*Euphydryas editha bayensis*)	FT	Native grasslands on serpentine soils. Larval host plants are *Plantago erecta* and/or *Castilleja* sp.	**Absent.** No suitable breeding or feeding habitat is present in the BSA. Further, suitable habitat for the species larval host plants, *Plantago erecta* and/or *Castilleja* sp., is not present in the BSA. Determined to be absent.
Mission blue butterfly (*Plebejus icarioides missionensis*)	FE	Coastal chaparral and coastal grasslands. Larval host plant are *Lupinus* spp.	**Absent.** No suitable breeding or feeding habitat is present in the BSA. Further, suitable habitat for the species larval host plants, *Lupinus* spp., is not present in the BSA. Determined to be absent.
Myrtle's silverspot butterfly (*Speyeria zerene myrtleae*)	FE	Coastal dune and prairie habitat. Larval host plants are violets, typically *Viola adunca*.	**Absent.** No suitable breeding or feeding habitat is present in the BSA. Further, suitable habitat for the species larval host plants, violets (typically *Viola adunca*), is not present in the BSA. Determined to be absent.
Monarch butterfly (*Danaus plexippus*)	FC	Overwintering roosts along the California coast from Mendocino County south to Baja California. Feed and breed exclusively on plant species in the subfamily Asclepiadoideae.	**Possible.** No suitable breeding or feeding habitat is present in the BSA due to the absence of milkweeds (*Asclepias* spp.). No overwintering roosts known in the BSA according to the Western Monarch Count's mapping tool – linked to in the Service's April 29, 2021 "Western Monarch Butterfly Conservation Recommendations" (USFWS 2021b). May occur as an occasional migrant, but not expected to breed or occur commonly/regularly in the BSA.
San Bruno elfin butterfly (*Callophrys mossii bayensis*)	FE	Coastal mountains near San Francisco Bay in the fog-belt of steep, north-facing slopes. Larval food plant is *Sedum spathulifolium*.	**Absent.** The San Bruno elfin butterfly is known only from the San Bruno Mountain, Milagra Ridge, and Montara Mountain in San Mateo County. Further, suitable habitat for the species larval host plant, broadleaf stonecrop (*Sedum spathulifolium*), a low growing succulent that grows in rocky outcrops on steep north facing slopes, is not present in the BSA. Determined to be absent.
Crotch bumble bee *Bombus crotchii*	SC	Open grassland and scrub habitats.	**Absent.** Although the species was historically found throughout the southern two-thirds of California, including the project vicinity, it is not expected to occur on the site due to recent range contractions (The Xerces Society 2018). Therefore, the species is determined to be absent.

Name	Status[1]	General Habitat Description	Potential for Occurrence in the BSA[2]
Western bumble bee *Bombus occidentalis*	SC	Meadows and grasslands with abundant floral resources.	**Absent.** Although the species was historically found throughout much of central and northern California, including the project vicinity, it is not expected to occur on the site due to recent range contractions (The Xerces Society 2018). Therefore, the species is determined to be absent.
Delta smelt (*Hypmesus transpacificus*)	FT, SE	Estuarine systems in the Sacramento-San Joaquin Delta.	**Absent.** The Delta smelt occurs in estuarine waters in the Sacramento/San Joaguin Delta region of San Francisco Bay. The reach of Pilarcitos Creek within the BSA is considered a freshwater stream. No suitable aquatic habitat is present in the BSA. Determined to be absent.
Longfin smelt (*Spirinchus thaleichthys*)	FC, ST	Spawns in fresh water in the upper end of the San Francisco Bay; occurs year-round in the South Bay.	**Absent.** No suitable aquatic habitat is present in the BSA. The BSA is not associated with the San Francisco Bay habitat for the species within the county. Determined to be absent.
Central California Coast steelhead (*Oncorhynchus mykiss*)	FT	Cool streams with suitable spawning habitat and conditions allowing migration between spawning and marine habitats.	**Possible.** Adult steelhead migrate upstream in winter months, when adequate flows allow passage to upstream areas. This typically occurs between December and March. Eggs are laid in gravelly sections of the streambed, and hatch in spring. Juvenile steelhead remain in the creek system for one to three years before migrating to the ocean. Thus, steelhead can occur in Pilarcitos Creek year-round.
Tidewater goby (*Eucyclogobius newberryi*)	FE, CSSC	Brackish water habitats along coast, fairly still but not stagnant water and high oxygen levels.	**Absent.** The tidewater goby occurs in brackish, tidally influenced waters. The reach of Pilarcitos Creek within the BSA is approximately 1.7 mi upstream of the Pacific Ocean and is considered a freshwater stream. Further, the reach within the BSA lacks shallow lagoons or pools of still, non-stagnant waters, and is subject to flashy flows. These conditions make the BSA unsuitable for these and similar tidal species. Determined to be absent.
California red-legged frog (*Rana draytonii*)	FT, CSSC	Streams, freshwater pools, and ponds with emergent or overhanging vegetation.	**Present.** California red-legged frog adults and juveniles were observed in the perennial freshwater marsh in the BSA in 2005 (H. T. Harvey & Associates 2005). California red-legged frog adults were observed in Pilarcitos Creek approximately 0.5 mi from the BSA in 2006, and California red-legged frogs were observed in a pond in the vicinity of Pilarcitos Creek approximately 1.3 mi of the BSA in 2016 (CNDDB 2021).

Name	Status[1]	General Habitat Description	Potential for Occurrence in the BSA[2]
Foothill yellow-legged frog (*Rana boylii*)	SE	Partially shaded shallow streams and riffles with a rocky substrate. Occurs in a variety of habitats in coast ranges.	**Absent.** Nearest CNDDB record is over 16 mi southeast of the BSA (CNDDB 2021). Typical suitable habitat for the foothill yellow-legged frog (i.e., boulders and cobbles in open stream habitat) is not present. Determined to be absent.
California tiger salamander (*Ambystoma californiense*)	FT, ST	Vernal or temporary pools in annual grasslands or open woodlands.	**Absent.** No suitable habitat is present in the BSA. Further, populations have largely been extirpated from San Mateo County due to habitat loss, and the species is now considered absent from most of the project vicinity, including the BSA. The closest occurrence in the project vicinity is at Lake Lagunita on the Stanford campus, which is approximately 14 mi south of, and on the opposite side of the Santa Cruz Mountains from, the BSA (CNDDB 2021). Determined to be absent.
San Francisco garter snake (*Thamnophis sirtalis tetrataenia*)	FE, SE, SP	Prefer densely vegetated freshwater habitats. May use upland burrows for aestivation.	**Possible.** Pilarcitos Creek and the perennial freshwater marsh in the BSA provides suitable foraging habitat. An observation of the San Francisco garter snake in Pilarcitos Creek approximately 0.5 mi from the BSA has been recorded in CNDDB in 2004.
Salt marsh harvest mouse (*Reithrodontomys raviventris*)	FE, SE, SP	Salt marsh habitat dominated by common pickleweed or alkali bulrush.	**Absent.** No suitable habitat is present in the BSA. Outside the species' range. Determined to be absent.
Bank swallow (*Riparia riparia*)	ST	Colonial nester on vertical banks or cliffs with fine textured soils near water.	**Absent.** No suitable habitat present in the BSA. Determined to be absent.
Marbled murrelet (*Brachyramphus marmoratus*)	FT, SE (nesting)	Requires dense, mature forests of redwood and Douglas-fir for breeding.	**Absent.** The BSA lacks suitable coastal coniferous forest nesting habitat for the marbled murrelet. Determined to be absent.
Mountain lion *Puma concolor*	SC	Occurs in a variety of habitats, such as deserts, woodlands, wetlands, and high-alpine forests. Preferred habitat is strongly correlated with densely vegetated areas, higher elevations, steep slopes, and abundant prey (Murphy 1983, Logan and Irwin 1985, Logan and Sweanor 2001).	**Possible.** Movement records of multiple mountain lions fitted with GPS-enabled wildlife-tracking collars, have shown individual lions moving through the surrounding area of the BSA over the past 10 years (Santa Cruz Puma Project 2018). The BSA does not provide suitable breeding and denning habitats, which is found far removed from the frequent human disturbances that occur within the BSA. Individual mountain lions may occur occasionally within the BSA as transients, as they move across their extensive home ranges, but they are expected to occur very infrequently.
California Species of Special Concern			

Name	Status[1]	General Habitat Description	Potential for Occurrence in the BSA[2]
California giant salamander (*Dicamptodon ensatus*)	CSSC	Usually found in cool, moist, forest habitat, associated with rocky streams and springs. Water, preferably cold and flowing, is necessary for egg-laying sites and for the aquatic larval and adult forms.	**Absent.** Nearest CNDDB records are over 3 mi southeast and 5 mi north of the BSA (CNDDB 2021). The BSA is outside the montane/foothill habitat where this species occurs. Determined to be absent.
Santa Cruz black salamander (*Aneides niger*)	CSSC	Primarily found in moist habitats. Prefers cool, moist and shaded conditions along ravines and water courses.	**Absent.** Nearest CNDDB record is over 7 mi southeast of the BSA (CNDDB 2021). The BSA is outside the montane/foothill habitat where this species occurs. Determined to be absent.
Western pond turtle (*Actinemys marmorata*)	CSSC	Permanent or nearly permanent water in a variety of habitats.	**Possible.** The reach of Pilarcitos Creek within and adjacent to the BSA is degraded due to surrounding development; however, suitable basking and foraging habitat for pond turtles is present in these areas. In addition, the nearest CNDDB recorded observations are over 4 mi from the BSA in the area of the Crystal Springs Reservoir (CNDDB 2021). Thus, there is some potential for pond turtles to be present in the BSA, though they are likely present in low numbers and/or infrequently. The perennial freshwater marsh is too shallow, with emergent vegetation too thick, to be considered suitable aquatic foraging habitat for this species.
American badger (*Taxidea taxus*)	CSSC	Burrows in grasslands and occasionally in infrequently disked agricultural areas.	**Absent.** Badgers are not expected to occur in the BSA due to disturbance, both on the site and in surrounding areas, coupled with the absence of nearby records. Determined to be absent.
Pallid bat (*Antrozous pallidus*)	CSSC	Forages over many habitats; roosts in caves, rock outcrops, buildings, and hollow trees.	**Possible.** No suitable roosting habitat in the BSA. Individuals from colonies located within several miles of the BSA could potentially forage on the site in low numbers, though nothing about the site suggests that it provides particularly important foraging habitat for the species. Expected to occur in the BSA as an occasional forager, albeit infrequently and in low numbers.
Townsend's big-eared bat (*Corynorhinus townsendii*)	CSSC	Roosts in caves and mine tunnels, and occasionally in deep crevices in trees such as redwoods or in abandoned buildings, in a variety of habitats.	**Possible.** Roosting habitat does not occur in the BSA but roosts do occur along the coastal region near Half Moon Bay, and individuals may occasionally occur in the BSA to forage or disperse. Expected to occur in the BSA as an occasional forager over the site, albeit infrequently and in low numbers.

Name	Status[1]	General Habitat Description	Potential for Occurrence in the BSA[2]
San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*)	CSSC	Nests in a variety of habitats including riparian areas, oak woodlands, and scrub.	**Possible.** The riparian habitat associated with Pilarcitos Creek and around the freshwater marsh in the BSA provides suitable nesting habitat. The nearest CNDDB record is near Pilarcitos Creek over 3 mi east-northeast of the BSA. No nests were observed during the reconnaissance-level survey, but this species could potentially nest or forage in, or disperse through, the riparian habitat in the BSA.
Alameda song sparrow (*Melospiza melodia pusillula*)	CSSC	Nests in salt marsh, primarily in marsh gumplant and cordgrass along channels.	**Absent.** The BSA is outside of the area where the species nests in San Mateo County, which is along the San Francisco Bay marsh habitat of the county. Determined to be absent.
Burrowing owl (*Athene cunicularia*)	CSSC	Nests and roosts in open grasslands and ruderal habitats with suitable burrows, usually those made by California ground squirrels (*Spermophilus beecheyi*).	**Absent.** No nesting burrowing owls are known to occur in the surrounding project vicinity (CNDDB 2021). The California annual grassland found in the BSA is too limited and surrounded by trees and development to provide good burrowing owl habitat. Thus, the species is not expected to occur in the BSA. Determined to be absent.
Northern harrier (*Circus cyaneus*)	CSSC (nesting)	Nests in marshes and moist fields, forages over open areas.	**Present.** The perennial freshwater marsh in the BSA provides suitable habitat. An individual (but not a nest) was observed foraging within this perennial freshwater marsh in 2014. Low probability of nesting in this marsh due to its limited size, though the species forages in low numbers in the marsh and ruderal grassland.
San Francisco common yellowthroat (*Geothlypis trichas sinuosa*)	CSSC	Nests in herbaceous vegetation, usually in wetlands or moist floodplains.	**Possible.** The riparian habitat associated with Pilarcitos Creek and the perennial freshwater marsh in the BSA provide suitable nesting and foraging habitat.
Yellow warbler (*Setophaga petechia*)	CSSC (nesting)	Nests in riparian woodlands.	**Possible.** The riparian habitat associated with Pilarcitos Creek and around the perennial freshwater marsh in the BSA provides suitable foraging and nesting habitat. Likely to occur primarily as a migrant, but one or two pairs could potentially breed in the BSA.
California Fully Protected Species			

Name	Status[1]	General Habitat Description	Potential for Occurrence in the BSA[2]
American peregrine falcon (*Falco peregrinus anatum*)	SP	Forages in many habitats; nests on cliffs and tall bridges and buildings.	**Possible.** The riparian habitat associated with Pilarcitos Creek at the BSA and nearby open space provide suitable foraging habitat, but suitable nesting habitat is absent.
Golden eagle (*Aquila chrysaetos*)	SP	Breeds on cliffs or in large trees (rarely on electrical towers), forages in open areas.	**Absent.** No suitable nesting habitat is present in the BSA, and the BSA is not expected to provide suitable prey or sufficiently extensive open foraging habitat for this species.
White-tailed kite (*Elanus leucurus*)	SP	Nests in trees and forages in extensive grasslands or marshes.	**Present.** The riparian habitat associated with Pilarcitos Creek and around the perennial freshwater marsh in the BSA provide ostensibly suitable nesting habitat. An individual was observed in the vicinity of the perennial freshwater marsh in 2014.

[1] Special-status Species Code Designations:

FE = Federally listed Endangered
FT = Federally listed Threatened
FC = Federal Candidate for listing
SE = State listed Endangered
ST = State listed Threatened
SC = State Candidate for listing
CSSC = California Species of Special Concern

[2] Definitions regarding potential occurrence:

Present = Species or sign of its presence was observed on the site, or there are records of the species' occurrence on the site.

Possible =Species was not observed during the reconnaissance surveys, but suitable habitat is present (habitat type, soils, and elevation), and the species is known to occur in the project vicinity.

Absent = Suitable habitat is not present, or the project site is outside the species' local distribution or elevational range.

APPENDIX B2

Peer Review of the Biological Resources Report
880 Stone Pine Road Project
Technical Memorandum, SWCA Environmental Associates

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TECHNICAL MEMORANDUM

To: Todd Seeley
City of Half Moon Bay
501 Main Street
Half Moon Bay, California 94019

From: Jessie Henderson-McBean, Project Wildlife Biologist

Date: November 22, 2021

Re: **Biological Resources Report (BRR) Peer Review for the City of Half Moon Bay Corporation Yard Upgrade Project, Half Moon Bay, San Mateo County, California / SWCA Project No. 67708**

INTRODUCTION

At the request of the City of Half Moon Bay (City), SWCA Environmental Consultants (SWCA) has prepared this Biological Resources Report (BRR) Peer Review to discuss the results of the site visit conducted by SWCA on September 2, 2021, to provide comments on the H.T. Harvey & Associates (H.T. Harvey) BRR results, and to provide recommendations regarding suggested avoidance measures. SWCA understands that the City Corporation Yard Upgrade Project (project) description was refined after the BRR prepared by H.T. Harvey on June 25, 2021, was finalized; therefore, there is now a better understanding of the project area and associated potential impacts. The Biological Study Area (BSA) analyzed in the H.T. Harvey BRR includes the current project area, and therefore potential impacts to biological resources are either expected to remain consistent with those identified in the BRR or have been reduced due to the smaller, refined project area.

PROJECT OVERVIEW

The project area is located at the east end of Stone Pine Road between State Route (SR-) 92 and Pilarcitos Creek in the city of Half Moon Bay, San Mateo County, California (Figure 1). The project includes a lot line adjustment affecting two existing parcels. Parcel 1 would contain the Corporation Yard, access road, existing agricultural pond, conservation easement, and wildlife corridor for California red-legged frog (CRLF) (*Rana draytonii*) and San Francisco garter snake (SFGS) (*Thamnophis sirtalis tetrataenia*), and Parcel 2 would include the remaining area between the Corporation Yard and Stone Pine Road (see Figure 1). The project includes improvements to Parcel 1, including demolishing the existing trash enclosure; constructing a new paved road and parking areas; upgrades to electrical, water, and sewer facilities; and constructing new facilities, including a fabric tension warehouse building with restrooms, a covered trash/materials enclosure, and a solar field. The project also includes removal of existing fencing, which surrounds both parcels, and installing new fencing only around the corporation yard area in Parcel 1. On Parcel 2, the project activities will be limited to removal and restoration of the existing southern loop of the dirt access road. The access road alignment would be located as far north as is practicable, while taking into account driving safety, existing vegetation, and slope stability.

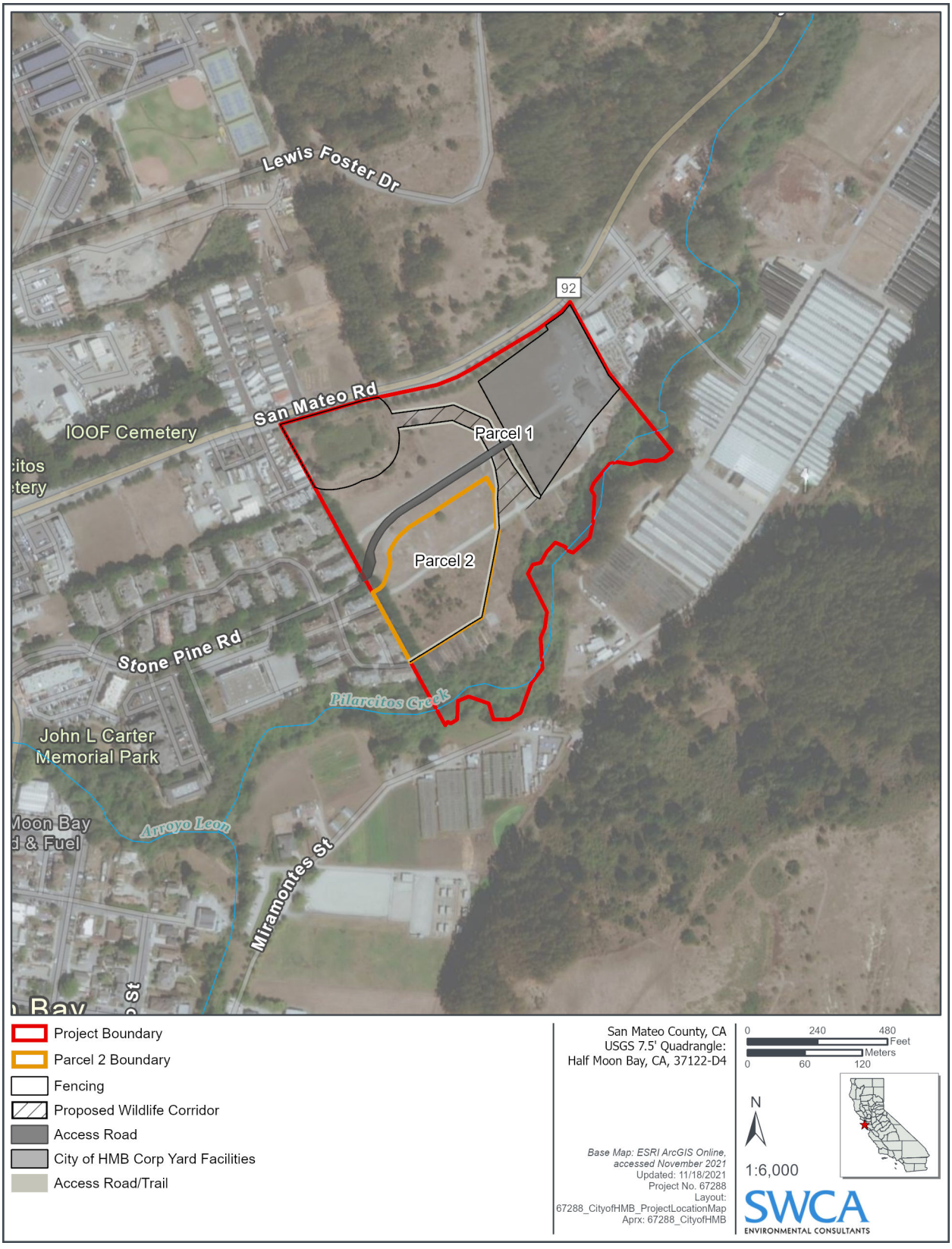

Figure 1. Project vicinity map.

The project would also include the construction of a wildlife corridor that would connect the existing agricultural pond in the northwest corner of the property with Pilarcitos Creek to the south. Development of the wildlife corridor would require construction of a wildlife-safe tunnel beneath the Corporation Yard access road, fencing to direct dispersing amphibians and reptiles through the tunnel, and temporary or permanent fencing along the riparian corridor to funnel any dispersing wildlife through the wildlife corridor. Additionally, the existing chain link fencing currently surrounding the existing agricultural pond would be removed and replaced at the Half Moon Bay Local Coastal Land Use Plan (LCLUP)–required 100-foot setback.

METHODS

SWCA biologists reviewed the survey and literature review results in the H.T. Harvey BRR and then conducted an updated literature review. The literature review consisted of a records search of current versions of the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) (CNDDB 2021); the U.S. Fish and Wildlife Service (USFWS) online Information, Planning, and Conservation System (IPaC) species list system (USFWS 2021b); and the California Native Plant Society (CNPS) online Inventory of Rare and Endangered Plants (CNPS 2021) within the Half Moon Bay, Montara Mountain, San Mateo, Woodside, San Gregorio, and La Honda U.S. Geological Survey (USGS) topographic quadrangles. The USFWS Critical Habitat Mapper (USFWS 2021a) and the National Oceanic and Atmospheric Administration (NOAA) Fisheries ESA Critical Habitat Mapper (NOAA 2021) were reviewed to identify critical habitat for terrestrial and aquatic species near the BSA. The National Wetlands Inventory Database (USFWS 2021c) and USGS National Hydrography Dataset (NHD) (USGS 2019), U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) Soil Survey for San Mateo County (NRCS 2021), and aerial imagery were also reviewed to provide additional information about soils and potential wetland features known to occur in the BSA.

A reconnaissance-level field survey was conducted on September 2, 2021, by SWCA biologist Jessie Henderson-McBean. The study area was surveyed by walking meandering transects through the area to document habitat conditions and to determine the potential for sensitive species presence. Special attention was paid to the hydrology present within the agricultural pond located in the northwest corner of the site. No focused species surveys or protocol-level surveys were conducted.

RESULTS

The SWCA literature review results were consistent with those reported in the H.T. Harvey BRR, prepared in June 2021. SWCA reviewed the Regulatory Setting information outlined in Section 3 of the H.T. Harvey BRR and found that no additional regulatory information is needed.

Based on the results of the September 2021 site visit, SWCA concurs with the BSA existing conditions and habitat conditions reported in Section 4 of the H.T. Harvey BRR. However, it should be noted that the current project area consists of ruderal grassland and developed or landscaped areas. Riparian woodland, perennial freshwater marsh, and aquatic riverine habitats, reported in the H.T. Harvey BRR, are located in and adjacent to Parcel 1, but outside of the project area. No work is proposed within these sensitive habitats.

SWCA concurs with the Special-Status Species and Sensitive Habitats identified in Section 5 of the H.T. Harvey BRR. No additional special-status species or sensitive habitats were identified during the literature review or site assessment. Therefore, no additional CNDDB maps, species lists, or habitat maps have been included in this memorandum.

IMPACTS AND MITIGATION MEASURES

While the regulatory background, literature review, and sensitive species lists in the H.T. Harvey BRR were consistent with SWCA's findings, the potential impacts of the project have changed due to the refined project description. Additional analysis has been provided below to identify suggested edits to the impacts and mitigation measures reported in Section 6, Impacts and Mitigation Measures, of the H.T. Harvey BRR.

The H.T. Harvey BRR stated that it was assumed that no disturbance would occur to Pilarcitos Creek, the agricultural pond (freshwater marsh), or the riparian habitat associated with Pilarcitos Creek beyond existing allowed use under the City LCLUP. No direct disturbance to aquatic features or riparian habitat is anticipated as a result of the current project design. Therefore, the H.T. Harvey BRR assumption of avoidance of aquatic features and associated buffers is correct under the current project design with the exception of encroachment within the 100-foot buffer surrounding the agricultural pond to remove existing chain link fencing. The fencing to be removed will be replaced at the edge of the 100-foot buffer to protect the riparian habitat and agricultural pond. The relocated fencing will also provide a barrier to encourage dispersing reptiles and amphibians to utilize the wildlife corridor and prevent them from crossing the access road where they could encounter a vehicle. The removal of this fencing is anticipated to require minimal ground disturbance, but short-term impacts to species could occur in the vicinity of the fence removal as wildlife may be temporarily displaced due to increased human presence, noise, and dust disturbance. With implementation of additional suggested mitigation measures (31 through 39 below) and mitigation measures outlined in the H.T. Harvey BRR, potential short-term impacts to species would be minimized.

Potential impacts to ruderal grassland, developed areas, landscaped areas, and non-native woodland areas in the current project description are consistent with those analyzed in the H.T. Harvey BRR, although the project area within these habitats has been reduced.

Impacts on Common Plant and Animal Species

SWCA concurs with the H.T. Harvey BRR finding that potential impacts to common plant and animal species would be less than significant. Although impacts to common plant and animal species would be minimal, SWCA recommends the following mitigation measures to further minimize any impacts to common wildlife during construction activities which may increase potential harm to wildlife:

Mitigation Measure 31: If any wildlife is encountered during project activities, said wildlife must be allowed to leave the work area unharmed. All listed wildlife species shall be allowed to leave the work area of their own accord, and without harassment. Animals shall not be picked up or moved in any way. If non-listed and/or non-special-status wildlife does not leave the work area of their own accord, the qualified project biologist may relocate the wildlife outside of the project limits.

Impacts on Special-Status Plants

The H.T. Harvey BRR identified one special-status plant species as having moderate to high potential to occur in the agricultural pond (freshwater marsh habitat) and associated dense riparian woodland: harlequin lotus (*Hosackia gracilis*); California Rare Plant Rank 4.2). However, this species was not observed during the field-level reconnaissance survey conducted by H.T. Harvey in June 2018, the time at which this species is at the height of its bloom period.

As currently proposed, the project will not disturb the agricultural pond (freshwater marsh habitat) or riparian woodland vegetation. Although chain link fence removal is proposed within the 100-foot buffer surrounding the agricultural pond, no disturbance to the mesic portions of freshwater marsh habitat (i.e.,

suitable for harlequin lotus) is anticipated. Therefore, this species is not expected to occur within the current project area, and no impacts are expected as a result of the project. No additional mitigation measures are recommended.

SWCA recommends that H.T. Harvey BRR Mitigation Measures 1–3 (special-status plant surveys, avoidance buffers, and compensatory mitigation) be removed from project requirements. If any changes to the project description occur and ground disturbance is proposed within the riparian habitat, then Mitigation Measures 1–3 should be implemented as proposed by the H.T. Harvey BRR.

Impacts to California Red-Legged Frog and San Francisco Garter Snake

SWCA concurs with the H.T. Harvey BRR findings that CRLF and SFGS are potentially present in Pilarcitos Creek and the agricultural pond (perennial freshwater marsh) located within the BSA. While the project is not anticipated to disturb either of these habitats, CRLF and SFGS individuals may forage and disperse through upland areas within the project area, as they potentially travel between Pilarcitos Creek and the agricultural pond. SWCA concurs with the implementation of Mitigation Measures 4, 8–15, and 17–22 to minimize potential impacts to these species during construction activities.

H.T. Harvey BRR Mitigation Measure 5 refers to off-site mitigation if avoidance of CRLF and SFGS habitat is not feasible. The proposed project will not disturb marsh or riparian habitat. While the proposed project will involve 1.4 acres of development in ruderal grassland habitat, the location of the Corporation Yard Upgrades is not within high-quality upland dispersal habitat and the development will be located east of the most direct dispersal pathway between the agricultural pond and Pilarcitos Creek (see Figure 1). Furthermore, the City retained Dr. Mark Jennings to consult on the design of a wildlife corridor connecting the existing agricultural pond with Pilarcitos Creek to ensure that the dispersal corridor between these two features was protected. The construction of this wildlife corridor would further minimize potential impacts to CRLF and SFGS during construction, as well as during operations and maintenance of the Corporation Yard. SWCA recommends that Mitigation Measure 5 be removed as it is no longer relevant to the project. In place of Mitigation Measure 5, SWCA suggests implementing the following additional mitigation measure pertaining to the wildlife corridor construction design:

Mitigation Measure 33: A wildlife corridor shall be constructed as part of the project and would funnel any potentially dispersing CRLF or SFGS into a culvert tunnel beneath the access road and limit the potential for traffic accessing the Corporation Yard to impact CRLF or SFGS. The wildlife corridor would also include a fence line along the riparian buffer of Pilarcitos Creek, which would further ensure that individual CRLF and SFGS would utilize the wildlife corridor to safely travel between the agricultural pond and the creek. The riparian buffer fencing would prevent CRLF or SFGS from entering the upland, trafficked portions of the property, where they could be injured or killed or trapped in upland habitat where they could be easily predated. The wildlife corridor design considered the life history aspects of both CRLF and SFGS to provide a safe and suitable movement corridor without any further management actions required.

SWCA recommends implementation of the following additional mitigation measure to reduce impacts to CRLF and SFGS during wildlife corridor construction:

Mitigation Measure 34: Installation of the wildlife corridor fencing should take place during dry weather conditions to ensure that no dispersing CRLF or SFGS are trapped in upland areas.

In addition to construction of the wildlife corridor, SWCA recommends implementation of the following mitigation measure to ensure efficacy of the wildlife corridor:

Mitigation Measure 35: The wildlife corridor fencing will be maintained as a solid boundary to allow for safe wildlife movement between the agricultural pond and Pilarcitos Creek by funneling any dispersing wildlife through a tunnel beneath the access road and providing a boundary along the riparian corridor of Pilarcitos Creek. The fencing, tunnel, and corridor will be maintained and repaired as needed by the City. A temporary material may be used for the fencing, such as ERTEC or similar, during construction of the project and for up to 1 year after construction is complete. If a temporary material is used for the fencing it will be inspected weekly by the City staff for any needed repairs. After 1 year the temporary fencing should be either replaced with a permanent wildlife boundary (e.g., chain link fencing with vinyl slats) or re-assessed for efficacy by a qualified biologist.

H.T. Harvey BRR Mitigation Measure 6 calls for submittal of biologists resumes to USFWS and CDFW, and Mitigation Measure 7 requires that the wildlife exclusion barrier installation plan is submitted to USFWS and CDFW. No consultation with CDFW or USFWS is currently required for the project, and therefore submittal of materials to these agencies without a consultation is not required. Accordingly, SWCA recommends that Mitigation Measures 6 and 7 be replaced with the following two proposed mitigation measures:

Mitigation Measure 36: The City will retain professional qualified biologists with experience monitoring for California red-legged frog and San Francisco garter snake to provide biological monitoring during all project construction activities that may result in take of any special-status species.

Mitigation Measure 37: A temporary wildlife exclusion barrier shall be installed at the discretion of the qualified biologist (or as required in project permits). Prior to any ground disturbance in the impact area, the temporary wildlife exclusion barrier shall be installed along the limits of disturbance. A qualified biologist shall inspect the area prior to installation of the barrier. The barrier shall be designed to allow the California red-legged frog and San Francisco garter snake to leave the impact area and prevent them from entering the impact area and shall remain in place until all development activities have been completed. This barrier shall be inspected daily and maintained and repaired as necessary to ensure that it is functional and is not a hazard to California red-legged frogs or San Francisco garter snakes on the outer side of the barrier.

H.T. Harvey BRR Mitigation Measures 8, 10, 13, 14, 15, and 17 all refer to "agency-approved biologists." SWCA recommends that these measures be implemented as described in the H.T. Harvey BRR with the exception of replacement of the term "agency-approved biologist" with the term "qualified biologist" throughout these measures.

H.T. Harvey BRR Mitigation Measure 16 describes the protocol for relocation of CRLF. The proposed project does not intend to consult with USFWS as the project does not require this consultation at this time. Therefore, SWCA proposes an amendment to Mitigation Measure 16, rewritten as follows:

Mitigation Measure 38: If any California red-legged frogs are found during implementation of mitigation measures, the qualified biologist shall contact the USFWS to determine if moving any of the individuals is appropriate. In making this determination, the USFWS shall consider if an appropriate relocation site exists. If the USFWS approves moving animals, the City shall ensure that a permitted biologist holding a 10(a)(1)(A) permit for California red-legged frog (or as required by the project permits) is given sufficient time to move the animals from the impact area before ground disturbance is initiated. Only qualified and permitted biologists shall capture, handle, and move the California red-legged frog. The permitted biologist shall monitor any relocated frog until it is determined that it is not imperiled by predators or other dangers.

With implementation of the mitigation measures described above and in the H.T. Harvey BRR, impacts to CRLF and SFGS would be less than significant.

Impacts to Central California Coast Steelhead and Western Pond Turtle

SWCA concurs with the H.T. Harvey BRR findings that Central California Coast steelhead (*Oncorhynchus mykiss irideus)* and western pond turtle (*Actinemys marmorata)* may be present in Pilarcitos Creek; however, direct impacts to these species are not expected as no disturbance is expected to occur within Pilarcitos Creek. As stated in the H.T. Harvey BRR, potential impacts to Pilarcitos Creek as a result of construction-related pollutants would be minimized with implementation of the stormwater pollution prevention plan (SWPPP), California Regional Water Quality Control Board, San Francisco Bay Region, Municipal Regional Stormwater NPDES Permit (MRP) (Water Board Order No. R2-2015-0049) and best management practices (BMPs).

While potential impacts to individual western pond turtles could occur if an individual were to enter the upland areas within the project area, the proposed wildlife corridor and wildlife fencing would allow any dispersing western pond turtles to freely move between Pilarcitos Creek and the agricultural pond (freshwater marsh habitat) without entering the project area. The construction of the wildlife corridor will not only minimize potential impacts to western pond turtle during construction, but will also protect individuals from potentially being injured or killed by vehicle traffic along the access road during operation and maintenance.

Potential impacts to these species will be minimized through implementation of Mitigation Measures 7–10 and 12–22 described in the H.T. Harvey BRR, such that potential impacts to these species would be less than significant.

Impacts to San Francisco Dusky-Footed Woodrat

SWCA concurs with the H.T. Harvey BRR finding that impacts to San Francisco dusky-footed woodrat would be less than significant with implementation of Mitigation Measures 23–25. No additional mitigation measures are recommended.

Impacts on Nonbreeding Special-Status Animals

The H.T. Harvey BRR concluded that potential impacts to non-breeding special-status animals on-site would be less than significant. While no large cavities are present within the project area that could provide suitable habitat for large maternity colonies of roosting bats, individual tree-roosting bats such as western red bat (*Lasiurus blossevillii*) may roost within the project area. Tree removal may result in injury or death to individual roosting bats, and therefore SWCA recommends the addition of the following mitigation measure:

Mitigation Measure 39: Minimize potential impacts to individual roosting bats:

a. Pre-Construction Bat Survey. Prior to tree removal, a qualified bat biologist shall conduct a visual survey of the project area to identify if bats are roosting within trees within the project area. Roost sites shall be avoided during tree removal. If no roosting sites or bats are observed during the survey no further mitigation is necessary.

b. If roosting bats or indications of bat roosts are observed within project trees to be removed, tree removal shall be conducted under the supervision of a qualified bat biologist. During tree removal and where potential bat roosts were identified, a qualified bat biologist shall be present and tree removal will begin with portions of the tree that do not provide suitable roost habitat (e.g., low limbs lacking forage). Trees will be disassembled at a speed in coordination with the on-site qualified bat biologist that allows any roosting bats to vacate the tree.

With implementation of the mitigation measures described above and in the H.T. Harvey BRR, impacts to non-breeding special-status animals would be less than significant.

Impacts on the San Francisco Common Yellowthroat, Yellow Warbler, and Raptors including White-Tailed Kite

SWCA concurs with the H.T. Harvey BRR findings that impacts to San Francisco common yellowthroat (*Geothlypis trichas sinuosa)*, yellow warbler (*Setophaga petechia)*, white-tailed kite (*Elanus leucurus)*, and other raptors would be less than significant. SWCA concurs with the implementation of Recommended Measures A–C to comply with the Migratory Bird Treaty Act and California Fish and Game Code. No additional mitigation measures are recommended.

Impacts to Riparian Habitats or Other Sensitive Natural Communities

SWCA concurs with the H.T. Harvey BRR findings regarding potential impacts to riparian habitat or other sensitive natural communities. The project will not directly disturb the riparian habitat present; however, the project does propose removal of the existing chain link fencing surrounding the agricultural pond that is currently within the 100-foot buffer surrounding the agricultural pond. Fence removal is not expected to directly impact riparian habitat, and indirect impacts will be minimized and avoided through implementation of the SWPPP, MRP, and BMPs. SWCA concurs with the implementation of Mitigation Measure 26 and impacts to riparian habitats or sensitive natural communities would be less than significant.

Mitigation Measures 27 and 28 refer to pruning riparian trees and removal of riparian habitat. No removal of riparian vegetation is currently proposed as part of the project, and therefore SWCA recommends removal of these mitigation measures as they are no longer relevant to the project.

Impacts Caused by Non-Native and Invasive Species

SWCA concurs with the H.T. Harvey BRR findings that impacts caused by non-native and invasive species would be less than significant with the implementation of Mitigation Measure 29. No additional mitigation measures are recommended.

Impacts on Wetlands and Waters

SWCA concurs with the H.T. Harvey BRR findings regarding potential impacts to wetlands and waters. No direct impacts to wetlands or waters are currently part of the proposed project. Indirect impacts to wetlands and waters may occur during construction activities; however, with the implementation of the SWPPP, MPR, and BMPs, potential impacts would be less than significant. No additional mitigation measures are recommended.

Impacts on Wildlife Movement

SWCA concurs with the H.T. Harvey BRR findings that impacts to wildlife movement as a result of the project would be less than significant with implementation of mitigation measures. Wildlife will be able to move and disperse freely along Pilarcitos Creek and the riparian corridor. The construction of the wildlife corridor linking Pilarcitos Creek with the agricultural pond on-site will ensure that dispersing wildlife will be able to safely move between these two aquatic habitats. No additional mitigation measures are recommended.

Impacts to Heritage Trees per Municipal Code Section 7.40

The H.T. Harvey BRR identified over 100 trees present within the site; however, a tree survey was not included as part of the H.T. Harvey BRR preparation. Given that a refined project description is now available, a tree survey (i.e., arborist report) is recommended to determine if any of the trees within the project area have heritage status in accordance with the standards of Chapter 7.40 of the City of Half Moon Bay Municipal Code. SWCA concurs with the H.T. Harvey BRR findings that impacts to heritage trees would be less than significant with implementation of Mitigation Measure 30, which addresses heritage tree avoidance or tree replanting where avoidance is not possible.

Impacts due to Conflicts with an Adopted Habitat Conservation Plan

SWCA concurs with the H.T. Harvey BRR findings regarding potential conflicts with a Habitat Conservation Plan (HCP). The BSA is not located within an area covered by an adopted HCP, Natural Community Conservation Plan, or other approved local, regional, or state HCP.

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APPENDIX B3

Preliminary Delineation of Wetlands and Other Waters
Delineation of Coastal Zone Wetlands Within
California Coastal Commission Jurisdiction
880 Stone Pine Road Project
H.T. Harvey & Associates











H. T. HARVEY & ASSOCIATES
Ecological Consultants

50 years of field notes, exploration, and excellence

880 Stone Pine Road Project
Half Moon Bay, San Mateo County, California

Preliminary Delineation of Wetlands
and Other Waters/Delineation of Coastal Zone Wetlands
Within California Coastal Commission Jurisdiction

Project #4182-03

Prepared for:

John Doughty
City of Half Moon Bay
501 Main Street
Half Moon Bay, CA 94019

Prepared by:

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October 12, 2020

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Executive Summary

H. T. Harvey & Associates surveyed an approximately 21-acre (ac) study area located in Half Moon Bay in San Mateo County that encompasses the public works yard at 880 Stone Pine Road for wetlands and other waters potentially subject to regulation under Section 404 of the Clean Water Act as administered by the United States Army Corps of Engineers (USACE). The survey also delineated the extent of waters of the state that may be subject to regulation by the Regional Water Quality Control Board (RWQCB) under Section 401 of the Clean Water Act and under the Porter Cologne Water Quality Control Act. Lastly, the survey also delineated jurisdictional habitats subject to regulation under Sections 1600-1607 of the California Fish and Game Code, which is administered by the California Department of Fish and Wildlife (CDFW). Areas were also surveyed using the California Coastal Commission (CCC) approach to wetland delineation (i.e. any one of the three parameters typically used by USACE present at a sample point is indicative of CCC wetland habitat).

In total, approximately 0.91 acres of potentially jurisdictional features as defined by the USACE and the RWQCB were identified in the study area. These include approximately 0.29 acres of Section 404 and Section 401 waters situated below the ordinary high water mark (OHWM) line of Pilarcitos Creek, which forms the southeastern edge of the property. Sections 404 and 401 wetlands are also present within an abandoned stock pond which is perennially inundated and presently occupied by emergent freshwater marsh totaling 0.38 acres. Section 401 waters of the state extend farther up to the top of the bank from Pilarcitos Creek, for an additional 0.24 acres.

CDFW jurisdictional features as defined by bed and bank topography and riparian habitat were identified in the study area, which totaled 3.52 acres and includes riparian habitat beyond the top of bank. Approximately 2.85 acres of riparian habitat were identified in the project area. Areas that fall with the jurisdiction of the CCC include all 3.52 acres that are also considered jurisdictional by CDFW.

Summary of Jurisdictional Waters and Habitats within the Project and Study Areas

Potentially Jurisdictional Habitats	Study Area (Acres)[1]
Section 404 Waters of the U.S. Total	**0.67**
Perennial Freshwater Marsh	0.38
Aquatic Riverine	0.29
Section 401 Waters of the State (Up to Top of Bank) Total	**0.91**
Perennial Freshwater Marsh	0.38
Aquatic Riverine	0.29
Riparian Woodland (within top of bank)	0.24
CDFW and CCC Jurisdiction Total	**3.52**
Perennial Freshwater Marsh	0.38
Aquatic Riverine	0.29
Riparian Woodland	2.85

[1] Note: Values are approximate due to rounding.

Table of Contents

Section 1. Introduction 1
1.1 Study Area Description 1
1.2 Survey Purpose 2
Section 2. Survey Methods 8
2.1 Identification of Jurisdictional Waters 8
2.2 Identification of Section 404 Potential Jurisdictional Wetlands (Special Aquatic Sites) 9
2.3 Identification of Section 404 Jurisdictional Other Waters 12
2.4 Identification of Coastal Zone Wetlands within CCC Jurisdiction 13
2.5 Identification of Waters of the State 16
2.6 Identification of CDFW Jurisdiction 16
Section 3. Survey Results and Discussion 18
3.1 Observations, Rationale, and Assumptions 19
3.1.1 Background Information 19
3.1.2 Precipitation Data 23
3.1.3 Site Conditions and Observations 23
3.1.4 Rationale for Sample Point Choice 25
3.1.5 Photo Points 26
3.2 Identification of Section 404 Waters 26
3.3 Identification of Section 404 Potentially Jurisdictional Wetlands (Special Aquatic Sites) 27
3.3.1 Perennial Freshwater Marsh (FM1) 27
3.4 Identification of Section 401 Waters of the State 27
3.5 Identification of CDFW Jurisdiction 28
3.6 Areas Not Meeting the Regulatory Definition of Section 404 Wetlands and Waters/Coastal Zone Wetlands within CCC Jurisdiction 28
Section 4. Literature Cited 30

Figures

Figure 1. Vicinity Map 3
Figure 2. Study Area Map 4
Figure 3. USGS Topographic Map 5
Figure 4. NRCS Soils Map 6
Figure 5. NWI Map 7
Figure 6. Vegetation Communities 10
Figure 7. Preliminary Identification of Waters of the U.S. 20
Figure 8. Preliminary Identification of Waters of the State 21
Figure 9. CDFW Jurisdictional Habitats 22

Tables

Table 1. Soils within the Biological Study Area 2
Table 2. Wetland Indicator Status Categories for Vascular Plants 11
Table 3. Summary of Jurisdictional Waters and Habitats within the Study Area 18
Table 4. Summary of Sample Point Locations and Results 25
Table 5. Coordinates and Rationale for Photo Points 26

Appendices

Appendix A. Custom Soil Report for Project Study Area A-1
Appendix B. Plants Observed in the Project Area B-1
Appendix C. Wetland Determination Data Forms C-1
Appendix D. Photographic Documentation of the Project Area D-1
Appendix E. Aquatic Resources Table E-1
Appendix F. Signed statement from the property owner(s) allowing USACE personnel to enter the property F-1

Section 1. Introduction

1.1 Study Area Description

The approximately 21-acre (ac) study area is located in Half Moon Bay in San Mateo County (Figure 1). The study area is located between State Route (SR) 92 and Pilarcitos Creek near downtown Half Moon Bay and is the site of a former plant nursery (Figure 2). It is located within the *Half Moon Bay California* 7.5-minute USGS quadrangle (Figure 3). A man-made impoundment and several buildings occur in the northwest corner and northeast corners of the site, respectively. Additionally, there is still infrastructure present from former nursery operations, including several unused dilapidated buildings, areas with black ground plastic (adjacent to the riparian woodland along Pilarcitos Creek), several vaulted culverts, concrete channels, and irrigation pumps and pipes. During the site visit, a large portion of the grassland had been recently mowed. Also, sections of the grassland were covered in wood chips. As such, the ground cloths and mulch inhibit vegetation growth. West of the study area is high-density development associated with the City of Half Moon Bay; north of the study area is SR 92, a heavily used road between Half Moon Bay and Interstate 280; east of the study area between SR 92 and Pilarcitos Creek, and on both sides of Pilarcitos Creek are various small agricultural parcels with associated infrastructure and development; south of the study area is agricultural parcels along Pilarcitos Creek that opens to rural land, with the Miramontes Ridge Open Space Reserve to the southeast.

The climate at the study area is coastal Mediterranean, with most rain falling in the winter and spring. Fog and cool temperatures are common in the summer. Climate conditions in the study area include a 30-year average of approximately 29.16 inches of annual precipitation with an average temperature range from 52ºF to 61ºF (PRISM 2020). Relative to the 30-year climate normal, precipitation in the preceding rain year (June 2019–May 2020; 15.99 inches) was approximately 55% of normal for that time period (PRISM 2020). Elevations within the study area range from approximately 60 feet (ft) to 110 ft above sea level (WGS84) (Google 2020).

Based on a review of available soil survey maps for the area including those by the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS), the study area is generally comprised of coarse sandy loam soils adjacent to Pilarcitos Creek, such as the Farallone soil series, and clay loams, such as the Tierra soil series, upslope to SR 92 (NRCS 2020a). Soils across the study area are generally greater than 60 inches in depth with the exception of areas in the northeastern portion of the site containing Gazos (GoF3 and Gv) soils, which are less than 30 inches to a root-restrictive layer. The Farallone loam, nearly level, Gullied land, Gullied land (Gazos-Lobitos soil material), and Tierra clay loam, moderately steep, eroded soil series (totaling 12.3 acres) are listed as hydric in San Mateo County on the National Hydric Soils List (NRCS 2020b). Eight major soil series within the study area are shown on Figure 4 and are summarized in Table 3 below.

Table 1. Soils within the Biological Study Area

Soil Series	Acreage	Hydric
Farallone loam, nearly level (FaA)	8.8	Yes
Tierra loam, steep, severely eroded (TeE3)	3.1	No
Farallone coarse sandy loam, moderately steep, eroded (FcD2)	4.5	No
Gazos and Lobitos soils, steep and very steep, severely eroded (GoF3)	1.3	No
Gullied land (alluvial soil material; Gu)	1.7	Yes
Tierra loam, sloping, eroded (TeC2)	1.1	Yes
Gullied land (Gazos-Lobitos soil material; Gv)	0.7	Yes
Tierra clay loam, moderately steep, eroded (TcD2)	0.1	No

The U.S. Fish and Wildlife Service's National Wetlands Inventory (NWI) map of the study area is depicted in Figure 5. The NWI identified one feature in the study area, Pilarcitos Creek, which it classified as a palustrine, forest, seasonally flooded wetland (FPOC) (NWI 2020). NWI maps are based on interpretation of aerial photography, limited verification of mapped units, and/or classification of wetland types using the classification system developed by Cowardin et al. (1979). These wetland data are available for general reference purposes and do not necessarily correspond to jurisdictional waters.

1.2 Survey Purpose

H. T. Harvey & Associates surveyed the study area for features that may meet the physical criteria and regulatory definition of "waters of the United States" and waters of the state (jurisdictional waters). The purpose of the field survey was to identify the extent and distribution of potentially jurisdictional waters, such as wetlands and other waters, occurring within the proposed work area boundaries under conditions existing at the time of the June 2020 survey. In addition, we surveyed the study area to determine the extent of areas likely subject to regulation by the California Coastal Commission (CCC), and for features that meet the criteria for regulation by the California Department of Fish and Wildlife (CDFW) under California Fish and Game Code Section 1603.

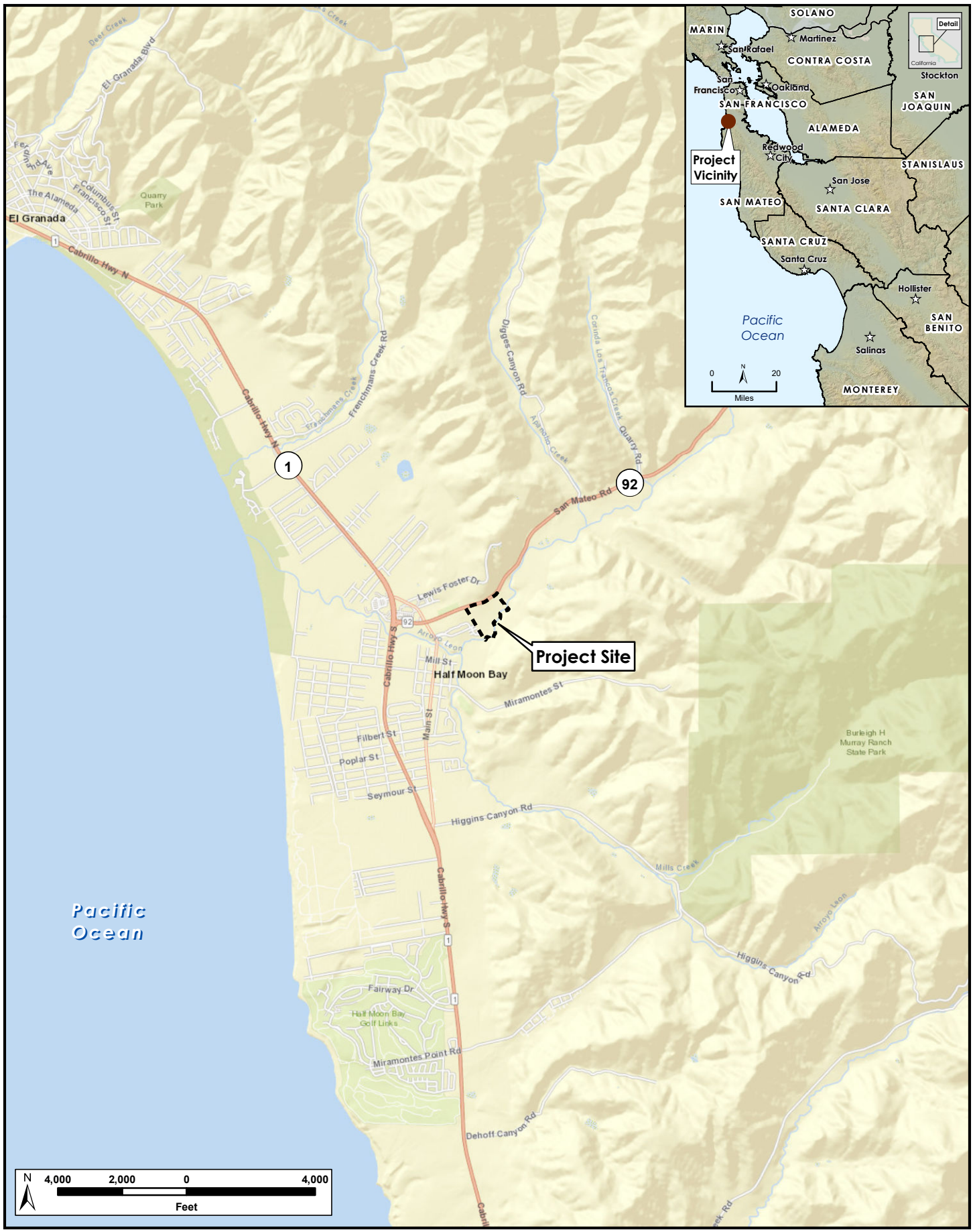

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Figure 1. Vicinity Map
880 Stone Pine Road Project, Wetland Delineation Report (4182-03)
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Figure 2. Study Area
880 Stone Pine Road Project, Wetland Delineation Report (4182-03)
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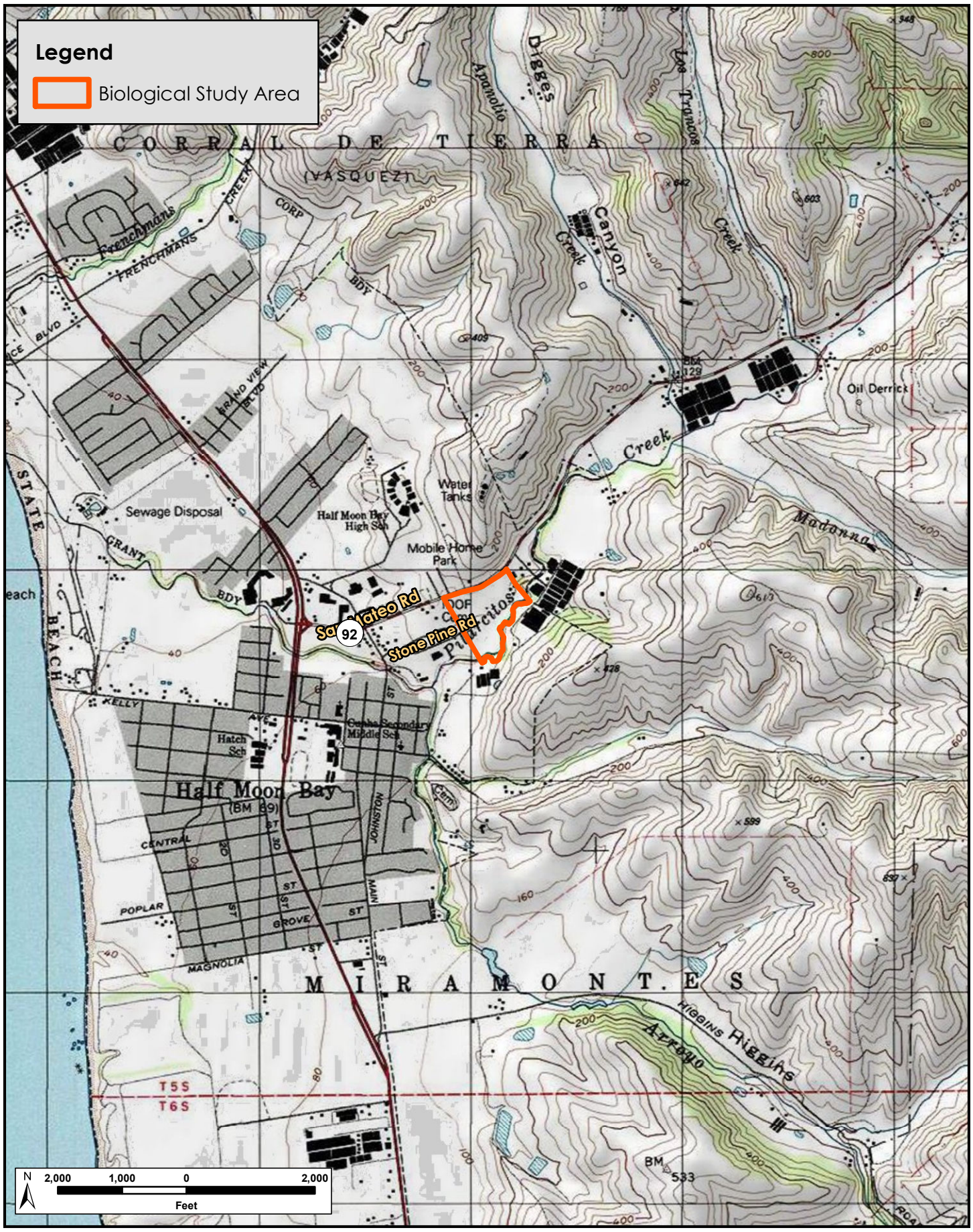

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Figure 3. USGS Topographic Map
880 Stone Pine Road Project, Wetland Delineation Report (4182-03)
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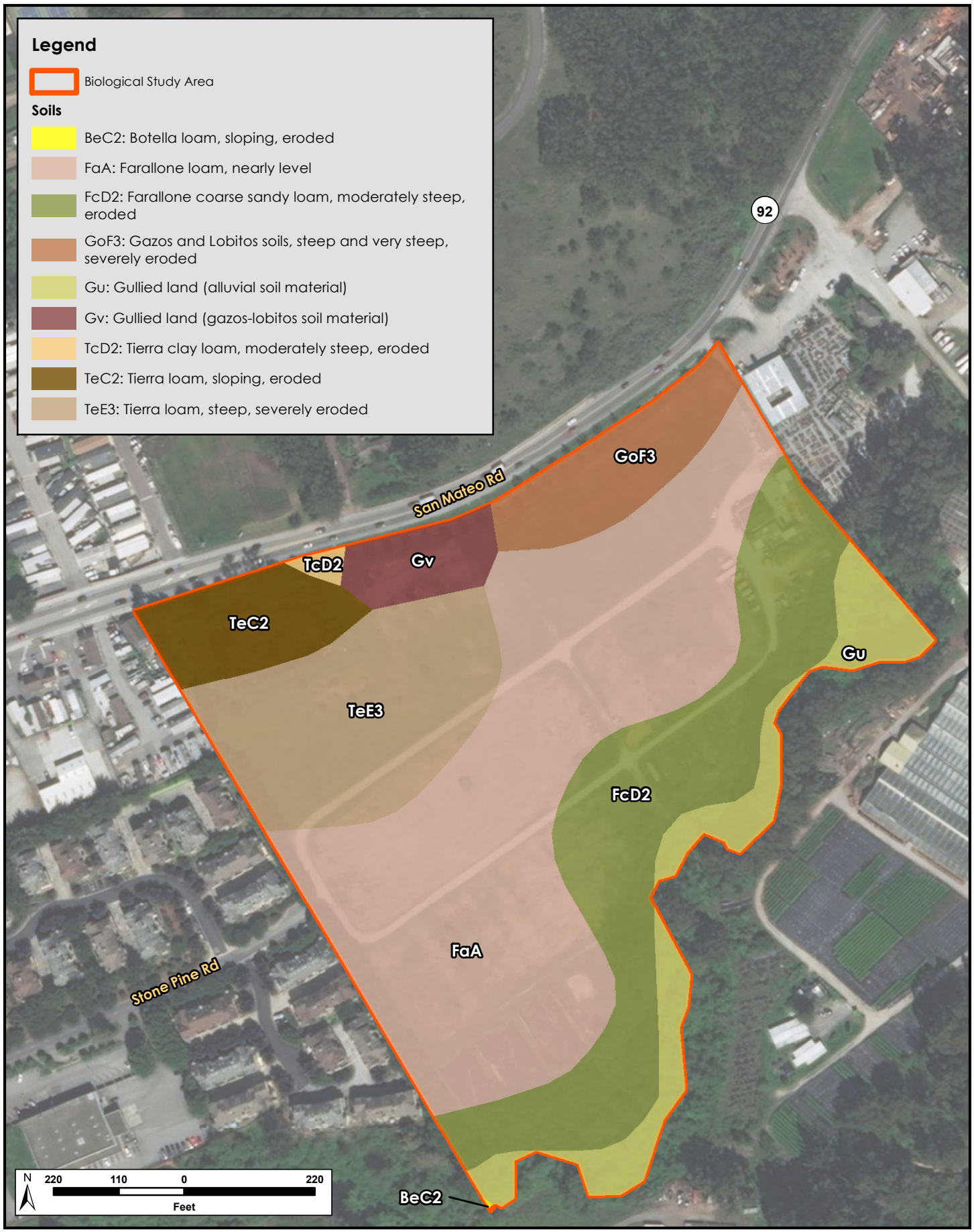

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Figure 4. Soils Map
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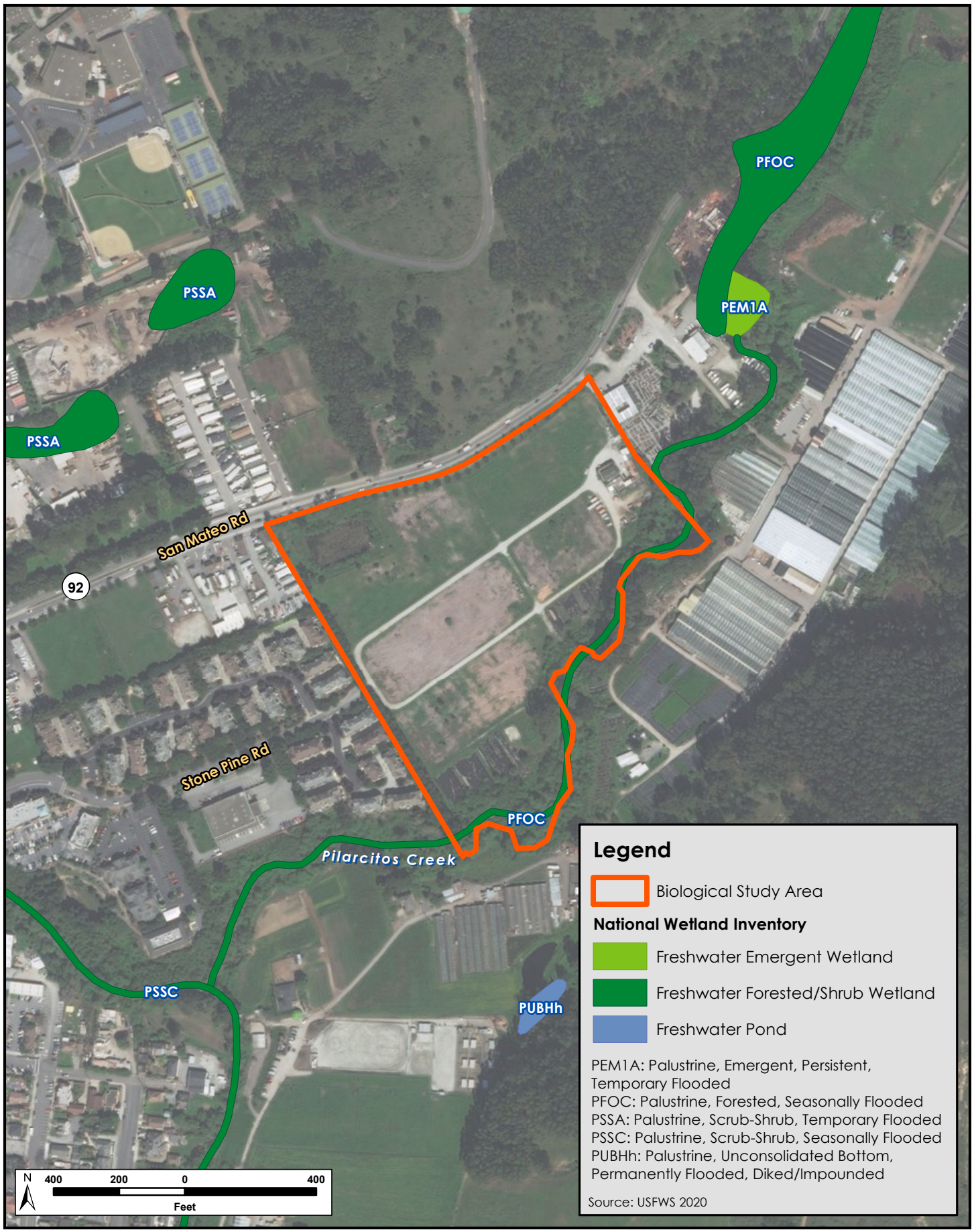

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Figure 5. NWI Map
880 Stone Pine Road Project, Wetland Delineation Report (4182-03)
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Section 2. Survey Methods

Before the delineation survey was conducted, topographic maps and aerial photos of the study area were obtained and reviewed from several sources, such as the USGS (Figure 3), NRCS (Figure 4), NWI (Figure 5), and Google Earth software (Google 2020). Additionally, information was derived from surveys and background research conducted for the preparation of the 880 Stone Pine Road Project Biological Resources Report, concurrently prepared by H. T. Harvey & Associates (H. T. Harvey & Associates in prep).

On June 12, 2020, H. T. Harvey & Associates plant ecologist, Mark Bibbo, M.S., performed a technical delineation of wetlands and other waters in the study area, in accordance with the *Corps of Engineers 1987 Wetlands Delineation Manual* (Corps Manual; Environmental Laboratory 1987). Additionally, the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (Regional Supplement) (USACE 2010) were followed to document site conditions relative to hydrophytic vegetation, hydric soils, and wetland hydrology. Mr. Bibbo mapped the extent and distribution of wetlands and other waters of the U.S. that may be subject to regulation under Section 404 of the Clean Water Act (CWA) as well as waters of the state that may be subject to regulation under the Porter Cologne Water Quality Control Act, which is administered by the RWQCB. The study area was also surveyed for areas that meet the physical criteria of a wetland according to the California Coastal Commission (CCC), as well as aquatic and riparian habitat that may be subject to regulation under Sections 1600-1607 of the California Fish and Game Code, which is administered by CDFW.

2.1 Identification of Jurisdictional Waters

The "Routine Determination Method, On-Site Inspection Necessary (Section D)" outlined in the Corps Manual (Environmental Laboratory 1987), and the updated data forms, vegetation sampling methods, and hydric soil and hydrology indicators developed for the Regional Supplement (USACE 2010) were used to examine the vegetation, soils, and hydrology in the accessible areas of the study area. This three-parameter approach to identifying wetlands is based on the presence of a prevalence or dominance of hydrophytic vegetation, hydric soils, and wetland hydrology.

In addition to applying these survey methods, Mr. Bibbo compiled this report in accordance with guidance provided in *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program* (USACE 2016a) and *Information Requested for Verification of Corps Jurisdiction* (USACE 2016b). These documents list the information that must be submitted as part of a request for a jurisdictional determination, including:

- Locality map (Figure 1)
- Study area map (Figure 2)
- USGS quadrangle sheet (Figure 3)

- Soils map (Figure 4)
- National Wetlands Inventory map (Figure 5)
- Vegetation communities map (Figure 6)
- Delineation map (Figure 7)
- Current soil survey report (Appendix A)
- Plant species observed (Appendix B)
- Data forms for wetlands sample points (Appendix C)
- Written rationale for sample point choice (Section 3.1, "Observations, Rationales, and Assumptions")
- Color photos (Appendix D)
- Aquatic resources table (Appendix E)
- Signed statement from the property owner(s) allowing USACE personnel to enter the property and collect samples during normal business hours (Appendix F).

During the survey, the study area was examined for topographic features, drainages, alterations to site hydrology or vegetation, and recent significant disturbance. A determination was then made as to whether normal environmental conditions were present at the time of the field survey. In the field, the techniques used to identify wetlands included digging soil pits to sample soil from various depths, observing the vegetation growing near the soil sample points, and characterizing the current surface and subsurface hydrologic features present near the sample points. Features meeting wetland vegetation, soil, and hydrology criteria were then mapped in the field using a Trimble GeoXT™ GPS unit capable of submeter accuracy.

2.2 Identification of Section 404 Potential Jurisdictional Wetlands (Special Aquatic Sites)

Where wetland field characteristics were present, Mr. Bibbo examined vegetation, soils, and hydrology using the Routine Determination Method outlined in the Corps Manual (Environmental Laboratory 1987) and the updated data forms, vegetation sampling methods, and hydric soil and hydrology indicators developed for the Regional Supplement (USACE 2010).

Vegetation. Plants observed at each of the sample sites were identified to species, where possible, using *The Jepson Manual, Vascular Plans of California, Second Edition* (Baldwin et al. 2012). The wetland indicator status of each species was obtained from the *Western Mountains, Valleys, and Coast 2016 Regional Wetland Plant List* (Lichvar et al. 2016). Wetland indicator species are designated according to their frequency of occurrence in wetlands. For instance, a species which is usually a hydrophyte, but occasionally found in uplands is designated a



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Figure 6. Vegetation Communities and Photo Points Map

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facultative wetland indicator species. The wetland indicator groups, indicator symbol, and the qualitative frequency of occurrence of species within wetlands are shown in Table 2.

Table 2. Wetland Indicator Status Categories for Vascular Plants

Indicator Category	Symbol	Ecological Description[1]
Obligate	OBL	Almost always a hydrophyte, rarely in uplands
Facultative wetland	FACW	Usually is a hydrophyte, but occasionally found in uplands
Facultative	FAC	Commonly occurs as either a hydrophyte or nonhydrophyte
Facultative upland	FACU	Occasionally is a hydrophyte, but usually occurs in uplands
Upland[2]	UPL	Rarely is a hydrophyte, almost always in uplands

[1] Based on the National Wetland Plant List Indicator Rating Definitions (Lichvar et al 2016)

[2] Plant species that are not listed in the Arid West 2016 Regional Wetland Plant List (Lichvar et al. 2016) are considered UPL species

Obligate and facultative wetland indicator species are hydrophytes that occur "in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present" (Environmental Laboratory 1987). Facultative indicator species may be considered wetland indicators when found growing in hydric soils that experience periodic saturation. Plant species that are not on the regional list of wetland indicator species are considered upland species. A complete list of the vascular plants observed in the study area, including their current indicator status, is provided in Appendix B.

Hydric Soils. Up to 20 inches of the soil profile were examined for hydric soil indicators. The National Technical Committee for Hydric Soils (NTCHS) defines a hydric soil as one formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper 12 inches of soil (NRCS 2010). Hydric soils include soils developed under sufficiently wet conditions to support the growth and regeneration of hydrophytic vegetation. In general, evidence of a hydric soil includes characteristics such as organic soils (histosols), reducing soil conditions, gleyed soils, soils with bright mottles and/or low matrix chroma, soils listed as hydric by the U.S. Department of Agriculture (USDA) on the National Hydric Soils List (NRCS 2020), and iron and manganese concretions. Reducing soil conditions can also include circumstances where there is evidence of frequent ponding for long or very long duration. A long duration is defined as a period of inundation for a single event that ranges from seven (7) days to a month and a very long duration is greater than one month (Environmental Laboratory 1987).

Munsell Soil Notations (Munsell 2009) were recorded for the soil matrix of each soil sample. The Munsell color system is based on three color properties: hue, value, and chroma. A brief description of each component of the system is described below, in the order they are used in describing soil color (i.e., hue/value/chroma):

1. **Hue.** The Munsell Soil Color Chart is divided into five principal hues: yellow (Y), green (G), purple (P), blue (B), and red (R), along with intermediate hues such as yellow-red (YR) and green-yellow (GY). Example of commonly encountered hue numbers include 2.5YR, 10YR, and 5Y.
2. **Value.** *Value* refers to lightness, ranging from white to grey to black. Common numerical values for value in the Munsell Soil Color Chart range from 2 for saturated soils to 8 for faded or light colors. Hydric soils often show low-value colors when soils have accumulated sufficient organic material to indicate development under wetland conditions, but can show high-value colors when iron depletion has occurred, removing color value from the soil matrix. Value numbers are commonly reported as 8/, 2.5/, and 6/.
3. **Chroma.** *Chroma* describes the purity of the color, from "true" or "pure" colors to "pastel" or "washed out" colors. Chromas commonly range from 1 to 8, but can be higher for gleys. Soil matrix chroma values that are 1 or less, or 2 or less when mottling is present, are typical of soils that have developed under anaerobic conditions. Chroma numbers are listed, for example, as /1, /5, and /8.

The NRCS Web Soil Survey (NRCS 2020a) was consulted to determine which soil types have been mapped in the study area (Table 1, Figure 4). Detailed descriptions of these soil types are provided in Appendix A.

Wetland Hydrology. Wetland hydrology is defined as an area that is inundated either permanently or periodically at mean water depths less than 6.6 feet, or where the soil is saturated at the surface at some time during the growing season of the prevalent vegetation. The period of inundation or soil saturation varies according to the hydrologic/soil moisture regime and occurs in both tidal and non-tidal situations.

Wetland hydrology encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season. Wetland hydrology indicators provide evidence that the site has a continuing wetland hydrologic regime. Primary indicators might include visual observation of surface water (A1), high water table (A2), soil saturation (B1), water-stained leaves (B9), and hydrogen sulfide odor (C1). Secondary indicators might include riverine drift deposits (B3), drainage patterns (B10), and passing score for the FAC-neutral test (D5). Each of the sample points was examined for positive field indicators (primary and secondary) of wetland hydrology, following the guidance provided in the Regional Supplement.

2.3 Identification of Section 404 Jurisdictional Other Waters

"Other waters", which includes lakes, slough channels, seasonal ponds, tributary waters, non-wetland linear drainages, and salt ponds were also mapped within the study area. Such areas are identified by the (seasonal or perennial) presence of standing or running water and generally lack hydrophytic vegetation. In non-tidal or muted tidal waters, such as this site, USACE jurisdiction extends to the OHWM which is defined in 33 CFR Part 328.3 as "the line on the shore established by the fluctuations of water and indicated by physical characteristics, such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation or the presence of litter and debris." In tidal waters, USACE jurisdiction extends to the landward extent of vegetation associated with salt or brackish water or the high tide line (HTL)

(see 33 CFR, Part 328.4). The HTL is defined in 33 CFR, Part 328.3 as "the line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The HTL may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gauges, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other tides that occur with periodic frequency, but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm."

2.4 Identification of Coastal Zone Wetlands within CCC Jurisdiction

The project area were also surveyed for areas that meet the physical criteria of a wetland according to the California Coastal Commission (CCC). Under the California Coastal Act, the CCC regulates development in the coastal zone, including land and water use. Wetlands found in the coastal zone are regulated under the California Coastal Act of 1976 (CCA) and the federal Coastal Zone Management Act (CZMA), and are within jurisdiction of the CCC (CCC 2008). Any activities within the coastal zone that affect aquatic resources, including wetlands, require a coastal development permit from either the CCC or a certified Local Coastal Program (LCP) (Division 20 of the Public Resources Code). The CCC is responsible for protecting coastal resources and assessing potential impacts on wetlands and other waters subject to regulation under the California Coastal Act (Pub. Res. Code §30330-30344).

Under the CCA, wetlands are defined as "Lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, or fens." (Pub. Res. Code §30121). The CCC uses definitions similar to the federal government in defining wetland habitat. The U.S. Fish and Wildlife Service (USFWS) uses a general definition from its wetlands classification system first published in 1979:

> *Wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water (Cowardin, et al. 1979). For purposes of this classification, wetlands must have 1 or more of the following 3 attributes: "(1) at least periodically, the land supports hydrophytes, (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of each year" (Cowardin, 1979). The USFWS definition includes, swamps; freshwater, brackish water, and saltwater marshes; bogs; vernal pools, periodically inundated saltflats; intertidal mudflats; wet meadows; wet pastures; springs and seeps; portions of lakes, ponds, rivers and streams; and all other areas which are periodically or permanently covered by shallow water, or dominated by hydrophytic vegetation, or in which the soils are predominantly hydric in nature.*

For purposes of implementing Section 404 of the federal Clean Water Act, the United States Environmental Protection Agency (EPA) and the USACE define wetlands as:

> *Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas (40 CFR 232.2).*

Both the CCC and the federal government (in the USFWS and the USACE) provide further specificity in their wetlands definitions to guide the process of wetlands delineation. The CCC's regulations (California Code of Regulations Title 14 (14 CCR)) establish a **"one parameter definition"** that only requires evidence of a single parameter to establish wetland conditions and accepts wetland determinations based on the presence of one parameter—wetland vegetation, wetland soils, or, under certain conditions, wetland hydrology (using the criteria described above, under the USACE methods, for each parameter), similar to the USFWS wetlands classification system:

> *Wetland shall be defined as land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent or drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salt or other substance in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year and their location within, or adjacent to, vegetated wetlands or deep-water habitats.*

In contrast, the USACE generally uses a **three parameter definition** for delineating wetlands. In the California coastal zone, the CCC, with the assistance of the California Department of Fish and Wildlife (CDFW), is responsible for determining the presence of wetlands subject to regulation under the CCA. The local government also has a direct role in the identification and delineation process in areas with a certified LCP. For wetland development projects requiring USACE review, the applicant may, in some cases, need to obtain two delineation approvals, one for the coastal development permit, and another for the USACE Section 404 permit (CCC 2008).

The CCC delineation of wetlands in the field typically requires substantial evidence of indicators that can be easily observed or assayed. Wetlands typically occur on physical gradients (i.e., wet to dry conditions, hydric to non-hydric soils, and hydrophytic to meso/xerophytic vegetation). Delineations document boundaries between a predominance of hydrophytic vegetation and upland vegetation and boundaries between hydric and non-hydric soils. Because wetland delineation is not an exact science, the CCC recognizes the importance of professional judgement:

> *Some wetlands may not be readily identifiable by simple means. In such cases, the CCC will also rely on the presence of hydrophytes and/or the presence of hydric soils. Thus, the presence or absence of hydrophytes and hydric soils make excellent physical parameters upon which to judge the existence of wetland habitat areas for the purposes of the Coastal*

Act, but they are not the sole criteria. In some cases, proper identification of wetlands will require the skills of a qualified professional.

Resource and regulatory agencies have found it difficult to strictly define some wetlands because of the often transient hydrology, the absence of hydric soils, and the heterogeneous vegetation composition. Yet these areas exhibit many of the functions and values found in other wetlands. In the past, CCC staff has recognized some of these areas, including riparian areas, as "environmentally sensitive areas" within the meaning of Coastal Act §30107.5, and then regulated development through §30240. The semi-arid climate of California also presents problems for the identification and delineation of wetlands. Some wetlands in this part of California can remain dry for one or more seasons because of the Mediterranean climate typical of the state.

The CCC's regulations acknowledge these distinctions by specifying some general decision rules for establishing the upland boundary of wetlands:

…the upland limit of a wetland shall be defined as:

a. the boundary between land with predominantly hydrophytic cover and land with predominantly mesophytic or xerophytic cover;

b. the boundary between soil that is predominantly hydric and soil that is predominantly nonhydric; or

c. in the case of wetlands without vegetation or soils, the boundary between land that is flooded or saturated at some time during years of normal precipitation, and land that is not (14 CCR Section 13577).

Therefore, additional scientific methods and guidance are required to facilitate the wetland delineation process in the field. A common source of guidance for wetland delineators is the *1987 USACE Wetland Delineation Manual* and the *Regional Supplement.* Another important guidance document is the USFWS's *List of Plant Species that Occur in Wetlands*. Similarly, guidance on the identification of hydric soils is provided by the Natural Resource Conservation Service in its *Field Indicators of Hydric Soils in the United States* (2010).

In a CCC delineation, the extent of both hydric soils and wetland vegetation should be determined and the wetland boundary drawn to coincide with that parameter that results in the larger wetland area. Where the presence of wetlands is difficult to determine because some field indicators appear ambiguous or unreliable, the CCC has occasionally, in past actions, considered strong evidence of upland conditions in making its wetland determination. However, the CCC has not considered the simple absence of standard field indicators of either hydric soils or wetland hydrology to be strong evidence of upland conditions and, hence, evidence that wetland conditions do not exist. Showing strong evidence of upland conditions requires collecting field data during the rainy season to determine whether the site evaluated becomes inundated or not or whether the major portion of the root zone of the predominant vegetation becomes saturated for greater than seven continuous days or not. This information can then be used to determine if the previously assessed vegetation or soil field indicator found to be ambiguous or unreliable is indicative of wetland or upland conditions.

Prior to conducting fieldwork, H. T. Harvey & Associates reviewed a variety of pertinent technical documents. During the CCC delineation, the presence and frequency of hydrophytic vegetation, hydrology indicators, and hydric soil indicators (or lack thereof) were used as the primary indicators for identifying potential wetland areas.

2.5 Identification of Waters of the State

The Porter Cologne Water Quality Control Act (Porter-Cologne) broadly defines waters of the state as "any surface water or groundwater, including saline waters, within the boundaries of the state." Because Porter-Cologne applies to any water, whereas the CWA applies only to certain waters, California's jurisdictional reach overlaps and may exceed the boundaries of waters of the U.S. For example, Water Quality Order No. 2004-0004-DWQ states that "shallow" waters of the state include headwaters, wetlands, and riparian areas. Where forested riparian habitat is not present, jurisdiction is taken to the top of bank or levee. Where forested habitat occurs, the outer canopy of any riparian trees rooted within top of bank may be considered jurisdictional as these trees can provide allochthonous input to the channel below.

On April 2, 2019, the California State Water Resources Control Board (SWRCB) adopted the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State. In these new guidelines, riparian habitats are not specifically described as waters of the state but instead as important buffer habitats to streams that do conform to the State Wetland Definition. The Procedures describe riparian habitat buffers as important resources that may both be included in required mitigation packages for permits for impacts to waters of the state, as well as areas requiring permit authorization from the RWQCBs to impact.

The 2019 Procedures also clarify that wetland-upland boundaries for wetlands comprising waters of the state should be set using the USACE delineation framework (Environmental Laboratory 1987, USACE 2010), with one important distinction. Some areas in California function as wetlands despite lacking abundant wetland vegetation. For example, non-vegetated playas, tidal flats, and some types of seasonal wetlands provide a variety of wetland functions, including water filtration, groundwater recharge, and the support of wetland wildlife. While USACE procedures require 5% vegetative cover to be considered a wetland rather than "other waters", the RWQCB has determined that no such minimum vegetative cover is necessary for an area to be considered a wetland under the State Wetland Definition. Waters of the state were identified within the study area.

2.6 Identification of CDFW Jurisdiction

Ephemeral and intermittent streams, rivers, creeks, dry washes, sloughs, blue line streams on USGS maps, and watercourses with subsurface flows fall under California Department of Fish and Wildlife (CDFW) jurisdiction. Canals, aqueducts, irrigation ditches, and other means of water conveyance may also be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife. A stream is defined in Title 14, California Code of Regulations §1.72, as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and that supports fish and other aquatic life. Jurisdiction

does not include tidal areas such as tidal sloughs unless there is freshwater input. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation." Using this definition, CDFW extends its jurisdiction to encompass riparian habitats that function as a part of a watercourse. California Fish and Game Code §2786 defines riparian habitat as "lands which contain habitat which grows close to and which depends upon soil moisture from a nearby freshwater source." The lateral extent of a stream and associated riparian habitat that would fall under the jurisdiction of CDFW can be measured in several ways, depending on the particular situation and the type of fish or wildlife at risk. At minimum, CDFW would claim jurisdiction over a stream's bed and bank. Where riparian habitat is present, the outer edge of riparian vegetation is generally used as the line of demarcation between riparian and upland habitats. CDFW jurisdictional habitats were mapped within the study area.

Section 3. Survey Results and Discussion

The following vegetation communities and land cover types were mapped in the study area: (1) aquatic riverine (Pilarcitos Creek), (2) perennial freshwater wetland, (3) Willow/alder stands (one parameter CCC wetland), (4) California annual grassland, (5) mixed riparian woodland, and (6) developed (Figure 6). Ten sample points (SPs) were examined to identify jurisdictional features (Figure 7; Appendix C). In the study area, approximately 3.77 ac of potentially jurisdictional waters regulated by USACE, RWQCB, CDFW, and the CCC were identified (Table 3). The results of the June 2020 delineation are described below.

Table 3. Summary of Jurisdictional Waters and Habitats within the Study Area

Potentially Jurisdictional Habitats	Study Area (Acres)[1]
Section 404 Waters of the U.S. Total	**0.67**
Perennial Freshwater Marsh	0.38
Aquatic Riverine	0.29
Section 401 Waters of the State (Up to Top of Bank) Total	**0.91**
Perennial Freshwater Marsh	0.38
Aquatic Riverine	0.29
Riparian Woodland (within top of bank)	0.24
CDFW and CCC Jurisdiction Total	**3.52**
Perennial Freshwater Marsh	0.38
Aquatic Riverine	0.29
Riparian Woodland	2.85

Note: Values are approximate due to rounding.

Study Area. Approximately 0.91 ac of Section 404 and Section 401 waters, including wetlands are found in the study area (Figure 7; Appendix D, Photos 2, 6).

Waters of the state (Section 401 waters only) extend to the top of bank of Pilarcitos Creek in the study area and includes approximately 0.24 ac of riparian habitat (Figure 8; Appendix D, Photos 1 and 3 in Appendix D)..

Pilaricitos Creek is a perennial drainage following from headwaters on Montara Mountain east of the study area to the Pacific Ocean west of the study area. As such, this feature would be regulated by CDFW under California Fish and Game Code Section 1603. Approximately 0.38 acres of freshwater wetland, 0.26 ac of streambed and approximately 2.85 ac of associated riparian woodland that would be regulated by CDFW occur within the study area (Figure 9). Areas falling within CCC jurisdiction include those same 3.52 total acres (Figure 9).

Information assembled during this investigation and pertinent to the identification of jurisdictional wetlands and other waters is presented in the six appendices of this report. In addition, Appendix E provided at the end of this document is an electronic attachment in Microsoft Excel format, per USACE (2016b) guidelines.

- Appendix A—Custom Soil Report for Project Study Area
- Appendix B—Plants Observed in the Study Area
- Appendix C—Western Mountains, Valley, and Coast Wetland Determination Data Forms
- Appendix D—Photographic Documentation of the Study Area
- Appendix E—Aquatic Resources Table
- Appendix F—Signed Statement from the Property Owner Allowing Access

3.1 Observations, Rationale, and Assumptions

Study area conditions observed during the delineation survey are reported here, along with pertinent background information and precipitation data.

3.1.1 Background Information

This preliminary delineation assumes that normal circumstances prevailed at the time of the June 2020 survey, and results are based upon the conditions present. The survey was performed using the "Routine Method of Determination" using three parameters, as outlined in the Regional Supplement, although areas meeting at least one parameter were delineated as CCC-jurisdictional wetlands. All features that were noted as potential USACE-jurisdictional wetlands or other waters are also considered potential CCC-jurisdictional wetlands because they possess at least one parameter for a CCC-jurisdictional wetland.

Land use surrounding the study area consists of agriculture to the east and south, open space to the north and south, suburban residential to the west, and commercial to the east.



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Figure 7. Preliminary Identification of Waters of the United States
880 Stone Pine Road Project, Wetland Delineation Report (4182-03)
October 2020



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Ecological Consultants

Figure 8. Preliminary Identification of Waters of the State
880 Stone Pine Road Project, Wetland Delineation Report (4182-03)
October 2020



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H. T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 9. CDFW/CCC Jurisdictional Habitats
880 Stone Pine Road Project, Wetland Delineation Report (4182-03)
October 2020

3.1.2 Precipitation Data

The survey took place in the 2020 dry season. Relative to the 30-year climate normal, precipitation in the study area was below average for the twelve month period leading up to the delineation. Total precipitation recorded for the twelve months prior to the delineation was 15.99 in., which is approximately 55% of the 30-year average (1981–2010) (PRISM 2020). These conditions were taken into account when assessing the biotic habitats present on the site. Despite the below average precipitation, water was still flowing in Pilarcitos Creek, and the abandoned stock pond was still inundated and surface water was present. The boundaries of wetlands remained clear owing to the presence of hydrophytic vegetation and hydrology indicators.

3.1.3 Site Conditions and Observations

Several areas containing at least one parameter indicative of wetlands, but lacking one or more parameters (*i.e.*, CCC wetlands not claimed by the USACE), were detected within the study area.

The southern boundary of the study area is demarcated by Pilarcitos Creek, a 13.5-mile perennial stream that flows from the western slopes of the Santa Cruz Mountains through Pilarcitos Canyon and discharges into the Pacific Ocean. The creek drains approximately 30 square mi and has numerous tributaries. The study area is approximately 1.7 mi upstream from the mouth of the Creek at the Pacific Ocean. Pilarcitos Creek has a well-developed riparian corridor for much of its length upstream and downstream of the study area. Pilarcitos Creek and its riparian corridor fall within the jurisdiction of the USACE, RWQCB, CDFW, and the CCC (Figures 7–10).

The study area is located in the Arroyo Leon hydrologic unit (180500060201) within the San Francisco Coastal South Sub Region of the California Region.

The majority of site was previously in agricultural nursery production. A man-made impoundment and several buildings occur in the northwest corner and northeast corners of the site, respectively. Additionally, there is still infrastructure present from former nursery operations, including several unused dilapidated buildings, areas with black ground plastic (adjacent to the riparian woodland along Pilarcitos Creek), several vaulted culverts, concrete channels, and irrigation pumps and pipes. Areas of the site that are currently in ruderal grassland appear to be regularly mowed to keep vegetation low for fire prevention. At the time of the June 2020 survey, the site was beginning to be mowed for the first time that season. Also, sections of the grassland were covered in wood chips. As such, the ground cloths and mulch inhibit vegetation growth.

The manmade impoundment in the northwest corner of the study area is approximately 200 ft by 110 ft. The impoundment is a raised earthen embankment design and sits at an elevation of 114 ft (WGS84). Water was previously pumped into this impoundment from Pilarcitos Creek to be used by the nursery for its operations (H. T. Harvey & Associates and RMC 2010). The pump appears to be currently inactive. However, the impoundment continues to hold water and extensive emergent vegetation and is classified as perennial

freshwater marsh habitat, indicating that the pond as it was excavated may have some connection to groundwater. At the time of the June 2020 survey, there was no evidence of flow from the pond.

Within the ruderal grassland, there are willow-alder stands characterized by individual or small stands of arroyo willows (*Salix lasiolepis*, FACW) and red alder red alder (*Alnus rubra*, FACW, Appendix D, Photo 3). These species generally do not require the soil to be inundated to persist, but they generally do require access to a permanent water source, such as a creek or high groundwater, which they can access with deep roots. This also indicates that in at least some areas of the parcel in some years, the upper soil profile was moist enough to allow recruitment of these typically riparian tree species. Based on an analysis of historical aerials in Google Earth, the clumps of trees appear to be less than 10 years old, and sprouted and grew following the abandonment of nursery activities on the site (Google, Inc. 2020), possibly with assistance from artificial hydrology from irrigation in the last years of the nursery. These two tree species are functional phreatophytes, meaning that they are woody perennials with a deep taproot that are able to access deeper groundwater. They may have germinated and established in a wet year or assisted by irrigation overspray, and have been able to persist due to their deep taproot. Again, these trees occur on upland terraces that were previously cultivated for agriculture and are spatially separated from the riparian corridor along Pilarcitos Creek. We do not believe that this entire area truly stays saturated for a substantial portion of the growing season each year, as the site lacks hydric soil and hydrology indicators. Despite the fact that both arroyo willow and red willow have a wetland indicator status (FACW), we feel that in this situation these trees are indicators of a high groundwater table, as opposed to wetland conditions, or presence of a riparian corridor. Therefore we do not consider these patches of trees to be CCC jurisdictional wetlands.

There were areas within the California annual grassland, primarily along the western edge of the study area that supported dense monotypic stands of poison hemlock (*Conium maculatum,* FAC) (SP7 and SP10, Appendix C; Photo 4 , Appendix D), indicative of disturbance and infestation. Both these areas were portions of the study area that had previously been in nursery production. The soils at the sample points were similar to nearby upland soils, with low chroma and low value soil colors throughout the soil profile (10 YR 3/2 or 3/3). Soils were dry and no hydric soil indicators were observed at either sample point. Additionally, no indicators of hydrology were observed in association with these stands of poison hemlock.

Poison hemlock is adapted to grow as a hydrophyte or non-hydrophyte depending on environmental conditions and is classified as an invasive plant by the California Invasive Plant Council (Cal-IPC 2020). It is tolerant of a wide range of moisture conditions including habitats with hydric, mesic (damp or moist soils that are not hydric), or even mildly xeric (dry) soils. Poison hemlock is a serious weed that is capable of rapid establishment, particularly on disturbed sites or where little vegetation exists at the start of the growing season. Once it is firmly established under such conditions, it can prevent the growth of most other vegetation. The soils within the project area are disturbed, based on the historical use of the area for agriculture and the presence of non-native vegetation, and as previously stated do not exhibit evidence of being hydric. The occurrence of poison hemlock is most likely in response to the highly disturbed soils found within the project area; therefore, it is not a strong wetland indicator in this situation because it is growing as a non-hydrophyte. It is our professional

opinion that these areas are not functioning as wetlands and should not be mapped as one-parameter CCC wetlands due to the lack of hydric soils, hydrology, and poison hemlock not growing as a hydrophyte.

3.1.4 Rationale for Sample Point Choice

Ten sample points were selected to document conditions in representative jurisdictional and non-jurisdictional areas (Figure 7, Appendix C). Rationale and findings for wetland data form sample point locations are summarized in Table 4.

Table 4. Summary of Sample Point Locations and Results

Name	Sampling Rationale	Hydrophytic Vegetation?	Hydric Soil?	Wetland Hydrology?	Overall Wetland Assessment
SP1	Placed to examine abandoned agricultural ditch.	Yes	No	No	Upland position; this area does not meet the three parameter wetland criteria. The wetland vegetation observed is FAC-dominated and weedy.
SP2	Placed to examine the hillslope adjacent the ditch – upland position.	No	No	No	Upland position; this area does not meet the three parameter wetland criteria.
SP3	Emergent freshwater marsh in an abandoned (but still inundated) agricultural pond – FM1.	Yes	Yes	Yes	This area is a three parameter wetland.
SP4	Upland paired point to SP4.	Yes	No	No	Upland; this area does not meet the three parameter. Hydrophytic vegetation is riparian vegetation dominated by Arroyo willow.
SP5	Placed to examine the willow/alder stands that occur throughout the site.	Yes	No	No	These small stands do not meet the three parameter USACE wetland criteria, hydric soils and wetland hydrology not present, presence of these trees does not necessarily indicate wetland conditions.
SP6	Upland paired point to SP5.	No	No	No	This area does not meet the three parameter wetland criteria.
SP7	Placed to examine poison hemlock infestation on terrace in southern portion of property.	Yes	No	No	Upland; this area does not meet the three parameter wetland criteria. The wetland vegetation observed is FAC-dominated and weedy.
SP8	Placed to investigate the riparian corridor of Pilarcitos Creek	Yes	No	No	This area does not meet the three parameter wetland criteria.

Name	Sampling Rationale	Hydrophytic Vegetation?	Hydric Soil?	Wetland Hydrology?	Overall Wetland Assessment
SP9	Placed to investigate the riparian corridor of Pilarcitos Creek in southwest corner of property.	Yes	No	No	Upland; this area does not meet the three parameter wetland criteria.
SP10	Placed to investigate area of poison hemlock infestation on terrace in southern portion of property.	Yes	No	No	Upland; this area does not meet the three parameter wetland criteria. The wetland vegetation observed is FAC-dominated and weedy.
SP11	Placed in upland grassland in the northeastern corner of the property.	No	No	No	Upland position; this area does not meet the three parameter wetland criteria.

OHWM-1 was placed perpendicular to Pilarcitos Creek (R-1) in the northeast corner of the wetland delineation study area (Appendix C; Appendix D, Photo 1). Pilarcitos Creek is a perennial creek with a well-defined OHWM that was identified by the observations of shelving, the clear presence of a bed and bank, and drift deposits.

3.1.5 Photo Points

Photo point labels, coordinates, and rationale for the photo are include in Table 4. Photos are included in Appendix D.

Table 5. Coordinates and Rationale for Photo Points

Label	Latitude	Longitude	Rationale
Photo 1	37.469261	-122.421798	Riparian habitat along Pilarcitos Creek
Photo 2	37.468813	-122.425454	Emergent freshwater marsh habitat around the abandoned agricultural pond
Photo 3	37.468319	-122.423926	Willow/Alder patches in the ruderal grassland matrix – SP5
Photo 4	37.468084	-122.423153	Portion of project area dominated by poison hemlock – SP7
Photo 5	37.469411	-122.423262	Upland grassland habitat typical of the site
Photo 6	37.467987	-122.422659	Pilarcitos Creek

3.2 Identification of Section 404 Waters

Approximately 0.29 ac of Section 404 waters were observed within the study area including the aquatic riverine habitat within the OHWM of Pilarcitos Creek (R1, Figure 7; Photo 6 in Appendix D) forming the eastern edge of study area. The extent of Section 404 waters was demarcated by the boundary formed by the OHWM.

Pilarcitos Creek is a 13.5-mile perennial stream that flows from the western slopes of the Santa Cruz Mountains through Pilarcitos Canyon and discharges into the Pacific Ocean approximately 1.7 mi downstream of the study area. Pilarcitos Creek is within the Arroyo Leon hydrologic unit (180500060201) within the San Francisco Coastal South Sub Region of the California Region. There is no tidal influence within Pilarcitos Creek in the study area.

3.3 Identification of Section 404 Potentially Jurisdictional Wetlands (Special Aquatic Sites)

In general, areas that were considered to be wetlands included solid stands of hydrophytes and/or areas observed to be ponded and/or saturated for long duration. Approximately 0.38 ac of potential USACE jurisdictional wetlands were identified in the study area (Figure 7). Three parameters identifying Section 404 wetlands were observed at one sample point (Figure 7; SP3, Appendix C). The feature that was determined to be a potentially USACE jurisdictional wetland is summarized below.

3.3.1 Perennial Freshwater Marsh (FM1)

Approximately 0.38 ac of emergent perennial freshwater marsh was mapped within study area, occupying an abandoned agricultural pond (FM1, Figure 7; SP3, Appendix C; (Photo 2 in Appendix D)).

Vegetation. Dominant vegetation associated with the wetlands included hydrophytes such as common cattail (*Typha latifolia*, OBL), whorled marsh-pennywort (*Hydrocotlye verticillata*, OBL), duckweeds (*Lemna* spp., OBL), and mosquito fern (*Azolla filiculoides*, OBL).

Soils. The soils were assumed to be hydric since the sample point was under several inches of water and soils are inundated year round. In addition, a hydrogen sulfide smell was observed in a shallow pit dug on the edge of the marsh.

Hydrology. The hydrology indicator observed at this location was the presence of surface water. Based on the timing of the survey, it would appear that this agricultural pond supports year-round surface water. Inundation was observed in aerial photos from recent years in fall months (Google Inc. 2020).

3.4 Identification of Section 401 Waters of the State

The extent of Section 401 waters of the state (RWQCB jurisdiction) in the study area includes a total of 0.91 ac, including areas within Section 404 jurisdiction as described above and riparian habitat up to the top of the banks. In the field, the top of bank was determined by mapping the first significant topographic break in slope. Waters of the state include all waters of the U.S., and cover approximately 0.38 ac of open water, 0.29 ac of perennial marsh, and 0.24 ac of riparian habitat (Figure 8). Characteristics of waters of the state, including wetlands, are described above in Sections 3.2 and 3.3.

3.5 Identification of CDFW Jurisdiction

The study area contains a perennial stream (Pilarcitos Creek) with a defined bed and bed topography along with associated riparian habitat, as defined by CDFW (Figure 9; Photo 1 and 6 in Appendix D). Riparian habitat was mapped by the dripline of trees and the extent of riparian vegetation. Pond features were mapped by the top of bank (which can extend beyond the OHWM used to measure the extent of waters of the U.S.).

Mixed Riparian Woodland. Approximately 2.85 ac of riparian woodland habitat extends from the water's edge and up the bank of Pilarcitos Creek. This riparian corridor is wide, well-developed, and extends upstream and downstream of the wetland delineation study area along Pilarcitos Creek. In addition, because the centerline of the creek is roughly equivalent to the eastern edge of the parcel, the riparian corridor on the eastern bank of the creek extends outside of the study area. Dominant trees and shrubs observed include arroyo willow (*Salix lasiolepis*, FACW), red willow (*Salix laevigata,* FACW), and red alder (*Alnus rubra*, FACW). The understory is mostly composed of dense and overlapping layers of Himalayan blackberry (*Rubus armeniacus*, FAC), cape ivy (*Delairea odorata, UPL*), and English ivy (*Hedera helix,* FACU). Given the density of the shrub/vine understory, herbaceous vegetation is limited.

3.6 Areas Not Meeting the Regulatory Definition of Section 404 Wetlands and Waters/Coastal Zone Wetlands within CCC Jurisdiction

In general, areas that were not considered to be wetlands, were not dominated by hydrophytic vegetation, and did not exhibit hydrology indicators were considered uplands. Approximately 17.64 ac of the study area do not meet the regulatory definitions of jurisdictional waters or jurisdictional habitats (Figure 6). This includes the ruderal grassland and developed landscape with ornamental vegetation (Photos 4 and 5, Appendix D).

Ruderal Grassland. Ruderal (i.e., disturbed) California annual grassland habitat is the most extensive vegetation community in the project area at 8.16 ac. Non-native grasses within this plant community are strongly dominant, generally outcompeting other forb and native grass species that may otherwise be present. At the time of the reconnaissance survey, this habitat was dominated by non-native grasses and forbs, including wild oat (*Avena* sp., UPL), Italian rye grass (*Festuca perenne*, FAC), soft brome (*Bromus hordeaceus*, FACU), black mustard (*Brassica nigra*, UPL), wild radish (*Raphanus sativus*, UPL), and prickly lettuce (*Lactuca serriola*, FACU).

In addition to these species, many other forbs and grass species are commonly found but to a much lower extent. These species include bristly ox-tongue (*Helminthotheca echioides,* FAC), poison hemlock (FAC), and curly dock (*Rumex crispus*, FAC). All of these, as well as Italian rye grass, are technically scored as facultative hydrophytes (Lichvar et al. 2016), or plants that sometimes occur in wetlands and sometimes occur in uplands, and can potentially indicate moist condition. However, all these species often dominate disturbed upland areas, especially along the coast where frequent fog occurs, without indicating wetlands, and often form monotypic stands, indicating infestation.

A number of small patches of either arroyo willow (FACW) or red alder (FACW) occur throughout the ruderal grassland, as mentioned above (Photo 3 in Appendix D). These clumps consist of either one or a few two trees and are situated on terraces within the central portion of the study area in areas that were previously in agricultural production. These trees are not associated with the riparian corridor along Pilarcitos Creek, though they likely are able to persist due to locally higher groundwater (within several feet of the surface) near Pilarcitos Creek. We do not believe that this entire area, or any area in the ruderal grassland supporting isolated willows or alders, truly stays saturated within 2 ft of the surface for a substantial portion of the growing season each year, as the site lacks hydric soil and hydrology indicators, or localized topography that would lead to seasonal ponding. Although both arroyo willow and red willow have a wetland indicator status (FACW), we feel that in this situation these trees are functioning as phreatophytes (i.e. woody perennials with a deep taproot that are able to access deep groundwater) as opposed to indicators of wetland conditions, or presence of a riparian corridor. Therefore we do not consider these patches of trees to be CCC jurisdictional wetlands.

Developed/Ornamental. Developed/landscaped land use (1.38 ac) includes areas where remnant structures and/or pavement and landscaping from the previous land use of agriculture production remain, and native or ruderal vegetation is largely lacking. The areas of former landscaping largely include the dense hedgerows of Monterey cypress (*Hesperocyparis macrocarpa,* UPL) and Monterey pine (*Pinus radiata*, UPL) trees along the north and western edge of the study area. The areas of development also include areas at the eastern end of the property consisting of several buildings, steel storage containers, and dirt parking areas. The buildings are in active use by the City of Half Moon Bay. Additionally, there are several unused dilapidated structures, including unused concrete channels and culverts present within the grassland and adjacent to the riparian habitat.

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Appendix A. Custom Soil Report for Project Study Area

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for San Mateo Area, California

880 Stone Pine Road Project



October 12, 2020

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

Preface.....2
How Soil Surveys Are Made.....5
Soil Map.....8
Soil Map.....9
Legend.....10
Map Unit Legend.....11
Map Unit Descriptions.....11
San Mateo Area, California.....13
BeC2—Botella loam, sloping, eroded.....13
FaA—Farallone loam, nearly level.....14
FcD2—Farallone coarse sandy loam, moderately steep, eroded.....15
GoF3—Gazos and Lobitos soils, steep and very steep, severely eroded...16
Gu—Gullied land (alluvial soil material).....18
Gv—Gullied land (gazos-lobitos soil material).....20
TcD2—Tierra clay loam, moderately steep, eroded.....20
TeC2—Tierra loam, sloping, eroded.....22
TeE3—Tierra loam, steep, severely eroded.....23
References.....25

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.



Map Scale: 1:2,980 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Mateo Area, California
Survey Area Data: Version 14, May 29, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 29, 2019—Jun 5, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BeC2	Botella loam, sloping, eroded	0.0	0.0%
FaA	Farallone loam, nearly level	8.7	41.5%
FcD2	Farallone coarse sandy loam, moderately steep, eroded	4.3	20.4%
GoF3	Gazos and Lobitos soils, steep and very steep, severely eroded	1.4	6.8%
Gu	Gullied land (alluvial soil material)	1.3	6.2%
Gv	Gullied land (gazos-lobitos soil material)	0.8	3.8%
TcD2	Tierra clay loam, moderately steep, eroded	0.1	0.7%
TeC2	Tierra loam, sloping, eroded	1.2	5.8%
TeE3	Tierra loam, steep, severely eroded	3.1	14.8%
Totals for Area of Interest		**21.1**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas

are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

San Mateo Area, California

BeC2—Botella loam, sloping, eroded

Map Unit Setting

National map unit symbol: h9v8
Elevation: 50 to 800 feet
Mean annual precipitation: 20 to 30 inches
Mean annual air temperature: 57 to 59 degrees F
Frost-free period: 250 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition

Botella and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Botella

Setting

Landform: Alluvial fans, terraces, benches
Landform position (two-dimensional): Backslope, toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

H1 - 0 to 20 inches: loam
H2 - 20 to 60 inches: silty clay loam

Properties and qualities

Slope: 7 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Soquel

Percent of map unit: 5 percent
Hydric soil rating: No

Unnamed
Percent of map unit: 5 percent
Hydric soil rating: No

Dublin
Percent of map unit: 5 percent
Hydric soil rating: No

FaA—Farallone loam, nearly level

Map Unit Setting
National map unit symbol: 2yrdy
Elevation: 30 to 210 feet
Mean annual precipitation: 28 to 30 inches
Mean annual air temperature: 56 to 57 degrees F
Frost-free period: 365 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition
Farallone and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Farallone

Setting
Landform: Alluvial fans, flood plains
Landform position (two-dimensional): Backslope, toeslope
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile
Ap - 0 to 20 inches: loam
AC - 20 to 48 inches: sandy loam
C - 48 to 60 inches: stratified coarse sandy loam to sandy loam

Properties and qualities
Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: Moderate (about 7.2 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 3c
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Denison

Percent of map unit: 10 percent
Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Miramar

Percent of map unit: 4 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Hydric soil rating: No

Unnamed

Percent of map unit: 1 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

FcD2—Farallone coarse sandy loam, moderately steep, eroded

Map Unit Setting

National map unit symbol: h9x5
Elevation: 50 to 200 feet
Mean annual precipitation: 20 to 30 inches
Mean annual air temperature: 55 degrees F
Frost-free period: 325 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Farallone and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Farallone

Setting

Landform: Alluvial fans, flood plains
Landform position (two-dimensional): Backslope, toeslope
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

H1 - 0 to 15 inches: coarse sandy loam
H2 - 15 to 48 inches: sandy loam
H3 - 48 to 60 inches: stratified coarse sandy loam to sandy loam

Properties and qualities

Slope: 10 to 20 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Denison

Percent of map unit: 10 percent
Hydric soil rating: No

Miramar

Percent of map unit: 5 percent
Hydric soil rating: No

GoF3—Gazos and Lobitos soils, steep and very steep, severely eroded

Map Unit Setting

National map unit symbol: h9xw
Elevation: 50 to 2,380 feet
Mean annual precipitation: 15 to 30 inches
Mean annual air temperature: 55 to 63 degrees F
Frost-free period: 200 to 300 days

Farmland classification: Not prime farmland

Map Unit Composition

Gazos and similar soils: 45 percent
Lobitos and similar soils: 35 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gazos

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Shale

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 20 inches: silt loam
H3 - 20 to 24 inches: unweathered bedrock

Properties and qualities

Slope: 30 to 75 percent
Depth to restrictive feature: 20 to 24 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Hydric soil rating: No

Description of Lobitos

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Shale

Typical profile

H1 - 0 to 14 inches: silt loam
H2 - 14 to 25 inches: channery clay loam
H3 - 25 to 29 inches: channery loam
H4 - 29 to 34 inches: unweathered bedrock

Properties and qualities

Slope: 30 to 75 percent
Depth to restrictive feature: 29 to 34 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Gullied land

Percent of map unit: 10 percent
Hydric soil rating: No

Sweeney

Percent of map unit: 5 percent
Hydric soil rating: No

Calera

Percent of map unit: 5 percent
Hydric soil rating: No

Gu—Gullied land (alluvial soil material)

Map Unit Setting

National map unit symbol: 2yrf4
Elevation: 20 to 420 feet
Mean annual precipitation: 29 to 32 inches
Mean annual air temperature: 56 to 57 degrees F
Frost-free period: 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Gullied land, (aluvial): 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gullied Land, (aluvial)

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Properties and qualities

Slope: 2 to 15 percent
Frequency of flooding: OccasionalNone

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w
Hydric soil rating: No

Minor Components

Unnamed

Percent of map unit: 5 percent
Landform: Draws
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: Yes

Botella

Percent of map unit: 4 percent
Landform: Alluvial fans, terraces, benches
Landform position (two-dimensional): Backslope, toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Farallone

Percent of map unit: 3 percent
Landform: Alluvial fans, flood plains
Landform position (two-dimensional): Backslope, toeslope
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Soquel

Percent of map unit: 3 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Gv—Gullied land (gazos-lobitos soil material)

Map Unit Composition

Gullied land, (gazos-): 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gullied Land, (gazos-)

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Residuum weathered from shale

Typical profile

H1 - 0 to 60 inches: variable

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8e
Hydric soil rating: No

Minor Components

Unnamed

Percent of map unit: 5 percent
Landform: Draws
Hydric soil rating: Yes

Gazos

Percent of map unit: 5 percent
Hydric soil rating: No

Lobitos

Percent of map unit: 5 percent
Hydric soil rating: No

TcD2—Tierra clay loam, moderately steep, eroded

Map Unit Setting

National map unit symbol: 2yrf9
Elevation: 60 to 720 feet
Mean annual precipitation: 29 to 31 inches
Mean annual air temperature: 56 to 57 degrees F

Frost-free period: 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Tierra and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tierra

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Alluvium derived from sedimentary rock

Typical profile

A - 0 to 17 inches: clay loam
Bt - 17 to 37 inches: clay
C - 37 to 60 inches: sandy clay loam

Properties and qualities

Slope: 11 to 20 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.01 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0
Available water capacity: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Colma

Percent of map unit: 10 percent
Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Santa lucia

Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Hydric soil rating: No

TeC2—Tierra loam, sloping, eroded

Map Unit Setting

National map unit symbol: 2yrfd
Elevation: 80 to 510 feet
Mean annual precipitation: 28 to 32 inches
Mean annual air temperature: 56 to 57 degrees F
Frost-free period: 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Tierra and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tierra

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Alluvium derived from sedimentary rock

Typical profile

A - 0 to 17 inches: loam
Bt - 17 to 37 inches: clay
C - 37 to 60 inches: sandy clay loam

Properties and qualities

Slope: 5 to 11 percent
Depth to restrictive feature: 10 to 24 inches to abrupt textural change
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.01 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0
Available water capacity: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Colma
Percent of map unit: 10 percent
Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Santa lucia
Percent of map unit: 3 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Hydric soil rating: No

Unnamed
Percent of map unit: 2 percent
Landform: Swales
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: Yes

TeE3—Tierra loam, steep, severely eroded

Map Unit Setting
National map unit symbol: 2yrfg
Elevation: 100 to 650 feet
Mean annual precipitation: 29 to 31 inches
Mean annual air temperature: 56 to 57 degrees F
Frost-free period: 365 days
Farmland classification: Not prime farmland

Map Unit Composition
Tierra and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tierra

Setting
Landform: Hills

Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Alluvium derived from sedimentary rock

Typical profile

A - 0 to 13 inches: loam
Bt - 13 to 33 inches: clay
C - 33 to 60 inches: sandy clay loam

Properties and qualities

Slope: 21 to 41 percent
Depth to restrictive feature: 10 to 24 inches to abrupt textural change
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.01 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0
Available water capacity: Very low (about 2.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Colma

Percent of map unit: 10 percent
Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Santa lucia

Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Hydric soil rating: No

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Appendix B. Plants Observed in the Project Area

Family	Scientific Name	Common Name	Wetland Indicator Status[1]
Agavaceae	*Chlorogalum pomeridianum*	Soap plant	UPL
Anacardiaceae	*Toxicodendron diversilobum*	Poison oak	FAC
Apiaceae	*Conium maculatum*	poison hemlock	FAC
	Hydrocotyle verticillata	Whorled Marsh-Pennywort	OBL
	Torilis arvensis	field hedge parsley	UPL
Araceae	*Lemna sp.*	duckweed	OBL
Araliaceae	*Hedera helix*	English ivy	FACU
Asteraceae	*Arctotheca prostrata*	creeping capeweed	UPL
	Baccharis pilularis	Coyote brush	UPL
	Carduus pycnocephalus	Italian thistle	UPL
	Cirsium vulgare	Bull thistle	FACU
	Deinandra corymbosa	Coastal tarweed	UPL
	Delairea odorata	cape ivy	UPL
	Helminthotheca echioides	Bristly ox-tongue	FAC
	Lactuca serriola	*prickly lettuce*	FACU
	Madia sativa	Chile Tarweed	UPL
	Silybum marinum	Milk thistle	UPL
Azollaceae	*Azolla filiculoides*	*mosquito fern*	OBL
Betulaceae	*Alnus rubra*	red alder	FAC
Brassicaceae	*Brassica nigra*	Black mustard	UPL
	Hirschfeldia incana	Mediterranean hoary mustard	UPL
	Raphanus sativus	Wild radish	UPL
Caryophyllaceae	*Silene gallica*	windmill pink	UPL
Cupressaceae	*Sequoia sempervirens*	Coast redwood	UPL
Cyperaceae	*Carex barbarae*	Santa Barbara Sedge	FAC
	Carex densa	Dense sedge	OBL

Family	Scientific Name	Common Name	Wetland Indicator Status[1]
	Cyperus eragrostis	Tall flatsedge	FACW
Equisetaceae	*Equisetum arvense*	common horsetail	FAC
Fabaceae	*Acacia dealbata*	Silver wattle	UPL
	Genista monspessulana	French broom	UPL
	Lotus corniculatus	bird's foot trefoil	FAC
	Lupinus arboreus	coastal bush lupine	UPL
	Trifolium angustifolium	Narrow leaved clover	UPL
	Vicia villosa	Hairy vetch	UPL
Fagaceae	*Quercus agrifolia*	Coast live oak	UPL
Junacaeae	*Juncus effusus*	Bog rush	FACW
	Juncus patens	Common rush	FACW
	Juncus xiphoides	Iris leaved rush	OBL
Lamiaceae	*Stachys bullata*	California hedge nettle	UPL
Linaceae	*Linum bienne*	narrow leaved flax	UPL
Myrtaceae	*Eucalyptus globulus*	blue gum	UPL
Pinaceae	*Hesperocyparis macrocarpa*	Monterey cypress	UPL
	Pinus radiata	Monterey pine	UPL
	Pseudotsuga menziesii	Douglas fir	FACU
Plataginaceae	*Plantago coronopus*	cutleaf plantain	FAC
Poaceae	*Agoseris stolonifera*	Creeping bentgrass	FAC
	Aira caryophyllea	Silvery hairgrass	FACU
	Avena sp.	Wild oats	UPL
	Briza maxima	Rattlesnake grass	UPL
	Briza minor	Little quaking grass	FAC
	Bromus diandrus	Ripgut brome	UPL
	Bromus hordeaceus	soft chess	FACU
	Cortaderia jubata	Pampas grass	FACU
	Cynosurus echinatus	dogtail grass	UPL
	Festuca perenne	Italian ryegrass	FAC

Family	Scientific Name	Common Name	Wetland Indicator Status[1]
	Holcus lanatus	Velvet grass	FAC
	Hordeum murinum	meadow barley	FAC
	Polypogon monspeliensis	rabbitsfoot grass	FACW
Polygonaceae	*Rumex acetosella*	Sheep sorrel	FACU
	Rumex crispus	curly dock	FAC
Primulaceae	*Lysimachia arvensis*	scarlet pimpernel	FAC
Rosaceae	*Cotoneaster pannosus*	silverleaf cotoneaster	UPL
	Rubus armeniacus	Himalayan blackberry	FAC
	Rubus ursinus	California blackberry	FACU
Salicaceae	*Salix laevigata*	red willow	FACW
	Salix lasiandra	Pacific willow	FACW
	Salix lasiolepis	arroyo willow	FACW
Typhaceae	*Typha latifolia*	common cattail	OBL
Urticaceae	*Urtica dioica* ssp. *dioica*	stinging nettle	FAC

Notes:

Wetland Indicator Status obtained from Lichvar et al. (2016)

[1] Wetland Indicator Status Key:

OBL = Obligate wetland species, occur almost always in wetlands (>99% probability).

FACW = Facultative Wetland species, usually occur in wetlands (67 to 99% probability), but occasionally found in non-wetlands.

FAC = Facultative species, equally likely to occur in wetlands or non-wetlands (34 to 66% probability).

FACU = Facultative Upland, usually occur in non-wetlands (67% to 99%), but occasionally found in wetlands.

UPL = Obligate Upland species, occur almost always in non-wetlands (>99% probability).

NI = Non Indicator, not present on list.

Appendix C. Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project Site: 880 Stone Pine Road Project City/County: Half Moon Bay, San Mateo Sampling Date: 6/12/2020
Applicant/Owner: City of Half Moon Bay State: California Sampling Point: SP1
Investigator(s): M. Bibbo Section/Township/Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local Relief (concave, convex, none): Concave Slope (%): 2
Subregion (LRR): LRR-C Lat: 37.468385 Long: -122.425183 Datum: WGS84
Soil Map Unit Name: Tierra loam, steep, severely eroded NWI classification N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes No X
Wetland Hydrology Present? Yes No X

Is the Sampled Area within a Wetland? Yes No X

Remarks:
Point taken to examine swale on edge of property - appears to be a head-cut or erosional feature, perhaps an abandoned agricultural ditch.

VEGETATION

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum (Plot size: 10 x 10 ft.)			
1. *Conium maculatum*	40	X	
2. *Festuca perennis*	30	X	
3. *Raphanus sativus*	20	X	
4. *Helminthotheca*	10		
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	100		
Woody Vine Stratum (Plot size:)			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL Species		x 5 =	
Column totals	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X 1 – Rapid Test for Hydrophytic Vegetation
2 – Dominance Text is >50%
3 – Prevalence Index is ≤3.0[1]
4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
5 – Wetland Non-vascular Plants[1] (Explain)
Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No

Remarks:
Ruderal vegetation dominated by Conium. Not a strong demarcation between vegetation in swale and surrounding hillslope.

SOIL

Sampling Point: **SP1**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	7.5 YR 4/2	100					clay loam	many roots

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Soil appears to be well-drained. No redox features observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LLR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? Yes _____ No X Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Feature is ditch/swale-like and appears to be eroding via head cut. Likely a former agricultural ditch, used to convey run-off and has been long since abandoned. No indicators of recent flow observed. Feature does not appear to pond water either. Water may flow through here immediately flowing strong storm events, but then would transition to sheet flow at bottom of slope (i.e. does not drain directly into another stream or drainage.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project Site: 880 Stone Pine Road Project City/County: Half Moon Bay, San Mateo Sampling Date: 6/12/2020
Applicant/Owner: City of Half Moon Bay State: California Sampling Point: SP2
Investigator(s): M. Bibbo Section/Township/Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local Relief (concave, convex, none): None Slope (%): 3-4
Subregion (LRR): LRR-C Lat: 37.46845 Long: -122.42513 Datum: NAD83
Soil Map Unit Name: Tierra loam, steep, severely eroded NWI classification None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No X
Hydric Soil Present? Yes No X
Wetland Hydrology Present? Yes No X
Is the Sampled Area within a Wetland? Yes No X

Remarks:
Point taken to examine the hillslope adjacent the swale.

VEGETATION

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum (Plot size: 10 x 10 ft.)			
1. *Festuca perennis*	60	X	FAC
2. *Avena fatua*	30	X	UPL
3. *Raphanus sativa*	5		UPL
4. *Vicia sativa*	5		UPL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	100		
Woody Vine Stratum (Plot size:)			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	60	x 3 =	180
FACU species		x 4 =	
UPL Species	40	x 5 =	200
Column totals	100 (A)		380 (B)

Prevalence Index = B/A = 3.8

Hydrophytic Vegetation Indicators:
- 1 – Rapid Test for Hydrophytic Vegetation
- 2 – Dominance Text is >50%
- 3 – Prevalence Index is ≤3.0[1]
- 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 – Wetland Non-vascular Plants[1] (Explain)
- Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes No X

Remarks:
Italian rye-grass dominated grassland – other co-dominant species are upland grasses and forbs.

SOIL

Sampling Point: **SP2**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/3	50					clay loam	
0-16	5 YR 5/4	50					clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ **No X**

Remarks:

Soil has a mixed matrix of two soil colors. Redox features not observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LLR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ **No X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Hillslope, upland landscape position.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project Site: 880 Stone Pine Road Project City/County: Half Moon Bay, San Mateo Sampling Date: 6/12/2020
Applicant/Owner: City of Half Moon Bay State: California Sampling Point: SP3
Investigator(s): M. Bibbo Section/Township/Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local Relief (concave, convex, none): None Slope (%): 3-4
Subregion (LRR): LRR-C Lat: 37.46882 Long: -122.42505 Datum: WGS84
Soil Map Unit Name: Tierra loam, steep, severely eroded NWI classification None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes X No
Wetland Hydrology Present? Yes X No
Is the Sampled Area within a Wetland? Yes X No

Remarks:
Freshwater marsh in an abandoned (but still inundated) agricultural pond.

VEGETATION

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum (Plot size: 10 x 10 ft.)			
1. *Typha latifolia*	60	X	OBL
2. *Azolla spp.*	20	X	OBL
3. *Lemna spp.*	10		OBL
4. *Hydrocotyle verticillata*	10		OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	100		
Woody Vine Stratum (Plot size:)			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum 0			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL Species		x 5 =	
Column totals	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
X 1 – Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Text is >50%
3 – Prevalence Index is ≤3.0[1]
4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
5 – Wetland Non-vascular Plants[1] (Explain)
Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No

Remarks:
Cattail-dominated freshwater marsh.

SOIL

Sampling Point: **SP3**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
n/a							mucky	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

Soil pit not dug, due to standing water. Hydrogen sulfide smell observed in a shallow pit dug on the edge of the marsh. Soils presumed hydric based on dominance of OBL species, and year-round inundation of soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LLR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): ~6"

Water Table Present? Yes X No ___ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): N/A

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Perennially inundated pond, likely fed by groundwater. Water present year round. The water depth in the middle of the pond feature is unknown.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project Site: 880 Stone Pine Road Project City/County: Half Moon Bay, San Mateo Sampling Date: 6/12/2020
Applicant/Owner: City of Half Moon Bay State: California Sampling Point: SP4
Investigator(s): M. Bibbo Section/Township/Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local Relief (concave, convex, none): None Slope (%): 1
Subregion (LRR): LRR-C Lat: 37.46877 Long: -122.42499 Datum: WGS84
Soil Map Unit Name: Tierra loam, steep, severely eroded NWI classification None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes No X
Wetland Hydrology Present? Yes No X
Is the Sampled Area within a Wetland? Yes No X

Remarks:
Upland paired point to SP4 - point taken to examine the riparian vegetation on the banks of the abandoned agricultural pond.

VEGETATION

Tree Stratum (Plot size: 30 x 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix laevigata*	60	X	FACW
2.			
3.			
4. *5*			
Total Cover:	0		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum (Plot size: 10 x 10 ft.)			
1. *Holcus lanatus*	60	X	FAC
2. *Vicia tetrasperma*	30	X	UPL
3. *Festuca perennis*	20	X	FAC
4. *Geranium molle*	<1		UPL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	100		
Woody Vine Stratum (Plot size: 30 x 30 ft.)			
1. *Rubus ursinus*	5	X	FACU
2.			
Total Cover:	5		
% Bare Ground in Herb Stratum 0			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL Species		x 5 =	
Column totals	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- 1 – Rapid Test for Hydrophytic Vegetation
- X 2 – Dominance Text is >50%
- 3 – Prevalence Index is ≤3.0[1]
- 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 – Wetland Non-vascular Plants[1] (Explain)
- Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes X No**

Remarks:
Overstory willow cover is rooted at edge of marsh, the remainder of the riparian vegetation on the bank is dominated by FAC grasses.

SOIL

Sampling Point: **SP4**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	2.5Y 5/3	100	7.5 YR 5/4	<1	C	M	clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ **No X**

Remarks:

Some very faint redox concentrations in the matrix. Soils are not in a landscape position (mid banks of a constructed pond) where they would be seasonally inundated.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LLR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? Yes ___ No X Depth (inches): ___

(includes capillary fringe)

Wetland Hydrology Present? Yes ___ **No X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Hillslope bank of artificial pond. All surface flow in the winter season would readily drain into the adjacent pond.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project Site: 880 Stone Pine Road Project City/County: Half Moon Bay, San Mateo Sampling Date: 6/12/2020
Applicant/Owner: City of Half Moon Bay State: California Sampling Point: SP5
Investigator(s): M. Bibbo Section/Township/Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local Relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): LRR-C Lat: 37.46825 Long: -122.42389 Datum: WGS84
Soil Map Unit Name: Farallone loam, nearly level NWI classification None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes No X
Wetland Hydrology Present? Yes No X
Is the Sampled Area within a Wetland? Yes No X

Remarks:
Point taken to examine the willow/alder stands that occur on the site - may be considered "one-parameter CCC wetlands".

VEGETATION

Tree Stratum (Plot size: 30 x 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix laevigata*	90	X	FACW
2.			
3.			
4.			
Total Cover:	90		
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum (Plot size: 30 x 30')			
1. *Festuca perennis*	2	X	FAC
2. *Avena fatua*	1		UPL
3. *Bromus diandrus*	1		UPL
4. *Bromus catharticus*	1		UPL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	5		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL Species		x 5 =	
Column totals	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
___ 1 – Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Text is >50%
___ 3 – Prevalence Index is ≤3.0[1]
___ 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 – Wetland Non-vascular Plants[1] (Explain)
Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No

Remarks:
Wetland boundary defined by overstory canopy of willow. Understory is absent (i.e. bare) to very sparsely vegetated by FAC and UPL grasses.

SOIL

Sampling Point: **SP5**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	100					clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

No redox features observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LLR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? Yes _____ No X Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The willow/alder patches are situated on a flat terrace that was previously leveled and in agricultural production. There may be a high water table that the roots are tapping into.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project Site: 880 Stone Pine Road Project City/County: Half Moon Bay, San Mateo Sampling Date: 6/12/2020
Applicant/Owner: City of Half Moon Bay State: California Sampling Point: SP6
Investigator(s): M. Bibbo Section/Township/Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local Relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): LRR-C Lat: 37.46822 Long: -122.42382 Datum: WGS84
Soil Map Unit Name: Farallone loam, nearly level NWI classification None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No X
Hydric Soil Present? Yes No X
Wetland Hydrology Present? Yes No X
Is the Sampled Area within a Wetland? Yes No X

Remarks:
Paired point to SP5.

VEGETATION

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum (Plot size: 10 x 10 ft.)			
1. *Avena fatua*	50	X	UPL
2. *Bromus diandrus*	25	X	UPL
3. *Festuca myuros*	10		UPL
4. *Festuca perennis*	10		FAC
5. *Carduus pychnocephalus*	3		UPL
6. *Erigeron canadensis*	2		UPL
7.			
8.			
9.			
10.			
11.			
Total Cover:	100		
Woody Vine Stratum (Plot size:)			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum 0			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL Species		x 5 =	
Column totals	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
___ 1 – Rapid Test for Hydrophytic Vegetation
___ 2 – Dominance Text is >50%
___ 3 – Prevalence Index is ≤3.0[1]
___ 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 – Wetland Non-vascular Plants[1] (Explain)
Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** **No X**

Remarks:
Dominated by upland grasses.

SOIL

Sampling Point: **SP6**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	100					Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

No redox features observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LLR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? Yes _____ No X Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Level terrace, no indication of seasonal inundation.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project Site: 880 Stone Pine Road Project City/County: Half Moon Bay, San Mateo Sampling Date: 6/12/2020
Applicant/Owner: City of Half Moon Bay State: California Sampling Point: SP7
Investigator(s): M. Bibbo Section/Township/Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local Relief (concave, convex, none): None Slope (%): 1
Subregion (LRR): LRR-C Lat: 37.46808 Long: -122.42309 Datum: WGS84
Soil Map Unit Name: Farallone coarse sandy loam, moderately steep, eroded NWI classification None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes No X
Wetland Hydrology Present? Yes No X

Is the Sampled Area within a Wetland? Yes No X

Remarks:
Point taken to examine poison hemlock infestation on terrace in southern portion of property.

VEGETATION

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum (Plot size: 10 x 10 ft.)			
1. *Conium maculatum*	100	X	FAC
2. *Hirschfeldia incana*	2		UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	100		
Woody Vine Stratum (Plot size:)			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL Species		x 5 =	
Column totals	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- 1 – Rapid Test for Hydrophytic Vegetation
- X 2 – Dominance Text is >50%
- 3 – Prevalence Index is ≤3.0[1]
- 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 – Wetland Non-vascular Plants[1] (Explain)

Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No

Remarks:
Ruderal vegetation dominated by poison hemlock, a FAC plant. Hemlock is not "acting" like a wetland plant in this situation.

SOIL

Sampling Point: **SP7**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	7.5 YR 4/2	100					Sandy loam	coarse

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

No redox features observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LLR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? Yes _____ No X Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Upland landscape position.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project Site: 880 Stone Pine Road Project City/County: Half Moon Bay, San Mateo Sampling Date: 6/12/2020
Applicant/Owner: City of Half Moon Bay State: California Sampling Point: SP8
Investigator(s): M. Bibbo Section/Township/Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local Relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): LRR-C Lat: 37.469925 Long: -122.42175 Datum: WGS84
Soil Map Unit Name: Farallone coarse sandy loam, moderately steep, eroded NWI classification None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes No X
Wetland Hydrology Present? Yes No X

Is the Sampled Area within a Wetland? Yes No X

Remarks:
Point taken to examine the riparian corridor of Pilarcitos Creek.

VEGETATION

Tree Stratum (Plot size: 30 x 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix laevigata*	100	X	FACW
2.			
3.			
4.			
Total Cover:	100		
Sapling/Shrub Stratum (Plot size: 30 x 30ft)			
1. *Rubus armeniacus*	20	X	FAC
2.			
3.			
4.			
5.			
Total Cover:	20		
Herb Stratum (Plot size: 30 x 30ft)			
1. *Urtic dioica*	5	X	FAC
2. *Stachys rigida*	5	X	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	10		
Woody Vine Stratum (Plot size: 30 x 30ft)			
1. *Delairea odorata*	75	X	FAC
2.			
Total Cover:	75		
% Bare Ground in Herb Stratum 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL Species		x 5 =	
Column totals	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- 1 – Rapid Test for Hydrophytic Vegetation
- X 2 – Dominance Text is >50%
- 3 – Prevalence Index is ≤3.0[1]
- 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 – Wetland Non-vascular Plants[1] (Explain)

Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No

Remarks:
Willow-dominated, dense, multi-layered riparian vegetation.

SOIL

Sampling Point: **SP8**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10 YR 3/3	100					sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ **No X**

Remarks:

Terrace soils, well-drained. No redoximorphic features observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LLR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? Yes ___ No X Depth (inches): ___

(includes capillary fringe)

Wetland Hydrology Present? Yes ___ **No X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Upland landscape position - high terrace above Pilarcitos Creek.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project Site: 880 Stone Pine Road Project City/County: Half Moon Bay, San Mateo Sampling Date: 6/12/2020
Applicant/Owner: City of Half Moon Bay State: California Sampling Point: SP9
Investigator(s): M. Bibbo Section/Township/Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local Relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): LRR-C Lat: 37.46687 Long: -122.42311 Datum: WGS84
Soil Map Unit Name: Farallone coarse sandy loam, moderately steep, eroded NWI classification None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes No X
Wetland Hydrology Present? Yes No X

Is the Sampled Area within a Wetland? Yes No X

Remarks:
Point taken to examine the riparian corridor of Pilarcitos Creek. Point taken in southwest corner of property.

VEGETATION

Tree Stratum (Plot size: 30 x 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix laevigata*	60	X	FACW
2.			
3.			
4.			
Total Cover:	60		
Sapling/Shrub Stratum (Plot size: 30 x 30ft)			
1. *Rubus armeniacus*	60	X	FAC
2.			
3.			
4.			
5.			
Total Cover:	60		
Herb Stratum (Plot size: 30 x 30ft)			
1. *Conium maculatum*	20	X	FAC
2. *Urtica dioica*	10	X	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	30		
Woody Vine Stratum (Plot size: 30 x 30ft)			
1. *Delairea odorata*	75	X	FAC
2.			
Total Cover:	75		
% Bare Ground in Herb Stratum			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL Species		x 5 =	
Column totals	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- 1 – Rapid Test for Hydrophytic Vegetation
- X 2 – Dominance Text is >50%
- 3 – Prevalence Index is ≤3.0[1]
- 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 – Wetland Non-vascular Plants[1] (Explain)
- Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No

Remarks:
Willow-dominated, dense, multi-layered riparian vegetation.

SOIL

Sampling Point: **SP9**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10 YR 3/2	100					sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No X

Remarks:

Terrace soils, well-drained. No redoximorphic features observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LLR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Upland landscape position - high terrace above Pilarcitos Creek.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project Site: 880 Stone Pine Road Project City/County: Half Moon Bay, San Mateo Sampling Date: 6/12/2020
Applicant/Owner: City of Half Moon Bay State: California Sampling Point: SP10
Investigator(s): M. Bibbo Section/Township/Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local Relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): LRR-C Lat: 37.46701 Long: -122.42410 Datum: WGS84
Soil Map Unit Name: Farallone loam, nearly level NWI classification None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes No X
Wetland Hydrology Present? Yes No X

Is the Sampled Area within a Wetland? Yes No X

Remarks:
Point taken to examine poison hemlock infestation on terrace in south west portion of property. Hemlock is extensive on this portion of the property.

VEGETATION

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum (Plot size: 10 x 10 ft.)			
1. *Conium maculatum*	40	X	FAC
2. *Festuca perennis*	20	X	FAC
3. *Bromus diandrus*	35	X	UPL
4. *Lotus corniculatus*	5		FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	100		
Woody Vine Stratum (Plot size:)			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL Species	x 5 =
Column totals (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- 1 – Rapid Test for Hydrophytic Vegetation
- X 2 – Dominance Text is >50%
- 3 – Prevalence Index is ≤3.0[1]
- 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 – Wetland Non-vascular Plants[1] (Explain)

Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes X No**

Remarks:
Ruderal vegetation dominated by poison hemlock and Italian rye-grass, FAC plants, though neither are "acting" like a wetland plants in this situation.

SOIL

Sampling Point: **SP10**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	100					Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ **No X**

Remarks:

Soils appear to be well-drained, no redoximorphic features present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LLR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ **No X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Level terrace, no indication of seasonal inundation.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project Site: 880 Stone Pine Road Project City/County: Half Moon Bay, San Mateo Sampling Date: 6/12/2020
Applicant/Owner: City of Half Moon Bay State: California Sampling Point: SP11
Investigator(s): M. Bibbo Section/Township/Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local Relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): LRR-C Lat: 37.46938 Long: -122.42328 Datum: WGS84
Soil Map Unit Name: Farallone loam, nearly level NWI classification None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No X
Hydric Soil Present? Yes _____ No X
Wetland Hydrology Present? Yes _____ No X

Is the Sampled Area within a Wetland? Yes _____ No X

Remarks:
Point taken to examine grassland in the northeastern corner of the property. This grassland is typical of the site.

VEGETATION

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum (Plot size: 10 x 10 ft.)			
1. *Avena fatua*	60	X	UPL
2. *Bromus diandrus*	30	X	UPL
3. *Hirschfeldia incana*	5		UPL
4. *Helminthotheca echioides*	2		FAC
5. *Vicia sativa*	2		UPL
6. *Rumex crispus*	<1		FAC
7.			
8.			
9.			
10.			
11.			
Total Cover:	100		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL Species		x 5 =	
Column totals	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 – Rapid Test for Hydrophytic Vegetation
___ 2 – Dominance Text is >50%
___ 3 – Prevalence Index is ≤3.0[1]
___ 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 – Wetland Non-vascular Plants[1] (Explain)
Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:
Dominated by upland grasses.

SOIL

Sampling Point: **SP11**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	100					Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
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- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ **No X**

Remarks:

Soils appear to be well-drained.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LLR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? Yes ___ No X Depth (inches): ___

(includes capillary fringe)

Wetland Hydrology Present? Yes ___ **No X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Level terrace, no indication of seasonal inundation.

Appendix D. Photographic Documentation of the Project Area



Photo 1. Riparian habitat along Pilarcitos Creek (SP8).



Photo 2. Emergent freshwater marsh habitat around the abandoned agricultural pond (FM-1; SP3).



Photo 3. Willow/Alder stands in the California annual grassland occupying the old agricultural terraces (SP5).



Photo 4. Portion of project area dominated by poison hemlock (SP7).



Photo 5. Upland grassland habitat typical of the site (SP11).



Photo 6. OWHM and streambed of Pilarcitos Creek forming the eastern edge of the project study area.

Appendix E. Aquatic Resources Table

Waters Name	State	Cowardin Code	HGM Code	Measurement Type	Amount	Units	Water Type	Latitude	Longitude	Local Waterway
R1	CALIFORNIA	R2UB	RIVERINE	Area	1.46 ac	ACRE	RPW	37.467987	-122.422659	Pilarcitos Creek
FM1	CALIFORNIA	PEM	DEPRESS	Area	1.17 ac	ACRE	RPWWN	37.468813	-122.425454	Pilarcitos Creek

Appendix F. Signed statement from the property owner(s) allowing USACE personnel to enter the property

I, John Doughty, will allow Corps personnel to enter the 880 Stone Pine Road Project property in San Mateo County, California to collect samples during normal business hours. The property is not land-locked, therefore permission from the adjacent property owner(s) in order to provide access is not necessary.

Thank you,

John Doughty
City of Half Moon Bay
jdoughty@hmbcity.com
(650) 726-8252

APPENDIX B4

Draft Frog/Snake Tunnel Design Proposal

Dr. Mark Jennings, Rana Resources

DRAFT

FROG AND SNAKE TUNNEL DESIGN PROPOSAL

Mark R. Jennings
Rana Resources
October 12, 2021

The proposed frog/snake tunnel and surrounding fencing for the Half Moon Bay Corporation Yard Upgrade Project is designed as follows.

The width of the movement corridor shall be 50 feet. This approximates half of the width of the natural riparian corridor along Pilarcitos Creek (i.e.: a natural corridor along the water's edge). Because no future uses of the open space west of the corporation yard are proposed at this time, the movement corridor shall be placed as close as possible to the western boundary of the Corporation Yard and then head directly south to Pilarcitos Creek (to the location of the 50-foot riparian set back; see Figure 1). This allows for future use of the open space parcels to the west of the movement corridor and makes the distance to the creek as short as possible.

The fencing around the current pond should remain as a 6-foot high chain link fence. The northern and western fence lines should be expanded to the current boundaries of the property. The eastern and southern fence lines should be expanded to the 100-foot wetland setback. The access gate located in the northeast corner of the fence should remain in place.

This fencing will be installed with aluminum slats or vinyl slats (with wings). Gaps at the ends of the fencing will be covered with slats bolted together. The bottom of the fencing should be buried in the soil to a depth of 2 inches (except at the entrance to the movement corridor on the east side of the fence line. Here, no slats will be installed and the fencing shall leave a gap of 2 inches at the bottom for frogs and snakes to pass).

The fencing around the movement corridor itself shall be chain link fencing 4-feet high. It should also be buried 2 inches at the bottom and be covered with aluminum or vinyl slats. Gaps at the ends of the fencing will be covered with slats bolted together. Access gates will be installed on the west side of the fence lines where indicated (Figure 1). This fence will also connect on either side of the roadway to prevent frogs and snakes from entering the roadway (Figure 1).

The frog/snake tunnels shall be composed of 4 concrete box culverts, 3-feet wide and 2-feet high. They should be spaced under the roadway with culverts on the west and east sides flush against the adjacent fencing, and the remaining 2 culverts spaced approximately 14 feet from one another (Figure 2). The culvert bases should be at ground level and installed at a 2% slope to drain water. Either a trench or raising the roadway will be required to ensure that the culvert bases are properly aligned on the ground level. Whichever method is used, the end result is to prevent any water from ponding in the culverts for extended periods.

The floor of each culvert should contain an inch or so of natural soil (so as to cover the concrete base). The level of this soil base should be even with the soil level at the entrance and exit of each box culvert.

Gated access will be provided for any check of the area (e.g., for fire, utilities, culvert or pond inspections, etc.). It is anticipated that vegetation fuels management of the pond area and migration corridor will use grazing by domestic goats on an annual basis.

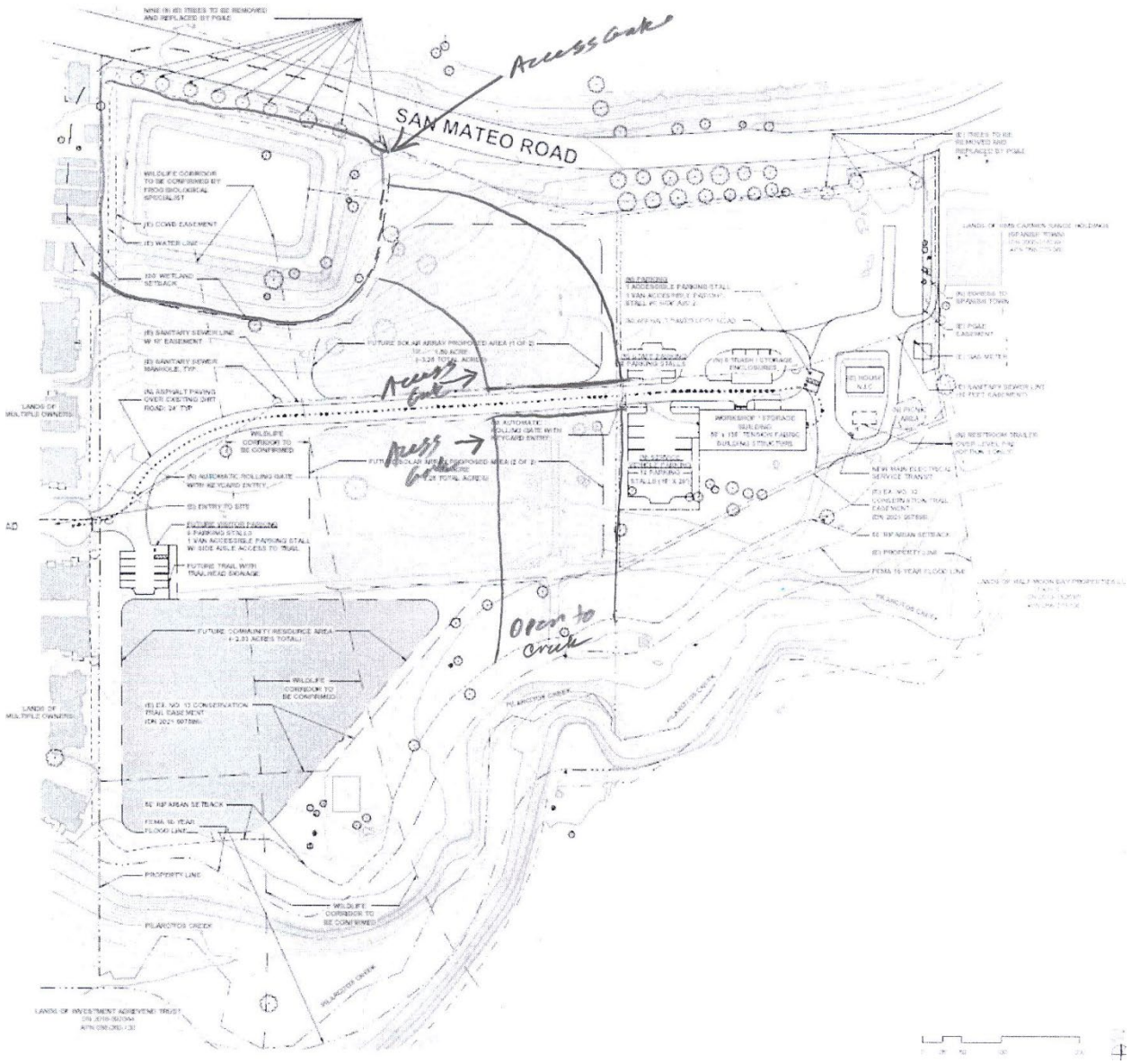

Figure 1. Proposed location of the fencing and movement corridor.

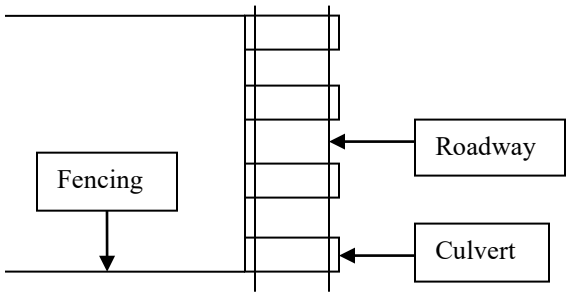

Figure 2. Diagram of fencing to the west with culverts evenly spaced under the roadway.

APPENDIX B5

Peer Review of H.T. Harvey & Associates Biological Resources Report for the City of Half Moon Bay Corporation Yard Upgrade Project

Dr. Mark Jennings, Rana Resources

RANA RESOURCES
P.O. Box 2185
Davis, CA 95617-2185

(530) 753-2727
RanaResources@aol.com

To: Jessica Henderson-McBean
SWCA Environmental Consultants
60 Stone Pine Road, Suite 100
Half Moon Bay, CA 94019

From: Mark R. Jennings, Consulting Biologist

Date: #20,048
January 09, 2022

Re: Peer Review of H.T. Harvey & Associates Biological Resources Report for the City of Half Moon Bay Corporation Yard Upgrade Project.

I have had the chance to review the Biological Resources Report (BRR) prepared by H.T. Harvey & Associates, as well as the November 21, 2021 Technical Memorandum (TM) prepared by yourself for Todd Seely of the City of Half Moon Bay. Based on my peer review of these documents, I find that the conclusions reached in the BRR, as well as the conclusions and suggestions in the TM to be appropriate and biologically justified. Although the agricultural pond mentioned in these documents was discussed as "perennial," recent years of drought have shown that most of the pond bottom is subject to annual drying if rainfall levels are less than average. Additionally, there is a spring located at the base of the old well in the southwest corner of the pond. Both of these findings should be included in considering future management practices with ensuring that the pond continues to be suitable breeding, rearing, and feeding habitat for both California red-legged frogs (*Rana draytonii*) and San Francisco gartersnakes (*Thamnophis sirtalis tetrataenia*). The old well could be used to mitigate against the extensive drying of the pond during extended drought years.

I attempted to determine how long the agricultural pond had been present on site and also if it was regularly filled with water in the past. A check of Google Earth photographs show the pond to be present in the 1980s. However, it probably was constructed many years before that and water storage was probably variable depending on the crops irrigated. It might be useful to find out what kind of crops were irrigated in the past and if this resulted in the agricultural pond historically containing water year around.

Additionally, the pond is almost certainly used by western pond turtles (*Actimemys marmorata*), both for feeding and rearing, and potentially for nesting on the soils that are exposed to sunlight around the edges of the pond. The currently proposed wildlife habitat corridor and fencing appears to be compatible for this species, as well as for California red-legged frogs and San Francisco gartersnakes. However, one issue that was not mentioned and does need to be considered is the potential treatment of the pond for mosquito larvae. The BRR should state in a

mitigation measure that any treatment of the pond for mosquito larvae by the Mosquito Abatement District should not include the planting of western mosquitofish (*Gambusia affinis*). Instead, other approved methods by the District (e.g., insect growth regulators), should be used to control local mosquito populations here.

In the same context, the use of rodenticides (i.e.: anticoagulants) for controlling introduced rats (*Rattus* spp.), house mice (*Mus musculus*), and California ground squirrels (*Spermophilus beecheyi*) should prohibited. Instead, localized trapping of rodents should conducted, if needed.

APPENDIX C

Mitigation Monitoring and Reporting Plan

Half Moon Bay Corporation Yard Upgrade Project Initial Study / Mitigated Negative Declaration (IS/MND)
Mitigation Monitoring and Reporting Program

Color Codes

Measure Implemented Prior to Construction or Pending Approval

Measure Implemented During Construction

Measure Implemented Following Construction Completion

Impact	Applicant Proposed Measure (APM) or Mitigation Measure	Comments	Responsible Party	Timing / Milestone
Biological Resources				
BIO-1	**The following general mitigation measures shall be implemented during the project:** a. Prior to the start of the project, all construction crew members shall attend an environmental awareness training presented by a qualified biologist. A training brochure describing special-status species, project avoidance and minimization measures, key contacts, and potential consequences of impacts to special-status species and potentially jurisdictional features shall be distributed to the crew members during the training. Trainees shall sign an environmental training attendance sheet. These personnel shall be informed about the possible presence of all special-status species and habitats associated with the species identified here to be potentially present in the project area and that unlawful take of the animal or destruction of its habitat is a violation of the Federal Endangered Species Act and the California Endangered Species Act. Prior to construction activities, the qualified biologist shall instruct all construction personnel about (1) the description and status of the species; (2) the importance of their associated habitats; and (3) a list of measures being taken to reduce impacts on these species during project construction and implementation. A fact sheet conveying this information shall be prepared for distribution to the construction crew and anyone else who enters the project site. b. Disturbance to vegetation shall be kept to the minimum necessary to complete the project activities. To minimize impacts to vegetation, a qualified biologist shall work with the contractor to designate the work area and any staging areas as well as delineate areas that shall be avoided with signage and tape. Areas that shall be avoided include Pilarcitos Creek, the impoundment, riparian habitat, and the wildlife corridor. Specifically, the buffer shall be 50 feet outward from the limit of riparian vegetation along Pilarcitos Creek or 100 feet from the top of bank within Pilarcitos Creek (whichever is greater) and 100 feet outward from the impoundment. The identified buffer shall be clearly depicted on any construction plans. Work may occur within these buffer areas under the supervision of a qualified biologist, and shall be limited to removal of the existing materials enclosure and the existing fencing around the impoundment. In addition, prior to initial ground disturbance or vegetation removal, the limits of the identified buffer around the impoundment, associated riparian habitat, and annual grassland to be avoided shall be flagged or fenced. c. All riparian habitat and the 50-foot riparian buffer area to be avoided shall be shown on project design plan sets, and prior to project activities, these areas shall be protected with high-visibility fencing. d. If any wildlife is encountered during project activities, said wildlife must be allowed to leave the work area unharmed. All listed wildlife species shall be allowed to leave the work area of their own accord and without harassment. Animals shall not be picked up or moved in any way. If non-listed and/or non-special-status wildlife does not leave the	Prepare environmental awareness training materials and administer environmental awareness training on site. Ensure that all new personnel are trained before they begin work. Minimize disturbance to vegetation. Do not enter buffer areas unless biologist is present. Do not handle wildlife that is encountered during project activities. Wildlife will be allowed to leave the work area of their own accord and without harassment or may be moved by a biologist. Contain, remove, and properly dispose of trash on a regular basis. Minimize disturbance to the minimum necessary to complete the project. Do not allow firearms or pets. Maintain 10 mph speed limit on unpaved roads.	Construction Contractor / City of Half Moon Bay	Prior to / during construction

Half Moon Bay Corporation Yard Upgrade Project Initial Study / Mitigated Negative Declaration (IS/MND)
Mitigation Monitoring and Reporting Program

Color Codes

Measure Implemented Prior to Construction or Pending Approval

Measure Implemented During Construction

Measure Implemented Following Construction Completion

Impact	Applicant Proposed Measure (APM) or Mitigation Measure	Comments	Responsible Party	Timing / Milestone
	work area of their own accord, the qualified project biologist may relocate the wildlife outside of the project limits. e. During project activities, all trash that may attract predators such as wrappers, cans, bottles, and food scraps shall be disposed of in solid, closed containers (trash cans) and removed at the end of each working day from the entire construction site. Following construction, trash/construction debris shall be removed from work areas. f. The area of disturbance shall be limited to the minimum necessary to complete the project. Project boundaries shall be clearly demarcated, and these areas shall be outside of sensitive areas. g. No firearms shall be allowed on the project site, except for federal, state, or local law enforcement, or security guards. No pets shall be allowed on the project site. h. Project-related vehicles shall observe a 10 mile-per-hour speed limit in all project areas, except on City and County roads, and state highways; this is particularly important on rainy nights when California red-legged frogs are most active. i. Nighttime construction shall be avoided.			
BIO-2	**Minimize impacts to special-status amphibians and reptiles:** a. The City will retain professional qualified biologists with experience monitoring for California red-legged frog and San Francisco garter snake to provide biological monitoring during all project construction activities that may result in take of any special-status species. b. A qualified biological monitor (or as required by project permits) shall be on-site during all project construction activities that may result in take of any special-status species. The qualified biologist shall be given the authority to freely communicate verbally, by telephone, electronic mail, or in writing at any time with construction personnel, any other person(s) at the project site, otherwise associated with the project, the USFWS, the CDFW, or their designated agents. The qualified biologist shall have oversight over implementation of all the conservation measures and shall have the authority and responsibility to stop project activities if they determine any of the associated requirements are not being fulfilled. If the qualified biologist exercises this authority, the USFWS and CDFW shall be notified by telephone and electronic mail within twenty-four (24) hours. c. A temporary wildlife exclusion barrier shall be installed at the discretion of the qualified biologist (or as required in project permits). Prior to any ground disturbance in the impact area, the temporary wildlife exclusion barrier shall be installed along the limits of disturbance. A qualified biologist shall inspect the area prior to installation of the barrier. The barrier shall be designed to allow the California red-legged frog and San Francisco garter snake to leave the impact area and prevent them from entering the impact area,	Ensure that a qualified biological monitor is present during all ground disturbing activities. If a California red-legged frog and San Francisco garter snake is encountered at any time during construction, the contractor will immediately cease work and notify the biologist. Ensure that a wildlife exclusion fencing is installed at the discretion of the biological monitor prior to ground disturbing activities. No work shall occur before the qualified biologist conducts a focused preconstruction survey. The preconstruction survey must occur no more than 24 hour prior to the start of construction. Work should occur during the dry season (June 1 to October 15) to avoid impacts to special-status amphibians and reptiles. No plastic monofilament netting (erosion control matting) will be used during construction.	Construction Contractor / City of Half Moon Bay	Prior to / during construction During operation

Half Moon Bay Corporation Yard Upgrade Project Initial Study / Mitigated Negative Declaration (IS/MND)
Mitigation Monitoring and Reporting Program

Color Codes

Measure Implemented Prior to Construction or Pending Approval

Measure Implemented During Construction

Measure Implemented Following Construction Completion

Impact	Applicant Proposed Measure (APM) or Mitigation Measure	Comments	Responsible Party	Timing / Milestone
	and shall remain in place until all development activities have been completed. This barrier shall be inspected daily and maintained and repaired as necessary to ensure that it is functional and is not a hazard to California red-legged frogs or San Francisco garter snakes on the outer side of the barrier. d. Plastic mono-filament netting (erosion control matting), rolled erosion control products, or similar material shall not be used at the project site to prevent trapping California red-legged frogs, San Francisco garter snakes, or other species. e. Within 24 hours of the planned start of project activities, a focused preconstruction survey for sensitive and listed species, including but not limited to California red-legged frog and San Francisco garter snake, shall be conducted by a qualified biologist within the impact area. The qualified biologist shall investigate all potential areas that could be used by the California red-legged frog and San Francisco garter snake for feeding, breeding, sheltering, movement, and other essential behaviors. This includes an adequate examination of mammal burrows. Construction activities shall not take place until the survey is completed. f. Construction materials, including, but not limited to, wooden pallets, BMPs, equipment, or other materials, that are left on the ground for more than 24 hours shall be inspected before and during moving of the materials to prevent potential impacts to animals that may have utilized the materials as a temporary refuge. All construction pipes, culverts, or similar structures that are stored at a construction site for one or more overnight periods shall be either securely capped prior to storage or thoroughly inspected by the qualified biologist and/or the construction foreman/manager for animals before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a California red-legged frog or San Francisco garter snake is discovered inside a pipe or culvert by the qualified biologist or construction foreman/manager, the protocol in Mitigation Measure BIO-2(h) shall be followed. g. To prevent inadvertent entrapment of the California red-legged frog or San Francisco garter snake during construction, the qualified biologist and/or construction foreman/manager shall ensure that all excavated, steep-walled holes or trenches more than 1 foot deep are completely covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks and inspected by the qualified biologist. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals by the qualified biologist and/or construction foreman/manager. If at any time a trapped California red-legged frog or San Francisco garter snake is discovered by the qualified biologist or anyone else, the steps in Mitigation Measure BIO-2(i) shall be followed. i. All work that could result in direct injury, disturbance, or harassment of the individual animal shall immediately cease; ii. The foreman and qualified biologist shall be immediately notified; and	Ensure that all pipes, culverts, or similar construction materials are capped. All construction materials left on the ground for more than 24 hours shall be carefully inspected by the qualified biologist prior to moving. Ensure that all steep walled holes or trenches are tightly covered or have an escape ramp placed inside of them to prevent trapping wildlife. Planting of western mosquitofish for mosquito control is prohibited onsite. Pesticide use in the impact area shall be utilized in such a manner to prevent primary or secondary poisoning of the California red-legged frog and/or San Francisco garter snake, and shall observe label and other restrictions mandated by the USEPA, California Department of Food and Agriculture, and other appropriate state and federal regulations. Rodenticide and herbicide use is prohibited. Construction work shall not occur within 24 hours following a rain event of 0.25 inch or more within a 24-hour period, and a 24-hour dry-out period shall be implemented following such a significant rain event. Ensure a qualified biologist conducts a preconstruction survey for California red-legged frog before project activities restart following a dry-out period. Adhere to all required SMCWPPP BMPs A wildlife corridor will be constructed as part of the project to allow for safe wildlife movement between the impoundment and Pilarcitos Creek. The wildlife corridor construction will take place during dry weather conditions.		

Half Moon Bay Corporation Yard Upgrade Project Initial Study / Mitigated Negative Declaration (IS/MND)
Mitigation Monitoring and Reporting Program

Color Codes

Measure Implemented Prior to Construction or Pending Approval

Measure Implemented During Construction

Measure Implemented Following Construction Completion

Impact	Applicant Proposed Measure (APM) or Mitigation Measure	Comments	Responsible Party	Timing / Milestone
	iii. The qualified biologist shall determine if the animal is a California red-legged frog or San Francisco garter snake and, if so, shall follow Mitigation Measure BIO-2h for California red-legged frog and Mitigation Measure BIO-2i for San Francisco garter snake. h. The qualified biologist shall determine if the animal is a California red-legged frog or San Francisco garter snake and, if so, shall follow Mitigation Measure BIO-2h for California red-legged frog and Mitigation Measure BIO-2i for San Francisco garter snake. i. If any California red-legged frogs are found during implementation of Mitigation Measures BIO-2(a), BIO-2(b), BIO-2(c), BIO-2(d), BIO-2(e), BIO-2(f), or BIO-2(g) the qualified biologist shall contact the USFWS to determine if moving any of the individuals is appropriate. In making this determination, the USFWS shall consider if an appropriate relocation site exists. If the USFWS approves moving animals, the City shall ensure that a permitted biologist holding a 10(a)(1)(A) permit for California red-legged frog (or as required by the project permits) is given sufficient time to move the animals from the impact area before ground disturbance is initiated. Only qualified and permitted biologists shall capture, handle, and move the California red-legged frog. The permitted biologist shall monitor any relocated frog until it is determined that it is not imperiled by predators or other dangers. j. The qualified biologist shall monitor any individual San Francisco garter snake encountered within the impact area, but allow it to leave the impact area on its own. If the qualified biologist determines that the snake cannot leave on its own then the USFWS and CDFW shall be consulted to determine if the snake can be captured and relocated to appropriate habitat on the outside of the impact area. No San Francisco garter snakes shall be handled without explicit agency approval. k. Planting of western mosquitofish (*Gambusia affinis*) within the impoundment shall be prohibited. Treatment of the impoundment for mosquito larvae by the Mosquito Abatement District will be conducted utilizing alternative treatments approved by the District (e.g., insect growth regulators). l. The use of any pesticides in the impact area shall be utilized in such a manner to prevent primary or secondary poisoning of the California red-legged frog and/or San Francisco garter snake potentially present in the project area, and the depletion of food items on which they depend. All uses of such compounds shall observe label and other restrictions mandated by the USEPA, California Department of Food and Agriculture, and other appropriate state and federal regulations, as well as additional project-related restrictions deemed necessary by the USFWS and CDFW. Furthermore, pesticide use will be subject to documentation of compliance with the USEPA's Stipulated Injunction concerning the type used and buffer for application away from waterbodies and shall be rated for aquatic use by the California Department of Pesticide Regulation and have less-than-significant effects on California red-legged frog and San Francisco garter snake.			

Half Moon Bay Corporation Yard Upgrade Project Initial Study / Mitigated Negative Declaration (IS/MND)
Mitigation Monitoring and Reporting Program

Color Codes

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Measure Implemented During Construction

Measure Implemented Following Construction Completion

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	m. The use of herbicides shall not be permitted unless approved by CDP amendment. Future approval of herbicide use will be subject to documentation of compliance with the USEPA's Stipulated Injunction concerning the type used and buffer for application away from waterbodies and shall be rated for aquatic use by the California Department of Pesticide Regulation and have less-than-significant effects on California red-legged frog and San Francisco garter snake. n. The use of rodenticides (i.e., anticoagulants) for controlling rodents, such as rats (*Rattus* spp.), house mice (*Mus musculus*), and California ground squirrels (*Spermophilus beecheyi*), shall be prohibited. If rodent control is required by the City, localized trapping efforts shall be conducted. o. Construction activities (e.g., grubbing, grading) shall occur during dry weather conditions only, and to the extent feasible, during the dry season (June 1 to October 15) to facilitate avoidance of California red-legged frog and San Francisco garter snake. p. Regardless of the season, construction shall adhere to SMCWPPP BMPs, and no construction shall occur during and within 24 hours following a significant rain event (defined as greater than 0.25 inch in a 24-hour period). Following a significant rain event and the 24-hour drying-out period, a qualified biologist shall conduct a preconstruction survey for California red-legged frog and other sensitive species prior to the restart of any project activities. q. A wildlife corridor shall be constructed as part of the Project and would funnel any potentially dispersing California red-legged frog or San Francisco garter snake into a culvert tunnel beneath the access road and limit the potential for traffic accessing the Corporation Yard to impact California red-legged frog or San Francisco garter snake. The wildlife corridor would also include a fence line along the riparian buffer of Pilarcitos Creek, which would further ensure that individual California red-legged frog and San Francisco garter snake would utilize the wildlife corridor to safely travel between the agricultural pond and the creek. The riparian buffer fencing would prevent California red-legged frog or San Francisco garter snake from entering the upland, trafficked portions of the property, where they could be injured or killed or trapped in upland habitat where they could be easily predated. The wildlife corridor design considered the life history aspects of both California red-legged frog and San Francisco garter snake to provide a safe and suitable movement corridor without any further management actions required. r. The wildlife corridor fencing shall be maintained as a boundary to allow for safe wildlife movement between the impoundment and Pilarcitos Creek by funneling any dispersing wildlife through tunnels beneath the access road and providing a boundary along the riparian corridor of Pilarcitos Creek. The wildlife fencing, tunnel, and corridor shall be maintained over the lifetime of its use, and any portion that is observed to be broken or not functioning property shall be repaired immediately by the City.			

Half Moon Bay Corporation Yard Upgrade Project Initial Study / Mitigated Negative Declaration (IS/MND)
Mitigation Monitoring and Reporting Program

Color Codes

Measure Implemented Prior to Construction or Pending Approval

Measure Implemented During Construction

Measure Implemented Following Construction Completion

Impact	Applicant Proposed Measure (APM) or Mitigation Measure	Comments	Responsible Party	Timing / Milestone
	s. A temporary material may be used for the wildlife fencing, such as ERTEC or similar material, during construction of the project and for up to 1 year after construction is complete. If a temporary material is used for the fencing, it shall be inspected weekly by the City staff for any needed repairs. After 1 year the temporary fencing should be either replaced with a permanent wildlife fencing (e.g., chain-link fencing with vinyl slats) or re-assessed for efficacy by a qualified biologist. t. Installation of the wildlife corridor and associated fencing should take place during dry weather conditions to ensure that no dispersing California red-legged frogs or San Francisco garter snakes are trapped in upland areas. u. The wildlife corridor shall be maintained and repaired annually or more frequently as needed. The tunnels beneath the access road shall be inspected to ensure that it is not blocked by vegetation or sediment. Vegetation fuels management within the wildlife corridor shall use low impact methods (such as goat grazing or using hand tools) on an annual basis. Any mechanical maintenance activities (including using hand tools for vegetation maintenance) within the wildlife corridor shall be closely monitored by an approved biologist.			
BIO-3	**Minimize impacts to Pilarcitos Creek and riparian habitat:** a. The project shall comply with the SMCWPPP, Municipal Regional Stormwater National Pollution Discharge Elimination System (NPDES) Permit and General Construction permit to prevent increases in peak flow, erosion, or reduction in water quality for downslope waters, which shall prevent stream downcutting, riparian bank erosion, or other downstream impacts. b. All spoils, such as dirt, excavated material, debris, and construction-related materials, generated during project activities shall be placed where they cannot enter any drainage ditch, culvert inlet, or nearby vernal marshes. Spoils shall be covered or secured to prevent sediment from escaping. Once the spoil pile is no longer active, it shall be removed from the work area and disposed of lawfully at an appropriate facility. c. All exposed soils in the work area resulting from project activities shall be stabilized immediately following the completion of work to prevent erosion. Erosion and sediment control BMPs, such as silt fences, straw hay bales, gravel or rock-lined drainages, water check bars, and broadcast straw, can be used. BMPs shall be made of certified weed-free materials. Straw wattles, if used, shall be made of biodegradable fabric (e.g., burlap) and free of monofilament netting. At no time shall silt-laden runoff be allowed to enter any drainages or other sensitive areas. d. All fueling and maintenance of vehicles and other equipment and staging areas shall occur at least 100 feet from any drainages and other water features, including Pilarcitos	Pilarcitos Creek shall be protected from project-generated spoils. Ensure that all exposed soils associated with the project are stabilized immediately following construction completion. Appropriate BMPs shall be deployed prior to and during construction to prevent erosion and/or runoff into potentially jurisdictional drainages. Ensure fueling and maintenance of vehicles and other equipment and staging areas do not occur within 100 feet of drainages, and that such drainages are not contaminated during refueling, maintenance, or staging of materials. Prior to beginning project work, the Contractor shall develop a Spill Response Plan to ensure prompt and effective response to accidental spills. The plan must be submitted to the City of Half Moon Bay before construction commences, and must be kept onsite at all times during construction. Adequate spill clean-up supplies must be kept on site and at-the-ready during construction. The plan will be included in the environmental awareness training.	Construction Contractor / City of Half Moon Bay	Prior to / during construction

Half Moon Bay Corporation Yard Upgrade Project Initial Study / Mitigated Negative Declaration (IS/MND)
Mitigation Monitoring and Reporting Program

Color Codes

Measure Implemented Prior to Construction or Pending Approval

Measure Implemented During Construction

Measure Implemented Following Construction Completion

Impact	Applicant Proposed Measure (APM) or Mitigation Measure	Comments	Responsible Party	Timing / Milestone
	Creek. Crew members shall ensure that contamination of habitat does not occur during such operations. Prior to the onset of work, the construction contractor shall prepare a plan to be approved by the City before construction begins to allow a prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur. e. All exposed surfaces shall be wetted periodically to prevent significant dust. f. All stockpiled soil shall be covered during periods of rain. g. The following BMPs shall be implemented to limit the spread of invasive species into sensitive habitats: i. All ground-disturbing equipment used adjacent to the riparian habitat shall be washed (including weeks, tracks, and undercarriages) at a legally operating equipment yard both before and after being used at the site; ii. All applicable construction materials used on-site, such as straw wattles, mulch, and fill material, shall be certified weed free; iii. The project shall follow the SMCWPPP and a SWPPP as per the NPDES *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Construction General Permit; Water Board Order No. 2009-0009-DWQ) if applicable; iv. All disturbed soils shall be stabilized and planted with a native seed mix from a local source following construction; v. If excavating, soil and vegetation removed from densely weed-infested areas (for example, dense poison hemlock infestations or cape ivy infestations) shall not be used in general soil stockpiles and shall not be redistributed as topsoil cover for the newly filled areas. All weed-infested soil shall be disposed of off-site at a landfill.	Reduce potential for dust by wetting exposed surfaces periodically. Reduce potential for sediment loss by covering stockpiled soils during periods of rain. Once the project is complete, ensure that all exposed and/or disturbed surfaces are protected from soil erosion with reseeding and landscaping.		
BIO-4	**Minimize impacts to nesting birds, as required by the Federal Migratory Bird Treaty Act:** a. If project activities, including, but not limited to, grubbing and grading, are conducted during nesting bird season (generally February 15 to September 15), preconstruction nest surveys shall be conducted in and near the project (within 500 feet for large raptors and 300 feet for all other birds) by a qualified biologist within 7 days of the start of construction. If nesting birds are identified during the preconstruction survey, then the project shall be modified (i.e., a no-work exclusion buffer of appropriate size [to be determined by the qualified project biologist] shall be erected around active nests) and/or delayed as necessary to avoid impacts to the identified nests, eggs, and/or young. Disturbing active nests must be avoided until young birds have fledged.	Project activities, including grubbing and grading, should be conducted outside of nesting bird season (February 15 through September 15). If work outside of nesting bird season is not feasible, then ensure a qualified biologist conducts preconstruction nesting bird surveys prior to commencing work. If nesting birds or raptors are observed on site, ensure an appropriately-sized no-work buffer is established around the nest and/or the project is modified and/or delayed as necessary in coordination with the project biologist.	Construction Contractor / City of Half Moon Bay	Prior to / during construction

Half Moon Bay Corporation Yard Upgrade Project Initial Study / Mitigated Negative Declaration (IS/MND)
Mitigation Monitoring and Reporting Program

Color Codes

Measure Implemented Prior to Construction or Pending Approval

Measure Implemented During Construction

Measure Implemented Following Construction Completion

Impact	Applicant Proposed Measure (APM) or Mitigation Measure	Comments	Responsible Party	Timing / Milestone
	b. If construction activities shall not be initiated until after the start of the nesting season, all potential nesting substrates (e.g., bushes, trees, grasses, and other vegetation) that are scheduled to be removed by the project shall be removed prior to the start of the nesting season (e.g., prior to February 15), to the extent feasible. This shall preclude the initiation of nests in this vegetation and prevent the potential delay of the project due to the presence of active nests in these substrates.	If a construction will not start until after start of the nesting season, remove all potential nesting substrates before February 15.		
BIO-5	**Minimize impacts to heritage trees:** a. During detailed design of the project, removal of trees protected by the City heritage tree ordinance shall be avoided and minimized to the extent feasible. If tree removal is necessary, it is recommended that a certified arborist conduct a tree survey to determine the number and health of heritage trees within the developed habitat of the project area. Where removal of trees cannot be avoided, the City shall comply with the standards of the City heritage tree ordinance, including the planting of replacement trees where feasible and approval from the City Manager.	During detailed design of project, avoid removing protected trees to the extent feasible. Prior to construction, ensure a tree survey is conducted by a certified arborist. For tree removal, comply with the City's heritage tree ordinance, including planting replacement trees.	Construction Contractor / City of Half Moon Bay	Prior to / during construction
BIO-6	**Minimize impacts to roosting bats:** a. Pre-Construction Bat Survey. Prior to tree removal, a qualified bat biologist shall conduct a visual survey of the project area to identify if bats are roosting within trees within the project area. Roost sites shall be avoided during tree removal. If no roosting sites or bats are observed during the survey no further mitigation is necessary. b. If roosting bats or indications of bat roosts are observed within project trees to be removed, tree removal shall be conducted under the supervision of a qualified bat biologist. During tree removal and where potential bat roosts were identified, a qualified bat biologist shall be present and tree removal shall begin with portions of the tree that do not provide suitable roost habitat (e.g., low limbs lacking forage). Trees shall be disassembled at a speed in coordination with the on-site qualified bat biologist that allows any roosting bats to vacate the tree.	Ensure a qualified biologist conducts preconstruction roosting bay survey prior to commencing work. If roosting bats are observed on site, ensure tree removal is conducted with a qualified biologist present. If roosting bats are present, begin removal with low limbs lacking in forage and coordinate removal with qualified biologist to allow roosting bats to vacate the tree.	Construction Contractor / City of Half Moon Bay	Prior to / during construction
BIO-7	**Minimize impacts to dusky-footed woodrat:** a. Focused surveys for San Francisco dusky-footed woodrat nests within the riparian habitat associated with Pilarcitos Creek and the marsh habitat shall be conducted within 7 days of the start of construction. If no nests are found, then no further mitigation shall be warranted. If nests are found, then Mitigation Measures b and c shall be implemented.	Conduct a survey for woodrat nests within 7 days of start of construction. Identify a 10-foot buffer area around woodrat nests. Use high-visibility fencing around woodrat nests to keep worker and equipment out of area.	Construction Contractor / City of Half Moon Bay	Prior to / during construction

Half Moon Bay Corporation Yard Upgrade Project Initial Study / Mitigated Negative Declaration (IS/MND)
Mitigation Monitoring and Reporting Program

Color Codes

Measure Implemented Prior to Construction or Pending Approval

Measure Implemented During Construction

Measure Implemented Following Construction Completion

Impact	Applicant Proposed Measure (APM) or Mitigation Measure	Comments	Responsible Party	Timing / Milestone
	b. Dusky-footed woodrats are year-round residents. Therefore, avoidance mitigation is limited to designing the project to avoid direct impacts on woodrat nests to the extent feasible. Ideally, a minimum 10-foot buffer should be maintained between project construction activities and each nest to avoid disturbance. In some situations, a smaller buffer may be allowed if in the opinion of the qualified biologist removing the nest would be a greater impact than that anticipated due to project activities. If nests are observed within riparian habitat and this habitat shall be avoided by the project, high-visibility fencing shall be installed around these woodrat nests to keep workers, construction equipment, and construction materials out of the area where the nests are located. c. If avoidance of occupied nests is not feasible, the woodrats shall be evicted from their nests prior to the removal of the nests and onset of ground-disturbing activities to avoid injury or mortality of the woodrats. A qualified biologist shall disturb the woodrat nest to the degree that all woodrats leave the nest and seek refuge outside of the project activity area. Subsequently, the nest sticks shall be relocated; these materials shall be piled at the base of a nearby tree or shrub outside of the impact area. The spacing between relocated nests shall not be less than 20 feet, unless a qualified biologist has determined that the habitat can support higher densities of nests.	If avoidance is not feasible, a qualified biologist will relocate the nest.		
Cultural Resources				
CUL-1	**Implement an environmental awareness training program** Prior to the start of the project, all construction crew members will attend an environmental awareness training. This environmental awareness training will be conducted by a qualified archaeologist and will address cultural situations that may be encountered. An archaeologist will prepare an archaeological brochure to be distributed to the construction crew at the on-site environmental awareness training. The brochure will identify the types of cultural resources that may be encountered and the procedures to be followed in the event of accidental discovery.	Prior to commencing work, ensure that construction personnel are trained and informed of how to identify and avoid historical and archaeological resources in the event that they are exposed during construction. Such training may be included in the environmental awareness training prepared for the project per BIO-1. If archaeological or historical resources are discovered during construction, the Contractor shall ensure that work is immediately stopped in the vicinity of the find, and the City of Half Moon Bay is immediately notified. Discovered resources must be left in place as they were found: do not touch, collect, or otherwise disturb found resources. Work shall not resume in the vicinity of any discovered resources until the resources are fully evaluated by the archaeologist, and the City of Half Moon Bay approves the continuation of work in the vicinity of the find. Ensure any additional cultural work such as testing or data recovery is implemented as required.	Construction Contractor / City of Half Moon Bay	Prior to construction

Half Moon Bay Corporation Yard Upgrade Project Initial Study / Mitigated Negative Declaration (IS/MND)
Mitigation Monitoring and Reporting Program

Color Codes

Measure Implemented Prior to Construction or Pending Approval

Measure Implemented During Construction

Measure Implemented Following Construction Completion

Impact	Applicant Proposed Measure (APM) or Mitigation Measure	Comments	Responsible Party	Timing / Milestone
CUL-2	**Implement a cultural resources monitoring plan:** The project will develop and implement a cultural resources monitoring plan (CRMP) for all ground-disturbing activities. The CRMP shall include provisions for stop-work by the archaeologist, ownership and proper handling of archaeological resources upon and following discovery, reporting format and frequency, and a project specific communications plan will need to be completed prior to start of work.	Contract with a cultural resources monitor to be present during ground disturbing activities. If archaeological or historical resources are discovered during construction, the Monitor and/or Contractor shall ensure that work is immediately stopped in the vicinity of the find, and the City of Half Moon Bay is immediately notified. Discovered resources must be left in place as they were found: do not touch, collect, or otherwise disturb found resources. Work shall not resume in the vicinity of any discovered resources until the resources are fully evaluated by the archaeologist, and the City of Half Moon Bay approves the continuation of work in the vicinity of the find. Ensure any additional cultural work such as testing or data recovery is implemented as required.	Construction Contractor / City of Half Moon Bay	During construction
Geology and Soils				
GEO-1	**Avoid and/or reduce impacts to unknown paleontological resources:** In the unlikely event that a paleontological resource is discovered, the project applicants shall comply with PRC Division 5, Chapter 1.7, Section 5097.5, and Division 20, Chapter 3, Section 30244, which prohibit the removal, without permission, of any paleontological site or feature from lands under the jurisdiction of the state or any city, county, district, authority, or public corporation, or any agency thereof. To be consistent with these PRC Sections, in the event that paleontological resources are exposed during construction, work in the immediate vicinity of the find must stop until a qualified paleontologist can evaluate the significance of the find. Construction activities may continue in other areas. If the discovery proves significant under the provisions of CEQA, the paleontologist shall prescribe, and the project Applicants shall implement, additional measures such as testing or data recovery to avoid impacts to the resources.	Ensure compliance with Public Resources Code (PRC). Stop work in the immediate vicinity of any discovered paleontological resources until a qualified paleontologist evaluates the significance of the discovery. Ensure any additional paleontological work such as testing or data recovery is implemented as required.	Construction Contractor / City of Half Moon Bay	During construction

APPENDIX B2

Corporation Yard Upgrade Project
Mitigation Monitoring and Reporting Plan

Half Moon Bay Corporation Yard Upgrade Project Initial Study / Mitigated Negative Declaration (IS/MND)
Mitigation Monitoring and Reporting Program

Color Codes

Measure Implemented Prior to Construction or Pending Approval

Measure Implemented During Construction

Measure Implemented Following Construction Completion

Impact	Applicant Proposed Measure (APM) or Mitigation Measure	Comments	Responsible Party	Timing / Milestone
Biological Resources				
BIO-1	**The following general mitigation measures shall be implemented during the project:** a. Prior to the start of the project, all construction crew members shall attend an environmental awareness training presented by a qualified biologist. A training brochure describing special-status species, project avoidance and minimization measures, key contacts, and potential consequences of impacts to special-status species and potentially jurisdictional features shall be distributed to the crew members during the training. Trainees shall sign an environmental training attendance sheet. These personnel shall be informed about the possible presence of all special-status species and habitats associated with the species identified here to be potentially present in the project area and that unlawful take of the animal or destruction of its habitat is a violation of the Federal Endangered Species Act and the California Endangered Species Act. Prior to construction activities, the qualified biologist shall instruct all construction personnel about (1) the description and status of the species; (2) the importance of their associated habitats; and (3) a list of measures being taken to reduce impacts on these species during project construction and implementation. A fact sheet conveying this information shall be prepared for distribution to the construction crew and anyone else who enters the project site. b. Disturbance to vegetation shall be kept to the minimum necessary to complete the project activities. To minimize impacts to vegetation, a qualified biologist shall work with the contractor to designate the work area and any staging areas as well as delineate areas that shall be avoided with signage and tape. Areas that shall be avoided include Pilarcitos Creek, the impoundment, riparian habitat, and the wildlife corridor. Specifically, the buffer shall be 50 feet outward from the limit of riparian vegetation along Pilarcitos Creek or 100 feet from the top of bank within Pilarcitos Creek (whichever is greater) and 100 feet outward from the impoundment. The identified buffer shall be clearly depicted on any construction plans. Work may occur within these buffer areas under the supervision of a qualified biologist, and shall be limited to removal of the existing materials enclosure and the existing fencing around the impoundment. In addition, prior to initial ground disturbance or vegetation removal, the limits of the identified buffer around the impoundment, associated riparian habitat, and annual grassland to be avoided shall be flagged or fenced. c. All riparian habitat and the 50-foot riparian buffer area to be avoided shall be shown on project design plan sets, and prior to project activities, these areas shall be protected with high-visibility fencing. d. If any wildlife is encountered during project activities, said wildlife must be allowed to leave the work area unharmed. All listed wildlife species shall be allowed to leave the work area of their own accord and without harassment. Animals shall not be picked up or moved in any way. If non-listed and/or non-special-status wildlife does not leave the	Prepare environmental awareness training materials and administer environmental awareness training on site. Ensure that all new personnel are trained before they begin work. Minimize disturbance to vegetation. Do not enter buffer areas unless biologist is present. Do not handle wildlife that is encountered during project activities. Wildlife will be allowed to leave the work area of their own accord and without harassment or may be moved by a biologist. Contain, remove, and properly dispose of trash on a regular basis. Minimize disturbance to the minimum necessary to complete the project. Do not allow firearms or pets. Maintain 10 mph speed limit on unpaved roads.	Construction Contractor / City of Half Moon Bay	Prior to / during construction

Half Moon Bay Corporation Yard Upgrade Project Initial Study / Mitigated Negative Declaration (IS/MND)
Mitigation Monitoring and Reporting Program

Color Codes

Measure Implemented Prior to Construction or Pending Approval

Measure Implemented During Construction

Measure Implemented Following Construction Completion

Impact	Applicant Proposed Measure (APM) or Mitigation Measure	Comments	Responsible Party	Timing / Milestone
	work area of their own accord, the qualified project biologist may relocate the wildlife outside of the project limits. e. During project activities, all trash that may attract predators such as wrappers, cans, bottles, and food scraps shall be disposed of in solid, closed containers (trash cans) and removed at the end of each working day from the entire construction site. Following construction, trash/construction debris shall be removed from work areas. f. The area of disturbance shall be limited to the minimum necessary to complete the project. Project boundaries shall be clearly demarcated, and these areas shall be outside of sensitive areas. g. No firearms shall be allowed on the project site, except for federal, state, or local law enforcement, or security guards. No pets shall be allowed on the project site. h. Project-related vehicles shall observe a 10 mile-per-hour speed limit in all project areas, except on City and County roads, and state highways; this is particularly important on rainy nights when California red-legged frogs are most active. i. Nighttime construction shall be avoided.			
BIO-2	**Minimize impacts to special-status amphibians and reptiles:** a. The City will retain professional qualified biologists with experience monitoring for California red-legged frog and San Francisco garter snake to provide biological monitoring during all project construction activities that may result in take of any special-status species. b. A qualified biological monitor (or as required by project permits) shall be on-site during all project construction activities that may result in take of any special-status species. The qualified biologist shall be given the authority to freely communicate verbally, by telephone, electronic mail, or in writing at any time with construction personnel, any other person(s) at the project site, otherwise associated with the project, the USFWS, the CDFW, or their designated agents. The qualified biologist shall have oversight over implementation of all the conservation measures and shall have the authority and responsibility to stop project activities if they determine any of the associated requirements are not being fulfilled. If the qualified biologist exercises this authority, the USFWS and CDFW shall be notified by telephone and electronic mail within twenty-four (24) hours. c. A temporary wildlife exclusion barrier shall be installed at the discretion of the qualified biologist (or as required in project permits). Prior to any ground disturbance in the impact area, the temporary wildlife exclusion barrier shall be installed along the limits of disturbance. A qualified biologist shall inspect the area prior to installation of the barrier. The barrier shall be designed to allow the California red-legged frog and San Francisco garter snake to leave the impact area and prevent them from entering the impact area,	Ensure that a qualified biological monitor is present during all ground disturbing activities. If a California red-legged frog and San Francisco garter snake is encountered at any time during construction, the contractor will immediately cease work and notify the biologist. Ensure that a wildlife exclusion fencing is installed at the discretion of the biological monitor prior to ground disturbing activities. No work shall occur before the qualified biologist conducts a focused preconstruction survey. The preconstruction survey must occur no more than 24 hour prior to the start of construction. Work should occur during the dry season (June 1 to October 15) to avoid impacts to special-status amphibians and reptiles. No plastic monofilament netting (erosion control matting) will be used during construction.	Construction Contractor / City of Half Moon Bay	Prior to / during construction During operation

Half Moon Bay Corporation Yard Upgrade Project Initial Study / Mitigated Negative Declaration (IS/MND)
Mitigation Monitoring and Reporting Program

Color Codes

Measure Implemented Prior to Construction or Pending Approval

Measure Implemented During Construction

Measure Implemented Following Construction Completion

Impact	Applicant Proposed Measure (APM) or Mitigation Measure	Comments	Responsible Party	Timing / Milestone
	and shall remain in place until all development activities have been completed. This barrier shall be inspected daily and maintained and repaired as necessary to ensure that it is functional and is not a hazard to California red-legged frogs or San Francisco garter snakes on the outer side of the barrier. d. Plastic mono-filament netting (erosion control matting), rolled erosion control products, or similar material shall not be used at the project site to prevent trapping California red-legged frogs, San Francisco garter snakes, or other species. e. Within 24 hours of the planned start of project activities, a focused preconstruction survey for sensitive and listed species, including but not limited to California red-legged frog and San Francisco garter snake, shall be conducted by a qualified biologist within the impact area. The qualified biologist shall investigate all potential areas that could be used by the California red-legged frog and San Francisco garter snake for feeding, breeding, sheltering, movement, and other essential behaviors. This includes an adequate examination of mammal burrows. Construction activities shall not take place until the survey is completed. f. Construction materials, including, but not limited to, wooden pallets, BMPs, equipment, or other materials, that are left on the ground for more than 24 hours shall be inspected before and during moving of the materials to prevent potential impacts to animals that may have utilized the materials as a temporary refuge. All construction pipes, culverts, or similar structures that are stored at a construction site for one or more overnight periods shall be either securely capped prior to storage or thoroughly inspected by the qualified biologist and/or the construction foreman/manager for animals before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a California red-legged frog or San Francisco garter snake is discovered inside a pipe or culvert by the qualified biologist or construction foreman/manager, the protocol in Mitigation Measure BIO-2(h) shall be followed. g. To prevent inadvertent entrapment of the California red-legged frog or San Francisco garter snake during construction, the qualified biologist and/or construction foreman/manager shall ensure that all excavated, steep-walled holes or trenches more than 1 foot deep are completely covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks and inspected by the qualified biologist. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals by the qualified biologist and/or construction foreman/manager. If at any time a trapped California red-legged frog or San Francisco garter snake is discovered by the qualified biologist or anyone else, the steps in Mitigation Measure BIO-2(i) shall be followed. i. All work that could result in direct injury, disturbance, or harassment of the individual animal shall immediately cease; ii. The foreman and qualified biologist shall be immediately notified; and	Ensure that all pipes, culverts, or similar construction materials are capped. All construction materials left on the ground for more than 24 hours shall be carefully inspected by the qualified biologist prior to moving. Ensure that all steep walled holes or trenches are tightly covered or have an escape ramp placed inside of them to prevent trapping wildlife. Planting of western mosquitofish for mosquito control is prohibited onsite. Pesticide use in the impact area shall be utilized in such a manner to prevent primary or secondary poisoning of the California red-legged frog and/or San Francisco garter snake, and shall observe label and other restrictions mandated by the USEPA, California Department of Food and Agriculture, and other appropriate state and federal regulations. Rodenticide and herbicide use is prohibited. Construction work shall not occur within 24 hours following a rain event of 0.25 inch or more within a 24-hour period, and a 24-hour dry-out period shall be implemented following such a significant rain event. Ensure a qualified biologist conducts a preconstruction survey for California red-legged frog before project activities restart following a dry-out period. Adhere to all required SMCWPPP BMPs A wildlife corridor will be constructed as part of the project to allow for safe wildlife movement between the impoundment and Pilarcitos Creek. The wildlife corridor construction will take place during dry weather conditions.		

Half Moon Bay Corporation Yard Upgrade Project Initial Study / Mitigated Negative Declaration (IS/MND)
Mitigation Monitoring and Reporting Program

Color Codes

Measure Implemented Prior to Construction or Pending Approval

Measure Implemented During Construction

Measure Implemented Following Construction Completion

Impact	Applicant Proposed Measure (APM) or Mitigation Measure	Comments	Responsible Party	Timing / Milestone
	iii. The qualified biologist shall determine if the animal is a California red-legged frog or San Francisco garter snake and, if so, shall follow Mitigation Measure BIO-2h for California red-legged frog and Mitigation Measure BIO-2i for San Francisco garter snake. h. The qualified biologist shall determine if the animal is a California red-legged frog or San Francisco garter snake and, if so, shall follow Mitigation Measure BIO-2h for California red-legged frog and Mitigation Measure BIO-2i for San Francisco garter snake. i. If any California red-legged frogs are found during implementation of Mitigation Measures BIO-2(a), BIO-2(b), BIO-2(c), BIO-2(d), BIO-2(e), BIO-2(f), or BIO-2(g) the qualified biologist shall contact the USFWS to determine if moving any of the individuals is appropriate. In making this determination, the USFWS shall consider if an appropriate relocation site exists. If the USFWS approves moving animals, the City shall ensure that a permitted biologist holding a 10(a)(1)(A) permit for California red-legged frog (or as required by the project permits) is given sufficient time to move the animals from the impact area before ground disturbance is initiated. Only qualified and permitted biologists shall capture, handle, and move the California red-legged frog. The permitted biologist shall monitor any relocated frog until it is determined that it is not imperiled by predators or other dangers. j. The qualified biologist shall monitor any individual San Francisco garter snake encountered within the impact area, but allow it to leave the impact area on its own. If the qualified biologist determines that the snake cannot leave on its own then the USFWS and CDFW shall be consulted to determine if the snake can be captured and relocated to appropriate habitat on the outside of the impact area. No San Francisco garter snakes shall be handled without explicit agency approval. k. Planting of western mosquitofish (*Gambusia affinis*) within the impoundment shall be prohibited. Treatment of the impoundment for mosquito larvae by the Mosquito Abatement District will be conducted utilizing alternative treatments approved by the District (e.g., insect growth regulators). l. The use of any pesticides in the impact area shall be utilized in such a manner to prevent primary or secondary poisoning of the California red-legged frog and/or San Francisco garter snake potentially present in the project area, and the depletion of food items on which they depend. All uses of such compounds shall observe label and other restrictions mandated by the USEPA, California Department of Food and Agriculture, and other appropriate state and federal regulations, as well as additional project-related restrictions deemed necessary by the USFWS and CDFW. Furthermore, pesticide use will be subject to documentation of compliance with the USEPA's Stipulated Injunction concerning the type used and buffer for application away from waterbodies and shall be rated for aquatic use by the California Department of Pesticide Regulation and have less-than-significant effects on California red-legged frog and San Francisco garter snake.			

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	m. The use of herbicides shall not be permitted unless approved by CDP amendment. Future approval of herbicide use will be subject to documentation of compliance with the USEPA's Stipulated Injunction concerning the type used and buffer for application away from waterbodies and shall be rated for aquatic use by the California Department of Pesticide Regulation and have less-than-significant effects on California red-legged frog and San Francisco garter snake. n. The use of rodenticides (i.e., anticoagulants) for controlling rodents, such as rats (*Rattus* spp.), house mice (*Mus musculus*), and California ground squirrels (*Spermophilus beecheyi*), shall be prohibited. If rodent control is required by the City, localized trapping efforts shall be conducted. o. Construction activities (e.g., grubbing, grading) shall occur during dry weather conditions only, and to the extent feasible, during the dry season (June 1 to October 15) to facilitate avoidance of California red-legged frog and San Francisco garter snake. p. Regardless of the season, construction shall adhere to SMCWPPP BMPs, and no construction shall occur during and within 24 hours following a significant rain event (defined as greater than 0.25 inch in a 24-hour period). Following a significant rain event and the 24-hour drying-out period, a qualified biologist shall conduct a preconstruction survey for California red-legged frog and other sensitive species prior to the restart of any project activities. q. A wildlife corridor shall be constructed as part of the Project and would funnel any potentially dispersing California red-legged frog or San Francisco garter snake into a culvert tunnel beneath the access road and limit the potential for traffic accessing the Corporation Yard to impact California red-legged frog or San Francisco garter snake. The wildlife corridor would also include a fence line along the riparian buffer of Pilarcitos Creek, which would further ensure that individual California red-legged frog and San Francisco garter snake would utilize the wildlife corridor to safely travel between the agricultural pond and the creek. The riparian buffer fencing would prevent California red-legged frog or San Francisco garter snake from entering the upland, trafficked portions of the property, where they could be injured or killed or trapped in upland habitat where they could be easily predated. The wildlife corridor design considered the life history aspects of both California red-legged frog and San Francisco garter snake to provide a safe and suitable movement corridor without any further management actions required. r. The wildlife corridor fencing shall be maintained as a boundary to allow for safe wildlife movement between the impoundment and Pilarcitos Creek by funneling any dispersing wildlife through tunnels beneath the access road and providing a boundary along the riparian corridor of Pilarcitos Creek. The wildlife fencing, tunnel, and corridor shall be maintained over the lifetime of its use, and any portion that is observed to be broken or not functioning property shall be repaired immediately by the City.			

Half Moon Bay Corporation Yard Upgrade Project Initial Study / Mitigated Negative Declaration (IS/MND)
Mitigation Monitoring and Reporting Program

Color Codes

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Measure Implemented During Construction

Measure Implemented Following Construction Completion

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	s. A temporary material may be used for the wildlife fencing, such as ERTEC or similar material, during construction of the project and for up to 1 year after construction is complete. If a temporary material is used for the fencing, it shall be inspected weekly by the City staff for any needed repairs. After 1 year the temporary fencing should be either replaced with a permanent wildlife fencing (e.g., chain-link fencing with vinyl slats) or re-assessed for efficacy by a qualified biologist. t. Installation of the wildlife corridor and associated fencing should take place during dry weather conditions to ensure that no dispersing California red-legged frogs or San Francisco garter snakes are trapped in upland areas. u. The wildlife corridor shall be maintained and repaired annually or more frequently as needed. The tunnels beneath the access road shall be inspected to ensure that it is not blocked by vegetation or sediment. Vegetation fuels management within the wildlife corridor shall use low impact methods (such as goat grazing or using hand tools) on an annual basis. Any mechanical maintenance activities (including using hand tools for vegetation maintenance) within the wildlife corridor shall be closely monitored by an approved biologist.			
BIO-3	**Minimize impacts to Pilarcitos Creek and riparian habitat:** a. The project shall comply with the SMCWPPP, Municipal Regional Stormwater National Pollution Discharge Elimination System (NPDES) Permit and General Construction permit to prevent increases in peak flow, erosion, or reduction in water quality for downslope waters, which shall prevent stream downcutting, riparian bank erosion, or other downstream impacts. b. All spoils, such as dirt, excavated material, debris, and construction-related materials, generated during project activities shall be placed where they cannot enter any drainage ditch, culvert inlet, or nearby vernal marshes. Spoils shall be covered or secured to prevent sediment from escaping. Once the spoil pile is no longer active, it shall be removed from the work area and disposed of lawfully at an appropriate facility. c. All exposed soils in the work area resulting from project activities shall be stabilized immediately following the completion of work to prevent erosion. Erosion and sediment control BMPs, such as silt fences, straw hay bales, gravel or rock-lined drainages, water check bars, and broadcast straw, can be used. BMPs shall be made of certified weed-free materials. Straw wattles, if used, shall be made of biodegradable fabric (e.g., burlap) and free of monofilament netting. At no time shall silt-laden runoff be allowed to enter any drainages or other sensitive areas. d. All fueling and maintenance of vehicles and other equipment and staging areas shall occur at least 100 feet from any drainages and other water features, including Pilarcitos	Pilarcitos Creek shall be protected from project-generated spoils. Ensure that all exposed soils associated with the project are stabilized immediately following construction completion. Appropriate BMPs shall be deployed prior to and during construction to prevent erosion and/or runoff into potentially jurisdictional drainages. Ensure fueling and maintenance of vehicles and other equipment and staging areas do not occur within 100 feet of drainages, and that such drainages are not contaminated during refueling, maintenance, or staging of materials. Prior to beginning project work, the Contractor shall develop a Spill Response Plan to ensure prompt and effective response to accidental spills. The plan must be submitted to the City of Half Moon Bay before construction commences, and must be kept onsite at all times during construction. Adequate spill clean-up supplies must be kept on site and at-the-ready during construction. The plan will be included in the environmental awareness training.	Construction Contractor / City of Half Moon Bay	Prior to / during construction

Half Moon Bay Corporation Yard Upgrade Project Initial Study / Mitigated Negative Declaration (IS/MND)
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	Creek. Crew members shall ensure that contamination of habitat does not occur during such operations. Prior to the onset of work, the construction contractor shall prepare a plan to be approved by the City before construction begins to allow a prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur. e. All exposed surfaces shall be wetted periodically to prevent significant dust. f. All stockpiled soil shall be covered during periods of rain. g. The following BMPs shall be implemented to limit the spread of invasive species into sensitive habitats: i. All ground-disturbing equipment used adjacent to the riparian habitat shall be washed (including weeks, tracks, and undercarriages) at a legally operating equipment yard both before and after being used at the site; ii. All applicable construction materials used on-site, such as straw wattles, mulch, and fill material, shall be certified weed free; iii. The project shall follow the SMCWPPP and a SWPPP as per the NPDES *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Construction General Permit; Water Board Order No. 2009-0009-DWQ) if applicable; iv. All disturbed soils shall be stabilized and planted with a native seed mix from a local source following construction; v. If excavating, soil and vegetation removed from densely weed-infested areas (for example, dense poison hemlock infestations or cape ivy infestations) shall not be used in general soil stockpiles and shall not be redistributed as topsoil cover for the newly filled areas. All weed-infested soil shall be disposed of off-site at a landfill.	Reduce potential for dust by wetting exposed surfaces periodically. Reduce potential for sediment loss by covering stockpiled soils during periods of rain. Once the project is complete, ensure that all exposed and/or disturbed surfaces are protected from soil erosion with reseeding and landscaping.		
BIO-4	**Minimize impacts to nesting birds, as required by the Federal Migratory Bird Treaty Act:** a. If project activities, including, but not limited to, grubbing and grading, are conducted during nesting bird season (generally February 15 to September 15), preconstruction nest surveys shall be conducted in and near the project (within 500 feet for large raptors and 300 feet for all other birds) by a qualified biologist within 7 days of the start of construction. If nesting birds are identified during the preconstruction survey, then the project shall be modified (i.e., a no-work exclusion buffer of appropriate size [to be determined by the qualified project biologist] shall be erected around active nests) and/or delayed as necessary to avoid impacts to the identified nests, eggs, and/or young. Disturbing active nests must be avoided until young birds have fledged.	Project activities, including grubbing and grading, should be conducted outside of nesting bird season (February 15 through September 15). If work outside of nesting bird season is not feasible, then ensure a qualified biologist conducts preconstruction nesting bird surveys prior to commencing work. If nesting birds or raptors are observed on site, ensure an appropriately-sized no-work buffer is established around the nest and/or the project is modified and/or delayed as necessary in coordination with the project biologist.	Construction Contractor / City of Half Moon Bay	Prior to / during construction

Half Moon Bay Corporation Yard Upgrade Project Initial Study / Mitigated Negative Declaration (IS/MND)
Mitigation Monitoring and Reporting Program

Color Codes

Measure Implemented Prior to Construction or Pending Approval

Measure Implemented During Construction

Measure Implemented Following Construction Completion

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	b. If construction activities shall not be initiated until after the start of the nesting season, all potential nesting substrates (e.g., bushes, trees, grasses, and other vegetation) that are scheduled to be removed by the project shall be removed prior to the start of the nesting season (e.g., prior to February 15), to the extent feasible. This shall preclude the initiation of nests in this vegetation and prevent the potential delay of the project due to the presence of active nests in these substrates.	If a construction will not start until after start of the nesting season, remove all potential nesting substrates before February 15.		
BIO-5	**Minimize impacts to heritage trees:** a. During detailed design of the project, removal of trees protected by the City heritage tree ordinance shall be avoided and minimized to the extent feasible. If tree removal is necessary, it is recommended that a certified arborist conduct a tree survey to determine the number and health of heritage trees within the developed habitat of the project area. Where removal of trees cannot be avoided, the City shall comply with the standards of the City heritage tree ordinance, including the planting of replacement trees where feasible and approval from the City Manager.	During detailed design of project, avoid removing protected trees to the extent feasible. Prior to construction, ensure a tree survey is conducted by a certified arborist. For tree removal, comply with the City's heritage tree ordinance, including planting replacement trees.	Construction Contractor / City of Half Moon Bay	Prior to / during construction
BIO-6	**Minimize impacts to roosting bats:** a. Pre-Construction Bat Survey. Prior to tree removal, a qualified bat biologist shall conduct a visual survey of the project area to identify if bats are roosting within trees within the project area. Roost sites shall be avoided during tree removal. If no roosting sites or bats are observed during the survey no further mitigation is necessary. b. If roosting bats or indications of bat roosts are observed within project trees to be removed, tree removal shall be conducted under the supervision of a qualified bat biologist. During tree removal and where potential bat roosts were identified, a qualified bat biologist shall be present and tree removal shall begin with portions of the tree that do not provide suitable roost habitat (e.g., low limbs lacking forage). Trees shall be disassembled at a speed in coordination with the on-site qualified bat biologist that allows any roosting bats to vacate the tree.	Ensure a qualified biologist conducts preconstruction roosting bay survey prior to commencing work. If roosting bats are observed on site, ensure tree removal is conducted with a qualified biologist present. If roosting bats are present, begin removal with low limbs lacking in forage and coordinate removal with qualified biologist to allow roosting bats to vacate the tree.	Construction Contractor / City of Half Moon Bay	Prior to / during construction
BIO-7	**Minimize impacts to dusky-footed woodrat:** a. Focused surveys for San Francisco dusky-footed woodrat nests within the riparian habitat associated with Pilarcitos Creek and the marsh habitat shall be conducted within 7 days of the start of construction. If no nests are found, then no further mitigation shall be warranted. If nests are found, then Mitigation Measures b and c shall be implemented.	Conduct a survey for woodrat nests within 7 days of start of construction. Identify a 10-foot buffer area around woodrat nests. Use high-visibility fencing around woodrat nests to keep worker and equipment out of area.	Construction Contractor / City of Half Moon Bay	Prior to / during construction

Half Moon Bay Corporation Yard Upgrade Project Initial Study / Mitigated Negative Declaration (IS/MND) Mitigation Monitoring and Reporting Program				
Color Codes				
Measure Implemented Prior to Construction or Pending Approval				
Measure Implemented During Construction				
Measure Implemented Following Construction Completion				
Impact	**Applicant Proposed Measure (APM) or Mitigation Measure**	**Comments**	**Responsible Party**	**Timing / Milestone**
	b. Dusky-footed woodrats are year-round residents. Therefore, avoidance mitigation is limited to designing the project to avoid direct impacts on woodrat nests to the extent feasible. Ideally, a minimum 10-foot buffer should be maintained between project construction activities and each nest to avoid disturbance. In some situations, a smaller buffer may be allowed if in the opinion of the qualified biologist removing the nest would be a greater impact than that anticipated due to project activities. If nests are observed within riparian habitat and this habitat shall be avoided by the project, high-visibility fencing shall be installed around these woodrat nests to keep workers, construction equipment, and construction materials out of the area where the nests are located. c. If avoidance of occupied nests is not feasible, the woodrats shall be evicted from their nests prior to the removal of the nests and onset of ground-disturbing activities to avoid injury or mortality of the woodrats. A qualified biologist shall disturb the woodrat nest to the degree that all woodrats leave the nest and seek refuge outside of the project activity area. Subsequently, the nest sticks shall be relocated; these materials shall be piled at the base of a nearby tree or shrub outside of the impact area. The spacing between relocated nests shall not be less than 20 feet, unless a qualified biologist has determined that the habitat can support higher densities of nests.	If avoidance is not feasible, a qualified biologist will relocate the nest.		
Cultural Resources				
CUL-1	**Implement an environmental awareness training program** Prior to the start of the project, all construction crew members will attend an environmental awareness training. This environmental awareness training will be conducted by a qualified archaeologist and will address cultural situations that may be encountered. An archaeologist will prepare an archaeological brochure to be distributed to the construction crew at the on-site environmental awareness training. The brochure will identify the types of cultural resources that may be encountered and the procedures to be followed in the event of accidental discovery.	Prior to commencing work, ensure that construction personnel are trained and informed of how to identify and avoid historical and archaeological resources in the event that they are exposed during construction. Such training may be included in the environmental awareness training prepared for the project per BIO-1. If archaeological or historical resources are discovered during construction, the Contractor shall ensure that work is immediately stopped in the vicinity of the find, and the City of Half Moon Bay is immediately notified. Discovered resources must be left in place as they were found: do not touch, collect, or otherwise disturb found resources. Work shall not resume in the vicinity of any discovered resources until the resources are fully evaluated by the archaeologist, and the City of Half Moon Bay approves the continuation of work in the vicinity of the find. Ensure any additional cultural work such as testing or data recovery is implemented as required.	Construction Contractor / City of Half Moon Bay	Prior to construction

Half Moon Bay Corporation Yard Upgrade Project Initial Study / Mitigated Negative Declaration (IS/MND)
Mitigation Monitoring and Reporting Program

Color Codes

Measure Implemented Prior to Construction or Pending Approval

Measure Implemented During Construction

Measure Implemented Following Construction Completion

Impact	Applicant Proposed Measure (APM) or Mitigation Measure	Comments	Responsible Party	Timing / Milestone
CUL-2	**Implement a cultural resources monitoring plan:** The project will develop and implement a cultural resources monitoring plan (CRMP) for all ground-disturbing activities. The CRMP shall include provisions for stop-work by the archaeologist, ownership and proper handling of archaeological resources upon and following discovery, reporting format and frequency, and a project specific communications plan will need to be completed prior to start of work.	Contract with a cultural resources monitor to be present during ground disturbing activities. If archaeological or historical resources are discovered during construction, the Monitor and/or Contractor shall ensure that work is immediately stopped in the vicinity of the find, and the City of Half Moon Bay is immediately notified. Discovered resources must be left in place as they were found: do not touch, collect, or otherwise disturb found resources. Work shall not resume in the vicinity of any discovered resources until the resources are fully evaluated by the archaeologist, and the City of Half Moon Bay approves the continuation of work in the vicinity of the find. Ensure any additional cultural work such as testing or data recovery is implemented as required.	Construction Contractor / City of Half Moon Bay	During construction
Geology and Soils				
GEO-1	**Avoid and/or reduce impacts to unknown paleontological resources:** In the unlikely event that a paleontological resource is discovered, the project applicants shall comply with PRC Division 5, Chapter 1.7, Section 5097.5, and Division 20, Chapter 3, Section 30244, which prohibit the removal, without permission, of any paleontological site or feature from lands under the jurisdiction of the state or any city, county, district, authority, or public corporation, or any agency thereof. To be consistent with these PRC Sections, in the event that paleontological resources are exposed during construction, work in the immediate vicinity of the find must stop until a qualified paleontologist can evaluate the significance of the find. Construction activities may continue in other areas. If the discovery proves significant under the provisions of CEQA, the paleontologist shall prescribe, and the project Applicants shall implement, additional measures such as testing or data recovery to avoid impacts to the resources.	Ensure compliance with Public Resources Code (PRC). Stop work in the immediate vicinity of any discovered paleontological resources until a qualified paleontologist evaluates the significance of the discovery. Ensure any additional paleontological work such as testing or data recovery is implemented as required.	Construction Contractor / City of Half Moon Bay	During construction

APPENDIX B3

Emergency Coastal Development Application
Supplemental Information

San Mateo County Coastside Farmworker Housing Needs
Supplemental Information – February 2024

This supplemental information is provided to establish the context for and significance of the proposed "Stone Pine Cove" neighborhood for Half Moon Bay and San Mateo County farmworker households who support the agricultural industry in the San Mateo County coastal zone.

Overview - Farmworker Housing in the San Mateo County Coastal Zone:
Broadly, there is a lack of affordable housing in San Mateo County, especially on the coast. This is compounded by the lack of unit turnover at affordable housing developments in Half Moon Bay and unincorporated coastal San Mateo County. Farmworkers, who are some of the lowest paid employees in the region, sustain agriculture on the San Mateo County coastside. In addition to agriculture, many other Coastal Act priority uses such as accommodations and visitor serving-recreation, also provide low-wage service jobs. Thus, the demand for affordable housing for the local workforce who are often engaged in Coastal Act-related industries, is high overall, with farmworkers tending to be especially impacted due to their very low wages.

On the San Mateo County coastside, the overall dearth of units set aside for both the general low-income population and farmworkers in the area contributes to the lack of affordable housing for this Coastside population. This is not due to a lack of focus on affordable housing broadly or for farmworkers in particular. Focusing specifically on farmworker housing, affordable housing units planned or built in recent years include the following:

> *Moonridge:* Moonridge is an affordable rental housing development for agricultural workers and their families earning up to 60% of Area Median Income and was developed by MidPen Housing with significant support from the County's Department of Housing. Completed in two phases, the development welcomed residents in 1999 and 2001 for a total of 160 apartment homes including 80 three-bedroom and 48 four-bedroom units. The development includes a computer center, Head Start Center, basketball court, soccer field and community gardens. The development is located in unincorporated San Mateo County at the eastern boundary of Half Moon Bay's city limits. This development is one of the few communities of this scale on the coast for low-income agricultural workers. The waitlist is currently closed due to the fact that the number of applicants has far exceeded the number of units available.
>
> *County Farmworker Housing Loan Program:* The program was created in 2016 to help agricultural operators and landowners provide housing for very low-income farmworkers. The program lends funds to operators/landowners for the creation of new housing, rehabilitation of existing housing, or replacement of existing dilapidated mobile home units that have been used as farmworker housing in the past. To date, the program has completed 9 units, with 3 units currently under construction, and 4 units in the early pre-development stages.

Cypress Point: Cypress Point is a 71-unit development that in Moss Beach will serve low-income families on San Mateo's Coastside. MidPen has committed to reserving 18 units for farmworker households, who represent a major portion of the workforce in the area but too often face housing instability or sub-standard conditions. Due to the complexity of funding, approvals, and construction, these needed homes will not be ready for several more years.

- *555 Kelly Avenue:* This City-owned site is located within Half Moon Bay's Town Center. It was enabled to be developed with affordable housing by the City's 2020 certified Land Use Plan update through a new Workforce Housing Overlay. The City solicited proposals in 2022 and has been working with the development team of Mercy Housing and Ayudando Latinos A Soñar (ALAS) on a new community comprised of 40 units and support services for extremely low-income older farmworker households. In addition to the site, the City has also contributed significant affordable housing funds as has San Mateo County to enable this project. The County has awarded funds to the City of Half Moon Bay to contribute to provide a pre-development loan to Mercy Housing for 555 Kelly, and we anticipate that the developer will apply for the next round of County Affordable Housing Funds. Due to the complexity of funding, entitlements, and construction, these needed homes will not be ready for several more years.

- *880 Stone Pine Road:* This City-owned site is located within Half Moon Bay's Town Center. It was enabled to be developed with affordable housing through the City's 2020 certified Land Use Plan update allowing agricultural use of the property, noting that farmworker housing has been acknowledged by the Coastal Commission and the City's Local Coastal Program as an agricultural use. At nearly 5 acres, this is a larger site that can accommodate modular housing units. Due to several factors, including that the site is in public ownership, centrally located, and of generous size, it became the clear best choice for replacement housing for farmworkers displaced by the January 23, 2023 shootings and other farmworker households for which there is great need as further described in this supplemental material. The "Stone Pine Cove" neighborhood at 880 Stone Pine Road was initially entitled through an Emergency Coastal Development Permit issued by the City of Half Moon Bay on December 11, 2023. This supplemental material is in support of the required follow-up Coastal Development Permit. Due to the demonstrated need, the project has received federal, state, local, and philanthropic funding. Since the shootings, the County of San Mateo and the City of Half Moon Bay have worked in concert as co-applicants to make this neighborhood a reality.

Agricultural Workforce Housing Needs Assessment
San Mateo County conducted a needs assessment in 2016 which made the following findings:

- The median income for farmworkers who live on farms was $21,000 a year, which falls well within the County's extremely low-income category.
- 1,020 to 1,140 housing units for the agricultural workforce were presently needed.

Agricultural Worker Safety Task Force

San Mateo County established a task force after the January 23, 2023 shootings at two farms in Half Moon Bay and the unincorporated Coastside. The Task Force is charged with inspecting farmworker housing on farms throughout the Coastside to ensure that basic habitability standards are met. The Task Force, as of February 2024 has completed the following:

- Examined approximately 75% of the properties to be evaluated
- Inspected 105 farmworker housing units occupied by 304 farmworkers
- Determined that 28 farmworker units, housing 69 farmworkers did not meet minimum safety standards and required corrective actions.

The County's Task Force anticipates that it will continue to identify housing units that are deemed unsafe, unpermitted, and/or otherwise unable to be legalized in the future, creating an expanded need for additional affordable housing units. While it is difficult to know the result of ongoing inspections, if the trend continues, at the end of the task force's inspections, there may be as many as 130 farmworkers residing in substandard housing, in addition to the 19 households displaced by the shooting.

APPENDIX C1

Arborist Report

880 Stone Pine Road HMB Lot Arborist Report

SUBMITTED TO:

County of San Mateo
Steven McGuckin

PREPARED BY:

Leonardo Tuchman
Plant Health Care Arborist

ISA Certified Arborist WE-12453A
ASCA Registered Consulting Arborist #771
ISA Tree Risk Assessment Qualified
California DPR QAL #146294

AUGUST 21, 2023

Contents

Summary 1
Introduction 1
Background and History 1
Assignment 1
Limits of the Assignment 1
Purpose and Use of the Report 2
Observations 2
Site Description 2
Tree Condition 2
Site Condition 5
Impacts 5
Tree Protection Measures 6
Glossary 8
Appendix A Map 9
Appendix B Data Table 10
Appendix C Assumptions and Limiting Conditions 14
Appendix D Certificate of Performance 15

Summary

The County of San Mateo requested an arborist report to conduct an assessment of all the trees growing within the project area at the HMB Lot at the end of 880 Stone Pine Road, as well as assess impacts from proposed construction activity and provide mitigation measures to help preserve trees to remain on site. I accepted this assessment and then performed a site visit on July 26th, 2023.

Terms in bold font are defined in the Glossary.

Introduction

Background and History

The request made by Steven McGuckin via email was used to create West Coast Arborist Inc. (WCA) Proforma #83802 to give the City the cost for this assignment.

Assignment

The assignment per the Scope of Work on Proforma #83802 was to provide the County of San Mateo with a development related arborist report for the subject property. This arborist report is to include the following:

- Location, type, species (shown in a tabular format and on the site plan) of all trees proposed for removal and trees with canopies within the development area.
- Health, of the tree(s) impacted by the development.
- Potential impacts of development, and
- Recommended actions and mitigation measures regarding the trees impacted by the development.

Impacts were assessed using the Grading Plan provided by BKF dated August 10th, 2023. Final development plan sets have not been provided and as such this report should be considered preliminary. The deliverable is this report which is a summary of the inspection with impact assessment and tree protection measures.

Limits of the Assignment

The assignment, being a visual inspection of the subject trees, was limited to that which could be observed from the ground. Only exposed or easily exposed parts above ground level were inspected.

Subsurface soil conditions and tree parts below ground were not disturbed or observed. No testing of soil or plant tissue for fertility or nutrient deficiency was requested. No valuation appraisal was requested to be part of this report. The report is not intended to be legal advice and does not represent legal advice as such.

An additional limit to this assignment is that only the trees and their immediate surroundings within and around the dripline of the trees were visually observed as part of the observations in that section of this report.

Purpose and Use of the Report

The purpose of this report is to provide County of San Mateo staff with my professional assessment of the subject trees condition and determine impacts from proposed construction activities, as well as provide tree protection measures. This report will then be submitted as part of a development package for the subject site to the County of San Mateo.

Observations

To provide the County of San Mateo with information about the condition of trees I offer these observations.

Site Description

The site consisted of a vacant lot surrounding on the south by wooded areas, on the west by condominiums, on the north by San Mateo Road, and on the east by City of Half Moon Bay facilities. The open areas of the property where no trees are present primarily consists of grasses and other ground cover plants. Some shrubbery was observed on the southeast side of the property.

Tree Condition

During the inventory, a total of 152 trees representing 9 species were quantified within the scope of work. Stumps were not quantified. The 9 species are included in the following table including counts and condition.

Table 1: Summary of Count and Condition

Common Name	Botanical Name	Dead	Poor	Fair	Good	Grand Total
BLACK ACACIA	*Acacia melanoxylon*	-	-	-	3	3
BLUE GUM	*Eucalyptus globulus*	-	-	4	12	16
CIDER GUM	*Eucalyptus gunnii*	-	-	-	1	1
COAST LIVE OAK	*Quercus agrifolia*	-	-	-	3	3
MEXICAN FAN PALM	*Washingtonia robusta*	-	-	-	1	1

MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	-	2	15	58	75
MONTEREY PINE	*Pinus radiata*	-	-	2	45	47
SHINNING WILLOW	*Salix lucida*	-	-	-	1	1
WHITE ALDER	*Alnus rhombifolia*	-	1	2	2	5
Grand Total		0	3	23	126	152

The most common species on site is Monterey cypress with 75 trees growing throughout the property, 58 are in good condition, 15 are in fair condition, and two are in poor condition. Trunk diameters range between 2 and 41 inches. Forty (40) of the subject Monterey cypress are growing in a dense row on the west perimeter of the property, while others are growing in the southwest cluster of trees (Photo 1). Trees growing closely together have narrow upright canopies.

Forty-seven (47) Monterey pine are primarily located in the southwest cluster of trees (Photo 2). Forty-five (45) are in good condition while two are in fair condition, trunk diameters range between 5 and 15 inches. Many of the subject trees are growing in dense clusters with narrow upright canopies. Those growing with more space have wider canopies.



Photo 1: Monterey cypress #1 growing on the west perimeter of the property. It is growing in a dense row with other cypress.



Photo 2: Monterey pine #50 growing on the south perimeter of the property on the edge of a cluster of trees. Trees of similar size are growing in this area.

Sixteen (16) blue gum eucalyptus are growing primarily in the southwest cluster of trees. Twelve are in good condition and four are in fair condition. Trunk diameters range between 6 and 26 inches. Trees generally have good form and structure with healthy foliage.

Five white alder are present on site, four are located on the east side of the southwest cluster of trees in a row, while one is in the middle of the subject property. Two are in good condition, two are in fair condition, and one is in poor condition. Trunk diameters range between 3 and 5 inches. While trees generally have healthy foliage, tree #158 had upper canopy dieback.



Photo 3: Blue gum eucalyptus #53 growing in the south side cluster of trees. It has a narrow upright form with good structure.

The following species have three or fewer specimens growing on site:

- Black acacia #71, 75, and 85 are growing in the southwest cluster of trees, all are in good condition. Trees #71 and 75 have 6-inch trunk diameters while #85 has a 4-inch trunk diameter. Black acacia growing on site are crowded by other nearby trees, resulting in narrow and one-sided canopies.

- Coast live oak #86, 125, and 126 are growing in the southwest cluster of trees, all are in good condition. Trees #125 and 126 have 3-inch trunk diameters while #86 has a 4-inch trunk diameter. All are young trees with healthy foliage and good form.

- Cider gum #48 is in the central area of the property, it is in good condition with a 4-inch trunk diameter. It is a young tree with healthy foliage and good form.



Photo 4: White alder #155 growing in a small row with white alders #156-158. It has codominant leaders with healthy foliage.

- Mexican fan palm #46 is growing on the north perimeter of the property, it is in good condition with an 18-inch trunk diameter. It has healthy fronds and typical form and structure for the species.

- Shinning willow #47 is growing in the central area of the property. It is in good condition with numerous leaders growing from the base ranging in size from approximately 2 to 7 inches. With all the numerous leaders present, the subject tree has more of a large shrub form.

Site Condition

The site primarily consists of open grass areas with other shrubbery sporadically growing throughout the property. Trees primarily line the west perimeter of the property bordering the condominium community as well as growing in dense clusters on the south side of the property. Fencing lines the north and south perimeters of the property.

Impacts

Impacts were assessed using the Grading Plan provided by BKF dated August 10th, 2023. Final development plan sets have not been provided and as such this report should be considered preliminary. The project intends to build 47 farmworker housing units on the subject lot with associated roads and facilities.

Given the nature of this project taking up a large portion of the subject lot with housing and roads, numerous trees will need to be removed for the housing development to be completed. Trees that are expected to be required to be removed based on the provided plans include tree #47-158.

Trees that will not require removal for the project to proceed include trees #1-46. Trees #1-40 are growing on the west perimeter of the property in a row. A walking path is to be installed approximately 4-10-feet from trees #1-17 on their east side. Depending on the type of walking path installed, excavation may be required for hardscape to be installed. Should extensive excavation be required for this path to be installed, impacts to tree roots may be beyond the tolerance of some trees. Beyond the walking path, the development project will encroach towards these trees at varying distances. On the south side of the property, bio retention areas are to be installed approximately 15-20 feet from the trees at varying distance. Excavation may be required for the bioretention area to be installed that could impact tree roots. Should proper tree protection measures be in place, this work should be within the tolerance of these trees.

On the north side of the property, a bio retention area is to be installed approximately 10-15 feet from trees #18-23. Excavation may be required for the bioretention area to be installed; this

excavation could impact tree roots. Should proper tree protection measures be in place, this work should be within the tolerance of these trees. Housing on the west side of the project is to be built in a northeast direction running parallel to trees #24-40 at varying distance. All of this work is at a distance that should proper tree protection measures be installed, I believe this work will be within the tolerance of these trees.

Trees #41-46 are growing on the north perimeter of the project, with the closest tree being approximately 25-30-feet from construction activity. Considering this distance, should proper tree protection measures be installed I believe this work will be within the tolerance of trees #41-46.

Tree Protection Measures

The following tree protection measures should be applied to all trees that are to be retained:

1. Pre-construction:
    a. A pre-construction meeting should be held to discuss tree protection measures and ensure all tree protection measures have been properly installed.
    b. Any clearance pruning that is deemed necessary for construction shall be completed using the minimal dose necessary and shall be approved by the project arborist prior to pruning.
    c. **Tree protection zones** (TPZ) shall be established and enforced to prevent soil compaction, grade change, and root damage. Tree protection areas shall be established with five-foot-high chain link fencing mounted on 2-inch diameter galvanized iron posts, driven into the ground to a depth of at least 2-feet, at no more than 10-foot spacing.
        i. The diameter of the TPZ shall be determined by the trunk diameter of trees to be protected. For every 1 inch of trunk diameter, the TPZ shall extend 1 foot. For example, a 10-inch diameter tree shall have a TPZ with a radius of 10-feet around the tree.
            1. In areas where this TPZ size is greater than what construction can allow, the canopy dripline shall be the minimum radius for the TPZ.
        ii. For trees growing along the east perimeter of the property, TPZs can be combined to form one large TPZ for trees in this area. Additionally, fencing is not required on the west side of the trees as the property line fencing is already in place.
    d. A “Warning: Do Not Enter” sign shall be prominently displayed on each tree protective fence.
    e. A 4-inch layer of chip bark mulch shall be placed on top of the TPZ and enclosed within the tree protective fencing. This mulch shall only be moved for landscape

plants to be installed after all excavation and soil compaction work has been completed.

f. Establish an area outside of the TPZs or on preexisting hardscape to store sediment and backfill. Ensure no flow paths lead to TPZs from sediment or backfill piles if present.
g. No material or equipment shall be stored or placed within the TPZ of preserved trees.

2. Construction:
    a. In areas where construction activity is to take place beneath the canopy of existing trees, such as the walking path, the TPZ shall be moved to the greatest distance possible from the subject tree while also allowing for construction to proceed. Once construction in the subject area has occurred, the TPZ shall be moved back to the preestablished boundary.
        i. Project arborist shall conduct site observations during any construction activity that is to take place beneath the canopy dripline of trees.
        ii. Any excavation activity that is to take place in these areas is prohibited from using backhoes, tread tractors, or any other heavy vehicles.
            1. Methods permitted include hand digging, hydraulic or pneumatic air excavation.
    b. During excavation activity, should any roots be encountered, root pruning shall be done with hand tools in order to make clean cuts that face the excavated area.
            1. Roots larger than 2.5 inches shall not be cut without project arborist prior approval.
            2. Roots larger than 2.5 inches that are cut shall immediately shaded and kept moist with wet burlap or similar material until they can be recovered.
    c. No pruning should be performed on trees that have roots impacted by construction activity for at least one year following the completion of this project other than necessary maintenance such as building clearance.
3. Post construction:
    a. Project arborist should conducting monitoring twice a year from the date of project completion for no less than two years to ensure trees are in good condition.

Should these tree protection measures be implemented and followed throughout construction, the likelihood of the trees surviving construction activity will increase.

Glossary

Tree Protection Zone – A defined area surrounding a tree trunk intended to protect the roots and soil from construction activity to ensure the future health and stability of the tree.

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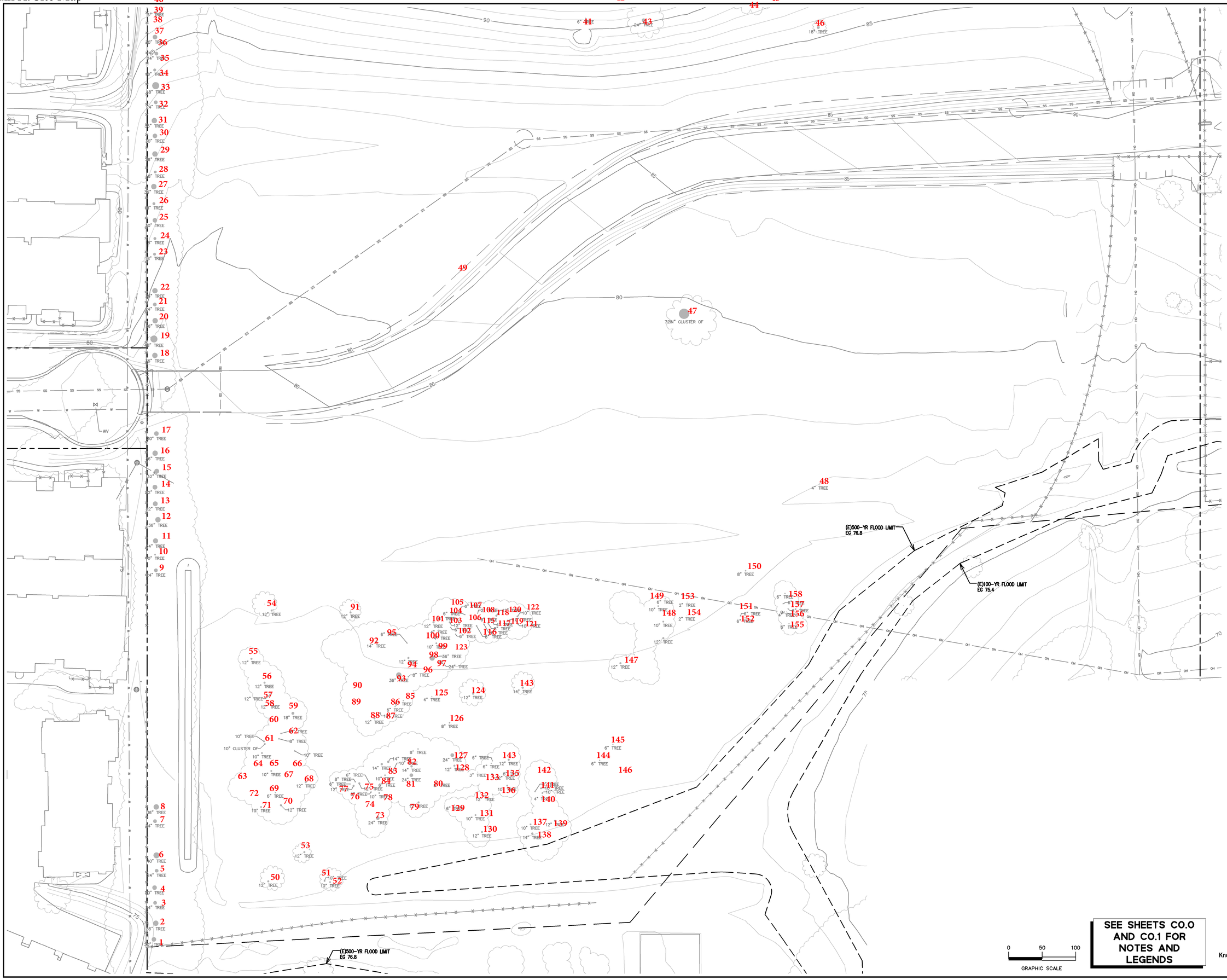

255 SHORELINE DRIVE
SUITE 200
REDWOOD CITY, CA 94065
(650) 482-6300
www.bkf.com

EXISTING CONDITIONS
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

No.	Revisions	Date

Date 08/10/2023
Scale 1" = 50'
Design DJP
Drawn DLG
Approved DJL
Job No 20211367-15

Drawing Number:
C1.1
OF

811 Know what's below. Call before you dig.

DRAWING NAME: K:\2021\21367-15_HMB_Corpyrd_Housing\ENG\vmbsheets.dwg
PLOT DATE: 08-15-23 PLOTTED BY: gold

Appendix B Data Table

Tree	Common Name	Botanical Name	DBH	Tree Condition	Status
1	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	36	Fair	Retain
2	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	29	Good	Retain
3	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	27	Good	Retain
4	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	20	Good	Retain
5	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	39	Good	Retain
6	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	34	Good	Retain
7	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	19	Good	Retain
8	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	29	Good	Retain
9	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	29	Fair	Retain
10	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	8	Poor	Retain
11	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	34	Fair	Retain
12	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	42	Good	Retain
13	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	31	Good	Retain
14	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	34	Good	Retain
15	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	32	Good	Retain
16	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	38	Good	Retain
17	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	17	Good	Retain
18	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	41	Good	Retain
19	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	34	Good	Retain
20	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	36	Good	Retain
21	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	25	Good	Retain
22	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	42	Good	Retain
23	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	22	Good	Retain
24	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	17	Good	Retain
25	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	29	Good	Retain
26	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	24	Good	Retain
27	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	40	Good	Retain
28	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	21	Good	Retain
29	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	42	Good	Retain
30	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	33	Good	Retain
31	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	30	Good	Retain
32	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	23	Good	Retain
33	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	39	Good	Retain
34	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	15	Good	Retain
35	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	27	Fair	Retain
36	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	29	Good	Retain
37	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	2	Good	Retain

38	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	26	Fair	Retain
39	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	41	Poor	Retain
40	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	26	Fair	Retain
41	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	6	Good	Retain
42	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	5	Good	Retain
43	MONTEREY PINE	*Pinus radiata*	12	Good	Retain
44	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	22	Good	Retain
45	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	15	Fair	Retain
46	MEXICAN FAN PALM	*Washingtonia robusta*	18	Good	Retain
47	SHINNING WILLOW	*Salix lucida*	7	Good	Remove
48	CIDER GUM	*Eucalyptus gunnii*	4	Good	Remove
49	WHITE ALDER	*Alnus rhombifolia*	5	Good	Remove
50	MONTEREY PINE	*Pinus radiata*	10	Good	Remove
51	MONTEREY PINE	*Pinus radiata*	10	Good	Remove
52	MONTEREY PINE	*Pinus radiata*	10	Good	Remove
53	BLUE GUM	*Eucalyptus globulus*	13	Good	Remove
54	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	15	Good	Remove
55	MONTEREY PINE	*Pinus radiata*	13	Good	Remove
56	MONTEREY PINE	*Pinus radiata*	15	Good	Remove
57	MONTEREY PINE	*Pinus radiata*	11	Good	Remove
58	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	9	Good	Remove
59	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	10	Good	Remove
60	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	7	Fair	Remove
61	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	9	Fair	Remove
62	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	8	Fair	Remove
63	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	9	Good	Remove
64	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	8	Fair	Remove
65	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	7	Good	Remove
66	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	7	Good	Remove
67	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	6	Fair	Remove
68	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	11	Good	Remove
69	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	6	Good	Remove
70	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	12	Good	Remove
71	BLACK ACACIA	*Acacia melanoxylon*	6	Good	Remove
72	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	5	Fair	Remove
73	BLUE GUM	*Eucalyptus globulus*	26	Good	Remove
74	MONTEREY PINE	*Pinus radiata*	8	Good	Remove
75	BLACK ACACIA	*Acacia melanoxylon*	6	Good	Remove
76	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	13	Good	Remove
77	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	8	Good	Remove
78	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	5	Good	Remove

79	MONTEREY PINE	*Pinus radiata*	12	Good	Remove
80	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	5	Good	Remove
81	BLUE GUM	*Eucalyptus globulus*	13	Good	Remove
82	BLUE GUM	*Eucalyptus globulus*	16	Good	Remove
83	BLUE GUM	*Eucalyptus globulus*	15	Good	Remove
84	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	10	Good	Remove
85	BLACK ACACIA	*Acacia melanoxylon*	4	Good	Remove
86	COAST LIVE OAK	*Quercus agrifolia*	4	Good	Remove
87	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	8	Good	Remove
88	MONTEREY PINE	*Pinus radiata*	12	Good	Remove
89	BLUE GUM	*Eucalyptus globulus*	6	Good	Remove
90	MONTEREY PINE	*Pinus radiata*	11	Good	Remove
91	MONTEREY PINE	*Pinus radiata*	14	Good	Remove
92	MONTEREY PINE	*Pinus radiata*	15	Good	Remove
93	BLUE GUM	*Eucalyptus globulus*	17	Fair	Remove
94	MONTEREY PINE	*Pinus radiata*	9	Good	Remove
95	MONTEREY PINE	*Pinus radiata*	7	Good	Remove
96	BLUE GUM	*Eucalyptus globulus*	26	Fair	Remove
97	BLUE GUM	*Eucalyptus globulus*	16	Fair	Remove
98	MONTEREY PINE	*Pinus radiata*	8	Good	Remove
99	MONTEREY PINE	*Pinus radiata*	5	Good	Remove
100	MONTEREY PINE	*Pinus radiata*	5	Good	Remove
101	MONTEREY PINE	*Pinus radiata*	10	Good	Remove
102	MONTEREY PINE	*Pinus radiata*	8	Good	Remove
103	MONTEREY PINE	*Pinus radiata*	7	Good	Remove
104	MONTEREY PINE	*Pinus radiata*	11	Good	Remove
105	MONTEREY PINE	*Pinus radiata*	7	Good	Remove
106	MONTEREY PINE	*Pinus radiata*	8	Good	Remove
107	MONTEREY PINE	*Pinus radiata*	8	Good	Remove
108	MONTEREY PINE	*Pinus radiata*	8	Good	Remove
115	MONTEREY PINE	*Pinus radiata*	8	Fair	Remove
116	MONTEREY PINE	*Pinus radiata*	8	Good	Remove
117	MONTEREY PINE	*Pinus radiata*	7	Good	Remove
118	MONTEREY PINE	*Pinus radiata*	4	Good	Remove
119	MONTEREY PINE	*Pinus radiata*	10	Good	Remove
120	MONTEREY PINE	*Pinus radiata*	8	Good	Remove
121	MONTEREY PINE	*Pinus radiata*	10	Good	Remove
122	MONTEREY PINE	*Pinus radiata*	10	Good	Remove
123	MONTEREY PINE	*Pinus radiata*	8	Good	Remove
124	MONTEREY PINE	*Pinus radiata*	10	Good	Remove
125	COAST LIVE OAK	*Quercus agrifolia*	3	Good	Remove

126	COAST LIVE OAK	*Quercus agrifolia*	3	Good	Remove
127	BLUE GUM	*Eucalyptus globulus*	11	Good	Remove
128	BLUE GUM	*Eucalyptus globulus*	12	Good	Remove
129	MONTEREY PINE	*Pinus radiata*	7	Good	Remove
130	BLUE GUM	*Eucalyptus globulus*	14	Good	Remove
131	MONTEREY PINE	*Pinus radiata*	8	Good	Remove
132	BLUE GUM	*Eucalyptus globulus*	13	Fair	Remove
133	MONTEREY PINE	*Pinus radiata*	11	Good	Remove
134	MONTEREY PINE	*Pinus radiata*	11	Good	Remove
135	MONTEREY PINE	*Pinus radiata*	7	Good	Remove
136	MONTEREY PINE	*Pinus radiata*	7	Good	Remove
137	BLUE GUM	*Eucalyptus globulus*	10	Good	Remove
138	BLUE GUM	*Eucalyptus globulus*	14	Good	Remove
139	BLUE GUM	*Eucalyptus globulus*	12	Good	Remove
140	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	8	Good	Remove
141	MONTEREY PINE	*Pinus radiata*	11	Good	Remove
142	MONTEREY PINE	*Pinus radiata*	11	Good	Remove
143	MONTEREY PINE	*Pinus radiata*	12	Good	Remove
144	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	5	Good	Remove
145	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	6	Good	Remove
146	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	5	Good	Remove
147	MONTEREY PINE	*Pinus radiata*	14	Good	Remove
148	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	11	Fair	Remove
149	MONTEREY PINE	*Pinus radiata*	9	Fair	Remove
150	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	5	Good	Remove
151	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	5	Good	Remove
152	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	6	Good	Remove
153	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	2	Fair	Remove
154	MONTEREY CYPRESS	*Hesperocyparis macrocarpa*	2	Good	Remove
155	WHITE ALDER	*Alnus rhombifolia*	3	Fair	Remove
156	WHITE ALDER	*Alnus rhombifolia*	3	Good	Remove
157	WHITE ALDER	*Alnus rhombifolia*	4	Fair	Remove
158	WHITE ALDER	*Alnus rhombifolia*	4	Poor	Remove

Appendix C Assumptions and Limiting Conditions

1. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the Consultant can neither guarantee nor be responsible for the accuracy of information provided by others. Standard of Care has been met with regards to this project within reasonable and normal conditions.

2. The Consultant will not be required to give testimony or to attend court due to this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services as described in the fee schedule and contract of engagement.

3. Loss or alteration of any part of this report invalidates the entire report.

4. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by any other than the person to whom it is addressed, without the prior written consent of the Consultant.

5. This report and any values expressed herein represent the opinion of the Consultant, and the Consultant's fee is in no way contingent upon the reporting of a stipulated result, a specified value, the occurrence of a subsequent event, nor upon any finding to be reported.

6. Unless expressed otherwise: 1) information contained in this report covers only those items that were examined and reflects the condition of those items at the time of inspection; and 2) the inspection is limited to visual examination of accessible items without dissection, excavation, or coring, unless otherwise stated. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the tree(s) or property in question may not arise in the future.

7. Arborists are tree specialists who use their education, knowledge, training, and experience to examine trees, recommend measures to enhance the beauty and health of trees, and attempt to reduce the risk of living near trees. It is highly recommended that you follow the arborist recommendations; however, you may choose to accept or disregard the recommendations and/or seek additional advice.

8. Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms that fail in ways we do not fully understand. Conditions are often hidden within trees and below ground. Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specific period.

9. Any recommendations and/or performed treatments (including, but not limited to, pruning or removal) of trees may involve considerations beyond the scope of the arborist's services, such as property boundaries, property ownership, site lines, disputes between neighbors, and any other related issues. Arborists cannot take such considerations into account unless complete and accurate information is disclosed to the arborist. An arborist can then be expected to consider and reasonably rely on the completeness and accuracy of the information provided.

10. The author has no personal interest or bias with respect to the subject matter of this report or the parties involved. He/she has inspected the subject tree(s) and to the best of their knowledge and belief, all statements and information presented in the report are true and correct.

Appendix D Certificate of Performance

I, Leonardo Tuchman certify that:

- I have personally inspected the trees referred to in this report and have stated my findings accurately. The extent of the assessment is stated in the attached report and the Limits of the Assignment.
- I have no current or prospective interest in the tree or the property that are the subject of this report and have no personal interest or bias with respect to the parties involved.
- The analysis, opinions, and conclusions stated herein are my own and are based on current scientific procedures and facts.
- My analysis opinions, and conclusions were developed, and this report has been prepared according to commonly accepted arboricultural practices.
- No one provided significant professional assistance to me, except as indicated within the report.
- My compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client or any other party nor upon the results of the assessment, the attainment of stipulated results, or the occurrence of any subsequent events.

I further certify that I am a member of good standing of the International Society of Arboriculture. I have been involved in the field of municipal arboriculture in a full-time capacity for a period of more than four years.

Respectfully,

Leonardo Tuchman

Leonardo Tuchman
ISA Certified Arborist WE-12453A
ASCA Registered Consulting Arborist #771
ISA Tree Risk Assessment Qualified
California DPR QAL #146294
Plant Health Care Arborist
West Coast Arborists Inc.

APPENDIX C2

Heritage Tree Removals Letter Report

Kikuchi + Kankel
Design Group

Landscape Architecture
Environmental Design
Site Planning

October 12, 2023

Jill Ekas
Community Development Director
City of Half Moon Bay
501 Main Street
Half Moon Bay, CA 94019

RE: Stone Pine Cove (880 Stone Pine Road)
Heritage Tree Removals

Dear Jill:

On behalf of the project team we have prepared the following narrative to describe the disposition of trees potentially impacted by the construction of the proposed housing development at 880 Stone Pine Road. Please note: where referenced, tree species, sizes (d.b.h.), locations, and numbers, are sourced from the project's arborist report prepared by West Coast Arborists, dated August 21, 2023.

The arborist's report describes 152 existing trees on the property.[1] Trees #1-40 comprise an existing hedge row along the western property boundary; trees #41-46 are scattered along the south-facing slope on the northern edge of the proposed development. All of these trees will remain and be protected for the duration of construction per the recommendations in the arborist's report.

The remaining 106 trees, #47-158, are generally located in dense clusters in the southwestern corner of the site, and will be removed. These trees are typically small, volunteer saplings of undesirable or invasive species. Of these, only 12 specimens meet the definition of a "heritage trees" per the City's Municipal Code (§7.40.020).

Eight of the heritage trees are Monterey pines (*Pinus radiata*), ranging in size from 12-15 inches d.b.h., with an average size of 13.4 inches; three of the heritage trees are Monterey cypress (*Hesperocyparis macrocarpa*), ranging in size from 12-15 inches d.b.h. with an average size of 13.3 inches; the remaining heritage tree is a shining willow (*Salix lucida*). This tree has numerous leaders

[1] Existing trees are numbered 1-158 in the arborist's report, but numbers 109-114 are omitted. Only 152 trees are specifically identified, measured, and located in the report.

730 Mill Street, Half Moon Bay
Steven T. Kikuchi, ASLA Principal
Thomas W. Conroy, Senior Associate
Jeanette T. Hill, ASLA Associate

61 East Main Street, Suite C, Los Gatos
Christopher Kankel, ASLA Principal
Nathan Rose, RLA Senior Associate
Robert J. Dietz, ASLA Associate

emerging from its base with a range of 2 to 7 inches d.b.h. and has the appearance of a large shrub. Due to the numerous basal leaders, we are considering this a heritage tree per typical arboriculture conventions, but we note that the City's code is ambiguous on this matter.

Heritage Tree Removal Table

Tree #	Species	Size (d.b.h. in inches)
47	Salix lucida	7
54	Hesperocyparis macrocarpa	15
55	Pinus radiata	13
56	Pinus radiata	15
70	Hesperocyparis macrocarpa	12
76	Hesperocyparis macrocarpa	13
79	Pinus radiata	12
88	Pinus radiata	12
91	Pinus radiata	14
92	Pinus radiata	15
143	Pinus radiata	12
147	Pinus radiata	14

Tree numbers per project arborist's report.

The removal of these 12 heritage trees is necessary for the successful development of the project. Significant site grading and site preparation, mobile home installation, and utility installation all provide good cause for the proposed removal; no reasonable or feasible alternatives exist for alternative site development that would allow these trees to be preserved. We would also note that the trees proposed for removal have limited landscape value in residential settings; Monterey pines are particularly shallow-rooted and susceptible to numerous pests and diseases, including pitch canker.

Per City code, heritage trees shall be replaced "on a one-for-one basis with a minimum size twenty-four-inch box specimen tree" (§7.40.060). The current Landscape Site Plan and Schematic Planting Plan proposes approximately 69 new 24" box trees to be installed throughout the new development, a ratio of nearly 6:1. Proposed replacement species may include Monterey cypress (as infill for portions of the existing hedge row), Catalina ironwood (*Lyonothamnus floribundus*), New Zealand Christmas tree (*Metrosideros excelsus*), and Chinese elm (*Ulmus parvifolia* 'True Green'), though final species and locations are still to be determined. The ultimate goal for all the proposed new plantings is for species and locations to be optimized for long-term success.

Please don't hesitate to contact my office with any questions or concerns.

Sincerely,



Tom Conroy
Partner, Senior Associate



TREES TO BE REMOVED

TOTAL TREES TO BE REMOVED: 106

TOTAL HERITAGE TREES TO BE REMOVED: 12

TOTAL # OF REPLACEMENT TREES REQUIRED: 21

ALL HERITAGE TREES = 1:1 REPLACEMENT RATIO
EXCEPT WILLOW = 10:1 REPLACEMENT RATIO

#	SCIENTIFIC NAME	DBH (INCHES)	HERITAGE? (Y/N)
47	SALIX LUCIDA	7	Y
48	EUCALYPTUS GUNNII	4	N
49	ALNUS RHOMBIFOLIA	5	N
50	PINUS RADIATA	10	N
51	PINUS RADIATA	10	N
52	PINUS RADIATA	10	N
53	EUCALYPTUS GLOBULUS	13	N
54	HESPEROCYPARIS MACROCARPA	15	Y
55	PINUS RADIATA	13	Y
56	PINUS RADIATA	15	Y
57	PINUS RADIATA	11	N
58	HESPEROCYPARIS MACROCARPA	9	N
59	HESPEROCYPARIS MACROCARPA	10	N
60	HESPEROCYPARIS MACROCARPA	7	N
61	HESPEROCYPARIS MACROCARPA	9	N
62	HESPEROCYPARIS MACROCARPA	8	N
63	HESPEROCYPARIS MACROCARPA	9	N
64	HESPEROCYPARIS MACROCARPA	8	N
65	HESPEROCYPARIS MACROCARPA	7	N
66	HESPEROCYPARIS MACROCARPA	7	N
67	HESPEROCYPARIS MACROCARPA	6	N
68	HESPEROCYPARIS MACROCARPA	11	N
69	HESPEROCYPARIS MACROCARPA	6	N
70	HESPEROCYPARIS MACROCARPA	12	Y
71	ACACIA MELANOXYLON	6	N
72	HESPEROCYPARIS MACROCARPA	5	N
73	EUCALYPTUS GLOBULUS	26	N
74	PINUS RADIATA	8	N
75	ACACIA MELANOXYLON	6	N
76	HESPEROCYPARIS MACROCARPA	13	Y
77	HESPEROCYPARIS MACROCARPA	8	N
78	HESPEROCYPARIS MACROCARPA	5	N
79	PINUS RADIATA	12	Y
80	HESPEROCYPARIS MACROCARPA	5	N
81	EUCALYPTUS GLOBULUS	13	N
82	EUCALYPTUS GLOBULUS	16	N
83	EUCALYPTUS GLOBULUS	15	N
84	HESPEROCYPARIS MACROCARPA	10	N
85	ACACIA MELANOXYLON	4	N
86	QUERCUS AGRIFOLIA	4	N
87	HESPEROCYPARIS MACROCARPA	8	N
88	PINUS RADIATA	12	Y
89	EUCALYPTUS GLOBULUS	6	N
90	PINUS RADIATA	11	N
91	PINUS RADIATA	14	Y
92	PINUS RADIATA	15	Y
93	EUCALYPTUS GLOBULUS	17	N
94	PINUS RADIATA	9	N
95	PINUS RADIATA	7	N
96	EUCALYPTUS GLOBULUS	26	N
97	EUCALYPTUS GLOBULUS	16	N
98	PINUS RADIATA	8	N
99	PINUS RADIATA	5	N
100	PINUS RADIATA	5	N
101	PINUS RADIATA	10	N
102	PINUS RADIATA	8	N
103	PINUS RADIATA	7	N
104	PINUS RADIATA	11	N
105	PINUS RADIATA	7	N
106	PINUS RADIATA	8	N
107	PINUS RADIATA	8	N
108	PINUS RADIATA	8	N
115	PINUS RADIATA	8	N
116	PINUS RADIATA	8	N
117	PINUS RADIATA	7	N
118	PINUS RADIATA	4	N
119	PINUS RADIATA	10	N
120	PINUS RADIATA	8	N
121	PINUS RADIATA	10	N
122	PINUS RADIATA	10	N
123	PINUS RADIATA	8	N
124	PINUS RADIATA	10	N
125	QUERCUS AGRIFOLIA	3	N
126	QUERCUS AGRIFOLIA	3	N
127	EUCALYPTUS GLOBULUS	11	N
128	EUCALYPTUS GLOBULUS	12	N
129	PINUS RADIATA	7	N
130	EUCALYPTUS GLOBULUS	14	N
131	PINUS RADIATA	8	N
132	EUCALYPTUS GLOBULUS	13	N
133	PINUS RADIATA	11	N
134	PINUS RADIATA	11	N
135	PINUS RADIATA	7	N
136	PINUS RADIATA	7	N
137	EUCALYPTUS GLOBULUS	10	N
138	EUCALYPTUS GLOBULUS	14	N
139	EUCALYPTUS GLOBULUS	12	N
140	HESPEROCYPARIS MACROCARPA	8	N
141	PINUS RADIATA	11	N
142	PINUS RADIATA	11	N
143	PINUS RADIATA	12	Y
144	HESPEROCYPARIS MACROCARPA	5	N
145	HESPEROCYPARIS MACROCARPA	6	N
146	HESPEROCYPARIS MACROCARPA	5	N
147	PINUS RADIATA	14	Y
148	HESPEROCYPARIS MACROCARPA	11	N
149	PINUS RADIATA	9	N
150	HESPEROCYPARIS MACROCARPA	5	N
151	HESPEROCYPARIS MACROCARPA	5	N
152	HESPEROCYPARIS MACROCARPA	6	N
153	HESPEROCYPARIS MACROCARPA	2	N
154	HESPEROCYPARIS MACROCARPA	2	N
155	ALNUS RHOMBIFOLIA	3	N
156	ALNUS RHOMBIFOLIA	3	N
157	ALNUS RHOMBIFOLIA	4	N
158	ALNUS RHOMBIFOLIA	4	N

TREE REMOVAL LEGEND

EXISTING HERITAGE TREE TO BE REMOVED	>12" DBH, VARIES PER PLAN
EXISTING TREE TO BE REMOVED	<12" DBH, VARIES PER PLAN
EXISTING TREE TO REMAIN	DBH VARIES PER PLAN
TREE PROTECTION FENCING	

TREE PROTECTION NOTES

THE FOLLOWING TREE PROTECTION MEASURES SHOULD BE APPLIED TO ALL TREES THAT ARE TO BE RETAINED:

1. PRE-CONSTRUCTION:
   - A PRE-CONSTRUCTION MEETING SHALL BE HELD TO DISCUSS TREE PROTECTION MEASURES AND ENSURE ALL TREE PROTECTION MEASURES HAVE BEEN PROPERLY INSTALLED.
   - ANY CLEARANCE PRUNING THAT IS DEEMED NECESSARY FOR CONSTRUCTION SHALL BE COMPLETED USING THE MINIMAL DOSE NECESSARY AND SHALL BE APPROVED BY THE PROJECT ARBORIST PRIOR TO PRUNING.
   - TREE PROTECTION ZONES SHALL BE ESTABLISHED AND ENFORCED TO PREVENT SOIL COMPACTION, GRADE CHANGE, AND ROOT DAMAGE. TREE PROTECTION AREAS SHALL BE ESTABLISHED WITH FIVE-FOOT HIGH CHAIN LINK FENCING MOUNTED ON 2" DIAMETER GALVANIZED IRON POSTS, DRIVEN INTO THE GROUND TO A DEPTH OF AT LEAST 2', AT NO MORE THAN 10' SPACING.
     -- THE DIAMETER OF THE TPZ SHALL BE DETERMINED BY THE TRUNK DIAMETER OF TREES TO BE PROTECTED. FOR EVERY 1" OF TRUNK DIAMETER, THE TPZ SHALL EXTEND 1'. FOR EXAMPLE, A 10" DIAMETER TREE SHALL HAVE A TPZ WITH A RADIUS OF 10' AROUND THE TREE.
       --- IN AREAS WHERE THIS TPZ SIZE IS GREATER THAN WHAT CONSTRUCTION CAN ALLOW, THE CANOPY DRIPLINE SHALL BE THE MINIMUM RADIUS FOR THE TPZ.
     -- FOR TREES GROWING ALONG THE EAST PERIMETER OF THE PROPERTY, TPZs CAN BE COMBINED TO FORM ONE LARGE TPZ FOR TREES IN THIS AREA. ADDTIONALLY, FENCING IS NOT REQUIRED ON THE WEST SIDE OF THE TREES AS THE PROPERTY LINE FENCING IS ALREADY IN PLACE.
   - A "WARNING: DO NOT ENTER" SIGN SHALL BE PROMINENTLY DISPLAYED ON EACH TREE PROTECTIVE FENCE.
   - A 4" LAYER OF CHIP BARK MULCH SHALL BE PLACED ON TOP OF THE TPZ AND ENCLOSED WITHIN THE TREE PROTECTIVE FENCING. THIS MULCH SHALL ONLY BE MOVED FOR LANDSCAPE PLANTS TO BE INSTALLED AFTER ALL EXCAVATION AND SOIL COMPACTION WORK HAS BEEN COMPLETED.
   - ESTABLISH AN AREA OUTSIDE OF ALL THE TPZs OR ON PREEXISTING HARDSCAPE TO STORE SEDIMENT AND BACKFILL. ENSURE NO FLOW PATHS LEAD TO TPZs FROM SEDIMENT OR BACKFILL PILES IF PRESENT.
   - NO MATERIAL OR EQUIPMENT SHALL BE STORED OR PLACED WITHIN THE TPZ OF PRESERVED TREES.
2. CONSTRUCTION:
   - IN AREAS WHERE CONSTRUCTION ACTIVITY IS TO TAKE PLACE BENEATH THE CANOPY OF EXISTING TREES, SUCH AS THE WALKING PATH, THE TPZ SHALL BE MOVED TO THE GREATEST DISTANCE POSSIBLE FROM THE SUBJECT TREE WHILE ALSO ALLOWING FOR CONSTRUCTION TO PROCEED. ONCE CONSTRUCTION IN THE SUBJECT AREA HAS OCCURRED, THE TPZ SHALL BE MOVED BACK TO BE PREESTABLISHED BOUNDARY.
     -- PROJECT ARBORIST SHALL CONDUCT SITE OBSERVATIONS DURING ANY CONSTRUCTION ACTIVITY THAT IS TO TAKE PLACE BENEATH THE CANOPY DRIPLINE OF TREE.
     -- ANY EXCAVATION ACTIVITY THAT IS TO TAKE PLACE IN THESE AREAS IS PROHIBITED FROM USING BACKHOES, TREAD TRACTORS, OR ANY OTHER HEAVY VEHICLES.
       --- METHODS PERMITTED INCLUDE HAND-DIGGING, HYDRAULIC OR PNEUMATIC AIR EXCAVATION.
   - DURING EXCAVATION ACTIVITY, SHOULD ANY ROOTS BE ENCOUNTERED, ROOT PRUNING SHALL BE DONE WITH HAND TOOLS IN ORDER TO MAKE CLEAN CUTS THAT FACE THE EXCAVATED AREA.
     -- ROOTS LARGER THAN 2.5" SHALL NOT BE CUT WITHOUT PROJECT ARBORIST PRIOR APPROVAL.
     -- ROOTS LARGER THAN 2.5" THAT ARE CUT SHALL IMMEDIATELY BE SHADED AND KEPT MOIST WITH WET BURLAP OR SIMILAR MATERIAL UNTIL THEY CAN BE RECOVERED.
   - NO PRUNING SHALL BE PERFORMED ON TREES THAT HAVE ROOTS IMPACTED BY CONSTRUCTION ACTIVITY FOR AT LEAST ONE YEAR FOLLOWING THE COMPLETION OF THE PROJECT OTHER THAN NECESSARY MAINTENANCE SUCH AS BUILDING CLEARANCE.
3. POST-CONSTRUCTION:
   -- - PROJECT ARBORIST SHALL CONDUCT MONITORING TWICE A YEAR FROM THE DATE OF PROJECT COMPLETION FOR NO LESS THAN TWO YEARS TO ENSURE TREES ARE IN GOOD CONDITION.

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Kikuchi + Kankel Design Group
720 Mill Street
Half Moon Bay, CA 94019
www.kikuchikankel.com
Landscape Architecture | Site Planning | Environmental Design

TREE REMOVAL PLAN
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA

NOT FOR CONSTRUCTION
HALF MOON BAY

Date
Revisions
No.

Date 11/20/2023
Scale 1/20" = 1'-0"
0 10' 20'
Drawn JG
Approved TVC

Drawing Number:
L1.1

XX% SUBMITTAL - NOT FOR CONSTRUCTION

APPENDIX D1

Biological Resources Report
Corporation Yard Upgrade Project











H. T. HARVEY & ASSOCIATES
Ecological Consultants
50 years of field notes, exploration, and excellence

880 Stone Pine Road Project
Biological Resources Report

Project #4182-03

Prepared for:

John Doughty
City of Half Moon Bay
501 Main Street
Half Moon Bay, CA 94019

Prepared by:

H. T. Harvey & Associates

June 25, 2021

983 University Avenue, Building D • Los Gatos, CA 95032 • 408.458.3200 • www.harveyecology.com

Table of Contents

Section 1. Introduction 1
1.1 Project Location 1
1.2 Project Description 1
Section 2. Methods 4
2.1 Background Review 4
2.2 Site Visit 7
Section 3. Regulatory Setting 8
3.1 Federal 8
3.1.1 Clean Water Act 8
3.1.2 Federal Endangered Species Act 10
3.1.3 Magnuson-Stevens Fishery Conservation and Management Act 11
3.1.4 Federal Migratory Bird Treaty Act 11
3.2 State 12
3.2.1 Clean Water Act Section 401/Porter-Cologne Water Quality Control Act 12
3.2.2 California Endangered Species Act 13
3.2.3 California Environmental Quality Act 14
3.2.4 California Fish and Game Code 15
3.2.5 State Requirements to Control Construction-Phase and Post-construction Water Quality Impacts 17
3.2.6 California Coastal Act 18
3.3 Local 19
3.3.1 City of Half Moon Bay Local Coastal Program Land Use Plan 19
3.3.2 Half Moon Bay Protected Trees 21
Section 4. Environmental Setting 22
4.1 General Biological Study Area Description 22
4.2 Hydrology 22
4.3 Soils 23
4.4 Biotic Habitats 23
4.4.1 California Annual Grassland 24
4.4.2 Developed/Landscaped 25
4.4.3 Riparian Woodland 26
4.4.4 Perennial Freshwater Marsh 27
4.4.5 Aquatic Riverine 28
Section 5. Special-Status Species and Sensitive Habitats 29
5.1 Special-Status Plant Species 29
5.2 Special-Status Animal Species 30
5.2.1 Federal and State Endangered and Threatened Species 31
5.2.2 California Species of Special Concern 35
5.2.3 State Fully Protected Species 37
5.3 Sensitive Natural Communities, Habitats, and Vegetation Alliances 38
5.4 Non-Native and Invasive Species 41
Section 6. Impacts and Mitigation Measures 42
6.1 Approach to the Analysis 42
6.2 Impacts on Special-Status Species 43
6.2.1 Impacts on Common Plant and Animal Species (Less than Significant) 43
6.2.2 Impacts on Special-Status Plants (Less than Significant with Mitigation) 44
6.2.3 Impacts on the California Red-legged Frog and San Francisco Garter Snake (Less than Significant with Mitigation) 47

6.2.4 Impacts on the Central California Coast Steelhead and the Western Pond Turtle (Less than Significant with Mitigation) 52
6.2.5 Impacts on the San Francisco Dusky-footed Woodrat (Less than Significant with Mitigation) 52
6.2.6 Impacts on Nonbreeding Special-Status Animals (Less than Significant) 53
6.2.7 Impacts on the San Francisco Common Yellowthroat, Yellow Warbler, and Raptors, Including the White-tailed Kite (Less than Significant) 53
6.3 Impacts on Sensitive Communities 55
6.3.1 Impacts on Riparian Habitat or Other Sensitive Natural Communities (Less than Significant with Mitigation) 55
6.3.2 Impacts Caused by Non-Native and Invasive Species (Less than Significant with Mitigation) 57
6.4 Impacts on Wetlands 58
6.4.1 Impacts on Wetlands and Waters (Less than Significant with Mitigation) 58
6.5 Impacts on Wildlife Movement 60
6.5.1 Impacts on Wildlife Movement: (Less than Significant with Mitigation) 61
6.6 Impacts due to Conflicts with Local Policies 61
Impacts to Heritage Trees per 61
6.6.1 Municipal Code Section 7.40 (Less than Significant with Mitigation) 61
6.7 Impact due to Conflicts with an Adopted Habitat Conservation Plan 62
Section 7. References 63

Figures

Figure 1. Vicinity Map 2
Figure 2. Biological Study Area 3
Figure 3. Special-Status Plant Species CNDDB Records 5
Figure 4. Special-Status Animal Species CNDDB Records 6
Figure 5. Habitat Types/Land Uses 9

Tables

Table 1. Soils within the Project Site 23
Table 2. Habitat Types/Land Uses in the Biological Study Area and Project Site 23

Appendices

Appendix A. Plants Observed A-1
Appendix B. Special-Status Plants Considered for Potential Occurrence B-1
Appendix C. Special-Status Animals Considered for Potential Occurrence C-1

List of Preparers

Steve Rottenborn, Ph.D., Principal/Senior Wildlife Ecologist

Kelly Hardwicke, Ph.D., Senior Plant/Wetland Ecologist

Jeff Wilkinson, Ph.D., Project Manager/Senior Wildlife Ecologist

Mark Bibbo, M.S., Plant/Wetland Ecologist

Section 1. Introduction

This report describes the biological resources present on the site at 880 Stone Pine Road in Half Moon Bay, California, where the City of Half Moon Bay (City) is considering future development; the potential biological impacts of future development activities; and measures necessary to reduce these impacts to less-than-significant levels under the California Environmental Quality Act (CEQA).

1.1 Project Location

The project site is located at 880 Stone Pine Road in Half Moon Bay, San Mateo County (Figure 1). It is located within the *Half Moon Bay California* 7.5-minute USGS quadrangle. The site is located between State Route (SR) 92 and Pilarcitos Creek near downtown Half Moon Bay. The site was previously used as a plant nursery and is now a public works yard.

For the purposes of our description of existing biological resources and potential impacts from future development, we identified a Biological Study Area (BSA) of approximately 44 acres that included the 21-acre project site itself as well as surrounding areas within 200 feet of the project boundary (Figure 2). The purpose of providing this BSA was to conform to the City of Half Moon Bay's Local Coastal Program requirements under Policy 6-8.

1.2 Project Description

The City is considering developing the public works yard at 880 Stone Pine Road. A specific project description has not been proposed for the development, and therefore specific impact locations have not been defined. It is conceivable that future development activities may disturb the majority of the site, although the City does not intend to disturb Pilarcitos Creek, a perennial marsh in the northwest corner of the site, or any Environmentally Sensitive Habitat Area (ESHA) avoidance buffers required by the City's Local Coastal Program. The project could also include limited impacts to riparian habitat and the riparian buffer associated with Pilarcitos Creek allowed under the City's Local Coastal Program, notably the creation of paths, trails, or other environmentally related educational uses (J. Doughty, pers. comm.).



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Figure 1. Vicinity Map
880 Stone Pine Road Biological Resources Report (4182-03)
June 2021



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Figure 2. Biological Study Area
880 Stone Pine Road Biological Resources Report (4182-03)
June 2021

Section 2. Methods

2.1 Background Review

Prior to conducting field work, H. T. Harvey & Associates ecologists reviewed available background information pertaining to the biological resources on and in the vicinity of the BSA. Information was compiled and subsequently compared against site conditions during field surveys. The following sources were consulted:

- California Natural Diversity Database (CNDDB) record search for the *Half Moon Bay, California* U.S. Geological Survey (USGS) 7.5-minute quadrangle (where the BSA occurs) and the surrounding five quadrangles: *Montara Mountain, San Mateo, Woodside, San Gregorio, and La Honda* (CNDDB 2021)
- eBird record search for the *Half Moon Bay, California* U.S. Geological Survey (USGS) 7.5-minute quadrangle (where the BSA occurs) and the surrounding five quadrangles: *Montara Mountain, San Mateo, Woodside, San Gregorio, and La Honda* (Cornell Lab of Ornithology 2021)
- CNPS Rare Plant Program Inventory of Rare and Endangered Plants of California for the 7-5-minute quadrangles listed above (CNPS 2021) for Ranks 1-4 and for San Mateo County for Rank 4 species, for which records are not always maintained at the quadrangle level
- USFWS Information for Planning and Consultation tool (USFWS 2021a)
- Aerial photographs obtained from Google Earth Pro (Google, Inc. 2021)
- U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) Web Soil Survey for soil types (NRCS 2021)
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory for any existing aquatic features, including wetlands, streams, and sloughs (USFWS 2014)
- The Jepson Manual: Vascular Plants of California, Second Edition (Baldwin et al. 2012)
- Half Moon Bay Riparian and Wetland Mitigation Site, Preliminary Mitigation and Monitoring Plan (H. T. Harvey & Associates and RMC 2010)
- Administrative Draft, Half Moon Bay Community Park and Analysis Report, Biological Section (H. T. Harvey & Associates 2005)

For the purposes of this report, the vicinity of the BSA is defined as the area within a 5-mile (mi) radius of the BSA. A map of CNDDB records of special-status plants and natural communities of concern, and a map of CNDDB records of special-status animals, are included as Figures 3 and 4, respectively. These generalized maps show areas where special-status species are known to occur or have occurred historically.

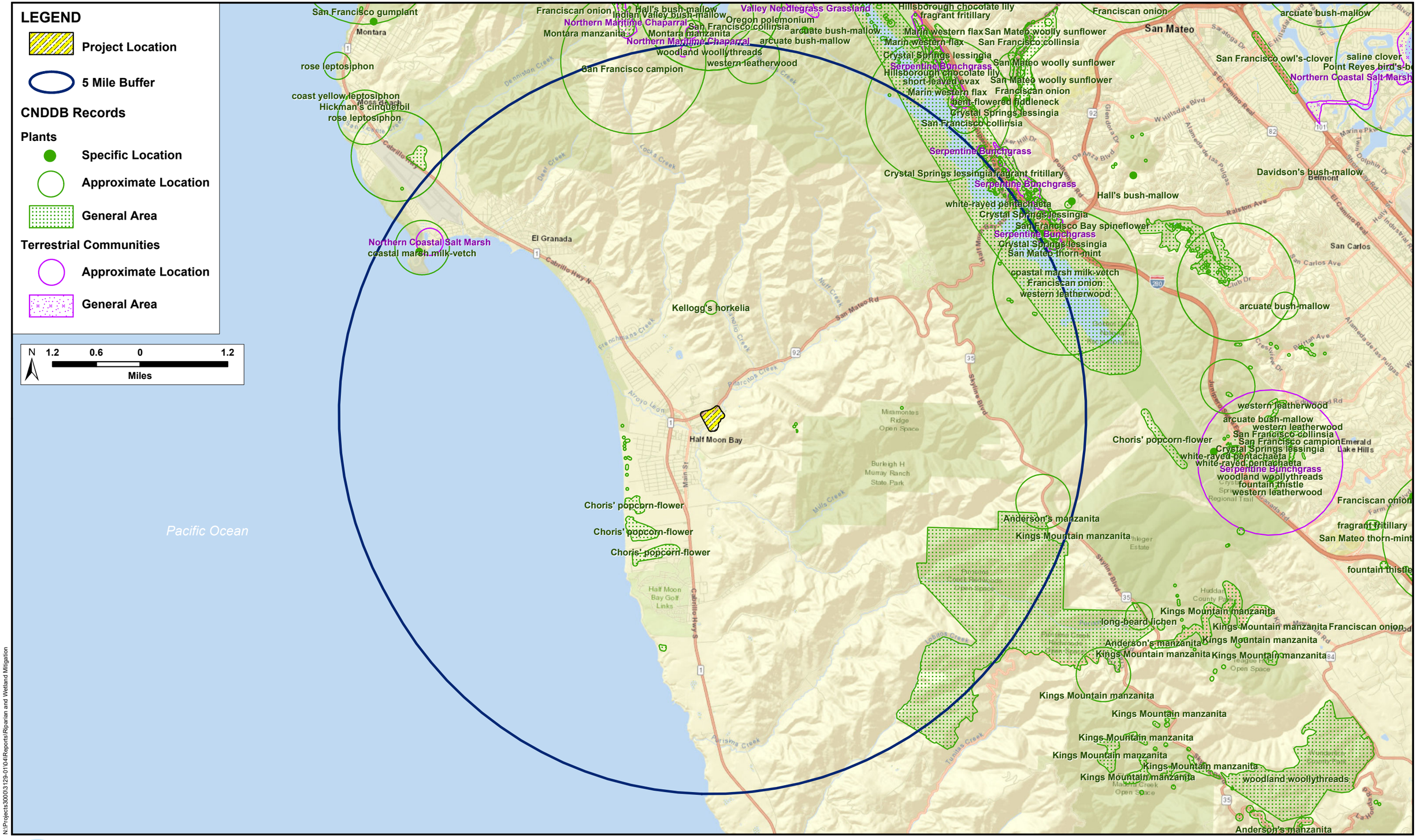

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Figure 3. Special-Status Plant Species CNDDB Records

880 Stone Pine Road Biological Resources Report (4182-03)
June 2021

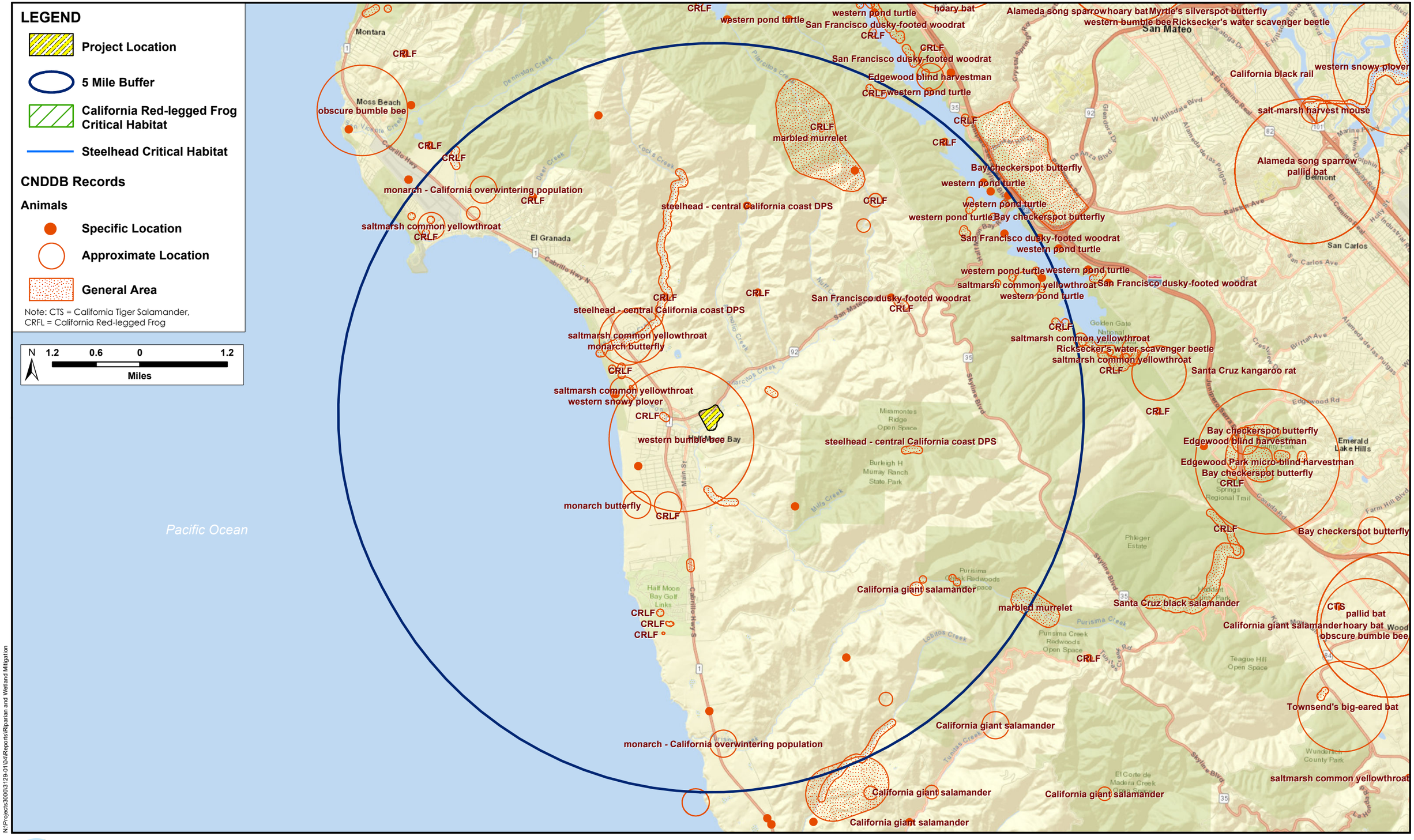

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Figure 4. Special-Status Animal Species CNDDB Records

880 Stone Pine Road Biological Resources Report (4182-03)
June 2021

Following our site visits, we also reviewed the City's *Local Coastal Land Use Plan 2020 Comprehensive Update* (City of Half Moon Bay 2020) for information on biological resources and City land use policies related to coastal resources.

2.2 Site Visit

A reconnaissance-level field survey of the BSA was conducted by H. T. Harvey & Associates senior wildlife ecologist Jeff Wilkinson, Ph.D., and by H. T. Harvey & Associates plant and wetland ecologist David Gallagher, M.S., on June 8, 2018. The purpose of this survey was to (1) assess existing biotic habitats and plant and animal communities in the BSA, (2) assess the BSA for its potential to support special-status species and their habitats, and (3) preliminarily identify potential jurisdictional habitats within the BSA, such as Waters of the U.S./State.

On June 12, 2020, H. T. Harvey & Associates plant ecologist, Mark Bibbo, M.S., performed a technical delineation of wetlands and other waters in the study area, in accordance with the *Corps of Engineers 1987 Wetlands Delineation Manual* (Corps Manual; Environmental Laboratory 1987). Additionally, the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (Regional Supplement) (USACE 2010) was followed to document site conditions relative to hydrophytic vegetation, hydric soils, and wetland hydrology. Mr. Bibbo mapped the extent and distribution of wetlands and other waters of the U.S. that may be subject to regulation under Section 404 of the Clean Water Act (CWA) as well as waters of the state that may be subject to regulation under the Porter Cologne Water Quality Control Act, which is administered by the RWQCB. The study area was also surveyed for areas that meet the physical criteria of a wetland according to the California Coastal Commission (CCC), as well as aquatic and riparian habitat that may be subject to regulation under Sections 1600-1607 of the California Fish and Game Code, which is administered by CDFW.

H. T. Harvey & Associates mapped biotic habitats within the BSA using a combination of field observations, recorded via the Apple iPad geographic information systems (GIS) Kit Pro application and aerial imagery signatures. Habitat types were distinguished using natural community descriptions discussed in Holland (1986) and Sawyer et al. (2009). Plant species within each habitat were identified using Baldwin et al. (2012). Habitat acreages were calculated using GIS and aerial imagery interpretation.

Section 3. Regulatory Setting

Biological resources in the BSA are regulated by a number of federal, state, and local laws and ordinances, as described below.

3.1 Federal

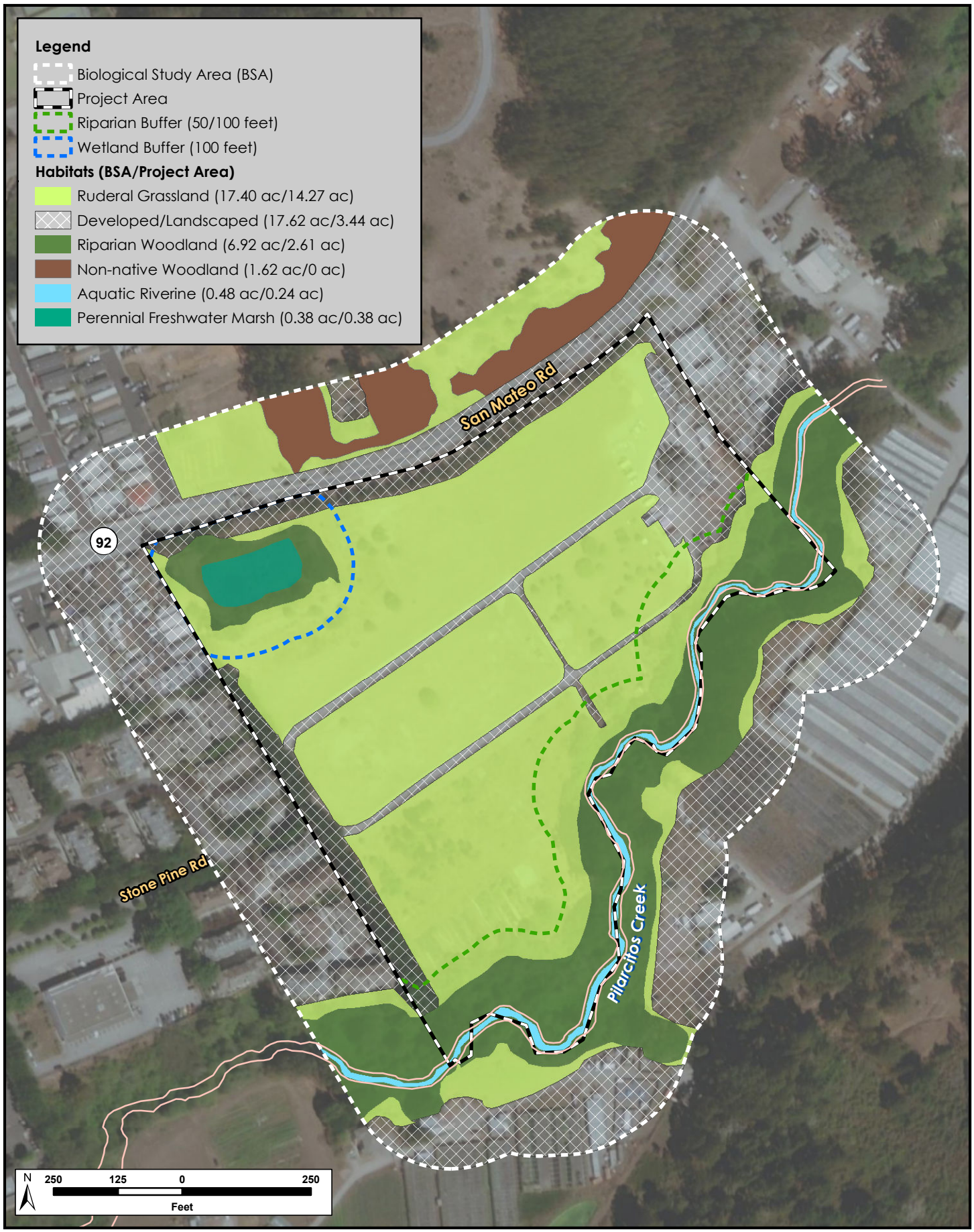
3.1.1 Clean Water Act

As part of its mandate under Section 404 of the CWA, the EPA regulates the discharge of dredged or fill material into "waters of the U.S." Waters of the U.S. include territorial seas, tidal waters, and non-tidal waters in addition to wetlands and drainages that support wetland vegetation, exhibit ponding or scouring, show obvious signs of channeling, or have discernible banks and high-water marks. Wetlands are defined as those areas "that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3(b)). The discharge of dredged or fill material into waters of the U.S. is prohibited under the CWA except when it follows Section 404 of the CWA. Enforcement authority for Section 404 was given to the USACE, which it accomplishes under its regulatory branch. The EPA has veto authority over the USACE's administration of the Section 404 program and may override a USACE decision with respect to permitting.

The USACE has specific guidelines for determining the extent of its jurisdiction. The methods of delineating USACE jurisdiction are defined in the 1987 Wetlands Delineation Manual (Environmental Laboratory, 1987), and the Arid West Manual (USACE 2008). The methods of delineating USACE jurisdiction are defined in the manuals and require examination of three parameters (soil, hydrology, and vegetation).

Substantial impacts to waters of the U.S. may require an Individual Permit. Projects that only minimally affect waters of the U.S. may meet the conditions of one of the existing Nationwide Permits, if other conditions of the permit are satisfied. A water quality certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions. The State Water Resources Control Board (SWRCB) is the state agency (together with the Regional Water Quality Control Boards [RWQCBs]) charged with implementing water quality certification in California.

Project Applicability: Field surveys in 2018 and 2020 identified two biotic habitats which may be considered waters of the U.S./state and subject to jurisdiction by the USACE. Waters of the U.S./state include perennial aquatic riverine within the bed of Pilarcitos Creek, and a perennial freshwater marsh (Figure 5).



N:\Projects4100\4182-01103\Reports\BRR\Figure 5 Vegetation Communities.mxd

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Figure 5. Habitat Types/Land Uses

880 Stone Pine Road Biological Resources Report (4182-03)

June 2021

There are several dilapidated concrete channels and culverts present within the BSA that were excavated in uplands and were once part of the irrigation infrastructure from previous plant nursery operations. At the time of the site visits, these culverts and channels were vegetated with upland plant species and there was no evidence of inundation or water movement; therefore, these culverts and channels likely to do not convey water and would not be considered Waters of the U.S./state.

It is anticipated that any project proposed within the BSA would not involve impacts to Pilarcitos Creek below the OHWM, and per direction from the City, no impacts to the perennial freshwater marsh are anticipated. Therefore, we do not expect the project to need a USACE Section 404 permit.

3.1.2 Federal Endangered Species Act

The Federal Endangered Species Act (FESA) protects federally listed wildlife species from harm or "take", which is broadly defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct." Take can also include habitat modification or degradation that directly results in death or injury of a listed wildlife species. An activity can be defined as "take" even if it is unintentional or accidental. Listed plant species are provided less protection than listed wildlife species. Listed plant species are legally protected from take under FESA only if they occur on federal lands.

The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) have jurisdiction over federally listed, threatened, and endangered species under FESA. The USFWS also maintains lists of proposed and candidate species. Species on these lists are not legally protected under FESA, but may become listed in the near future and are often included in their review of a project.

Project Applicability: Pilarcitos Creek is designated as critical habitat for the federally threatened Central California Coast steelhead (*Oncorhynchus mykiss irideus*) Distinct Population Segment (NMFS 2005), and this species has been documented in Pilarcitos Creek (CDFW 2013, Center for Ecosystem Management and Restoration 2008, NMFS 2015). However, this segment of the creek does not support suitable spawning, rearing, or feeding habitat during most of the year due to the lack of channel complexity, appropriately-sized gravel, or connectivity with the adjacent floodplain, as well as high stream temperatures. Furthermore, the majority of habitat in the Pilarcitos Creek watershed is in poor condition (Phillip Williams & Associates 2008). Therefore, steelhead are expected to occur in the reach of Pilarcitos Creek within the BSA very infrequently and in low numbers during migration, if they are present at all. The federally endangered Central California Coast coho salmon (*Oncorhynchus kisutch*) may have historically occurred in Pilarcitos Creek, and the creek is designated habitat for this species (NMFS 1999). However, recent surveys and monitoring have not detected this species in the creek (CDFW 2013, Hager 2011 as cited in NMFS 2015), and this species is not currently known or expected to occur here. Because the project is not expected to impact the creek itself, we do not expect that FESA consultation with NMFS will be necessary for future project activities.

The federally threatened California red-legged frog (*Rana draytonii*) is known to occur in the BSA. California red-legged frog adults and juveniles were observed in the perennial freshwater marsh in the BSA in 2005 (H.

T. Harvey & Associates and RMC 2010). In addition, adults and larvae have been found in a breeding pond in the vicinity of Pilarcitos Creek about 1.3 mi northwest of the BSA as recently as 2016, and California red-legged frog adults were observed in Pilarcitos Creek about 0.5 mi west of the BSA in 2006 (CNDDB 2021). The federally endangered San Francisco garter snake (*Thamnophis sirtalis tetrataenia*) has been recorded approximately 0.5 mi northwest of the BSA in Pilarcitos Creek and adjacent wetland areas (CNDDB 2021). Suitable dispersal and foraging habitat for these two species occurs within the BSA. Implementation of avoidance and minimization measures will minimize the potential for the project to result in take of these species, though impacts to habitat and the possible need for relocation of individual red-legged frogs from the BSA (to avoid injury or mortality) could potentially constitute take, thus necessitating FESA consultation with the USFWS.

Six federally listed plant species are known to occur in the nine-quadrangle area encompassing the BSA (CNPS 2021, CNDDB 2021): (1) San Mateo thornmint (*Acanthomintha duttonii*), endangered; (2) Crystal Springs fountain thistle (*Cirsium fontinale* var. *fontinale*), endangered; (3) San Mateo woolly sunflower (*Eriophyllum latilobum*), endangered; (4) Marin western flax (*Hesperolinon congestum*), threatened; (5) white-rayed pentachaeta (*Pentachaeta bellidiflora*), endangered; and (6) Hickman's cinquefoil (*Potentilla hickmanii*), endangered. While Hickman's cinquefoil can occur in perennial freshwater marshes, due to a lack of a suitable vegetation associations, the highly restricted range of this species, and it not being observed during surveys by qualified botanists in June 2018 and 2020, it is considered absent from the BSA. There is no suitable habitat for the remaining five species within the BSA, and therefore these five federally listed plant species are also considered absent from the BSA.

3.1.3 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act governs all fishery management activities that occur in federal waters within the United States' 200-nautical-mile limit. The Act establishes eight Regional Fishery Management Councils responsible for the preparation of fishery management plans (FMPs) to achieve the optimum yield from U.S. fisheries in their regions. These councils, with assistance from the NMFS, establish Essential Fish Habitat (EFH) in FMPs for all managed species. Federal agencies that fund, permit, or implement activities that may adversely affect EFH are required to consult with the NMFS regarding potential adverse effects of their actions on EFH, and respond in writing to recommendations by the NMFS.

Project Applicability: The Pacific Fishery Management Council (1999) identified Pilarcitos Creek as providing EFH for the coho salmon. However, as noted above, this species has not been recorded in the Pilarcitos Creek watershed during recent surveys (CDFW 2013, Hager 2011 as cited in NMFS 2015). As a result, this species is not currently known or expected to occur here, though NMFS may consider the creek to represent EFH based on the Pacific Fishery Management Council's description of EFH (1999).

3.1.4 Federal Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA), 16 U.S.C. Section703, prohibits killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. The MBTA

protects whole birds, parts of birds, and bird eggs and nests, and prohibits the possession of all nests of protected bird species whether they are active or inactive. An active nest is defined as having eggs or young, as described in its June 14, 2018 memorandum "Destruction and Relocation of Migratory Bird Nest Contents." Nest starts (nests that are under construction and do not yet contain eggs) and inactive nests are not protected from destruction.

Project Applicability: All native bird species that occur in the BSA are protected under the MBTA.

3.2 State

3.2.1 Clean Water Act Section 401/Porter-Cologne Water Quality Control Act

The SWRCB works in coordination with the nine RWQCBs to preserve, protect, enhance, and restore water quality. Each RWQCB makes decisions related to water quality for its region, and may approve, with or without conditions, or deny projects that could affect waters of the State. Their authority comes from the CWA and the State's Porter-Cologne Water Quality Control Act (Porter-Cologne). Porter-Cologne broadly defines waters of the State as "any surface water or groundwater, including saline waters, within the boundaries of the state." Because Porter-Cologne applies to any water, whereas the CWA applies only to certain waters, California's jurisdictional reach overlaps and may exceed the boundaries of waters of the U.S. For example, Water Quality Order No. 2004-0004-DWQ states that "shallow" waters of the State include headwaters, wetlands, and riparian areas. Moreover, the San Francisco Bay Region RWQCB's Assistant Executive Director, has stated that, in practice, the RWQCBs claim jurisdiction over riparian areas. Where riparian habitat is not present, such as may be the case at headwaters, jurisdiction is taken to the top of bank.

On April 2, 2019, the SWRCB adopted the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State. In these new guidelines, riparian habitats are not explicitly described as waters of the state but instead as important buffer habitats to streams that conform to the State Wetland Definition. The Procedures for Discharges of Dredged or Fill Material to Waters of the State describe riparian habitat buffers as important resources that may be included in required mitigation packages for permits for impacts to waters of the state, as well as areas requiring permit authorization from the RWQCBs for impacts. The RWQCBs may impose mitigation requirements even if the USACE does not, and it should be noted that the State of California's jurisdiction to regulate its water resources is much broader than that of the federal government. The SWRCB works in coordination with the RWQCBs to preserve, protect, enhance, and restore water quality. Each RWQCB makes decisions related to water quality for its jurisdiction and has the authority to approve, with or without conditions, or deny projects that could affect waters of the state under CWA Section 401 and Porter-Cologne.

Pursuant to the CWA, projects that are regulated by the USACE must also obtain a Section 401 Water Quality Certification permit from the RWQCB. This certification ensures that the proposed project will uphold state water quality standards. Because California's jurisdiction to regulate its water resources is much broader than that of the federal government, proposed impacts on waters of the State require Water Quality Certification

even if the area occurs outside of USACE jurisdiction. Moreover, the RWQCB may impose mitigation requirements even if the USACE does not. Under the Porter-Cologne, the SWRCB and the nine regional boards also have the responsibility of granting CWA National Pollutant Discharge Elimination System (NPDES) permits and Waste Discharge Requirements for certain point-source and non-point discharges to waters. These regulations limit impacts on aquatic and riparian habitats from a variety of urban sources.

Project Applicability: Field surveys in 2018 and 2020 identified three biotic habitats which may be considered waters of the state and subject to jurisdiction by the RWQCB. Waters of the state include aquatic riverine, perennial freshwater marsh, and portions of riparian woodland, where riparian trees are rooted below the tops of the banks of Pilarcitos Creek or the perennial freshwater marsh impoundment (Figure 5). Although no impacts to Pilarcitos Creek or the perennial freshwater marsh are anticipated, Waste Discharge Requirements from the RWQCB would be needed if the project were to impact any riparian trees rooted below the tops of the banks of these waterbodies.

3.2.2 California Endangered Species Act

The California Endangered Species Act (CESA; California Fish and Game Code, Chapter 1.5, Sections 2050-2116) prohibits the take of any plant or animal listed or proposed for listing as rare (plants only), threatened, or endangered. In accordance with CESA, the CDFW has jurisdiction over state-listed species (Fish and Game Code 2070). The CDFW regulates activities that may result in "take" of individuals (i.e., "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill"). Habitat degradation or modification is not expressly included in the definition of "take" under the California Fish and Game Code. The CDFW, however, has interpreted "take" to include the "killing of a member of a species which is the proximate result of habitat modification."

Project Applicability: As noted previously, the Central California Coast coho salmon, which is state listed as endangered, is not expected to occur in the reach of Pilarcitos Creek within the BSA. The state endangered San Francisco garter snake is present within the vicinity of the BSA, and suitable habitat is present in the BSA. Implementation of avoidance and minimization measures will avoid take of these species as defined by CESA.

The Santa Cruz Mountains subpopulation of mountain lion (*Puma concolor*) – recently accepted by the California Fish and Game Commission as a candidate species, warranted for listing under CESA (California Fish and Game Commission 2020) – is known to occur year-round within the surrounding vicinity of the BSA (Santa Cruz Puma Project 2018). Movement records of multiple mountain lions fitted with GPS-enabled wildlife-tracking collars have shown individual lions moving through the surrounding area of the BSA over the past 10 years (Santa Cruz Puma Project 2018). The BSA does not provide suitable breeding and denning habitat due to the level and frequency of human disturbances that occur within or near the BSA. Thus, individual mountain lions are expected to occur within the BSA very infrequently, if at all, and then only as transients as they move across their extensive home ranges. As a result, no take of this species (as defined by CESA) will result from the project.

There are seven state endangered, threatened, or candidate plant species that occur within the project vicinity with the potential to occur in the BSA. They include San Mateo thorn-mint, Crystal Springs fountain thistle, San Mateo woolly sunflower, white-rayed pentachaeta, Hickman's cinquefoil, Marin western flax, and coast yellow leptosiphon (*Leptosiphon croceus*). One state rare plant species protected under the California Native Plant Protection Act, Dudley's lousewort (*Pedicularis dudleyi*), is known to occur in the project region. Of these eight state listed or state rare plants, no species are anticipated to occur within the BSA. As mentioned above, suitable serpentine and or coastal scrub and prairie habitats are not present for the six species that are also federally listed. Coast yellow leptosiphon is found only on coastal bluffs, which are not present in the BSA, and Dudley's lousewort is found in redwood forest and chaparral habitats that are absent from the BSA, while the grasslands on site are too disturbed to be able to support the species. Additionally, no individuals of any state listed or rare species were observed during the field surveys conducted by qualified botanists in June 2018 and 2020. Therefore, state-listed or state-rare plants are considered absent and will not be impacted by the project.

3.2.3 California Environmental Quality Act

CEQA is a state law that requires state and local agencies to document and consider the environmental implications of their actions and to refrain from approving projects with significant environmental effects if there are feasible alternatives or mitigation measures that can substantially lessen or avoid those effects. CEQA requires the full disclosure of the environmental effects of agency actions, such as approval of a general plan update or the projects covered by that plan, on resources such as air quality, water quality, cultural resources, and biological resources. The State Resources Agency promulgated guidelines for implementing CEQA are known as the State CEQA Guidelines.

Section 15380(b) of the State CEQA Guidelines provides that a species not listed on the federal or state lists of protected species may be considered rare if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definitions in FESA and CESA and the section of the California Fish and Game Code dealing with rare or endangered plants and animals. This section was included in the guidelines primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on a species that has not yet been listed by either the USFWS or CDFW or species that are locally or regionally rare.

The CDFW has produced three lists (amphibians and reptiles, birds, and mammals) of "species of special concern" that serve as "watch lists". Species on these lists are of limited distribution or the extent of their habitats has been reduced substantially, such that threat to their populations may be imminent. Thus, their populations should be monitored. They may receive special attention during environmental review as potential rare species, but do not have specific statutory protection. All potentially rare or sensitive species, or habitats capable of supporting rare species, are considered for environmental review per the CEQA Section 15380(b).

The CNPS, a non-governmental conservation organization, has developed CRPRs for plant species of concern in California in the Inventory of Rare and Endangered Plants (CNPS 2017). The CRPRs include lichens, vascular, and non-vascular plants, and are defined as follows:

- CRPR 1A Plants considered extinct.
- CRPR 1B Plants rare, threatened, or endangered in California and elsewhere.
- CRPR 2A Plants considered extinct in California but more common elsewhere.
- CRPR 2B Plants rare, threatened, or endangered in California but more common elsewhere.
- CRPR 3 Plants about which more information is needed - review list.
- CRPR 4 Plants of limited distribution-watch list.

The CRPRs are further described by the following threat code extensions:

- .1—seriously endangered in California;
- .2—fairly endangered in California;
- .3—not very endangered in California.

Although the CNPS is not a regulatory agency and plants on these lists have no formal regulatory protection, plants appearing as CRPR 1B or 2 are, in general, considered to meet CEQA's Section 15380 criteria, and adverse effects on these species may be considered significant. Impacts on plants that are listed by the CNPS as CRPR 3 or 4 are also considered during CEQA review, although because these species are typically not as rare as those of CRPR 1B or 2, impacts on them are less frequently considered significant.

Compliance with CEQA Guidelines Section 15065(a) requires consideration of natural communities of special concern, in addition to plant and wildlife species. Vegetation types of "special concern" are tracked in Rarefind (CNDDB 2021). Further, the CDFW ranks sensitive vegetation alliances based on their global (G) and state (S) rankings analogous to those provided in the CNDDB. Global rankings (G1–G5) of natural communities reflect the overall condition (rarity and endangerment) of a habitat throughout its range, whereas S rankings reflect the condition of a habitat within California. If an alliance is marked as a G1–G3, all the associations within it would also be of high priority. The CDFW provides the Vegetation Classification and Mapping Program's currently accepted list of vegetation alliances and associations (CDFG 2010a).

Project Applicability: All potential impacts on biological resources will likely be considered during CEQA review of any proposed project. This Biological Resources Report assesses these impacts to facilitate project planning and CEQA review of a project by the City. Project impacts are discussed in Section 6 below.

3.2.4 California Fish and Game Code

Ephemeral and intermittent streams, rivers, creeks, dry washes, sloughs, blue line streams on USGS maps, and watercourses with subsurface flows fall under CDFW jurisdiction. Canals, aqueducts, irrigation ditches, and other means of water conveyance may also be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife. A *stream* is defined in Title 14, California Code of

Regulations Section 1.72, as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and that supports fish and other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation." Using this definition, the CDFW extends its jurisdiction to encompass riparian habitats that function as part of a watercourse. California Fish and Game Code Section 2786 defines *riparian habitat* as "lands which contain habitat which grows close to and which depends upon soil moisture from a nearby freshwater source." The lateral extent of a stream and associated riparian habitat that would fall under the jurisdiction of the CDFW can be measured in several ways, depending on the particular situation and the type of fish or wildlife at risk. At minimum, the CDFW would claim jurisdiction over a stream's bed and bank. In areas that lack a vegetated riparian corridor, CDFW jurisdiction would be the same as USACE jurisdiction. Where riparian habitat is present, the outer edge of riparian vegetation is generally used as the line of demarcation between riparian and upland habitats.

Pursuant to California Fish and Game Code Section 1603, the CDFW regulates any project proposed by any person that will "substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds." California Fish and Game Code Section 1602 requires an entity to notify the CDFW of any proposed activity that may modify a river, stream, or lake. If the CDFW determines that proposed activities may substantially adversely affect fish and wildlife resources, a Lake and Streambed Alteration Agreement (LSAA) must be prepared. The LSAA sets reasonable conditions necessary to protect fish and wildlife, and must comply with CEQA. The applicant may then proceed with the activity in accordance with the final LSAA.

Specific sections of the California Fish and Game Code describe regulations pertaining to protection of certain wildlife species. For example, Code Section 2000 prohibits take of any bird, mammal, fish, reptile, or amphibian except as provided by other sections of the code.

The California Fish and Game Code Sections 3503, 3513, and 3800 (and other sections and subsections) protect native birds, including their nests and eggs, from all forms of take. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "take" by the CDFW. Raptors (i.e., eagles, hawks, and owls) and their nests are specifically protected in California under Code Section 3503.5. Section 3503.5 states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto."

Bats and other non-game mammals are protected by California Fish and Game Code Section 4150, which states that all non-game mammals or parts thereof may not be taken or possessed except as provided otherwise in the code or in accordance with regulations adopted by the commission. Activities resulting in mortality of non-game mammals (e.g., destruction of an occupied nonbreeding bat roost, resulting in the death of bats), or disturbance that causes the loss of a maternity colony of bats (resulting in the death of young), may be considered "take" by the CDFW.

Project Applicability: Field surveys in 2018 and 2020 identified two biotic habitats which may be subject to CDFW jurisdiction under Sections 1600-1603 of the California Fish and Game Code. The habitats include the aquatic riverine habitat within the bed of Pilarcitos Creek, and riparian woodland adjacent to Pilarcitos Creek (Figure 5). Most native bird, mammal, and other wildlife species that occur in the BSA and in the immediate vicinity are protected by the California Fish and Game Code.

3.2.5 State Requirements to Control Construction-Phase and Post-construction Water Quality Impacts

3.2.5.1 Construction Phase

Projects in California must comply with state requirements to control the discharge of storm water pollutants under the National Pollutant Discharge Elimination System (NPDES) Statewide Storm Water Permit (SWRCB Order No. 2014-0077-DWQ, as amended) and the Statewide Construction General Permit (SWRCB Order No. 2009-0009-DWQ, as amended). Prior to the start of construction/demolition, a Notice of Intent must be filed with the SWRCB describing the project. A Storm Water Management Plan (SWMP) must be developed and maintained during the project and must include the use of best management practices (BMPs) to protect water quality until the site is stabilized.

Standard permit conditions under these permits require that the applicant utilize various measures, including on-site sediment control BMPs, damp street sweeping, temporary cover of disturbed land surfaces to control erosion during construction, and utilization of stabilized construction entrances and/or wash racks. Additionally, both the Construction General Permit and Statewide Storm Water Permit do not extend coverage to projects if stormwater discharge-related activities are likely to jeopardize the continued existence, or result in take of any federally listed endangered or threatened species.

Project Applicability: The project will comply with the NPDES Statewide Storm Water Permit and Statewide Construction Permit; thus, construction-phase activities would not result in detrimental water quality effects on biological/regulated resources.

3.2.5.2 Post-construction Phase

In many Bay Area counties, including San Mateo County, projects must also comply with the San Francisco Bay RWQCB's Municipal Regional Stormwater NPDES Permit (Water Board Order No. R2-2009-0074, as amended). These policies, which are in line with the Statewide Storm Water Permit measures, require that all projects implement BMPs and incorporate Low Impact Development practices into project design that will prevent stormwater runoff pollution, promote infiltration, and hold/slow down the volume of water coming from a site. In order to meet these permit and policy requirements, projects must incorporate features such as increased pervious surfaces, installing tree planters, grassy swales, and bioretention or detention basins.

Project Applicability: The project will comply with the Municipal Regional Stormwater NPDES Permit and the NPDES Statewide Storm Water Permit requirements. Therefore, post-construction activities would not result in detrimental water quality effects on biological/regulated resources.

3.2.6 California Coastal Act

The California Coastal Act of 1976, administered by the California Coastal Commission, was created to provide long-term protection of California's 1,100-mile coastline for the benefit of future generations. Integral to the Coastal Act are its policies which provide for protection and expansion of public access to the shoreline and recreational opportunities and resources; protection, enhancement and restoration of environmentally sensitive habitats, including intertidal and nearshore waters, wetlands, bays, estuaries, riparian habitat, certain woodlands and grasslands, streams, lakes and habitat for rare or endangered plants or animals; protection of productive agricultural lands, commercial fisheries and archaeological resources; protection of the scenic beauty of coastal landscapes and seascapes; practical establishment of urban-rural boundaries and directing new housing and other development into areas with adequate services to avoid wasteful urban sprawl and leapfrog development; environmentally sound expansion of existing industrial ports and electricity-generating power plants, as well as for the siting of coastal dependent industrial uses; and protection against loss of life and property from coastal hazards.

The following are definitions given for specific ecological features that fall within the purview of the California Coastal Act: §30121 defines a wetland as: lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, or fens; Commission Regulation §13577(b) elaborates: wetlands are lands where the water table is at near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent or drastic fluctuation of surface water levels, wave action, water flow, turbidity or high concentrations of salt or other substance in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year and their location within, or adjacent to, vegetated wetlands or deep-water habitats…; §30107.5 defines an Environmentally Sensitive Habitat Area as any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.

Under the Coastal Act, local governments that lie in whole or in part within the Coastal Zone are required to prepare Local Coastal Programs (LCPs; Cal. Pub. Res. Code §30500). LCPs identify the location, type, densities, and other ground rules for future development in the coastal zone. Each LCP includes a land-use plan and its implementing measures. The Coastal Commission helps shape each LCP and then formally reviews them for consistency with Coastal Act standards. Once finalized, coastal permitting authority is transferred to the local government, with the exception of proposed development on the immediate shoreline, which stays with the Commission. In developing an LCP, a local government may choose to recognize specific botanical or wildlife resources as locally rare and that therefore garner protection.

Project Applicability: The entire BSA is within the Coastal Zone and subject to the City of Half Moon Bay Local Coastal Program. Projects approved by the City of Half Moon Bay under its LCP within Coastal Commission Appeals Jurisdiction are appealable to the Coastal Commission. The site is within the CCC Appeals Jurisdiction. See below for more details.

3.3 Local

3.3.1 City of Half Moon Bay Local Coastal Program Land Use Plan

Under the California Coastal Act, the California Coastal Commission (CCC) regulates development in the coastal zone, including land and water use. Any activities within the coastal zone that affect aquatic resources, including wetlands, require a coastal development permit from either the CCC or a certified Local Coastal Program (LCP; Division 20 of the Public Resources Code). The CCC is responsible for protecting coastal resources and assessing potential impacts on wetlands and other waters subject to regulation under the California Coastal Act (Sections 30330-30344). The BSA is within the jurisdiction of Half Moon Bay's LCP. The City recently updated its LCP (City of Half Moon Bay 2020); it was adopted by the City Council in October 2020 and certified by the CCC in April 2021. Projects approved by the city of Half Moon Bay under its LCP within the Coastal Commission Appeals Jurisdiction are appealable to the Coastal Commission. The site is within the CCC Appeals Jurisdiction.

City of Half Moon Bay Environmentally Sensitive Habitat Areas (ESHAs). The City of Half Moon Bay LCP Land Use Plan (2020) includes provisions for protection of Environmentally Sensitive Habitat Areas (ESHAs). More specifically, The Half Moon Bay LCP prohibits any land use or development that would have significant adverse impact on sensitive habitat areas. Development in areas adjacent to sensitive habitats shall be sited and designated to prevent impacts that could significantly degrade the sensitive habitats. Section 18.38 of the Half Moon Bay Municipal Code (City of Half Moon Bay 2021) defines sensitive habitats as any area in which plant or animal life or their habitats are either rare or especially valuable and any area that meets one of the following criteria:

- Habitats containing or supporting rare and endangered species as defined by the State Fish and Game Commission.
- All perennial and intermittent streams and their tributaries.
- Riparian areas.
- Wetlands, coastal tidelands and marshes, lakes and ponds and adjacent shore habitats.
- Coastal and offshore areas containing breeding or nesting sites and coastal areas used by migratory and resident water-associated birds for resting areas and feeding, including sea cliff faces.
- Areas used for scientific study and research concerning fish and wildlife, and existing game or wildlife refuges and reserves.

- Sand dunes.
- Marine habitats, including rocky intertidal zones.
- Sea cliffs.

Wetlands are broadly defined in Section 30121 of the California Coastal Act: "Lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, or fens."

The Coastal Commission provides further specificity in their wetlands definitions to guide the process of wetland delineation. The CCC's regulations (California Code of Regulations Title 14 (14 CCR)) establish a one parameter definition that only requires evidence of a single parameter (hydrology, hydric soils, or hydophytic vegetation) to establish wetland conditions:

"Wetlands shall be defined as land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent or drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salt or other substance in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year and their location within, or adjacent to, vegetated wetlands or deep-water habitats."

In contrast to the single-parameter definition that requires evidence of only one of three wetland indicators (hydrophytic vegetation, hydric soils, or saturated substrate), the USACE uses a three parameter definition that requires evidence of all three wetland indicators in order to classify an area as wetland. As a result, more areas qualify as wetlands under the Coastal Act than under the federal Clean Water Act. The LCP is consistent with the Coastal Act, and therefore uses the single-parameter definition.

The City of Half Moon Bay LCP defines "Riparian Area and Corridor" as an association of primarily native riparian plant and animal species within or adjacent to a watercourse. The boundary of a riparian corridor is defined by the limit of riparian vegetation or top of bank, or other confining topography, whichever is greater. The limit of riparian vegetation is determined by the drip line of canopy trees or the limit of riparian shrubs or herbaceous vegetation. This vegetation is generally interconnected by surface or subsurface flow within the watercourse. Within these boundaries, the intent of the LCP is to protect the ecosystem and any wildlife species it supports as whole, including the understory and emergent vegetation, the soil microbiology, and the water itself.

The LCP includes many measures to protect riparian habitat in Chapter 6, and defines a buffer of 50 feet outward from the limit of riparian vegetation along perennial streams or 100 feet from top of bank, whichever is greater (6-17 (a)) (Figure 5).

Project Applicability: The BSA is within the jurisdiction of the Half Moon Bay LCP and within the Coastal Zone. In accordance with the Coastal Act, many different types of projects including subdivisions, road extensions, grading, design review, and conditional use permits may require a Coastal Development Permit (CDP) to ensure that development within the Coastal Zone is consistent with all Local Coastal Program policies and the public access and public recreation policies of the Coastal Act. Field surveys in 2018 and 2020 identified four potential ESHAs which may be subject to jurisdiction under the Half Moon Bay LCP. These potential ESHAs include a perennial aquatic riverine habitat in the bed of Pilarcitos Creek, a perennial freshwater marsh, riparian woodland associated with Pilarcitos Creek, and riparian woodland (based on species composition, not due to being adjacent to a stream) adjacent to the perennial freshwater marsh impoundment.

3.3.2 Half Moon Bay Protected Trees

The City of Half Moon Municipal Code contains regulations protecting heritage trees. According to Chapter 7.40 a "heritage tree" means:

- A tree located on public or private property, exclusive of eucalyptus, with a trunk diameter of twelve inches or more, or a circumference of at least thirty-eight inches measured at forty-eight inches above ground level.
- A tree or stand of trees so designated by resolution of the city council based on its finding of special historical, environmental or aesthetic value, including a resolution adopted under former Chapter 12.16 of the City of Half Moon Bay Zoning Code.
- A tree located within the public right-of-way along the entire length of Main Street or along Kelly Avenue between San Benito Street and Highway 1. (Ord. C-2013-02 §1, 2013: Ord. C-2-12 §5, 2012: Ord. C-10-11 §1(part), 2011)

The removal of one or more heritage trees or major pruning as described in Section 7.40.040 requires a permit pursuant to procedures established by the city manager and requires the payment of a fee established by the city council. Additionally, the removal of a heritage tree pursuant to a permit issued under this chapter shall be replaced on a one-for-one basis with a minimum size twenty-four-inch-box specimen tree of a species and in a location approved by the city manager or his or her designee (Ord. C-10-11 §1(part), 2011).

Project Applicability: The BSA potentially includes heritage trees. Species include planted Monterey cypress (*Hesperocyparis macrocarpa*) and planted Monterey pine (*Pinus radiata*), mainly along the western edge of the BSA. Over 100 trees are present on the site; determining the heritage status of individual trees based on trunk size was not within the scope of this report. During detailed design of the project, removal of trees protected by the City heritage tree ordinance will be avoided and minimized to the extent feasible. Where removal of trees cannot be avoided, the project proponent will comply with the standards of the City heritage tree ordinance, including the planting of replacement trees where feasible and approval from the City Manager.

Section 4. Environmental Setting

4.1 General Biological Study Area Description

The approximately 21-acre (ac) project site is the site of a former plant nursery. A man-made impoundment is located in the northwest corner of the site. Additionally, there is infrastructure present from former nursery operations, including several unused dilapidated buildings, areas with black ground plastic (adjacent to the riparian woodland along Pilarcitos Creek), several vaulted culverts, concrete-lined ditches, and irrigation pumps and pipes. During the June 2018 site visit, a large portion of the grassland had been recently mowed. Also, sections of the grassland were covered in wood chips. As such, the ground cloths and mulch inhibit vegetation growth. The BSA is bounded on the west by high-density development associated with the City of Half Moon Bay; on the north by SR 92, a heavily used road between Half Moon Bay and Interstate 280; on the east, between SR 92 and Pilarcitos Creek, and on both sides of Pilarcitos Creek, by various small agricultural parcels with associated infrastructure and development; and on the south by agricultural parcels along Pilarcitos Creek that opens to rural land, with the Miramontes Ridge Open Space Reserve to the southeast.

The climate at the BSA is coastal Mediterranean, with most rain falling in the winter and spring. Fog and cool temperatures are common in the summer. The mean annual precipitation for the Half Moon Bay area is 28.98 inches with the majority of the rainfall occurring between the months of November and April. (WorldClimate.com 2021). Elevations within the BSA range from approximately 60 ft) to 110 ft above sea level (WGS84) (Google, Inc. 2021).

4.2 Hydrology

Pilarcitos Creek, a 13.5-mile perennial stream that flows from the western slopes of the Santa Cruz Mountains through Pilarcitos Canyon and discharges into the Pacific Ocean, meanders through the southern edge of the BSA. The creek drains approximately 30 square miles and has numerous tributaries. The BSA is approximately 1.7 mi upstream from the mouth of the creek.

A manmade impoundment approximately 200 ft by 110 ft is located in the northwest corner of the BSA. The impoundment is a raised earthen embankment design and sits at an elevation of 114 ft (WGS84). Water was previously pumped into this impoundment from Pilarcitos Creek to be used by the nursery for its operations (H. T. Harvey & Associates and RMC 2010). The pump appears to be currently inactive. However, the impoundment continues to hold water and extensive emergent vegetation and is classified as perennial freshwater marsh habitat.

4.3 Soils

Based on a review of available soil survey maps for the area including those by the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS), the BSA is generally comprised of coarse sandy loam soils adjacent to Pilarcitos Creek, such as the Farallone soil series, and grade to finer textured clay loams, such as the Tierra soil series, upslope to SR 92 (NRCS 2021a). Soils across the BSA are generally greater than 60 inches in depth with the exception of areas in the northeastern portion of the site containing Gazos (GoF3 and Gv) soils, which are less than 30 inches to a root-restrictive layer. The Farallone loam, nearly level, Gullied land, Gullied land (Gazos-Lobitos soil material), and Tierra clay loam, moderately steep, eroded soil series (totaling 12.3 acres) are listed as hydric in San Mateo County on the National Hydric Soils List (NRCS 2021b). There are eight major soil series within the BSA and are summarized in Table 1 below:

Table 1. Soils within the Project Site

Soil Series	Acreage	Hydric
Farallone loam, nearly level (FaA)	8.8	Yes
Tierra loam, steep, severely eroded (TeE3)	3.1	No
Farallone coarse sandy loam, moderately steep, eroded (FcD2)	4.5	No
Gazos and Lobitos soils, steep and very steep, severely eroded(GoF3)	1.3	No
Gullied land (alluvial soil material; Gu)	1.7	Yes
Tierra loam, sloping, eroded (TeC2)	1.1	Yes
Gullied land (Gazos-Lobitos soil material; Gv)	0.7	Yes
Tierra clay loam, moderately steep, eroded (TcD2)	0.1	No

4.4 Biotic Habitats

Reconnaissance-level surveys identified six habitat types/land uses in the BSA/project site (Figure 5): ruderal grassland, developed/landscaped, riparian woodland, perennial freshwater marsh, aquatic riverine, and non-native woodland. These habitat types are depicted in Figure 5, and the acreages of each habitat type within the larger BSA and in the project boundaries are provided in Table 2. These habitats are described in detail below, and plant species observed during the reconnaissance survey are listed in Appendix A.

Table 2. Habitat Types/Land Uses in the Biological Study Area and Project Site

Habitat Type	BSA	Project Site
Ruderal Grassland	17.40	14.27
Developed/Landscaped	17.62	3.44
Riparian Woodland	6.92	2.61
Non-native Woodland	1.62	0.00
Aquatic Riverine	0.48	0.24
Perennial Freshwater Marsh	0.38	0.38

Total	44.42	20.94

4.4.1 California Annual Grassland

Vegetation. Ruderal (i.e., disturbed) annual grassland habitat occupies most of the BSA (Photo 1). At the time of the reconnaissance survey, this habitat was dominated by non-native grasses and forbs such as wild oat (*Avena* sp.), Italian rye grass (*Festuca perennis*), ripgut brome (*Bromus diandrus*), Italian thistle (*Carduus pycnocephalus*), bristly ox-tongue (*Helminthotheca echioides*) and Chile tarweed (*Madia sativa*). Of these, Italian rye-grass and bristly ox-tongue are technically scored as facultative hydrophytes (Lichvar et al. 2016), or plants that sometimes occur in wetlands and sometimes occur in uplands, and both can potentially indicate moist conditions. However, Italian rye-grass often dominates upland areas as well, especially along the coast where frequent fog occurs, without indicating wetlands, and bristly ox-tongue is an invasive weed that can simply indicate disturbance and infestation. Additionally, there were scattered small patches of other facultative hydrophytic vegetation, including curly dock (*Rumex crispus*), poison hemlock (*Conium maculatum*), and bird's foot trefoil (*Lotus corniculatus*), all occurring in upland habitat positions and intermixed with upland grassland species. Similarly, scattered arroyo willow (*Salix lasiolepis*) and red alder (*Alnus rubra*) occur in the grassland in upland areas, and likely were able to establish due to irrigation, as no indicators of hydric soils or wetland hydrology occur in these areas. Many of the non-native species present on site are ranked as moderately invasive by the California Invasive Plant Council (Cal-IPC 2021). For example, Italian thistle has substantial and apparent, but not severe ecological impacts on physical processes, plant and animal communities, and vegetation structure (Cal-IPC 2021).



Photo 1. Ruderal grassland occurs in most of the BSA.

Wildlife. Wildlife use of California annual grasslands in the BSA is limited by frequent human disturbance, an abundance of non-native and invasive species, and isolation of the grassland habitat remnants from more extensive grasslands. As a result, wildlife species associated with more extensive grasslands, such as the grasshopper sparrow (*Ammodramus savannarum*) and western meadowlark (*Sturnella neglecta*), are absent from the small patches of grassland in the BSA. Most of the bird species using this habitat during the breeding season most likely nest in nearby landscaped, freshwater marsh, or riparian areas, using the California annual grassland only for foraging. Such species include the mourning dove (*Zenaida macroura*), lesser goldfinch (*Spinus psaltria*), dark-eyed junco (*Junco hyemalis*), American crow (*Corvus brachyrhynchos*), and Brewer's blackbird (*Euphagus cyanocephalus*). Similarly, a few species nesting on nearby buildings, such as the barn swallow (*Hirundo rustica*), rock pigeon (*Columba livia*), black phoebe (*Sayornis nigricans*), and European starling (*Sturnus vulgaris*), also forage on or over the California annual grassland habitat. Several other species of birds use the California annual grassland during the nonbreeding season. These species, which include the golden-crowned sparrow (*Zonotrichia*

atricapilla), savannah sparrow (*Passerculus sandwichensis*), and white-crowned sparrow (*Zonotrichia leucophrys*), forage on the ground or in herbaceous vegetation, primarily for seeds.

Few species of reptiles and amphibians occur in the California annual grassland in the BSA due to its disturbed nature and low habitat heterogeneity. Nevertheless, reptiles such as the western fence lizard (*Sceloporus occidentalis*) and gopher snake (*Pituophis melanoleucus*) occur in this habitat type, and amphibians such as the Pacific chorus frog (*Hyliola regilla*) and western toad (*Anaxyrus boreas*), which might breed in the perennial freshwater marsh in the BSA, might also forage here. Small mammals expected to be present include the native western harvest mouse (*Reithrodontomys megalotis*) and nonnative house mouse (*Mus musculus*), Norway rat (*Rattus norvegicus*), and black rat (*Rattus rattus*). Small burrowing mammals, such as the Botta's pocket gopher (*Thomomys bottae*) and California ground squirrel (*Spermophilus beecheyi*), are likely present, and larger mammals, such as the striped skunk (*Mephitis mephitis*), Virginia opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), and black-tailed jackrabbit (*Lepus californicus*) are also likely to occur here.

4.4.2 Developed/Landscaped

Vegetation. Developed/landscaped habitat includes areas where permanent structures and/or pavement have been placed along with planted landscaping. Such landscaping includes native Monterey pine and Monterey cypress trees. However, these trees have been installed as part of a landscape plan and do not naturally occur on site. The developed/landscaped habitat type occurs along the northeastern edge of the BSA and consists of several buildings, Conex storage containers, and dirt parking areas. The buildings are in active use by the City of Half Moon Bay (Photo 2). Additionally, there are several unused dilapidated structures, including unused concrete channels and culverts present within the grassland and adjacent to the riparian habitat. The landscaping occurs along the west, east, and north perimeters of the BSA and is dominated by up to 200 planted Monterey cypress and Monterey pine trees.



Photo 2. Developed/landscaped habitat in the northeast corner of the BSA.

Wildlife. The wildlife most often associated with developed/landscaped areas are those that are tolerant of periodic human disturbances, including introduced species such as the European starling, rock pigeon, house mouse, Norway rat, and black rat. Numerous common, native species are also able to utilize these habitats, especially the landscaped areas, including the western fence lizard, striped skunk, and a variety of birds, such as the American crow, Anna's hummingbird (*Calypte anna*), California towhee (*Melozone crissalis*), bushtit (*Psaltriparus minimus*), and California scrub-jay (*Aphelocoma californica*). In addition, unused dilapidated structures present within the grassland and adjacent to the riparian habitat, may be attractive to other nesting and/or roosting bird species in the area, such as the black phoebe. Further, the several Monterey cypress and Monterey pine trees

along the around the west, east, and north perimeters of the BSA may provide suitable nesting habitat for raptors, such as red-tailed hawks (*Buteo jamaicensis*). An examination of trees and structures in the BSA did not detect any large cavities that might provide suitable bat roosting habitat. Therefore, large roosting or maternity colonies of bats are not expected to occur in the BSA.

4.4.3 Riparian Woodland

Vegetation. Riparian woodland habitat is found along Pilarcitos Creek and around the perennial freshwater marsh. Trees observed in the riparian woodland habitat along Pilarcitos Creek include arroyo willow, red willow (*Salix laevigata*), red alder, and blue gum (*Euclayptus globulus*). The understory is an impenetrable thicket of Himalayan blackberry (*Rubus armeniacus*), cape ivy (*Delairea odorata*), poison hemlock, common horsetail (*Equisetum arvense*), French broom (*Genista monspessulana*), hoary nettle (*Urtica dioica* ssp. *holosericea*), bristly ox-tongue, pampass grass (*Cortaderia jubata*), and Italian rye grass (Photo 3).



Photo 3. Riparian habitat along Pilarcitos Creek (in the background), which runs along the entire southern edge of the BSA.

The dominant tree in the riparian woodland surrounding the perennial freshwater marsh is arroyo willow (*Salix lasiolepis*). While this area is not adjacent to a flowing watercourse or associated with a bed and banks drainage, the species composition is similar to nearby riparian woodland along Pilarcitos Creek and most resembles a riparian woodland habitat as described in the City's LCP (2020). Species observed in the understory include poison hemlock, Italian rye grass, Himalayan blackberry, pampass grass, Italian thistle, and common velvetgrass (*Holcus lanatus*).

Many of these non-native forb species are ranked as highly or moderately invasive by the California Invasive Plant Council (Cal-IPC 2021). For example, cape ivy, pampas grass, French broom, and Himalayan blackberry are classified as highly invasive and have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Species such as poison hemlock, Italian thistle, and common velvetgrass are classifies as moderately invasive and have substantial and apparent, but not severe ecological impacts on physical processes, plant and animal communities, and vegetation structure (Cal-IPC 2021).

Wildlife. The riparian woodland provides suitable nesting habitat for a variety of common, resident bird species such as the California scrub-jay, American robin (*Turdus migratorius*), American crow, lesser goldfinch, and bushtit. Numerous species of migratory birds also use this riparian woodland. These include species such as

the black-headed grosbeak (*Pheucticus melanocephalus*), Wilson's warbler (*Cardellina pusilla*), and Swainson's thrush (*Catharus ustulatus*) that breed in this habitat but migrate south for winter, and the ruby-crowned kinglet (*Regulus calendula*), Townsend's warbler (*Setophaga townsendi*), and hermit thrush (*Catharus guttatus*) that occur here only in winter. The red-shouldered hawk (*Buteo lineatus*) and Cooper's hawk (*Accipiter cooperii*) may use larger trees along the riparian woodland corridors for nesting. However, no old raptor nests were detected within the riparian woodland habitat during the reconnaissance survey.

Arboreal salamanders (*Aneides lugubris*), western fence lizards, and western skinks (*Eumeces skiltonianus*) are expected to occur in riparian habitat in the BSA. Additional wildlife species that are common within riparian woodland areas in urban settings include the striped skunk and raccoon, and the non-native Virginia opossum and eastern gray squirrel (*Sciurus carolinensis*), all of which may use the trees for roosting, foraging, and nesting opportunities. Individual bats may be attracted to riparian areas to roost in trees. However, examination of the trees along the banks of Pilarcitos Creek and in the BSA did not detect any large cavities that might provide suitable habitat for a large roosting or maternity colony of bats.

4.4.4 Perennial Freshwater Marsh

Vegetation. The perennial freshwater marsh occurs within an impoundment in the northwest corner of the BSA. The impoundment was constructed between 1987 and 1991 (Google Inc. 2021; NETR 2021), used for irrigation purposes, and was filled by an on-site water pump (Photo 4). At the time of the site visit, the water pump appeared non-functional and is not likely used to currently pump water into the marsh. Thus, the hydrology that feeds the marsh is likely a combination of a groundwater table and surface runoff. The marsh was ponded during the site visits at a depth of approximately 2 ft, and was dominated by common cattail (*Typha latifolia*). Based on the berms enclosing the impoundment, maximum ponding depth is approximately 4 ft, though without water being pumped into the basin it is likely that it does not pond at that depth currently. Other species observed include duckweed (*Lemna* sp.), rabbitsfoot grass (*Polypogon monspeliensis*), and tall flatsedge (*Cyperus eragrostis*). The marsh is surrounded by riparian woodland (see Section 4.4.3 above), and is fenced off from the rest of the parcel.



Photo 4. Dense cattail-dominated perennial freshwater marsh in the west side of the BSA. Riparian habitat surrounds the marsh.

Wildlife. Normally, the presence of a perennial freshwater marsh on a site would provide habitat for a diverse suite of wetland-associated wildlife species. However, the relatively small size, scarcity of open water, and dynamic ponding depth of the perennial freshwater marsh in the BSA preclude many wetland and aquatic

wildlife species from using these features. Waterbirds such as ducks, gulls, and terns are not expected to occur in this freshwater perennial marsh. Similarly, passerine birds associated with more extensive wetlands, such as the marsh wren (*Cistothorus palustris*), are not expected to nest here, although the San Francisco common yellowthroat (*Geothlypis trichas sinuosa*) could nest in this marsh. Amphibians such as the Pacific chorus frog, western toad, and the federally threatened California red-legged frog may breed here, and the federally and state endangered San Francisco garter snake may forage here. Terrestrial species that occur in adjacent habitats, such as house finches (*Haemorhous mexicanus*), bushtits, yellow-rumped warblers (*Setophaga coronata*), black phoebes, and sparrows, will forage occasionally in the freshwater wetland vegetation.

4.4.5 Aquatic Riverine

Vegetation. Within the BSA, Pilarcitos Creek is a perennial freshwater stream with a connection to groundwater. It flows overland through the southern portion of the BSA (Photo 5). It originates approximately 12 mi northeast of the BSA on the eastern flanks of Montara Mountain in the Santa Cruz Mountains, then flows south through Pilarcitos Canyon before turning westward to enter the BSA. The creek exits the BSA near the southwestern boundary and discharges into the Pacific Ocean approximately 1.7 mi downstream of the BSA. Within the BSA, Pilarcitos Creek flows through dense riparian woodland and provides unvegetated aquatic habitat. Pilarcitos Creek has been identified as a USGS blue-line stream course as well as a USFWS palustrine resource, and as of June of 2018 and 2019, was flowing up to 10 inches (in) deep within a 6-ft wide channel.



Photo 5. Pilarcitos Creek, which runs through the BSA along the southern boundary.

Wildlife. The aquatic habitat within Pilarcitos Creek supports native fish species such as the California roach (*Hesperoleucus symmetricus*), hardhead (*Mylopharodon conocephalus*), and threespine stickleback (*Gasterosteus aculeatus*). In addition, the federally threatened Central California Coast steelhead and California red-legged frog, and federally and state endangered San Francisco garter snake have been documented within Pilarcitos Creek (CDFW 2013, CNDDB 2021). Pacific chorus frogs, California newts (*Taricha torosa*), western pond turtles (*Actinemys marmorata*), non-native bullfrogs (*Lithobates catesbeianus*) and crayfish (*Pacifastacus leniusculus*) may be present in the creek, and birds such as the green heron (*Butorides virescens*), and belted kingfisher (*Ceryle alcyon*) likely forage in the creek. Bats forage aerially on insects over Pilarcitos Creek. During the reconnaissance survey, two unidentified species of bat were observed foraging amongst the trees along the edge of the channel, just upstream from the BSA.

Section 5. Special-Status Species and Sensitive Habitats

CEQA requires assessment of the effects of a project on species that are protected by state, federal, or local governments as "threatened, rare, or endangered"; such species are typically described as "special-status species". For the purpose of the environmental review of the project, special-status species have been defined as described below. Impacts on these species are regulated by some of the federal, state, and local laws and ordinances described in Section 3.0 above.

For purposes of this analysis, "special-status" plants are considered plant species that are:

- Listed under FESA as threatened, endangered, proposed threatened, proposed endangered, or a candidate species.
- Listed under CESA as threatened, endangered, rare, or a candidate species.
- Listed by the CNPS as CRPR 1A, 1B, 2, 3, or 4.

For purposes of this analysis, "special-status" animals are considered animal species that are:

- Listed under FESA as threatened, endangered, proposed threatened, proposed endangered, or a candidate species.
- Listed under CESA as threatened, endangered, or a candidate threatened or endangered species.
- Designated by the CDFW as a California species of special concern.
- Listed in the California Fish and Game Code as fully protected species (fully protected birds are provided in Section 3511, mammals in Section 4700, reptiles and amphibians in Section 5050, and fish in Section 5515).

Information concerning threatened, endangered, and other special-status species that potentially occur in the BSA was collected from several sources and reviewed by H. T. Harvey & Associates biologists as described in Section 2.1 above. Figure 3 depicts CNDDB records of special-status plant species in the general vicinity of the BSA and Figure 4 depicts CNDDB records of special-status animal species. These generalized maps show areas where special-status species are known to occur or have occurred historically.

5.1 Special-Status Plant Species

A list of 73 special-status plant species thought to have some potential for occurrence within the BSA was compiled using the CNPS rare plant inventory (CNPS 2021) and CNDDB records (CNDDB 2021). Analysis of the documented habitat requirements and occurrence records of these plants, and our plant ecologist's knowledge of sensitive species considered, allowed us to reject 72 of the 73 species as not having a reasonable potential to occur within the BSA for at least one of the following reasons: (1) lack of suitable habitat types; (2) absence of specific microhabitat or edaphic requirements, such as serpentine soils; (3) the species is presumed

extirpated or is not expected to occur in the Project vicinity due to range; and/or (4) the site is too disturbed to be expected to support the species. As the BSA is largely composed of historically manipulated agricultural land, as well as areas with little habitat value (developed land cover), the BSA does not have the capacity to support most special-status plants. Additionally, large sections of the BSA appear to be covered with wood chips as well as regularly mowed. The CNDDB shows records for the CNPS-ranked species coastal marsh milk-vetch (*Astragalus pycnostachyus* var. *pycnostachyus*), Kellogg's horkelia *(Horkelia uneate* subsp. *sericea*), Choris's popcorn-flower (*Plagiobothrys chorisianus var. chorisianus*), Kings Mountain manzanita (*Arctostaphylos regismontana*), Anderson's manzanita (*Arctostaphylos andersonii*), Franciscan onion (*Allium peninsulare* var. *franciscanum*), western leatherwood (*Dirca occidentalis*), and Crystal Springs lessingia (*Lessingia arachnoidea*) occurring within 5 miles of the BSA. However, no suitable salt marsh habitat (coastal marsh milk-vetch), coastal prairie habitat (Choris's popcorn-flower), scrub or chaparral habitat or sandy soils (manzanita species and Kellogg's horkelia), or serpentine soils (Franciscan onion, Crystal Springs lessingia) occur within the BSA, and the site is too disturbed to support western leatherwood, which was also not observed on site during reconnaissance surveys. Therefore, despite nearby records, all of these species are considered absent from the BSA.

Appendix B lists these plants along with the basis for the determination of absence. Suitable habitat and edaphic requirements were determined to be present in the BSA for one plant species, Harlequin lotus (*Hosackia gracilis*), which is discussed in detail below.

Harlequin lotus, CNPS List: 4.2. Harlequin lotus is a perennial rhizomatous herb in the legume (Fabaceae) family that occurs in wetlands, wet roadside ditches, and mesic areas in many plant communities (CNPS 2021); therefore, this species could occur within the perennial freshwater marsh and surrounding riparian woodland, the riparian woodland along Pilarcitos Creek, the ephemeral ditch, and possibly mesic areas within the California annual grassland. However, it was not observed during the field-level reconnaissance survey conducted in June 2018 at the height of its bloom period. It has a CRPR of 4.2 (i.e., watch list for plants of limited distribution or are infrequent throughout a broader area in California; moderately threatened in California). It is known mainly from coastal areas as far north as Del Norte County and as far south as San Luis Obispo County. It is threatened by development, grazing, feral pigs, habitat alteration, and competition. This species is thought to be a larval food plant of the federally endangered lotis blue butterfly (*Lycaeides argyrognomon* ssp. *lotis*). Within San Mateo County, recent recorded occurrences are from coastal prairie and coastal scrub habitats within Año Nuevo State Park as well as McNee Ranch State Park., near Montara. The blooming period for this species extends from March through July. Although this species was not observed during its blooming period during reconnaissance surveys, the dense riparian woodland provides at least marginally suitable habitat on the lower banks. A focused survey would be necessary to definitively confirm presence of absence, though such a survey is necessary only if an LCP-compatible use is proposed within the riparian corridor.

5.2 Special-Status Animal Species

The legal status and likelihood of occurrence in the BSA of special-status animal species known to occur, or potentially occurring, in the region of the BSA are presented in Appendix C. Most of the special-status species

listed in Appendix C are not expected to occur in the BSA because it lacks suitable habitat, is outside the known range of the species, and/or is isolated from the nearest known extant populations by development or otherwise unsuitable habitat. Animal species not expected to occur in the BSA for these reasons include the Bay checkerspot butterfly (*Euphydryas editha bayensis*), mission blue butterfly (*Plebejus icarioides missionensis*), Myrtle's silverspot butterfly (*Speyeria zerene myrtleae*), San Bruno elfin butterfly (*Callophrys mossii bayensis*), Crotch bumble bee (*Bombus crotchii*), western bumble bee (*Bombus occidentalis*), Delta smelt (*Hypmesus transpacificus*), longfin smelt (*Spirinchus thaleichthys*), tidewater goby (*Eucyclogobius newberryi*), California giant salamander (*Dicamptodon ensatus*), California tiger salamander (*Ambystoma californiense*), foothill yellow-legged frog (*Rana boylii*), Santa Cruz black salamander (*Aneides niger*), American badger (*Taxidea taxus*), salt marsh harvest mouse (*Reithrodontomys raviventris*), Alameda song sparrow (*Melospiza melodia pusillula*), bank swallow (*Riparia riparia*), burrowing owl (*Athene cunicularia*), and marbled murrelet (*Brachyramphus marmoratus*).

Six special-status animal species have the potential to occur in the BSA only as visitors, migrants, or transients, but are not expected to reside or breed, or occur in large numbers, or otherwise make substantial use of the BSA. These species include the monarch butterfly (*Danaus plexippus*), pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), American peregrine falcon (*Falco peregrinus anatum*), northern harrier (*Circus cyaneus*), and mountain lion.

Expanded descriptions are provided below for seven species that could potentially breed in the BSA or for which additional information is necessary due to the species' frequency or regularity of occurrence in the BSA.

5.2.1 Federal and State Endangered and Threatened Species

Central California Coast Steelhead (*Oncorhynchus mykiss irideus*). Federal Listing Status: Threatened; State Listing Status: None. The Central California Coast (CCC) steelhead DPS was listed as a threatened species on August 18, 1997 (NMFS 1997), and the threatened status was reaffirmed on January 5, 2006 (NMFS 2006). Critical habitat was designated for the CCC steelhead DPS on September 2, 2005 (NMFS 2005), and a final recovery plan was published in October 2016. Similar to CCC coho salmon, steelhead populations in many areas have declined due to degradation of spawning habitat, introduction of barriers to upstream migration, over-harvesting by recreational fisheries, and reduction in winter flows due to damming and spring flows due to water diversions (NMFS 1997). In addition, non-native fish species, such as striped bass (*Morone saxatilis*), common carp (*Cyprinus carpio*), and white catfish (*Ameiurus catus*), may pose risks to native steelhead populations through predation, competition, and habitat modification. Increasing predation pressure at river mouths and in the ocean from the growing California sea lion population is also posing significant risk to CCC steelhead.

Steelhead are found along the entire Pacific Coast of the United States. The CCC steelhead DPS includes all naturally spawned populations of steelhead in coastal streams from the Russian River (inclusive) to Aptos Creek (inclusive), and the drainages of San Francisco, San Pablo, and Suisun Bays eastward to Chipps Island at the confluence of the Sacramento and San Joaquin Rivers; and tributary streams to Suisun Marsh including Suisun

Creek, Green Valley Creek, and an unnamed tributary to Cordelia Slough (commonly referred to as Red Top Creek), exclusive of the Sacramento-San Joaquin River Basin of the California Central Valley.

Steelhead in the CCC DPS are winter-spawning steelhead, maturing in the ocean and spawning shortly after entering freshwater. Winter steelhead enter rivers and streams in the late fall and winter months when higher flows and associated lower water temperatures occur. Adult female steelhead will prepare a redd (or nest) in a gravel-bottomed, fast-flowing, well-oxygenated rivers and streams. Preferred streams typically support dense canopy cover that provides shade, woody debris, and organic matter, and are usually free of rooted or aquatic vegetation. The length of the incubation period is dependent on water temperature. Fry emerge from the gravel, and rear along the stream margins, moving gradually into pools and riffles as they grow larger. Young juveniles feed primarily on aquatic invertebrate drift.

In California, juveniles usually live in freshwater for 2 years (Barnhart 1986) with a range of one to 3 years (Shapovalov and Taft 1954, Busby et al. 1996) then smolt and migrate to the sea; because of this multi-year rearing time period, steelhead can only spawn in tributaries that maintain suitable temperature and other water quality parameters year-round. Most downstream smolt migration takes place between February and June. Fukushima and Lesh (1998) report the peak timing of steelhead smolt outmigration in Central California occurs in March, April, and May, while Barnhart (1986) reports most steelhead smolts in California enter the sea in March and April.

In a recent survey of coastal drainages south of San Francisco Bay, steelhead populations were either extinct or reduced in size from historical levels in at least half of the 168 surveyed mainstem streams and primary tributaries (Titus et al. in prep). In addition, only 14 percent of the streams had steelhead present where there was no discernible, significant change from historical production levels. Steelhead in most tributaries to San Francisco and San Pablo bays have been virtually extirpated (McEwan and Jackson 1996).

CCC Steelhead are known to occur in Pilarcitos Creek (CDFW 2013, CNDDB 2021); however, passage upstream is impeded at multiple culverts, and the Pilarcitos Creek Watershed Assessment Plan identified the majority of habitat in the watershed to be in "poor" condition (Phillip Williams & Associates 2008). Opportunities to protect and restore fish passage and habitat connectivity within the watershed, such as road crossing improvements, have been developed and are being implemented under the watershed assessment plan. This effort could improve habitat conditions and increase the local presence of adult and juvenile CCC steelhead.

Habitat conditions in the BSA are suitable to support freshwater migration of adult and juvenile CCC steelhead. The BSA does not support suitable habitat for spawning, rearing, or feeding during most times of the year due to the lack of channel complexity, gravels, or connectivity with an adjacent floodplain. As a result, steelhead are only present in the section of Pilarcitos Creek in the BSA during upstream and downstream migration, which occurs late fall into spring.

Designated critical habitat for CCC steelhead includes aquatic habitat within the BSA (NMFS 2005). One of the primary constituent elements (PCEs) of critical habitat essential to the conservation of the species is present within the BSA. This PCE consists of freshwater migration corridors free of obstruction with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival. These features are essential to conservation because without them juveniles cannot use the variety of habitats that allow them to avoid high flows, avoid predators, successfully compete, begin the behavioral and physiological changes needed for life in the ocean, and reach the ocean in a timely manner. Similarly, these features are essential for adults because they allow fish in a nonfeeding condition to successfully swim upstream, avoid predators, and reach spawning areas on limited energy stores. PCEs for CCC steelhead that do not occur in the BSA include freshwater spawning and rearing, as well as estuarine and marine habitats.

California Red-legged Frog (*Rana draytonii*). Federal Listing Status: Threatened; State Listing Status: Species of Special Concern. California red-legged frogs inhabit perennial freshwater pools, streams, and ponds throughout the Central California Coast Range as well as isolated portions of the western slopes of the Sierra Nevada (Fellers 2005). Their preferred breeding habitat consists of deep perennial pools with emergent vegetation for attaching egg clusters (Fellers 2005), as well as shallow benches to act as nurseries for juveniles (Jennings and Hayes 1994). Nonbreeding frogs may be found adjacent to streams and ponds in grasslands and woodlands, and may travel up to 2 mi from their breeding locations across a variety of upland habitats (Bulger et al. 2003, Fellers and Kleeman 2007).

The historical distribution of California red-legged frogs extended from the city of Redding in the Central Valley and Point Reyes National Seashore along the coast, south to Baja California, Mexico. The species' current distribution includes isolated locations in the Sierra Nevada and the San Francisco Bay area, and along the central coast (USFWS 2002). The California red-legged frog was listed as threatened in June 1996 (USFWS 1996) based largely on a significant range reduction and continued threats to surviving populations (Miller 1994). Revised critical habitat was designated in March 2010 (USFWS 2010a). No critical habitat for this species overlaps the BSA, but critical habitat Unit SNM-1 (San Mateo) is located approximately 0.08 mi southeast of the BSA (Figure 5; USFWS 2010a).

California red-legged frog adults and larvae have been found in a breeding pond in the vicinity of Pilarcitos Creek about 1.3 mi northwest of the BSA as recently as 2016, California red-legged frog adults were observed in Pilarcitos Creek about 0.5 mi west of the BSA in 2006, and California red-legged frog adults and juveniles were observed in the perennial freshwater marsh in the BSA in 2005 (H. T. Harvey & Associates and RMC 2010, CNDDB 2021). Due to the presence of juvenile frogs, it is likely there was active breeding in the perennial freshwater marsh during the observations. Since these observations, no recent species-specific surveys of this species have been conducted in the BSA.

If still present, California red-legged frog use of the site would be foraging and dispersal in Pilarcitos Creek and foraging, dispersal, and possibly breeding in the perennial freshwater marsh. The use of this species of the BSA

outside of these habitats would be for upland dispersal in the annual grassland between the perennial freshwater marsh and the creek, but they may disperse elsewhere as well. It is therefore possible that California red-legged frogs could disperse throughout the entire BSA. Frogs are most likely to disperse in the spring and early summer when juveniles would leave the pond, and adults may move to and from the perennial freshwater marsh during warm winter rains. During the wet season, frogs may be found in upland areas around the creek and marsh. They are generally considered to forage up to 300 feet from aquatic habitat.

San Francisco Garter Snake (*Thamnophis sirtalis tetrataenia*). Federal Listing Status: Endangered; State Listing Status: Endangered. The historical distribution of the San Francisco garter snake included wetland areas on the San Francisco peninsula from the San Francisco County line south along the eastern and western foothills of the Santa Cruz Mountains to at least Upper Crystal Springs Reservoir and Año Nuevo Point in San Mateo County, and Waddell Creek in Santa Cruz County. Today, the San Francisco garter snake is restricted to San Mateo County and has been found in creeks in Half Moon Bay (H. T. Harvey & Associates 1999).

The San Francisco garter snake is a medium-sized snake that occurs in a number of aquatic and terrestrial habitats throughout their range. Juveniles and adults have been observed in natural lagoons, dune ponds, pools in or next to streams, streams, marshlands, sag ponds, and springs, as well as human-created stock ponds, canals, golf course ponds, irrigation ponds, sand and gravel pits (containing water), and large reservoirs (USFWS 1985). The presence of adjacent upland areas with abundant small mammal burrows is also important as hibernation sites for snakes during the winter (Larsen 1994). The most abundant populations of snakes are found in natural sag ponds or artificial waterways that have been allowed to develop a dense cover of vegetation such as willows, bulrushes, cattails, and tules and have dense populations of Pacific tree frogs (Barry 1993, 1994).

San Francisco garter snakes are most active from March to September although they can be observed during any month of the year (Barry 1994, Larsen 1994). Adults mate during the spring (March-April) and fall (September-November), with the latter breeding period characterized by reproductive aggregations of several males and one female. Neonates, which are normally 7-8 inches in total length, are usually born alive in litters of 1-35 (average 16) during late July to early August, although litters can be born as late as early September.

The San Francisco garter snake population in San Mateo County has been severely reduced throughout most of its range due to habitat loss and development; however, the Project region still supports an extant population of the species. San Francisco garter snakes have been documented within the region of the BSA as recently as 2008. Exact CNDDB locations of San Francisco garter snakes are suppressed because of concern about illegal collection of the species. However, there are two CNDDB records for the Half Moon Bay USGS quadrangle, both associated with Pilarcitos Creek, the closest one at approximately 0.5 mi downstream of the BSA in 2004 (CNNDB 2021). Because the primary prey species of the snake is the California red-legged frog, an established population of California red-legged frogs in the perennial freshwater marsh would elevate the likelihood that

the snake could occur in the BSA. Nevertheless, it is difficult to estimate or determine the likelihood of the snake occurring in the BSA in the absence of detailed surveys or further confirmed observations nearby.

San Francisco garter snakes can move into upland habitats during summer to prey on amphibians aestivating in small mammal burrows (Barry 1993). They could potentially forage on amphibians in Pilarcitos Creek and the perennial freshwater marsh and disperse and/or aestivate throughout the BSA. The San Francisco garter snake is therefore considered potentially present throughout the BSA.

5.2.2 California Species of Special Concern

Western Pond Turtle (*Actinemys marmorata*). Federal Listing Status: None; State Listing Status: Species of Special Concern. The western pond turtle occurs in ponds, streams, and other wetland habitats in the Pacific slope drainages of California and northern Baja California, Mexico (Bury and Germano 2008). The central California population was historically present in most drainages on the Pacific slope (Jennings and Hayes 1994), but streambed alterations and other sources of habitat destruction, exacerbated by frequent drought events, have caused substantial population declines throughout most of the species' range (Stebbins 2003). Ponds or slack-water pools with suitable basking sites (such as logs) are an important habitat component for this species, and western pond turtles do not occur commonly along high-gradient streams. Females lay eggs in upland habitats, in clay or silty soils in unshaded (often south-facing) areas up to 0.25 mi from aquatic habitat (Jennings and Hayes 1994). Juveniles feed and grow in shallow aquatic habitats (often creeks) with emergent vegetation and ample invertebrate prey. Nesting habitat is typically found within 600 ft of aquatic habitat (Jennings and Hayes 1994), but if no suitable nesting habitat can be found close by, adults may travel overland considerable distances to nest. Threats to the western pond turtle include impacts to nesting habitat from agricultural and grazing activities, human development of habitat, and increased predation pressure from native and nonnative predators as a result of human-induced landscape changes.

The reach of Pilarcitos Creek within and adjacent to the BSA is degraded due to surrounding development; however, suitable basking and foraging habitat for pond turtles is present in these areas. However, suitable nesting habitat for pond turtles is not present in the BSA in upland areas adjacent to Pilarcitos Creek, because the riparian habitat is too dense for nest construction and the adjacent upland grassland habitat habitat is degraded and frequently disturbed due to the human usage of the area. In addition, the nearest CNDDB recorded observations are over 4 mi from the BSA in the area of the Crystal Springs Reservoir (CNDDB 2021). Thus, there is some potential for pond turtles to be present in the BSA, though they are likely present in low numbers and/or infrequently as dispersers but not as resident turtles prone to breeding and nesting in the upland habitats adjacent to the creek. The perennial freshwater marsh is too shallow, with emergent vegetation too thick, to be considered suitable aquatic foraging habitat for this species.

San Francisco Dusky-footed Woodrat (*Neotoma fuscipes annectens*). Federal Listing Status: None; State Listing Status: Species of Special Concern. The San Francisco dusky-footed woodrat occurs in a variety of woodland and scrub habitats from the San Francisco Peninsula south to the Pajaro River in Monterey County (Hall 1981, Zeiner et al. 1990b). Woodrats prefer riparian and oak woodland forests with dense

understory cover, or thick chaparral habitat (Lee and Tietje 2005). Although woodrats are locally common in many areas, habitat conversion and increased urbanization, as well as increasing populations of introduced predators, such as domestic cats (*Felis catus*), pose substantial threats to this subspecies (H. T. Harvey & Associates 2008). Dusky-footed woodrats build large, complex nests of sticks and other woody debris, which may be maintained by a series of occupants for several years (Carraway and Verts 1991). Woodrats also are very adept at making use of human-made structures, and can nest in electrical boxes, pipes, wooden pallets, and even portable storage containers. Woodrat nest densities increase with canopy density and with the presence of poison oak (Carraway and Verts 1991). Although the San Francisco dusky-footed woodrat is described as a generalist omnivore, individuals may specialize on local plants that are available for forage (Haynie et al. 2007). The breeding season for the dusky-footed woodrat begins in February and sometimes continues through September, with females bearing a single brood of one to four young per year (Carraway and Verts 1991).

A San Francisco dusky-footed woodrat nest was observed near Pilarcitos Creek over 3 mi east-northeast of the BSA in 2007 (CNDDB 2021). The riparian forest in the BSA provides suitable habitat for dusky-footed woodrats. Although no nests were observed in the riparian woodland habitat in the BSA during the reconnaissance survey, this species could potentially nest and forage in, and disperse through, the riparian habitat along Pilarcitos Creek and around the freshwater marsh.

San Francisco Common Yellowthroat (*Geothlypis trichas sinuosa*). Federal Listing Status: None; State Listing Status: Species of Special Concern. The San Francisco common yellowthroat inhabits emergent vegetation and nests in fresh and brackish marshes and moist floodplain vegetation around the San Francisco Bay. Common yellowthroats will use small and isolated patches of habitat as long as groundwater is close enough to the surface to encourage the establishment of dense stands of rushes (*Scirpus* and *Juncus* spp.), cattails, willows, and other emergent vegetation (Nur et al. 1997, Gardali and Evens 2008). Ideal habitat, however, is composed of extensive, thick riparian, marsh, or herbaceous floodplain vegetation in perpetually moist areas, where few or no brown-headed cowbirds are present (Menges 1998). San Francisco common yellowthroats nest primarily in fresh and brackish marshes, although they will also nest in salt marsh habitats that support tall vegetation (Guzy and Ritchison 1999). This subspecies builds open-cup nests low in the vegetation, and nests from mid-March through late July (Guzy and Ritchison 1999, Gardali and Evens 2008).

The San Francisco common yellowthroat is one of approximately 12 subspecies of common yellowthroat recognized in North America, two of which occur in the region of the BSA: the California Species of Special Concern, *G. t. sinuosa*, and the widespread subspecies, *G. t. arizela*. Common yellowthroats nesting in the BSA are likely of the special-status *sinuosa* subspecies, but intergrades between the two subspecies may also occur in this area (SFBBO 2012). Because subspecies cannot be reliably distinguished in the field, determination of the presence of the San Francisco common yellowthroat can be achieved only by locating birds that are actively nesting within the breeding range known for the subspecies.

Nesting San Francisco common yellowthroats have been recorded in the vicinity of the BSA (Sequoia Audubon Society 2001), and observations of individuals have been recorded within the Pilarcitos Creek riparian habitat

less than a mile west of the BSA as recently as 2017 (Cornell Lab of Ornithology 2021). The species may nest in taller vegetation within the perennial freshwater marsh in the BSA, and possibly in riparian habitat along Pilarcitos Creek and around the marsh.

Yellow Warbler (*Setophaga petechia*). Federal Listing Status: None; State Listing Status: Species of Special Concern. In California, the yellow occupies wooded riparian habitats (Heath 2008). This species prefers riparian corridors with an overstory of mature cottonwoods and sycamores, a midstory of box elder and willow, and a substantial shrub understory (Bousman 2007), particularly in areas with more open space adjacent to the riparian habitat. Yellow warblers construct open-cup nests in upright forks of shrubs or trees in dense willow thickets or other dense vegetation (Lowther et al. 1999).

The yellow warbler is an uncommon to rare breeder in wooded riparian habitats, occurring primarily in association with alders and willows, in San Mateo County. Riparian woodlands in the County provide suitable nesting and foraging habitat for this species, but the species is scarce and local, being particularly scarce as a breeder on the immediate coast (Sequoia Audubon Society 2001). Nevertheless, it is possible that one or two pairs could potentially breed in riparian habitat in the BSA along Pilarcitos Creek and around the marsh. Otherwise, this species is expected to occur as a common migrant in the BSA during the spring and fall.

5.2.3 State Fully Protected Species

White-tailed Kite (*Elanus leucurus*). Federal Listing Status: None; State Listing Status: Fully Protected. In California, white-tailed kites can be found in the Central Valley and along the coast in grasslands, agricultural fields, cismontane woodlands, and other open habitats (Zeiner et al. 1990a, Dunk 1995, Erichsen et al. 1996). White-tailed kites are year-round residents of the state, establishing nesting territories that encompass open areas with healthy prey populations and snags, shrubs, trees, or other substrates for nesting (Dunk 1995). Nonbreeding birds typically remain in the same area over the winter, although some movements do occur (Polite 1990). The presence of white-tailed kites is closely tied to the presence of prey species, particularly voles, and prey base may be the most important factor in determining habitat quality for white-tailed kites (Dunk and Cooper 1994, Skonieczny and Dunk 1997). Although the species recovered after population declines during the early 20th century, its populations may be exhibiting new declines because of recent increases in habitat loss and disturbance (Dunk 1995, Erichsen et al. 1996).

White-tailed kites are common residents in the vicinity of the BSA where open grassland, ruderal, or agricultural habitats are present. Large trees on and adjacent to the BSA provide suitable nesting sites. The open habitats (e.g., ruderal grasslands and agricultural areas) on and adjacent to the BSA provide potential foraging opportunities for this species. Although the developed nature and high levels of human disturbance within the BSA make it less attractive to nesting kites, an individual was observed in the vicinity of the perennial freshwater marsh in 2014 (Cornell Lab of Ornithology 2021), and this species could potentially nest and forage in the BSA.

5.3 Sensitive Natural Communities, Habitats, and Vegetation Alliances

Natural communities have been considered part of the Natural Heritage Conservation triad, along with plants and animals of conservation significance, since the state inception of the Natural Heritage Program in 1979. The CDFW determines the level of rarity and imperilment of vegetation types, and tracks sensitive communities in its Rarefind database (CNDDB 2021). Global rankings (G) of natural communities reflect the overall condition (rarity and endangerment) of a habitat throughout its range, whereas state (S) rankings reflect the condition of a habitat within California. Natural communities are defined using NatureServe's standard heritage program methodology as follows (CDFG 2007):

- G1/S1: Less than 6 viable occurrences or less than 2,000 ac.
- G2/S2: Between 6 and 20 occurrences or 2,000 to 10,000 ac.
- G3/S3: Between 21 and 100 occurrences or 10,000 to 50,000 ac.
- G4/S4: The community is apparently secure, but factors and threats exist to cause some concern.
- G5/S4: The community is demonstrably secure to ineradicable due to being common throughout the world (for global rank) or the state of California (for state rank).

State rankings are further described by the following threat code extensions:

- S1.1: Very threatened
- S1.2: Threatened
- S1.3: No current threats known

In addition to tracking sensitive natural communities, the CDFW also ranks vegetation alliances, defined by repeating patterns of plants across a landscape that reflect climate, soil, water, disturbance, and other environmental factors (Sawyer et al. 2009). If an alliance is marked G1-G3, all the vegetation associations within it will also be of high priority (CDFG 2007). The CDFW provides the Vegetation Classification and Mapping Program's (VegCAMP) currently accepted list of vegetation alliances and associations (CDFG 2010a).

Impacts on CDFW sensitive natural communities, vegetation alliances/associations, or any such community identified in local or regional plans, policies, and regulations, must be considered and evaluated under CEQA (Title 14, Division 6, Chapter 3, Appendix G of the California Code of Regulations). Furthermore, aquatic, wetland and riparian habitats are also protected under applicable federal, state, or local regulations, and are generally subject to regulation, protection, or consideration by the USACE, RWQCB, CDFW, USFWS, and/or the Half Moon Bay LCP.

Sensitive Natural Communities. There are no CDFW-classified sensitive natural communities within the BSA, However, there are two sensitive natural communities identified in the CNDDB within five miles of the BSA:

- **Northern maritime chaparral**. Northern maritime chaparral is characterized by a dense, nearly impenetrable shrub cover composed of several species. Characteristic species include chamise (*Adenostoma fasciculatum*), buckbrush (*Ceanothus cuneatus*) as well as other *Ceanothus* species, black sage (*Salvia mellifera*), and several species of manzanitas (*Manzanita* sp.). Northern maritime chaparral is not present within the BSA because none of the characteristic plant species that make up this community are present.
- **Northern coastal salt marsh**. Northern coastal salt marsh is characterized is wetland community dominated by herbaceous to sub-shrub salt-tolerant hydrophytes that typically forms a dense mat of vegetation up to three feet high. Characteristic species include pickleweed (*Salicornia* sp.), cordgrass (*Spartina* sp.), and salt grass (*Distichlis spicata*). Northern coastal salt marsh is not present within the BSA because none of the characteristic plant species that make up this community are present.

Sensitive Vegetation Alliances. There is one CDFW classified sensitive vegetation alliances within the BSA. Impacts to these plant communities may be considered significant under CEQA. Sensitive plant communities identified by CDFW within the BSA include the red willow-arroyo willow vegetation alliance, which is found within the riparian woodland along Pilarcitos Creek (Figure 3). This plant community has been identified by CDFW as "G4 S3", which means that it is rare and threatened throughout its range in California but is apparently secure throughout its range outside of California. This vegetation alliance occurs within the riparian woodland in the BSA.

Waters of the U.S./State. Pilarcitos Creek (aquatic riverine) and the perennial freshwater marsh would be considered waters of the U.S./state. Any impacts on verified waters of the U.S./state within the BSA would require a Section 404 permit from the USACE and Section 401 Water Quality Certification from the San Francisco RWQCB. Additionally, the RWQCB would also consider the riparian woodland above the OHWMs of the stream and surrounding the marsh, out to the dripline of all trees rooted within the top of bank, as important, regulated buffers to waters of the State (Figure 5). Also, Pilarcitos Creek and the full extent of its riparian canopy would be subject to lake and streambed jurisdiction administered by CDFW under Section 1600 et seq. of State Fish and Game Code (see Section 5.4).

Environmentally Sensitive Habitat Areas. The BSA contains several ESHAs or sensitive coastal resource areas:

- **Perennial freshwater stream**. Pilarcitos Creek is a perennial freshwater stream and is classified as a sensitive habitat by the Half Moon Bay LCP and is also subject to lake and streambed jurisdiction under Section 1600 et seq. of State Fish and Game Code (see Section 5.4).

- **Riparian woodland**. The riparian woodland along Pilarcitos Creek and surrounding the perennial freshwater marsh is classified as sensitive habitat by the Half Moon Bay LCP and the riparian canopy along Pilarcitos Creek is also subject to riparian jurisdiction under Section 1600 et seq. of State Fish and Game Code.

- **Perennial freshwater marsh.** The perennial freshwater marsh is classified as a sensitive wetland habitat by the Half Moon Bay LCP.

- **Potential one-parameter wetlands.** Throughout the California annual grassland habitat there are scattered patches of hydrophytic vegetation, including curly dock, poison hemlock, and bird's foot trefoil. Both curly dock and bird's foot trefoil are classified as *facultative* species (commonly occurs as either a hydrophyte or non-hydrophyte); poison hemlock is classified as a *facultative wetland* species (usually a hydrophyte but occasionally found in uplands) (Lichvar et al. 2016). CCC's regulations (California Code of Regulations Title 14 (14 CCR)) establish a one parameter definition that only requires evidence of a single parameter (hydrology, hydric soils, or hydrophytic vegetation) to establish wetland conditions. However, these species grow in both wetlands as hydrophytes and uplands as non-hydrophytes; therefore, these species may not be reliable indicators of wetlands. A formal delineation and analysis was conducted in in June 2020 and determined that none of the areas of scattered hydrophytic vegetation occurred in wetland landscape positions, some areas clearly indicated disturbance rather than wetland conditions (e.g., poison hemlock), all occurred intermixed with upland species, and none of these areas indicated the presence of a hydrophytic vegetation community, hydric soils, or wetland hydrology (H. T. Harvey & Associates 2020). Therefore, no one-parameter CCC wetlands outside of the riverine, wetland, or riparian habitats above were identified within the BSA.

- **Wild strawberry habitat**. Wild strawberry habitat is also included as a sensitive habitat in the Zoning Code and Local Coastal Program and is defined as "any undeveloped areas within one half mile of the coast" (City of Half Moon Bay 2021). The BSA is approximately 1.2 mi from the coast and therefore does not meet the definition of wild strawberry habitat due to its distance from the coast. Additionally, no strawberry plants were observed during the reconnaissance-level field survey in June 2018.

- **Bluffs, cliffs, and sea cliffs**. As defined in Section 18.38.060 of the City Code, a bluff or cliff is a scarp or a steep face of rock, decomposed rock, sediment or soil resulting from erosion, faulting, or folding of the land mass with a vertical relief of ten feet or more. A sea cliff is defined as a cliff whose toe is subject to marine erosion. There is no bluff, cliff, or sea cliff habitat present within the BSA.

Critical Habitat. Pilarcitos Creek is designated as critical habitat for the federally Threatened Central California Coast steelhead Distinct Population Segment. Critical habitat for the Central California Coast steelhead DPS was designated on September 2, 2005 and includes all river reaches and estuarine areas accessible to listed steelhead in coastal river basins from the Russian River in Sonoma County to Aptos Creek in Santa Cruz County. The San Mateo Hydrologic Unit includes the coastal streams in San Mateo County from San Pedro Creek near Pacifica to Butano Creek near Año Nuevo and the Santa Clara Hydrologic Unit includes South Bay creeks from San Francisquito Creek in Palo Alto eastward to Coyote Creek (NMFS 2005).

5.4 Non-Native and Invasive Species

Several non-native, invasive plant species occur in the BSA in the California annual grassland and riparian woodland habitat. Of these, pampas grass, cape ivy, French broom and Himalayan blackberry have the potential to cause the most severe ecological impacts, as these species can invade and degrade the margins of sensitive wetland habitat, and are rated high by the Cal-IPC (Cal-IPC 2021). In addition, creeping capeweed (*Arctotheca prostrata*), ripgut brome, Italian thistle, poison hemlock, silverleaf cotoneaster (*Cotoneaster pannosus*), dogtail grass (*Cynosurus echinatus*), Italian rye grass, bristly ox-tongue, common velvetgrass, Mediterranean hoary mustard (*Hirschfeldia incana*), meadow barley (*Hordeum murinum*), common sheep sorrel (*Rumex acetsosella*), and field hedge parsley (*Torilis arbvensis*) were observed in the BSA, are rated as limited to moderate and can have substantial and apparent ecological impacts if they spread into native, sensitive habitats (Cal-IPC 2021).

Section 6. Impacts and Mitigation Measures

CEQA and the State CEQA Guidelines provide guidance in evaluating impacts of projects on biological resources and determining which impacts will be significant. The Act defines "significant effect on the environment" as "a substantial adverse change in the physical conditions which exist in the area affected by the proposed project."

Appendix G of State CEQA Guidelines provides a checklist of other potential impacts to consider when analyzing the significance of project effects. The impacts listed in Appendix G (Chapter IV) may or may not be significant, depending on the level of the impact. For biological resources, these impacts include whether the project would:

A. "have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service"

B. "have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service"

C. "Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means"

D. "interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites"

E. "conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance"

F. "conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan"

6.1 Approach to the Analysis

As described in Section 1.1, specific project activities and locations have not been defined. However, no disturbance of Pilarcitos Creek or the perennial freshwater marsh in the northwest corner of the BSA, or use of the riparian habitat or buffer associated with Pilarcitos Creek beyond existing allowed use under the City's LCP, is anticipated. Allowed uses include 1) education and research, 2) consumptive uses as provided for in the Fish and Game Code and Title 14 of the California Administrative Code, 3) fish and wildlife management activities, 4) trails and scenic overlooks on public land(s), and 5) necessary water supply projects. Also, when no feasible or practicable alternative exists, other uses may include 1) stream-dependent aquaculture provide

that non-stream-dependent facilities locate outside of corridor, 2) flood control projects where no other method for protecting existing structures in the flood plain is feasible and where such protection is necessary for public safety or to protect existing development, 3) bridges when supports are not in significant conflict with corridor resources, 4) pipelines and storm water runoff facilities, 5) improvement, repair or maintenance of roadways or road crossings, and 6) agricultural uses, provided no existing riparian vegetation is removed, and no soil is allowed to enter stream channels.

The only allowed uses in riparian habitat and the associated buffer being considered by the City for this project will be path, trail, or other environmental related educational uses (J. Doughty, pers. comm.). Therefore, the following impact analysis was prepared assuming project development could occur in any portion of the BSA, except for Pilarcitos Creek and the perennial freshwater marsh in the northwest corner of the BSA, but with possible limited disturbance within the riparian habitat/buffers associated with the perennial freshwater marsh and/or Pilarcitos Creek from allowed uses.

6.2 Impacts on Special-Status Species: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS

6.2.1 Impacts on Common Plant and Animal Species (Less than Significant)

The common (non-special-status) plant and animal species that occur in the BSA could experience a direct loss of habitat due to project activities, which could potentially result in the mortality, injury, disturbance, and displacement of individuals of some of these species. The plant species observed in the BSA during the reconnaissance surveys (Appendix A) are not regulated under state or federal laws or listed species by the CNPS. All native plant species found in the BSA are regionally abundant and common in California. As such, impacts on these species from project activities do not constitute a significant impact and require no compensatory mitigation.

The common animal species that occur in the BSA are regionally abundant, and can be found in habitats throughout the City of Half Moon Bay and San Mateo County. For instance, the common ants, bees, wasps, flies, butterflies, and spiders in the BSA are found in abundance in vegetated areas in the region such as yards, parks, riparian areas, and grasslands. Non-special-status amphibians, such as western toads and arboreal salamanders, are found along streams, ponds, and lakes in the region, and the common reptiles that occur in the BSA, such as western fence lizards and western skinks, are abundant in the grasslands of San Mateo County.

Implementation of the project would result in the loss of a small amount of nesting and foraging habitat for common native birds, which would result in a decline in the number of species and pairs of birds that currently nest and/or forage in the BSA. However, the terrestrial habitats in the BSA (i.e., California annual grassland,

developed, ephemeral drainage, perennial freshwater marsh, and riparian forest) represent a very small proportion of the habitats that support these species regionally. For instance, residences, yards, and parks throughout the City of Half Moon Bay provide habitat for the common "backyard" species of birds that occur in the BSA (e.g., American robin) and riparian-associated birds (e.g., bushtits and lesser goldfinch) inhabit riparian habitat adjacent to the numerous streams flowing through the county. Thus, the habitats in the BSA represent only a very small proportion of suitable habitats available to these species regionally. Even more importantly, because th project would retain all trees associated with Pilarcitos Creek, birds are expected to continue to nest and forage there once project construction is completed. Although overall fewer pairs of birds might nest and forage in the BSA following project development, the temporary disturbance of habitat does not rise to the level of a *substantial* impact under CEQA for any of these species.

All of the native terrestrial mammals in the BSA (e.g., striped skunks and raccoons) are also abundant in the county, inhabiting grasslands and woodlands throughout the region. Because these species are regionally abundant, are present in widely available habitats in the region, and may continue to be present in the BSA following construction, any project would impact only a small proportion of their regional populations. Such loss of regionally abundant common wildlife species does not achieve the threshold of a *substantial* reduction in the regional habitat of these species, and thus these impacts are less than significant under CEQA.

Several of the common wildlife species that occur in the BSA are not native to California. These include non-native mammals such as the Virginia opossum, Norway rat, and house mouse. Many of these non-native species have been introduced to the natural areas in the region, or have invaded natural and developed areas because they thrive in the presence of humans. These non-native species influence natural ecosystems in many ways, such as by competing with native species for food, territories, and other resources; altering habitats; transmitting diseases; and preying upon native species. Due to these factors, these non-native species act to reduce the abundance and diversity of native species that occur in areas in the region, including the BSA. Therefore, impacts on these non-native species resulting from a project do not constitute an adverse effect under CEQA.

6.2.2 Impacts on Special-Status Plants (Less than Significant with Mitigation)

One plant species, harlequin lotus, categorized by the CNPS as a CRPR 4.2, has the potential to occur within the more mesic areas of the riparian habitat along Pilarcitos Creek (Figure 5, Section 5.1, Appendix B). If present, project development may affect harlequin lotus due to disturbance of individuals within the populations and disturbance or destruction of suitable habitat. Direct impacts could include grading or filling areas supporting these species, trampling or crushing of plants, and soil compaction. Indirect impacts could include increased mobilization of dust onto plants, which can affect their photosynthesis and respiration, or changes to hydrology supporting these plants within adjacent wetlands due to grading or construction in nearby habitats.

Harlequin lotus has a limited distribution in California. The statewide population includes at least 357 extant occurrences (CNPS 2021), and of these, approximately 37 occur within San Mateo County. Given that San Mateo County is at the southern limits of its documented range and Harlequin lotus is threatened by

development, grazing, feral pigs, habitat alteration, and competition from non-native species, conservation of existing populations of this species could be essential for preserving its genetic resources and ensuring its persistence in the County.

If this species is present and impacts occur to 10% or less of its population (by individuals or occupied area) within the BSA, such a low level of impacts would not be expected to cause the extirpation of such a population, as long as the remaining plants were avoided and protected by a no-disturbance buffer. However, due to the regional rarity of this species, impacts to more than 10% of a population of this species could contribute to a reduction in these species' range or genetic resources, which would be considered significant under CEQA. Implementation of the following mitigation measures will reduce impacts on harlequin lotus to a less-than-significant level.

Mitigation Measure 1. Pre-Activity Surveys for Harlequin Lotus. Prior to initial ground disturbance within any riparian habitat related to the project, and during the appropriate blooming period (March-July), a focused survey for harlequin lotus will be conducted within suitable habitat in the impact footprint and a 50-ft buffer around the impact footprint. This buffer may be increased by the qualified plant ecologist depending on site-specific conditions and activities planned in the area (i.e., if the plant ecologist determines that project activities could have greater indirect impacts), but must be at least 50 ft wide. Situations for which a greater buffer may be required include proximity to proposed activities expected to generate large volumes of dust, such as grading; potential for project activities to alter hydrology supporting the habitat for the species in question; or proximity to proposed structures that may shade areas farther than 50 ft away. Surveys are to be conducted in a year with near-average or above-average precipitation, or a reference population must be assessed to confirm that the plant would have been detectable during the survey year. The purpose of the survey will be to assess the presence or absence of the harlequin lotus. If this species is not found in the impact area or the identified buffer, then no further mitigation will be warranted. If harlequin lotus is found in the impact area or identified buffer, then Mitigation Measures 2 and 3 will be implemented.

Mitigation Measure 2. Avoidance Buffers. To the extent feasible, and in consultation with a qualified plant ecologist, the project proponent will design and construct the project to avoid completely impacts on harlequin lotus within the project site or within the identified buffer of the impact area. Avoided special-harlequin lotus plant populations will be protected by establishing and observing the identified buffer between plant populations and the impact area. All such populations located in the impact area or the identified buffer, and their associated designated avoidance areas, will be clearly depicted on any construction plans. In addition, prior to initial ground disturbance or vegetation removal, the limits of the identified buffer around harlequin lotus to be avoided will be flagged or fenced. The flagging will be maintained intact and in good condition throughout project-related construction activities.

If complete avoidance is not feasible and more than 10% of a population (by occupied area or individuals) would be impacted as determined by a qualified plant ecologist, Mitigation Measure 3 will be implemented.

Mitigation Measure 3. Preserve Off-Site Populations of Special-Status Plant Species. If avoidance of harlequin lotus is not feasible and more than 10% of the population would be impacted, compensatory mitigation will be provided via the preservation, enhancement, and management of occupied habitat for the species, for example avoided portions of the impacted population. If too large of a proportion of an on-site population is impacted to provide this mitigation on-site, off-site habitat occupied by the affected species will be preserved and managed in perpetuity at a minimum 1:1 mitigation ratio (at least one plant preserved for each plant affected, and at least one occupied acre preserved for each occupied acre affected), for any impact over the 10% significance threshold.

Areas proposed to be preserved as compensatory mitigation for special-status plant impacts must contain verified extant populations of harlequin lotus that would be impacted. Mitigation areas will be managed in perpetuity to encourage persistence and even expansion of the preserved target species. Mitigation lands cannot be located on land that is currently held publicly for resource protection unless substantial enhancement of habitat quality will be achieved by the mitigation activities. The mitigation habitat will be of equal or greater habitat quality compared to the impacted areas, as determined by a qualified plant ecologist, in terms of soil features, extent of disturbance, vegetation structure, and dominant species composition, and will contain at least as many individuals of the species as are impacted by project activities. The permanent protection and management of mitigation lands will be ensured through an appropriate mechanism, such as a conservation easement or fee title purchase. A habitat mitigation and monitoring plan (HMMP) will be developed and implemented for the mitigation lands. That plan will include, at a minimum, the following information:

- a summary of habitat impacts and the proposed mitigation;
- a description of the location and boundaries of the mitigation site and description of existing site conditions;
- a description of measures to be undertaken to enhance (e.g., through focused management that may include removal of invasive species in adjacent suitable but currently unoccupied habitat) the mitigation site for the focal special-status species;
- a description of measures to transplant individual plants or seeds from the impact area to the mitigation site, if appropriate (which will be determined by a qualified plant or restoration ecologist);
- proposed management activities to maintain high-quality habitat conditions for the focal species;
- a description of habitat and species monitoring measures on the mitigation site, including specific, objective final and performance criteria, monitoring methods, data analysis, reporting requirements, monitoring schedule, etc. At a minimum, performance criteria will include demonstration that any plant population fluctuations over the monitoring period do not indicate a downward trajectory in terms of reduction in numbers and/or occupied area for the preserved mitigation population that can be attributed to management (i.e., that are not the result of local weather patterns, as determined by monitoring of a nearby reference population, or other factors unrelated to management); and

- contingency measures for mitigation elements that do not meet performance criteria.

The HMMP will be prepared by a qualified plant or restoration ecologist. Approval of the HMMP by the City will be required before the project impact occurs.

6.2.3 Impacts on the California Red-legged Frog and San Francisco Garter Snake (Less than Significant with Mitigation)

Individuals of the California red-legged frog are known to have occurred in Pilarcitos Creek, and in the perennial freshwater marsh in the BSA. Also, San Francisco garter snake is considered potentially present in Pilarcitos Creek, and may disperse to the perennial fresh water marsh in the BSA to forage due to the presence of California red-legged frog in the marsh. Therefore, impacts on these species are considered similar and thus will be discussed together. Direct impacts on the California red-legged frog and San Francisco garter snake could potentially occur due to project development immediately adjacent to the marsh habitat or within the riparian habitat associated with Pilarcitos Creek. If individuals of these species are present during construction activities, they may be crushed or injured by personnel or equipment. In addition, individuals may be crushed in their refugia by the passage of heavy equipment or trapped and suffocated. An increase in native and non-native predators attracted to the Project site due to trash left on the work site might result in increased mortality of individuals of these species. Due to the rarity of both species, project-related impacts on individual California red-legged frogs and San Francisco garter snakes would be significant.

The project may also result in the permanent loss or temporary disturbance of the riparian habitat associated with Pilarcitos Creek and buffers along the creek and around the marsh because of development activities. The marsh potentially provides breeding habitat for the California red-legged frog and foraging habitat for the San Francisco garter snake, and the riparian habitat provides foraging habitat for both species. Due to the potential presence of breeding and foraging habitat in the perennial freshwater marsh, and foraging habitat in the riparian habitat at the marsh and Pilarcitos Creek, the remaining annual grassland habitat is considered upland dispersal habitat for both the frog and snake. Project development of this annual grassland would permanently impact this upland dispersal habitat for both the frog and snake and could isolate a breeding population of California red-legged frog currently in the perennial freshwater marsh habitat from other nearby habitat for the species, such as Pilarcitos Creek. Therefore, the effects of even temporary habitat loss could substantially affect regional populations of these species, a significant impact. Implementation of Mitigation Measures 4 through 23 will reduce project impacts on both the California red-legged frog and San Francisco garter snake due to habitat loss and impacts on individuals to a less-than-significant level. In addition, implementation of these mitigation measures will ensure that take of individuals (e.g., handling, injury, or mortality) of the state fully protected San Francisco garter snake, which is prohibited by the California Fish and Game Code for construction projects such as this, will be avoided.

Mitigation Measure 4. Avoidance of California Red-legged Frog and San Francisco Garter Snake Foraging Habitat, and California Red-legged Frog and San Francisco Garter Snake Dispersal Habitat. To the extent feasible, the project proponent will design and construct the project to avoid completely impacts

on the marsh, riparian, and annual grassland habitats in the BSA. The avoided California red-legged frog and San Francisco garter snake habitat will be protected by establishing and observing an identified buffer between the habitat and the impact area following the LCP (City of Half Moon Bay 2020). Specifically, the buffer will be fifty ft outward from the limit of riparian vegetation along Pilarcitos Creek and the marsh. The identified buffer will be clearly depicted on any construction plans. In addition, prior to initial ground disturbance or vegetation removal, the limits of the identified buffer around the marsh, associated riparian habitat, and annual grassland to be avoided will be flagged or fenced. The flagging will be maintained intact and in good condition throughout project-related construction activities.

If complete avoidance is not feasible, Mitigation Measure 5 will be implemented.

Mitigation Measure 5. Preserve Onsite and/or Offsite Breeding, Foraging, and Dispersal Habitat for California Red-legged Frog and San Francisco Garter Snake. If avoidance of the marsh, riparian, and/or annual grassland habitats and associated buffers in the BSA are not feasible, compensatory mitigation will be provided via the preservation, enhancement, and management of potential California red-legged frog breeding and foraging habitat and San Francisco garter snake foraging habitat (for impacting the marsh and riparian habitats) and upland dispersal habitat (for impacting the upland grassland habitat). To compensate for impacts on the California red-legged frog and San Francisco garter snake, onsite and/or offsite habitat occupied by the frog and snake will be preserved and managed in perpetuity at a minimum 3:1 mitigation ratio for California red-legged frog breeding and foraging habitat and San Francisco garter snake foraging habitat (i.e., marsh and riparian habitats), and 1:1 mitigation ratio for upland dispersal habitat (annual grassland habitat and buffers associated with riparian habitat) for both species.

If the marsh habitat and associated riparian habitat are avoided, but the upland grassland between Pilarcitos Creek and the marsh is impacted to the extent that the marsh habitat and riparian habitat surrounding the marsh becomes isolated from Pilarcitos Creek, and frogs and snakes cannot disperse unencumbered between the creek and marsh, then a minimum 3:1 mitigation ratio for the acreage of the entire isolated marsh and riparian habitat around the marsh will be provided to compensate for loss of breeding and foraging habitat for California red-legged frog and foraging habitat for San Francisco garter snake. This higher mitigation ratio is required because the marsh and associated riparian habitat will be cut off from, and not available as breeding and foraging habitat for, the larger meta-populations of the California red-legged frog and San Francisco garter snake in the region that are using Pilarcitos Creek as a dispersal corridor. If, however, a designated portion of the upland habitat between Pilarcitos Creek and the marsh at a minimum of 50 ft in width is avoided, or if impacted, landscaped so that frogs and snakes can still freely disperse between the creek and marsh, then no mitigation ratio is required for the marsh habitat and associated riparian habitat since they will not be isolated. A minimum 1:1 mitigation ratio for upland dispersal habitat will still be required as compensation for the annual grassland within the BSA to be impacted.

Mitigation Measure 6. Obtain Agency Approval of Qualified Biologist. The qualifications of a biologist(s) experienced with the California red-legged frog and San Francisco garter snake, and who will provide

preconstruction surveys and monitoring for the project during construction, will be submitted to the USFWS and CDFW for review and written approval at least thirty (30) calendar days prior to the start of project activities.

Mitigation Measure 7. Install Wildlife Exclusion Barrier. A temporary wildlife exclusion barrier installation plan will be submitted to the USFWS and CDFW for approval. Prior to any ground disturbance in the impact area, the agency-approved temporary wildlife exclusion barrier will be installed along the limits of disturbance. An agency-approved biologist will inspect the area prior to installation of the barrier. The barrier will be designed to allow the California red-legged frog and San Francisco garter snake to leave the impact area and prevent them from entering the impact area, and will remain in place until all development activities have been completed. This barrier will be inspected daily and maintained and repaired as necessary to ensure that it is functional and is not a hazard to California red-legged frogs or San Francisco garter snakes on the outer side of the barrier.

Mitigation Measure 8. Conduct Preconstruction Survey. No more than twenty-four (24) hours prior to the date of initial ground disturbance, a preconstruction survey for the California red-legged frog and San Francisco garter snake will be conducted by an agency-approved biologist within the impact area. The survey will consist of walking the limits of impact to ascertain the possible presence of the species. The agency-approved biologist will investigate all potential areas that could be used by the California red-legged frog and San Francisco garter snake for feeding, breeding, sheltering, movement, and other essential behaviors. This includes an adequate examination of mammal burrows.

Mitigation Measure 9. Worker Environmental Awareness Program. All construction personnel will participate in a worker environmental awareness program. These personnel will be informed about the possible presence of all special-status species and habitats associated with the species identified here to be potentially present in the BSA and that unlawful take of the animal or destruction of its habitat is a violation of FESA and CESA. Prior to construction activities, the agency-approved biologist will instruct all construction personnel about (1) the description and status of the species; (2) the importance of their associated habitats; and (3) a list of measures being taken to reduce impacts on these species during project construction and implementation. A fact sheet conveying this information will be prepared for distribution to the construction crew and anyone else who enters the project site.

Mitigation Measure 10. Construction Monitoring. An agency-approved biologist will be onsite during all Project construction activities that may result in take of any special-status species. The agency-approved biologist will be given the authority to freely communicate verbally, by telephone, electronic mail, or in writing at any time with construction personnel, any other person(s) at the project site, otherwise associated with the project, the USFWS, the CDFW, or their designated agents. The agency-approved biologist will have oversight over implementation of all the conservation measures and will have the authority and responsibility to stop project activities if they determine any of the associated requirements are not being fulfilled. If the agency-

approved biologist exercises this authority, the USFWS and CDFW will be notified by telephone and electronic mail within twenty-four (24) hours.

Mitigation Measure 11. Vegetation Removal. All riparian vegetation that needs to be removed will be removed under the close supervision of an agency-approved biologist, who will survey for California red-legged frogs or San Francisco garter snakes immediately prior to and periodically during the vegetation removal.

Mitigation Measure 12. Prohibition of Firearms and Pets. No firearms will be allowed on the project site, except for Federal, state, local law enforcement, or security guards. No pets will be allowed on the project site.

Mitigation Measure 13. Pipe Inspection. All construction pipes, culverts, or similar structures that are stored at a construction site for one or more overnight periods will be either securely capped prior to storage or thoroughly inspected by the agency-approved biologist and/or the construction foreman/manager for animals before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a California red-legged frog or San Francisco garter snake is discovered inside a pipe or culvert by the agency-approved biologist or construction foreman/manager, the protocol in Mitigation Measure 15 will be followed.

Mitigation Measure 14. Steep-walled Holes and Trenches. To prevent inadvertent entrapment of the California red-legged frog or San Francisco garter snake during construction, the agency-approved biologist and/or construction foreman/manager will ensure that all excavated, steep-walled holes or trenches more than one foot deep are completely covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks and inspected by the agency-approved biologist. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals by the agency-approved biologist and/or construction foreman/manager. If at any time a trapped California red-legged frog or San Francisco garter snake is discovered by the agency-approved biologist or anyone else, the steps in Mitigation Measure 15 will be followed.

Mitigation Measure 15. Protocol if California Red-legged Frog or San Francisco Garter Snake is Encountered. If a California red-legged frog or San Francisco garter snake, or any animal that construction personnel believes may be either of these species, is encountered during project construction, the following will be followed:

- All work that could result in direct injury, disturbance, or harassment of the individual animal shall immediately cease.
- The foreman and agency-approved biologist will be immediately notified.
- The agency-approved biologist will determine if the animal is a California red-legged frog or San Francisco garter snake and if so will follow Mitigation Measure 16 for California red-legged frog or Mitigation Measure 17 for San Francisco garter snake.

Mitigation Measure 16. Relocation of California Red-legged Frogs. If any California red-legged frogs are found during implementation of Mitigation Measures 7, 8, 10-11, or 13-14 the agency-approved biologist will contact the USFWS to determine if moving any of the individuals is appropriate. In making this determination the USFWS will consider if an appropriate relocation site exists. If the USFWS approves moving animals, the project proponent will ensure the agency-approved biologist is given sufficient time to move the animals from the impact area before ground disturbance is initiated. Only agency-approved biologists will capture, handle, and move the California red-legged frog. The agency-approved biologist will monitor any relocated frog until it is determined that it is not imperiled by predators or other dangers.

Mitigation Measure 17. Monitor San Francisco Garter Snake. The agency-approved biologist will monitor any individual of the San Francisco garter snake encountered within the impact area but allow it to leave the impact area on its own. If the agency-approved biologist determines that the snake cannot leave on its own then the USFWS and CDFW will be consulted to determine if the snake can be captured and relocated to appropriate habitat on the outside of the impact area. No San Francisco garter snakes will be handled without explicit agency approval.

Mitigation Measure 18. Speed Limit. Project-related vehicles will observe a 15 mile-per-hour speed limit in all project areas, except on City and County roads, and State highways; this is particularly important on rainy nights when California red-legged frogs are most active.

Mitigation Measure 19. Daytime Restriction. Nighttime construction will be avoided.

Mitigation Measure 20. Food and Trash. To eliminate an attraction for the predators of the California red-legged frog and San Francisco garter snake, all food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in solid, closed containers (trash cans) and removed at the end of each working day from the entire construction site.

Mitigation Measure 21. Prohibition of Plastic Mono-filament Netting. Plastic mono-filament netting (erosion control matting), rolled erosion control products or similar material will not be used at the project site to prevent trapping California red-legged frogs, San Francisco garter snakes, or other species.

Mitigation Measure 22. Pesticide, Rodenticide, Herbicide Use. The use of pesticides, rodenticides, and herbicides in the impact area will be utilized in such a manner to prevent primary or secondary poisoning of the California red-legged frog and/or San Francisco garter snake potentially present in the BSA, and the depletion of food items on which they depend. All uses of such compounds will observe label and other restrictions mandated by the U.S. Environmental Protection agency, California Department of Food and Agriculture, and other appropriate State and Federal regulations, as well as additional project-related restrictions deemed necessary by the USFWS and CDFW.

6.2.4 Impacts on the Central California Coast Steelhead and the Western Pond Turtle (Less than Significant with Mitigation)

Both Central California Coast steelhead and western pond turtles may be present in Pilarcitos Creek within or downstream of the BSA. Because the project will not occur within Pilarcitos Creek in the BSA, direct impacts of construction-related activities on these species' habitat will not occur, and impacts on individuals are not expected except that during construction, minor and temporary increases in turbidity may occur. In addition, steelhead and western pond turtles might be killed or injured as a result of the spill of petrochemicals, hydraulic fluids, or solvents into Pilarcitos Creek. However, implementation of a storm water pollution prevention plan (SWPPP) with associated BMPs (see section 6.5.1) will minimize potential impacts on steelhead and western pond turtles as a result of increased turbidity and spills of hazardous materials into Pilarcitos Creek. In addition, western pond turtles may disperse from Pilarcitos Creek to the upland in the project site and be injured or killed by project related construction activities. However, implementation of Mitigation Measures 7-10 and 12-22 described above, for western pond turtles in addition to California red-legged frogs and San Francisco garter snakes, will reduce potential impacts on western pond turtles to less-than-significant levels.

6.2.5 Impacts on the San Francisco Dusky-footed Woodrat (Less than Significant with Mitigation)

San Francisco dusky-footed woodrats may be present, and could potentially nest, in the riparian habitat associated with Pilarcitos Creek and the perennial freshwater marsh in the BSA. Although impacts on riparian habitat are expected to be limited, if they occur at all, it is possible that limited impacts could occur to riparian habitat and the riparian buffer associated with Pilarcitos Creek allowed under the City's Local Coastal Program, notably the creation of paths, trails, or other environmentally related educational uses (J. Doughty, pers. comm.). If so, such impacts could result in destruction of nests, injury or mortality of woodrats (especially if occupied nests are present), and loss of woodrat habitat. Due to the regional abundance of woodrat habitat and the limited nature of impacts to this species' habitat anticipated to result from the project, impacts to this species' habitat is less than significant. Although San Francisco dusky-footed woodrats are also fairly abundant regionally, this species is important ecologically; woodrats serve as prey for a variety of predatory species, and woodrat nests provide dens and refugia for a variety of invertebrate, reptile, amphibian, and small mammal species. Therefore, impacts to individual woodrats and their nests would be significant. Implementation of Mitigation Measure 24 will reduce impacts on San Francisco dusky-footed woodrats to less-than-significant levels.

Mitigation Measure 23. Preconstruction Survey for San Francisco Dusky Footed Woodrat Nests. Focused surveys for San Francisco dusky-footed woodrat nests within the riparian habitat associated with Pilarcitos Creek and the marsh habitat will be conducted within 7 days of the start of construction. If no nests are found, then no further mitigation will be warranted. If nests are found, then Mitigation Measures 24 and 25 will be implemented.

Mitigation Measure 24. Disturbance-Free Buffers. Dusky-footed woodrats are year-round residents. Therefore, avoidance mitigation is limited to designing the project to avoid direct impacts on woodrat nests to the extent feasible. Ideally, a minimum 10-ft buffer should be maintained between project construction activities and each nest to avoid disturbance. In some situations, a smaller buffer may be allowed if in the opinion of the qualified biologist removing the nest would be a greater impact than that anticipated due to project activities. If nests are observed within riparian habitat and this habitat will be avoided by the project, high-visibility fencing will be installed around these woodrat nests to keep workers, construction equipment, and construction materials out of the area where the nests are located.

Mitigation Measure 25. Relocation of Nest Materials. If avoidance of occupied nests is not feasible, the woodrats will be evicted from their nests prior to the removal of the nests and onset of ground-disturbing activities to avoid injury or mortality of the woodrats. A qualified biologist will disturb the woodrat nest to the degree that all woodrats leave the nest and seek refuge outside of the project activity area. Subsequently, the nest sticks will be relocated; these materials will be piled at the base of a nearby tree or shrub outside of the impact area. The spacing between relocated nests will not be less than 20 ft, unless a qualified biologist has determined that the habitat can support higher densities of nests.

6.2.6 Impacts on Nonbreeding Special-Status Animals (Less than Significant)

The monarch butterfly, American peregrine falcon, pallid bat, Townsend's big-eared bat, northern harrier, and mountain lion may occur in the BSA as occasional foragers, visitors, migrants, or transients, but are not expected to breed (or roost, in the case of the two bat species) in the BSA due to a lack of suitable habitat, or to occur in the BSA frequently or in large numbers. Project construction would permanently alter the extent of foraging and dispersal habitat for these species in the BSA. However, the loss or conversion of this habitat would affect only a very small proportion of regionally available habitat for these species and would not adversely affect local or regional populations of these species. This loss of potential foraging or dispersal habitat would not rise to the CEQA standard of having a *substantial* adverse effect, and this impact would not constitute a significant impact on these species or their habitat under CEQA. Individuals of these species could potentially be disturbed if present in or adjacent to the project site during construction, but no injury or mortality of these species will occur, and disturbance of foraging or dispersing individuals of these species would be a less-than-significant impact.

6.2.7 Impacts on the San Francisco Common Yellowthroat, Yellow Warbler, and Raptors, Including the White-tailed Kite (Less than Significant)

The San Francisco common yellowthroat, yellow warbler, and white-tailed kite, all of which are considered special-status species, may nest and forage in the BSA. In addition, other raptors, such as the red-tailed hawk, red-shouldered hawk, and Cooper's hawk, could potentially nest on the project site and are identified as Unique Species in the Half Moon Bay Zoning Code. These species are assessed together because the impacts of the project on these species would be similar.

Heavy ground disturbance, noise, and vibrations caused by project development in the BSA could disturb nesting, foraging, or roosting individuals of these species, causing them to move away from impact areas. Although adult birds are not expected to be killed or injured, as they could easily fly from the impact area prior to such effects occurring, eggs or young in nests could be lost. In addition, construction disturbance during the nesting season (February 1 through August 31, for most species) could result in the incidental loss of eggs or nestlings, either directly through the destruction or disturbance of active nests or indirectly by causing the abandonment of nests.

Based on the extent of suitable habitat within the BSA and typical territory sizes of these species, no more than one or two pairs of raptors (considering all four aforementioned raptor species together) and one to three pairs of the San Francisco common yellowthroat and yellow warbler are expected to nest in the BSA. Therefore, the loss of suitable habitat and the potential loss of active nests potentially resulting from project activities would represent a very small fraction of the regional habitat and populations of these species and would not rise to the CEQA standard of having a *substantial* adverse effect. This type of impact would not be significant under CEQA for the species that could potentially nest in the project site due to the local and regional abundances of these species and/or the low magnitude of the potential impact of the project on these species (i.e., the project is only expected to impact one or two individual pairs of these species, which is not a significant impact to their regional populations). However, all native bird species, including San Francisco common yellowthroats, yellow warblers, and white-tailed kites, are protected from direct take by the MBTA and California Fish and Game Code. In addition, biological resources policies in the updated LCP include Policy 6-64, as follows:

> **Active Nest Monitoring.** Ensure construction and tree removal during nesting seasons (generally from February 1 to August 15) complies with the Migratory Bird Treaty Act, California Fish and Game Code, and other applicable regulations by surveying the project vicinity for active nests, avoiding disturbance if active nests are found by employing exclusion buffers or other methods recommended by a qualified biologist, and monitoring active nests until all young have fledged.

As a result, we recommend the following measures to avoid impacts to nesting birds and to comply with the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code.

Recommended Measure A. Avoidance. To the extent feasible, construction activities will be scheduled to avoid the nesting season. If construction activities are scheduled to take place outside the nesting season, all impacts to nesting birds protected under the MBTA and California Fish and Game Code will be avoided. The nesting season for most birds in San Mateo County extends from February 1 through August 15.

Recommended Measure B. Preconstruction Surveys and Nest Buffers. If it is not possible to schedule construction activities between August 16 and January 31, then preconstruction surveys for nesting birds will be conducted by a qualified ornithologist to ensure that no nests will be disturbed during project implementation. These surveys will be conducted no more than seven days prior to the initiation of construction activities. During this survey, the ornithologist will inspect all trees and other potential nesting habitats (e.g.,

shrubs, California annual grasslands, and buildings) in and immediately adjacent to the impact area for nests. If an active nest is found sufficiently close to work areas to be disturbed by these activities, the ornithologist will determine the extent of a construction-free buffer zone to be established around the nest (typically 300 ft for raptors and 100 ft for other species), to ensure that no nests of species protected by the MBTA and California Fish and Game Code will be disturbed during project implementation.

Recommended Measure C. Inhibition of Nesting. If construction activities will not be initiated until after the start of the nesting season, all potential nesting substrates (e.g., bushes, trees, grasses, and other vegetation) that are scheduled to be removed by the project be removed prior to the start of the nesting season (e.g., prior to February 1). This will preclude the initiation of nests in this vegetation, and prevent the potential delay of the project due to the presence of active nests in these substrates.

6.3 Impacts on Sensitive Communities: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFW or USFWS

6.3.1 Impacts on Riparian Habitat or Other Sensitive Natural Communities (Less than Significant with Mitigation)

Within the BSA, riparian woodland habitat is present along the banks of Pilarcitos Creek and forms a dense, wide thicket that extends up to 200 ft from the banks into the BSA. Also, riparian woodland habitat is present along the banks of the perennial freshwater marsh. The City's Zoning Code and Local Coastal Program includes riparian area and corridors as sensitive habitats. The City of Half Moon Bay Zoning Code defines the Riparian Buffer Zone as being 50 ft from the edge of the riparian canopy or 100 ft from top of bank, whichever is greater (shown on Figure 5). Additionally, all ecological systems associated with drainages (i.e., riparian habitat) and drainage and pond features with bed and bank topography may be regulated by Sections 1600-1616 of the California Fish and Game Code; therefore, the riparian habitat along Pilarcitos Creek and the perennial freshwater marsh may require an LSAA from the CDFW prior to project activities. Also, the riparian habitat along Pilarcitos Creek includes the red willow-arroyo willow vegetation alliance, which is classified as a sensitive vegetation alliance by CDFW. Project impacts to this habitat type could include riparian tree removal, direct loss of habitat around the perennial freshwater marsh, and compaction or understory removal to construct trails or other recreational or educational facilities within the Pilarcitos Creek corridor. Due to the ecological value of riparian habitats, such impacts would be significant.

Indirect impacts to these habitats will be minimized and avoided through compliance with the project SWPPP and MRP, as well as observance of the 50-foot riparian buffer zone. If project activities occur within the Riparian Buffer Zone or in riparian habitat, as allowed by the Half Moon Bay LCP, the project will mitigate impacts to riparian habitat and sensitive natural communities by implementing the following mitigation measures:

Mitigation Measure 26. Avoidance of Riparian Habitat. All riparian habitat and the 50-foot riparian buffer area to be avoided will be shown on project design plansets, and prior to project activities, these areas will be protected with high-visibility fencing. If a trail or similar facility will be installed within the riparian corridor of Pilarcitos Creek, trees to be avoided will be clearly marked for retention. The project will also comply with the MRP and General Construction permit to prevent increases in peak flow, erosion, or reduction in water quality for downslope waters, which will prevent stream downcutting, riparian bank erosion, or other dowstream impacts. If riparian vegetation is impacted, then Mitigation Measure 27 and/or 28 will be implemented.

Mitigation Measure 27. Pruning of Riparian Trees. If project activities require pruning of riparian trees or shrubs, a certified arborist will be retained to perform any necessary pruning to minimize harm to vegetation, avoid injury leading to tree death for trees intended to be retained, and ensure rapid regeneration. Pruning will be limited to the minimum area necessary.

Mitigation Measure 28. Riparian Habitat Compensatory Mitigation. If project activities require removal of riparian habitat, the project shall compensate for permanent loss of riparian habitat via preservation, enhancement, and management. Because all riparian habitat within the BSA provides foraging and dispersal habitat for California red-legged frog and San Francisco garter snake, mitigation ratios for impacts will be 3:1 for San Francisco garter snake foraging habitat, and 1:1 for dispersal habitat for both species (see Section 3.2, Mitigation Measure 5). Mitigation can include onsite and/or offsite habitat occupied by the frog and snake, and will be preserved and managed in perpetuity (e.g. for loss of riparian habitat surrounding the marsh, the riparian corridor along Pilarcitos Creek could have cape ivy removed and be restored with native vegetation, which will enhance habitat quality for special-status species).

Placement of new development within the Riparian Buffer Zone will be offset at a ratio of 1:1 through the installation of native riparian plantings within the unaffected portions of the buffer. Tree plantings will be native trees, such as arroyo willow, black cottonwood (*Populus trichocarpa*), or box elder (*Acer negundo*). Buffer plantings will be monitored for 5 years and the criteria for success will be 70% survival and no more than 5% cover of Cal-IPC rated moderate and high impact weed species (excluding common annual grasses).

Temporary impacts to riparian habitat shall be restored in place at a 1:1 ratio through re-establishment of original contours along banks, decompaction of compacted soils where necessary, and seeding with a native seed mix and native tree plantings, developed by a qualified restoration ecologist. The native seed mix will contain grass and forb species that occur in the project vicinity. Tree plantings will be native trees, such as arroyo willow, black cottonwood, or box elder. Temporary impact areas will be monitored for 2 years and the criteria for success will be 75% vegetation cover or more compared to pre-project conditions and no more than 5% cover of Cal-IPC-rated moderate and high impact weed species (excluding Cal-IPC-rated annual grasses). Any planting for impacts as described above will require the development of a Riparian Restoration Plan (RRP). The RRP will clearly enumerate project related impacts to the Riparian buffer and riparian woodland, and will be implemented for the mitigation lands. That plan will include, at a minimum, the following information:

- a summary of habitat impacts and the proposed mitigation;
- a description of the location and boundaries of the mitigation site and description of existing site conditions;
- a description of measures to be undertaken to enhance (e.g., through focused management that may include removal of invasive species in adjacent suitable but currently unoccupied habitat) the mitigation site for the focal special-status species;
- a description of measures to transplant individual plants or seeds from the impact area to the mitigation site, if appropriate (which will be determined by a qualified plant or restoration ecologist);
- proposed management activities to maintain high-quality habitat conditions for the focal species;
- a description of habitat and species monitoring measures on the mitigation site, including specific, objective final and performance criteria, monitoring methods, data analysis, reporting requirements, monitoring schedule, etc. At a minimum, performance criteria will include the survival requirements and restrictions on Cal-IPC rated weed infestations described above; and
- contingency measures for mitigation elements that do not meet performance criteria.

The RRP will be prepared by a qualified plant or restoration ecologist. Approval of the RRP by the City will be required before the project impact occurs.

6.3.2 Impacts Caused by Non-Native and Invasive Species (Less than Significant with Mitigation)

Several non-native, invasive plant species occur in the grassland and riparian habitats located throughout the BSA. Invasive species can spread quickly and can be difficult to eradicate. Many non-native, invasive plant species produce seeds that germinate readily following disturbance. Further, disturbed areas are highly susceptible to colonization by non-native, invasive species that occur locally, or whose propagules are transported by personnel, vehicles, and other equipment. Activities such as trampling, equipment staging, and vegetation removal are all factors that would contribute to disturbance. Areas of disturbance could serve as the source for promoting the spread of non-native species, which could degrade the ecological values of riparian habitat and adversely affect native plants and wildlife that occur there. Invasive species can have an adverse effect on native species and habitats in several ways, including by altering nutrient cycles, fire frequency and/or intensity, and hydrologic cycles; by creating changes in sediment deposition and erosion; by dominating habitats and displacing native species; by hybridizing with native species; and by promoting non-native animal species (Bossard et al. 2000).

Invasive species, such as French broom, Himalayan blackberry, cape ivy, and poison hemlock are already present within and adjacent to riparian habitats. However, project activities near existing riparian habitat could cause them to spread further into previously unoccupied areas within the riparian and grassland habitats.

Therefore, this impact is considered significant. Implementation of the following mitigation measure will reduce potential weed-related impacts on sensitive habitats and the species they support to a less-than-significant level.

Mitigation Measure 29. Invasive Species Best Management Practices (BMPs). The following BMPs will be implemented to limit the spread of invasive species into sensitive habitats:

- All ground disturbing equipment used adjacent to the riparian habitat will be washed (including weeks, tracks, and undercarriages) at a legally operating equipment yard both before and after being used at the site.
- All applicable construction materials used on site, such as straw wattles, mulch, and fill material, will be certified weed free.
- The project will follow a Stormwater Pollution Prevention Plan as per the NPDES *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Construction General Permit; Water Board Order No. 2009-0009-DWQ) if applicable.
- All disturbed soils will be stabilized and planted with a native seed mix from a local source following construction.
- If excavating, soil and vegetation removed from densely weed-infested areas (for example, dense poison hemlock infestations or cape ivy infestations) will not be used in general soil stockpiles and will not be redistributed as topsoil cover for the newly filled areas. All weed-infested soil will be disposed of off-site at a landfill or buried at least 2.5 ft below final grade.

6.4 Impacts on Wetlands: Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means

6.4.1 Impacts on Wetlands and Waters (Less than Significant with Mitigation)

Both Pilarcitos Creek and the perennial freshwater marsh present in the BSA may be subject to the regulatory jurisdiction of the USACE, RWQCB, and CDFW and may require CWA 401/404 permits and a LSAA from the CDFW prior to project activities. Additionally, the Zoning Code and Local Coastal Program includes wetlands as sensitive habitats. The City of Half Moon Bay Zoning Code defines the Wetland Buffer Zone as "one hundred feet, measured from the high water point, except that no buffer is required for man-made ponds and reservoirs used for agriculture".

Wetlands are relatively scarce regionally, and even small wetland areas make disproportionate contributions to water quality, groundwater recharge, watershed function, and wildlife habitat in the region. Thus, any permanent loss or temporary disturbance of wetland habitat because of the project would be considered significant under CEQA.

Project development also has the potential to cause indirect impacts on jurisdictional waters to changes in water quality. However, construction projects in California causing land disturbances that are equal to 1 ac or greater must comply with State requirements to control the discharge of stormwater pollutants under the NPDES *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Construction General Permit; Water Board Order No. 2009-0009-DWQ). Prior to the start of construction/demolition, a Notice of Intent must be filed with the State Water Board describing the project. A SWPPP must be developed and maintained during the project and it must include the use of BMPs to protect water quality until the site is stabilized. Standard permit conditions under the Construction General Permit require that the applicant utilize various measures including: on-site sediment control best management practices, damp street sweeping, temporary cover of disturbed land surfaces to control erosion during construction, and utilization of stabilized construction entrances and/or wash racks, among other factors.

A list of example BMPs include:

- Work areas that are temporarily impacted will be restored with respect to pre-existing contours and conditions, to the extent feasible, upon completion of work. Restoration work including re-vegetation and soil stabilization will be evaluated upon completion of work and performed, as needed.
- Store, handle, and dispose of construction materials and wastes properly, so as to prevent their contact with stormwater.
- Control and prevent the discharge of all potential pollutants, including solid wastes, paints, concrete, petroleum products, chemicals, wash water or sediment and non-stormwater discharges to storm drains and water courses.
- Avoid cleaning, fueling, or maintaining vehicles on site, except in a designated area in which run-off is contained and treated.
- Perform clearing and earth moving activities during dry weather to the maximum extent practical.
- Remove spoils promptly and avoid stockpiling of fill materials when rain is forecast. Cover soil stockpiles and other materials with a tarp or other waterproof material during qualifying rain events.
- Trash and construction related solid wastes must be deposited into a covered receptacle to prevent contamination and dispersal by wind.
- In the event of rain, all grading work is to cease immediately.
- Implement an erosion control plan during the wet season (October 15 through April 15), including, at a minimum, the following:
- During the rainy season, all paved areas will be kept clear of earth material and debris.
- Inlet protection will be installed at open inlets to prevent sediment from entering the storm drain system.
- Straw rolls will be placed at the toe of slopes, and along the down slope perimeter of the project area.

- The integrity and effectiveness of construction fencing and erosion control measures will be inspected on a daily basis. Corrective actions and repairs will be carried out immediately for fence breaches and ineffective BMPs.

A hazardous spill plan will be developed prior to construction of any equipment yards or similar development on the parcel. The plan will describe what actions will be taken in the event of a spill. The plan will also incorporate preventative measures to be implemented, such as vehicle and equipment staging, cleaning, maintenance, and refueling; and contaminant (including fuel) management and storage. In the event of a contaminant spill, work at the site will immediately cease until the contractor has contained, and mitigated the spill. The contractor will immediately prevent further contamination and notify appropriate authorities, and mitigate damage as appropriate. Adequate spill containment materials, such as oil diapers and hydrocarbon cleanup kits, shall be available on site at all times. Containers for storage, transportation, and disposal of contaminated absorbent materials will be provided in the project area.

In many Bay Area counties, including San Mateo County, projects may also have to comply with the *California Regional Water Quality Control Board, San Francisco Bay Region, Municipal Regional Stormwater NPDES Permit* (MRP) (Water Board Order No. R2-2015-0049). This MRP requires that all projects that meet certain criteria must implement BMPs and incorporate Low Impact Development practices into the design to prevent stormwater runoff pollution, promote infiltration, and hold/slow down the volume of water coming from a site after construction has been completed. To meet these permit and policy requirements, projects must incorporate the use of green roofs, impervious surfaces, tree planters, grassy swales, bioretention and/or detention basins, among other factors. These same features will be used to treat any stormwater that flows to the riverine habitat during large storm events. The perennial freshwater marsh wetland is protected from indirect water quality impacts by the constructed berms for the impoundment. Thus, impacts on water quality would be reduced to a level of less-than-significant.

The project does not proposed to impact wetlands directly by filling or grading, and there is no vegetation removal proposed within the wetlands on-site. Temporary impacts due to construction access or staging are also not proposed. However, in the absence of measures to ensure that accidental impacts do not occur, it is possible that construction equipment could impact wetlands inadvertently. Implementation of the following mitigation measure will ensure that no such impacts occur, reducing impacts due to permanent or temporary disturbance of wetlands to a less-than-significant level.

6.5 Mitigation Measure 29. Avoidance of Wetlands and Waters. All wetland habitat within 100 ft of project impact areas will be shown on project design plansets, and prior to project activities, these areas will be protected with high-visibility ESA fencing. Impacts on Wildlife Movement: Interfere substantially with the movement of any native resident or migratory fish or wildlife

species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites

6.5.1 Impacts on Wildlife Movement: (Less than Significant with Mitigation)

For many species, the landscape in the BSA is a mosaic of suitable and unsuitable habitat types. Environmental corridors are segments of land that provide a link between these different habitats while also providing cover. Development that fragments natural habitats (i.e., breaks them into smaller, disjunct pieces) can have a twofold impact on wildlife: first, as habitat patches become smaller they are unable to support as many individuals (patch size); and second, the area between habitat patches may be unsuitable for wildlife species to traverse (connectivity).

The BSA is situated adjacent to a housing development on its western border, SR 92 on its northern border, and a maintenance yard at its eastern end. This adjacent development currently restricts wildlife movement to and from habitats to the north, west, and east of the BSA. Thus, the study likely does not function as a high-quality movement corridor for most species, particularly special-status species. However, because Pilarcitos Creek runs along its southern border, wildlife are able to disperse into the BSA along this riparian corridor. Wildlife dispersing into or through the BSA are currently able to move between Pilarcitos Creek and the perennial freshwater marsh in the northwestern section of the BSA. Thus, any development of the intervening annual grassland between Pilarcitos Creek and the perennial freshwater marsh would result in isolating the marsh. For example, this isolation would most likely impact any California red-legged frog population currently utilizing the marsh as breeding habitat by restricting the species' ability to disperse to and from the marsh to other habitat patches for this species in the region connected by the creek (see Section 6.4.2 above). Therefore, any project activity that isolates the perennial marsh from Pilarcitos Creek would be considered significant under CEQA. However, implementation of Mitigation Measures 4 and 5 for California red-legged frogs and San Francisco garter snakes would reduce impacts on these and other species currently using the perennial marsh to a less-than significant level. Because the project does not propose to impact Pilarcitos Creek and will have little impact, if any, on the riparian habitat and associated buffer, wildlife will be able to continue moving through the site along the creek, and the project will not result in significant impacts to wildlife movement along the creek.

6.6 Impacts due to Conflicts with Local Policies: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance

6.6.1 Impacts to Heritage Trees per Municipal Code Section 7.40 (Less than Significant with Mitigation)

Per City of Half Moon Bay Municipal Code Section 7.40, Heritage Trees, a permit from the City Manager or his or her designee and payment of a fee are required for the removal of any trees which meets the definition of heritage tree, as defined in Section 3.4.2 above.

The BSA contains trees that likely meet the definition of a Heritage Tree. Because these trees are protected by the City of Half Moon Bay's heritage tree ordinance, their removal would meet the threshold of having a substantial adverse effect, and would be considered potentially significant under CEQA. Implementation of the following mitigation measure will reduce this impact to a less-than-significant level.

Mitigation Measure 30. During detailed design of the project, removal of trees protected by the City heritage tree ordinance will be avoided and minimized to the extent feasible. If tree removal is necessary, it is recommended that a certified arborist conduct a tree survey to determine the number and health of heritage trees within the developed habitat of the BSA. Where removal on trees cannot be avoided, the project proponent will comply with the standards of the City heritage tree ordinance, including the planting of replacement trees where feasible and approval from the City Manager.

6.7 Impact due to Conflicts with an Adopted Habitat Conservation Plan: Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan (No Impact)

The BSA is not located within an area covered by an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore, the project would not conflict with any such plans.

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Personal Communications

John Doughty of the City of Half Moon Bay in an email on July 6, 2018 to, and a conversation on August 27, 2018 with, Jeff Wilkinson of H. T. Harvey & Associates.

Appendix A. Plants Observed

Family	Scientific Name	Common Name	Wetland Indicator Status
Agavaceae	*Chlorogalum pomeridianum*	soap plant	UPL
Anacardiaceae	*Toxicodendron diversilobum*	poison oak	FAC
Apiaceae	*Conium maculatum*	poison hemlock	FAC
	Hydrocotyle verticillata	whorled marsh-pennywort	OBL
	Torilis arvensis	field hedge parsley	UPL
Araceae	*Lemna sp.*	duckweed	OBL
Araliaceae	*Hedera helix*	English ivy	FACU
Asteraceae	*Arctotheca prostrata*	creeping capeweed	UPL
	Baccharis pilularis	coyote brush	UPL
	Carduus pycnocephalus	Italian thistle	UPL
	Cirsium vulgare	bull thistle	FACU
	Deinandra corymbosa	coastal tarweed	UPL
	Delairea odorata	cape ivy	UPL
	Helminthotheca echioides	bristly ox-tongue	FAC
	Lactuca serriola	*prickly lettuce*	FACU
	Madia sativa	Chile tarweed	UPL
	Silybum marinum	milk thistle	UPL
Azollaceae	*Azolla filiculoides*	mosquito fern	OBL
Betulaceae	*Alnus rubra*	red alder	FAC
Brassicaceae	*Brassica nigra*	black mustard	UPL
	Hirschfeldia incana	Mediterranean hoary mustard	UPL
	Raphanus sativus	wild radish	UPL
Caryophyllaceae	*Silene gallica*	windmill pink	UPL
Cupressaceae	*Sequoia sempervirens*	coast redwood	UPL
Cyperaceae	*Carex barbarae*	Santa Barbara sedge	FAC
	Carex densa	dense sedge	OBL
	Cyperus eragrostis	tall flatsedge	FACW
Equisetaceae	*Equisetum arvense*	common horsetail	FAC
Fabaceae	*Acacia dealbata*	silver wattle	UPL
	Genista monspessulana	French broom	UPL
	Lotus corniculatus	bird's foot trefoil	FAC

Family	Scientific Name	Common Name	Wetland Indicator Status
	Lupinus arboreus	coastal bush lupine	UPL
	Trifolium angustifolium	narrow leaved clover	UPL
	Vicia villosa	hairy vetch	UPL
Fagaceae	*Quercus agrifolia*	coast live oak	UPL
Junacaeae	*Juncus effusus*	bog rush	FACW
	Juncus patens	common rush	FACW
	Juncus xiphoides	iris leaved rush	OBL
Lamiaceae	*Stachys bullata*	California hedge nettle	UPL
Linaceae	*Linum bienne*	narrow leaved flax	UPL
Myrtaceae	*Eucalyptus globulus*	blue gum	UPL
Pinaceae	*Hesperocyparis macrocarpa*	Monterey cypress	UPL
	Pinus radiata	Monterey pine	UPL
	Pseudotsuga menziesii	Douglas fir	FACU
Plataginaceae	*Plantago coronopus*	cutleaf plantain	FAC
Poaceae	*Agoseris stolonifera*	creeping bentgrass	FAC
	Aira caryophyllea	silvery hairgrass	FACU
	Avena sp.	wild oats	UPL
	Briza maxima	rattlesnake grass	UPL
	Briza minor	little quaking grass	FAC
	Bromus diandrus	ripgut brome	UPL
	Bromus hordeaceus	soft chess	FACU
	Cortaderia jubata	Pampas grass	FACU
	Cynosurus echinatus	dogtail grass	UPL
	Festuca perenne	Italian ryegrass	FAC
	Holcus lanatus	velvet grass	FAC
	Hordeum murinum	meadow barley	FAC
	Polypogon monspeliensis	rabbitsfoot grass	FACW
Polygonaceae	*Rumex acetosella*	sheep sorrel	FACU
	Rumex crispus	curly dock	FAC
Primulaceae	*Lysimachia arvensis*	scarlet pimpernel	FAC
Rosaceae	*Cotoneaster pannosus*	silverleaf cotoneaster	UPL
	Rubus armeniacus	Himalayan blackberry	FAC
	Rubus ursinus	California blackberry	FACU
Salicaceae	*Salix laevigata*	red willow	FACW
	Salix lasiandra	Pacific willow	FACW

Family	Scientific Name	Common Name	Wetland Indicator Status
	Salix lasiolepis	arroyo willow	FACW
Typhaceae	*Typha latifolia*	common cattail	OBL
Urticaceae	*Urtica dioica* ssp. *dioica*	stinging nettle	FAC

Appendix B. Special-Status Plants Considered for Potential Occurrence

Name	Status[1]	General Habitat Description	Potential for occurrence in the BSA[2]
Federal or State Endangered, Threatened, or Candidate Species			
San Mateo thornmint (*Acanthomintha duttonii*)	FE, SE, 1B.1	Annual herb. Occurs on serpentine in chaparral, valley and foothill grassland. Blooms April – June.	**Absen**t. There is no suitable habitat present within the BSA due to the absence of serpentine substrate. Also, this species is highly restricted in distribution and is known from only two extant natural occurrences and one introduced population in San Mateo county. Therefore, this species is determined to be absent from the BSA.
Fountain thistle (*Cirsium fontinale* var. *fontinale*)	FE, SE, 1B.1	Perennial herb. Occurs in serpentine seeps in chaparral openings and valley and foothill grassland. Blooms June – October.	**Absen**t. There is no suitable habitat for this species within the BSA due to lack of serpentine seeps in the BSA. Known only from the Crystal Springs Reservoir area within the Golden Gate National Recreation Area. Therefore, this species is determined to be absent from the BSA.
San Mateo woolly sunflower (*Eriophyllum latilobum*)	FE, SE, 1B.1	Perennial herb. Occurs on serpentine in cismontane woodland, often on roadcuts. Blooms May – June.	**Absent**. There is no suitable habitat for this species within the BSA due to lack of serpentine substrate. Also, this species is highly restricted in distribution and is known only from the Crystal Springs Reservoir area within the Golden Gate National Recreation Area. Therefore, this species is determined to be absent from the BSA.
Marin western flax (*Hesperolinon congestum*)	FT, CT, 1B.1	Annual herb. Occurs on serpentine substrate in chaparral and valley and foothill grassland. Blooms April – July.	**Absent**. No suitable habitat is present within the BSA due to lack of serpentine substrate. Known only from the Crystal Springs Reservoir area. Therefore, this species is determined to be absent from the BSA.
Coast yellow leptosiphon (*Leptosiphon croceus*)	SC; 1B.1	Annual herb. Occurs in coastal bluff scrub and coastal prairie. Blooms April – May.	**Absent**. There is no coastal bluff or scrub habitat present within the BSA. Also, this species is highly restricted in distribution and is known only from one population in Moss Beach. Therefore, this species is determined to be absent from the BSA.

Name	Status[1]	General Habitat Description	Potential for occurrence in the BSA[2]
White-rayed pentachaeta (*Pentachaeta bellidiflora*)	FE, CE, 1B.1	Annual herb. Occurs on serpentine substrate on cismontane woodland and valley and foothill grassland. Blooms March – May.	**Absent**. There is no suitable habitat for this species within the BSA due to lack of serpentine substrate. Also, this species is highly restricted in distribution and is Known only from the Crystal Springs Reservoir area and near Edgewood Park and Natural Preserve. Therefore, this species is determined to be absent from the BSA.
Hickman's cinquefoil (*Potentilla hickmanii*)	FE, SE, 1B.1, LCP	Perennial herb. Occurs in marshy areas within coastal bluff scrub and closed-cone coniferous forest. Also, vernally mesic meadows and seeps, and freshwater marshes and swamps. Blooms April – August	**Absent**. There is marginal freshwater marsh habitat for this species within the BSA. However, no suitable vegetation association is present. Additionally, this species is only known locally from Rancho Corral de Tierra area of the Golden Gate National Recreation Area. Therefore, this species is determined to be absent from the BSA.
CRPR Species and Locally Rare Species			
Blasdale's bent grass (*Agrostis blasdalei*)	1B.2	Perennial grass. Occurs in coastal scrub, dunes, and prairie. Blooms May – July.	**Absent**. There is no suitable coastal scrub, dune, or prairie habitat for this species within the BSA. Known only from coastal sites in southern San Mateo County. Therefore, this species is determined to be absent from the BSA.
Franciscan onion (*Allium peninsulare* var. *franciscanum*)	1B.2	Perennial herb. Occurs on hillsides in cismontane woodland and valley and foothill grassland with serpentine, clay, and volcanic soils. Blooms May – June.	**Absent.** There is no suitable habitat for this species within the BSA due to the ack of suitable soils,ck Only known locally from the Crystal Springs Reservoir area within the Golden Gate National Recreation Area. Therefore, this species is determined to be absent from the BSA.
Bent-flowered fiddleneck (*Amsinckia lunaris*)	1B.2	Annual herb. Coastal bluff scrub, cismontane woodland and valley and foothill grassland, often on serpentine soils. Blooms March – June.	**Absent.** There is no suitable habitat for this species within the BSA due tolack of serpentine soils. Only known locally from the Crystal Springs Reservoir area within the Golden Gate National Recreation Area. Additionally, there are no records of coastal occurrences. Therefore, this species is determined to be absent from the BSA.

Name	Status[1]	General Habitat Description	Potential for occurrence in the BSA[2]
California androsace (*Androsace elongata* ssp. *acuta*)	4.2	Annual herb. Occurs on dry grassy slopes in chaparral, foothill woodland, northern coastal scrub, and coastal sage scrub. Blooms February – April.	**Absent.** There is no suitable chaparral habitat for this species within the BSA. Additionally, there are no recent records of occurrences in San Mateo County. Therefore, this species is determined to be absent from the BSA.
Coast rock cress (*Arabis blepharophylla*)	4.3; LCP	Perennial herb. Occurs in broadleafed upland forest, coastal bluff scrub, coastal prairie, and coastal scrub. Blooms February – May.	**Absent**. There is no suitable forest, scrub, or prairie habitat for this species within the BSA. Only known locally from a coastal site in San Mateo County and from the Rancho Corral de Tierra area of the Golden Gate National Recreation Area. Therefore, this species is determined to be absent from the BSA.
Santa Cruz manzanita (*Arctostaphylos andersonii*)	1B.2	Occurs in openings and edges of broadleaved upland forest, chaparral, and North Coast coniferous forest. Blooms November – April.	**Absent**. There is no suitable forest or chaparral habitat for this species within the BSA. Vegetative material would have been detectable during the June 2018 site visit. Therefore, this species is determined to be absent from the BSA.
Montara manzanita (*Arctostaphylos montarensis*)	1B.2, LCP	Evergreen shrub. Occurs in maritime chaparral and coastal scrub. Blooms January– March.	**Absent**. There is no suitable chaparral habitat within the BSA. Vegetative material would have been detectable during the June 2018 site visit. Only known locally from higher elevations within the Golden Gate National Recreation Area. Therefore, this species is determined to be absent from the BSA.
Kings Mountain manzanita (*Arctostaphylos regismontana*)	1B.2	Evergreen shrub. Occurs on granite or sandstone in broadleaved upland forest, chaparral, and North Coast coniferous forest. Blooms January – April.	**Absent**. There is no suitable granite or sandstone substrate within the BSA. Vegetative material would have been detectable during the June 2018 site visit. Only known locally from higher elevations within open spaces east of Half Moon Bay. Therefore, this species is determined to be absent from the BSA.
Ocean bluff milk-vetch (*Astragalus nuttallii* var. *nuttallii*)	4.2	Perennial herb. Occurs in coastal bluff scrub and coastal dunes in rocky or sandy areas. Blooms all year.	**Absent.** There is no suitable coastal bluff or dune habitat within the BSA. Only known locally from several coastal sites in San Mateo County and the Presidio in San Francisco. Therefore, this species is determined to be absent from the BSA.

Name	Status[1]	General Habitat Description	Potential for occurrence in the BSA[2]
Coastal marsh milk-vetch (*Astragalus pycnostachyus* var. *pycnostachyus*)	1B.2	Perennial herb. Occurs in coastal salt marshes, seeps and mesic coastal dunes. Blooms April – October.	**Absent**. There is no salt marsh or coastal dune habitat for this species within the BSA. Only known locally from several coastal sites in San Mateo County. Therefore, this species is determined to be absent from the BSA.
Brewer's calandrinia (*Calandrinia breweri*)	4.2	Annual herb. Occurs in chaparral and coastal scrub. Blooms January – June.	**Absent.** There is no chaparral or coastal scrub habitat for this species within the BSA. Only known locally from the Crystal Springs Reservoir area. Therefore, this species is determined to be absent from the BSA.
Oakland star-tulip (*Calochortus umbellatus*)	4.2	Perennial herb. Occurs in open chaparral or woodland, usually on serpentine substrate. Blooms March – May.	**Absent.** There is no suitable chaparral or woodland habitat for this species within the BSA. Only known locally from several locations in the Santa Cruz Mountains. Therefore, this species is determined to be absent from the BSA.
Johnny-nip (*Castilleja ambigua* var. *ambigua*)	4.2	Annual herb. Occurs in mesic areas in coastal bluffs, coastal prairie, coastal scrub, and valley and foothill grassland. Also occurs in marshes and vernal pools. Blooms May – August.	**Absent.** There is marginal mesic grassland habitat present within the BSA. However, the grassland habitat is dominated by ruderal species. Additionally, no suitable vegetation association is present. Known locally from several coastal locations in San Mateo County. Therefore, this species is determined to be absent from the BSA.
Pappose tarplant (*Centromadia parryi* ssp. *parryi*)	1B.2	Annual herb. Occurs in coastal prairie, meadows and seeps coastal salt marshes and swamps and vernally mesic valley and foothill grassland often in alkaline soils. Blooms May – November.	**Absent**. There is no suitable mesic alkaline habitat present within the BSA. Only known locally from the Rancho Corral de Tierra area of the Golden Gate National Recreation Area. Therefore, this species is determined to be absent from the BSA.
San Francisco Bay spineflower (*Chorizanthe 4uspidate* var. *4uspidate*)	1B.2	Annual herb. Occurs on sandy soils in coastal bluff scrub, coastal dunes, coastal prairie, and coastal scrub.	**Absent.** There is no suitable habitat for this species within the BSA due to lack of sandy soils. Known from only one recent occurrence at Thorton State Beach near San Francisco. Therefore, this species is determined to be absent from the BSA.

Name	Status[1]	General Habitat Description	Potential for occurrence in the BSA[2]
Franciscan thistle (*Cirsium andrewsii*)	1B.2	Perennial herb. Occurs on mesic and sometimes serpentine substrates in broadleaved upland forest, coastal bluff scrub, coastal prairie, and coastal scrub. Blooms March – July.	**Absent**. There is no suitable habitat for this species within the BSA, due to the lack of fserpentinitic bedrock geology. This species is presumed extirpated from San Mateo County. Therefore, this species is determined to be absent from the BSA.
San Francisco collinsia (*Collinsia multicolor*)	1B.2	Annual herb. Occurs in moist, shady areas in closed cone coniferous forest and coastal scrub. Blooms March – May.	**Absent**. There is no suitable forest or coastal scrub habitat for this species within the BSA. There are no records of occurrences along the San Mateo coast. Therefore, this species is determined to be absent from the BSA.
Clustered lady's slipper (*Cypripedium fasciculatum*)	4.2	Perennial herb. Occurs in mesic, shady areas of conifer forests. Blooms March – July.	**Absent.** Known from several locations in the Santa Cruz Mountains, but there is no suitable habitat for this species within the BSA, so this species is considered absent from the BSA.
Mountain lady's slipper (*Cypripedium montanum*)	4.2	Perennial herb. Occurs in moist areas and dry slopes in mixed evergreen and conifer forests. Blooms March – June.	**Absent.** Known from one non-specific location near La Honda in San Mateo County, but there is no suitable habitat for this species within the BSA, so this species is considered absent from the BSA.
Western leatherwood (*Dirca occidentalis*)	1B.2	Deciduous shrub. Occurs on mesic sites in broadleaved upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, North Coast coniferous forest, riparian scrub, and riparian woodland. Blooms January – April.	**Absent**. There is marginal habitat for this species within the BSA, and this species is known from higher elevation locations in the Santa Cruz Mountains in San Mateo County. Vegetative material would have been detectable during the June 2018 site visit and was not observed, so this species is considered absent from the BSA.
California bottle-brush (*Elymus californicus*)	4.3	Perennial grass. Occurs in broadleaved upland forest, cismontane woodland, north coast coniferous forest, and riparian woodland. Blooms May – November.	**Absent.** There is marginal habitat for this species within the BSA. Known from the Rancho Corral de Tierra area of the Golden Gate National Recreation Area. However, there are no records of occurrences along the San Mateo coast, so this species is considered absent from the BSA.

Name	Status[1]	General Habitat Description	Potential for occurrence in the BSA[2]
San Francisco wallflower (*Erysimum franciscanum*)	4.2; LCP	Perennial herb. Occurs on serpentine and granite substrate in coastal strand, northern coastal scrub, and valley grassland. Blooms March – June.	**Absent**. Known from the Crystal Springs Reservoir area. No suitable habitat for this species is present within the BSA due to lack of bedrock geology, so this species is considered absent from the BSA.
Beach strawberry (*Fragaria chiloensis*)	LCP	Perennial herb. Occurs near the coast in sandy soils often in road cuts, on coastal bluffs, and on cliffs. Blooms February – March.	**Absent**. There is no suitable habitat present within the BSA due to lack of sandy soils. This species would have been detectable during the June 2018 site visit and was not observed, so this species is considered absent from the BSA.
Stinkbells (*Fritillaria agrestis*)	4.2	Perennial herb. Occurs in clay soils on banks, depressions, and slopes in chaparral, valley grassland, and foothill woodland. Sometimes occurs in serpentine soils. Blooms March – June.	**Absent.** Known only from Año Nuevo State Park in southern San Mateo County. There is no suitable habitat present within the BSA, so this species is considered absent from the BSA.
Hillsborough chocolate lily (*Fritillaria biflora* var. *lneziana*)	1B.1	Perennial herb. Occurs on serpentine in cismontane woodland and valley and foothill grassland. Blooms March – April.	**Absent**. Known only from the Hillsborough area of San Mateo County. There is no suitable habitat for this species in the BSA due to lack of serpentine substrate, so this species is considered absent from the BSA.
Marin checker lily (*Fritillaria lanceolata* var. *tristulis*)	1B.1	Perennial herb. Occurs in coastal prairie, coastal scrub, and coastal bluff scrub. Blooms February –May.	**Absent**. Known mainly from Marin County. There is one non-specific occurrence in Rancho Corral de Tierra area of the Golden Gate National Recreation Area. There is no suitable habitat present within the BSA, so this species is considered absent from the BSA.
Fragrant fritillary (*Fritillaria liliacea*)	1B.2	Perennial herb. Occurs in cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland near the coast, on heavy clay and serpentine soils. Blooms February – April.	**Absent**. Known from the Crystal Springs area. There is no suitable habitat for this species within the BSA due to a lack of bedrock geology, so this species is considered absent from the BSA.

Name	Status[1]	General Habitat Description	Potential for occurrence in the BSA[2]
San Francisco gumplant (*Grindelia hirsutula* var. *maritima*)	1B.2	Perennial herb. Occurs on serpentine or sandy substrates in coastal bluff scrub, coastal scrub, and valley and foothill grassland. Blooms August – September.	**Absent**. Known from Mc Nee State Park area. There is no suitable habitat present within the BSA due to lack of sandy or serpentine substrates, so this species is absent from the BSA.
Short-leaved evax (*Hesperevax sparsiflora* var. *brevifolia*)	2.2	Annual herb. Occurs on sandy substrates in coastal bluff scrub and coastal dunes. Blooms March – June.	**Absent**. There is one non-specific occurrence from Rancho Corral de Tierra area of the Golden Gate National Recreation Area. There is no suitable habitat within the BSA due to the lack of serpentine or sandy substrates, so this species is absent from the BSA.
Kellogg's horkelia *Horkelia 7uneate* subsp. *sericea*)	1B.1	Annual herb. Occurs on sandy substrate in closed-cone coniferous forest, chaparral, coastal dunes, old sand hills, coastal scrub. Blooms April – September.	**Absent**. Known from near Rancho Corral de Tierra area of the Golden Gate National Recreation Area. There is no suitable habitat present within the BSA due to lack of sandy substrate, so this species is absent from the BSA.
Point Reyes horkelia (*Horkelia marinensis*)	1B.2	Perennial herb. Occurs on sandy substrates in coastal dunes, coastal prairie, and coastal scrub. Blooms May – September.	**Absent.** Known mainly from coastal areas in Santa Cruz County. There is one non-specific occurrence from Rancho Corral de Tierra area of the Golden Gate National Recreation Area. There is no suitable habitat present within the BSA due to lack of sandy substrate, so this species is absent from the BSA.
Harlequin lotus (*Hosackia gracilis*)	4.2	Perennial herb. Occurs in marshes, shores, ponds, ditches, wet areas in meadows in mixed evergreen forest, northern coastal scrub, and closed-cone pine Forest. Blooms March – July.	**Possible**. There is suitable habitat present within the BSA. Known from several locations along the San Mateo coast and the Crystal Springs Reservoir area. Could potentially occur in the riparian habitat along Pilarcitos Creek
Coast iris (*Iris longipetala*)	4.2	Perennial herb. Occurs in seeps and mesic areas in coastal prairie and lower montane coniferous forest.	**Absent.** Known from the Crystal Springs Reservoir area. There is no suitable habitat present within the BSA, so this species is absent from the BSA.

Name	Status[1]	General Habitat Description	Potential for occurrence in the BSA[2]
perennial goldfields (*Lasthenia californica* ssp. *Macrantha*)	1B.2	Perennial herb. Occurs in coastal dunes, coastal bluff scrub, coastal scrub, and grasslands along immediate coast. Blooms January – November.	**Absent**. Known from nearby open spaces along the San Mateo County Coast, but there is no suitable habitat present within the BSA, so this species is absent from the BSA.
Bristly leptosiphon (*Leptosiphon acicularis*)	4.2	Annual herb. Occurs in grassy areas in coastal prairie, chaparral, and foothill woodland. Blooms April – May.	**Absent.** Known from the Crystal Springs Reservoir area, but there is no suitable habitat present within the BSA, so this species is absent from the BSA.
Serpentine leptosiphon (*Leptosiphon ambiguous*)	4.2	Annual herb. Occurs in grassy areas on serpentine soils. Blooms April – May.	**Absent.** There is no suitable habitat present within the BSA due to lack of serpentine substrate. There are no records of occurrences along the San Mateo coast. This species is absent from the BSA.
Large-flowered leptosiphon (*Leptosiphon grandiflorus*)	4.2	Annual herb. Occurs in open grassy flats in coastal strand, foothill woodland, northern coastal scrub, coastal sage scrub, closed-cone pine forest, valley grassland, and coastal prairie, generally in sandy soil.	**Absent.** There is no suitable habitat present within the BSA, and there are no recent records occurrences in San Mateo County. Mainly known from Henry Coe State Park and the Mt. Hamilton area. This species is absent from the BSA.
Rose linanthus (*Leptosiphon rosaceus*)	1B.1	Annual herb. Occurs in coastal bluff scrub. Blooms April – June.	**Absent**. Known from the Pillar Point Bluff area, but there is no suitable habitat present within the BSA, so this species is absent from the BSA.
Crystal Springs lessingia (*Lessingia arachnoidea*)	1B.2	Annual herb. Occurs on serpentine in cismontane woodland, coastal scrub, and valley and foothill grassland. Blooms July – October.	**Absent**. Known from the Crystal Springs Reservoir area. There is no suitable habitat for this species within the BSA due to lack of serpentine substrate, so this species is absent from the BSA.

Name	Status[1]	General Habitat Description	Potential for occurrence in the BSA[2]
Woolly-headed lessingia (*Lessingia hololeuca*)	3	Annual herb. Occurs in broadleaved upland forest, coastal scrub, lower montane coniferous forest and valley and foothill grassland on clayey and serpentine substrates. Blooms June – October.	**Absent.** Known from the Crystal Springs Reservoir area. There is no suitable habitat for this species within the BSA due to lack of serpentine and clayey substrates, so this species is absent from the BSA.
Coast lily (*Lilium maritimum*)	1B.1	Perennial herb. Occurs in broadleaved upland forest, closed-cone coniferous forest, coastal prairie, coastal scrub, and freshwater marshes and swamps. Blooms May – July.	**Absent.** Known from Point Reyes National Seashore in Marin County. There is suitable habitat for this species within the BSA. However, this species is presumed extirpated from San Mateo County, so this species is absent from the BSA.
Ornduff's meadowfoam (*Limnanthes douglasii* var. *ornduffii*)	1B.2	Annual herb. Occurs in mesic meadows and seeps as well as agricultural fields in coastal prairie. Referred to as yellow meadowfoam in the LCP Blooms. March – May.	**Absent**. There is marginal habitat present within the BSA. However, this species is highly restricted in distribution and is known only from the Pillar Point Bluff area, so this species is absent from the BSA.
San Mateo tree lupine (*Lupinus arboreus* var. *eximius*)	3.2; LCP	Evergreen shrub. Occurs in chaparral and coastal scrub. Referred to as Davy's Bush Lupine in the LCP. Blooms April – July.	**Absent.** Known from McNee Ranch State Park and Montara mountain. There is no suitable habitat for this species within the BSA, so this species is absent from the BSA.
Indian Valley bush mallow (*Malacothamnus aboriginum*)	1B.2	Deciduous shrub. Occurs on rocky and often burned areas in chaparral and cismontane woodland. Blooms April – October.	**Absent.** There is one non-specific occurrence from Rancho Corral de Tierra area of the Golden Gate National Recreation Area. Known mainly from San Benito County. There is no suitable habitat for this species within the BSA due to lack of rocky substrate, so this species is absent from the BSA.
Arcuate bush mallow (*Malacothamnus arcuatus*)	1B.2	Evergreen shrub. Occurs in chaparral. Blooms April – September.	**Absent**. Known from the Crystal Springs Reservoir area. There is no suitable habitat for this species within the BSA. Vegetative material would have been detectable during the June 2018 site visit but none was seen. Therefore, this species is absent from the BSA.

Name	Status[1]	General Habitat Description	Potential for occurrence in the BSA[2]
Davidson's bush mallow (*Malacothamnus davidsonii*)	1B.2	Deciduous shrub. Occurs in chaparral, cismontane woodland, coastal scrub, and riparian woodland. Blooms June – January.	**Absent**. There is marginal habitat present within the BSA. However, this species is known only from locations in the Santa Cruz Mountains, so this species is absent from the BSA.
Hall's bush mallow (*Malacothamnus hallii*)	1B.2	Evergreen shrub. Occurs in open areas in chaparral and coastal scrub. Blooms May – September.	**Absent**. There is no suitable chaparral or coastal scrub habitat for this species within the BSA. Vegetative material would have been detectable during the June 2018 site visit. Additionally, this species is only known locally from locations in the Santa Cruz Mountains. Therefore, this species is determined to be absent from the BSA.
Marsh microseris (*Microseris paludosa*)	1B.2	Perennial herb. Occurs in moist areas in closed-cone coniferous forest, cismontane woodland, coastal scrub and valley and foothill grassland. Blooms April – June.	**Absent.** There is marginal mesic grassland habitat for this species within the BSA. However, this species is known only from one recent occurrence in San Mateo County, near Pescadero. Therefore, this species is determined to be absent from the BSA.
Elongate copper moss (*Mielichhoferia elongata*)	4.3	Moss. Occurs in broadleafed upland forest, chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, and subalpine coniferous forest on vernally mesic, acidic metamorphic rock.	**Absent.** There is no suitable metamorphic rock habitat for this species within the BSA. Known only from one non-specific location in southern San Mateo County. Therefore, this species is determined to be absent from the BSA.
Woodland woolythreads (*Monolopia gracilens*)	1B.2	Annual herb. Occurs on serpentine substrate in broadleaved upland forest, chaparral, cismontane woodland, north coast coniferous forest and valley and foothill grassland, usually in open areas. Blooms February – July	**Absent**. There is no suitable habitat for this species within the BSA due to lack of serpentine substrate. Only known locally from locations in the Santa Cruz Mountains. Therefore, this species is determined to be absent from the BSA.

Name	Status[1]	General Habitat Description	Potential for occurrence in the BSA[2]
Gairdner's yampah (*Perideridia gairdneri* ssp. *gairdneri*)	4.2; LCP	Perennial herb. Occurs in moist soils within broadleaved upland forest, chaparral, coastal prairie, valley and foothill grassland, and vernal pools. Blooms June – October.	**Absent**. There is marginal mesic grassland habitat for this species within the BSA. However, only known from the Crystal Springs Reservoir area and the Pescadero area. Additionally, no suitable vegetation association is present. Therefore, this species is determined to be absent from the BSA.
Dudley's lousewort (*Pedicularis dudleyi*)	1B.2	Perennial herb. Occurs in coastal chaparral and coniferous forest.Blooms April – June.	**Absent**. There is no suitable chaparral and forest habitat for this species within the BSA. Also, this species is known only from several locations in southern San Mateo County. Therefore, this species is determined to be absent from the BSA.
Choris's popcorn-flower (*Plagiobothrys chorisianus* var. *chorisianus*)	1B.2	Annual herb. Occurs in moist areas within coastal scrub and chaparral, Blooms March – June.	**Absent**. There is no suitable coastal scrub habitat for this species within the BSA. Only known locally from coastal scrub habitats along the San Mateo County Coast, including Half Moon Bay. Therefore, this species is determined to be absent from the BSA.
Monterey pine (*Pinus radiata*)	1B.1, LCP	Perennial evergreen tree. Occurs in Closed-cone coniferous forest and Cismontane woodland. Commonly planted as an ornamental throughout coastal California.	**Present as an ornamental.** The Monterey pines present within the BSA were planted as part of landscaping and do not naturally occur in the BSA. Only three native stands are known in CA, at Año Nuevo, Cambria, and the Monterey Peninsula. Therefore, native stands of Monterey pine are determined to be absent from the BSA.
Michael's rein orchid (*Piperia michaelii*)	4.2	Perennial herb. Occurs in coastal bluff scrub, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub, and lower montane coniferous forest. Blooms April – June.	**Absent.** There is no suitable woodland or chaparral habitat for this species within the BSA. Only known from coniferous forest locations in San Mateo County. Therefore, this species is determined to be absent from the BSA.
Oregon polemonium (*Polemonium carneum*)	2.2	Perennial herb. Occurs in coastal scrub and lower montane coniferous forest. Blooms from April – September	**Absent**. There is no suitable scrub or forest habitat for this species within the BSA. Only known locally from the Rancho Corral de Tierra area of the Golden Gate National Recreation Area. Therefore, this species is determined to be absent from the BSA.

Name	Status[1]	General Habitat Description	Potential for occurrence in the BSA[2]
Lobb's aquatic buttercup (*Ranunculus lobbii*)	4.2	Annual herb. Occurs in freshwater ponds, wetlands, and vernal pools. Blooms from February – May.	**Absent.** There is marginal habitat present within the BSA. Additionally, No suitable vegetation association is present. Only known locally form the Crystal Springs Reservoir area. Therefore, this species is determined to be absent from the BSA.
Hoffmann's sanicle (*Sanicula hoffmannii*)	4.3	Perennial herb. Occurs in broadleafed upland forest, coastal bluff scrub, chaparral, cismontane woodland, coastal scrub, and lower montane coniferous forest. Blooms March – May.	**Absent.** There is suitable chaparral or woodland habitat present within the BSA. Only known from several locations in southern San Mateo County. Therefore, this species is determined to be absent from the BSA.
Chaparral ragwort (*Senecio aphanactis*)	2B.2	Annual herb. Occurs in dry, open rocky areas in chaparral, cismontane woodland, and coastal scrub. Also occurs in alkaline flats. Blooms February – May.	**Absent.** There is no suitable chaparral or woodland habitat for this species within the BSA. Locally, there is only one non-specific occurrence near Purisima Creek Redwoods and Open Space Preserve. Therefore, this species is determined to be absent from the BSA.
San Francisco campion (*Silene verecunda* ssp. *Verecunda*)	1B.2, LCP	Perennial herb. Occurs on sandy substrate in coastal bluff scrub, chaparral, coastal prairie, coastal scrub, and valley and foothill grassland. Referred to as Dolores campion in the LCP Blooms February – August.	**Absent**. There is no suitable habitat for this species within the BSA due to lack of sandy substrate. Only known locally from the higher elevations within the Rancho Corral de Tierra area of the Golden Gate National Recreation Area. Therefore, this species is determined to be absent from the BSA.
Marsh zigadenus (*Toxicoscordion fontanum*)	4.2	Perennial herb. Occurs in vernally moist areas, marshes, and wetlands, often on serpentine soils in chaparral and mixed evergreen forest. Blooms April – July.	**Absent.** There is no suitable habitat for this species within the BSA due to lack of serpentine soils. Known from only one location near Crystal Spring Reservoir area. Therefore, this species is determined to be absent from the BSA.
Saline clover (*Trifolium.hydrophilum*)	1B.2	Annual herb. Occurs in salt marshes, mesic sites in valley and foothill grassland, and vernal pools on alkaline soils. Blooms April – June.	**Absent**. There is no suitable habitat for this species within the BSA due lack of alkaline soils. Additionally, there is only one non-specific occurrence for this species in San Mateo County. Therefore, this species is determined to be absent from the BSA.

Name	Status[1]	General Habitat Description	Potential for occurrence in the BSA[2]
San Francisco owl's clover (*Triphysaria floribunda*)	1B.2	Annual herb. Usually occurs on serpentine substrate in coastal prairie, coastal scrub, valley and foothill grassland. Blooms April – June.	**Absent**. There is no suitable habitat for this species within the BSA due to lack of serpentine substrate. Only known from the higher elevations within the Rancho Corral de Tierra area of the Golden Gate National Recreation Area. Therefore, this species is determined to be absent from the BSA.
Coastal triquetrella (*Triquetrella californica*)	1B.2	Moss. Occurs on soil in coastal bluff scrub and coastal scrub.	**Absent**. There is no suitable coastal scrub habitat present within the BSA. Only known from near Pilarcitos Lake in San Mateo County. Therefore, this species is determined to be absent from the BSA.
Methuselah's beard lichen (*Usnea longissima*)	4.2	Lichen. Occurs in broadleafed upland forest and North Coast coniferous forest.	**Absent.** There is no suitable forest habitat present within the BSA. Known from a single occurrence in the Santa Cruz Mountains near Purisima Creek Redwoods Open Space Reserve. Therefore, this species is determined to be absent from the BSA.

[1] Status definitions:

FE = federally listed as endangered.

FT = federally listed as threatened.

SE = state listed as endangered.

ST = state listed as threatened.

SC = State Candidate for listing

LCP = Species identified as rare, threatened or endangered and are located in the San Mateo County Coastal Zone as indicated in the City of Half Moon Bay Local Coastal Plan (1993).

California Rare Plant Rank (CRPR)

1A = plants presumed extirpated in California and either rare or extinct elsewhere.

1B = plants rare, threatened, or endangered in California and elsewhere.

2A = plants presumed extirpated in California, but common elsewhere.

2B = plants rare, threatened, or endangered in California, but more common elsewhere.

3 = plants about which more information is needed—a review list.

4 = plants of limited distribution—a watch list.

Threat code extension

.1 = seriously threatened in California.

.2 = fairly endangered in California.

.3 = not very endangered in California.

[2] Definitions regarding potential occurrence:

Possible =Species was not observed during the reconnaissance surveys, but suitable habitat is present (habitat type, soils, and elevation), and the species is known to occur in the project vicinity.

Absent = Suitable habitat is not present, or the project site is outside the species' local distribution or elevational range.

Appendix C. Special-Status Animals Considered for Potential Occurrence

Name	Status[1]	General Habitat Description	Potential for Occurrence in the BSA[2]
Federal or State Endangered, Threatened, or Candidate Species			
Bay checkerspot butterfly (*Euphydryas editha bayensis*)	FT	Native grasslands on serpentine soils. Larval host plants are *Plantago erecta* and/or *Castilleja* sp.	**Absent.** No suitable breeding or feeding habitat is present in the BSA. Further, suitable habitat for the species larval host plants, *Plantago erecta* and/or *Castilleja* sp., is not present in the BSA. Determined to be absent.
Mission blue butterfly (*Plebejus icarioides missionensis*)	FE	Coastal chaparral and coastal grasslands. Larval host plant are *Lupinus* spp.	**Absent.** No suitable breeding or feeding habitat is present in the BSA. Further, suitable habitat for the species larval host plants, *Lupinus* spp., is not present in the BSA. Determined to be absent.
Myrtle's silverspot butterfly (*Speyeria zerene myrtleae*)	FE	Coastal dune and prairie habitat. Larval host plants are violets, typically *Viola adunca*.	**Absent.** No suitable breeding or feeding habitat is present in the BSA. Further, suitable habitat for the species larval host plants, violets (typically *Viola adunca*), is not present in the BSA. Determined to be absent.
Monarch butterfly (*Danaus plexippus*)	FC	Overwintering roosts along the California coast from Mendocino County south to Baja California. Feed and breed exclusively on plant species in the subfamily Asclepiadoideae.	**Possible.** No suitable breeding or feeding habitat is present in the BSA due to the absence of milkweeds (*Asclepias* spp.). No overwintering roosts known in the BSA according to the Western Monarch Count's mapping tool – linked to in the Service's April 29, 2021 "Western Monarch Butterfly Conservation Recommendations" (USFWS 2021b). May occur as an occasional migrant, but not expected to breed or occur commonly/regularly in the BSA.
San Bruno elfin butterfly (*Callophrys mossii bayensis*)	FE	Coastal mountains near San Francisco Bay in the fog-belt of steep, north-facing slopes. Larval food plant is *Sedum spathulifolium*.	**Absent.** The San Bruno elfin butterfly is known only from the San Bruno Mountain, Milagra Ridge, and Montara Mountain in San Mateo County. Further, suitable habitat for the species larval host plant, broadleaf stonecrop (*Sedum spathulifolium*), a low growing succulent that grows in rocky outcrops on steep north facing slopes, is not present in the BSA. Determined to be absent.
Crotch bumble bee *Bombus crotchii*	SC	Open grassland and scrub habitats.	**Absent.** Although the species was historically found throughout the southern two-thirds of California, including the project vicinity, it is not expected to occur on the site due to recent range contractions (The Xerces Society 2018). Therefore, the species is determined to be absent.

Name	Status[1]	General Habitat Description	Potential for Occurrence in the BSA[2]
Western bumble bee *Bombus occidentalis*	SC	Meadows and grasslands with abundant floral resources.	**Absent.** Although the species was historically found throughout much of central and northern California, including the project vicinity, it is not expected to occur on the site due to recent range contractions (The Xerces Society 2018). Therefore, the species is determined to be absent.
Delta smelt (*Hypmesus transpacificus*)	FT, SE	Estuarine systems in the Sacramento-San Joaquin Delta.	**Absent.** The Delta smelt occurs in estuarine waters in the Sacramento/San Joaguin Delta region of San Francisco Bay. The reach of Pilarcitos Creek within the BSA is considered a freshwater stream. No suitable aquatic habitat is present in the BSA. Determined to be absent.
Longfin smelt (*Spirinchus thaleichthys*)	FC, ST	Spawns in fresh water in the upper end of the San Francisco Bay; occurs year-round in the South Bay.	**Absent.** No suitable aquatic habitat is present in the BSA. The BSA is not associated with the San Francisco Bay habitat for the species within the county. Determined to be absent.
Central California Coast steelhead (*Oncorhynchus mykiss*)	FT	Cool streams with suitable spawning habitat and conditions allowing migration between spawning and marine habitats.	**Possible.** Adult steelhead migrate upstream in winter months, when adequate flows allow passage to upstream areas. This typically occurs between December and March. Eggs are laid in gravelly sections of the streambed, and hatch in spring. Juvenile steelhead remain in the creek system for one to three years before migrating to the ocean. Thus, steelhead can occur in Pilarcitos Creek year-round.
Tidewater goby (*Eucyclogobius newberryi*)	FE, CSSC	Brackish water habitats along coast, fairly still but not stagnant water and high oxygen levels.	**Absent.** The tidewater goby occurs in brackish, tidally influenced waters. The reach of Pilarcitos Creek within the BSA is approximately 1.7 mi upstream of the Pacific Ocean and is considered a freshwater stream. Further, the reach within the BSA lacks shallow lagoons or pools of still, non-stagnant waters, and is subject to flashy flows. These conditions make the BSA unsuitable for these and similar tidal species. Determined to be absent.
California red-legged frog (*Rana draytonii*)	FT, CSSC	Streams, freshwater pools, and ponds with emergent or overhanging vegetation.	**Present.** California red-legged frog adults and juveniles were observed in the perennial freshwater marsh in the BSA in 2005 (H. T. Harvey & Associates 2005). California red-legged frog adults were observed in Pilarcitos Creek approximately 0.5 mi from the BSA in 2006, and California red-legged frogs were observed in a pond in the vicinity of Pilarcitos Creek approximately 1.3 mi of the BSA in 2016 (CNDDB 2021).

Name	Status[1]	General Habitat Description	Potential for Occurrence in the BSA[2]
Foothill yellow-legged frog (*Rana boylii*)	SE	Partially shaded shallow streams and riffles with a rocky substrate. Occurs in a variety of habitats in coast ranges.	**Absent.** Nearest CNDDB record is over 16 mi southeast of the BSA (CNDDB 2021). Typical suitable habitat for the foothill yellow-legged frog (i.e., boulders and cobbles in open stream habitat) is not present. Determined to be absent.
California tiger salamander (*Ambystoma californiense*)	FT, ST	Vernal or temporary pools in annual grasslands or open woodlands.	**Absent.** No suitable habitat is present in the BSA. Further, populations have largely been extirpated from San Mateo County due to habitat loss, and the species is now considered absent from most of the project vicinity, including the BSA. The closest occurrence in the project vicinity is at Lake Lagunita on the Stanford campus, which is approximately 14 mi south of, and on the opposite side of the Santa Cruz Mountains from, the BSA (CNDDB 2021). Determined to be absent.
San Francisco garter snake (*Thamnophis sirtalis tetrataenia*)	FE, SE, SP	Prefer densely vegetated freshwater habitats. May use upland burrows for aestivation.	**Possible.** Pilarcitos Creek and the perennial freshwater marsh in the BSA provides suitable foraging habitat. An observation of the San Francisco garter snake in Pilarcitos Creek approximately 0.5 mi from the BSA has been recorded in CNDDB in 2004.
Salt marsh harvest mouse (*Reithrodontomys raviventris*)	FE, SE, SP	Salt marsh habitat dominated by common pickleweed or alkali bulrush.	**Absent.** No suitable habitat is present in the BSA. Outside the species' range. Determined to be absent.
Bank swallow (*Riparia riparia*)	ST	Colonial nester on vertical banks or cliffs with fine textured soils near water.	**Absent.** No suitable habitat present in the BSA. Determined to be absent.
Marbled murrelet (*Brachyramphus marmoratus*)	FT, SE (nesting)	Requires dense, mature forests of redwood and Douglas-fir for breeding.	**Absent.** The BSA lacks suitable coastal coniferous forest nesting habitat for the marbled murrelet. Determined to be absent.
Mountain lion *Puma concolor*	SC	Occurs in a variety of habitats, such as deserts, woodlands, wetlands, and high-alpine forests. Preferred habitat is strongly correlated with densely vegetated areas, higher elevations, steep slopes, and abundant prey (Murphy 1983, Logan and Irwin 1985, Logan and Sweanor 2001).	**Possible.** Movement records of multiple mountain lions fitted with GPS-enabled wildlife-tracking collars, have shown individual lions moving through the surrounding area of the BSA over the past 10 years (Santa Cruz Puma Project 2018). The BSA does not provide suitable breeding and denning habitats, which is found far removed from the frequent human disturbances that occur within the BSA. Individual mountain lions may occur occasionally within the BSA as transients, as they move across their extensive home ranges, but they are expected to occur very infrequently.
California Species of Special Concern			

Name	Status[1]	General Habitat Description	Potential for Occurrence in the BSA[2]
California giant salamander (*Dicamptodon ensatus*)	CSSC	Usually found in cool, moist, forest habitat, associated with rocky streams and springs. Water, preferably cold and flowing, is necessary for egg-laying sites and for the aquatic larval and adult forms.	**Absent.** Nearest CNDDB records are over 3 mi southeast and 5 mi north of the BSA (CNDDB 2021). The BSA is outside the montane/foothill habitat where this species occurs. Determined to be absent.
Santa Cruz black salamander (*Aneides niger*)	CSSC	Primarily found in moist habitats. Prefers cool, moist and shaded conditions along ravines and water courses.	**Absent.** Nearest CNDDB record is over 7 mi southeast of the BSA (CNDDB 2021). The BSA is outside the montane/foothill habitat where this species occurs. Determined to be absent.
Western pond turtle (*Actinemys marmorata*)	CSSC	Permanent or nearly permanent water in a variety of habitats.	**Possible.** The reach of Pilarcitos Creek within and adjacent to the BSA is degraded due to surrounding development; however, suitable basking and foraging habitat for pond turtles is present in these areas. In addition, the nearest CNDDB recorded observations are over 4 mi from the BSA in the area of the Crystal Springs Reservoir (CNDDB 2021). Thus, there is some potential for pond turtles to be present in the BSA, though they are likely present in low numbers and/or infrequently. The perennial freshwater marsh is too shallow, with emergent vegetation too thick, to be considered suitable aquatic foraging habitat for this species.
American badger (*Taxidea taxus*)	CSSC	Burrows in grasslands and occasionally in infrequently disked agricultural areas.	**Absent.** Badgers are not expected to occur in the BSA due to disturbance, both on the site and in surrounding areas, coupled with the absence of nearby records. Determined to be absent.
Pallid bat (*Antrozous pallidus*)	CSSC	Forages over many habitats; roosts in caves, rock outcrops, buildings, and hollow trees.	**Possible.** No suitable roosting habitat in the BSA. Individuals from colonies located within several miles of the BSA could potentially forage on the site in low numbers, though nothing about the site suggests that it provides particularly important foraging habitat for the species. Expected to occur in the BSA as an occasional forager, albeit infrequently and in low numbers.
Townsend's big-eared bat (*Corynorhinus townsendii*)	CSSC	Roosts in caves and mine tunnels, and occasionally in deep crevices in trees such as redwoods or in abandoned buildings, in a variety of habitats.	**Possible.** Roosting habitat does not occur in the BSA but roosts do occur along the coastal region near Half Moon Bay, and individuals may occasionally occur in the BSA to forage or disperse. Expected to occur in the BSA as an occasional forager over the site, albeit infrequently and in low numbers.

Name	Status[1]	General Habitat Description	Potential for Occurrence in the BSA[2]
San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*)	CSSC	Nests in a variety of habitats including riparian areas, oak woodlands, and scrub.	**Possible.** The riparian habitat associated with Pilarcitos Creek and around the freshwater marsh in the BSA provides suitable nesting habitat. The nearest CNDDB record is near Pilarcitos Creek over 3 mi east-northeast of the BSA. No nests were observed during the reconnaissance-level survey, but this species could potentially nest or forage in, or disperse through, the riparian habitat in the BSA.
Alameda song sparrow (*Melospiza melodia pusillula*)	CSSC	Nests in salt marsh, primarily in marsh gumplant and cordgrass along channels.	**Absent.** The BSA is outside of the area where the species nests in San Mateo County, which is along the San Francisco Bay marsh habitat of the county. Determined to be absent.
Burrowing owl (*Athene cunicularia*)	CSSC	Nests and roosts in open grasslands and ruderal habitats with suitable burrows, usually those made by California ground squirrels (*Spermophilus beecheyi*).	**Absent.** No nesting burrowing owls are known to occur in the surrounding project vicinity (CNDDB 2021). The California annual grassland found in the BSA is too limited and surrounded by trees and development to provide good burrowing owl habitat. Thus, the species is not expected to occur in the BSA. Determined to be absent.
Northern harrier (*Circus cyaneus*)	CSSC (nesting)	Nests in marshes and moist fields, forages over open areas.	**Present.** The perennial freshwater marsh in the BSA provides suitable habitat. An individual (but not a nest) was observed foraging within this perennial freshwater marsh in 2014. Low probability of nesting in this marsh due to its limited size, though the species forages in low numbers in the marsh and ruderal grassland.
San Francisco common yellowthroat (*Geothlypis trichas sinuosa*)	CSSC	Nests in herbaceous vegetation, usually in wetlands or moist floodplains.	**Possible.** The riparian habitat associated with Pilarcitos Creek and the perennial freshwater marsh in the BSA provide suitable nesting and foraging habitat.
Yellow warbler (*Setophaga petechia*)	CSSC (nesting)	Nests in riparian woodlands.	**Possible.** The riparian habitat associated with Pilarcitos Creek and around the perennial freshwater marsh in the BSA provides suitable foraging and nesting habitat. Likely to occur primarily as a migrant, but one or two pairs could potentially breed in the BSA.
California Fully Protected Species			

Name	Status[1]	General Habitat Description	Potential for Occurrence in the BSA[2]
American peregrine falcon (*Falco peregrinus anatum*)	SP	Forages in many habitats; nests on cliffs and tall bridges and buildings.	**Possible.** The riparian habitat associated with Pilarcitos Creek at the BSA and nearby open space provide suitable foraging habitat, but suitable nesting habitat is absent.
Golden eagle (*Aquila chrysaetos*)	SP	Breeds on cliffs or in large trees (rarely on electrical towers), forages in open areas.	**Absent.** No suitable nesting habitat is present in the BSA, and the BSA is not expected to provide suitable prey or sufficiently extensive open foraging habitat for this species.
White-tailed kite (*Elanus leucurus*)	SP	Nests in trees and forages in extensive grasslands or marshes.	**Present.** The riparian habitat associated with Pilarcitos Creek and around the perennial freshwater marsh in the BSA provide ostensibly suitable nesting habitat. An individual was observed in the vicinity of the perennial freshwater marsh in 2014.

[1] Special-status Species Code Designations:

FE = Federally listed Endangered
FT = Federally listed Threatened
FC = Federal Candidate for listing
SE = State listed Endangered
ST = State listed Threatened
SC = State Candidate for listing
CSSC = California Species of Special Concern

[2] Definitions regarding potential occurrence:

Present = Species or sign of its presence was observed on the site, or there are records of the species' occurrence on the site.

Possible =Species was not observed during the reconnaissance surveys, but suitable habitat is present (habitat type, soils, and elevation), and the species is known to occur in the project vicinity.

Absent = Suitable habitat is not present, or the project site is outside the species' local distribution or elevational range.

APPENDIX D2

Peer Review of the Biological Resources Report
Corporation Yard Upgrade Project

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TECHNICAL MEMORANDUM

To: Todd Seeley
City of Half Moon Bay
501 Main Street
Half Moon Bay, California 94019

From: Jessie Henderson-McBean, Project Wildlife Biologist

Date: November 22, 2021

Re: **Biological Resources Report (BRR) Peer Review for the City of Half Moon Bay Corporation Yard Upgrade Project, Half Moon Bay, San Mateo County, California / SWCA Project No. 67708**

INTRODUCTION

At the request of the City of Half Moon Bay (City), SWCA Environmental Consultants (SWCA) has prepared this Biological Resources Report (BRR) Peer Review to discuss the results of the site visit conducted by SWCA on September 2, 2021, to provide comments on the H.T. Harvey & Associates (H.T. Harvey) BRR results, and to provide recommendations regarding suggested avoidance measures. SWCA understands that the City Corporation Yard Upgrade Project (project) description was refined after the BRR prepared by H.T. Harvey on June 25, 2021, was finalized; therefore, there is now a better understanding of the project area and associated potential impacts. The Biological Study Area (BSA) analyzed in the H.T. Harvey BRR includes the current project area, and therefore potential impacts to biological resources are either expected to remain consistent with those identified in the BRR or have been reduced due to the smaller, refined project area.

PROJECT OVERVIEW

The project area is located at the east end of Stone Pine Road between State Route (SR-) 92 and Pilarcitos Creek in the city of Half Moon Bay, San Mateo County, California (Figure 1). The project includes a lot line adjustment affecting two existing parcels. Parcel 1 would contain the Corporation Yard, access road, existing agricultural pond, conservation easement, and wildlife corridor for California red-legged frog (CRLF) (*Rana draytonii*) and San Francisco garter snake (SFGS) (*Thamnophis sirtalis tetrataenia*), and Parcel 2 would include the remaining area between the Corporation Yard and Stone Pine Road (see Figure 1). The project includes improvements to Parcel 1, including demolishing the existing trash enclosure; constructing a new paved road and parking areas; upgrades to electrical, water, and sewer facilities; and constructing new facilities, including a fabric tension warehouse building with restrooms, a covered trash/materials enclosure, and a solar field. The project also includes removal of existing fencing, which surrounds both parcels, and installing new fencing only around the corporation yard area in Parcel 1. On Parcel 2, the project activities will be limited to removal and restoration of the existing southern loop of the dirt access road. The access road alignment would be located as far north as is practicable, while taking into account driving safety, existing vegetation, and slope stability.

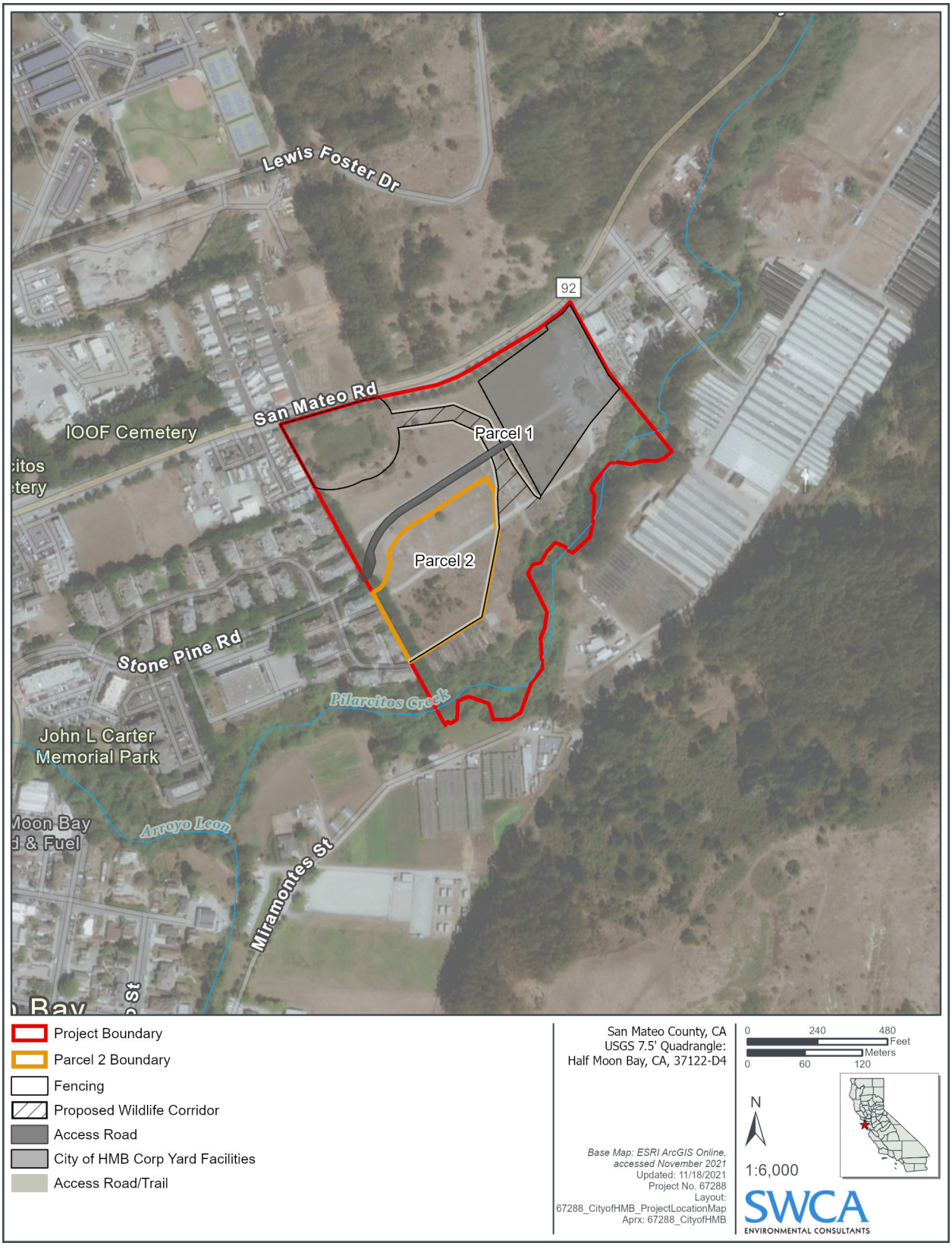

Figure 1. Project vicinity map.

The project would also include the construction of a wildlife corridor that would connect the existing agricultural pond in the northwest corner of the property with Pilarcitos Creek to the south. Development of the wildlife corridor would require construction of a wildlife-safe tunnel beneath the Corporation Yard access road, fencing to direct dispersing amphibians and reptiles through the tunnel, and temporary or permanent fencing along the riparian corridor to funnel any dispersing wildlife through the wildlife corridor. Additionally, the existing chain link fencing currently surrounding the existing agricultural pond would be removed and replaced at the Half Moon Bay Local Coastal Land Use Plan (LCLUP)–required 100-foot setback.

METHODS

SWCA biologists reviewed the survey and literature review results in the H.T. Harvey BRR and then conducted an updated literature review. The literature review consisted of a records search of current versions of the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) (CNDDB 2021); the U.S. Fish and Wildlife Service (USFWS) online Information, Planning, and Conservation System (IPaC) species list system (USFWS 2021b); and the California Native Plant Society (CNPS) online Inventory of Rare and Endangered Plants (CNPS 2021) within the Half Moon Bay, Montara Mountain, San Mateo, Woodside, San Gregorio, and La Honda U.S. Geological Survey (USGS) topographic quadrangles. The USFWS Critical Habitat Mapper (USFWS 2021a) and the National Oceanic and Atmospheric Administration (NOAA) Fisheries ESA Critical Habitat Mapper (NOAA 2021) were reviewed to identify critical habitat for terrestrial and aquatic species near the BSA. The National Wetlands Inventory Database (USFWS 2021c) and USGS National Hydrography Dataset (NHD) (USGS 2019), U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) Soil Survey for San Mateo County (NRCS 2021), and aerial imagery were also reviewed to provide additional information about soils and potential wetland features known to occur in the BSA.

A reconnaissance-level field survey was conducted on September 2, 2021, by SWCA biologist Jessie Henderson-McBean. The study area was surveyed by walking meandering transects through the area to document habitat conditions and to determine the potential for sensitive species presence. Special attention was paid to the hydrology present within the agricultural pond located in the northwest corner of the site. No focused species surveys or protocol-level surveys were conducted.

RESULTS

The SWCA literature review results were consistent with those reported in the H.T. Harvey BRR, prepared in June 2021. SWCA reviewed the Regulatory Setting information outlined in Section 3 of the H.T. Harvey BRR and found that no additional regulatory information is needed.

Based on the results of the September 2021 site visit, SWCA concurs with the BSA existing conditions and habitat conditions reported in Section 4 of the H.T. Harvey BRR. However, it should be noted that the current project area consists of ruderal grassland and developed or landscaped areas. Riparian woodland, perennial freshwater marsh, and aquatic riverine habitats, reported in the H.T. Harvey BRR, are located in and adjacent to Parcel 1, but outside of the project area. No work is proposed within these sensitive habitats.

SWCA concurs with the Special-Status Species and Sensitive Habitats identified in Section 5 of the H.T. Harvey BRR. No additional special-status species or sensitive habitats were identified during the literature review or site assessment. Therefore, no additional CNDDB maps, species lists, or habitat maps have been included in this memorandum.

IMPACTS AND MITIGATION MEASURES

While the regulatory background, literature review, and sensitive species lists in the H.T. Harvey BRR were consistent with SWCA's findings, the potential impacts of the project have changed due to the refined project description. Additional analysis has been provided below to identify suggested edits to the impacts and mitigation measures reported in Section 6, Impacts and Mitigation Measures, of the H.T. Harvey BRR.

The H.T. Harvey BRR stated that it was assumed that no disturbance would occur to Pilarcitos Creek, the agricultural pond (freshwater marsh), or the riparian habitat associated with Pilarcitos Creek beyond existing allowed use under the City LCLUP. No direct disturbance to aquatic features or riparian habitat is anticipated as a result of the current project design. Therefore, the H.T. Harvey BRR assumption of avoidance of aquatic features and associated buffers is correct under the current project design with the exception of encroachment within the 100-foot buffer surrounding the agricultural pond to remove existing chain link fencing. The fencing to be removed will be replaced at the edge of the 100-foot buffer to protect the riparian habitat and agricultural pond. The relocated fencing will also provide a barrier to encourage dispersing reptiles and amphibians to utilize the wildlife corridor and prevent them from crossing the access road where they could encounter a vehicle. The removal of this fencing is anticipated to require minimal ground disturbance, but short-term impacts to species could occur in the vicinity of the fence removal as wildlife may be temporarily displaced due to increased human presence, noise, and dust disturbance. With implementation of additional suggested mitigation measures (31 through 39 below) and mitigation measures outlined in the H.T. Harvey BRR, potential short-term impacts to species would be minimized.

Potential impacts to ruderal grassland, developed areas, landscaped areas, and non-native woodland areas in the current project description are consistent with those analyzed in the H.T. Harvey BRR, although the project area within these habitats has been reduced.

Impacts on Common Plant and Animal Species

SWCA concurs with the H.T. Harvey BRR finding that potential impacts to common plant and animal species would be less than significant. Although impacts to common plant and animal species would be minimal, SWCA recommends the following mitigation measures to further minimize any impacts to common wildlife during construction activities which may increase potential harm to wildlife:

Mitigation Measure 31: If any wildlife is encountered during project activities, said wildlife must be allowed to leave the work area unharmed. All listed wildlife species shall be allowed to leave the work area of their own accord, and without harassment. Animals shall not be picked up or moved in any way. If non-listed and/or non-special-status wildlife does not leave the work area of their own accord, the qualified project biologist may relocate the wildlife outside of the project limits.

Impacts on Special-Status Plants

The H.T. Harvey BRR identified one special-status plant species as having moderate to high potential to occur in the agricultural pond (freshwater marsh habitat) and associated dense riparian woodland: harlequin lotus (*Hosackia gracilis*); California Rare Plant Rank 4.2). However, this species was not observed during the field-level reconnaissance survey conducted by H.T. Harvey in June 2018, the time at which this species is at the height of its bloom period.

As currently proposed, the project will not disturb the agricultural pond (freshwater marsh habitat) or riparian woodland vegetation. Although chain link fence removal is proposed within the 100-foot buffer surrounding the agricultural pond, no disturbance to the mesic portions of freshwater marsh habitat (i.e.,

suitable for harlequin lotus) is anticipated. Therefore, this species is not expected to occur within the current project area, and no impacts are expected as a result of the project. No additional mitigation measures are recommended.

SWCA recommends that H.T. Harvey BRR Mitigation Measures 1–3 (special-status plant surveys, avoidance buffers, and compensatory mitigation) be removed from project requirements. If any changes to the project description occur and ground disturbance is proposed within the riparian habitat, then Mitigation Measures 1–3 should be implemented as proposed by the H.T. Harvey BRR.

Impacts to California Red-Legged Frog and San Francisco Garter Snake

SWCA concurs with the H.T. Harvey BRR findings that CRLF and SFGS are potentially present in Pilarcitos Creek and the agricultural pond (perennial freshwater marsh) located within the BSA. While the project is not anticipated to disturb either of these habitats, CRLF and SFGS individuals may forage and disperse through upland areas within the project area, as they potentially travel between Pilarcitos Creek and the agricultural pond. SWCA concurs with the implementation of Mitigation Measures 4, 8–15, and 17–22 to minimize potential impacts to these species during construction activities.

H.T. Harvey BRR Mitigation Measure 5 refers to off-site mitigation if avoidance of CRLF and SFGS habitat is not feasible. The proposed project will not disturb marsh or riparian habitat. While the proposed project will involve 1.4 acres of development in ruderal grassland habitat, the location of the Corporation Yard Upgrades is not within high-quality upland dispersal habitat and the development will be located east of the most direct dispersal pathway between the agricultural pond and Pilarcitos Creek (see Figure 1). Furthermore, the City retained Dr. Mark Jennings to consult on the design of a wildlife corridor connecting the existing agricultural pond with Pilarcitos Creek to ensure that the dispersal corridor between these two features was protected. The construction of this wildlife corridor would further minimize potential impacts to CRLF and SFGS during construction, as well as during operations and maintenance of the Corporation Yard. SWCA recommends that Mitigation Measure 5 be removed as it is no longer relevant to the project. In place of Mitigation Measure 5, SWCA suggests implementing the following additional mitigation measure pertaining to the wildlife corridor construction design:

Mitigation Measure 33: A wildlife corridor shall be constructed as part of the project and would funnel any potentially dispersing CRLF or SFGS into a culvert tunnel beneath the access road and limit the potential for traffic accessing the Corporation Yard to impact CRLF or SFGS. The wildlife corridor would also include a fence line along the riparian buffer of Pilarcitos Creek, which would further ensure that individual CRLF and SFGS would utilize the wildlife corridor to safely travel between the agricultural pond and the creek. The riparian buffer fencing would prevent CRLF or SFGS from entering the upland, trafficked portions of the property, where they could be injured or killed or trapped in upland habitat where they could be easily predated. The wildlife corridor design considered the life history aspects of both CRLF and SFGS to provide a safe and suitable movement corridor without any further management actions required.

SWCA recommends implementation of the following additional mitigation measure to reduce impacts to CRLF and SFGS during wildlife corridor construction:

Mitigation Measure 34: Installation of the wildlife corridor fencing should take place during dry weather conditions to ensure that no dispersing CRLF or SFGS are trapped in upland areas.

In addition to construction of the wildlife corridor, SWCA recommends implementation of the following mitigation measure to ensure efficacy of the wildlife corridor:

Mitigation Measure 35: The wildlife corridor fencing will be maintained as a solid boundary to allow for safe wildlife movement between the agricultural pond and Pilarcitos Creek by funneling any dispersing wildlife through a tunnel beneath the access road and providing a boundary along the riparian corridor of Pilarcitos Creek. The fencing, tunnel, and corridor will be maintained and repaired as needed by the City. A temporary material may be used for the fencing, such as ERTEC or similar, during construction of the project and for up to 1 year after construction is complete. If a temporary material is used for the fencing it will be inspected weekly by the City staff for any needed repairs. After 1 year the temporary fencing should be either replaced with a permanent wildlife boundary (e.g., chain link fencing with vinyl slats) or re-assessed for efficacy by a qualified biologist.

H.T. Harvey BRR Mitigation Measure 6 calls for submittal of biologists resumes to USFWS and CDFW, and Mitigation Measure 7 requires that the wildlife exclusion barrier installation plan is submitted to USFWS and CDFW. No consultation with CDFW or USFWS is currently required for the project, and therefore submittal of materials to these agencies without a consultation is not required. Accordingly, SWCA recommends that Mitigation Measures 6 and 7 be replaced with the following two proposed mitigation measures:

Mitigation Measure 36: The City will retain professional qualified biologists with experience monitoring for California red-legged frog and San Francisco garter snake to provide biological monitoring during all project construction activities that may result in take of any special-status species.

Mitigation Measure 37: A temporary wildlife exclusion barrier shall be installed at the discretion of the qualified biologist (or as required in project permits). Prior to any ground disturbance in the impact area, the temporary wildlife exclusion barrier shall be installed along the limits of disturbance. A qualified biologist shall inspect the area prior to installation of the barrier. The barrier shall be designed to allow the California red-legged frog and San Francisco garter snake to leave the impact area and prevent them from entering the impact area and shall remain in place until all development activities have been completed. This barrier shall be inspected daily and maintained and repaired as necessary to ensure that it is functional and is not a hazard to California red-legged frogs or San Francisco garter snakes on the outer side of the barrier.

H.T. Harvey BRR Mitigation Measures 8, 10, 13, 14, 15, and 17 all refer to "agency-approved biologists." SWCA recommends that these measures be implemented as described in the H.T. Harvey BRR with the exception of replacement of the term "agency-approved biologist" with the term "qualified biologist" throughout these measures.

H.T. Harvey BRR Mitigation Measure 16 describes the protocol for relocation of CRLF. The proposed project does not intend to consult with USFWS as the project does not require this consultation at this time. Therefore, SWCA proposes an amendment to Mitigation Measure 16, rewritten as follows:

Mitigation Measure 38: If any California red-legged frogs are found during implementation of mitigation measures, the qualified biologist shall contact the USFWS to determine if moving any of the individuals is appropriate. In making this determination, the USFWS shall consider if an appropriate relocation site exists. If the USFWS approves moving animals, the City shall ensure that a permitted biologist holding a 10(a)(1)(A) permit for California red-legged frog (or as required by the project permits) is given sufficient time to move the animals from the impact area before ground disturbance is initiated. Only qualified and permitted biologists shall capture, handle, and move the California red-legged frog. The permitted biologist shall monitor any relocated frog until it is determined that it is not imperiled by predators or other dangers.

With implementation of the mitigation measures described above and in the H.T. Harvey BRR, impacts to CRLF and SFGS would be less than significant.

Impacts to Central California Coast Steelhead and Western Pond Turtle

SWCA concurs with the H.T. Harvey BRR findings that Central California Coast steelhead (*Oncorhynchus mykiss irideus)* and western pond turtle (*Actinemys marmorata)* may be present in Pilarcitos Creek; however, direct impacts to these species are not expected as no disturbance is expected to occur within Pilarcitos Creek. As stated in the H.T. Harvey BRR, potential impacts to Pilarcitos Creek as a result of construction-related pollutants would be minimized with implementation of the stormwater pollution prevention plan (SWPPP), California Regional Water Quality Control Board, San Francisco Bay Region, Municipal Regional Stormwater NPDES Permit (MRP) (Water Board Order No. R2-2015-0049) and best management practices (BMPs).

While potential impacts to individual western pond turtles could occur if an individual were to enter the upland areas within the project area, the proposed wildlife corridor and wildlife fencing would allow any dispersing western pond turtles to freely move between Pilarcitos Creek and the agricultural pond (freshwater marsh habitat) without entering the project area. The construction of the wildlife corridor will not only minimize potential impacts to western pond turtle during construction, but will also protect individuals from potentially being injured or killed by vehicle traffic along the access road during operation and maintenance.

Potential impacts to these species will be minimized through implementation of Mitigation Measures 7–10 and 12–22 described in the H.T. Harvey BRR, such that potential impacts to these species would be less than significant.

Impacts to San Francisco Dusky-Footed Woodrat

SWCA concurs with the H.T. Harvey BRR finding that impacts to San Francisco dusky-footed woodrat would be less than significant with implementation of Mitigation Measures 23–25. No additional mitigation measures are recommended.

Impacts on Nonbreeding Special-Status Animals

The H.T. Harvey BRR concluded that potential impacts to non-breeding special-status animals on-site would be less than significant. While no large cavities are present within the project area that could provide suitable habitat for large maternity colonies of roosting bats, individual tree-roosting bats such as western red bat (*Lasiurus blossevillii*) may roost within the project area. Tree removal may result in injury or death to individual roosting bats, and therefore SWCA recommends the addition of the following mitigation measure:

Mitigation Measure 39: Minimize potential impacts to individual roosting bats:

a. Pre-Construction Bat Survey. Prior to tree removal, a qualified bat biologist shall conduct a visual survey of the project area to identify if bats are roosting within trees within the project area. Roost sites shall be avoided during tree removal. If no roosting sites or bats are observed during the survey no further mitigation is necessary.

b. If roosting bats or indications of bat roosts are observed within project trees to be removed, tree removal shall be conducted under the supervision of a qualified bat biologist. During tree removal and where potential bat roosts were identified, a qualified bat biologist shall be present and tree removal will begin with portions of the tree that do not provide suitable roost habitat (e.g., low limbs lacking forage). Trees will be disassembled at a speed in coordination with the on-site qualified bat biologist that allows any roosting bats to vacate the tree.

With implementation of the mitigation measures described above and in the H.T. Harvey BRR, impacts to non-breeding special-status animals would be less than significant.

Impacts on the San Francisco Common Yellowthroat, Yellow Warbler, and Raptors including White-Tailed Kite

SWCA concurs with the H.T. Harvey BRR findings that impacts to San Francisco common yellowthroat (*Geothlypis trichas sinuosa)*, yellow warbler (*Setophaga petechia)*, white-tailed kite (*Elanus leucurus)*, and other raptors would be less than significant. SWCA concurs with the implementation of Recommended Measures A–C to comply with the Migratory Bird Treaty Act and California Fish and Game Code. No additional mitigation measures are recommended.

Impacts to Riparian Habitats or Other Sensitive Natural Communities

SWCA concurs with the H.T. Harvey BRR findings regarding potential impacts to riparian habitat or other sensitive natural communities. The project will not directly disturb the riparian habitat present; however, the project does propose removal of the existing chain link fencing surrounding the agricultural pond that is currently within the 100-foot buffer surrounding the agricultural pond. Fence removal is not expected to directly impact riparian habitat, and indirect impacts will be minimized and avoided through implementation of the SWPPP, MRP, and BMPs. SWCA concurs with the implementation of Mitigation Measure 26 and impacts to riparian habitats or sensitive natural communities would be less than significant.

Mitigation Measures 27 and 28 refer to pruning riparian trees and removal of riparian habitat. No removal of riparian vegetation is currently proposed as part of the project, and therefore SWCA recommends removal of these mitigation measures as they are no longer relevant to the project.

Impacts Caused by Non-Native and Invasive Species

SWCA concurs with the H.T. Harvey BRR findings that impacts caused by non-native and invasive species would be less than significant with the implementation of Mitigation Measure 29. No additional mitigation measures are recommended.

Impacts on Wetlands and Waters

SWCA concurs with the H.T. Harvey BRR findings regarding potential impacts to wetlands and waters. No direct impacts to wetlands or waters are currently part of the proposed project. Indirect impacts to wetlands and waters may occur during construction activities; however, with the implementation of the SWPPP, MPR, and BMPs, potential impacts would be less than significant. No additional mitigation measures are recommended.

Impacts on Wildlife Movement

SWCA concurs with the H.T. Harvey BRR findings that impacts to wildlife movement as a result of the project would be less than significant with implementation of mitigation measures. Wildlife will be able to move and disperse freely along Pilarcitos Creek and the riparian corridor. The construction of the wildlife corridor linking Pilarcitos Creek with the agricultural pond on-site will ensure that dispersing wildlife will be able to safely move between these two aquatic habitats. No additional mitigation measures are recommended.

Impacts to Heritage Trees per Municipal Code Section 7.40

The H.T. Harvey BRR identified over 100 trees present within the site; however, a tree survey was not included as part of the H.T. Harvey BRR preparation. Given that a refined project description is now available, a tree survey (i.e., arborist report) is recommended to determine if any of the trees within the project area have heritage status in accordance with the standards of Chapter 7.40 of the City of Half Moon Bay Municipal Code. SWCA concurs with the H.T. Harvey BRR findings that impacts to heritage trees would be less than significant with implementation of Mitigation Measure 30, which addresses heritage tree avoidance or tree replanting where avoidance is not possible.

Impacts due to Conflicts with an Adopted Habitat Conservation Plan

SWCA concurs with the H.T. Harvey BRR findings regarding potential conflicts with a Habitat Conservation Plan (HCP). The BSA is not located within an area covered by an adopted HCP, Natural Community Conservation Plan, or other approved local, regional, or state HCP.

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APPENDIX D3

Preliminary Delineation of Wetlands and Other Waters
Corporation Yard Upgrade Project











H. T. HARVEY & ASSOCIATES
Ecological Consultants

50 years of field notes, exploration, and excellence

880 Stone Pine Road Project
Half Moon Bay, San Mateo County, California

Preliminary Delineation of Wetlands
and Other Waters/Delineation of Coastal Zone Wetlands
Within California Coastal Commission Jurisdiction

Project #4182-03

Prepared for:

John Doughty
City of Half Moon Bay
501 Main Street
Half Moon Bay, CA 94019

Prepared by:

H. T. Harvey & Associates

October 12, 2020

983 University Avenue, Building D • Los Gatos, CA 95032 • 408.458.3200 • www.harveyecology.com

Executive Summary

H. T. Harvey & Associates surveyed an approximately 21-acre (ac) study area located in Half Moon Bay in San Mateo County that encompasses the public works yard at 880 Stone Pine Road for wetlands and other waters potentially subject to regulation under Section 404 of the Clean Water Act as administered by the United States Army Corps of Engineers (USACE). The survey also delineated the extent of waters of the state that may be subject to regulation by the Regional Water Quality Control Board (RWQCB) under Section 401 of the Clean Water Act and under the Porter Cologne Water Quality Control Act. Lastly, the survey also delineated jurisdictional habitats subject to regulation under Sections 1600-1607 of the California Fish and Game Code, which is administered by the California Department of Fish and Wildlife (CDFW). Areas were also surveyed using the California Coastal Commission (CCC) approach to wetland delineation (i.e. any one of the three parameters typically used by USACE present at a sample point is indicative of CCC wetland habitat).

In total, approximately 0.91 acres of potentially jurisdictional features as defined by the USACE and the RWQCB were identified in the study area. These include approximately 0.29 acres of Section 404 and Section 401 waters situated below the ordinary high water mark (OHWM) line of Pilarcitos Creek, which forms the southeastern edge of the property. Sections 404 and 401 wetlands are also present within an abandoned stock pond which is perennially inundated and presently occupied by emergent freshwater marsh totaling 0.38 acres. Section 401 waters of the state extend farther up to the top of the bank from Pilarcitos Creek, for an additional 0.24 acres.

CDFW jurisdictional features as defined by bed and bank topography and riparian habitat were identified in the study area, which totaled 3.52 acres and includes riparian habitat beyond the top of bank. Approximately 2.85 acres of riparian habitat were identified in the project area. Areas that fall with the jurisdiction of the CCC include all 3.52 acres that are also considered jurisdictional by CDFW.

Summary of Jurisdictional Waters and Habitats within the Project and Study Areas

Potentially Jurisdictional Habitats	Study Area (Acres)[1]
Section 404 Waters of the U.S. Total	**0.67**
Perennial Freshwater Marsh	0.38
Aquatic Riverine	0.29
Section 401 Waters of the State (Up to Top of Bank) Total	**0.91**
Perennial Freshwater Marsh	0.38
Aquatic Riverine	0.29
Riparian Woodland (within top of bank)	0.24
CDFW and CCC Jurisdiction Total	**3.52**
Perennial Freshwater Marsh	0.38
Aquatic Riverine	0.29
Riparian Woodland	2.85

[1] Note: Values are approximate due to rounding.

Table of Contents

Section 1. Introduction 1
1.1 Study Area Description 1
1.2 Survey Purpose 2
Section 2. Survey Methods 8
2.1 Identification of Jurisdictional Waters 8
2.2 Identification of Section 404 Potential Jurisdictional Wetlands (Special Aquatic Sites) 9
2.3 Identification of Section 404 Jurisdictional Other Waters 12
2.4 Identification of Coastal Zone Wetlands within CCC Jurisdiction 13
2.5 Identification of Waters of the State 16
2.6 Identification of CDFW Jurisdiction 16
Section 3. Survey Results and Discussion 18
3.1 Observations, Rationale, and Assumptions 19
3.1.1 Background Information 19
3.1.2 Precipitation Data 23
3.1.3 Site Conditions and Observations 23
3.1.4 Rationale for Sample Point Choice 25
3.1.5 Photo Points 26
3.2 Identification of Section 404 Waters 26
3.3 Identification of Section 404 Potentially Jurisdictional Wetlands (Special Aquatic Sites) 27
3.3.1 Perennial Freshwater Marsh (FM1) 27
3.4 Identification of Section 401 Waters of the State 27
3.5 Identification of CDFW Jurisdiction 28
3.6 Areas Not Meeting the Regulatory Definition of Section 404 Wetlands and Waters/Coastal Zone Wetlands within CCC Jurisdiction 28
Section 4. Literature Cited 30

Figures

Figure 1. Vicinity Map 3
Figure 2. Study Area Map 4
Figure 3. USGS Topographic Map 5
Figure 4. NRCS Soils Map 6
Figure 5. NWI Map 7
Figure 6. Vegetation Communities 10
Figure 7. Preliminary Identification of Waters of the U.S. 20
Figure 8. Preliminary Identification of Waters of the State 21
Figure 9. CDFW Jurisdictional Habitats 22

Tables

Table 1. Soils within the Biological Study Area 2
Table 2. Wetland Indicator Status Categories for Vascular Plants 11
Table 3. Summary of Jurisdictional Waters and Habitats within the Study Area 18
Table 4. Summary of Sample Point Locations and Results 25
Table 5. Coordinates and Rationale for Photo Points 26

Appendices

Appendix A. Custom Soil Report for Project Study Area A-1
Appendix B. Plants Observed in the Project Area B-1
Appendix C. Wetland Determination Data Forms C-1
Appendix D. Photographic Documentation of the Project Area D-1
Appendix E. Aquatic Resources Table E-1
Appendix F. Signed statement from the property owner(s) allowing USACE personnel to enter the property F-1

Section 1. Introduction

1.1 Study Area Description

The approximately 21-acre (ac) study area is located in Half Moon Bay in San Mateo County (Figure 1). The study area is located between State Route (SR) 92 and Pilarcitos Creek near downtown Half Moon Bay and is the site of a former plant nursery (Figure 2). It is located within the *Half Moon Bay California* 7.5-minute USGS quadrangle (Figure 3). A man-made impoundment and several buildings occur in the northwest corner and northeast corners of the site, respectively. Additionally, there is still infrastructure present from former nursery operations, including several unused dilapidated buildings, areas with black ground plastic (adjacent to the riparian woodland along Pilarcitos Creek), several vaulted culverts, concrete channels, and irrigation pumps and pipes. During the site visit, a large portion of the grassland had been recently mowed. Also, sections of the grassland were covered in wood chips. As such, the ground cloths and mulch inhibit vegetation growth. West of the study area is high-density development associated with the City of Half Moon Bay; north of the study area is SR 92, a heavily used road between Half Moon Bay and Interstate 280; east of the study area between SR 92 and Pilarcitos Creek, and on both sides of Pilarcitos Creek are various small agricultural parcels with associated infrastructure and development; south of the study area is agricultural parcels along Pilarcitos Creek that opens to rural land, with the Miramontes Ridge Open Space Reserve to the southeast.

The climate at the study area is coastal Mediterranean, with most rain falling in the winter and spring. Fog and cool temperatures are common in the summer. Climate conditions in the study area include a 30-year average of approximately 29.16 inches of annual precipitation with an average temperature range from 52ºF to 61ºF (PRISM 2020). Relative to the 30-year climate normal, precipitation in the preceding rain year (June 2019–May 2020; 15.99 inches) was approximately 55% of normal for that time period (PRISM 2020). Elevations within the study area range from approximately 60 feet (ft) to 110 ft above sea level (WGS84) (Google 2020).

Based on a review of available soil survey maps for the area including those by the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS), the study area is generally comprised of coarse sandy loam soils adjacent to Pilarcitos Creek, such as the Farallone soil series, and clay loams, such as the Tierra soil series, upslope to SR 92 (NRCS 2020a). Soils across the study area are generally greater than 60 inches in depth with the exception of areas in the northeastern portion of the site containing Gazos (GoF3 and Gv) soils, which are less than 30 inches to a root-restrictive layer. The Farallone loam, nearly level, Gullied land, Gullied land (Gazos-Lobitos soil material), and Tierra clay loam, moderately steep, eroded soil series (totaling 12.3 acres) are listed as hydric in San Mateo County on the National Hydric Soils List (NRCS 2020b). Eight major soil series within the study area are shown on Figure 4 and are summarized in Table 3 below.

Table 1. Soils within the Biological Study Area

Soil Series	Acreage	Hydric
Farallone loam, nearly level (FaA)	8.8	Yes
Tierra loam, steep, severely eroded (TeE3)	3.1	No
Farallone coarse sandy loam, moderately steep, eroded (FcD2)	4.5	No
Gazos and Lobitos soils, steep and very steep, severely eroded (GoF3)	1.3	No
Gullied land (alluvial soil material; Gu)	1.7	Yes
Tierra loam, sloping, eroded (TeC2)	1.1	Yes
Gullied land (Gazos-Lobitos soil material; Gv)	0.7	Yes
Tierra clay loam, moderately steep, eroded (TcD2)	0.1	No

The U.S. Fish and Wildlife Service's National Wetlands Inventory (NWI) map of the study area is depicted in Figure 5. The NWI identified one feature in the study area, Pilarcitos Creek, which it classified as a palustrine, forest, seasonally flooded wetland (FPOC) (NWI 2020). NWI maps are based on interpretation of aerial photography, limited verification of mapped units, and/or classification of wetland types using the classification system developed by Cowardin et al. (1979). These wetland data are available for general reference purposes and do not necessarily correspond to jurisdictional waters.

1.2 Survey Purpose

H. T. Harvey & Associates surveyed the study area for features that may meet the physical criteria and regulatory definition of "waters of the United States" and waters of the state (jurisdictional waters). The purpose of the field survey was to identify the extent and distribution of potentially jurisdictional waters, such as wetlands and other waters, occurring within the proposed work area boundaries under conditions existing at the time of the June 2020 survey. In addition, we surveyed the study area to determine the extent of areas likely subject to regulation by the California Coastal Commission (CCC), and for features that meet the criteria for regulation by the California Department of Fish and Wildlife (CDFW) under California Fish and Game Code Section 1603.

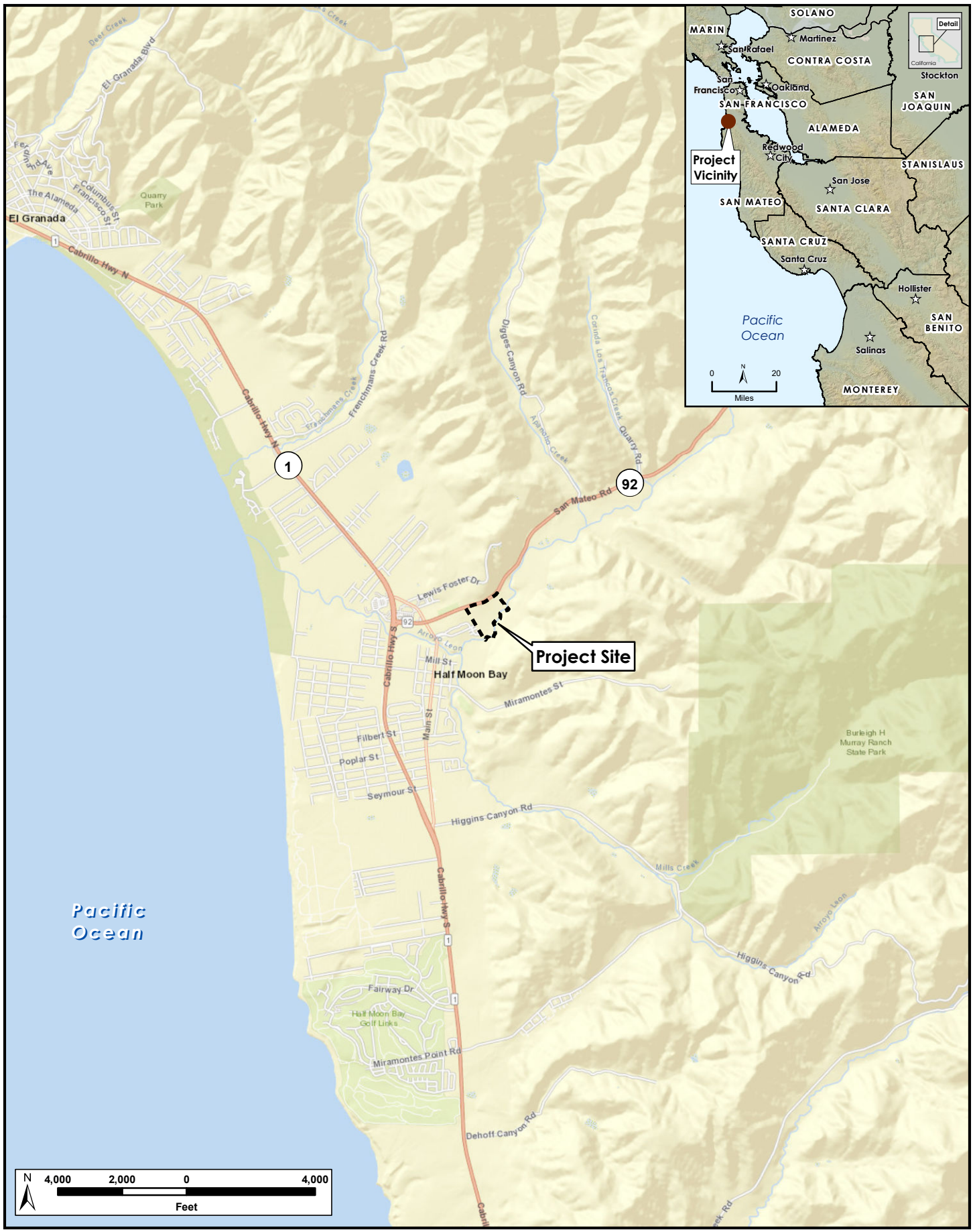

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Figure 1. Vicinity Map
880 Stone Pine Road Project, Wetland Delineation Report (4182-03)
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Figure 2. Study Area
880 Stone Pine Road Project, Wetland Delineation Report (4182-03)
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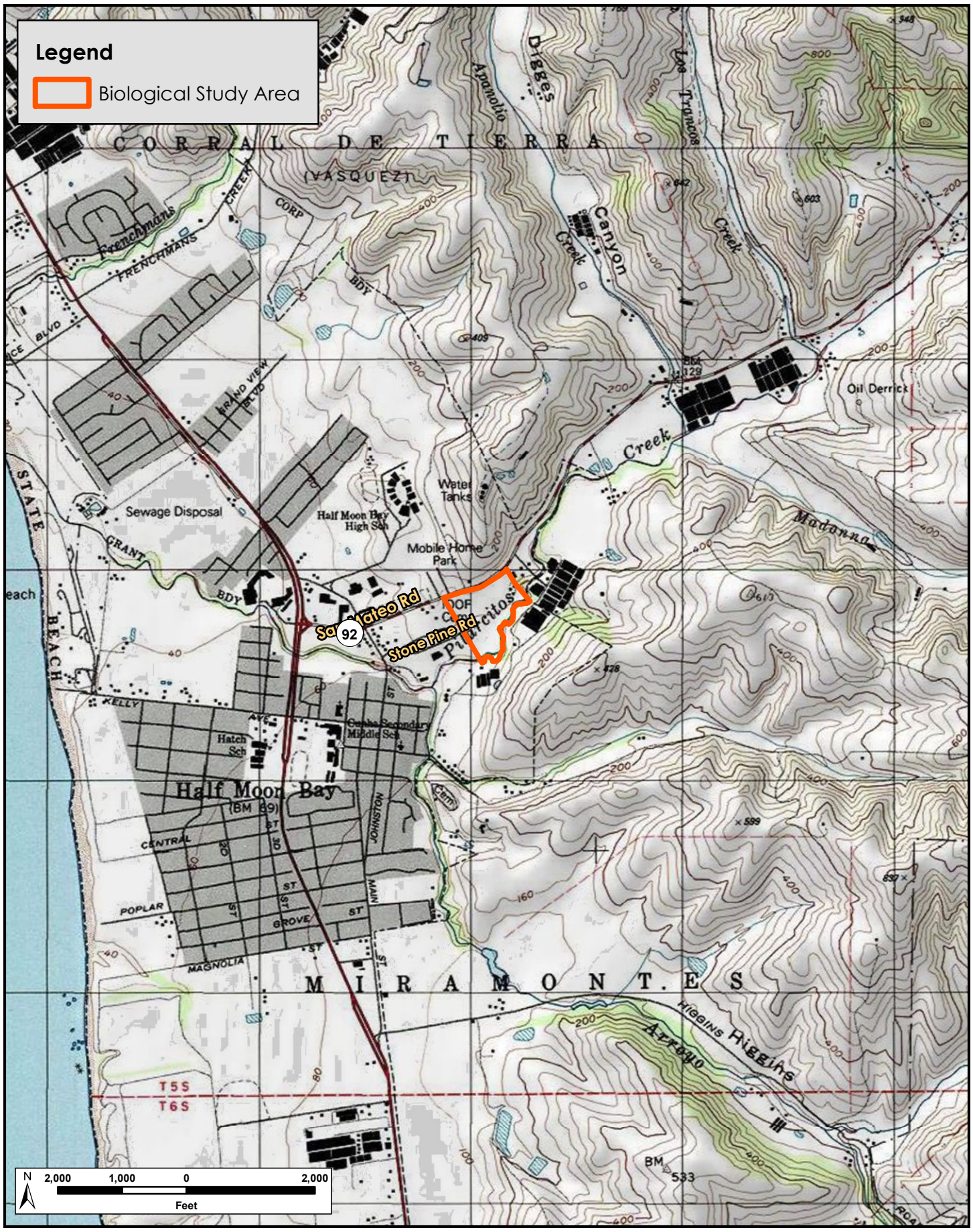

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Figure 3. USGS Topographic Map
880 Stone Pine Road Project, Wetland Delineation Report (4182-03)
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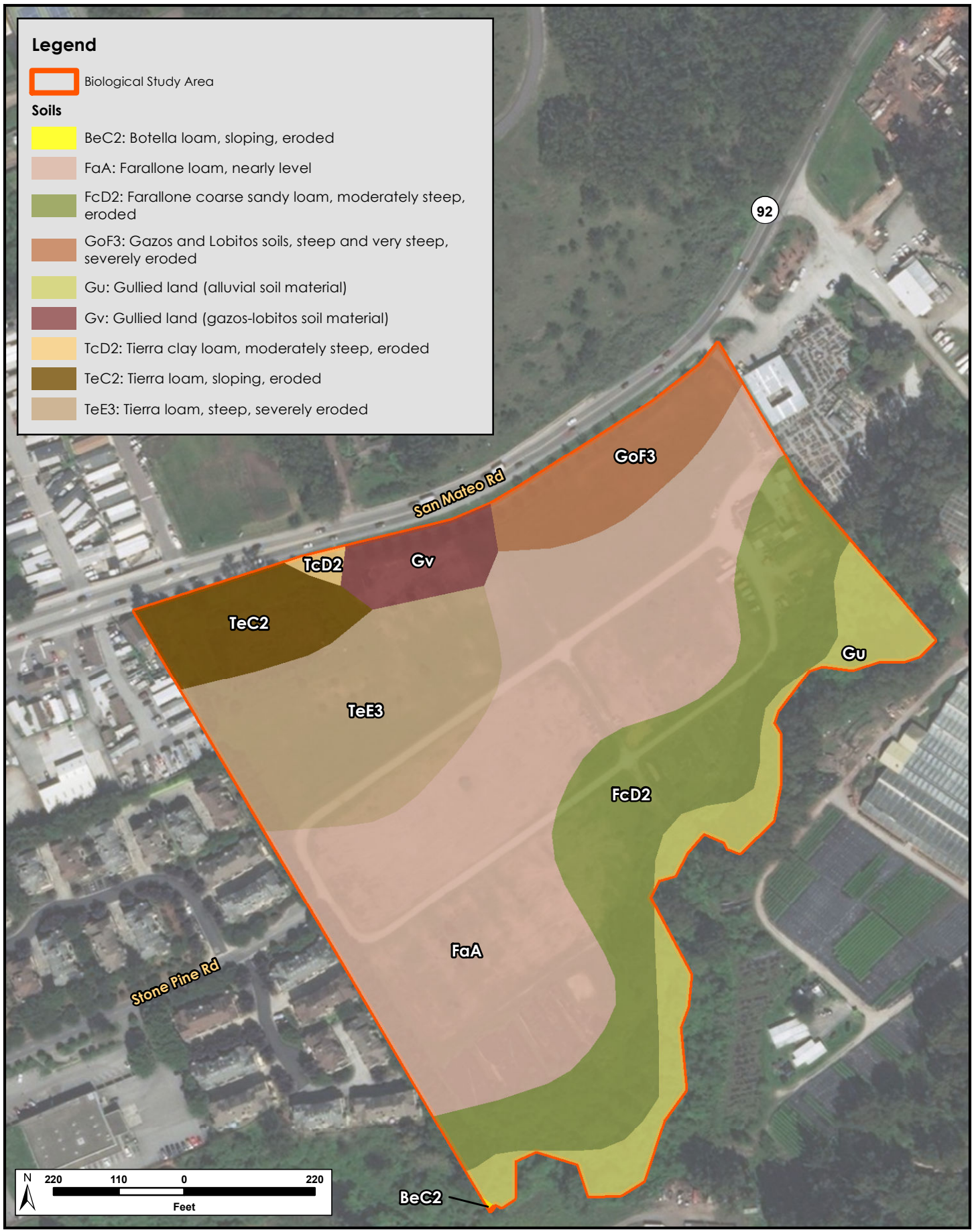

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Figure 4. Soils Map
880 Stone Pine Road Project, Wetland Delineation Report (4182-03)
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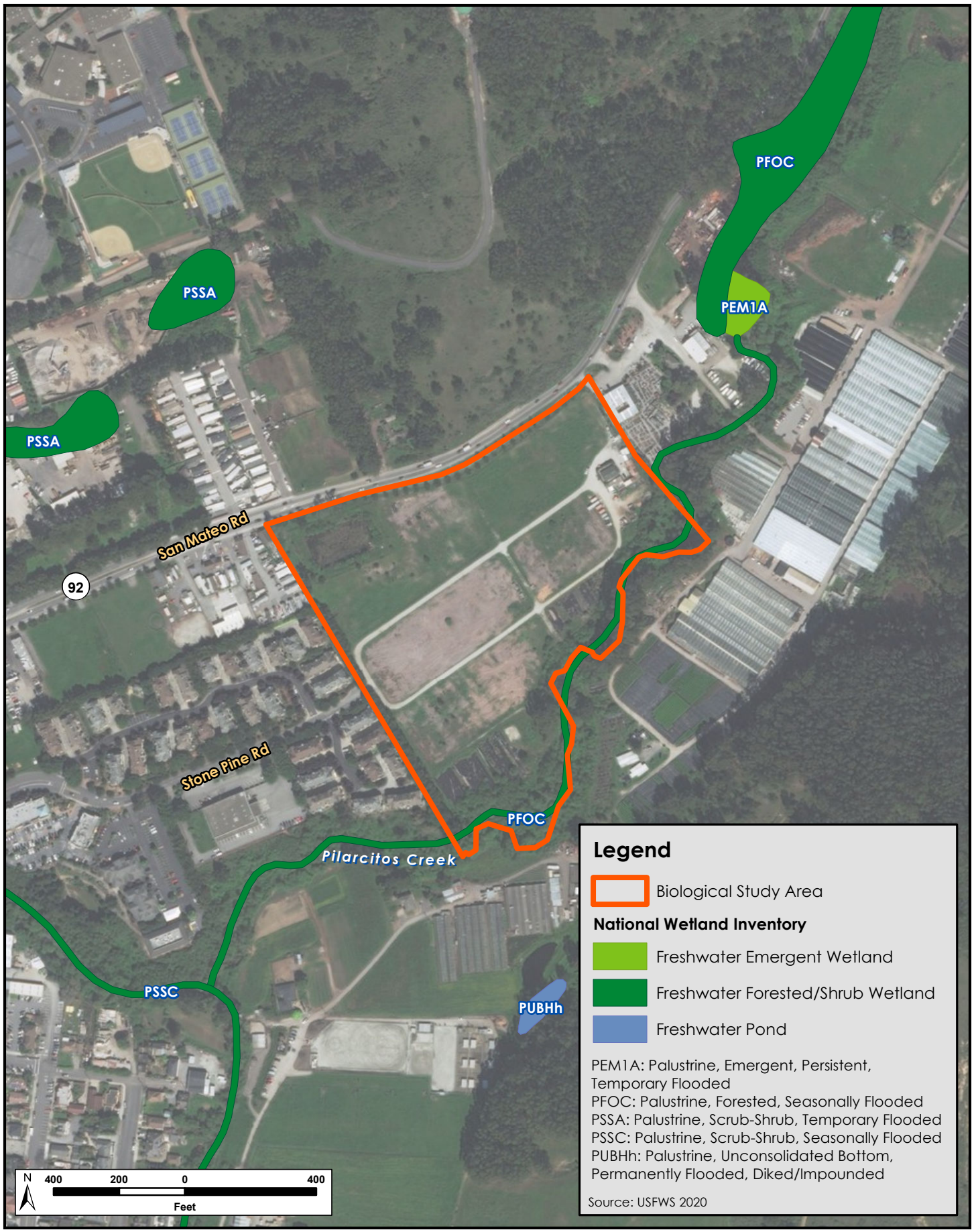

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Figure 5. NWI Map
880 Stone Pine Road Project, Wetland Delineation Report (4182-03)
October 2020

Section 2. Survey Methods

Before the delineation survey was conducted, topographic maps and aerial photos of the study area were obtained and reviewed from several sources, such as the USGS (Figure 3), NRCS (Figure 4), NWI (Figure 5), and Google Earth software (Google 2020). Additionally, information was derived from surveys and background research conducted for the preparation of the 880 Stone Pine Road Project Biological Resources Report, concurrently prepared by H. T. Harvey & Associates (H. T. Harvey & Associates in prep).

On June 12, 2020, H. T. Harvey & Associates plant ecologist, Mark Bibbo, M.S., performed a technical delineation of wetlands and other waters in the study area, in accordance with the *Corps of Engineers 1987 Wetlands Delineation Manual* (Corps Manual; Environmental Laboratory 1987). Additionally, the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (Regional Supplement) (USACE 2010) were followed to document site conditions relative to hydrophytic vegetation, hydric soils, and wetland hydrology. Mr. Bibbo mapped the extent and distribution of wetlands and other waters of the U.S. that may be subject to regulation under Section 404 of the Clean Water Act (CWA) as well as waters of the state that may be subject to regulation under the Porter Cologne Water Quality Control Act, which is administered by the RWQCB. The study area was also surveyed for areas that meet the physical criteria of a wetland according to the California Coastal Commission (CCC), as well as aquatic and riparian habitat that may be subject to regulation under Sections 1600-1607 of the California Fish and Game Code, which is administered by CDFW.

2.1 Identification of Jurisdictional Waters

The "Routine Determination Method, On-Site Inspection Necessary (Section D)" outlined in the Corps Manual (Environmental Laboratory 1987), and the updated data forms, vegetation sampling methods, and hydric soil and hydrology indicators developed for the Regional Supplement (USACE 2010) were used to examine the vegetation, soils, and hydrology in the accessible areas of the study area. This three-parameter approach to identifying wetlands is based on the presence of a prevalence or dominance of hydrophytic vegetation, hydric soils, and wetland hydrology.

In addition to applying these survey methods, Mr. Bibbo compiled this report in accordance with guidance provided in *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program* (USACE 2016a) and *Information Requested for Verification of Corps Jurisdiction* (USACE 2016b). These documents list the information that must be submitted as part of a request for a jurisdictional determination, including:

- Locality map (Figure 1)
- Study area map (Figure 2)
- USGS quadrangle sheet (Figure 3)

- Soils map (Figure 4)
- National Wetlands Inventory map (Figure 5)
- Vegetation communities map (Figure 6)
- Delineation map (Figure 7)
- Current soil survey report (Appendix A)
- Plant species observed (Appendix B)
- Data forms for wetlands sample points (Appendix C)
- Written rationale for sample point choice (Section 3.1, "Observations, Rationales, and Assumptions")
- Color photos (Appendix D)
- Aquatic resources table (Appendix E)
- Signed statement from the property owner(s) allowing USACE personnel to enter the property and collect samples during normal business hours (Appendix F).

During the survey, the study area was examined for topographic features, drainages, alterations to site hydrology or vegetation, and recent significant disturbance. A determination was then made as to whether normal environmental conditions were present at the time of the field survey. In the field, the techniques used to identify wetlands included digging soil pits to sample soil from various depths, observing the vegetation growing near the soil sample points, and characterizing the current surface and subsurface hydrologic features present near the sample points. Features meeting wetland vegetation, soil, and hydrology criteria were then mapped in the field using a Trimble GeoXT™ GPS unit capable of submeter accuracy.

2.2 Identification of Section 404 Potential Jurisdictional Wetlands (Special Aquatic Sites)

Where wetland field characteristics were present, Mr. Bibbo examined vegetation, soils, and hydrology using the Routine Determination Method outlined in the Corps Manual (Environmental Laboratory 1987) and the updated data forms, vegetation sampling methods, and hydric soil and hydrology indicators developed for the Regional Supplement (USACE 2010).

Vegetation. Plants observed at each of the sample sites were identified to species, where possible, using *The Jepson Manual, Vascular Plans of California, Second Edition* (Baldwin et al. 2012). The wetland indicator status of each species was obtained from the *Western Mountains, Valleys, and Coast 2016 Regional Wetland Plant List* (Lichvar et al. 2016). Wetland indicator species are designated according to their frequency of occurrence in wetlands. For instance, a species which is usually a hydrophyte, but occasionally found in uplands is designated a



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Figure 6. Vegetation Communities and Photo Points Map

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October 2020

facultative wetland indicator species. The wetland indicator groups, indicator symbol, and the qualitative frequency of occurrence of species within wetlands are shown in Table 2.

Table 2. Wetland Indicator Status Categories for Vascular Plants

Indicator Category	Symbol	Ecological Description[1]
Obligate	OBL	Almost always a hydrophyte, rarely in uplands
Facultative wetland	FACW	Usually is a hydrophyte, but occasionally found in uplands
Facultative	FAC	Commonly occurs as either a hydrophyte or nonhydrophyte
Facultative upland	FACU	Occasionally is a hydrophyte, but usually occurs in uplands
Upland[2]	UPL	Rarely is a hydrophyte, almost always in uplands

[1] Based on the National Wetland Plant List Indicator Rating Definitions (Lichvar et al 2016)

[2] Plant species that are not listed in the Arid West 2016 Regional Wetland Plant List (Lichvar et al. 2016) are considered UPL species

Obligate and facultative wetland indicator species are hydrophytes that occur "in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present" (Environmental Laboratory 1987). Facultative indicator species may be considered wetland indicators when found growing in hydric soils that experience periodic saturation. Plant species that are not on the regional list of wetland indicator species are considered upland species. A complete list of the vascular plants observed in the study area, including their current indicator status, is provided in Appendix B.

Hydric Soils. Up to 20 inches of the soil profile were examined for hydric soil indicators. The National Technical Committee for Hydric Soils (NTCHS) defines a hydric soil as one formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper 12 inches of soil (NRCS 2010). Hydric soils include soils developed under sufficiently wet conditions to support the growth and regeneration of hydrophytic vegetation. In general, evidence of a hydric soil includes characteristics such as organic soils (histosols), reducing soil conditions, gleyed soils, soils with bright mottles and/or low matrix chroma, soils listed as hydric by the U.S. Department of Agriculture (USDA) on the National Hydric Soils List (NRCS 2020), and iron and manganese concretions. Reducing soil conditions can also include circumstances where there is evidence of frequent ponding for long or very long duration. A long duration is defined as a period of inundation for a single event that ranges from seven (7) days to a month and a very long duration is greater than one month (Environmental Laboratory 1987).

Munsell Soil Notations (Munsell 2009) were recorded for the soil matrix of each soil sample. The Munsell color system is based on three color properties: hue, value, and chroma. A brief description of each component of the system is described below, in the order they are used in describing soil color (i.e., hue/value/chroma):

1. **Hue.** The Munsell Soil Color Chart is divided into five principal hues: yellow (Y), green (G), purple (P), blue (B), and red (R), along with intermediate hues such as yellow-red (YR) and green-yellow (GY). Example of commonly encountered hue numbers include 2.5YR, 10YR, and 5Y.
2. **Value.** *Value* refers to lightness, ranging from white to grey to black. Common numerical values for value in the Munsell Soil Color Chart range from 2 for saturated soils to 8 for faded or light colors. Hydric soils often show low-value colors when soils have accumulated sufficient organic material to indicate development under wetland conditions, but can show high-value colors when iron depletion has occurred, removing color value from the soil matrix. Value numbers are commonly reported as 8/, 2.5/, and 6/.
3. **Chroma.** *Chroma* describes the purity of the color, from "true" or "pure" colors to "pastel" or "washed out" colors. Chromas commonly range from 1 to 8, but can be higher for gleys. Soil matrix chroma values that are 1 or less, or 2 or less when mottling is present, are typical of soils that have developed under anaerobic conditions. Chroma numbers are listed, for example, as /1, /5, and /8.

The NRCS Web Soil Survey (NRCS 2020a) was consulted to determine which soil types have been mapped in the study area (Table 1, Figure 4). Detailed descriptions of these soil types are provided in Appendix A.

Wetland Hydrology. Wetland hydrology is defined as an area that is inundated either permanently or periodically at mean water depths less than 6.6 feet, or where the soil is saturated at the surface at some time during the growing season of the prevalent vegetation. The period of inundation or soil saturation varies according to the hydrologic/soil moisture regime and occurs in both tidal and non-tidal situations.

Wetland hydrology encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season. Wetland hydrology indicators provide evidence that the site has a continuing wetland hydrologic regime. Primary indicators might include visual observation of surface water (A1), high water table (A2), soil saturation (B1), water-stained leaves (B9), and hydrogen sulfide odor (C1). Secondary indicators might include riverine drift deposits (B3), drainage patterns (B10), and passing score for the FAC-neutral test (D5). Each of the sample points was examined for positive field indicators (primary and secondary) of wetland hydrology, following the guidance provided in the Regional Supplement.

2.3 Identification of Section 404 Jurisdictional Other Waters

"Other waters", which includes lakes, slough channels, seasonal ponds, tributary waters, non-wetland linear drainages, and salt ponds were also mapped within the study area. Such areas are identified by the (seasonal or perennial) presence of standing or running water and generally lack hydrophytic vegetation. In non-tidal or muted tidal waters, such as this site, USACE jurisdiction extends to the OHWM which is defined in 33 CFR Part 328.3 as "the line on the shore established by the fluctuations of water and indicated by physical characteristics, such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation or the presence of litter and debris." In tidal waters, USACE jurisdiction extends to the landward extent of vegetation associated with salt or brackish water or the high tide line (HTL)

(see 33 CFR, Part 328.4). The HTL is defined in 33 CFR, Part 328.3 as "the line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The HTL may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gauges, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other tides that occur with periodic frequency, but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm."

2.4 Identification of Coastal Zone Wetlands within CCC Jurisdiction

The project area were also surveyed for areas that meet the physical criteria of a wetland according to the California Coastal Commission (CCC). Under the California Coastal Act, the CCC regulates development in the coastal zone, including land and water use. Wetlands found in the coastal zone are regulated under the California Coastal Act of 1976 (CCA) and the federal Coastal Zone Management Act (CZMA), and are within jurisdiction of the CCC (CCC 2008). Any activities within the coastal zone that affect aquatic resources, including wetlands, require a coastal development permit from either the CCC or a certified Local Coastal Program (LCP) (Division 20 of the Public Resources Code). The CCC is responsible for protecting coastal resources and assessing potential impacts on wetlands and other waters subject to regulation under the California Coastal Act (Pub. Res. Code §30330-30344).

Under the CCA, wetlands are defined as "Lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, or fens." (Pub. Res. Code §30121). The CCC uses definitions similar to the federal government in defining wetland habitat. The U.S. Fish and Wildlife Service (USFWS) uses a general definition from its wetlands classification system first published in 1979:

> *Wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water (Cowardin, et al. 1979). For purposes of this classification, wetlands must have 1 or more of the following 3 attributes: "(1) at least periodically, the land supports hydrophytes, (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of each year" (Cowardin, 1979). The USFWS definition includes, swamps; freshwater, brackish water, and saltwater marshes; bogs; vernal pools, periodically inundated saltflats; intertidal mudflats; wet meadows; wet pastures; springs and seeps; portions of lakes, ponds, rivers and streams; and all other areas which are periodically or permanently covered by shallow water, or dominated by hydrophytic vegetation, or in which the soils are predominantly hydric in nature.*

For purposes of implementing Section 404 of the federal Clean Water Act, the United States Environmental Protection Agency (EPA) and the USACE define wetlands as:

> *Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas (40 CFR 232.2).*

Both the CCC and the federal government (in the USFWS and the USACE) provide further specificity in their wetlands definitions to guide the process of wetlands delineation. The CCC's regulations (California Code of Regulations Title 14 (14 CCR)) establish a **"one parameter definition"** that only requires evidence of a single parameter to establish wetland conditions and accepts wetland determinations based on the presence of one parameter—wetland vegetation, wetland soils, or, under certain conditions, wetland hydrology (using the criteria described above, under the USACE methods, for each parameter), similar to the USFWS wetlands classification system:

> *Wetland shall be defined as land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent or drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salt or other substance in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year and their location within, or adjacent to, vegetated wetlands or deep-water habitats.*

In contrast, the USACE generally uses a **three parameter definition** for delineating wetlands. In the California coastal zone, the CCC, with the assistance of the California Department of Fish and Wildlife (CDFW), is responsible for determining the presence of wetlands subject to regulation under the CCA. The local government also has a direct role in the identification and delineation process in areas with a certified LCP. For wetland development projects requiring USACE review, the applicant may, in some cases, need to obtain two delineation approvals, one for the coastal development permit, and another for the USACE Section 404 permit (CCC 2008).

The CCC delineation of wetlands in the field typically requires substantial evidence of indicators that can be easily observed or assayed. Wetlands typically occur on physical gradients (i.e., wet to dry conditions, hydric to non-hydric soils, and hydrophytic to meso/xerophytic vegetation). Delineations document boundaries between a predominance of hydrophytic vegetation and upland vegetation and boundaries between hydric and non-hydric soils. Because wetland delineation is not an exact science, the CCC recognizes the importance of professional judgement:

> *Some wetlands may not be readily identifiable by simple means. In such cases, the CCC will also rely on the presence of hydrophytes and/or the presence of hydric soils. Thus, the presence or absence of hydrophytes and hydric soils make excellent physical parameters upon which to judge the existence of wetland habitat areas for the purposes of the Coastal*

Act, but they are not the sole criteria. In some cases, proper identification of wetlands will require the skills of a qualified professional.

Resource and regulatory agencies have found it difficult to strictly define some wetlands because of the often transient hydrology, the absence of hydric soils, and the heterogeneous vegetation composition. Yet these areas exhibit many of the functions and values found in other wetlands. In the past, CCC staff has recognized some of these areas, including riparian areas, as "environmentally sensitive areas" within the meaning of Coastal Act §30107.5, and then regulated development through §30240. The semi-arid climate of California also presents problems for the identification and delineation of wetlands. Some wetlands in this part of California can remain dry for one or more seasons because of the Mediterranean climate typical of the state.

The CCC's regulations acknowledge these distinctions by specifying some general decision rules for establishing the upland boundary of wetlands:

…the upland limit of a wetland shall be defined as:

a. the boundary between land with predominantly hydrophytic cover and land with predominantly mesophytic or xerophytic cover;

b. the boundary between soil that is predominantly hydric and soil that is predominantly nonhydric; or

c. in the case of wetlands without vegetation or soils, the boundary between land that is flooded or saturated at some time during years of normal precipitation, and land that is not (14 CCR Section 13577).

Therefore, additional scientific methods and guidance are required to facilitate the wetland delineation process in the field. A common source of guidance for wetland delineators is the *1987 USACE Wetland Delineation Manual* and the *Regional Supplement.* Another important guidance document is the USFWS's *List of Plant Species that Occur in Wetlands*. Similarly, guidance on the identification of hydric soils is provided by the Natural Resource Conservation Service in its *Field Indicators of Hydric Soils in the United States* (2010).

In a CCC delineation, the extent of both hydric soils and wetland vegetation should be determined and the wetland boundary drawn to coincide with that parameter that results in the larger wetland area. Where the presence of wetlands is difficult to determine because some field indicators appear ambiguous or unreliable, the CCC has occasionally, in past actions, considered strong evidence of upland conditions in making its wetland determination. However, the CCC has not considered the simple absence of standard field indicators of either hydric soils or wetland hydrology to be strong evidence of upland conditions and, hence, evidence that wetland conditions do not exist. Showing strong evidence of upland conditions requires collecting field data during the rainy season to determine whether the site evaluated becomes inundated or not or whether the major portion of the root zone of the predominant vegetation becomes saturated for greater than seven continuous days or not. This information can then be used to determine if the previously assessed vegetation or soil field indicator found to be ambiguous or unreliable is indicative of wetland or upland conditions.

Prior to conducting fieldwork, H. T. Harvey & Associates reviewed a variety of pertinent technical documents. During the CCC delineation, the presence and frequency of hydrophytic vegetation, hydrology indicators, and hydric soil indicators (or lack thereof) were used as the primary indicators for identifying potential wetland areas.

2.5 Identification of Waters of the State

The Porter Cologne Water Quality Control Act (Porter-Cologne) broadly defines waters of the state as "any surface water or groundwater, including saline waters, within the boundaries of the state." Because Porter-Cologne applies to any water, whereas the CWA applies only to certain waters, California's jurisdictional reach overlaps and may exceed the boundaries of waters of the U.S. For example, Water Quality Order No. 2004-0004-DWQ states that "shallow" waters of the state include headwaters, wetlands, and riparian areas. Where forested riparian habitat is not present, jurisdiction is taken to the top of bank or levee. Where forested habitat occurs, the outer canopy of any riparian trees rooted within top of bank may be considered jurisdictional as these trees can provide allochthonous input to the channel below.

On April 2, 2019, the California State Water Resources Control Board (SWRCB) adopted the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State. In these new guidelines, riparian habitats are not specifically described as waters of the state but instead as important buffer habitats to streams that do conform to the State Wetland Definition. The Procedures describe riparian habitat buffers as important resources that may both be included in required mitigation packages for permits for impacts to waters of the state, as well as areas requiring permit authorization from the RWQCBs to impact.

The 2019 Procedures also clarify that wetland-upland boundaries for wetlands comprising waters of the state should be set using the USACE delineation framework (Environmental Laboratory 1987, USACE 2010), with one important distinction. Some areas in California function as wetlands despite lacking abundant wetland vegetation. For example, non-vegetated playas, tidal flats, and some types of seasonal wetlands provide a variety of wetland functions, including water filtration, groundwater recharge, and the support of wetland wildlife. While USACE procedures require 5% vegetative cover to be considered a wetland rather than "other waters", the RWQCB has determined that no such minimum vegetative cover is necessary for an area to be considered a wetland under the State Wetland Definition. Waters of the state were identified within the study area.

2.6 Identification of CDFW Jurisdiction

Ephemeral and intermittent streams, rivers, creeks, dry washes, sloughs, blue line streams on USGS maps, and watercourses with subsurface flows fall under California Department of Fish and Wildlife (CDFW) jurisdiction. Canals, aqueducts, irrigation ditches, and other means of water conveyance may also be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife. A stream is defined in Title 14, California Code of Regulations §1.72, as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and that supports fish and other aquatic life. Jurisdiction

does not include tidal areas such as tidal sloughs unless there is freshwater input. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation." Using this definition, CDFW extends its jurisdiction to encompass riparian habitats that function as a part of a watercourse. California Fish and Game Code §2786 defines riparian habitat as "lands which contain habitat which grows close to and which depends upon soil moisture from a nearby freshwater source." The lateral extent of a stream and associated riparian habitat that would fall under the jurisdiction of CDFW can be measured in several ways, depending on the particular situation and the type of fish or wildlife at risk. At minimum, CDFW would claim jurisdiction over a stream's bed and bank. Where riparian habitat is present, the outer edge of riparian vegetation is generally used as the line of demarcation between riparian and upland habitats. CDFW jurisdictional habitats were mapped within the study area.

Section 3. Survey Results and Discussion

The following vegetation communities and land cover types were mapped in the study area: (1) aquatic riverine (Pilarcitos Creek), (2) perennial freshwater wetland, (3) Willow/alder stands (one parameter CCC wetland), (4) California annual grassland, (5) mixed riparian woodland, and (6) developed (Figure 6). Ten sample points (SPs) were examined to identify jurisdictional features (Figure 7; Appendix C). In the study area, approximately 3.77 ac of potentially jurisdictional waters regulated by USACE, RWQCB, CDFW, and the CCC were identified (Table 3). The results of the June 2020 delineation are described below.

Table 3. Summary of Jurisdictional Waters and Habitats within the Study Area

Potentially Jurisdictional Habitats	Study Area (Acres)[1]
Section 404 Waters of the U.S. Total	**0.67**
Perennial Freshwater Marsh	0.38
Aquatic Riverine	0.29
Section 401 Waters of the State (Up to Top of Bank) Total	**0.91**
Perennial Freshwater Marsh	0.38
Aquatic Riverine	0.29
Riparian Woodland (within top of bank)	0.24
CDFW and CCC Jurisdiction Total	**3.52**
Perennial Freshwater Marsh	0.38
Aquatic Riverine	0.29
Riparian Woodland	2.85

Note: Values are approximate due to rounding.

Study Area. Approximately 0.91 ac of Section 404 and Section 401 waters, including wetlands are found in the study area (Figure 7; Appendix D, Photos 2, 6).

Waters of the state (Section 401 waters only) extend to the top of bank of Pilarcitos Creek in the study area and includes approximately 0.24 ac of riparian habitat (Figure 8; Appendix D, Photos 1 and 3 in Appendix D)..

Pilaricitos Creek is a perennial drainage following from headwaters on Montara Mountain east of the study area to the Pacific Ocean west of the study area. As such, this feature would be regulated by CDFW under California Fish and Game Code Section 1603. Approximately 0.38 acres of freshwater wetland, 0.26 ac of streambed and approximately 2.85 ac of associated riparian woodland that would be regulated by CDFW occur within the study area (Figure 9). Areas falling within CCC jurisdiction include those same 3.52 total acres (Figure 9).

Information assembled during this investigation and pertinent to the identification of jurisdictional wetlands and other waters is presented in the six appendices of this report. In addition, Appendix E provided at the end of this document is an electronic attachment in Microsoft Excel format, per USACE (2016b) guidelines.

- Appendix A—Custom Soil Report for Project Study Area
- Appendix B—Plants Observed in the Study Area
- Appendix C—Western Mountains, Valley, and Coast Wetland Determination Data Forms
- Appendix D—Photographic Documentation of the Study Area
- Appendix E—Aquatic Resources Table
- Appendix F—Signed Statement from the Property Owner Allowing Access

3.1 Observations, Rationale, and Assumptions

Study area conditions observed during the delineation survey are reported here, along with pertinent background information and precipitation data.

3.1.1 Background Information

This preliminary delineation assumes that normal circumstances prevailed at the time of the June 2020 survey, and results are based upon the conditions present. The survey was performed using the "Routine Method of Determination" using three parameters, as outlined in the Regional Supplement, although areas meeting at least one parameter were delineated as CCC-jurisdictional wetlands. All features that were noted as potential USACE-jurisdictional wetlands or other waters are also considered potential CCC-jurisdictional wetlands because they possess at least one parameter for a CCC-jurisdictional wetland.

Land use surrounding the study area consists of agriculture to the east and south, open space to the north and south, suburban residential to the west, and commercial to the east.



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H. T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 7. Preliminary Identification of Waters of the United States
880 Stone Pine Road Project, Wetland Delineation Report (4182-03)
October 2020



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Ecological Consultants

Figure 8. Preliminary Identification of Waters of the State
880 Stone Pine Road Project, Wetland Delineation Report (4182-03)
October 2020



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Ecological Consultants

Figure 9. CDFW/CCC Jurisdictional Habitats
880 Stone Pine Road Project, Wetland Delineation Report (4182-03)
October 2020

3.1.2 Precipitation Data

The survey took place in the 2020 dry season. Relative to the 30-year climate normal, precipitation in the study area was below average for the twelve month period leading up to the delineation. Total precipitation recorded for the twelve months prior to the delineation was 15.99 in., which is approximately 55% of the 30-year average (1981–2010) (PRISM 2020). These conditions were taken into account when assessing the biotic habitats present on the site. Despite the below average precipitation, water was still flowing in Pilarcitos Creek, and the abandoned stock pond was still inundated and surface water was present. The boundaries of wetlands remained clear owing to the presence of hydrophytic vegetation and hydrology indicators.

3.1.3 Site Conditions and Observations

Several areas containing at least one parameter indicative of wetlands, but lacking one or more parameters (*i.e.*, CCC wetlands not claimed by the USACE), were detected within the study area.

The southern boundary of the study area is demarcated by Pilarcitos Creek, a 13.5-mile perennial stream that flows from the western slopes of the Santa Cruz Mountains through Pilarcitos Canyon and discharges into the Pacific Ocean. The creek drains approximately 30 square mi and has numerous tributaries. The study area is approximately 1.7 mi upstream from the mouth of the Creek at the Pacific Ocean. Pilarcitos Creek has a well-developed riparian corridor for much of its length upstream and downstream of the study area. Pilarcitos Creek and its riparian corridor fall within the jurisdiction of the USACE, RWQCB, CDFW, and the CCC (Figures 7–10).

The study area is located in the Arroyo Leon hydrologic unit (180500060201) within the San Francisco Coastal South Sub Region of the California Region.

The majority of site was previously in agricultural nursery production. A man-made impoundment and several buildings occur in the northwest corner and northeast corners of the site, respectively. Additionally, there is still infrastructure present from former nursery operations, including several unused dilapidated buildings, areas with black ground plastic (adjacent to the riparian woodland along Pilarcitos Creek), several vaulted culverts, concrete channels, and irrigation pumps and pipes. Areas of the site that are currently in ruderal grassland appear to be regularly mowed to keep vegetation low for fire prevention. At the time of the June 2020 survey, the site was beginning to be mowed for the first time that season. Also, sections of the grassland were covered in wood chips. As such, the ground cloths and mulch inhibit vegetation growth.

The manmade impoundment in the northwest corner of the study area is approximately 200 ft by 110 ft. The impoundment is a raised earthen embankment design and sits at an elevation of 114 ft (WGS84). Water was previously pumped into this impoundment from Pilarcitos Creek to be used by the nursery for its operations (H. T. Harvey & Associates and RMC 2010). The pump appears to be currently inactive. However, the impoundment continues to hold water and extensive emergent vegetation and is classified as perennial

freshwater marsh habitat, indicating that the pond as it was excavated may have some connection to groundwater. At the time of the June 2020 survey, there was no evidence of flow from the pond.

Within the ruderal grassland, there are willow-alder stands characterized by individual or small stands of arroyo willows (*Salix lasiolepis*, FACW) and red alder red alder (*Alnus rubra*, FACW, Appendix D, Photo 3). These species generally do not require the soil to be inundated to persist, but they generally do require access to a permanent water source, such as a creek or high groundwater, which they can access with deep roots. This also indicates that in at least some areas of the parcel in some years, the upper soil profile was moist enough to allow recruitment of these typically riparian tree species. Based on an analysis of historical aerials in Google Earth, the clumps of trees appear to be less than 10 years old, and sprouted and grew following the abandonment of nursery activities on the site (Google, Inc. 2020), possibly with assistance from artificial hydrology from irrigation in the last years of the nursery. These two tree species are functional phreatophytes, meaning that they are woody perennials with a deep taproot that are able to access deeper groundwater. They may have germinated and established in a wet year or assisted by irrigation overspray, and have been able to persist due to their deep taproot. Again, these trees occur on upland terraces that were previously cultivated for agriculture and are spatially separated from the riparian corridor along Pilarcitos Creek. We do not believe that this entire area truly stays saturated for a substantial portion of the growing season each year, as the site lacks hydric soil and hydrology indicators. Despite the fact that both arroyo willow and red willow have a wetland indicator status (FACW), we feel that in this situation these trees are indicators of a high groundwater table, as opposed to wetland conditions, or presence of a riparian corridor. Therefore we do not consider these patches of trees to be CCC jurisdictional wetlands.

There were areas within the California annual grassland, primarily along the western edge of the study area that supported dense monotypic stands of poison hemlock (*Conium maculatum,* FAC) (SP7 and SP10, Appendix C; Photo 4 , Appendix D), indicative of disturbance and infestation. Both these areas were portions of the study area that had previously been in nursery production. The soils at the sample points were similar to nearby upland soils, with low chroma and low value soil colors throughout the soil profile (10 YR 3/2 or 3/3). Soils were dry and no hydric soil indicators were observed at either sample point. Additionally, no indicators of hydrology were observed in association with these stands of poison hemlock.

Poison hemlock is adapted to grow as a hydrophyte or non-hydrophyte depending on environmental conditions and is classified as an invasive plant by the California Invasive Plant Council (Cal-IPC 2020). It is tolerant of a wide range of moisture conditions including habitats with hydric, mesic (damp or moist soils that are not hydric), or even mildly xeric (dry) soils. Poison hemlock is a serious weed that is capable of rapid establishment, particularly on disturbed sites or where little vegetation exists at the start of the growing season. Once it is firmly established under such conditions, it can prevent the growth of most other vegetation. The soils within the project area are disturbed, based on the historical use of the area for agriculture and the presence of non-native vegetation, and as previously stated do not exhibit evidence of being hydric. The occurrence of poison hemlock is most likely in response to the highly disturbed soils found within the project area; therefore, it is not a strong wetland indicator in this situation because it is growing as a non-hydrophyte. It is our professional

opinion that these areas are not functioning as wetlands and should not be mapped as one-parameter CCC wetlands due to the lack of hydric soils, hydrology, and poison hemlock not growing as a hydrophyte.

3.1.4 Rationale for Sample Point Choice

Ten sample points were selected to document conditions in representative jurisdictional and non-jurisdictional areas (Figure 7, Appendix C). Rationale and findings for wetland data form sample point locations are summarized in Table 4.

Table 4. Summary of Sample Point Locations and Results

Name	Sampling Rationale	Hydrophytic Vegetation?	Hydric Soil?	Wetland Hydrology?	Overall Wetland Assessment
SP1	Placed to examine abandoned agricultural ditch.	Yes	No	No	Upland position; this area does not meet the three parameter wetland criteria. The wetland vegetation observed is FAC-dominated and weedy.
SP2	Placed to examine the hillslope adjacent the ditch – upland position.	No	No	No	Upland position; this area does not meet the three parameter wetland criteria.
SP3	Emergent freshwater marsh in an abandoned (but still inundated) agricultural pond – FM1.	Yes	Yes	Yes	This area is a three parameter wetland.
SP4	Upland paired point to SP4.	Yes	No	No	Upland; this area does not meet the three parameter. Hydrophytic vegetation is riparian vegetation dominated by Arroyo willow.
SP5	Placed to examine the willow/alder stands that occur throughout the site.	Yes	No	No	These small stands do not meet the three parameter USACE wetland criteria, hydric soils and wetland hydrology not present, presence of these trees does not necessarily indicate wetland conditions.
SP6	Upland paired point to SP5.	No	No	No	This area does not meet the three parameter wetland criteria.
SP7	Placed to examine poison hemlock infestation on terrace in southern portion of property.	Yes	No	No	Upland; this area does not meet the three parameter wetland criteria. The wetland vegetation observed is FAC-dominated and weedy.
SP8	Placed to investigate the riparian corridor of Pilarcitos Creek	Yes	No	No	This area does not meet the three parameter wetland criteria.

Name	Sampling Rationale	Hydrophytic Vegetation?	Hydric Soil?	Wetland Hydrology?	Overall Wetland Assessment
SP9	Placed to investigate the riparian corridor of Pilarcitos Creek in southwest corner of property.	Yes	No	No	Upland; this area does not meet the three parameter wetland criteria.
SP10	Placed to investigate area of poison hemlock infestation on terrace in southern portion of property.	Yes	No	No	Upland; this area does not meet the three parameter wetland criteria. The wetland vegetation observed is FAC-dominated and weedy.
SP11	Placed in upland grassland in the northeastern corner of the property.	No	No	No	Upland position; this area does not meet the three parameter wetland criteria.

OHWM-1 was placed perpendicular to Pilarcitos Creek (R-1) in the northeast corner of the wetland delineation study area (Appendix C; Appendix D, Photo 1). Pilarcitos Creek is a perennial creek with a well-defined OHWM that was identified by the observations of shelving, the clear presence of a bed and bank, and drift deposits.

3.1.5 Photo Points

Photo point labels, coordinates, and rationale for the photo are include in Table 4. Photos are included in Appendix D.

Table 5. Coordinates and Rationale for Photo Points

Label	Latitude	Longitude	Rationale
Photo 1	37.469261	-122.421798	Riparian habitat along Pilarcitos Creek
Photo 2	37.468813	-122.425454	Emergent freshwater marsh habitat around the abandoned agricultural pond
Photo 3	37.468319	-122.423926	Willow/Alder patches in the ruderal grassland matrix – SP5
Photo 4	37.468084	-122.423153	Portion of project area dominated by poison hemlock – SP7
Photo 5	37.469411	-122.423262	Upland grassland habitat typical of the site
Photo 6	37.467987	-122.422659	Pilarcitos Creek

3.2 Identification of Section 404 Waters

Approximately 0.29 ac of Section 404 waters were observed within the study area including the aquatic riverine habitat within the OHWM of Pilarcitos Creek (R1, Figure 7; Photo 6 in Appendix D) forming the eastern edge of study area. The extent of Section 404 waters was demarcated by the boundary formed by the OHWM.

Pilarcitos Creek is a 13.5-mile perennial stream that flows from the western slopes of the Santa Cruz Mountains through Pilarcitos Canyon and discharges into the Pacific Ocean approximately 1.7 mi downstream of the study area. Pilarcitos Creek is within the Arroyo Leon hydrologic unit (180500060201) within the San Francisco Coastal South Sub Region of the California Region. There is no tidal influence within Pilarcitos Creek in the study area.

3.3 Identification of Section 404 Potentially Jurisdictional Wetlands (Special Aquatic Sites)

In general, areas that were considered to be wetlands included solid stands of hydrophytes and/or areas observed to be ponded and/or saturated for long duration. Approximately 0.38 ac of potential USACE jurisdictional wetlands were identified in the study area (Figure 7). Three parameters identifying Section 404 wetlands were observed at one sample point (Figure 7; SP3, Appendix C). The feature that was determined to be a potentially USACE jurisdictional wetland is summarized below.

3.3.1 Perennial Freshwater Marsh (FM1)

Approximately 0.38 ac of emergent perennial freshwater marsh was mapped within study area, occupying an abandoned agricultural pond (FM1, Figure 7; SP3, Appendix C; (Photo 2 in Appendix D)).

Vegetation. Dominant vegetation associated with the wetlands included hydrophytes such as common cattail (*Typha latifolia*, OBL), whorled marsh-pennywort (*Hydrocotlye verticillata*, OBL), duckweeds (*Lemna* spp., OBL), and mosquito fern (*Azolla filiculoides*, OBL).

Soils. The soils were assumed to be hydric since the sample point was under several inches of water and soils are inundated year round. In addition, a hydrogen sulfide smell was observed in a shallow pit dug on the edge of the marsh.

Hydrology. The hydrology indicator observed at this location was the presence of surface water. Based on the timing of the survey, it would appear that this agricultural pond supports year-round surface water. Inundation was observed in aerial photos from recent years in fall months (Google Inc. 2020).

3.4 Identification of Section 401 Waters of the State

The extent of Section 401 waters of the state (RWQCB jurisdiction) in the study area includes a total of 0.91 ac, including areas within Section 404 jurisdiction as described above and riparian habitat up to the top of the banks. In the field, the top of bank was determined by mapping the first significant topographic break in slope. Waters of the state include all waters of the U.S., and cover approximately 0.38 ac of open water, 0.29 ac of perennial marsh, and 0.24 ac of riparian habitat (Figure 8). Characteristics of waters of the state, including wetlands, are described above in Sections 3.2 and 3.3.

3.5 Identification of CDFW Jurisdiction

The study area contains a perennial stream (Pilarcitos Creek) with a defined bed and bed topography along with associated riparian habitat, as defined by CDFW (Figure 9; Photo 1 and 6 in Appendix D). Riparian habitat was mapped by the dripline of trees and the extent of riparian vegetation. Pond features were mapped by the top of bank (which can extend beyond the OHWM used to measure the extent of waters of the U.S.).

Mixed Riparian Woodland. Approximately 2.85 ac of riparian woodland habitat extends from the water's edge and up the bank of Pilarcitos Creek. This riparian corridor is wide, well-developed, and extends upstream and downstream of the wetland delineation study area along Pilarcitos Creek. In addition, because the centerline of the creek is roughly equivalent to the eastern edge of the parcel, the riparian corridor on the eastern bank of the creek extends outside of the study area. Dominant trees and shrubs observed include arroyo willow (*Salix lasiolepis*, FACW), red willow (*Salix laevigata,* FACW), and red alder (*Alnus rubra*, FACW). The understory is mostly composed of dense and overlapping layers of Himalayan blackberry (*Rubus armeniacus*, FAC), cape ivy (*Delairea odorata, UPL*), and English ivy (*Hedera helix,* FACU). Given the density of the shrub/vine understory, herbaceous vegetation is limited.

3.6 Areas Not Meeting the Regulatory Definition of Section 404 Wetlands and Waters/Coastal Zone Wetlands within CCC Jurisdiction

In general, areas that were not considered to be wetlands, were not dominated by hydrophytic vegetation, and did not exhibit hydrology indicators were considered uplands. Approximately 17.64 ac of the study area do not meet the regulatory definitions of jurisdictional waters or jurisdictional habitats (Figure 6). This includes the ruderal grassland and developed landscape with ornamental vegetation (Photos 4 and 5, Appendix D).

Ruderal Grassland. Ruderal (i.e., disturbed) California annual grassland habitat is the most extensive vegetation community in the project area at 8.16 ac. Non-native grasses within this plant community are strongly dominant, generally outcompeting other forb and native grass species that may otherwise be present. At the time of the reconnaissance survey, this habitat was dominated by non-native grasses and forbs, including wild oat (*Avena* sp., UPL), Italian rye grass (*Festuca perenne*, FAC), soft brome (*Bromus hordeaceus*, FACU), black mustard (*Brassica nigra*, UPL), wild radish (*Raphanus sativus*, UPL), and prickly lettuce (*Lactuca serriola*, FACU).

In addition to these species, many other forbs and grass species are commonly found but to a much lower extent. These species include bristly ox-tongue (*Helminthotheca echioides,* FAC), poison hemlock (FAC), and curly dock (*Rumex crispus*, FAC). All of these, as well as Italian rye grass, are technically scored as facultative hydrophytes (Lichvar et al. 2016), or plants that sometimes occur in wetlands and sometimes occur in uplands, and can potentially indicate moist condition. However, all these species often dominate disturbed upland areas, especially along the coast where frequent fog occurs, without indicating wetlands, and often form monotypic stands, indicating infestation.

A number of small patches of either arroyo willow (FACW) or red alder (FACW) occur throughout the ruderal grassland, as mentioned above (Photo 3 in Appendix D). These clumps consist of either one or a few two trees and are situated on terraces within the central portion of the study area in areas that were previously in agricultural production. These trees are not associated with the riparian corridor along Pilarcitos Creek, though they likely are able to persist due to locally higher groundwater (within several feet of the surface) near Pilarcitos Creek. We do not believe that this entire area, or any area in the ruderal grassland supporting isolated willows or alders, truly stays saturated within 2 ft of the surface for a substantial portion of the growing season each year, as the site lacks hydric soil and hydrology indicators, or localized topography that would lead to seasonal ponding. Although both arroyo willow and red willow have a wetland indicator status (FACW), we feel that in this situation these trees are functioning as phreatophytes (i.e. woody perennials with a deep taproot that are able to access deep groundwater) as opposed to indicators of wetland conditions, or presence of a riparian corridor. Therefore we do not consider these patches of trees to be CCC jurisdictional wetlands.

Developed/Ornamental. Developed/landscaped land use (1.38 ac) includes areas where remnant structures and/or pavement and landscaping from the previous land use of agriculture production remain, and native or ruderal vegetation is largely lacking. The areas of former landscaping largely include the dense hedgerows of Monterey cypress (*Hesperocyparis macrocarpa,* UPL) and Monterey pine (*Pinus radiata*, UPL) trees along the north and western edge of the study area. The areas of development also include areas at the eastern end of the property consisting of several buildings, steel storage containers, and dirt parking areas. The buildings are in active use by the City of Half Moon Bay. Additionally, there are several unused dilapidated structures, including unused concrete channels and culverts present within the grassland and adjacent to the riparian habitat.

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Appendix A. Custom Soil Report for Project Study Area

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for San Mateo Area, California

880 Stone Pine Road Project



October 12, 2020

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

Preface.....2
How Soil Surveys Are Made.....5
Soil Map.....8
Soil Map.....9
Legend.....10
Map Unit Legend.....11
Map Unit Descriptions.....11
San Mateo Area, California.....13
BeC2—Botella loam, sloping, eroded.....13
FaA—Farallone loam, nearly level.....14
FcD2—Farallone coarse sandy loam, moderately steep, eroded.....15
GoF3—Gazos and Lobitos soils, steep and very steep, severely eroded...16
Gu—Gullied land (alluvial soil material).....18
Gv—Gullied land (gazos-lobitos soil material).....20
TcD2—Tierra clay loam, moderately steep, eroded.....20
TeC2—Tierra loam, sloping, eroded.....22
TeE3—Tierra loam, steep, severely eroded.....23
References.....25

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.



Map Scale: 1:2,980 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Mateo Area, California
Survey Area Data: Version 14, May 29, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 29, 2019—Jun 5, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BeC2	Botella loam, sloping, eroded	0.0	0.0%
FaA	Farallone loam, nearly level	8.7	41.5%
FcD2	Farallone coarse sandy loam, moderately steep, eroded	4.3	20.4%
GoF3	Gazos and Lobitos soils, steep and very steep, severely eroded	1.4	6.8%
Gu	Gullied land (alluvial soil material)	1.3	6.2%
Gv	Gullied land (gazos-lobitos soil material)	0.8	3.8%
TcD2	Tierra clay loam, moderately steep, eroded	0.1	0.7%
TeC2	Tierra loam, sloping, eroded	1.2	5.8%
TeE3	Tierra loam, steep, severely eroded	3.1	14.8%
Totals for Area of Interest		**21.1**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas

are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

San Mateo Area, California

BeC2—Botella loam, sloping, eroded

Map Unit Setting

National map unit symbol: h9v8
Elevation: 50 to 800 feet
Mean annual precipitation: 20 to 30 inches
Mean annual air temperature: 57 to 59 degrees F
Frost-free period: 250 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition

Botella and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Botella

Setting

Landform: Alluvial fans, terraces, benches
Landform position (two-dimensional): Backslope, toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

H1 - 0 to 20 inches: loam
H2 - 20 to 60 inches: silty clay loam

Properties and qualities

Slope: 7 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Soquel

Percent of map unit: 5 percent
Hydric soil rating: No

Unnamed
Percent of map unit: 5 percent
Hydric soil rating: No

Dublin
Percent of map unit: 5 percent
Hydric soil rating: No

FaA—Farallone loam, nearly level

Map Unit Setting
National map unit symbol: 2yrdy
Elevation: 30 to 210 feet
Mean annual precipitation: 28 to 30 inches
Mean annual air temperature: 56 to 57 degrees F
Frost-free period: 365 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition
Farallone and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Farallone

Setting
Landform: Alluvial fans, flood plains
Landform position (two-dimensional): Backslope, toeslope
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile
Ap - 0 to 20 inches: loam
AC - 20 to 48 inches: sandy loam
C - 48 to 60 inches: stratified coarse sandy loam to sandy loam

Properties and qualities
Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: Moderate (about 7.2 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 3c
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Denison

Percent of map unit: 10 percent
Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Miramar

Percent of map unit: 4 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Hydric soil rating: No

Unnamed

Percent of map unit: 1 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

FcD2—Farallone coarse sandy loam, moderately steep, eroded

Map Unit Setting

National map unit symbol: h9x5
Elevation: 50 to 200 feet
Mean annual precipitation: 20 to 30 inches
Mean annual air temperature: 55 degrees F
Frost-free period: 325 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Farallone and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Farallone

Setting

Landform: Alluvial fans, flood plains
Landform position (two-dimensional): Backslope, toeslope
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

H1 - 0 to 15 inches: coarse sandy loam
H2 - 15 to 48 inches: sandy loam
H3 - 48 to 60 inches: stratified coarse sandy loam to sandy loam

Properties and qualities

Slope: 10 to 20 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Denison

Percent of map unit: 10 percent
Hydric soil rating: No

Miramar

Percent of map unit: 5 percent
Hydric soil rating: No

GoF3—Gazos and Lobitos soils, steep and very steep, severely eroded

Map Unit Setting

National map unit symbol: h9xw
Elevation: 50 to 2,380 feet
Mean annual precipitation: 15 to 30 inches
Mean annual air temperature: 55 to 63 degrees F
Frost-free period: 200 to 300 days

Farmland classification: Not prime farmland

Map Unit Composition

Gazos and similar soils: 45 percent
Lobitos and similar soils: 35 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gazos

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Shale

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 20 inches: silt loam
H3 - 20 to 24 inches: unweathered bedrock

Properties and qualities

Slope: 30 to 75 percent
Depth to restrictive feature: 20 to 24 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Hydric soil rating: No

Description of Lobitos

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Shale

Typical profile

H1 - 0 to 14 inches: silt loam
H2 - 14 to 25 inches: channery clay loam
H3 - 25 to 29 inches: channery loam
H4 - 29 to 34 inches: unweathered bedrock

Properties and qualities

Slope: 30 to 75 percent
Depth to restrictive feature: 29 to 34 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Gullied land

Percent of map unit: 10 percent
Hydric soil rating: No

Sweeney

Percent of map unit: 5 percent
Hydric soil rating: No

Calera

Percent of map unit: 5 percent
Hydric soil rating: No

Gu—Gullied land (alluvial soil material)

Map Unit Setting

National map unit symbol: 2yrf4
Elevation: 20 to 420 feet
Mean annual precipitation: 29 to 32 inches
Mean annual air temperature: 56 to 57 degrees F
Frost-free period: 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Gullied land, (aluvial): 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gullied Land, (aluvial)

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Properties and qualities

Slope: 2 to 15 percent
Frequency of flooding: OccasionalNone

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w
Hydric soil rating: No

Minor Components

Unnamed

Percent of map unit: 5 percent
Landform: Draws
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: Yes

Botella

Percent of map unit: 4 percent
Landform: Alluvial fans, terraces, benches
Landform position (two-dimensional): Backslope, toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Farallone

Percent of map unit: 3 percent
Landform: Alluvial fans, flood plains
Landform position (two-dimensional): Backslope, toeslope
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Soquel

Percent of map unit: 3 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Gv—Gullied land (gazos-lobitos soil material)

Map Unit Composition

Gullied land, (gazos-): 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gullied Land, (gazos-)

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Residuum weathered from shale

Typical profile

H1 - 0 to 60 inches: variable

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8e
Hydric soil rating: No

Minor Components

Unnamed

Percent of map unit: 5 percent
Landform: Draws
Hydric soil rating: Yes

Gazos

Percent of map unit: 5 percent
Hydric soil rating: No

Lobitos

Percent of map unit: 5 percent
Hydric soil rating: No

TcD2—Tierra clay loam, moderately steep, eroded

Map Unit Setting

National map unit symbol: 2yrf9
Elevation: 60 to 720 feet
Mean annual precipitation: 29 to 31 inches
Mean annual air temperature: 56 to 57 degrees F

Frost-free period: 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Tierra and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tierra

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Alluvium derived from sedimentary rock

Typical profile

A - 0 to 17 inches: clay loam
Bt - 17 to 37 inches: clay
C - 37 to 60 inches: sandy clay loam

Properties and qualities

Slope: 11 to 20 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.01 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0
Available water capacity: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Colma

Percent of map unit: 10 percent
Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Santa lucia

Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Hydric soil rating: No

TeC2—Tierra loam, sloping, eroded

Map Unit Setting

National map unit symbol: 2yrfd
Elevation: 80 to 510 feet
Mean annual precipitation: 28 to 32 inches
Mean annual air temperature: 56 to 57 degrees F
Frost-free period: 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Tierra and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tierra

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Alluvium derived from sedimentary rock

Typical profile

A - 0 to 17 inches: loam
Bt - 17 to 37 inches: clay
C - 37 to 60 inches: sandy clay loam

Properties and qualities

Slope: 5 to 11 percent
Depth to restrictive feature: 10 to 24 inches to abrupt textural change
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.01 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0
Available water capacity: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Colma
Percent of map unit: 10 percent
Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Santa lucia
Percent of map unit: 3 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Hydric soil rating: No

Unnamed
Percent of map unit: 2 percent
Landform: Swales
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: Yes

TeE3—Tierra loam, steep, severely eroded

Map Unit Setting
National map unit symbol: 2yrfg
Elevation: 100 to 650 feet
Mean annual precipitation: 29 to 31 inches
Mean annual air temperature: 56 to 57 degrees F
Frost-free period: 365 days
Farmland classification: Not prime farmland

Map Unit Composition
Tierra and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tierra

Setting
Landform: Hills

Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Alluvium derived from sedimentary rock

Typical profile

A - 0 to 13 inches: loam
Bt - 13 to 33 inches: clay
C - 33 to 60 inches: sandy clay loam

Properties and qualities

Slope: 21 to 41 percent
Depth to restrictive feature: 10 to 24 inches to abrupt textural change
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.01 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0
Available water capacity: Very low (about 2.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Colma

Percent of map unit: 10 percent
Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Santa lucia

Percent of map unit: 5 percent
Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Hydric soil rating: No

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Appendix B. Plants Observed in the Project Area

Family	Scientific Name	Common Name	Wetland Indicator Status[1]
Agavaceae	*Chlorogalum pomeridianum*	Soap plant	UPL
Anacardiaceae	*Toxicodendron diversilobum*	Poison oak	FAC
Apiaceae	*Conium maculatum*	poison hemlock	FAC
	Hydrocotyle verticillata	Whorled Marsh-Pennywort	OBL
	Torilis arvensis	field hedge parsley	UPL
Araceae	*Lemna sp.*	duckweed	OBL
Araliaceae	*Hedera helix*	English ivy	FACU
Asteraceae	*Arctotheca prostrata*	creeping capeweed	UPL
	Baccharis pilularis	Coyote brush	UPL
	Carduus pycnocephalus	Italian thistle	UPL
	Cirsium vulgare	Bull thistle	FACU
	Deinandra corymbosa	Coastal tarweed	UPL
	Delairea odorata	cape ivy	UPL
	Helminthotheca echioides	Bristly ox-tongue	FAC
	Lactuca serriola	*prickly lettuce*	FACU
	Madia sativa	Chile Tarweed	UPL
	Silybum marinum	Milk thistle	UPL
Azollaceae	*Azolla filiculoides*	*mosquito fern*	OBL
Betulaceae	*Alnus rubra*	red alder	FAC
Brassicaceae	*Brassica nigra*	Black mustard	UPL
	Hirschfeldia incana	Mediterranean hoary mustard	UPL
	Raphanus sativus	Wild radish	UPL
Caryophyllaceae	*Silene gallica*	windmill pink	UPL
Cupressaceae	*Sequoia sempervirens*	Coast redwood	UPL
Cyperaceae	*Carex barbarae*	Santa Barbara Sedge	FAC
	Carex densa	Dense sedge	OBL

Family	Scientific Name	Common Name	Wetland Indicator Status[1]
	Cyperus eragrostis	Tall flatsedge	FACW
Equisetaceae	*Equisetum arvense*	common horsetail	FAC
Fabaceae	*Acacia dealbata*	Silver wattle	UPL
	Genista monspessulana	French broom	UPL
	Lotus corniculatus	bird's foot trefoil	FAC
	Lupinus arboreus	coastal bush lupine	UPL
	Trifolium angustifolium	Narrow leaved clover	UPL
	Vicia villosa	Hairy vetch	UPL
Fagaceae	*Quercus agrifolia*	Coast live oak	UPL
Junacaeae	*Juncus effusus*	Bog rush	FACW
	Juncus patens	Common rush	FACW
	Juncus xiphoides	Iris leaved rush	OBL
Lamiaceae	*Stachys bullata*	California hedge nettle	UPL
Linaceae	*Linum bienne*	narrow leaved flax	UPL
Myrtaceae	*Eucalyptus globulus*	blue gum	UPL
Pinaceae	*Hesperocyparis macrocarpa*	Monterey cypress	UPL
	Pinus radiata	Monterey pine	UPL
	Pseudotsuga menziesii	Douglas fir	FACU
Plataginaceae	*Plantago coronopus*	cutleaf plantain	FAC
Poaceae	*Agoseris stolonifera*	Creeping bentgrass	FAC
	Aira caryophyllea	Silvery hairgrass	FACU
	Avena sp.	Wild oats	UPL
	Briza maxima	Rattlesnake grass	UPL
	Briza minor	Little quaking grass	FAC
	Bromus diandrus	Ripgut brome	UPL
	Bromus hordeaceus	soft chess	FACU
	Cortaderia jubata	Pampas grass	FACU
	Cynosurus echinatus	dogtail grass	UPL
	Festuca perenne	Italian ryegrass	FAC

Family	Scientific Name	Common Name	Wetland Indicator Status[1]
	Holcus lanatus	Velvet grass	FAC
	Hordeum murinum	meadow barley	FAC
	Polypogon monspeliensis	rabbitsfoot grass	FACW
Polygonaceae	*Rumex acetosella*	Sheep sorrel	FACU
	Rumex crispus	curly dock	FAC
Primulaceae	*Lysimachia arvensis*	scarlet pimpernel	FAC
Rosaceae	*Cotoneaster pannosus*	silverleaf cotoneaster	UPL
	Rubus armeniacus	Himalayan blackberry	FAC
	Rubus ursinus	California blackberry	FACU
Salicaceae	*Salix laevigata*	red willow	FACW
	Salix lasiandra	Pacific willow	FACW
	Salix lasiolepis	arroyo willow	FACW
Typhaceae	*Typha latifolia*	common cattail	OBL
Urticaceae	*Urtica dioica* ssp. *dioica*	stinging nettle	FAC

Notes:

Wetland Indicator Status obtained from Lichvar et al. (2016)

[1] Wetland Indicator Status Key:

OBL = Obligate wetland species, occur almost always in wetlands (>99% probability).

FACW = Facultative Wetland species, usually occur in wetlands (67 to 99% probability), but occasionally found in non-wetlands.

FAC = Facultative species, equally likely to occur in wetlands or non-wetlands (34 to 66% probability).

FACU = Facultative Upland, usually occur in non-wetlands (67% to 99%), but occasionally found in wetlands.

UPL = Obligate Upland species, occur almost always in non-wetlands (>99% probability).

NI = Non Indicator, not present on list.

Appendix C. Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project Site: 880 Stone Pine Road Project City/County: Half Moon Bay, San Mateo Sampling Date: 6/12/2020
Applicant/Owner: City of Half Moon Bay State: California Sampling Point: SP1
Investigator(s): M. Bibbo Section/Township/Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local Relief (concave, convex, none): Concave Slope (%): 2
Subregion (LRR): LRR-C Lat: 37.468385 Long: -122.425183 Datum: WGS84
Soil Map Unit Name: Tierra loam, steep, severely eroded NWI classification N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes No X
Wetland Hydrology Present? Yes No X

Is the Sampled Area within a Wetland? Yes No X

Remarks:
Point taken to examine swale on edge of property - appears to be a head-cut or erosional feature, perhaps an abandoned agricultural ditch.

VEGETATION

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum (Plot size: 10 x 10 ft.)			
1. *Conium maculatum*	40	X	
2. *Festuca perennis*	30	X	
3. *Raphanus sativus*	20	X	
4. *Helminthotheca*	10		
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	100		
Woody Vine Stratum (Plot size:)			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL Species		x 5 =	
Column totals	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X 1 – Rapid Test for Hydrophytic Vegetation
2 – Dominance Text is >50%
3 – Prevalence Index is ≤3.0[1]
4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
5 – Wetland Non-vascular Plants[1] (Explain)
Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No

Remarks:
Ruderal vegetation dominated by Conium. Not a strong demarcation between vegetation in swale and surrounding hillslope.

SOIL

Sampling Point: **SP1**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	7.5 YR 4/2	100					clay loam	many roots

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Soil appears to be well-drained. No redox features observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LLR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? Yes _____ No X Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Feature is ditch/swale-like and appears to be eroding via head cut. Likely a former agricultural ditch, used to convey run-off and has been long since abandoned. No indicators of recent flow observed. Feature does not appear to pond water either. Water may flow through here immediately flowing strong storm events, but then would transition to sheet flow at bottom of slope (i.e. does not drain directly into another stream or drainage.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project Site: 880 Stone Pine Road Project City/County: Half Moon Bay, San Mateo Sampling Date: 6/12/2020
Applicant/Owner: City of Half Moon Bay State: California Sampling Point: SP2
Investigator(s): M. Bibbo Section/Township/Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local Relief (concave, convex, none): None Slope (%): 3-4
Subregion (LRR): LRR-C Lat: 37.46845 Long: -122.42513 Datum: NAD83
Soil Map Unit Name: Tierra loam, steep, severely eroded NWI classification None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No X
Hydric Soil Present? Yes No X
Wetland Hydrology Present? Yes No X
Is the Sampled Area within a Wetland? Yes No X

Remarks:
Point taken to examine the hillslope adjacent the swale.

VEGETATION

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum (Plot size: 10 x 10 ft.)			
1. *Festuca perennis*	60	X	FAC
2. *Avena fatua*	30	X	UPL
3. *Raphanus sativa*	5		UPL
4. *Vicia sativa*	5		UPL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	100		
Woody Vine Stratum (Plot size:)			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	60	x 3 =	180
FACU species		x 4 =	
UPL Species	40	x 5 =	200
Column totals	100 (A)		380 (B)

Prevalence Index = B/A = 3.8

Hydrophytic Vegetation Indicators:
- 1 – Rapid Test for Hydrophytic Vegetation
- 2 – Dominance Text is >50%
- 3 – Prevalence Index is ≤3.0[1]
- 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 – Wetland Non-vascular Plants[1] (Explain)
- Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes No X

Remarks:
Italian rye-grass dominated grassland – other co-dominant species are upland grasses and forbs.

SOIL

Sampling Point: **SP2**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/3	50					clay loam	
0-16	5 YR 5/4	50					clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ **No X**

Remarks:

Soil has a mixed matrix of two soil colors. Redox features not observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LLR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ **No X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Hillslope, upland landscape position.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project Site: 880 Stone Pine Road Project City/County: Half Moon Bay, San Mateo Sampling Date: 6/12/2020
Applicant/Owner: City of Half Moon Bay State: California Sampling Point: SP3
Investigator(s): M. Bibbo Section/Township/Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local Relief (concave, convex, none): None Slope (%): 3-4
Subregion (LRR): LRR-C Lat: 37.46882 Long: -122.42505 Datum: WGS84
Soil Map Unit Name: Tierra loam, steep, severely eroded NWI classification None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes X No
Wetland Hydrology Present? Yes X No
Is the Sampled Area within a Wetland? Yes X No

Remarks:
Freshwater marsh in an abandoned (but still inundated) agricultural pond.

VEGETATION

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum (Plot size: 10 x 10 ft.)			
1. *Typha latifolia*	60	X	OBL
2. *Azolla spp.*	20	X	OBL
3. *Lemna spp.*	10		OBL
4. *Hydrocotyle verticillata*	10		OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	100		
Woody Vine Stratum (Plot size:)			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum 0			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL Species		x 5 =	
Column totals	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
X 1 – Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Text is >50%
3 – Prevalence Index is ≤3.0[1]
4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
5 – Wetland Non-vascular Plants[1] (Explain)
Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No

Remarks:
Cattail-dominated freshwater marsh.

SOIL

Sampling Point: **SP3**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
n/a							mucky	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

Soil pit not dug, due to standing water. Hydrogen sulfide smell observed in a shallow pit dug on the edge of the marsh. Soils presumed hydric based on dominance of OBL species, and year-round inundation of soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LLR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): ~6"

Water Table Present? Yes X No ___ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): N/A

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Perennially inundated pond, likely fed by groundwater. Water present year round. The water depth in the middle of the pond feature is unknown.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project Site: 880 Stone Pine Road Project City/County: Half Moon Bay, San Mateo Sampling Date: 6/12/2020
Applicant/Owner: City of Half Moon Bay State: California Sampling Point: SP4
Investigator(s): M. Bibbo Section/Township/Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local Relief (concave, convex, none): None Slope (%): 1
Subregion (LRR): LRR-C Lat: 37.46877 Long: -122.42499 Datum: WGS84
Soil Map Unit Name: Tierra loam, steep, severely eroded NWI classification None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes No X
Wetland Hydrology Present? Yes No X
Is the Sampled Area within a Wetland? Yes No X

Remarks:
Upland paired point to SP4 - point taken to examine the riparian vegetation on the banks of the abandoned agricultural pond.

VEGETATION

Tree Stratum (Plot size: 30 x 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix laevigata*	60	X	FACW
2.			
3.			
4. *5*			
Total Cover:	0		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum (Plot size: 10 x 10 ft.)			
1. *Holcus lanatus*	60	X	FAC
2. *Vicia tetrasperma*	30	X	UPL
3. *Festuca perennis*	20	X	FAC
4. *Geranium molle*	<1		UPL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	100		
Woody Vine Stratum (Plot size: 30 x 30 ft.)			
1. *Rubus ursinus*	5	X	FACU
2.			
Total Cover:	5		
% Bare Ground in Herb Stratum 0			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL Species		x 5 =	
Column totals	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- 1 – Rapid Test for Hydrophytic Vegetation
- X 2 – Dominance Text is >50%
- 3 – Prevalence Index is ≤3.0[1]
- 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 – Wetland Non-vascular Plants[1] (Explain)
- Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes X No**

Remarks:
Overstory willow cover is rooted at edge of marsh, the remainder of the riparian vegetation on the bank is dominated by FAC grasses.

SOIL

Sampling Point: **SP4**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	2.5Y 5/3	100	7.5 YR 5/4	<1	C	M	clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ **No X**

Remarks:

Some very faint redox concentrations in the matrix. Soils are not in a landscape position (mid banks of a constructed pond) where they would be seasonally inundated.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LLR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? Yes ___ No X Depth (inches): ___

(includes capillary fringe)

Wetland Hydrology Present? Yes ___ **No X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Hillslope bank of artificial pond. All surface flow in the winter season would readily drain into the adjacent pond.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project Site: 880 Stone Pine Road Project City/County: Half Moon Bay, San Mateo Sampling Date: 6/12/2020
Applicant/Owner: City of Half Moon Bay State: California Sampling Point: SP5
Investigator(s): M. Bibbo Section/Township/Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local Relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): LRR-C Lat: 37.46825 Long: -122.42389 Datum: WGS84
Soil Map Unit Name: Farallone loam, nearly level NWI classification None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes No X
Wetland Hydrology Present? Yes No X
Is the Sampled Area within a Wetland? Yes No X

Remarks:
Point taken to examine the willow/alder stands that occur on the site - may be considered "one-parameter CCC wetlands".

VEGETATION

Tree Stratum (Plot size: 30 x 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix laevigata*	90	X	FACW
2.			
3.			
4.			
Total Cover:	90		
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum (Plot size: 30 x 30')			
1. *Festuca perennis*	2	X	FAC
2. *Avena fatua*	1		UPL
3. *Bromus diandrus*	1		UPL
4. *Bromus catharticus*	1		UPL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	5		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL Species		x 5 =	
Column totals	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
___ 1 – Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Text is >50%
___ 3 – Prevalence Index is ≤3.0[1]
___ 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 – Wetland Non-vascular Plants[1] (Explain)
Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No

Remarks:
Wetland boundary defined by overstory canopy of willow. Understory is absent (i.e. bare) to very sparsely vegetated by FAC and UPL grasses.

SOIL

Sampling Point: **SP5**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	100					clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

No redox features observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LLR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? Yes _____ No X Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The willow/alder patches are situated on a flat terrace that was previously leveled and in agricultural production. There may be a high water table that the roots are tapping into.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project Site: 880 Stone Pine Road Project City/County: Half Moon Bay, San Mateo Sampling Date: 6/12/2020
Applicant/Owner: City of Half Moon Bay State: California Sampling Point: SP6
Investigator(s): M. Bibbo Section/Township/Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local Relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): LRR-C Lat: 37.46822 Long: -122.42382 Datum: WGS84
Soil Map Unit Name: Farallone loam, nearly level NWI classification None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No X
Hydric Soil Present? Yes No X
Wetland Hydrology Present? Yes No X
Is the Sampled Area within a Wetland? Yes No X

Remarks:
Paired point to SP5.

VEGETATION

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum (Plot size: 10 x 10 ft.)			
1. *Avena fatua*	50	X	UPL
2. *Bromus diandrus*	25	X	UPL
3. *Festuca myuros*	10		UPL
4. *Festuca perennis*	10		FAC
5. *Carduus pychnocephalus*	3		UPL
6. *Erigeron canadensis*	2		UPL
7.			
8.			
9.			
10.			
11.			
Total Cover:	100		
Woody Vine Stratum (Plot size:)			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum 0			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL Species		x 5 =	
Column totals	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
___ 1 – Rapid Test for Hydrophytic Vegetation
___ 2 – Dominance Text is >50%
___ 3 – Prevalence Index is ≤3.0[1]
___ 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 – Wetland Non-vascular Plants[1] (Explain)
Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** **No X**

Remarks:
Dominated by upland grasses.

SOIL

Sampling Point: **SP6**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	100					Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

No redox features observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LLR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? Yes _____ No X Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Level terrace, no indication of seasonal inundation.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project Site: 880 Stone Pine Road Project City/County: Half Moon Bay, San Mateo Sampling Date: 6/12/2020
Applicant/Owner: City of Half Moon Bay State: California Sampling Point: SP7
Investigator(s): M. Bibbo Section/Township/Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local Relief (concave, convex, none): None Slope (%): 1
Subregion (LRR): LRR-C Lat: 37.46808 Long: -122.42309 Datum: WGS84
Soil Map Unit Name: Farallone coarse sandy loam, moderately steep, eroded NWI classification None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes No X
Wetland Hydrology Present? Yes No X

Is the Sampled Area within a Wetland? Yes No X

Remarks:
Point taken to examine poison hemlock infestation on terrace in southern portion of property.

VEGETATION

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum (Plot size: 10 x 10 ft.)			
1. *Conium maculatum*	100	X	FAC
2. *Hirschfeldia incana*	2		UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	100		
Woody Vine Stratum (Plot size:)			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL Species		x 5 =	
Column totals	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- 1 – Rapid Test for Hydrophytic Vegetation
- X 2 – Dominance Text is >50%
- 3 – Prevalence Index is ≤3.0[1]
- 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 – Wetland Non-vascular Plants[1] (Explain)

Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No

Remarks:
Ruderal vegetation dominated by poison hemlock, a FAC plant. Hemlock is not "acting" like a wetland plant in this situation.

SOIL

Sampling Point: **SP7**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	7.5 YR 4/2	100					Sandy loam	coarse

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

No redox features observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LLR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? Yes _____ No X Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Upland landscape position.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project Site: 880 Stone Pine Road Project City/County: Half Moon Bay, San Mateo Sampling Date: 6/12/2020
Applicant/Owner: City of Half Moon Bay State: California Sampling Point: SP8
Investigator(s): M. Bibbo Section/Township/Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local Relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): LRR-C Lat: 37.469925 Long: -122.42175 Datum: WGS84
Soil Map Unit Name: Farallone coarse sandy loam, moderately steep, eroded NWI classification None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes No X
Wetland Hydrology Present? Yes No X

Is the Sampled Area within a Wetland? Yes No X

Remarks:
Point taken to examine the riparian corridor of Pilarcitos Creek.

VEGETATION

Tree Stratum (Plot size: 30 x 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix laevigata*	100	X	FACW
2.			
3.			
4.			
Total Cover:	100		
Sapling/Shrub Stratum (Plot size: 30 x 30ft)			
1. *Rubus armeniacus*	20	X	FAC
2.			
3.			
4.			
5.			
Total Cover:	20		
Herb Stratum (Plot size: 30 x 30ft)			
1. *Urtic dioica*	5	X	FAC
2. *Stachys rigida*	5	X	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	10		
Woody Vine Stratum (Plot size: 30 x 30ft)			
1. *Delairea odorata*	75	X	FAC
2.			
Total Cover:	75		
% Bare Ground in Herb Stratum 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL Species		x 5 =	
Column totals	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- 1 – Rapid Test for Hydrophytic Vegetation
- X 2 – Dominance Text is >50%
- 3 – Prevalence Index is ≤3.0[1]
- 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 – Wetland Non-vascular Plants[1] (Explain)

Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No

Remarks:
Willow-dominated, dense, multi-layered riparian vegetation.

SOIL

Sampling Point: **SP8**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10 YR 3/3	100					sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ **No X**

Remarks:

Terrace soils, well-drained. No redoximorphic features observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LLR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ **No X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Upland landscape position - high terrace above Pilarcitos Creek.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project Site: 880 Stone Pine Road Project City/County: Half Moon Bay, San Mateo Sampling Date: 6/12/2020
Applicant/Owner: City of Half Moon Bay State: California Sampling Point: SP9
Investigator(s): M. Bibbo Section/Township/Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local Relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): LRR-C Lat: 37.46687 Long: -122.42311 Datum: WGS84
Soil Map Unit Name: Farallone coarse sandy loam, moderately steep, eroded NWI classification None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes No X
Wetland Hydrology Present? Yes No X

Is the Sampled Area within a Wetland? Yes No X

Remarks:
Point taken to examine the riparian corridor of Pilarcitos Creek. Point taken in southwest corner of property.

VEGETATION

Tree Stratum (Plot size: 30 x 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix laevigata*	60	X	FACW
2.			
3.			
4.			
Total Cover:	60		
Sapling/Shrub Stratum (Plot size: 30 x 30ft)			
1. *Rubus armeniacus*	60	X	FAC
2.			
3.			
4.			
5.			
Total Cover:	60		
Herb Stratum (Plot size: 30 x 30ft)			
1. *Conium maculatum*	20	X	FAC
2. *Urtica dioica*	10	X	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	30		
Woody Vine Stratum (Plot size: 30 x 30ft)			
1. *Delairea odorata*	75	X	FAC
2.			
Total Cover:	75		
% Bare Ground in Herb Stratum			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL Species		x 5 =	
Column totals	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- 1 – Rapid Test for Hydrophytic Vegetation
- X 2 – Dominance Text is >50%
- 3 – Prevalence Index is ≤3.0[1]
- 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 – Wetland Non-vascular Plants[1] (Explain)
- Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No

Remarks:
Willow-dominated, dense, multi-layered riparian vegetation.

SOIL

Sampling Point: **SP9**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10 YR 3/2	100					sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No X

Remarks:

Terrace soils, well-drained. No redoximorphic features observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LLR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Upland landscape position - high terrace above Pilarcitos Creek.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project Site: 880 Stone Pine Road Project City/County: Half Moon Bay, San Mateo Sampling Date: 6/12/2020
Applicant/Owner: City of Half Moon Bay State: California Sampling Point: SP10
Investigator(s): M. Bibbo Section/Township/Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local Relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): LRR-C Lat: 37.46701 Long: -122.42410 Datum: WGS84
Soil Map Unit Name: Farallone loam, nearly level NWI classification None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No
Hydric Soil Present? Yes No X
Wetland Hydrology Present? Yes No X

Is the Sampled Area within a Wetland? Yes No X

Remarks:
Point taken to examine poison hemlock infestation on terrace in south west portion of property. Hemlock is extensive on this portion of the property.

VEGETATION

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum (Plot size: 10 x 10 ft.)			
1. *Conium maculatum*	40	X	FAC
2. *Festuca perennis*	20	X	FAC
3. *Bromus diandrus*	35	X	UPL
4. *Lotus corniculatus*	5		FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover:	100		
Woody Vine Stratum (Plot size:)			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL Species	x 5 =
Column totals (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- 1 – Rapid Test for Hydrophytic Vegetation
- X 2 – Dominance Text is >50%
- 3 – Prevalence Index is ≤3.0[1]
- 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 – Wetland Non-vascular Plants[1] (Explain)

Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No

Remarks:
Ruderal vegetation dominated by poison hemlock and Italian rye-grass, FAC plants, though neither are "acting" like a wetland plants in this situation.

SOIL

Sampling Point: **SP10**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	100					Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ **No X**

Remarks:

Soils appear to be well-drained, no redoximorphic features present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LLR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ **No X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Level terrace, no indication of seasonal inundation.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project Site: 880 Stone Pine Road Project City/County: Half Moon Bay, San Mateo Sampling Date: 6/12/2020
Applicant/Owner: City of Half Moon Bay State: California Sampling Point: SP11
Investigator(s): M. Bibbo Section/Township/Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local Relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): LRR-C Lat: 37.46938 Long: -122.42328 Datum: WGS84
Soil Map Unit Name: Farallone loam, nearly level NWI classification None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No X
Hydric Soil Present? Yes _____ No X
Wetland Hydrology Present? Yes _____ No X

Is the Sampled Area within a Wetland? Yes _____ No X

Remarks:
Point taken to examine grassland in the northeastern corner of the property. This grassland is typical of the site.

VEGETATION

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	0		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
Total Cover:	0		
Herb Stratum (Plot size: 10 x 10 ft.)			
1. *Avena fatua*	60	X	UPL
2. *Bromus diandrus*	30	X	UPL
3. *Hirschfeldia incana*	5		UPL
4. *Helminthotheca echioides*	2		FAC
5. *Vicia sativa*	2		UPL
6. *Rumex crispus*	<1		FAC
7.			
8.			
9.			
10.			
11.			
Total Cover:	100		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL Species		x 5 =	
Column totals	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 – Rapid Test for Hydrophytic Vegetation
___ 2 – Dominance Text is >50%
___ 3 – Prevalence Index is ≤3.0[1]
___ 4 – Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 – Wetland Non-vascular Plants[1] (Explain)
Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:
Dominated by upland grasses.

SOIL

Sampling Point: **SP11**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	100					Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ **No X**

Remarks:

Soils appear to be well-drained.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required: check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LLR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? Yes ___ No X Depth (inches): ___

(includes capillary fringe)

Wetland Hydrology Present? Yes ___ **No X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Level terrace, no indication of seasonal inundation.

Appendix D. Photographic Documentation of the Project Area



Photo 1. Riparian habitat along Pilarcitos Creek (SP8).



Photo 2. Emergent freshwater marsh habitat around the abandoned agricultural pond (FM-1; SP3).



Photo 3. Willow/Alder stands in the California annual grassland occupying the old agricultural terraces (SP5).



Photo 4. Portion of project area dominated by poison hemlock (SP7).



Photo 5. Upland grassland habitat typical of the site (SP11).



Photo 6. OWHM and streambed of Pilarcitos Creek forming the eastern edge of the project study area.

Appendix E. Aquatic Resources Table

Waters Name	State	Cowardin Code	HGM Code	Measurement Type	Amount	Units	Water Type	Latitude	Longitude	Local Waterway
R1	CALIFORNIA	R2UB	RIVERINE	Area	1.46 ac	ACRE	RPW	37.467987	-122.422659	Pilarcitos Creek
FM1	CALIFORNIA	PEM	DEPRESS	Area	1.17 ac	ACRE	RPWWN	37.468813	-122.425454	Pilarcitos Creek

Appendix F. Signed statement from the property owner(s) allowing USACE personnel to enter the property

I, John Doughty, will allow Corps personnel to enter the 880 Stone Pine Road Project property in San Mateo County, California to collect samples during normal business hours. The property is not land-locked, therefore permission from the adjacent property owner(s) in order to provide access is not necessary.

Thank you,

John Doughty
City of Half Moon Bay
jdoughty@hmbcity.com
(650) 726-8252

APPENDIX D4

Draft Frog/Snake Tunnel Design Proposal
Corporation Yard Upgrade Project

DRAFT

FROG AND SNAKE TUNNEL DESIGN PROPOSAL

Mark R. Jennings
Rana Resources
October 12, 2021

The proposed frog/snake tunnel and surrounding fencing for the Half Moon Bay Corporation Yard Upgrade Project is designed as follows.

The width of the movement corridor shall be 50 feet. This approximates half of the width of the natural riparian corridor along Pilarcitos Creek (i.e.: a natural corridor along the water's edge). Because no future uses of the open space west of the corporation yard are proposed at this time, the movement corridor shall be placed as close as possible to the western boundary of the Corporation Yard and then head directly south to Pilarcitos Creek (to the location of the 50-foot riparian set back; see Figure 1). This allows for future use of the open space parcels to the west of the movement corridor and makes the distance to the creek as short as possible.

The fencing around the current pond should remain as a 6-foot high chain link fence. The northern and western fence lines should be expanded to the current boundaries of the property. The eastern and southern fence lines should be expanded to the 100-foot wetland setback. The access gate located in the northeast corner of the fence should remain in place.

This fencing will be installed with aluminum slats or vinyl slats (with wings). Gaps at the ends of the fencing will be covered with slats bolted together. The bottom of the fencing should be buried in the soil to a depth of 2 inches (except at the entrance to the movement corridor on the east side of the fence line. Here, no slats will be installed and the fencing shall leave a gap of 2 inches at the bottom for frogs and snakes to pass).

The fencing around the movement corridor itself shall be chain link fencing 4-feet high. It should also be buried 2 inches at the bottom and be covered with aluminum or vinyl slats. Gaps at the ends of the fencing will be covered with slats bolted together. Access gates will be installed on the west side of the fence lines where indicated (Figure 1). This fence will also connect on either side of the roadway to prevent frogs and snakes from entering the roadway (Figure 1).

The frog/snake tunnels shall be composed of 4 concrete box culverts, 3-feet wide and 2-feet high. They should be spaced under the roadway with culverts on the west and east sides flush against the adjacent fencing, and the remaining 2 culverts spaced approximately 14 feet from one another (Figure 2). The culvert bases should be at ground level and installed at a 2% slope to drain water. Either a trench or raising the roadway will be required to ensure that the culvert bases are properly aligned on the ground level. Whichever method is used, the end result is to prevent any water from ponding in the culverts for extended periods.

The floor of each culvert should contain an inch or so of natural soil (so as to cover the concrete base). The level of this soil base should be even with the soil level at the entrance and exit of each box culvert.

Gated access will be provided for any check of the area (e.g., for fire, utilities, culvert or pond inspections, etc.). It is anticipated that vegetation fuels management of the pond area and migration corridor will use grazing by domestic goats on an annual basis.

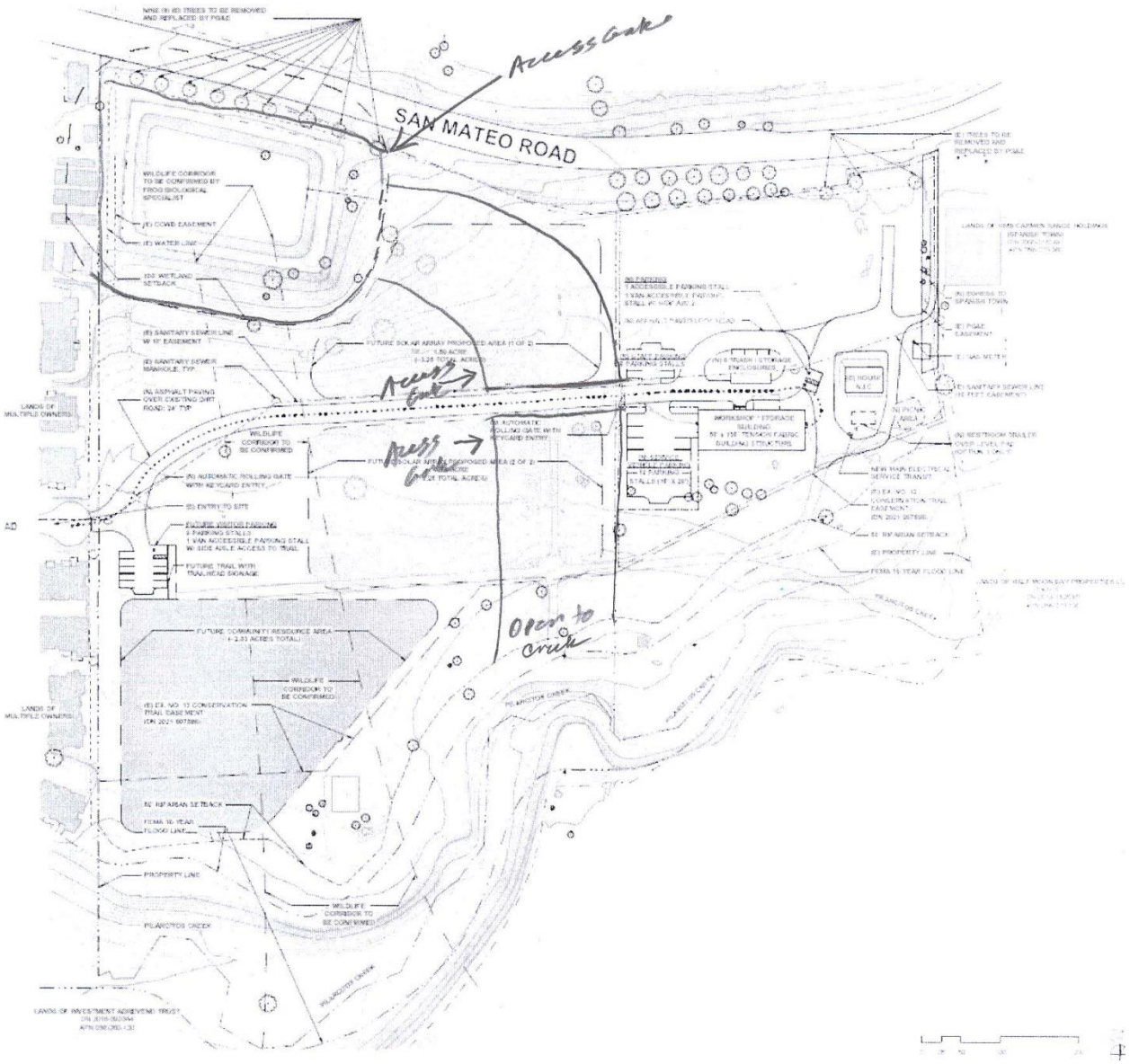

Figure 1. Proposed location of the fencing and movement corridor.

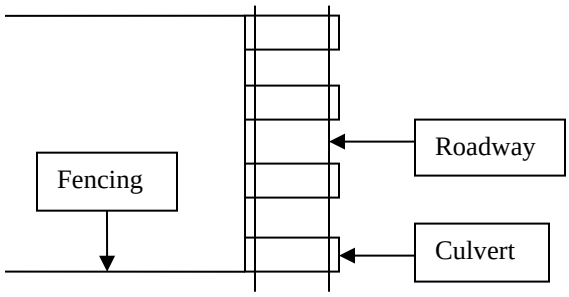

Figure 2. Diagram of fencing to the west with culverts evenly spaced under the roadway.

APPENDIX D5

Per Review of the Biological Resources Report (Rana Resources)
Corporation Yard Upgrade Project

RANA RESOURCES
P.O. Box 2185
Davis, CA 95617-2185

(530) 753-2727
RanaResources@aol.com

To: Jessica Henderson-McBean
SWCA Environmental Consultants
60 Stone Pine Road, Suite 100
Half Moon Bay, CA 94019

From: Mark R. Jennings, Consulting Biologist

Date: #20,048
January 09, 2022

Re: Peer Review of H.T. Harvey & Associates Biological Resources Report for the City of Half Moon Bay Corporation Yard Upgrade Project.

I have had the chance to review the Biological Resources Report (BRR) prepared by H.T. Harvey & Associates, as well as the November 21, 2021 Technical Memorandum (TM) prepared by yourself for Todd Seely of the City of Half Moon Bay. Based on my peer review of these documents, I find that the conclusions reached in the BRR, as well as the conclusions and suggestions in the TM to be appropriate and biologically justified. Although the agricultural pond mentioned in these documents was discussed as "perennial," recent years of drought have shown that most of the pond bottom is subject to annual drying if rainfall levels are less than average. Additionally, there is a spring located at the base of the old well in the southwest corner of the pond. Both of these findings should be included in considering future management practices with ensuring that the pond continues to be suitable breeding, rearing, and feeding habitat for both California red-legged frogs (*Rana draytonii*) and San Francisco gartersnakes (*Thamnophis sirtalis tetrataenia*). The old well could be used to mitigate against the extensive drying of the pond during extended drought years.

I attempted to determine how long the agricultural pond had been present on site and also if it was regularly filled with water in the past. A check of Google Earth photographs show the pond to be present in the 1980s. However, it probably was constructed many years before that and water storage was probably variable depending on the crops irrigated. It might be useful to find out what kind of crops were irrigated in the past and if this resulted in the agricultural pond historically containing water year around.

Additionally, the pond is almost certainly used by western pond turtles (*Actimemys marmorata*), both for feeding and rearing, and potentially for nesting on the soils that are exposed to sunlight around the edges of the pond. The currently proposed wildlife habitat corridor and fencing appears to be compatible for this species, as well as for California red-legged frogs and San Francisco gartersnakes. However, one issue that was not mentioned and does need to be considered is the potential treatment of the pond for mosquito larvae. The BRR should state in a

mitigation measure that any treatment of the pond for mosquito larvae by the Mosquito Abatement District should not include the planting of western mosquitofish (*Gambusia affinis*). Instead, other approved methods by the District (e.g., insect growth regulators), should be used to control local mosquito populations here.

In the same context, the use of rodenticides (i.e.: anticoagulants) for controlling introduced rats (*Rattus* spp.), house mice (*Mus musculus*), and California ground squirrels (*Spermophilus beecheyi*) should prohibited. Instead, localized trapping of rodents should conducted, if needed.

APPENDIX E1

Geotechnical Engineering Investigation

QUESTIONS:

0. SOIL VARIABILITY- REPORT SAYS OVEREXCAVATE TO SUBGRADE - WHAT ABOUT IN AREAS OF FILL? HOW DEEP SHOULD WE BE GOING DOWN TO SCARIFY AND RECOMPACT BEFORE WE START ADDING FILL?
1. ROUGH GRADING OVER THE WINTER MONTHS - HOW TO PROTECT SITE?
2. CONCRETE CURBS TO CUTOFF SUBDRAIN FLOW - PROVIDE MORE CLARITY?
3. BLDG PADS - HOW FAR BEYOND FOOTPRINT?
4. LATERAL SPREADING - ANY MITIGATION NEEDED?
5. SS MAIN IN SLOPE - CONCERNS?
6. PULLOUT ANCHOR SPACING/PROXIMITY TO SLOPE/SS

880 STONE PINE ROAD

HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA



for

County of San Mateo

August 2023

BAGG Engineers

BAGG Engineers, © August 2023

August 23, 2023
BAGG Job No. COUSM-23-03

County of San Mateo
Department of Public Works
555 County Center, 5th Floor
Redwood City, CA 94063

c/o: Steven McGuckin, AIA
Capital Program Management, Inc

REPORT
Geotechnical Engineering Investigation
SMC-HMB Farmworker Housing Project
880 Stone Pine Road
Half Moon Bay, San Mateo County, California

Dear Mr. McGuckin:

Transmitted herewith is our geotechnical engineering investigation report for the captioned project in the City of Half Moon Bay, County of San Mateo, California. This report presents a description of our investigative procedures and the encountered subsurface conditions, potential geologic and seismic hazards that could impact development on the site, the results of our laboratory testing, and our findings, conclusions and recommendations for the proposed site improvements. As a part of these services, we performed three (3) Cone Penetration Tests and advanced four (4) borings at the site, and collected disturbed bulk and relatively undisturbed ring samples of the site materials for visual examination and laboratory testing, as discussed later in this report.

Our investigation has indicated that the site could be subjected to lateral spreading during a major earthquake. Our best estimate indicates the lateral spreading could be on the order of 6 inches near the center of the project, and increasing to about 1½ feet adjacent to the creek.

Thank you for the opportunity to be of service on this project. Please do not hesitate to contact us should you have any questions or comments.

Very truly yours,

BAGG Engineers

Jingqi Liu
Project Engineer

Jason Van Zwol
VP/Chief Engineer

REGISTERED PROFESSIONAL ENGINEER
JASON VAN ZWOL
No. 854
Exp 6/30/24
GEOTECHNICAL
STATE OF CALIFORNIA

REPORT
GEOTECHNICAL ENGINEERING INVESTIGATION
SMC-HMB FARMWORKER HOUSING PROJECT
880 STONE PINE ROAD
HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA

TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 SITE AND PROJECT DESCRIPTION 1

3.0 PURPOSE AND SCOPE OF SERVICES 2

4.0 GEOLOGY AND SEISMICITY 4
4.1 Site and Area Geology 4
4.2 Faulting and Seismicity 4

5.0 FIELD EXPLORATION AND LABORATORY TESTING 5

6.0 SITE CONDITIONS 7
6.1 Subsurface Conditions 7
6.2 Groundwater 8

7.0 GEO-HAZARD ANALYSIS 9
7.1 Liquefaction Potential 9
7.2 Lateral Spreading 11
7.3 Ground Shaking 12

8.0 DISCUSSION AND RECOMMENDATIONS 13
8.1 General 13
8.2 Site Grading 14
8.3 Foundations 15
8.3.1 Foundations on Ground Surface with Tie-Downs 15
8.3.2 Spread/Strip Footings 16
8.4 Settlement 17
8.5 Retaining Walls and Temporary Shoring 17
8.6 Exterior Flatwork 18
8.7 Pavement Design 18
8.7.1 Flexible Pavements 18
8.7.2 Rigid Pavements 20
8.8 Utility Trench Backfill 20
8.9 Drainage 21
8.10 Corrosion Potential 21
8.11 Plan Review 22
8.12 Observation and Testing 23

BvGG ENGINEERS

TABLE OF CONTENTS CONTINUED

9.0 CLOSURE 23

10.0 REFERENCES 24

Attached Plates and Appendix:

Plate 1	Vicinity Map
Plate 2	Site Plan
Plate 3	Area Geologic Map
Plate 4	Regional Fault Map
Plate 5	Cross Section A-A’
Plate 6	Unified Soil Classification System
Plate 7	Soil Terminology
Plate 8	Boring Log Notes
Plate 9	Key to Symbols
Plates 10-A through 13-B	Boring Logs
Plate 14	Plasticity Data
Plate 15	Gradation Test Data
Plate 16	R-Value Test Report
Plate 17	Corrosivity Tests Summary
Appendix A	Cone Penetration Test (CPT) Results (CPT-3 through CPT-5)
Appendix B	2021 Boring & CPT Logs (B-1 through B-5; CPT-1 & CPT-2)

ASFE document titled “Important Information about This Geotechnical Engineering Report”

REPORT

GEOTECHNICAL ENGINEERING INVESTIGATION
SMC-HMB FARMWORKER HOUSING PROJECT
880 STONE PINE ROAD
HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA

1.0 INTRODUCTION

This report presents the results of our geotechnical engineering investigation performed to characterize the subsurface conditions at the site and assess the potential for geologic and geotechnical issues potentially affecting the design and construction of the proposed improvements. The attached Plate 1, Vicinity Map, shows the general location of the subject site, while Plate 2, Site Plan, depicts the site layout, the location of the proposed improvements, the approximate locations of the exploratory borings and Cone Penetration Tests (CPTs) advanced for the corporation yard in 2021, as well as the approximate locations of the borings (B-6 through B-9) and CPTs (CPT-3 through CPT-5) advanced for this investigation. Our services were provided in accordance with the scope outlined in our Proposal No. 23-494 dated June 30, 2023.

The following sections of this report present the result of our reviews, research, findings, and geotechnical evaluations following a site-specific subsurface exploration.

2.0 SITE AND PROJECT DESCRIPTION

The subject site is located on the east end of Stone Pine Road, approximately 2,500 feet east of the State Route 1 and 1¼ miles east of the Pacific shoreline in the City of Half Moon Bay, San Mateo County, California. It is bounded by San Mateo Road (Highway 92) on the northwest, a commercial parcel on the northeast, Pilarcitos Creek on the east and southeast, and residential parcels on the west. The site consists of an irregular-shaped, approximately 20-acre parcel that generally slopes gently to the southeast. The northeastern portion of the site is under construction for a corporation yard with a long, elevated driveway from Stone Pine Road to the new corporation yard site for the City of Half Moon Bay. An existing earth-lined agricultural pond is present on the western corner of the site at an elevation about 50 feet higher than in the project area. The remaining site area is undeveloped.

It is our understanding that the project will consist of the construction of 47 modular houses in the western vacant portion of the parcel on both sides of the new driveway. The houses are anticipated to be constructed on graded building pads and supported on 18-inch-tall, load-bearing piers supported on either 24"x24" pressure treated plywood pad, or 24"x24" pre-cast concrete pads set on compacted base rock surface with tie-downs for seismic resistance. Home Pride earth anchors are anticipated to be used as tie-downs. Other site improvements will include paved driveway and parking lots, a sports court, and landscape areas. We note that this investigation does not address the subsurface conditions and any potential hazards associated with the existing pond.

3.0 PURPOSE AND SCOPE OF SERVICES

The purpose of our services was to conduct a subsurface investigation at the subject site to obtain information required to address the geotechnical engineering aspects of the proposed project. To this end, this report addresses the following:

- Geologic site conditions and seismicity of the project site, including a review of available published geologic maps and reports pertinent to the site area, a discussion of the site geology and seismicity with distance to the active faults in the region, as well as the probability of a major earthquake on each fault;
- Seismic design parameters for the proposed site improvements per the 2022 California Building Code and ASCE 7-16[1];
- Specific subsurface conditions discovered by the borings and CPTs, such as expansive, loose, saturated, collapsible, or soft surface and subsurface soils that may require special mitigation measures or impose restrictions on the project, including the thickness and consistency of the existing fill soils and groundwater levels, as encountered;
- Assessment of liquefaction potential, any adverse impacts it may impose on the project, and remedial measures, as deemed appropriate;
- Criteria for site grading, earthwork, preparation of subgrades and building pads, placement of fills and backfills, and trench backfill requirements, including the suitability of the excavated soils from the site for use as fill and backfill material;

[1] This report assumes the project site can be properly classified as a Site Class D (Stiff Soil) site (discussed later in this report), and that the Exception of the Supplement 3 to Section 11.4.8 of ASCE 7-16 will apply to the proposed structures. Thus, a site-specific ground response analysis in accordance with ASCE 7-16 Section 21.1, and a ground motion hazard analysis in accordance with ASCE 7-16 Section 21.2 are not included in our scope of services.

- Estimates of the allowable bearing values for the 24"x24" plywood/concrete pad, and the resistance to pull-out loads for the anticipated anchor type (Home Pride earth anchors);

- Estimate of the lateral resistance for the proposed foundation system, including the applicable coefficient of friction between the supporting surface (gravel) and plywood/concrete pads;

- Estimate of earth pressures acting on site retaining walls, including vertical and lateral support requirements;

- Estimates of the post-construction total and differential settlements for the new structures supported on the recommended foundation system;

- Criteria for support of exterior concrete flatwork;

- Criteria for the design of rigid and flexible pavements;

- General provisions for the control of surface and subsurface drainage; and

- Preliminary screening for soil corrosivity and its impact on the buried foundation elements and underground utilities.

To fulfill the above purpose, the scope of our investigation consisted of the following specific tasks:

- Reviewed pertinent geotechnical and geological reports, as well as hazard maps and reports relevant to the site and vicinity.

- Marked the planned boring and CPT locations in the field, coordinated the field exploration with the client representatives, retained a utility locating firm to help clear the boring and CPT locations, and notified Underground Service Alert (USA) at least 72 hours in advance.

- Obtained permits for borings and CPTs from the County of San Mateo Department of Environmental Health.

- Drilled, logged, and sampled four borings to approximate depths of 20 to 30 feet using a truck-mounted drilling rig. The borings were advanced under the supervision of one of our engineers who also obtained disturbed bulk and relatively undisturbed ring samples of the subsurface materials at 3- to 5-foot-intervals for visual examination and laboratory testing. The borings were backfilled with cement grout per the permit requirements. The drilling spoils were left at the site.

- Advanced three CPTs to an approximate depth of 50 feet. The CPTs were backfilled with cement grout per the permit requirements.

- Performed a laboratory testing program on the collected soil samples to evaluate the geotechnical engineering characteristics of the subsurface soils. Tests included direct shear

tests, Atterberg Limits, grain-size analyses, moisture-density measurements, R-value, and soil corrosivity testing, as judged appropriate.

- Conducted engineering analyses based on the results obtained from the above tasks and oriented towards the above-stated purpose of the investigation; and

- Prepared this report presenting the results of our investigation, summarizing our findings and recommendations for the subject project, and including a vicinity map, a site plan showing the approximate boring and CPT locations, an area geologic map, a regional fault map, the boring and CPT logs, subsurface profile(s) and the laboratory test results.

4.0 GEOLOGY AND SEISMICITY

4.1 Site and Area Geology

A review of the *Geology of the Onshore Part of San Mateo County, California: Derived from the Digital Database Open-File 98-137*, prepared by Brabb et al. (1998), indicates that the northwestern portion of the site is underlain by Pleistocene age marine terrace deposits (Qmt) described as "poorly consolidated and poorly indurated well- to poorly sorted sand and gravel." The southeastern portion of the lot along Pilarcitos Creek is mapped as Holocene alluvial fan deposits (Qyf, Qyfo) generally consisting of unconsolidated sand, silt, clayey silt, and gravel.

A portion of the geologic map that includes the site area is presented on Plate 3, Area Geologic Map.

4.2 Faulting and Seismicity

No earthquake faults have been mapped crossing the site area. The distances from the site to the major faults in the area and their estimated probability of generating a major earthquake ($M_w \geq 6.7$) are listed in the Table 1 on the following page. The major active faults with respect to the subject site are also shown on the attached Plate 4, Regional Fault Map.

According to the California Geological Survey (CGS) map of *Earthquake Zones of Required Investigation, Half Moon Bay Quadrangle* (2021), the site is not situated within an Alquist-Priolo Earthquake Fault Zone (AP Zone). However, the site is situated within an area designated as an earthquake-induced liquefaction hazard zone. Evaluation of the potential of the site materials for seismically-induced liquefaction requires the upper 50 feet of soils must be explored and characterized as a minimum (per Special Publication 117A adopted by the State of California).

Table 1
Significant Earthquake Scenarios

Fault	Approximate Distance to Site (kilometers)[1]	Location with Respect to Site (Driving Range Tee)	Probability of $M_W \geq 6.7$ within 30 Years[2]
San Gregorio	4	SW	5%
Pilarcitos	5	NE	0.5%
San Andreas (Entire)	8	NE	33%
San Andreas (Peninsula)	8	NE	9%
Monte Vista – Shannon	21	SE	1%
Hayward-Rodgers Creek	37	NE	32%
Calaveras	50	NE	25%

[1] USGS Fault Files from Google Earth, and CGS Fault Activity Map of California
2 Working Group on California Earthquake Probabilities, 2014

5.0 FIELD EXPLORATION AND LABORATORY TESTING

Conditions of the subsurface materials within the project area were explored by drilling four borings to approximate depths of 20 to 30 feet below the existing ground surface (bgs) using a truck-mounted drilling rig equipped with 6-inch diameter continuous flight augers. In order to better address the liquefaction hazards, three 50-foot-deep Cone Penetration Tests (CPTs) were advanced with a truck-mounted CPT rig. The approximate boring and CPT locations are shown on the attached Plate 2, Site Plan. Plate 5, Cross Section A-A', presents our interpretation of the subsurface conditions extrapolated from the information obtained during our site investigation.

A continuous log of the subsurface materials encountered in the boreholes was maintained by our engineer on site. Disturbed bulk and relatively undisturbed ring samples of the site materials were obtained. The subsurface materials were visually classified in the field; the classifications were then checked by visual examination, grain size analysis, and Atterberg Limits testing performed in the laboratory. In addition to sample classification, the boring logs contain interpretation of where stratum changes or gradational changes occur between samples and where subtle changes become significant enough to log. The boring logs depict BAGG's interpretations of subsurface conditions only at the locations indicated on Plate 2, Site Plan, and only on the date noted on the logs.

Cone penetrometer tests (CPT) consist of hydraulically advancing a probe into the soil strata with a truck-mounted CPT rig. The probe is fitted with transducers that read resistance at the tip of the probe, or cone,

friction acting between the sides of the sleeve immediately behind the cone and the surrounding soil, and pore pressure. The resulting data is then correlated to establish soil behavior types, consistencies, and shear strength data. The location of the CPTs are also shown on the attached Plate 2, Site Plan, and the CPT logs are presented in Appendix A.

The boring logs and the CPT data are intended for use only in conjunction with this report, and only for the purpose outlined by this report. The graphical representation of the materials encountered in the borings, and the results of laboratory tests, as well as explanatory/illustrative data are attached, as follows:

- Plate 6, Unified Soil Classification System; illustrates the general features of the soil classification system used on the boring logs;
- Plate 7, Soil Terminology; lists and describes the soil engineering terms used on the boring logs;
- Plate 8, Boring Log Notes; describes general and specific conditions that apply to the boring logs;
- Plate 9, Key to Symbols; describes various symbols used on the boring logs;
- Plates 10-A through 13-B, Boring Logs; describe the subsurface materials encountered, show the depths and blow counts for the samples, and summarize the results of the strength tests, Atterberg Limits, sieve analyses, and moisture-density data;
- Plate 14, Plasticity Data; presents the results of Atterberg Limits tests performed on selected samples of the site materials;
- Plate 15, Gradation Test Data; presents the result of two gradation tests performed on selected samples of the site materials;
- Plate 16, R-Value Test Report; presents the results of an R-value test performed on a sample of the near-surface soil from Boring B-9 near the proposed asphalt driveway; and
- Plate 17, Corrosivity Test Summary; presents the results of corrosivity testing performed by an outside laboratory on two selected soil samples.

Direct shear strength tests were performed on collected soil samples to evaluate the strength parameters of the site earth materials. The direct shear tests were performed at both natural (field) and artificially increased moisture contents, while under various surcharge pressures. The moisture content and dry density of several undisturbed samples were measured to aid in correlating their engineering properties. In addition, Atterberg Limits tests were performed on selected samples to aid in classification as well as obtain

an indication of the samples' expansion potential. Gradation and wash over the No. 200 sieve tests were also performed on selected samples of the site materials to classify the samples. Additionally, an R-value test was conducted on a bulk sample of the near-surface soil to aid in the pavement section design. Furthermore, corrosivity testing was carried out by Cooper Testing Labs on two selected soil samples. The results of the noted tests are shown on the boring logs and on the plates described above.

6.0 SITE CONDITIONS

6.1 Subsurface Conditions

Borings B-4 through B-9 encountered a 1- to 2-foot-thick layer of artificial fill consisting predominantly of stiff sandy lean clay and/or medium dense clayey sand with varying gravel content; however, relatively dry and loose/soft surficial materials were observed at Boring B-6 and B-9 locations. Atterberg Limits testing on a fill soil sample obtained at a depth of about 1 foot below the ground surface (bgs) in Boring B-9 yielded a liquid limit of 40 and a plasticity index of 17, indicating the existing fill material is moderately expansive in nature.

Native soils encountered in the borings consisted predominantly of interlayered lean clay, clayey sand, silty sand, and/or well-graded sand with silt. The upper clay deposits were generally stiff to very stiff and become medium stiff as depth increases. The sandy deposits were mostly medium dense in consistency with a few loose sand layers in the upper about 15 feet of the profile in Boring B-6. In addition, thin, less than 6-inch-thick fat clay layers were observed in the deep borings below about 27 feet bgs. Atterberg Limits testing on native clay and/or clayey sand samples in the upper about 5 feet of the boring profiles yielded liquid limits in the range of 39 to 49 and plasticity indices between 15 and 25, indicating the near-surface native materials are moderately to highly expansive in nature.

CPT-3 through CPT-5 advanced as part of this investigation also revealed interlayered clayey, silty, and/or sandy deposits within the maximum explored depth of 50 feet. The encountered fine-grained soils were medium stiff to very stiff while the granular deposits, consisting predominantly of silty sand to sandy silt and/or clean sand to silty sand, were generally medium dense to dense in consistency. However, the CPT profiles showed large variation in the depth to the first sand layer and the total thickness of the granular deposits. Excluding the surficial ½ foot of topsoil, CPT-3 first encountered sandy deposits at the approximate depth of 8½ feet bgs. CPT-4, however, revealed sandy soils down to the depth of about 12½ feet bgs. At

location of CPT-5, the upper approximately 2½ feet of the profile also consisted of sandy materials; however, below 2½ bgs, CPT-5 revealed mostly clayey deposits with scattered, 2-inch- to 2½-foot-thick, sandy lenses. The total thickness of the medium dense sandy deposits in CPT-5 was about 7 feet, while CPT-3 and CPT-4 encountered approximately 17 feet and 24 feet of medium dense sand, respectively.

BAGG advanced five borings (Borings B-1 through B-5) and two CPTs (CPT-1 and CPT-2) as part of the previous investigation on the northeastern half of the site for the City of Half Moon Bay Corporation Yard project in 2021. The previous Borings B-1 through B-5 revealed predominantly clayey deposits within their maximum explored depths of 5 to 25 feet bgs, except that Boring B-1 encountered medium dense clayey sand below 13 feet to its bottom at 15 feet, and Boring B-2 encountered medium dense to dense clayey sand below 15½ feet to its bottom at 20 feet. The two sand layers may, however, extend further in depth. CPT-1 and CPT-2 revealed interbedded clayey and sandy deposits within the maximum explored depth of 50 feet.

Our boring and CPT profiles indicated the site is generally underlain by interlayered clayey and sandy soils; however, the depths of the sand layers, the thickness and consistency of each sandy layer, as well as the total amount of the sandy deposits with the explored depths, are non-uniform and vary from one location to another. For more information regarding our interpretation of the subsurface materials, we refer you to Plates 10-A through 13-B, Boring Logs. The CPT data is presented in Appendix A attached to this report. The previous Boring B-1 through B-5 logs, as well as CPT-1 and CPT-2 data, are presented in the attached Appendix B.

6.2 Groundwater

Groundwater was first encountered in Borings B-6, B-7, and B-8 at the approximate depth of 17½, 19, and 15 feet bgs, respectively, and was measured upon completion of drilling and sampling at the depths of about 18 feet in B-6 and B-7 and about 9 feet bgs in Boring B-8. Groundwater was not encountered in Boring B-9 within its maximum explored depth of 20 feet. The CPTs estimated groundwater depths of about 15 feet in CPT-3 and about 12½ feet in CPT-5.

Groundwater was not encountered in the previous Borings B-1 through B-5, which were extended to the maximum depth of 25 feet bgs. CPT-1 and CPT-2 estimated groundwater depths of about 10½ and 18 feet bgs, respectively.

Groundwater levels typically fluctuate due to seasonal changes such as variations in rainfall and temperature, hydrogeological variations such as groundwater pumping or recharging, and/or other factors not evident at the time of exploration. Plate 1.3 of the California Geological Survey (CGS, 2021) Seismic Hazard Zone Report 132 (SHZR 132), *Seismic Hazard Zone Report for the Half Moon Bay 7.5-Minute Quadrangle, San Mateo County, California,* indicates the depth to historically high groundwater level in the general site area is less than 10 feet.

7.0 GEO-HAZARD ANALYSIS

7.1 Liquefaction Potential

According to the regulatory Seismic Hazard Zone Official Map prepared by the CGS (2021), the subject site is situated within a Seismic Hazard Zone associated with liquefaction. These zones are defined as "areas where historical occurrence of liquefaction, or local geological, geotechnical and groundwater conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required."

Soil liquefaction is a condition where saturated granular soils near the ground surface undergo a substantial loss of strength due to increased pore water pressure resulting from cyclic stress applications induced by earthquakes or other vibrations. In the process, the soil acquires mobility sufficient to permit both vertical and horizontal movements, if not confined. Soils most susceptible to liquefaction are loose, uniformly graded, fine-grained, sands, and loose silts with very low cohesion. In general, liquefaction hazards are most severe in the upper 50 feet of the soil profile. In deeper deposits, the greater overburden soils tend to isolate the ground surface from the impact of any liquefaction in deeper soils, and the overburden pressures tend to limit shear strains that occur during liquefaction.

Our boring and CPT data indicated the site is generally underlain by non-uniform, interlayered clayey and sandy deposits. Liquefaction analysis was performed using the CPT soundings and the boring data (within the maximum depths explored) following the procedures recommended by Boulanger and Idriss (2014). For

the purpose of this analysis, we used a groundwater level of 9 feet which was the highest groundwater level measured in our borings. Our analysis used an earthquake magnitude of 7.7 as obtained from the USGS Unified Hazard Tool (https://earthquake.usgs.gov/hazards/interactive/index.php), and a Peak Ground Acceleration of 0.89g obtained from the U.S. Seismic Design Maps by California's Office of Statewide Health Planning and Development (OSHPD, https://seismicmaps.org/).

Our analysis indicates that the loose to dense sand layers presented beneath the site are potentially liquefiable. The estimated liquefaction settlements are highly associated with the total amount of the potentially liquefiable sands at each of the exploration locations. Our analysis estimated liquefaction settlements of approximately 1½ inches in CPT-3, 2 inches in CPT-4, and ¼ inch in CPT-5. The estimated liquefaction settlements within the maximum explored depth of the borings were about 3 inches in Boring B-6 (30-foot-deep), 1⅓ inches in B-7 (21½-foot-deep), 2½ inches in B-8 (28½-foot-deep), and ⅓ inch in B-9 (20-foot-deep). Potentially liquefiable soils are also likely present beneath the explored depths in the borings.

Our analysis also estimated that the seismic compaction within the sandy deposits above the assumed groundwater level (9 feet) in Borings B-6 through B-9 ranged from less than ¼ inch to about ⅔ inch. The estimated seismic compaction in CPT-3 and CPT-5 was negligible; however, we estimated about 1⅓ inches of seismic compaction in the upper sandy deposits in CPT-4.

With a groundwater level of 9 feet (instead of 11 feet used in our 2021 analysis), we estimated liquefaction settlements of about 1 inch in the previous CPT-1 and ⅔ inch in CPT-2. The estimated seismic compaction was about ⅓ inch in CPT-1 but was negligible in CPT-2. Estimated seismic settlement was negligible in the previous Borings B-1 through B-5 as they were relatively shallow and the encountered sandy materials were either too clayey or too dense to be considered liquefiable.

We note that the empirical calculation methods, such as the one used here, for estimating expected settlements due to liquefaction are known to be conservative, especially when the soils in question contain in excess of 30 percent fines. Also, our analysis used a relatively conservative groundwater depth of 9 feet which was the groundwater depth measured in Boring B-8 near the creek, while other borings/CPTs measured/estimated groundwater depths in the range of 11 feet (2021) to more than 20 feet bgs. We

therefore anticipate the total seismic settlements in the project area would generally be in the range of ¼ to 1½ inches but could be as much as 3 inches or so in some localized areas such as the CPT-4 location.

Based on the estimated seismic settlements and the relative distance between the exploration points, we estimate the differential settlements due to seismic compaction and liquefaction of the granular soils would be approximately 1 inch in 50 feet across the site.

7.2 Lateral Spreading

Lateral spreading is a potential hazard commonly associated with liquefaction where extensional ground cracking and settlement occur as a response to lateral migration of subsurface liquefiable material. Lateral movement can range from a few inches to several feet and can cause significant structural damage. Lateral spreading generally arises where sloping terrain and/or a free-face condition occurs in conjunction with the presence of loose, saturated soils at shallow depths, particularly along riverbanks and shorelines.

Calculations to evaluate the potential for lateral spread toward the adjacent Pilarcitos Creek using the method suggested by Boulanger and Idriss (2014) indicates a possible 1 foot of lateral movement at CPT-3 and 1¼ feet at CPT-4, but estimated no lateral movement at CPT-5. Borings B-6 through B-9 using the method suggested by Youd, et al (2002) estimated lateral movements ranging from negligible amount to as much as 12 feet. It should be noted that the above estimates of lateral spreading assume all the liquefiable layers encountered in each boring are continuous toward the creek. As shown on Plate 5, Cross Section A-A', the sandy deposits potentially subject to lateral movement are generally non-uniform and discontinuous, with the exception of a potentially continuous sand layer between the approximate elevations of 50 to 60 feet above the mean sea level, which is about 5 feet below the bottom of Pilarcitos Creek. Assuming this layer is continuous toward the creek, for a design earthquake of Magnitude 7.7 at a distance of about 6 kilometers, we have estimated lateral spreading on the order of 6 inches in the vicinity of Boring B-7 and CPT-4, increasing to about 1½ feet at the creek bank. Because the source of the deformations in this scenario would be at some depth, we anticipate that much of the movement would consist of relatively large soil masses moving toward the creek; however, it is impossible to predict where fractures would occur at the surface.

7.3 Ground Shaking

The site could experience very strong ground shaking from future earthquakes during the anticipated lifetime of the project. The intensity of the ground shaking will depend on the magnitude of the earthquake, distance to the epicenter, and the response characteristics of the on-site soils. While it is not possible to totally preclude damage to structures during major earthquakes, strict adherence to good engineering design and construction practices will help reduce the risk of damage. The 2022 California Building Code defines the minimum standards of good engineering practice.

As discussed above, our investigation indicated the presence of potentially liquefiable soils beneath the site. If the fundamental period of vibration of the planned structures is less than 0.5 seconds, which is likely the case for this project, the site class can be calculated with shear wave velocities, blow counts and/or soil strengths in accordance with Section 20.4 of ASCE 7-16. Based on our boring and CPT data, it is our opinion that a Site Class D may be assumed for design purposes.

Class "D" is defined as a "stiff soil profile" with an average shear wave velocity between 600 and 1,200 feet per second, and/or average undrained shear strength between 1,000 and 2,000 psf in the top 100 feet of the site.

Using the site coordinates of 37.4679° North Latitude and 122.4239° West Longitude, and the OSHPD Seismic Design Maps, earthquake ground motion parameters were computed in accordance with the 2022 California Building Code and the ASCE 7-16, and are listed in the following table. As S_1 is greater than 0.2g, Table 2 below assumes the Exception in Supplement No.3 to Section 11.4.8 of ASCE 7-16 applies. If the Exception does not apply to the design of this project, the seismic design will require a site-specific ground motion hazard analysis in accordance with Section 21.2 of ASCE 7-16. Such analysis is beyond our present scope of services.

Table 2
Parameters for Seismic Design

2022 CBC Site Parameter	Value
Site Latitude	37.4679° N
Site Longitude	122.4239° W
Site Class	Class D, Stiff Soil
Risk Category	III
Mapped Spectral Acceleration for Short Periods S_s	1.93
Mapped Spectral Acceleration for 1-second Period S_1	0.73
Site Coefficient F_a	1.0
Site Coefficient F_v	1.7**
Site-Modified Spectral Acceleration for short Periods S_{Ms}	1.93
Site-Modified Spectral Acceleration for 1-second Period S_{M1}	1.24*
Design Spectral Acceleration for short Periods S_{Ds}	1.29
Design Spectral Acceleration for 1-second Periods S_{D1}	0.83*

* This value has not been increased by 50% per Exception of Supplement No.3 of Section 11.4.8.
** See Table 11.4.2 - This value to be used only for calculation of T_S, for determination of Seismic Design Category and when taking the exception under Item 1 of Section 11.4.8.

8.0 DISCUSSION AND RECOMMENDATIONS

8.1 General

Based on our review of the published geologic and geotechnical documents, research of the existing soils information, and the subsurface exploration conducted at the subject site, as well as the results obtained from our laboratory testing program, we have developed the following geotechnical recommendations and design criteria for the subject project. When the final project plans become available, they should be reviewed by this office to confirm that they have been prepared in accordance with this report, as well as confirm that our recommendations properly address the proposed project in its final form.

Analysis of the boring profiles and the CPT soundings indicates the impact of liquefaction and seismic compaction from a design level earthquake on the site could be seismic settlements on the order of ¼ to 1½ inches with some localized areas potentially having as much as 3 inches of seismic settlement. Our investigation also indicated that the site could be subjected to lateral spreading during a major earthquake. Our best estimate indicates the lateral spreading could be on the order of 6 inches near the center of the project, and increasing to about 1½ feet adjacent to the creek. Despite the liquefaction and lateral spreading potential, our boring data and laboratory test results indicate the subgrade soils generally are capable of supporting the proposed modular structures and the associated improvements.

8.2 Site Grading

Site grading is anticipated to consist of the removal of existing vegetation and debris from the construction areas, preparation of building pads and pavement subgrades, and installation of underground utilities. Site grading may also consist of foundation excavation if concrete footings are required to support site retaining walls, fence posts, etc.

As used in this report, the term 'compact' and its derivatives mean that all engineered fill material, whether imported or on-site material, should be compacted to at least 90% of maximum dry density as determined by ASTM Test Method D1557. The term also implies that immediately prior to being compacted, the fill material should be thoroughly moisture conditioned to a moisture content that is slightly above optimum for imported non-expansive fill material, and at least 2% over optimum for onsite clayey soils. The properly moisture-conditioned fill should be spread evenly in lifts not exceeding 8 inches in loose thickness, and each lift should be thoroughly moisture conditioned and compacted before subsequent lifts are placed. Class II Aggregate Base, and the upper 12 inches of subgrades within pavement and modular building areas, should be compacted to a minimum of 95% of the maximum dry density at the moisture content specified above.

The following grading procedures should be followed in building pad, pavement, and flatwork areas:

- Remove existing bushes, vegetation roots, and other debris from the proposed construction areas. Remove all organically-contaminated soils from the site and do not re-use as site fill except for use in landscaping areas only. Where trees are removed, the removal should include all major root systems down to 1 inch in size or less.

- Excavate to the proposed subgrade elevations. Scarify the exposed surfaces to a depth of 6 to 8 inches. Thoroughly moisture condition the scarified surfaces to a moisture content that is at least 2% over optimum and re-compact as specified above. Further over-excavate as necessary in any areas still containing weak, yielding, or pumping soils, as determined in the field by this office.

- Place fill on the over-excavated surfaces and in the holes/depressions created by the above actions in uniformly moisture conditioned and compacted lifts not exceeding 8 inches in loose thickness. Rocks or cobbles larger than 4 inches in maximum dimensions should not be allowed to remain within the basement area, unless they can be crushed in-place by the construction equipment.

The existing sandy fill soil and the upper native clay are generally suitable for use as structural fill, provided they are free of organic matters and rocks larger than 4 inches in size, and are approved by BAGG's field

representative. Imported fill soil, if any, should be predominantly granular in nature and should be free of organics, debris, or rocks over 4 inches in size, and should be approved by the Geotechnical Engineer before importing to the site. As a general guide to acceptance, imported soils should have a Plasticity Index less than 15, and R-value of at least 20, and fines content between 15 and 60 percent.

It must be the Contractor's responsibility to select equipment and procedures that will accomplish the grading as described above. The Contractor must also organize his work in such a manner that BAGG Engineers can observe and test the grading operations, including excavation, placement of fill and backfill, and compaction of subgrades.

8.3 Foundations

Based on the results of our subsurface exploration and laboratory testing, it is our opinion the proposed modular houses can be supported on surface foundations set on compacted base rock with tie-downs, as proposed. Conventional concrete spread/strip footings can be used to support structures such as retaining walls, seating, fence posts, etc., as necessary. Recommendations for each of the foundation type are presented in the following paragraphs.

8.3.1 Foundations on Ground Surface with Tie-Downs

It is our understanding that the proposed modular house foundations will consist of 18-inch-tall, load bearing piers supported on either 24"x24" pressure treated plywood pad or 24"x24" pre-cast concrete pads. Home Pride earth anchors are anticipated to be installed for seismic resistance. We also understand the housing pads will not be paved with asphaltic concrete but will be covered with compacted base rock.

We recommend the proposed 24"x24" plywood/concrete pads should be placed on minimum 12 inches of Class II aggregate base. The aggregate baserock and the top 12 inches of subgrade should be compacted to a minimum of 95 percent relative compaction while at the moisture content specified under Site Grading.

For 24-inch-wide plywood or concrete pads supported on 12 inches of compacted Class II aggregate base, we estimate the allowable bearing pressures can be taken as 2,500 pounds per square foot (psf) for dead loads and 4,000 psf for total design loads including seismic.

Helical augur tie-downs are frequently a design-build item that are installed to a specified minimum torque. Based on the soils information, we recommend the anchors should be a minimum 30 inches deep. On a preliminary basis, a 30-inch anchor with ¾-inch shaft and two 4-inch discs (Home Pride HP3) installed vertically (with stabilizer) through 12 inches of compacted Class II aggregate base, will be able to resist a pull out load on the order of 3,600 pounds.

Lateral loads may also be resisted by the friction between the bottom of the wood/concrete footings and the aggregate base surface. The friction coefficient between the plywood pad and the supporting aggregate base is estimated to be 0.50. The friction coefficient between the concrete pad and the supporting aggregate base is estimated to be 0.40.

8.3.2 Spread/Strip Footings

Spread/strip footings, if required, should be properly established a minimum of 24 inches below the lowest adjacent grade. The minimum required width for the isolated and continuous shallow footings is 24 inches and 12 inches, respectively. At this depth, the allowable bearing value should be taken as 2,500 psf for dead loads and 3,750 psf for total design loads for all footings. The latter value may be increased by one-third, when resisting transient and seismic loads.

For concrete footings, lateral loads may be resisted by passive soil pressures against the sides of the footings in conjunction with the friction between concrete footing bottom and the soil below. The allowable passive resistance to wind or seismic loads can be taken as an equivalent fluid pressure of 350 pounds per cubic foot (pcf) in compacted fill and undisturbed native materials. The top 12 inches of the passive resistance should be ignored, unless the foundation is protected by a pavement or a concrete slab. A coefficient of friction of 0.3 between compacted fill/undisturbed soil and the bottom of concrete footings may be used in conjunction with the passive pressure.

Concrete foundations must be appropriately reinforced as deemed appropriate by the project structural engineers. The bottom of the footing excavations should be relatively clean, firm, and free of any loose or yielding soils before reinforcing steel and concrete are placed. It is critical that foundation excavations are not allowed to dry out and crack before concrete is poured and that the exposed soils are at the recommended moisture content when concrete is poured. Any dried and cracked soils should be entirely removed as directed by this office, and replaced with properly compacted fill or lean concrete.

8.4 Settlement

Total static settlements for foundations constructed as recommended are anticipated to be less than ½-inch with differential settlement of approximately half this value. The seismically induced liquefaction settlement discussed in Section 7.1, Liquefaction Potential, should be considered additional to the estimated static settlements.

8.5 Retaining Walls and Temporary Shoring

Retaining walls, if any, should be designed to resist lateral earth pressures from the adjoining soil and surcharge loads from adjacent structures. Walls that are restrained from movement at the top should be designed to resist an equivalent fluid pressure of 70 pcf for level backfill. Free standing walls should be designed to resist active lateral earth pressures taken as an equivalent fluid pressure of 50 pounds per cubic foot (pcf) for level backfill. For sloping backfill, the above pressures should be increased by 3 pcf for every 5-degree increase in the backfill slope angle up to a maximum gradient of 2H:1V (Horizontal to Vertical). Surcharge loads should be added to the above pressures at a rate of 33% and 50% of the applied surcharge load for cantilever and restrained walls, respectively.

Seismic pressures on the retaining walls may be simulated by a rectangular pressure distribution against the wall equal to 10H, where H is the height of the wall.

The above lateral pressures do not include any hydrostatic pressures resulting from groundwater, seepage water, or infiltration of natural rainfall and/or irrigation water behind the walls. Therefore, all walls over 2 feet in height should be provided with a drainage blanket behind the wall. The drainage blanket should consist of a pre-manufactured drainage panel, or a one-foot-thick blanket of Caltrans Class 2 Permeable material, or a one-foot-thick blanket of free-draining gravel encapsulated by a suitable filter fabric. A 12-inch cap of relatively impermeable soil should be placed at the top of the drainage blanket to minimize infiltration of surface water. The cap material should be compacted to a minimum of 90 percent relative compaction at a moisture content of at least 2 percent over optimum. In addition, a 4-inch diameter perforated PVC pipe should be installed holes facing down at the base of the drainage layer to facilitate removal of water collected behind the wall. The perforated pipe should drain via gravity flow to an approved discharge point.

General backfill behind the walls, excluding drainage materials, should conform to the fill requirements included under the "Site Grading" section of this report. Retaining walls should be supported on concrete footings as recommended under Foundations.

Vertical site excavations measuring 5 feet or more in height should be properly shored as per the Cal-OSHA guidelines. Temporary shoring may consist of approved soldier-pile and wood lagging walls, soil-nail or tie-back walls with shotcrete, or other approved alternative. The temporary shoring should be designed to withstand an active earth pressure of 45 pcf. Construction equipment should not be allowed at the top of the excavation closer than a distance equal to the height of the excavation. Where a temporary sloped excavation is desired, the side slope gradient of 1H:1V should be utilized if the excavation exposes clayey soils and a gradient of 1½H:1V should be utilized if the excavation exposes silty and/or sandy soils.

8.6 Exterior Flatwork

All concrete slabs should be constructed on a well compacted and moisture conditioned soil subgrade as recommended in the "Site Grading" section of this report. Once the subgrade has been prepared, it should be maintained above optimum moisture content until the concrete slab is placed. The subgrade should be approved by the Geotechnical Engineer immediately before the slab is poured. The slab should be reinforced as per the project Structural Engineer's recommendations.

Where new exterior slabs will be constructed adjacent to irrigated landscape areas, or where natural runoff will drain toward the subgrade area, below-grade concrete curbs should be constructed at the edges of planters and landscaping areas. The intent is to minimize moisture seeping from landscaping areas into the pavement subgrade through the aggregate base. The curbs should extend 2 to 3 inches below the bottom of the aggregate base. Where trees will be located adjacent to pavement areas, a suitable root barrier will also help limit migration of irrigation water into the aggregate base.

8.7 Pavement Design

8.7.1 Flexible Pavements

An R-value test was performed on a sample of the near-surface clayey soil obtained from Boring B-9 near the proposed driveway area. The test results indicated an R-value of 9, as shown on the attached Plate 16,

R-Value Test Report. The two R-value tests carried out as part of our previous investigation for the corporation yard project estimated R-values of 19 and 13.

Considering the variability of the soils cross the project area, for purpose of this investigation, we used an R-value of 9 to calculate the pavement sections for Traffic Indices of 5.0, 6.0, and 7.0. Generally, a Traffic Index (TI) of 5.0 is appropriate for automobile parking stalls, whereas a Traffic Index of 6.0 would be appropriate for heavily-used automobile driveways with only occasional use by heavy trucks (such as once a week or so by garbage trucks), and Traffic Indices of 7.0 or higher are used where the pavement would be subject to more frequent truck traffic such as daily use by delivery trucks. The estimated pavement sections with aggregate base and subbase are tabulated below.

Table 3
Summary of Asphaltic Concrete Pavement Sections
(Subgrade R-value=9)

Pavement Component	TI=5.0		TI=6.0		TI=7.0	
Asphaltic Concrete (AC) in Inches	3	3	3½	3½	4	4
Class II Aggregate Base (R_{Min}=78)	9	4	12	4	14½	5
Class II Aggregate Subbase or Recycled AB (R_{Min}=50)	--	5½	--	8½	--	10½
Total Thickness in Inches	12	12½	15½	16	18½	19½

The pavement sections presented in the above table have been calculated using the design method described in the Caltrans Highway Design Manual (Topic 633, May 2012) with the added safety factors. The method characterizes the subgrade soil conditions with R-values, and characterizes the traffic loading conditions with a Traffic Index. All materials and construction procedures, including placement and compaction of pavement components, should be performed in conformance with the latest edition of the Caltrans Standard Specifications, except that compaction should be performed in accordance with ASTM Test Method D1557.

All pavement components should be compacted to at least 95 percent of the maximum dry density at moisture contents specified under the Site Grading section of this report. All over-sized rocks and cobbles larger than 4 inches should be completely removed, unless they can be crushed in place with the construction equipment.

8.7.2 Rigid Pavements

Where Portland Cement Concrete (rigid) Pavements are to be used, they should be supported on a subgrade that has been prepared as recommended under "Site Grading". Concrete pavements exposed to regular automobiles and weekly use by a garbage truck (if applicable), should consist of 6 inches of concrete with a minimum compressive strength of 3,700 psi (MR=550 psi) supported on at least 6 inches of Class II Aggregate Base material compacted to a minimum of 95 percent relative compaction.

As a minimum, concrete pavements should be reinforced with deformed bars in both directions to control cracking, and joints should be provided in both directions within the pavement designed to prevent formation of irregular cracks.

Where traffic can drive over the edge of the concrete pavement, such as at transition to AC paving, the Portland Cement Association suggests the thickened edge should be increased by 20 percent, and tapered back to normal slab thickness over a distance of 10 times the slab thickness.

8.8 Utility Trench Backfill

Utility trenches may be backfilled with on-site soils that are free of debris, roots and other organic matter, and rocks or lumps exceeding 2 inches in greatest dimension. The fill should also be uniformly moisture conditioned to the proper moisture content and compacted as per the recommendations included above.

The utility lines should be properly bedded and shaded with granular material, such as, sand or pea gravel. As a general rule, the bedding layer should be 2 to 4 inches thick and the utility lines should be shaded with the granular materials to a minimum of 4 inches above the utility line. The bedding and shading layers should be compacted using a vibratory compactor before subsequent backfill is placed. The contractor should use extreme caution with the vibratory compactor on the shading layer, as excessive vibrations and/or imbalanced shading materials could result in dislodging the pipe and loosening the joints.

BAGG Engineers should be allowed an opportunity to observe the trench backfill operations and perform field compaction tests to evaluate the moisture content and relative compaction of the fill materials.

Alternatively, the utility trenches may be backfilled with flowable fill (a cementitious slurry consisting of a mixture of fine aggregate or filler, water, and cementitious material(s) capable of filling all voids in irregular excavations and hard to reach places). The flowable fill is self-leveling material that hardens in a matter of a few hours without the need for compaction in layers. Flowable fill is sometimes referred to as controlled density fill (CDF), controlled low strength material (CLSM), and lean concrete slurry. A 1- to 2-sack flowable fill material is usually considered to be acceptable for the subject project.

8.9 Drainage

It is recommended that a minimum 5-percent slope away from the structures for a horizontal distance of at least 5 feet be established in adjacent planter areas and a minimum 1-percent slope away from the structures for a horizontal distance of at least 5 feet be established in areas containing hardscape. Drainage should not be allowed to pond on the site or adjacent to any foundation, and should be directed towards appropriate discharge points. Surface waters should not be permitted to drain over slopes. Any area where surface run-off becomes concentrated should be provided with a catch basin that discharges the collected runoff in a manner that will not cause erosion. Surface and subsurface drainage facilities and catchment areas should be checked frequently and cleaned or maintained throughout the project life, as necessary.

8.10 Corrosion Potential

Two near-surface soil samples obtained from Borings B-6 and B-8 were submitted to Cooper Testing Laboratories for corrosivity testing. The results of chemical analyses, pH, ORP, and resistivity are tabulated in the following table, and attached on Plate 17, Corrosivity Tests Summary. The following table also presents the results of our preliminary screening of the corrosivity of the samples tested.

Table 4
Corrosion Test Results

Analysis/Test	Boring B-6 @ 2' – 5'	Boring B-8 @ 1.5' – 4'	Corrosivity Classification
Resistivity @ 100% Saturation [Ohm-Cm]	7,471	3,851	Mildly Corrosive[1]
pH	7.4	7.5	Neutral[2]
ORP (Redox) [mV]	486	492	Non-Corrosive[2]
Chloride [mg/Kg]	<2	4	Negligible[3]
Sulfate [mg/Kg]	8	3	Negligible[4]
Sulfide (Qualitative by Lead)	Negative	Negative	Not Present
Moisture Content (%)	15.0	17.7	N.A.

[1]National Association of Corrosion Engineers (NACE) Corrosion Basics, page 191.
[2]Standard Method 2580B.
[3]For metals encased in concrete, extrapolated from CTM 372.
[4]For metals encased in concrete, ACI-318, Building Code Requirements for Reinforced Concrete.

The results for pH, ORP (redox), chloride, and sulfate content as well as sulfide were essentially reported as negligible amounts in terms of corrosion. With respect to resistivity, the samples were classified as "mildly corrosive". Corrosive effects to concrete and masonry materials will be moderate, while the effects may be noticeable with metals in direct contact with the soil subgrade.

To minimize the corrosive degradation of any steel, ductile iron, or copper pipes over time, we recommend that these types of pipes be coated or polyethylene sleeved, or cathodic protection should be designed and implemented for the protection of such pipes. The soils can severely degrade copper pipes over a short period of time, as such, copper pipes should not be in contact with soil.

Subsurface conditions are not the only factors that may cause corrosion; design and construction practice may also be primary causes for failure. A review of plans and specifications for underground structures may be conducted by a qualified corrosion engineer prior to installation, if desired.

8.11 Plan Review

It is recommended that the Geotechnical Engineer (BAGG Engineers) be retained to review the final project plans. This review is intended to assess general suitability of our recommendations for the project in its final form, and to verify the appropriate implementation of our recommendations into the project plans and specifications.

8.12 Observation and Testing

It is recommended that the Geotechnical Engineer (BAGG Engineers) be retained to provide observation and testing services during site grading, foundation construction, utility trench excavation and backfill, and subgrade preparation phases of the work. This is intended to verify that the work in the field is performed as recommended and in accordance with the approved plans and specifications, as well as verify that subsurface conditions encountered during construction are similar to those anticipated during the design phase. Unanticipated soil conditions may warrant revised recommendations. For this reason, we cannot accept responsibility for the recommendations contained in this report if we are not given the opportunity to observe and test the construction activities.

9.0 CLOSURE

This report has been prepared in accordance with generally accepted engineering practices for the strict use of County of San Mateo and other professionals associated with the specific project described in this report. The recommendations presented in this report are based on our understanding of the subject site improvement as described herein, and upon the subsurface conditions encountered in the exploratory borings and the CPTs advanced for this project.

It is not uncommon for unanticipated conditions to be encountered during site grading and/or foundation installation and it is not possible for all such variations to be found by a field exploration program appropriate for this type of project. The recommendations contained in this report are therefore contingent upon the review of the final improvement plans by this office, and upon geotechnical observation and testing by BAGG Engineers of all pertinent aspects of the project, including grading, excavation and backfilling, subgrade preparation, and installation of foundations.

Subsurface conditions and standards of practice change with time. Therefore, we should be consulted to update this report, if the construction does not commence within 18 months from the date this report is submitted. Additionally, the recommendations of this report are only valid for the proposed development as described herein. If the proposed project is modified, our recommendations should be reviewed and either approved or modified by this office in writing.

The following plates and appendices are attached and complete this report:

Plate 1	Vicinity Map
Plate 2	Site Plan
Plate 3	Area Geologic Map
Plate 4	Regional Fault Map
Plate 5	Cross Section A-A'
Plate 6	Unified Soil Classification System
Plate 7	Soil Terminology
Plate 8	Boring Log Notes
Plate 9	Key to Symbols
Plates 10-A through 13-B	Boring Logs
Plate 14	Plasticity Data
Plate 15	Gradation Test Data
Plate 16	R-Value Test Report
Plate 17	Corrosivity Tests Summary
Appendix A	Cone Penetration Test (CPT) Results (CPT-3 through CPT-5)
Appendix B	2021 Boring & CPT Logs (B-1 through B-5; CPT-1 & CPT-2)

ASFE document titled "Important Information about This Geotechnical Engineering Report"

10.0 REFERENCES

ACI Committee 318, 2008, *ACI 318-08, Building Code Requirements for Structural Concrete and Commentary,* American Concrete Institute.

American Society of Civil Engineers, 2017, *Minimum Design Loads and Associated Criteria for Buildings and Other Structures*, ASCE Standard, ASCE/SEI 7-16.

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California Department of Conservation, Division of Mines and Geology, 2000, *Digital Images of Official maps of Alquist-Priolo Earthquake Fault Zones of California, Central Coast Region.*

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Working Group on California Earthquake Probabilities, 2013, *The Uniform California Earthquake Rupture Forecast, Version 3 (UCERF3)*, U. S. Geological Survey Open File Report 2013-1165.

Working Group on California Earthquake Probabilities, 2014, *Long-Term Time-Dependent Probabilities for the Third Uniform California Earthquake Rupture Forecast (UCERF3),* Bulletin of the Seismological Society of America, Vol. 105, No. 2A, April 2015.



Source: Google Maps, accessed on 9/17/2021.



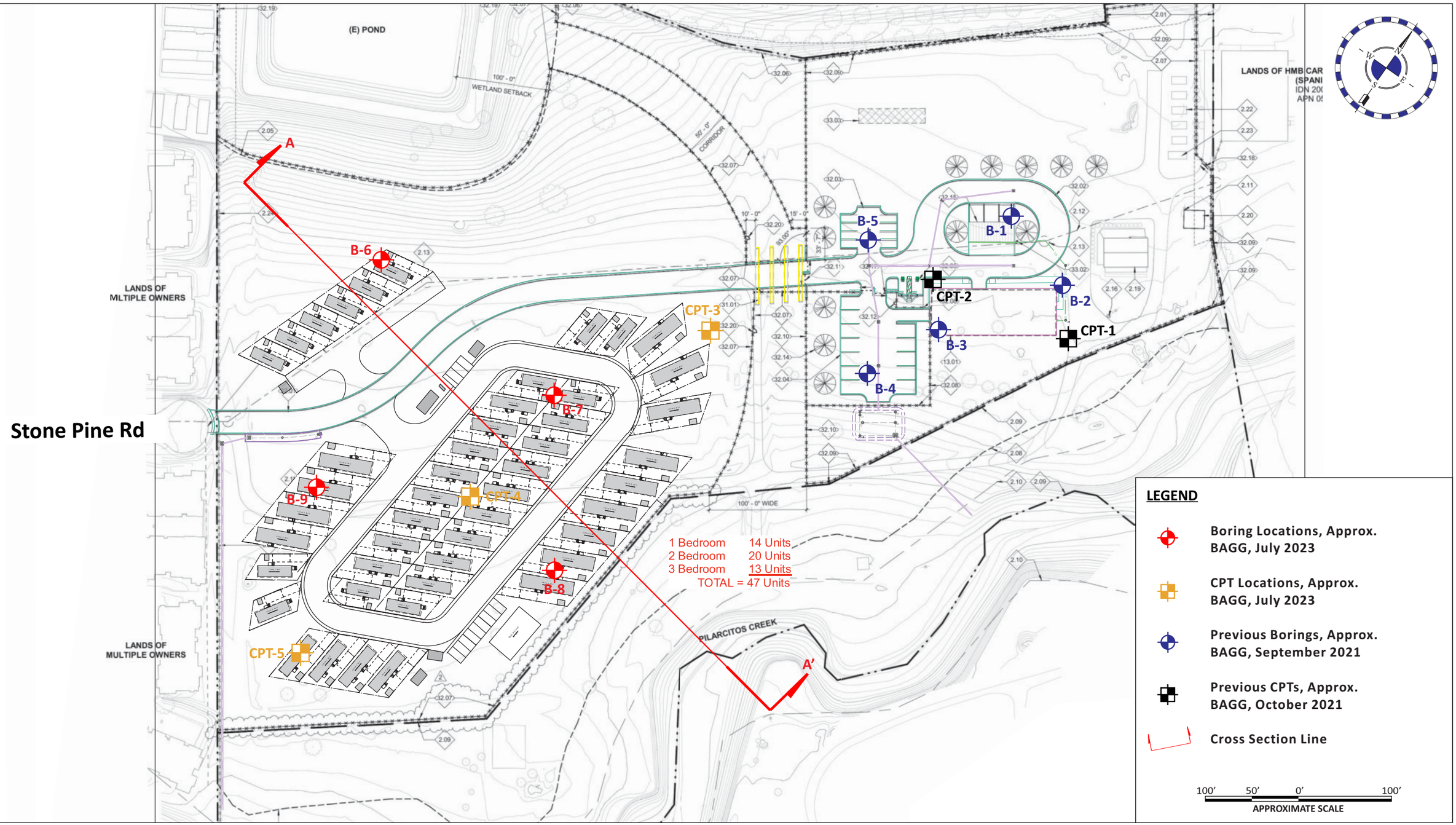
Source: Google Earth Imagery, dated 9/27/2021.

GEOTECHNICAL ENGINEERING INVESTIGATION
SMC-HMB FARMWORKER HOUSING PROJECT
880 STONE PINE ROAD
HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA

VICINITY MAP

DATE:	JOB NUMBER:	PLATE
August 2023	COUSM-23-03	1

BAGG ENGINEERS



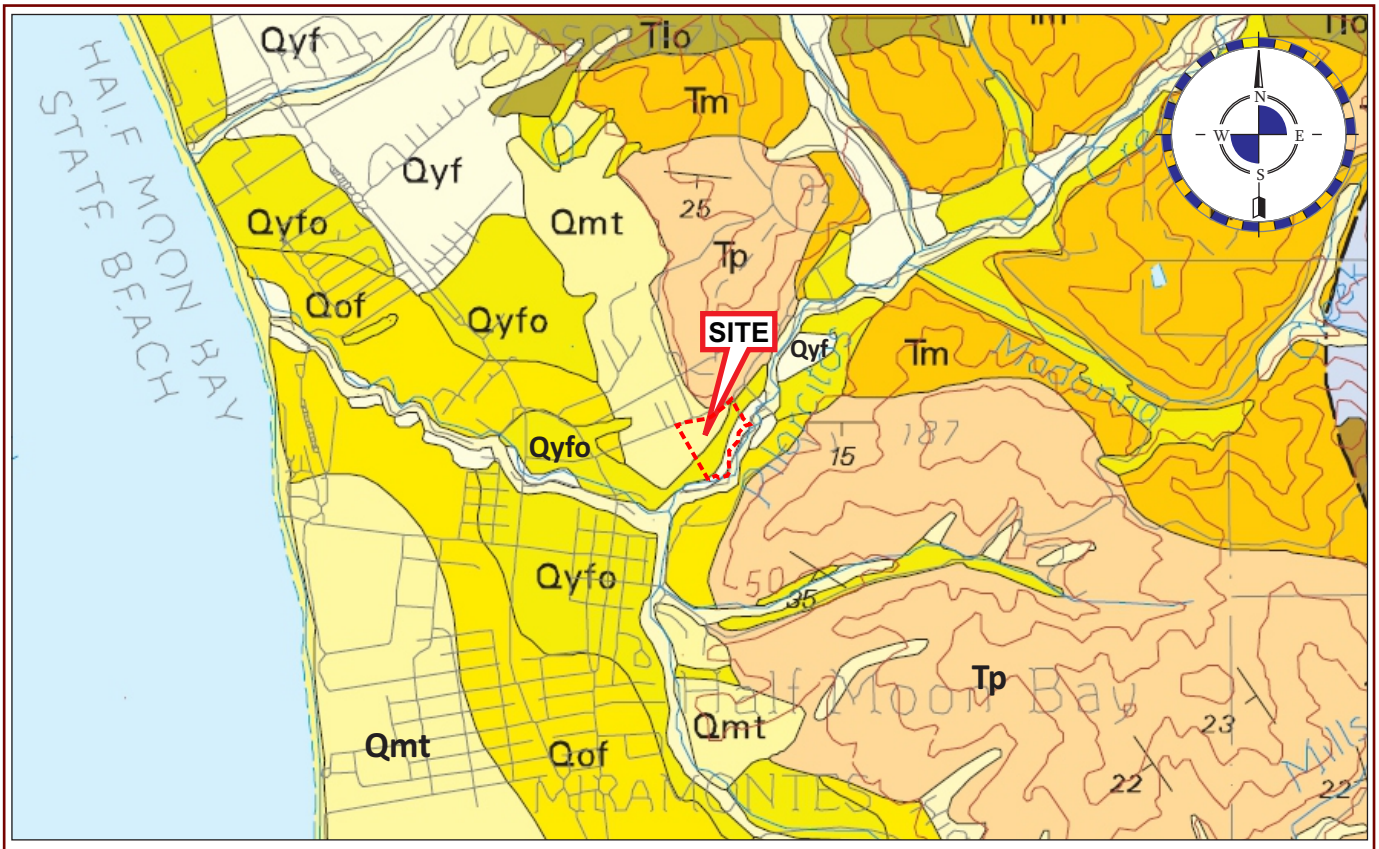
Base Map:
Conceptual site plan with BKF markups, unsigned, undated.

GEOTECHNICAL ENGINEERING INVESTIGATION
SMC-HMB FARMWORKER HOUSING PROJECT
880 STONE PINE ROAD
HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA

BAGG ENGINEERS

SITE PLAN

PROJECT NO.:	SCALE:	DATE	PLATE
COUSM-23-03	1" ≈ 100'	August 2023	2



LEGEND

Qyf	**Younger (inner) alluvial fan deposits (Holocene) –** Unconsolidated fine- to coarse-grained sand, silt, and gravel.
Qyfo	**Younger (outer) alluvial fan deposits (Holocene) –** Unconsolidated fine sand, silt, and clayey silt.
Qof	**Coarse-grained older alluvial fan and stream terrace deposits (Pleistocene) –** Poorly consolidated gravel, sand, and silt.
Qmt	**Marine terrace deposits (Pleistocene) –** Poorly consolidated and poorly indurated well- to poorly-sorted sand and gravel.
Tp	**Purisima Formation (Pliocene and upper Miocene) –** Predominantly gray and greenish-gray to buff fine-grained sandstone, siltstone, and mudstone, but also includes some porcelaneous shale and mudstone, chert, silty mudstone, and volcanic ash.
Tm	**Monterey Formation (middle Miocene) –** Grayish-brown and brownish-black to very pale orange and white, porcelaneous shale with chert, porcelaneous mudstone, impure diatomite, calcareous claystone, and with small amounts of siltstone and sandstone near base.
Tlo	**Lompico Sandstone (middle Miocene) –** Very pale orange, fine to coarse-grained, mostly well-cemented and hard arkosic sandstone.

Reference: *Geology of the Onshore Part of San Mateo County: Derived From the Digital Database Open-File 98-137,* by Brabb et al., 1998.

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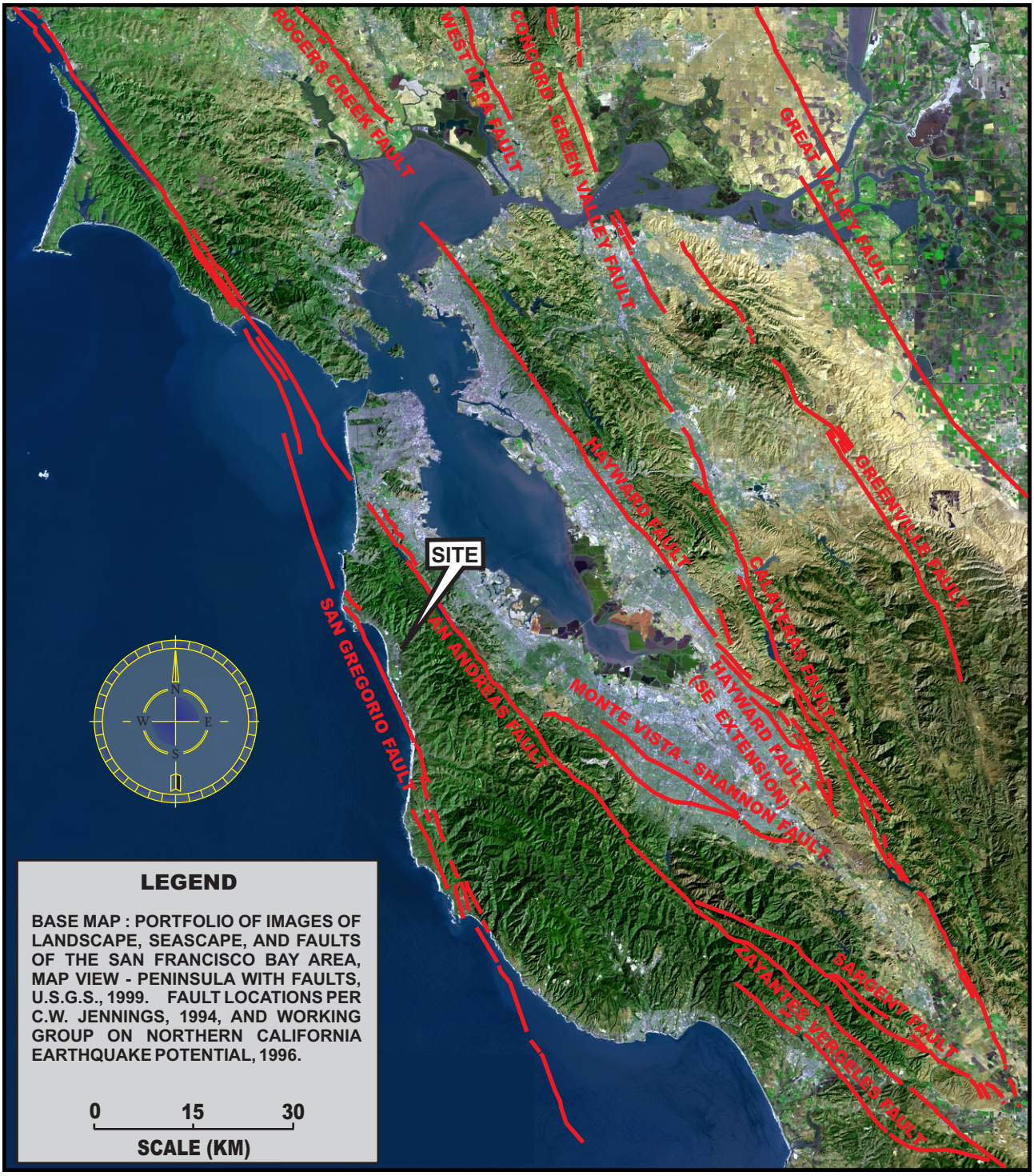
HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA

AREA GEOLOGIC MAP

DATE:	JOB NUMBER:	PLATE:
August 2023	COUSM-23-03	3

BvGG ENGINEERS



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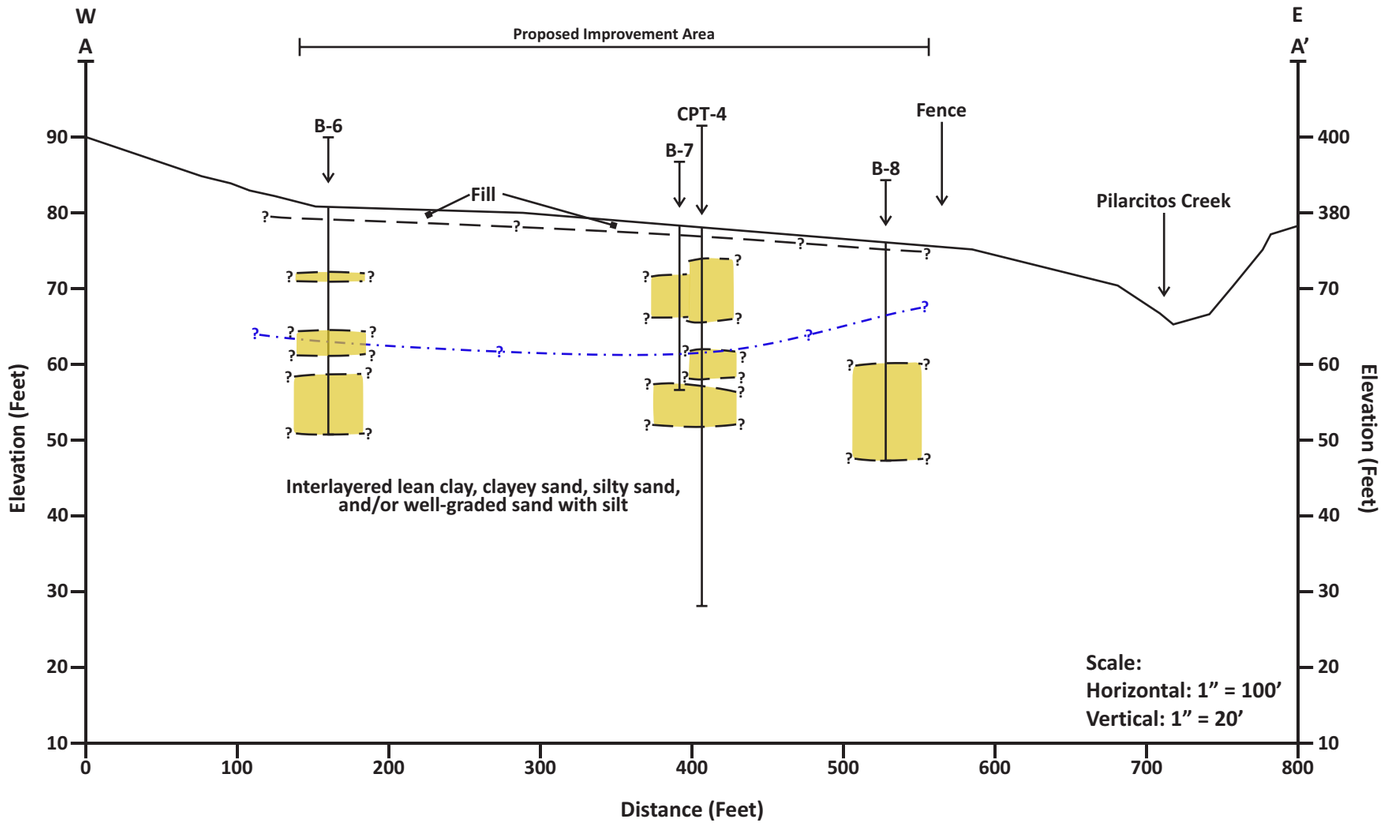
REGIONAL FAULT MAP

DATE:	JOB NUMBER:	PLATE
August 2023	COUSM-23-03	4

BAGG ENGINEERS



Legend

- Approximate Existing Ground Surface
- Approximate Geologic Contact
- Approximate Measured Groundwater Depth
- Potentially Liquefiable Soil
- B-4 — Approximate Boring/CPT Location

Note:
Elevations based on Conceptual site plan with BKF markups, unsigned, undated.

GEOTECHNICAL ENGINEERING INVESTIGATION
SMC-HMB FARMWORKER HOUSING PROJECT
880 STONE PINE ROAD
HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA

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CROSS SECTION A-A'

JOB NUMBER:	SCALE:	DATE:	PLATE:
COUSM-23-03	1"=100' & 1"=20'	August 2023	5

COARSE-GRAINED SOILS

LESS THAN 50% FINES*

GROUP SYMBOLS	ILLUSTRATIVE GROUP NAMES	MAJOR DIVISIONS
GW	Well graded gravel Well graded gravel with sand	GRAVELS More than half of coarse fraction is larger than No. 4 sieve size
GP	Poorly graded gravel Poorly graded gravel with sand	
GM	Silty gravel Silty gravel with sand	
GC	Clayey gravel Clayey gravel with sand	
SW	Well graded sand Well graded sand with gravel	SANDS More than half of coarse fraction is smaller than No. 4 sieve size
SP	Poorly graded sand Poorly graded sand with gravel	
SM	Silty sand Silty sand with gravel	
SC	Clayey sand Clayey sand with gravel	

NOTE: Coarse-grained soils receive dual symbols if:
(1) their fines are CL-ML (e.g. SC-SM or GC-GM) or
(2) they contain 5-12% fines (e.g. SW-SM, GP-GC, etc.)

FINE-GRAINED SOILS

MORE THAN 50% FINES*

GROUP SYMBOLS	ILLUSTRATIVE GROUP NAMES	MAJOR DIVISIONS
CL	Lean clay Sandy lean clay with gravel	SILTS AND CLAYS liquid limit less than 50
ML	Silt Sandy silt with gravel	
OL	Organic clay Sandy organic clay with gravel	
CH	Fat clay Sandy fat clay with gravel	SILTS AND CLAYS liquid limit more than 50
MH	Elastic silt Sandy elastic silt with gravel	
OH	Organic clay Sandy organic clay with gravel	
PT	Peat Highly organic silt	HIGHLY ORGANIC SOIL

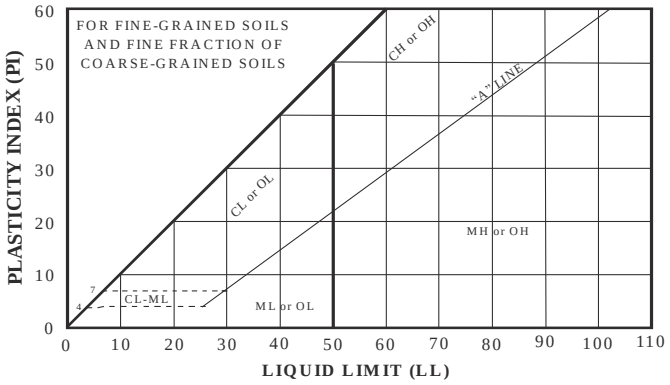
NOTE: Fine-grained soils receive dual symbols if their limits in the hatched zone on the Plasticity Chart(L-M)

SOIL SIZES

COMPONENT	SIZE RANGE
BOULDERS	ABOVE 12 in.
COBBLES	3 in. to 12 in.
GRAVEL	No. 4 to 3 in.
Coarse	¾ in to 3 in.
Fine	No. 4 to ¾ in.
SAND	No. 200 to No.4
Coarse	No. 10 to No. 4
Medium	No. 40 to No. 10
Fine	No. 200 to No. 40
*FINES:	BELOW No. 200

NOTE: Classification is based on the portion of a sample that passes the 3-inch sieve.

PLASTICITY CHART



Reference: ASTM D 2487-06, Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).

GENERAL NOTES: The tables list 30 out of a possible 110 Group Names, all of which are assigned to unique proportions of constituent soils. Flow charts in ASTM D 2487-06 aid assignment of the Group Names. Some general rules for fine grained soils are: less than 15% sand or gravel is not mentioned; 15% to 25% sand or gravel is termed "with sand" or "with gravel", and 30% to 49% sand or gravel is termed "sandy" or "gravelly". Some general rules for coarse-grained soils are: uniformly-graded or gap-graded soils are "Poorly" graded (SP or GP); 15% or more sand or gravel is termed "with sand" or "with gravel", 15% to 25% clay and silt is termed clayey and silty and any cobbles or boulders are termed "with cobbles" or "with boulders".

UNIFIED SOIL CLASSIFICATION SYSTEM

BvGG ENGINEERS

SOIL TYPES (Ref 1)

Boulders: particles of rock that will not pass a 12-inch screen.

Cobbles: particles of rock that will pass a 12-inch screen, but not a 3-inch sieve.

Gravel: particles of rock that will pass a 3-inch sieve, but not a #4 sieve.

Sand: particles of rock that will pass a #4 sieve, but not a #200 sieve.

Silt: soil that will pass a #200 sieve, that is non-plastic or very slightly plastic, and that exhibits little or no strength when dry.

Clay: soil that will pass a #200 sieve, that can be made to exhibit plasticity (putty-like properties) within a range of water contents, and that exhibits considerable strength when dry.

MOISTURE AND DENSITY

Moisture Condition: an observational term; dry, moist, wet, or saturated.

Moisture Content: the weight of water in a sample divided by the weight of dry soil in the soil sample, expressed as a percentage.

Dry Density: the pounds of dry soil in a cubic foot of soil.

DESCRIPTORS OF CONSISTENCY (Ref 3)

Liquid Limit: the water content at which a soil that will pass a #40 sieve is on the boundary between exhibiting liquid and plastic characteristics. The consistency feels like soft butter.

Plastic Limit: the water content at which a soil that will pass a #40 sieve is on the boundary between exhibiting plastic and semi-solid characteristics. The consistency feels like stiff putty.

Plasticity Index: the difference between the liquid limit and the plastic limit, i.e. the range in water contents over which the soil is in a plastic state.

MEASURES OF CONSISTENCY OF COHESIVE SOILS (CLAYS) (Ref's 2 & 3)

Very Soft	N=0-1*	C=0-250 psf	Squeezes between fingers
Soft	N=2-4	C=250-500 psf	Easily molded by finger pressure
Medium Stiff	N=5-8	C=500-1000 psf	Molded by strong finger pressure
Stiff	N=9-15	C=1000-2000 psf	Dented by strong finger pressure
Very stiff	N=16-30	C=2000-4000 psf	Dented slightly by finger pressure
Hard	N>30	C>4000 psf	Dented slightly by a pencil point

*__N__=blows per foot in the Standard Penetration Test. In cohesive soils, with the 3-inch-diameter ring sampler, 140-pound weight, divide the blow count by 1.2 to get N (Ref 4).

MEASURES OF RELATIVE DENSITY OF GRANULAR SOILS (GRAVELS, SANDS, AND SILTS) (Ref's 2 & 3)

Very Loose	N=0-4**	RD=0-30	Easily push a ½-inch reinforcing rod by hand
Loose	N=5-10	RD=30-50	Push a ½-inch reinforcing rod by hand
Medium Dense	N=11-30	RD=50-70	Easily drive a ½-inch reinforcing rod
Dense	N=31-50	RD=70-90	Drive a ½-inch reinforcing rod 1 foot
Very Dense	N>50	RD=90-100	Drive a ½-inch reinforcing rod a few inches

**__N__=Blows per foot in the Standard Penetration Test. In granular soils, with the 3-inch-diameter ring sampler, 140-pound weight, divide the blow count by 2 to get N (Ref 4).

xxxx

GENERAL NOTES FOR BORING LOGS:

The boring logs are intended for use only in conjunction with the text, and for only the purposes the text outlines for our services. The Plate "Soil Terminology" defines common terms used on the boring logs.

The plate "Unified Soil Classification System," illustrates the method used to classify the soils. The soils were visually classified in the field; the classifications were modified by visual examination of samples in the laboratory, supported, where indicated on the logs, by tests of Liquid Limit, Plasticity Index, and/or gradation. In addition to the interpretations for sample classification, there are interpretations of where stratum changes occur between samples, where gradational changes substantively occur, and where minor changes within a stratum are significant enough to log.

There may be variations in subsurface conditions between borings. Soil characteristics change with variations in moisture content, with exchange of ions, with loosening and densifying, and for other reasons. Groundwater levels change with seasons, with pumping, from leaks, and for other reasons. Thus boring logs depict interpretations of subsurface conditions only at the locations indicated, and only on the date(s) noted.

SPECIAL FIELD NOTES FOR THIS REPORT:

1. The borings were advanced on July 24, 2023, using a truck-mounted drilling rig equipped with 6-inch diameter continuous flight augers. The Cone Penetration Tests (CPTs) were advanced on July 26, 2023, with a truck-mounted CPT rig. The boreholes and the CPTs were backfilled with cement grout.

2. The boring/CPT locations were approximately located using existing site features such as trees, poles, etc.

3. The soils' Group Names [e.g. LEAN CLAY] and Group Symbols [e.g. (CL)] were determined or estimated per ASTM D 2487, Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System, see Plate 6). Other engineering terms used on the boring logs are defined on Plate 7, Soil Terminology.

4. Groundwater was encountered in Borings B-6 through B-8 on the date and at the depths noted on the boring logs; however, groundwater was not encountered in Boring B-9 advanced to about 20 feet below the ground surface. The pore pressure dissipation tests performed in CPT-3 and CPT-5 estimated groundwater depths of approximately 15 and 12½ feet, respectively.

5. The soil samples were obtained using the sampler type noted on the boring logs and described on Plate 9, Key to Symbols.

6. The "Blow Count" Column on the boring logs indicates the number of blows required to drive the Modified California and/or Standard Penetration Test sampler below the bottom of the boring, with the blow counts given for each 6 inches of sampler penetration.

7. The tabulated strength values on the boring logs are peak strength values.

KEY TO SYMBOLS

Symbol	Description
Strata symbols	
	Sandy lean clay
	Clayey sand
	Well-graded sand with silt
	Lean Clay
	Silty sand
	Lean clay with sand
	Clayey sand with gravel
Misc. Symbols	
	Water first encountered during drilling
	Water level at completion of boring
	Boring continues
Soil Samplers	
	Modified California Sampler: 18" long, 2.375" ID by 3" OD, split-barrel sampler driven w/ 140-pound hammer falling 30 inches (ASTM D3550)

Symbol	Description
	Standard Penetration Test: 18" long, 1.375" ID by 2" OD, split-spoon sampler driven w/ 140-pound hammer falling 30 inches (ASTM D 1586-11)
Line Types	
_____	Denotes a sudden, or well identified strata change
_ _ _	Denotes a gradual, or poorly identified strata change
Laboratory Data	
DS	Direct shear test performed on a sample at natural or field moisture content (ASTM D3080).
DSX	Direct shear test performed after the sample was submerged in water until volume changes ceased (ASTM D3080).
LL	Liquid Limit established per ASTM D4318 Test Method
PI	Plasticity Index established per ASTM D4318 Test Method
Gravel (%)	Percent soil particles finer than a 3" sieve and coarser than a No. 4 sieve (ASTM C136/C117)
Sand (%)	Percent soil particles finer than a No. 4 sieve and coarser than a No. 200 sieve (ASTM C136/C117)
Fines (%)	Percent soil particles finer than a No. 200 sieve (ASTM C117)
Swell (%)	Percent expansion of a submerged sample under a given surcharge pressure
Nat.	Natural or field water content
bgs	Below the ground surface

BORING LOG

Boring No. B-6
Page 1 of 2

JOB NAME: SMC-HMB Farmworker Housing Project
CLIENT: County of San Mateo
LOCATION: 880 Stone Pine Road, Half Moon Bay, CA
DRILLER: Cenozoic Exploration
DRILL METHOD: Truck-Mounted Drilling Rig - 6" Diam. Continuous Flight Augers

JOB NO.: COUSM-23-03
DATE DRILLED: 7/24/2023
ELEVATION: 83± feet
LOGGED BY: JL

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
				8.6		0	4 12 20	CL	SANDY LEAN CLAY: dark brown, soft on the surface, stiff below, dry to moist, fine to medium sand, trace coarse sand, trace fine gravel, little organics	Fill 1% Gravel 41% Sand 58% Fines Native 0.5% Swell
DSX	320	20.3	630	13.1	105			CL		
DS	400	Nat.	660	13.9	102	3	4 4 4	SC	SANDY LEAN CLAY: dark gray, very stiff, dry to moist, fine to medium sand, few coarse sand, trace fine gravel	29% Fines LL=39, PI=15
						6			CLAYEY SAND: dark gray, medium dense, moist, mostly medium sand, few fine sand, few coarse sand ... color change to brown	
DS	1200	Nat.	760	11.0	99	9	6 6 5	SW-SM	WELL-GRADED SAND with SILT: brown and gray, loose, wet, well-graded sand	5% Fines
DS	2500	Nat.	1730	11.6	95			CL	LEAN CLAY: gray-brown with orange-brown mottling, medium stiff, moist, trace fine sand	
						12		SC	CLAYEY SAND: brown to orange-brown, loose, wet, fine to medium sand	
				25.1			5 7 9			40% Fines
DS	1800	Nat.	890	22.9	102	15			... approximately 6" of stiff, moist, lean clay ... medium dense clayey sand	LL=32, PI=11
						18	5	SM	SILTY SAND: brown, medium dense, wet, fine sand, contains 1" to 2" thick lean clay layers	48% Fines

BORING LOG

Boring No. B-6
Page 2 of 2

JOB NAME: SMC-HMB Farmworker Housing Project *JOB NO.:* COUSM-23-03

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
DS	2300	Nat.	1530	30.0	91		6 7	CL	... gray-brown, medium dense, wet	Non-Plastic
						21			SANDY LEAN CLAY: dark gray to dark blue-gray, medium stiff, moist, fine sand	
								SM	SILTY SAND: gray-brown, medium dense, wet, fine sand	
				27.1			6			23% Fines
DS	2600	Nat.	1630	25.8	98	24	8 9			Non-Plastic
						27			... dark gray to dark blue-gray, medium dense, saturated, fine to medium sand	
				22.4			3			30% Fines
				27.2			4 8			Non-Plastic
						30			... about 5" bluish gray fat clay	
									The boring was terminated at approximately 30 feet bgs. Groundwater was encountered at about 17½ feet bgs and was measured at about 18 feet bgs upon completion of the boring. The borehole was backfilled with cement grout.	
						33				
						36				
						39				

BORING LOG

Boring No. B-7
Page 1 of 2

JOB NAME: SMC-HMB Farmworker Housing Project
CLIENT: County of San Mateo
LOCATION: 880 Stone Pine Road, Half Moon Bay, CA
DRILLER: Cenozoic Exploration
DRILL METHOD: Truck-Mounted Drilling Rig - 6" Diam. Continuous Flight Augers

JOB NO.: COUSM-23-03
DATE DRILLED: 7/24/2023
ELEVATION: 80± feet
LOGGED BY: JL

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
						0		SC	CLAYEY SAND: dark gray, medium dense, dry to moist, well-graded sand	Fill?
DS	320	Nat.	2380	21.1	97		8 13 13	CL	SANDY LEAN CLAY: dark gray, very stiff, moist, fine to medium sand, trace organics	Native LL=46, PI=20
						3		SC	CLAYEY SAND: dark brown to brown, medium dense, moist, fine to medium sand	
DSX	700	26.3	610	25.8	97		4 5 7	CL SM	SANDY LEAN CLAY: brown, medium stiff, moist, fine to medium sand	
						6			SILTY SAND: brown to dark brown, medium dense, moist, fine to medium sand	
						9				
				23.2			4		... dark brown, loose, wet, fine to medium sand	30% Fines
DS	1400	Nat.	1110	17.9	105		5			Non-Plastic
DS	3000	Nat.	2150	18.3	108		9			
						12		SW-SM SC	WELL-GRADED SAND with SILT: orange-brown and gray, medium dense, wet, well-graded sand, trace fine gravel	
									CLAYEY SAND: brown to orange-brown, medium dense, wet, fine to medium sand	
						15			... about 6" of sandy lean clay	
DS	2000	Nat.	1580	23.0	99		7 9 7		... medium dense clayey fine sand	
						18				

BORING LOG

Boring No. B-7
Page 2 of 2

JOB NAME: SMC-HMB Farmworker Housing Project *JOB NO.:* COUSM-23-03

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
								CL	LEAN CLAY with SAND: dark gray, stiff, moist, little fine sand	
DS	2400	Nat.	1370	24.3	103	21	7 14 22	SM	SILTY SAND: brown to orange-brown, medium dense, moist, fine sand	
									The boring was terminated at approximately 21½ feet bgs. Groundwater was encountered at about 19 feet bgs and was measured at about 18 feet bgs upon completion of the boring. The borehole was backfilled with cement grout.	
						24				
						27				
						30				
						33				
						36				
						39				

BORING LOG

Boring No. B-8
Page 1 of 2

JOB NAME: SMC-HMB Farmworker Housing Project
CLIENT: County of San Mateo
LOCATION: 880 Stone Pine Road, Half Moon Bay, CA
DRILLER: Cenozoic Exploration
DRILL METHOD: Truck-Mounted Drilling Rig - 6" Diam. Continuous Flight Augers

JOB NO.: COUSM-23-03
DATE DRILLED: 7/24/2023
ELEVATION: 77± feet
LOGGED BY: JL

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
						0		SC	CLAYEY SAND: dark brown, medium dense, moist, well-graded sand, trace fine gravel, few organics	Fill
DSX	320	18.7	1110	15.6	113		8 9 10	SC		Native 0.9% Swell
DSX	1500	17.0	2410	14.5	115	3		CL	CLAYEY SAND: brown to orange-brown, medium dense, moist, well-graded sand, trace fine gravel	
DS	500	Nat.	1970	29.9	92		6 11 15		LEAN CLAY: dark brown with red-brown stains, very stiff, moist, few well-graded sand	92% Fines LL=49, PI=25
						6				
DS	1000	Nat.	1030	17.7	110	9	6 7 8	SC	CLAYEY SAND: dark brown, medium dense, moist, medium to coarse sand	
								CL	LEAN CLAY: brown to gray-brown with orange-brown stains, stiff, moist, few fine sand	
						12		CL	SANDY LEAN CLAY: brown to orange-brown, stiff, moist to wet, well-graded sand	
DS	1400	Nat.	1030	28.8	95		6 7 10			66% Fines
						15		SC	CLAYEY SAND: brown, medium dense, wet, well-graded sand	
						18	12	SW-SM	WELL-GRADED SAND with SILT: brown, medium dense, saturated, well-graded sand, few	

BORING LOG

Boring No. B-8
Page 2 of 2

JOB NAME: SMC-HMB Farmworker Housing Project *JOB NO.:* COUSM-23-03

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
DS	1700	Nat.	1890	14.8	114		17 21		fine gravel	6% Gravel 84% Sand 10% Fines
						21				... caving
				15.3		24	8 9 10		... medium dense, saturated, mostly medium-grained sand	10% Fines
						27		SM	SILTY SAND: dark bluish gray, medium dense, saturated, fine sand, contains thin layers of dark blue-gray fat clay	... borehole collapsing, unable to sample
						30			The boring was terminated at approximately 28½ feet bgs. Groundwater was encountered at about 15 feet bgs and was measured at about 9 feet bgs upon completion of the boring. The borehole was backfilled with cement grout.	
						33				
						36				
						39				

BORING LOG

Boring No. B-9
Page 1 of 2

JOB NAME: SMC-HMB Farmworker Housing Project
CLIENT: County of San Mateo
LOCATION: 880 Stone Pine Road, Half Moon Bay, CA
DRILLER: Cenozoic Exploration
DRILL METHOD: Truck-Mounted Drilling Rig - 6" Diam. Continuous Flight Augers

JOB NO.: COUSM-23-03
DATE DRILLED: 7/24/2023
ELEVATION: 78± feet
LOGGED BY: JL

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
						0		SC	CLAYEY SAND with GRAVEL: brown, loose and dry on surface, medium dense and moist below, well-graded sand, little fine gravel	Fill
DS	320	Nat.	340	12.0	97		8			LL=40, PI=17
DS	1500	Nat.	1710	6.5	108		11	CL		Native R-Value=9
							10			
						3			LEAN CLAY with SAND: dark gray, stiff, moist, little fine to medium sand, trace organics	
				22.4			6			75% Fines
DSX	500	21.6	710	20.7	104		8		... brown at about 2½ feet, well-graded sand, trace fine gravel	
							9			
						6			... orange-brown, stiff, moist	
								SC	CLAYEY SAND: orange-brown, medium dense, moist, well-graded sand, trace fine gravel	
							5			
				19.3		9	9			31% Fines
DS	1200	Nat.	1400	16.4	113		13			
						12		CL	LEAN CLAY: orange-brown with dark gray stains, medium stiff, moist to wet, few fine sand	
							5			
							5			
DS	1800	Nat.	920	39.2	84		7			
						15		SC	CLAYEY SAND: orange-brown, medium dense, moist, well-graded sand	
								CL	LEAN CLAY with SAND: orange-brown o brown, medium stiff, moist to wet, few to little fine sand	
						18				
							6			

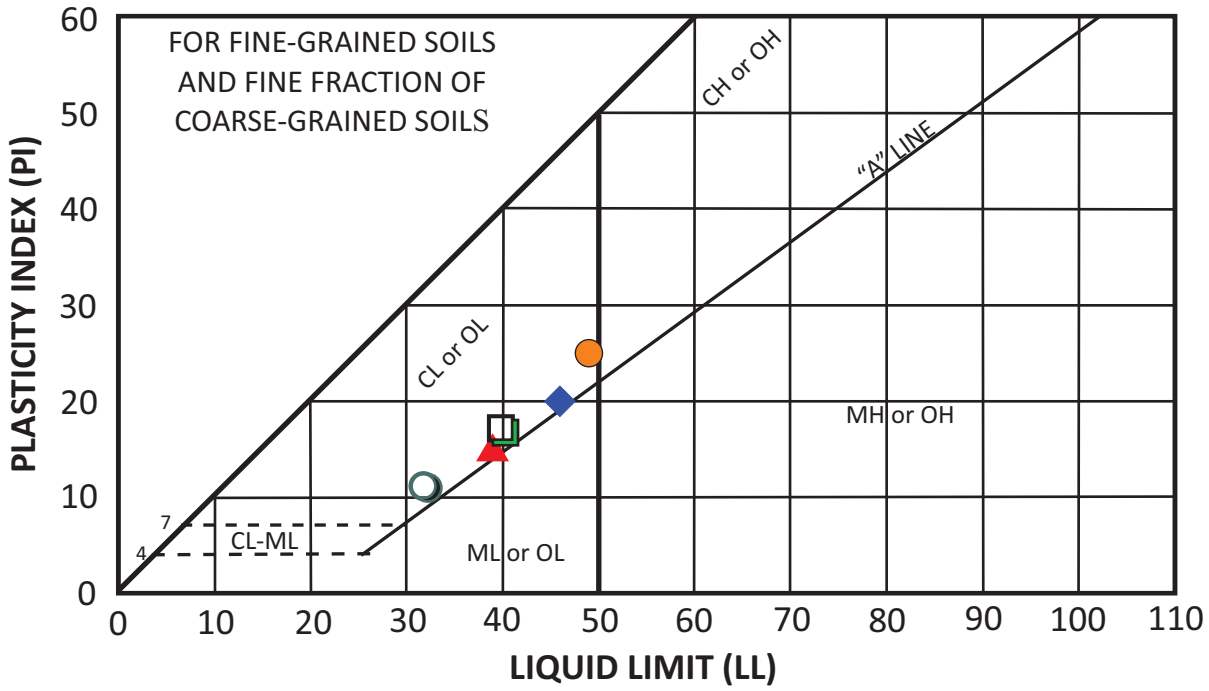
BORING LOG

Boring No. B-9
Page 2 of 2

JOB NAME: SMC-HMB Farmworker Housing Project *JOB NO.:* COUSM-23-03

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
				22.9	104		9 15		... about 2" of medium-grained sand lense ... increased sand content at 20' bgs	
						21			The boring was terminated at approximately 20 feet bgs. Groundwater was not encountered in the boring. The borehole was backfilled with cement grout.	
						24				
						27				
						30				
						33				
						36				
						39				

PLASTICITY CHART



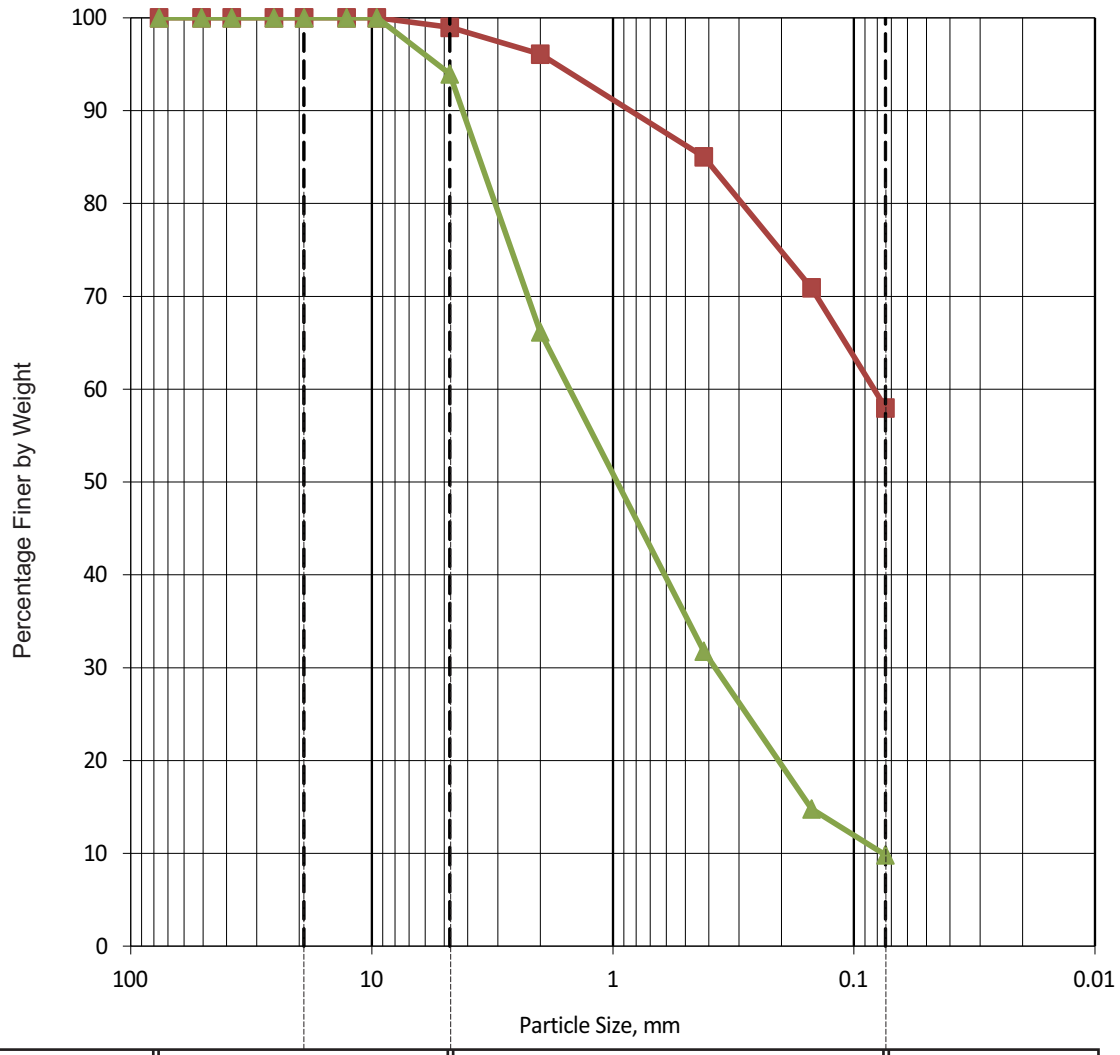
SYMBOL	SAMPLE SOURCE	DEPTH (FEET)	NATURAL WATER CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	SOIL DESCRIPTION
▲	Boring B-6	3.5	13.9	39	24	15	Dark Gray Clayey Sand (SC)
○	Boring B-6	14	25.1	32	21	11	Brown Clayey Sand (SC)
-	Boring B-6	19	30.0		Non-Plastic		Gray-Brown Silty Sand (SM)
-	Boring B-6	23.5	27.1		Non-Plastic		Gray-Brown Silty Sand (SM)
-	Boring B-6	28.5	22.4		Non-Plastic		Dark Blue-Gray Silty Sand (SM)
◆	Boring B-7	1.5	21.1	46	26	20	Dark Gray Sandy Lean Clay (CL)
-	Boring B-7	10.5	23.2		Non-Plastic		Dark Brown Silty Sand (SM)
●	Boring B-8	4	29.9	49	24	25	Dark Brown Lean Clay (CL)
□	Boring B-9	1.5	12.0	40	23	17	Brown Clayey Sand w/ Gravel (SC)

GEOTECHNICAL ENGINEERING INVESTIGATION
SMC-HMB FARMWORKER HOUSING PROJECT
880 STONE PINE ROAD
HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA

PLASTICITY DATA

DATE:	JOB NUMBER:	PLATE
August 2023	COUSM-23-03	14

BAGG ENGINEERS



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

LEGEND				
BORING NUMBER	B-6	B-8		
DEPTH (FEET)	1	18.5		
SOIL DESCRIPTION	Sandy Lean Clay (CL)	Well-Graded Sand with Silt (SW-SM)		

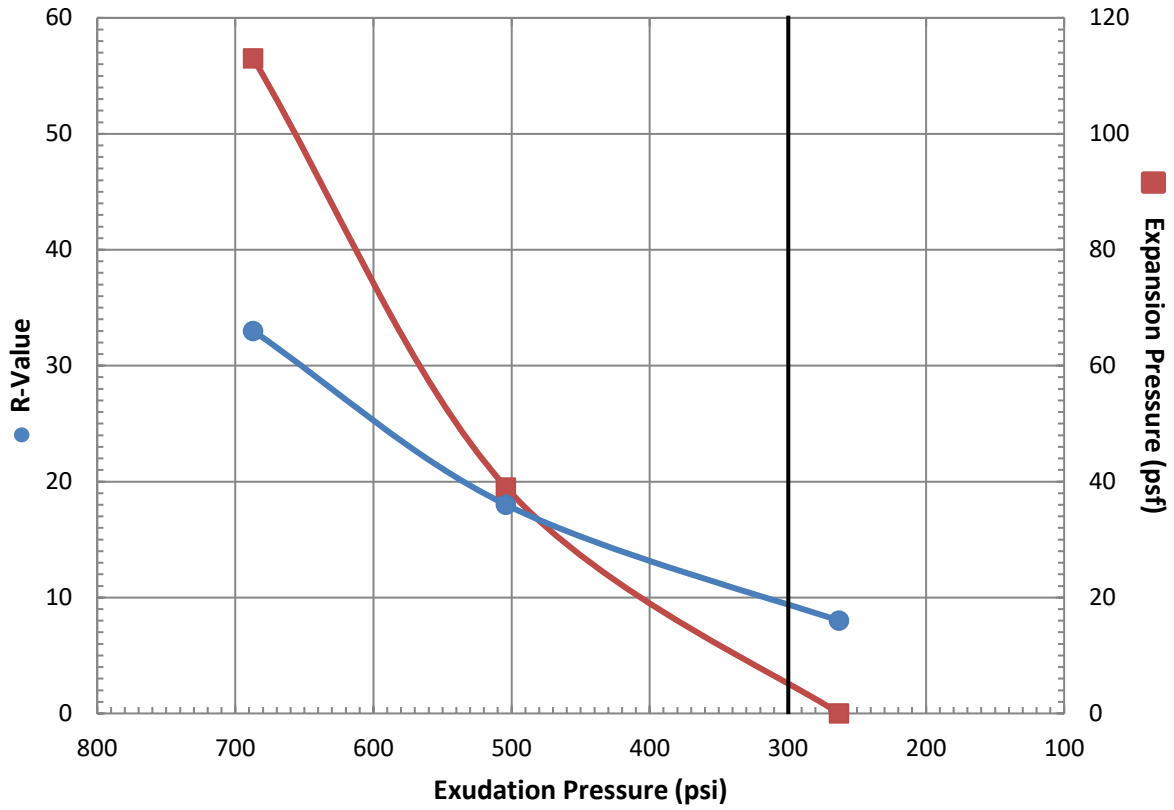
GEOTECHNICAL ENGINEERING INVESTIGATION
SMC-HMB FARMWORKER HOUSING PROJECT
880 STONE PINE ROAD
HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA

GRADATION TEST DATA

DATE:	JOB NUMBER:	PLATE:
August 2023	COUSM-23-03	15

BAGG ENGINEERS

B-9 Bulk Sample at Depth 1.5-3.5 FT



Resistance R-Value and Expansion Pressure - Cal Test 301

No.	Compact. Pressure psi	Density pcf	Moist. %	Expansion Pressure psf	Horizontal Press. Psi @ 160 psi	Sample Height in.	Exud. Pressure psi	R Value	R Value Corr.
1	320	113.3	15.1	113	98	2.54	687	33	33
2	250	110.5	15.9	39	123	2.59	504	18	19
3	140	106.4	18.1	0	139	2.64	263	8	9

R-value at 300 psi exudation pressure = 9
Exp. Pressure at 300 psi exudation pressure = 6 psf

GEOTECHNICAL ENGINEERING INVESTIGATION
SMC-HMB FARMWORKER HOUSING PROJECT
880 STONE PINE ROAD
HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA

R-VALUE TEST REPORT

DATE:	JOB NUMBER:	PLATE
August 2023	COUSM-23-03	16

Corrosivity Tests Summary

CTL # 011-948 **Date:** 7/28/2023 **Tested By:** PJ **Checked:** PJ
Client: BAGG Engineers **Project:** Farmworkers Housing Project **Proj. No:** C00SM-23-03
Remarks:

Sample Location or ID			Resistivity @ 15.5 °C (Ohm-cm)			Chloride	Sulfate		pH	ORP (Redox)		Sulfide	Moisture	Soil Visual Description
			As Rec.	Min	Sat.	mg/kg	mg/kg	%				Qualitative	At Test	
						Dry Wt.	Dry Wt.	Dry Wt.		E_H (mv)	At Test	by Lead	%	
Boring	Sample, No.	Depth, ft.	ASTM G57	Cal 643	ASTM G57	ASTM D4327	ASTM D4327	ASTM D4327	ASTM G51	ASTM G200	Temp °C	Acetate Paper	ASTM D2216	
B-6	-	2-5	-	-	7,471	<2	8	0.0008	7.4	486	23	Negative	15.0	Black Sandy CLAY
B-8	-	1.5-4	-	-	3,851	4	3	0.0003	7.5	492	23	Negative	17.7	Dark Yellowish Brown CLAY w/ Sand, trace Gravel

APPENDIX A

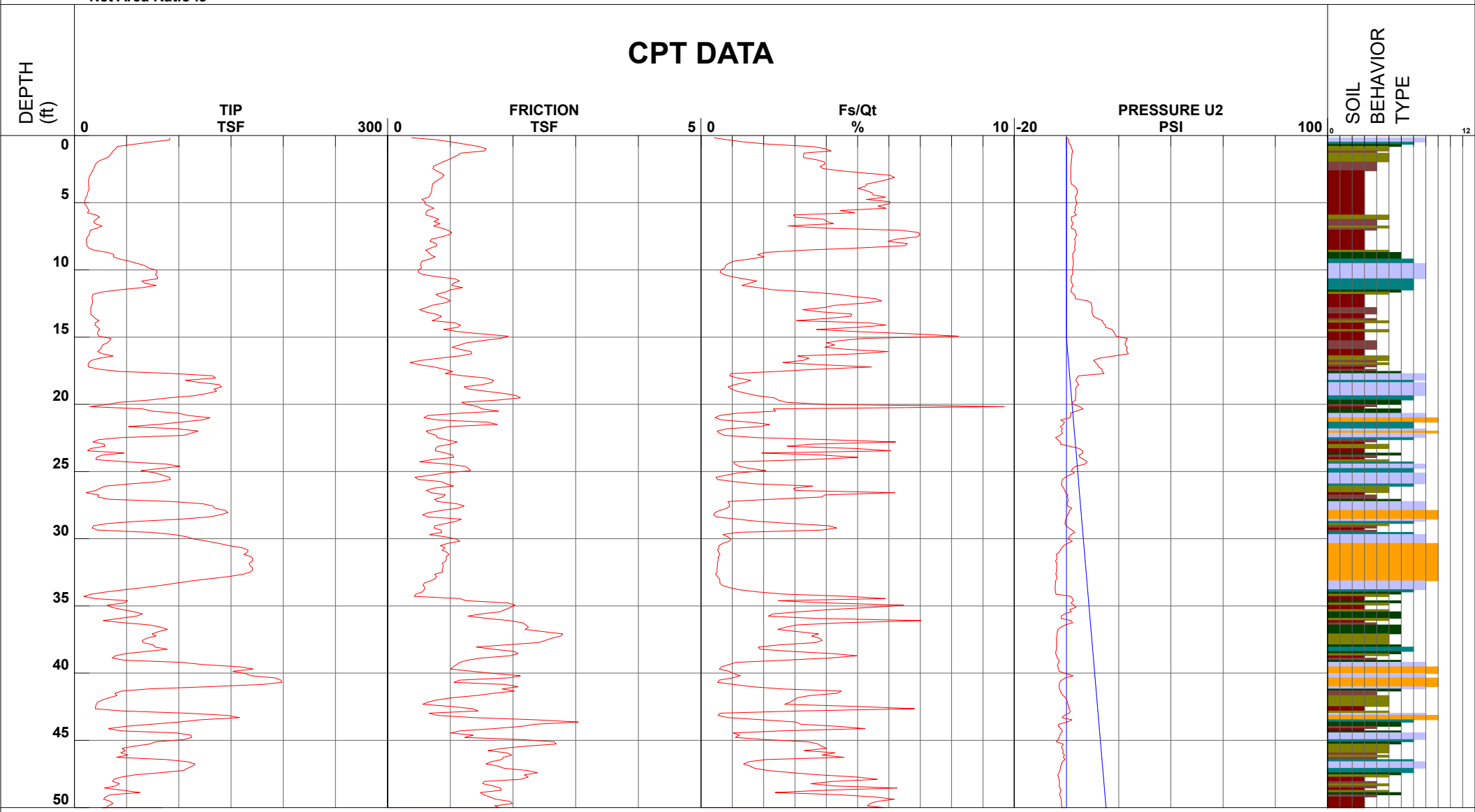
Cone Penetration Test (CPT) Results
(CPT-3 through CPT-5)

BAGG Engineering

Project	SMC-HMB Farmworker Housing project	Operator	AJ-ER	Filename	SDF(864).cpt
Job Number	COUSM-23-03	Cone Number	DDG1589	GPS	
Hole Number	CPT-03	Date and Time	7/26/2023 10:51:49 AM	Maximum Depth	50.52 ft
EST GW Depth During Test		15.10 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Cone Size 15cm²

S*Soil behavior type and SPT based on data from UBC-1983

SMC-HMB Farmworker Housing project

Project ID: BAGG Engineering
Data File: SDF(864).cpt
CPT Date: 7/26/2023 10:51:49 AM
GW During Test: 15 ft

Sounding ID: CPT-03
Project No: COUSM-23-03
Cone/Rig: DDG1589

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
0.33	91.3	146.4	156.5	91.3	0.8	0.9	0.9	6	clean SAND to silty SAND	125	5.0	29	18	26	80	48	-	-	7	0.350	1.75	16
0.49	73.0	117.1	146.5	73.0	1.0	0.8	1.4	6	clean SAND to silty SAND	125	5.0	23	15	23	72	48	-	-	12	0.350	1.96	16
0.66	56.3	90.3	146.1	56.3	1.3	1.3	2.2	5	silty SAND to sandy SILT	120	3.0	30	19	19	64	48	-	-	18	0.200	2.18	16
0.82	41.1	65.9	157.9	41.1	1.5	1.7	3.5	4	clayy SILT to silty CLAY	115	2.0	33	21	15	-	-	2.9	9.9	27	0.070	2.42	15
0.98	39.5	63.4	166.0	39.5	1.6	2.0	4.0	4	clayy SILT to silty CLAY	115	2.0	32	20	15	-	-	2.8	9.9	29	0.070	2.47	15
1.15	37.2	59.7	165.4	37.2	1.5	2.4	4.2	4	clayy SILT to silty CLAY	115	2.0	30	19	15	-	-	2.6	9.9	31	0.070	2.50	15
1.31	35.7	57.2	142.2	35.7	1.2	2.2	3.3	4	clayy SILT to silty CLAY	115	2.0	29	18	14	-	-	2.5	9.9	28	0.070	2.44	15
1.48	33.9	54.4	138.8	33.9	1.1	2.0	3.3	4	clayy SILT to silty CLAY	115	2.0	27	17	13	-	-	2.4	9.9	29	0.070	2.46	15
1.64	31.8	51.0	134.9	31.9	1.0	2.0	3.3	4	clayy SILT to silty CLAY	115	2.0	26	16	12	-	-	2.2	9.9	30	0.070	2.47	15
1.80	26.2	42.0	132.7	26.2	1.0	1.9	3.7	4	clayy SILT to silty CLAY	115	2.0	21	13	11	-	-	1.8	9.9	34	0.070	2.57	15
1.97	22.3	35.8	-	22.3	0.9	1.9	4.0	4	clayy SILT to silty CLAY	115	2.0	18	11	9	-	-	1.6	9.9	38	0.070	2.64	15
2.13	20.3	32.6	-	20.4	0.8	1.7	4.0	4	clayy SILT to silty CLAY	115	2.0	16	10	9	-	-	1.4	9.9	39	0.070	2.67	15
2.30	19.3	30.9	-	19.3	0.7	1.7	3.8	4	clayy SILT to silty CLAY	115	2.0	15	10	8	-	-	1.4	9.9	39	0.070	2.68	15
2.46	18.6	29.8	-	18.6	0.7	1.6	3.9	4	clayy SILT to silty CLAY	115	2.0	15	9	8	-	-	1.3	9.9	40	0.070	2.70	15
2.62	17.4	27.8	-	17.4	0.8	1.6	4.5	3	silty CLAY to CLAY	115	1.5	19	12	8	-	-	1.2	9.9	44	0.005	2.76	15
2.79	16.4	26.2	-	16.4	0.9	1.6	5.3	3	silty CLAY to CLAY	115	1.5	17	11	8	-	-	1.1	9.9	48	0.005	2.83	15
2.95	14.9	24.0	-	15.0	0.9	1.7	6.1	3	silty CLAY to CLAY	115	1.5	16	10	7	-	-	1.0	9.9	52	0.005	2.90	15
3.12	14.1	22.7	-	14.2	0.9	1.6	6.3	3	silty CLAY to CLAY	115	1.5	15	9	7	-	-	1.0	9.9	54	0.005	2.93	15
3.28	13.7	21.9	-	13.7	0.8	1.7	6.0	3	silty CLAY to CLAY	115	1.5	15	9	7	-	-	1.0	9.9	54	0.005	2.93	15
3.45	13.4	21.5	-	13.5	0.8	1.7	5.7	3	silty CLAY to CLAY	115	1.5	14	9	7	-	-	0.9	9.9	53	0.005	2.92	15
3.61	13.5	21.7	-	13.6	0.7	1.9	5.4	3	silty CLAY to CLAY	115	1.5	14	9	7	-	-	0.9	9.9	52	0.005	2.90	15
3.77	13.6	21.8	-	13.7	0.7	3.1	5.3	3	silty CLAY to CLAY	115	1.5	15	9	7	-	-	0.9	9.9	51	0.005	2.89	15
3.94	14.0	22.5	-	14.1	0.7	3.7	5.1	3	silty CLAY to CLAY	115	1.5	15	9	7	-	-	1.0	9.9	50	0.005	2.87	15
4.10	13.4	21.4	-	13.4	0.7	4.1	5.4	3	silty CLAY to CLAY	115	1.5	14	9	6	-	-	0.9	9.9	52	0.005	2.90	15
4.27	12.7	20.3	-	12.8	0.7	4.3	5.6	3	silty CLAY to CLAY	115	1.5	14	8	6	-	-	0.9	9.9	54	0.005	2.93	15
4.43	12.3	19.7	-	12.3	0.7	3.8	5.6	3	silty CLAY to CLAY	115	1.5	13	8	6	-	-	0.8	9.9	55	0.005	2.94	15
4.59	11.1	17.8	-	11.2	0.7	3.4	6.0	3	silty CLAY to CLAY	115	1.5	12	7	6	-	-	0.8	9.9	58	0.005	3.00	15
4.76	10.3	16.6	-	10.4	0.5	3.6	5.4	3	silty CLAY to CLAY	115	1.5	11	7	5	-	-	0.7	9.9	58	0.005	2.99	15
4.92	9.8	15.8	-	9.9	0.6	3.8	6.2	3	silty CLAY to CLAY	115	1.5	11	7	5	-	-	0.7	9.9	62	0.005	3.05	15
5.09	9.9	16.0	-	10.0	0.6	4.0	6.2	3	silty CLAY to CLAY	115	1.5	11	7	5	-	-	0.7	9.9	61	0.005	3.04	15
5.25	11.6	18.6	-	11.7	0.7	3.4	5.8	3	silty CLAY to CLAY	115	1.5	12	8	6	-	-	0.8	9.9	57	0.005	2.97	15
5.41	12.5	20.0	-	12.6	0.7	3.3	6.1	3	silty CLAY to CLAY	115	1.5	13	8	6	-	-	0.9	9.9	56	0.005	2.96	15
5.58	14.2	22.8	-	14.3	0.6	3.4	4.5	3	silty CLAY to CLAY	115	1.5	15	9	7	-	-	1.0	9.9	48	0.005	2.83	15
5.74	12.4	19.9	-	12.5	0.6	3.0	5.0	3	silty CLAY to CLAY	115	1.5	13	8	6	-	-	0.9	9.9	52	0.005	2.91	15
5.91	20.7	33.2	108.3	20.8	0.6	3.8	3.0	4	clayy SILT to silty CLAY	115	2.0	17	10	8	-	-	1.4	9.9	35	0.070	2.59	15
6.07	24.1	38.6	116.2	24.1	0.7	1.9	3.1	4	clayy SILT to silty CLAY	115	2.0	19	12	10	-	-	1.7	9.9	33	0.070	2.55	15
6.23	20.8	33.3	-	20.8	0.8	1.9	4.0	4	clayy SILT to silty CLAY	115	2.0	17	10	9	-	-	1.4	9.9	39	0.070	2.67	15
6.40	18.4	29.4	-	18.4	0.7	2.1	4.1	4	clayy SILT to silty CLAY	115	2.0	15	9	8	-	-	1.3	9.9	42	0.070	2.72	15
6.56	19.8	31.7	-	19.8	0.8	2.6	4.3	4	clayy SILT to silty CLAY	115	2.0	16	10	9	-	-	1.4	9.9	41	0.070	2.71	15
6.73	26.4	41.1	114.1	26.5	0.7	1.9	2.8	4	clayy SILT to silty CLAY	115	2.0	21	13	10	-	-	1.8	9.9	31	0.070	2.50	15
6.89	21.8	35.0	-	21.8	0.9	1.9	4.0	4	clayy SILT to silty CLAY	115	2.0	17	11	9	-	-	1.5	9.9	38	0.070	2.66	15
7.05	15.1	24.2	-	15.2	1.0	3.5	6.5	3	silty CLAY to CLAY	115	1.5	16	10	7	-	-	1.0	9.9	53	0.005	2.92	15
7.22	14.7	23.6	-	14.8	1.0	3.5	7.1	3	silty CLAY to CLAY	115	1.5	16	10	7	-	-	1.0	9.9	56	0.005	2.96	15
7.38	14.0	22.5	-	14.1	1.0	3.9	7.2	3	silty CLAY to CLAY	115	1.5	15	9	7	-	-	1.0	9.9	57	0.005	2.98	15
7.55	12.5	20.0	-	12.6	0.9	3.5	7.2	3	silty CLAY to CLAY	115	1.5	13	8	6	-	-	0.9	9.1	59	0.005	3.01	15
7.71	11.3	18.1	-	11.4	0.7	3.2	6.5	3	silty CLAY to CLAY	115	1.5	12	8	6	-	-	0.8	8.0	60	0.005	3.02	15
7.87	11.3	18.1	-	11.4	0.7	3.3	6.2	3	silty CLAY to CLAY	115	1.5	12	8	6	-	-	0.8	7.9	59	0.005	3.00	15
8.04	11.8	18.9	-	11.8	0.8	3.4	6.9	3	silty CLAY to CLAY	115	1.5	13	8	6	-	-	0.8	8.0	60	0.005	3.02	15
8.20	12.1	19.4	-	12.1	0.8	3.2	6.8	3	silty CLAY to CLAY	115	1.5	13	8	6	-	-	0.8	8.1	59	0.005	3.01	15
8.37	13.6	21.8	-	13.7	0.7	3.1	5.3	3	silty CLAY to CLAY	115	1.5	15	9	7	-	-	0.9	8.9	52	0.005	2.89	15
8.53	18.3	29.4	-	18.4	0.6	3.3	3.4	4	clayy SILT to silty CLAY	115	2.0	15	9	8	-	-	1.3	9.9	39	0.070	2.67	15
8.69	31.8	43.5	100.3	31.8	0.7	2.6	2.1	5	silty SAND to sandy SILT	120	3.0	15	11	10	40	38	-	-	26	0.200	2.40	16
8.86	37.9	51.4	101.1	38.0	0.7	2.4	1.8	5	silty SAND to sandy SILT	120	3.0	17	13	11	45	39	-	-	23	0.200	2.31	16
9.02	37.4	50.3	105.4	37.4	0.8	2.4	2.0	5	silty SAND to sandy SILT	120	3.0	17	12	11	44	39	-	-	24	0.200	2.34	16
9.19	42.9	57.2	99.6	43.0	0.7	2.6	1.6	5	silty SAND to sandy SILT	120	3.0	19	14	12	49	39	-	-	20	0.200	2.23	16
9.35	52.7	69.6	95.5	52.8	0.5	2.6	1.1	6	clean SAND to silty SAND	125	5.0	14	11	14	55	40	-	-	14	0.350	2.05	16
9.51	60.4	78.9	98.9	60.4	0.5	2.6	0.9	6	clean SAND to silty SAND	125	5.0	16	12	15	59	41	-	-	12	0.350	1.96	16
9.68	67.3	87.1	103.4	67.3	0.5	2.6	0.8	6	clean SAND to silty SAND	125	5.0	17	13	16	62	41	-	-	10	0.350	1.90	16
9.84	70.6	90.7	105.9	70.7	0.5	2.4	0.8	6	clean SAND to silty SAND	125	5.0	18	14	17	64	42	-	-	10	0.350	1.88	16
10.01	77.8	98.9	109.3	77.8	0.5	2.4	0.6	6	clean SAND to silty SAND	125	5.0	20	16	18	67	42	-	-	8	0.350	1.80	16
10.17	79.5	100.2	109.9	79.5	0.5	2.4	0.6	6	clean SAND to silty SAND	125	5.0	20	16	18	67	42	-	-	8	0.350	1.79	16
10.34	77.5	96.9	109.9	77.6	0.6	2.3	0.7	6	clean SAND to silty SAND	125	5.0	19	16	18	66	42	-	-	9	0.350	1.84	16
10.50	79.4	98.4	118.5	79.4	0.8	1.8	1.0	6	clean SAND to silty SAND	125	5.0	20	16	19	66	42	-	-	11	0.350	1.92	16
10.66	79.7	97.9	128.1	79.7	1.1	1.8	1.4	6	clean SAND to silty SAND	125	5.0	20	16	19	66	42	-	-	13	0.350	2.01	16
10.83	64.5	78.7	123.9	64.6	1.1	1.7	1.8	5	silty SAND to sandy SILT	120	3.0	26	22	16	59	41	-	-	18	0.200	2.16	16
10.99	67.5	81.7	119.9	67.5	1.0	2.1	1.6	5	silty SAND to sandy SILT	120	3.0	27	23	17	60	41	-	-	16	0.200	2.11	16
11.16	78.2	93.9	123.6	78.3	1.0	2.5	1.3	6	clean SAND to silty SAND	125	5.0	19	16	19	65	41	-	-	13	0.350	2.01	16
11.32	65.8	78.4	124.7	65.8	1.2	2.1	1.8	5	silty SAND to sandy SILT	120	3.0	26	22	16	59	40	-	-	18	0.200	2.17	16
11.48	43.6	51.5	113.9	43.6	1.0	1.8	2.3	5	silty SAND to sandy SILT	120	3.0	17	15	12	45	38	-	-	25	0.200	2.37	16
11.65	26.6	34.1	-	26.6	0.9	1.8	3.6	4	clayy SILT to silty CLAY	115	2.0	17	13	9	-	-	1.8	9.9	37	0.070	2.63	15
11.81	17.8	25.6	-	17.8	0.8	2.9	4.5	3	silty CLAY to CLAY	115	1.5	17	12	7	-	-	1.2	8.1	46	0.005	2.80	15
11.98	17.0	24.2	-	17.1	0.8	3.3	5.1	3	silty CLAY to CLAY	115	1.5	16	11	7	-	-	1.2	7.7	49	0.005	2.85	15
12.14	17.0	23.8	-	17.0	0.9	3.4	5.8	3	silty CLAY to CLAY	115	1.5	16	11	7	-	-	1.1	7.5	52	0.005	2.90	15
12.30	17.4	24.1	-	17.5	1.0	8.1	6.0	3	silty CLAY to CLAY	115	1.5	16	12	7	-	-	1.2	7.6	52	0.005	2.90	15
12.47	17.2	23.5	-	17.4	0.9	9.5	5.5	3	silty CLAY to CLAY	115	1.5	16	11	7	-	-	1.2	7.4	51	0.005	2.88	15
12.63	16.5	22.3	-	16.7	0.7	9.6	4.5	3	silty CLAY to CLAY	115	1.5	15	11	6	-	-	1.1	7.0	49	0.005	2.84	15
12.80	15.7	21.0	-	15.9	0.6	9.8	4.2	3	silty CLAY to CLAY	115	1.5	14	10	6	-	-	1.1	6.6	49	0.005	2.84	15
12.96	15.7	20.7	-	15.9	0.5	9.9	3.4	4	clayy SILT to silty CLAY	115	2.0	10	8	6	-	-	1.1	6.5	46	0.070	2.79	15
13.12	15.7	20.4	-	15.9	0.6	9.7	4.0	3	silty CLAY to CLAY	115	1.5	14	10	6	-	-	1.1	6.4	49	0.005	2.85	15
13.29	15.8	20.3	-	16.0	0.8	10.0	5.1	3	silty CLAY to CLAY	115	1.5	14	11	6	-	-	1.1	6.4	53	0.005	2.91	15
13.45	17.9	22.7	-	18.1	0.9	10.3	5.0	3	silty CLAY to CLAY	115	1.5	15	12	7	-	-	1.2	7.2	50	0.005	2.87	15
13.62	20.1	25.2	-	20.3	0.8	12.0	4.2	3	silty CLAY to CLAY	115	1.5	17	13	7	-	-	1.4	8.0	45	0.005	2.78	15
13.78	23.3	28.9	-	23.6	0.7	13.8	3.2	4	clayy SILT to silty CLAY	115	2.0	14	12	8	-	-	1.6	9.2	38	0.070	2.66	15
13.94	20.0	24.5	-	20.3	1.1	14.0	5.6	3	silty CLAY to CLAY	115	1.5	16	13	7	-	-	1.4	7.8	51	0.005	2.88	15
14.11	19.7	23.8	-	20.0	1.2	14.9	6.2	3	silty CLAY to CLAY	115	1.5	16	13	7	-	-	1.3	7.5	53	0.005	2.92	15
14.27	22.5	26.9	-	22.8	1.1	15.0	5.2	3	silty CLAY to CLAY	115	1.5	18	15	8	-	-	1.5	8.6	47	0.005	2.82	15
14.44	24.2	28.7	-	24.6	0.9	17.5	3.8	4	clayy SILT to silty CLAY	115	2.0	14	12	8	-	-	1.7	9.1	41	0.070	2.71	15
14.60	22.4	26.2	-	22.7	1.1	18.0	5.2	3	silty CLAY to CLAY	115	1.5	17	15	8	-	-	1.5	8.3	48	0.005	2.84	15
14.76	22.2	25.7	-	22.5	1.5	18.5	7.1	3	silty CLAY to CLAY	115	1.5	17	15	8	-	-	1.5	8.1	54	0.005	2.93	15
14.93	23.4	26.8	-	23.8	1.9	19.0	8.5	3	silty CLAY to CLAY	115	1.5	18	16	8	-	-	1.6	8.5	57	0.005	2.98	15
15.09	34.8	39.7	-	35.3	1.8	23.2	5.3	3	silty CLAY to CLAY	115	1.5	26	23	11	-	-	2.4	9.9	41	0.005	2.71	15
15.26	33.9	38.5	-	34.4	1.5	22.9	4.6	4	clayy SILT to silty CLAY	115	2.0	19	17	10	-	-	2.3	9.9	39	0.070	2.67	15
15.42	31.5	35.6	-	31.9	1.3	22.5	4.1	4	clayy SILT to silty CLAY	115	2.0	18	16	9	-	-	2.2	9.9	39	0.070	2.66	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
15.58	27.0	30.3	-	27.4	1.1	22.5	4.4	3	silty CLAY to CLAY	115	1.5	20	18	8	-	-	1.8	9.7	42	0.005	2.74	15
15.75	26.0	29.1	-	26.5	1.0	23.2	4.1	4	clayy SILT to silty CLAY	115	2.0	15	13	8	-	-	1.8	9.3	42	0.070	2.73	15
15.91	24.9	27.7	-	25.3	1.2	23.0	4.8	3	silty CLAY to CLAY	115	1.5	18	17	8	-	-	1.7	8.8	46	0.005	2.79	15
16.08	22.3	24.7	-	22.8	1.3	23.2	6.2	3	silty CLAY to CLAY	115	1.5	16	15	7	-	-	1.5	7.8	52	0.005	2.91	15
16.24	26.8	29.6	-	27.3	1.3	23.8	5.2	3	silty CLAY to CLAY	115	1.5	20	18	8	-	-	1.8	9.4	46	0.005	2.79	15
16.40	37.2	37.9	118.3	37.6	1.1	18.3	3.2	4	clayy SILT to silty CLAY	115	2.0	19	19	10	-	-	2.6	9.9	34	0.070	2.57	15
16.57	24.0	26.2	-	24.2	0.8	12.6	3.6	4	clayy SILT to silty CLAY	115	2.0	13	12	7	-	-	1.6	8.3	42	0.070	2.73	15
16.73	16.3	17.7	-	16.5	0.5	10.4	3.5	3	silty CLAY to CLAY	115	1.5	12	11	5	-	-	1.1	5.5	49	0.005	2.86	15
16.90	13.8	14.9	-	14.0	0.4	11.2	2.8	3	silty CLAY to CLAY	115	1.5	10	9	4	-	-	0.9	4.6	50	0.005	2.87	15
17.06	13.1	14.1	-	13.4	0.5	11.9	4.2	3	silty CLAY to CLAY	115	1.5	9	9	4	-	-	0.9	4.3	58	0.005	2.99	15
17.23	13.6	14.6	-	13.9	0.7	12.4	5.9	3	silty CLAY to CLAY	115	1.5	10	9	5	-	-	0.9	4.5	63	0.005	3.07	15
17.39	24.0	25.6	-	24.3	0.9	13.6	3.9	4	clayy SILT to silty CLAY	115	2.0	13	12	7	-	-	1.6	8.1	44	0.070	2.76	15
17.55	41.6	41.6	109.6	41.8	1.0	13.7	2.6	4	clayy SILT to silty CLAY	115	2.0	21	21	10	-	-	2.9	9.9	29	0.070	2.47	15
17.72	96.0	95.9	115.8	96.3	0.9	14.4	1.0	6	clean SAND to silty SAND	125	5.0	19	19	18	66	41	-	-	11	0.350	1.92	16
17.88	132.5	131.9	145.8	132.5	1.2	4.7	0.9	6	clean SAND to silty SAND	125	5.0	26	26	24	76	42	-	-	8	0.350	1.80	16
18.05	135.3	134.4	155.4	135.4	1.6	3.9	1.2	6	clean SAND to silty SAND	125	5.0	27	27	25	77	42	-	-	10	0.350	1.86	16
18.21	106.2	105.2	141.9	106.3	1.7	3.6	1.6	5	silty SAND to sandy SILT	120	3.0	35	35	21	69	41	-	-	14	0.200	2.03	16
18.37	120.4	119.0	148.0	120.5	1.7	4.2	1.4	6	clean SAND to silty SAND	125	5.0	24	24	23	73	42	-	-	12	0.350	1.95	16
18.54	138.6	136.6	155.0	138.7	1.5	4.7	1.1	6	clean SAND to silty SAND	125	5.0	27	28	25	77	42	-	-	9	0.350	1.84	16
18.70	140.8	138.4	149.9	140.9	1.2	3.9	0.9	6	clean SAND to silty SAND	125	5.0	28	28	25	78	42	-	-	7	0.350	1.77	16
18.87	133.7	131.0	146.7	133.7	1.3	3.5	1.0	6	clean SAND to silty SAND	125	5.0	26	27	24	76	42	-	-	8	0.350	1.82	16
19.03	136.1	133.0	153.9	136.1	1.6	3.6	1.2	6	clean SAND to silty SAND	125	5.0	27	27	25	76	42	-	-	10	0.350	1.86	16
19.19	126.8	123.7	154.8	126.9	1.9	3.6	1.5	6	clean SAND to silty SAND	125	5.0	25	25	24	74	42	-	-	12	0.350	1.96	16
19.36	115.0	111.8	153.9	115.1	2.1	3.5	1.8	5	silty SAND to sandy SILT	120	3.0	37	38	22	71	41	-	-	14	0.200	2.05	16
19.52	90.3	87.6	148.8	90.3	2.1	3.5	2.4	5	silty SAND to sandy SILT	120	3.0	29	30	19	63	40	-	-	19	0.200	2.21	16
19.69	71.6	69.3	135.3	71.7	1.8	3.5	2.5	5	silty SAND to sandy SILT	120	3.0	23	24	15	55	39	-	-	23	0.200	2.30	16
19.85	43.3	41.8	115.5	43.3	1.2	2.3	2.8	4	clayy SILT to silty CLAY	115	2.0	21	22	10	-	-	3.0	9.9	31	0.070	2.50	15
20.01	31.5	31.0	-	31.6	1.3	2.6	4.2	4	clayy SILT to silty CLAY	115	2.0	16	16	8	-	-	2.2	9.9	41	0.070	2.71	15
20.18	14.9	14.6	-	15.0	1.4	5.1	9.9	3	silty CLAY to CLAY	115	1.5	10	10	5	-	-	1.0	4.4	75	0.005	3.22	15
20.34	65.2	62.6	125.1	65.3	1.5	6.3	2.4	5	silty SAND to sandy SILT	120	3.0	21	22	14	52	38	-	-	23	0.200	2.32	16
20.51	74.4	71.2	135.0	74.5	1.8	3.7	2.4	5	silty SAND to sandy SILT	120	3.0	24	25	16	56	39	-	-	22	0.200	2.28	16
20.67	100.1	95.6	120.5	100.1	1.1	1.6	1.1	6	clean SAND to silty SAND	125	5.0	19	20	19	66	40	-	-	12	0.350	1.97	16
20.83	108.8	103.7	112.4	108.8	0.6	1.6	0.6	6	clean SAND to silty SAND	125	5.0	21	22	19	68	41	-	-	7	0.350	1.77	16
21.00	129.9	123.4	123.4	129.9	0.6	1.3	0.4	6	clean SAND to silty SAND	125	5.0	25	26	21	74	42	-	-	5	0.350	1.63	16
21.16	122.1	115.8	124.3	122.1	0.8	-2.2	0.7	6	clean SAND to silty SAND	125	5.0	23	24	21	72	41	-	-	7	0.350	1.75	16
21.33	101.4	95.9	133.4	101.3	1.6	-0.8	1.6	5	silty SAND to sandy SILT	120	3.0	32	34	19	66	40	-	-	15	0.200	2.06	16
21.49	80.3	75.8	133.5	80.3	1.8	-1.2	2.2	5	silty SAND to sandy SILT	120	3.0	25	27	16	58	39	-	-	20	0.200	2.24	16
21.65	51.9	48.8	102.2	51.8	1.0	-2.3	1.9	5	silty SAND to sandy SILT	120	3.0	16	17	11	43	36	-	-	24	0.200	2.34	16
21.82	98.8	92.8	109.5	98.7	0.8	-1.6	0.8	6	clean SAND to silty SAND	125	5.0	19	20	17	65	40	-	-	10	0.350	1.89	16
21.98	118.7	111.3	116.2	118.7	0.6	-1.9	0.5	6	clean SAND to silty SAND	125	5.0	22	24	20	71	41	-	-	6	0.350	1.71	16
22.15	112.0	104.7	113.1	111.9	0.7	-1.6	0.6	6	clean SAND to silty SAND	125	5.0	21	22	19	69	41	-	-	7	0.350	1.76	16
22.31	104.7	97.7	111.6	104.7	0.8	-2.5	0.8	6	clean SAND to silty SAND	125	5.0	20	21	18	66	40	-	-	9	0.350	1.85	16
22.47	44.7	41.6	92.9	44.6	0.8	-4.2	1.8	5	silty SAND to sandy SILT	120	3.0	14	15	10	38	35	-	-	26	0.200	2.38	16
22.64	22.9	20.9	-	22.8	0.9	-3.4	4.3	3	silty CLAY to CLAY	115	1.5	14	15	6	-	-	1.5	6.5	50	0.005	2.86	15
22.80	17.8	16.2	-	17.8	1.1	-2.4	6.7	3	silty CLAY to CLAY	115	1.5	11	12	5	-	-	1.2	5.0	64	0.005	3.07	15
22.97	28.7	26.0	-	28.6	1.0	-2.1	3.7	4	clayy SILT to silty CLAY	115	2.0	13	14	7	-	-	1.9	8.2	42	0.070	2.74	15
23.13	29.3	26.4	-	29.3	0.8	1.2	2.9	4	clayy SILT to silty CLAY	115	2.0	13	15	7	-	-	2.0	8.3	39	0.070	2.66	15
23.30	15.4	13.9	-	15.5	0.8	5.0	5.4	3	silty CLAY to CLAY	115	1.5	9	10	5	-	-	1.0	4.2	63	0.005	3.07	15
23.46	12.5	11.2	-	12.7	0.8	6.1	6.8	3	silty CLAY to CLAY	115	1.5	7	8	4	-	-	0.8	3.3	74	0.005	3.21	15
23.62	47.6	43.7	99.1	47.7	0.9	6.2	2.0	5	silty SAND to sandy SILT	120	3.0	15	16	10	40	36	-	-	26	0.200	2.39	16
23.79	26.5	23.6	-	26.6	1.0	4.8	4.1	3	silty CLAY to CLAY	115	1.5	16	18	7	-	-	1.8	7.4	46	0.005	2.81	15
23.95	21.0	18.6	-	21.1	1.1	5.1	5.4	3	silty CLAY to CLAY	115	1.5	12	14	6	-	-	1.4	5.7	56	0.005	2.96	15
24.12	20.7	18.3	-	20.8	0.7	6.8	3.7	3	silty CLAY to CLAY	115	1.5	12	14	5	-	-	1.4	5.6	50	0.005	2.86	15
24.28	49.3	44.9	76.4	49.5	0.5	7.9	1.1	5	silty SAND to sandy SILT	120	3.0	15	16	10	41	36	-	-	19	0.200	2.21	16
24.44	87.9	79.9	105.9	88.0	1.0	7.1	1.1	6	clean SAND to silty SAND	125	5.0	16	18	16	60	39	-	-	13	0.350	2.02	16
24.61	101.2	91.8	119.7	101.3	1.2	3.6	1.2	6	clean SAND to silty SAND	125	5.0	18	20	18	64	40	-	-	13	0.350	2.00	16
24.77	82.8	74.9	115.1	82.8	1.3	2.4	1.6	5	silty SAND to sandy SILT	120	3.0	25	28	16	57	39	-	-	17	0.200	2.14	16
24.94	63.8	57.6	114.7	63.8	1.3	1.9	2.1	5	silty SAND to sandy SILT	120	3.0	19	21	13	49	37	-	-	23	0.200	2.31	16
25.10	77.8	70.1	100.5	77.9	0.9	2.9	1.2	5	silty SAND to sandy SILT	120	3.0	23	26	14	55	38	-	-	15	0.200	2.09	16
25.26	83.9	75.5	95.4	83.9	0.7	1.1	0.9	6	clean SAND to silty SAND	125	5.0	15	17	15	58	39	-	-	12	0.350	1.97	16
25.43	91.0	81.6	91.0	91.0	0.4	-0.4	0.5	6	clean SAND to silty SAND	125	5.0	16	18	15	60	39	-	-	8	0.350	1.81	16
25.59	91.9	82.3	92.9	91.9	0.5	-1.6	0.5	6	clean SAND to silty SAND	125	5.0	16	18	15	61	39	-	-	9	0.350	1.83	16
25.76	81.0	72.4	98.8	81.0	0.9	-1.8	1.1	6	clean SAND to silty SAND	125	5.0	14	16	14	56	38	-	-	14	0.350	2.05	16
25.92	54.1	48.2	97.7	54.0	0.9	-1.9	1.8	5	silty SAND to sandy SILT	120	3.0	16	18	11	43	36	-	-	23	0.200	2.32	16
26.08	29.6	24.8	-	29.5	1.1	-1.7	3.8	4	clayy SILT to silty CLAY	115	2.0	12	15	7	-	-	2.0	7.8	44	0.070	2.76	15
26.25	24.7	20.6	-	24.7	0.7	-1.0	3.2	4	clayy SILT to silty CLAY	115	2.0	10	12	6	-	-	1.7	6.4	45	0.070	2.78	15
26.41	20.6	17.2	-	20.6	0.6	-0.7	3.2	3	silty CLAY to CLAY	115	1.5	11	14	5	-	-	1.4	5.2	49	0.005	2.85	15
26.58	11.2	9.3	-	11.2	0.7	-0.3	7.2	3	silty CLAY to CLAY	115	1.5	6	7	4	-	-	0.7	2.6	81	0.005	3.30	15
26.74	23.2	19.2	-	23.2	0.9	0.5	4.3	3	silty CLAY to CLAY	115	1.5	13	15	6	-	-	1.6	5.9	51	0.005	2.89	15
26.90	22.8	18.8	-	22.8	0.9	0.3	4.1	3	silty CLAY to CLAY	115	1.5	13	15	6	-	-	1.5	5.8	51	0.005	2.89	15
27.07	33.0	27.1	-	33.0	0.7	0.7	2.4	4	clayy SILT to silty CLAY	115	2.0	14	16	7	-	-	2.2	8.5	36	0.070	2.61	15
27.23	92.8	81.6	101.1	92.8	0.8	0.5	0.9	6	clean SAND to silty SAND	125	5.0	16	19	16	60	39	-	-	12	0.350	1.95	16
27.40	122.8	107.6	124.6	122.8	1.1	0.2	0.9	6	clean SAND to silty SAND	125	5.0	22	25	20	69	41	-	-	10	0.350	1.86	16
27.56	132.7	116.1	132.4	132.7	1.2	0.4	0.9	6	clean SAND to silty SAND	125	5.0	23	27	22	72	41	-	-	9	0.350	1.84	16
27.72	134.6	117.5	131.3	134.6	1.1	2.0	0.8	6	clean SAND to silty SAND	125	5.0	24	27	22	72	41	-	-	8	0.350	1.81	16
27.89	144.2	125.7	130.9	144.3	0.9	1.3	0.6	6	clean SAND to silty SAND	125	5.0	25	29	22	75	41	-	-	6	0.350	1.70	16
28.05	147.0	127.9	127.9	147.0	0.7	0.9	0.4	6	clean SAND to silty SAND	125	5.0	26	29	22	75	41	-	-	5	0.350	1.62	16
28.22	139.7	121.3	121.3	139.7	0.6	0.5	0.4	6	clean SAND to silty SAND	125	5.0	24	28	21	73	41	-	-	5	0.350	1.62	16
28.38	129.0	111.7	116.0	129.0	0.6	0.0	0.5	6	clean SAND to silty SAND	125	5.0	22	26	20	71	41	-	-	6	0.350	1.70	16
28.54	102.3	88.4	115.0	102.3	1.2	-0.2	1.2	6	clean SAND to silty SAND	125	5.0	18	20	17	63	39	-	-	13	0.350	2.00	16
28.71	59.7	51.5	103.1	59.7	1.1	-0.5	1.9	5	silty SAND to sandy SILT	120	3.0	17	20	12	45	36	-	-	23	0.200	2.32	16
28.87	32.0	25.2	-	32.0	0.9	-0.6	3.0	4	clayy SILT to silty CLAY	115	2.0	13	16	7	-	-	2.2	7.9	40	0.070	2.70	15
29.04	18.5	14.5	-	18.5	0.8	-0.2	4.5	3	silty CLAY to CLAY	115	1.5	10	12	5	-	-	1.2	4.3	59	0.005	3.01	15
29.20	17.1	13.3	-	17.1	0.7	0.9	4.8	3	silty CLAY to CLAY	115	1.5	9	11	4	-	-	1.1	4.0	62	0.005	3.06	15
29.36	22.1	17.2	-	22.1	0.8	2.1	4.2	3	silty CLAY to CLAY	115	1.5	11	15	5	-	-	1.5	5.2	53	0.005	2.92	15
29.53	72.9	62.4	94.4	73.0	0.9	3.2	1.2	5	silty SAND to sandy SILT	120	3.0	21	24	13	51	37	-	-	17	0.200	2.13	16
29.69	95.5	81.5	96.8	95.5	0.7	1.8	0.7	6	clean SAND to silty SAND	125	5.0	16	19	15	60	39	-	-	10	0.350	1.90	16
29.86	107.6	91.7	109.6	107.6	0.9	1.2	0.9	6	clean SAND to silty SAND	125	5.0	18	22	17	64	39	-	-	11	0.350	1.91	16
30.02	114.0	96.9	116.9	114.0	1.1	0.5	1.0	6	clean SAND to silty SAND	125	5.0	19	23	18	66	40	-	-	11	0.350	1.92	16
30.19	127.2	107.9	125.0	127.2	1.2	2.2	0.9	6	clean SAND to silty SAND	125	5.0	22	25	20	70	40	-	-	10	0.350	1.87	16
30.35	138.2	117.1	126.7	138.3	1.0	0.4	0.7	6	clean SAND to silty SAND	125	5.0	23	28	21	72	41	-	-	7	0.350	1.77	16
30.51	148.2	125.2	129.1	148.1	0.8	-1.1	0.6	6	clean SAND to silty SAND	125	5.0	25	30	22	74	41	-	-	6	0.350	1.69	16
30.68	161.0	135.8	137.4	161.0	0.9	-1.7	0.6	6	clean SAND to silty SAND	125	5.0	27	32	24	77	42	-	-	5	0.350	1.66	16
30.84	166.4	140.2	140.2	166.4	0.9	-2.3	0.5	6	clean SAND to silty SAND	125	5.0	28	33	24	78	42	-	-	5	0.350	1.63	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: BAGG Engineering
Data File: SDF(864).cpt
CPT Date: 7/26/2023 10:51:49 AM
GW During Test: 15 ft

Sounding ID: CPT-03
Project No: COUSM-23-03
Cone/Rig: DDG1589

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
31.01	165.5	139.1	139.9	165.4	0.9	-2.8	0.6	6	clean SAND to silty SAND	125	5.0	28	33	24	78	42	-	-	5	0.350	1.65	16
31.17	162.4	136.3	139.2	162.4	1.0	-3.9	0.6	6	clean SAND to silty SAND	125	5.0	27	32	24	77	42	-	-	6	0.350	1.68	16
31.33	169.1	141.6	141.6	169.1	0.9	-3.7	0.6	6	clean SAND to silty SAND	125	5.0	28	34	24	78	42	-	-	5	0.350	1.64	16
31.50	170.8	142.7	142.7	170.8	0.9	-3.6	0.6	6	clean SAND to silty SAND	125	5.0	29	34	25	79	42	-	-	5	0.350	1.63	16
31.66	170.4	142.1	142.1	170.3	0.9	-4.2	0.5	6	clean SAND to silty SAND	125	5.0	28	34	24	79	42	-	-	5	0.350	1.63	16
31.83	167.4	139.3	139.3	167.3	0.9	-3.8	0.5	6	clean SAND to silty SAND	125	5.0	28	33	24	78	42	-	-	5	0.350	1.63	16
31.99	168.0	139.6	139.6	168.0	0.9	-3.7	0.5	6	clean SAND to silty SAND	125	5.0	28	34	24	78	42	-	-	5	0.350	1.63	16
32.15	170.4	141.3	141.3	170.4	0.9	-3.7	0.5	6	clean SAND to silty SAND	125	5.0	28	34	24	78	42	-	-	5	0.350	1.62	16
32.32	170.6	141.2	141.2	170.5	0.9	-3.8	0.5	6	clean SAND to silty SAND	125	5.0	28	34	24	78	42	-	-	5	0.350	1.62	16
32.48	168.5	139.2	139.2	168.4	0.9	-3.9	0.5	6	clean SAND to silty SAND	125	5.0	28	34	24	78	42	-	-	5	0.350	1.63	16
32.65	161.7	133.4	133.4	161.6	0.8	-4.1	0.5	6	clean SAND to silty SAND	125	5.0	27	32	23	77	41	-	-	5	0.350	1.62	16
32.81	148.6	122.3	125.2	148.5	0.8	-3.7	0.5	6	clean SAND to silty SAND	125	5.0	24	30	21	74	41	-	-	6	0.350	1.68	16
32.97	130.4	107.1	115.1	130.3	0.8	-3.7	0.6	6	clean SAND to silty SAND	125	5.0	21	26	19	69	40	-	-	7	0.350	1.75	16
33.14	112.8	92.5	103.6	112.7	0.7	-4.2	0.6	6	clean SAND to silty SAND	125	5.0	19	23	17	64	39	-	-	9	0.350	1.82	16
33.30	98.0	80.3	93.2	98.0	0.6	-4.2	0.6	6	clean SAND to silty SAND	125	5.0	16	20	15	60	39	-	-	10	0.350	1.87	16
33.47	83.8	68.5	85.4	83.7	0.6	-4.3	0.7	6	clean SAND to silty SAND	125	5.0	14	17	13	54	38	-	-	12	0.350	1.96	16
33.63	66.5	54.2	80.1	66.4	0.6	-4.3	0.9	5	silty SAND to sandy SILT	120	3.0	18	22	11	47	36	-	-	16	0.200	2.11	16
33.79	48.0	39.1	77.8	47.9	0.6	-4.3	1.3	5	silty SAND to sandy SILT	120	3.0	13	16	9	36	34	-	-	23	0.200	2.31	16
33.96	30.0	21.0	-	30.0	0.5	-4.2	2.0	4	clayy SILT to silty CLAY	115	2.0	11	15	6	-	-	2.0	6.5	38	0.070	2.65	15
34.12	16.9	11.8	-	16.9	0.4	-4.0	3.0	3	silty CLAY to CLAY	115	1.5	8	11	4	-	-	1.1	3.4	57	0.005	2.98	15
34.29	9.1	6.3	-	9.1	0.4	1.7	6.1	3	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.6	92	0.005	3.43	15
34.45	19.5	13.5	-	19.5	1.1	2.3	6.6	3	silty CLAY to CLAY	115	1.5	9	13	5	-	-	1.3	4.0	68	0.005	3.14	15
34.61	50.8	41.1	110.4	50.9	1.3	2.7	2.6	4	clayy SILT to silty CLAY	115	2.0	21	25	10	-	-	3.5	9.9	30	0.070	2.48	15
34.78	47.9	33.0	-	47.9	1.9	1.7	4.2	4	clayy SILT to silty CLAY	115	2.0	17	24	9	-	-	3.3	9.9	40	0.070	2.70	15
34.94	31.4	21.6	-	31.5	2.0	2.8	6.9	3	silty CLAY to CLAY	115	1.5	14	21	7	-	-	2.1	6.7	58	0.005	2.99	15
35.11	35.7	24.5	-	35.8	2.0	3.7	5.8	3	silty CLAY to CLAY	115	1.5	16	24	7	-	-	2.4	7.6	52	0.005	2.90	15
35.27	45.5	31.1	-	45.5	1.9	1.3	4.3	3	silty CLAY to CLAY	115	1.5	21	30	8	-	-	3.1	9.8	42	0.005	2.73	15
35.43	57.1	45.8	131.1	57.2	1.8	1.8	3.3	4	clayy SILT to silty CLAY	115	2.0	23	29	11	-	-	3.9	9.9	31	0.070	2.52	15
35.60	65.2	52.2	116.7	65.2	1.5	-0.6	2.4	5	silty SAND to sandy SILT	120	3.0	17	22	12	46	36	-	-	26	0.200	2.38	16
35.76	59.4	47.5	108.8	59.4	1.3	-2.0	2.2	5	silty SAND to sandy SILT	120	3.0	16	20	11	42	35	-	-	26	0.200	2.39	16
35.93	43.6	29.5	-	43.6	1.6	-2.1	3.8	4	clayy SILT to silty CLAY	115	2.0	15	22	8	-	-	3.0	9.3	41	0.070	2.71	15
36.09	27.6	18.6	-	27.6	1.9	1.7	7.6	3	silty CLAY to CLAY	115	1.5	12	18	6	-	-	1.8	5.7	63	0.005	3.07	15
36.26	47.0	31.6	-	47.1	2.1	2.3	4.8	3	silty CLAY to CLAY	115	1.5	21	31	9	-	-	3.2	9.9	43	0.005	2.75	15
36.42	72.0	57.3	141.2	72.0	2.2	-0.4	3.2	4	clayy SILT to silty CLAY	115	2.0	29	36	14	-	-	5.0	9.9	28	0.070	2.44	15
36.58	82.9	65.8	140.2	82.9	2.2	-2.1	2.8	5	silty SAND to sandy SILT	120	3.0	22	28	15	53	37	-	-	25	0.200	2.35	16
36.75	89.3	70.8	137.7	89.2	2.2	-3.2	2.5	5	silty SAND to sandy SILT	120	3.0	24	30	16	56	38	-	-	22	0.200	2.30	16
36.91	80.5	63.7	148.4	80.4	2.5	-3.5	3.2	4	clayy SILT to silty CLAY	115	2.0	32	40	15	-	-	5.6	9.9	27	0.070	2.40	15
37.08	74.4	58.8	160.0	74.4	2.8	-3.6	3.9	4	clayy SILT to silty CLAY	115	2.0	29	37	14	-	-	5.2	9.9	30	0.070	2.49	15
37.24	78.1	61.6	157.8	78.0	2.8	-3.6	3.6	4	clayy SILT to silty CLAY	115	2.0	31	39	15	-	-	5.4	9.9	29	0.070	2.46	15
37.40	69.1	54.4	155.8	69.0	2.6	-3.9	3.9	4	clayy SILT to silty CLAY	115	2.0	27	35	13	-	-	4.8	9.9	32	0.070	2.52	15
37.57	65.1	51.2	153.8	65.1	2.5	-3.7	4.0	4	clayy SILT to silty CLAY	115	2.0	26	33	13	-	-	4.5	9.9	33	0.070	2.54	15
37.73	65.8	51.7	149.6	65.7	2.4	-3.8	3.8	4	clayy SILT to silty CLAY	115	2.0	26	33	13	-	-	4.5	9.9	32	0.070	2.52	15
37.90	75.3	59.0	128.9	75.2	1.9	-3.8	2.6	5	silty SAND to sandy SILT	120	3.0	20	25	13	50	36	-	-	25	0.200	2.37	16
38.06	77.4	60.6	111.6	77.3	1.4	-3.8	1.9	5	silty SAND to sandy SILT	120	3.0	20	26	13	50	37	-	-	21	0.200	2.26	16
38.22	88.8	69.5	120.5	88.8	1.7	-3.8	1.9	5	silty SAND to sandy SILT	120	3.0	23	30	15	55	37	-	-	20	0.200	2.23	16
38.39	69.4	54.2	134.3	69.4	2.0	-4.1	3.0	4	clayy SILT to silty CLAY	115	2.0	27	35	13	-	-	4.8	9.9	28	0.070	2.44	15
38.55	49.1	31.7	-	49.0	2.1	-4.1	4.4	3	silty CLAY to CLAY	115	1.5	21	33	9	-	-	3.4	9.9	42	0.005	2.73	15
38.72	39.3	25.2	-	39.2	2.0	-3.8	5.3	3	silty CLAY to CLAY	115	1.5	17	26	7	-	-	2.7	7.8	49	0.005	2.86	15
38.88	36.2	23.2	-	36.2	1.5	-3.5	4.4	3	silty CLAY to CLAY	115	1.5	15	24	7	-	-	2.5	7.2	48	0.005	2.83	15
39.04	47.8	30.6	-	47.8	1.3	-2.8	2.8	4	clayy SILT to silty CLAY	115	2.0	15	24	8	-	-	3.3	9.6	36	0.070	2.61	15
39.21	102.4	79.4	107.1	102.4	1.2	-3.0	1.2	6	clean SAND to silty SAND	125	5.0	16	20	16	59	38	-	-	14	0.350	2.03	16
39.37	123.6	95.7	114.2	123.6	1.1	-3.4	0.9	6	clean SAND to silty SAND	125	5.0	19	25	18	66	39	-	-	10	0.350	1.90	16
39.54	158.6	122.6	130.4	158.5	1.0	-3.2	0.7	6	clean SAND to silty SAND	125	5.0	25	32	22	74	41	-	-	7	0.350	1.74	16
39.70	171.1	132.1	135.4	171.1	1.0	-3.0	0.6	6	clean SAND to silty SAND	125	5.0	26	34	23	76	41	-	-	6	0.350	1.68	16
39.86	151.7	116.9	132.5	151.6	1.4	-2.8	0.9	6	clean SAND to silty SAND	125	5.0	23	30	22	72	40	-	-	9	0.350	1.84	16
40.03	163.7	126.0	144.8	163.7	1.7	-0.3	1.1	6	clean SAND to silty SAND	125	5.0	25	33	23	75	41	-	-	9	0.350	1.86	16
40.19	169.1	129.9	154.4	169.2	2.1	2.6	1.3	6	clean SAND to silty SAND	125	5.0	26	34	25	76	41	-	-	10	0.350	1.90	16
40.36	192.1	147.3	162.4	192.1	1.9	-0.5	1.0	6	clean SAND to silty SAND	125	5.0	29	38	27	80	41	-	-	8	0.350	1.79	16
40.52	197.8	151.4	151.4	197.7	1.1	-1.8	0.6	6	clean SAND to silty SAND	125	5.0	30	40	26	81	42	-	-	5	0.350	1.63	16
40.68	198.8	151.9	151.9	198.7	1.1	-2.6	0.5	6	clean SAND to silty SAND	125	5.0	30	40	26	81	42	-	-	5	0.350	1.61	16
40.85	180.2	137.5	154.9	180.1	1.9	-2.7	1.1	6	clean SAND to silty SAND	125	5.0	28	36	25	78	41	-	-	9	0.350	1.83	16
41.01	128.5	97.9	137.2	128.5	2.1	-2.8	1.7	5	silty SAND to sandy SILT	120	3.0	33	43	20	66	39	-	-	15	0.200	2.07	16
41.18	70.6	53.7	126.1	70.6	1.8	-2.7	2.7	5	silty SAND to sandy SILT	120	3.0	18	24	13	47	36	-	-	27	0.200	2.41	16
41.34	45.2	27.7	-	45.1	2.0	-2.3	4.7	3	silty CLAY to CLAY	115	1.5	18	30	8	-	-	3.1	8.6	46	0.005	2.79	15
41.50	38.7	23.6	-	38.6	1.7	-1.9	4.6	3	silty CLAY to CLAY	115	1.5	16	26	7	-	-	2.6	7.3	49	0.005	2.84	15
41.67	40.6	24.7	-	40.6	1.4	-1.3	3.7	4	clayy SILT to silty CLAY	115	2.0	12	20	7	-	-	2.8	7.7	44	0.070	2.76	15
41.83	33.6	20.4	-	33.6	1.0	-0.4	3.3	4	clayy SILT to silty CLAY	115	2.0	10	17	6	-	-	2.3	6.2	46	0.070	2.80	15
42.00	26.8	16.2	-	26.8	0.8	0.1	3.3	3	silty CLAY to CLAY	115	1.5	11	18	5	-	-	1.8	4.9	51	0.005	2.88	15
42.16	22.5	13.6	-	22.5	0.6	0.3	3.2	3	silty CLAY to CLAY	115	1.5	9	15	4	-	-	1.5	4.0	55	0.005	2.95	15
42.32	21.0	12.6	-	21.0	0.6	0.5	3.0	3	silty CLAY to CLAY	115	1.5	8	14	4	-	-	1.4	3.7	56	0.005	2.96	15
42.49	20.3	12.2	-	20.3	1.0	0.8	5.7	3	silty CLAY to CLAY	115	1.5	8	14	4	-	-	1.3	3.5	69	0.005	3.14	15
42.65	19.9	11.9	-	19.9	1.4	1.0	7.8	3	silty CLAY to CLAY	115	1.5	8	13	4	-	-	1.3	3.4	76	0.005	3.24	15
42.82	45.6	27.3	-	45.7	1.4	1.5	3.3	4	clayy SILT to silty CLAY	115	2.0	14	23	7	-	-	3.1	8.5	40	0.070	2.70	15
42.98	107.6	80.7	94.0	107.6	0.7	1.0	0.6	6	clean SAND to silty SAND	125	5.0	16	22	15	60	38	-	-	10	0.350	1.87	16
43.15	146.9	110.0	116.3	146.9	0.8	-0.8	0.6	6	clean SAND to silty SAND	125	5.0	22	29	20	70	40	-	-	7	0.350	1.73	16
43.31	157.9	118.1	133.2	157.9	1.4	-1.7	0.9	6	clean SAND to silty SAND	125	5.0	24	32	22	72	40	-	-	9	0.350	1.83	16
43.47	120.6	90.0	140.4	120.6	2.4	2.0	2.0	5	silty SAND to sandy SILT	120	3.0	30	40	19	64	39	-	-	17	0.200	2.15	16
43.64	100.5	75.0	158.2	100.5	3.0	0.4	3.1	5	silty SAND to sandy SILT	120	3.0	25	34	17	57	38	-	-	24	0.200	2.35	16
43.80	73.8	54.9	142.5	73.7	2.4	-2.9	3.3	4	clayy SILT to silty CLAY	115	2.0	27	37	13	-	-	5.1	9.9	29	0.070	2.46	15
43.97	48.7	28.6	-	48.7	2.1	-3.1	4.6	3	silty CLAY to CLAY	115	1.5	19	32	8	-	-	3.3	8.9	45	0.005	2.78	15
44.13	32.5	19.0	-	32.5	1.7	-2.2	5.7	3	silty CLAY to CLAY	115	1.5	13	22	6	-	-	2.2	5.8	57	0.005	2.98	15
44.29	44.7	26.1	-	44.7	1.2	-1.6	2.8	4	clayy SILT to silty CLAY	115	2.0	13	22	7	-	-	3.0	8.1	38	0.070	2.66	15
44.46	98.0	72.6	98.8	97.9	1.0	-1.9	1.1	6	clean SAND to silty SAND	125	5.0	15	20	14	56	37	-	-	14	0.350	2.04	16
44.62	111.7	82.6	112.6	111.6	1.4	-2.6	1.3	5	silty SAND to sandy SILT	120	3.0	28	37	16	61	38	-	-	14	0.200	2.04	16
44.79	112.3	82.9	109.3	112.2	1.2	-2.7	1.1	6	clean SAND to silty SAND	125	5.0	17	22	16	61	38	-	-	13	0.350	2.01	16
44.95	105.1	77.5	131.9	105.1	2.1	-3.3	2.1	5	silty SAND to sandy SILT	120	3.0	26	35	17	59	38	-	-	19	0.200	2.21	16
45.11	77.7	57.2	150.8	77.6	2.7	-3.9	3.5	4	clayy SILT to silty CLAY	115	2.0	29	39	14	-	-	5.4	9.9	29	0.070	2.47	15
45.28	72.1	41.3	-	72.0	2.7	-1.2	3.9	4	clayy SILT to silty CLAY	115	2.0	21	36	11	-	-	5.0	9.9	35	0.070	2.60	15
45.44	57.4	32.9	-	57.4	2.2	-1.8	4.0	4	clayy SILT to silty CLAY	115	2.0	16	29	9	-	-	3.9	9.9	40	0.070	2.69	15
45.61	45.6	26.0	-	45.5	1.8	-1.8	4.3	3	silty CLAY to CLAY	115	1.5	17	30	7	-	-	3.1	8.1	45	0.005	2.78	15
45.77	48.6	27.7	-	48.6	1.6	-1.3	3.5	4	clayy SILT to silty CLAY	115	2.0	14	24	7	-	-	3.3	8.6	41	0.070	2.71	15
45.93	44.4	25.2	-	44.4	1.9	-1.4	4.6	3	silty CLAY to CLAY	115	1.5	17	30	7	-	-	3.0	7.8	47	0.005	2.81	15
46.10	51.3	29.1	-	51.3	2.0	-0.8	4.1	4	clayy SILT to silty CLAY	115	2.0	15	26	8	-	-	3.5	9.1	42	0.070	2.73	15
46.26	40.4	22.8	-	40.4	1.8	-1.2	4.9	3	silty CLAY to CLAY	115	1.5	15	27	7	-	-	2.7	7.0	50	0.005	2.87	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: BAGG Engineering
Data File: SDF(864).cpt
CPT Date: 7/26/2023 10:51:49 AM
GW During Test: 15 ft

Sounding ID: CPT-03
Project No: COUSM-23-03
Cone/Rig: DDG1589

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR - -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
46.43	87.7	64.0	121.7	87.7	1.8	-0.6	2.1	5	silty SAND to sandy SILT	120	3.0	21	29	14	52	37	-	-	22	0.200	2.28	16
46.59	107.9	78.6	118.4	107.9	1.7	-1.6	1.6	5	silty SAND to sandy SILT	120	3.0	26	36	16	59	38	-	-	17	0.200	2.13	16
46.75	115.5	84.0	117.8	115.5	1.6	-1.8	1.4	5	silty SAND to sandy SILT	120	3.0	28	39	17	61	38	-	-	15	0.200	2.07	16
46.92	112.9	82.0	122.1	112.8	1.8	-2.2	1.6	5	silty SAND to sandy SILT	120	3.0	27	38	17	60	38	-	-	16	0.200	2.12	16
47.08	108.4	78.6	123.6	108.4	1.9	-2.3	1.8	5	silty SAND to sandy SILT	120	3.0	26	36	16	59	38	-	-	18	0.200	2.16	16
47.25	104.4	75.6	133.5	104.4	2.2	-2.5	2.2	5	silty SAND to sandy SILT	120	3.0	25	35	16	58	37	-	-	20	0.200	2.24	16
47.41	82.2	59.5	140.2	82.2	2.4	-2.8	3.0	4	clayy SILT to silty CLAY	115	2.0	30	41	14	-	-	5.7	9.9	27	0.070	2.41	15
47.57	57.9	32.0	-	57.8	2.2	-3.3	4.0	4	clayy SILT to silty CLAY	115	2.0	16	29	9	-	-	4.0	9.9	40	0.070	2.69	15
47.74	44.8	24.7	-	44.8	2.2	-3.1	5.3	3	silty CLAY to CLAY	115	1.5	16	30	7	-	-	3.0	7.7	50	0.005	2.87	15
47.90	37.6	20.7	-	37.6	2.1	-2.9	6.1	3	silty CLAY to CLAY	115	1.5	14	25	6	-	-	2.5	6.3	56	0.005	2.97	15
48.07	36.6	20.1	-	36.6	1.5	-2.7	4.6	3	silty CLAY to CLAY	115	1.5	13	24	6	-	-	2.5	6.1	52	0.005	2.89	15
48.23	43.3	23.7	-	43.2	1.5	-2.7	3.8	4	clayy SILT to silty CLAY	115	2.0	12	22	7	-	-	2.9	7.3	45	0.070	2.78	15
48.39	39.5	21.6	-	39.4	1.7	-2.8	4.6	3	silty CLAY to CLAY	115	1.5	14	26	6	-	-	2.7	6.6	50	0.005	2.87	15
48.56	28.8	15.7	-	28.7	1.8	-2.5	7.0	3	silty CLAY to CLAY	115	1.5	10	19	5	-	-	1.9	4.7	66	0.005	3.10	15
48.72	46.2	25.2	-	46.2	1.8	-2.1	4.2	3	silty CLAY to CLAY	115	1.5	17	31	7	-	-	3.1	7.8	45	0.005	2.79	15
48.89	62.6	44.8	112.7	62.5	1.5	-2.5	2.5	5	silty SAND to sandy SILT	120	3.0	15	21	11	40	34	-	-	28	0.200	2.45	16
49.05	34.6	18.7	-	34.5	1.5	-2.6	4.8	3	silty CLAY to CLAY	115	1.5	12	23	6	-	-	2.3	5.7	54	0.005	2.94	15
49.22	29.5	16.0	-	29.5	1.6	-2.3	6.2	3	silty CLAY to CLAY	115	1.5	11	20	5	-	-	2.0	4.7	63	0.005	3.06	15
49.38	27.9	15.0	-	27.8	1.7	-2.0	6.9	3	silty CLAY to CLAY	115	1.5	10	19	5	-	-	1.8	4.4	67	0.005	3.12	15
49.54	34.9	18.8	-	34.8	2.0	-1.9	6.1	3	silty CLAY to CLAY	115	1.5	13	23	6	-	-	2.3	5.7	59	0.005	3.00	15
49.71	36.9	19.8	-	36.8	2.0	-1.9	5.9	3	silty CLAY to CLAY	115	1.5	13	25	6	-	-	2.5	6.0	57	0.005	2.97	15
49.87	32.1	17.2	-	32.1	1.7	-1.9	5.9	3	silty CLAY to CLAY	115	1.5	11	21	6	-	-	2.1	5.2	60	0.005	3.02	15
50.04	30.6	16.3	-	30.5	1.8	-1.6	6.5	3	silty CLAY to CLAY	115	1.5	11	20	5	-	-	2.0	4.9	63	0.005	3.07	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

BAGG Engineering

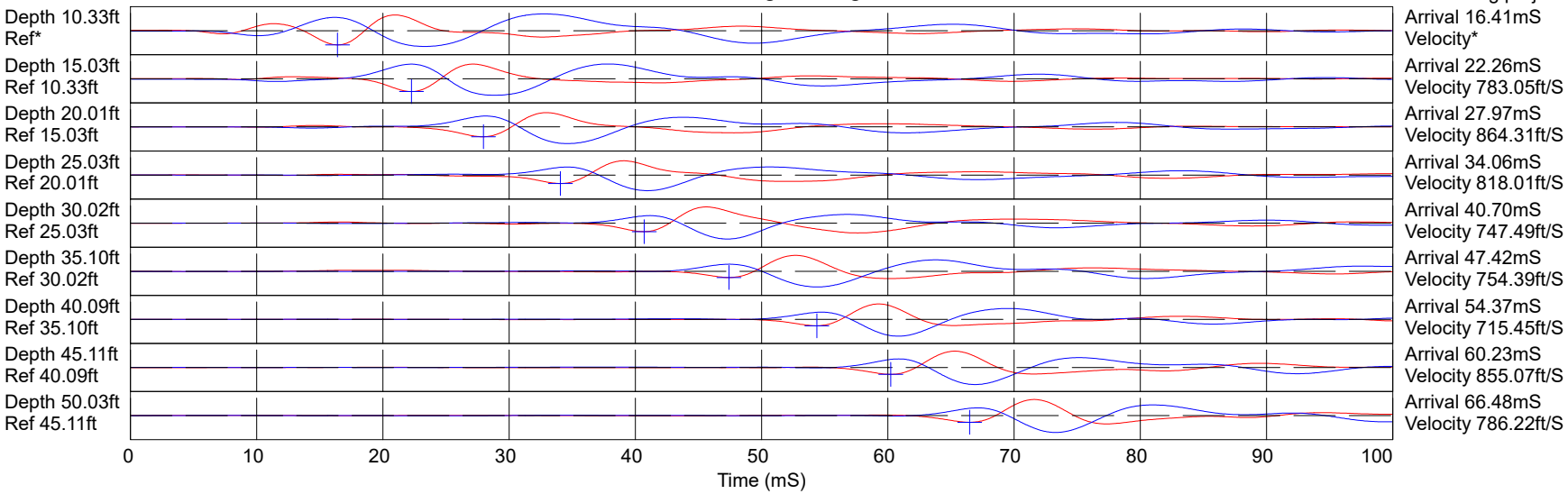
Location	SMC-HMB Farmworker Housing projec	Operator	AJ-ER	
Job Number	COUSM-23-03	Cone Number	DDG1589	GPS
Hole Number	CPT-03	Date and Time	7/26/2023 10:51:49 AM	
Equilized Pressure	2.9	EST GW Depth During Test	15.1	



CPT-03

BAGG Engineering

SMC-HMB Farmworker Housing project



Hammer to Rod String Distance (ft): 2.67

* = Not Determined

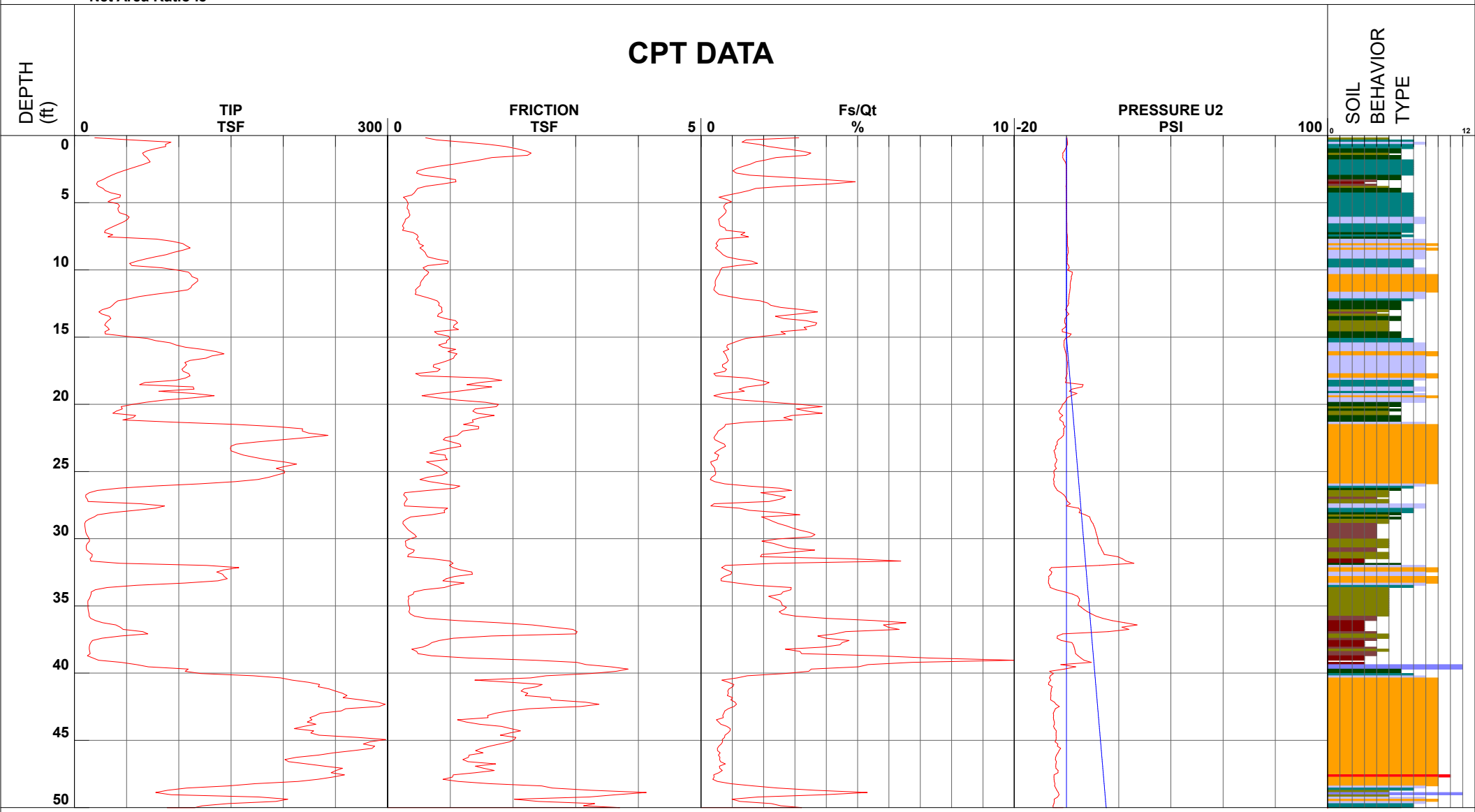
COMMENT:

BAGG Engineering

Project	SMC-HMB Farmworker Housing project	Operator	AJ-ER	Filename	SDF(863).cpt
Job Number	COUSM-23-03	Cone Number	DDG1589	GPS	
Hole Number	CPT-04	Date and Time	7/26/2023 10:01:25 AM	Maximum Depth	50.52 ft
EST GW Depth During Test		15.00 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Cone Size 15cm²

S*Soil behavior type and SPT based on data from UBC-1983

SMC-HMB Farmworker Housing project

Project ID: BAGG Engineering
Data File: SDF(863).cpt
CPT Date: 7/26/2023 10:01:25 AM
GW During Test: 15 ft

Sounding ID: CPT-04
Project No: COUSM-23-03
Cone/Rig: DDG1589

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
0.33	53.8	86.3	120.2	53.8	0.8	0.2	1.4	5	silty SAND to sandy SILT	120	3.0	29	18	17	62	48	-	-	15	0.200	2.06	16
0.49	92.5	148.4	171.7	92.5	1.2	0.4	1.3	6	clean SAND to silty SAND	125	5.0	30	19	28	80	48	-	-	10	0.350	1.86	16
0.66	87.2	139.9	180.1	87.2	1.6	0.4	1.8	6	clean SAND to silty SAND	125	5.0	28	17	27	78	48	-	-	13	0.350	1.99	16
0.82	87.5	140.3	190.2	87.5	1.9	0.0	2.2	5	silty SAND to sandy SILT	120	3.0	47	29	28	78	48	-	-	14	0.200	2.04	16
0.98	77.4	124.2	191.5	77.4	2.1	-0.4	2.7	5	silty SAND to sandy SILT	120	3.0	41	26	26	74	48	-	-	17	0.200	2.14	16
1.15	69.3	111.2	195.6	69.3	2.2	-0.8	3.2	5	silty SAND to sandy SILT	120	3.0	37	23	24	71	48	-	-	20	0.200	2.24	16
1.31	65.2	104.6	199.1	65.2	2.3	-1.4	3.5	5	silty SAND to sandy SILT	120	3.0	35	22	23	68	48	-	-	22	0.200	2.29	16
1.48	66.6	106.7	196.4	66.5	2.2	-1.4	3.4	5	silty SAND to sandy SILT	120	3.0	36	22	23	69	48	-	-	21	0.200	2.26	16
1.64	69.4	111.3	171.1	69.4	1.7	-1.4	2.4	5	silty SAND to sandy SILT	120	3.0	37	23	23	71	48	-	-	17	0.200	2.14	16
1.80	71.1	114.0	164.1	71.0	1.5	-1.0	2.1	5	silty SAND to sandy SILT	120	3.0	38	24	23	71	48	-	-	16	0.200	2.09	16
1.97	72.6	116.5	155.9	72.6	1.3	-0.5	1.8	5	silty SAND to sandy SILT	120	3.0	39	24	23	72	48	-	-	14	0.200	2.03	16
2.13	66.8	107.1	142.5	66.8	1.1	-0.2	1.6	5	silty SAND to sandy SILT	120	3.0	36	22	21	69	48	-	-	14	0.200	2.02	16
2.30	60.1	96.4	126.3	60.1	0.8	-0.1	1.3	6	clean SAND to silty SAND	125	5.0	19	12	19	66	48	-	-	13	0.350	2.01	16
2.46	53.4	85.7	111.2	53.4	0.6	-0.1	1.1	6	clean SAND to silty SAND	125	5.0	17	11	17	62	47	-	-	13	0.350	2.00	16
2.62	46.8	75.0	99.1	46.8	0.5	-0.1	1.0	6	clean SAND to silty SAND	125	5.0	15	9	15	58	46	-	-	13	0.350	2.02	16
2.79	40.6	65.2	93.7	40.6	0.5	0.0	1.1	5	silty SAND to sandy SILT	120	3.0	22	14	13	53	45	-	-	16	0.200	2.09	16
2.95	35.7	57.3	98.9	35.7	0.6	0.0	1.6	5	silty SAND to sandy SILT	120	3.0	19	12	12	49	44	-	-	20	0.200	2.22	16
3.12	31.3	50.2	122.2	31.3	0.9	0.0	2.8	4	clayy SILT to silty CLAY	115	2.0	25	16	12	-	-	2.2	9.9	28	0.070	2.43	15
3.28	27.2	43.6	141.4	27.2	1.1	0.0	4.0	4	clayy SILT to silty CLAY	115	2.0	22	14	11	-	-	1.9	9.9	35	0.070	2.59	15
3.45	22.1	35.5	-	22.1	1.1	0.1	5.0	3	silty CLAY to CLAY	115	1.5	24	15	10	-	-	1.5	9.9	41	0.005	2.72	15
3.61	21.2	34.0	-	21.2	0.9	0.0	4.1	4	clayy SILT to silty CLAY	115	2.0	17	11	9	-	-	1.5	9.9	39	0.070	2.67	15
3.77	23.0	36.8	106.2	23.0	0.6	-0.2	2.7	4	clayy SILT to silty CLAY	115	2.0	18	11	9	-	-	1.6	9.9	32	0.070	2.52	15
3.94	27.4	43.9	92.6	27.4	0.5	-0.1	1.8	5	silty SAND to sandy SILT	120	3.0	15	9	10	40	41	-	-	24	0.200	2.35	16
4.10	29.5	47.3	89.7	29.5	0.4	0.0	1.5	5	silty SAND to sandy SILT	120	3.0	16	10	10	42	41	-	-	22	0.200	2.28	16
4.27	35.0	56.2	88.9	35.0	0.4	0.0	1.2	5	silty SAND to sandy SILT	120	3.0	19	12	12	48	42	-	-	18	0.200	2.16	16
4.43	44.1	70.7	91.8	44.1	0.4	0.0	0.9	6	clean SAND to silty SAND	125	5.0	14	9	14	56	43	-	-	13	0.350	2.00	16
4.59	43.7	70.1	83.3	43.7	0.3	0.0	0.6	6	clean SAND to silty SAND	125	5.0	14	9	13	55	43	-	-	10	0.350	1.90	16
4.76	36.2	58.0	79.6	36.2	0.3	0.0	0.8	6	clean SAND to silty SAND	125	5.0	12	7	12	49	42	-	-	14	0.350	2.05	16
4.92	32.2	51.7	78.9	32.2	0.3	0.0	1.0	5	silty SAND to sandy SILT	120	3.0	17	11	11	45	41	-	-	17	0.200	2.14	16
5.09	41.7	66.9	86.3	41.7	0.3	-0.1	0.8	6	clean SAND to silty SAND	125	5.0	13	8	13	54	42	-	-	13	0.350	1.99	16
5.25	43.3	69.4	86.9	43.3	0.3	-0.1	0.7	6	clean SAND to silty SAND	125	5.0	14	9	13	55	42	-	-	12	0.350	1.96	16
5.41	41.7	66.9	85.0	41.7	0.3	0.0	0.7	6	clean SAND to silty SAND	125	5.0	13	8	13	54	42	-	-	12	0.350	1.98	16
5.58	42.0	67.4	87.2	42.0	0.3	0.1	0.8	6	clean SAND to silty SAND	125	5.0	13	8	13	54	42	-	-	13	0.350	2.00	16
5.74	43.2	69.3	88.3	43.2	0.3	0.0	0.8	6	clean SAND to silty SAND	125	5.0	14	9	14	55	42	-	-	12	0.350	1.98	16
5.91	49.7	79.8	95.3	49.7	0.4	0.1	0.7	6	clean SAND to silty SAND	125	5.0	16	10	15	60	42	-	-	11	0.350	1.91	16
6.07	52.4	84.0	97.0	52.4	0.3	0.1	0.6	6	clean SAND to silty SAND	125	5.0	17	10	16	61	42	-	-	9	0.350	1.86	16
6.23	50.8	80.3	91.6	50.8	0.3	0.1	0.6	6	clean SAND to silty SAND	125	5.0	16	10	15	60	42	-	-	9	0.350	1.84	16
6.40	47.7	74.4	87.2	47.7	0.3	0.1	0.6	6	clean SAND to silty SAND	125	5.0	15	10	14	57	42	-	-	10	0.350	1.88	16
6.56	43.2	66.5	80.8	43.2	0.3	0.1	0.6	6	clean SAND to silty SAND	125	5.0	13	9	13	54	41	-	-	11	0.350	1.93	16
6.73	38.4	58.4	74.9	38.4	0.2	0.1	0.6	6	clean SAND to silty SAND	125	5.0	12	8	11	49	40	-	-	13	0.350	1.99	16
6.89	33.7	50.6	72.9	33.7	0.3	0.1	0.8	5	silty SAND to sandy SILT	120	3.0	17	11	10	45	39	-	-	16	0.200	2.09	16
7.05	29.7	44.1	68.5	29.7	0.2	0.1	0.8	5	silty SAND to sandy SILT	120	3.0	15	10	9	40	38	-	-	17	0.200	2.15	16
7.22	28.8	42.3	83.0	28.8	0.4	0.2	1.4	5	silty SAND to sandy SILT	120	3.0	14	10	9	39	38	-	-	23	0.200	2.30	16
7.38	36.7	53.3	88.4	36.7	0.5	0.3	1.3	5	silty SAND to sandy SILT	120	3.0	18	12	11	46	39	-	-	19	0.200	2.20	16
7.55	32.1	46.0	89.1	32.1	0.5	0.4	1.5	5	silty SAND to sandy SILT	120	3.0	15	11	10	41	39	-	-	22	0.200	2.30	16
7.71	78.7	111.7	118.5	78.7	0.5	0.3	0.6	6	clean SAND to silty SAND	125	5.0	22	16	20	71	43	-	-	7	0.350	1.73	16
7.87	93.9	131.8	132.4	93.9	0.5	0.3	0.5	6	clean SAND to silty SAND	125	5.0	26	19	23	76	44	-	-	5	0.350	1.65	16
8.04	103.7	144.1	144.1	103.7	0.5	0.3	0.5	6	clean SAND to silty SAND	125	5.0	29	21	24	79	44	-	-	5	0.350	1.60	16
8.20	107.0	147.2	147.2	107.0	0.6	0.4	0.5	6	clean SAND to silty SAND	125	5.0	29	21	25	80	44	-	-	5	0.350	1.61	16
8.37	110.9	150.9	150.9	110.9	0.5	0.6	0.5	6	clean SAND to silty SAND	125	5.0	30	22	25	81	44	-	-	5	0.350	1.57	16
8.53	104.0	140.2	140.2	104.0	0.6	0.6	0.5	6	clean SAND to silty SAND	125	5.0	28	21	24	78	44	-	-	5	0.350	1.63	16
8.69	95.0	126.8	132.3	95.0	0.6	0.7	0.6	6	clean SAND to silty SAND	125	5.0	25	19	22	75	43	-	-	6	0.350	1.71	16
8.86	88.2	116.6	126.1	88.2	0.6	0.4	0.7	6	clean SAND to silty SAND	125	5.0	23	18	21	72	43	-	-	7	0.350	1.76	16
9.02	77.2	101.1	116.5	77.2	0.6	0.3	0.8	6	clean SAND to silty SAND	125	5.0	20	15	19	67	42	-	-	9	0.350	1.86	16
9.19	68.0	88.3	113.9	68.0	0.8	0.3	1.1	6	clean SAND to silty SAND	125	5.0	18	14	17	63	42	-	-	13	0.350	1.99	16
9.35	59.5	76.5	117.5	59.5	1.0	0.2	1.6	5	silty SAND to sandy SILT	120	3.0	25	20	16	58	41	-	-	17	0.200	2.14	16
9.51	52.9	67.4	114.9	52.9	1.0	0.3	1.8	5	silty SAND to sandy SILT	120	3.0	22	18	14	54	40	-	-	19	0.200	2.21	16
9.68	55.1	69.6	98.9	55.1	0.6	0.8	1.2	5	silty SAND to sandy SILT	120	3.0	23	18	14	55	40	-	-	15	0.200	2.08	16
9.84	83.6	104.9	115.6	83.7	0.6	1.1	0.7	6	clean SAND to silty SAND	125	5.0	21	17	19	69	42	-	-	8	0.350	1.79	16
10.01	98.4	122.3	128.2	98.4	0.6	0.4	0.6	6	clean SAND to silty SAND	125	5.0	24	20	22	74	43	-	-	6	0.350	1.72	16
10.17	109.1	134.5	137.4	109.2	0.7	2.2	0.6	6	clean SAND to silty SAND	125	5.0	27	22	23	77	43	-	-	6	0.350	1.68	16
10.34	111.4	136.3	137.4	111.5	0.6	2.2	0.6	6	clean SAND to silty SAND	125	5.0	27	22	24	77	43	-	-	5	0.350	1.66	16
10.50	112.5	136.5	136.5	112.6	0.6	1.8	0.5	6	clean SAND to silty SAND	125	5.0	27	23	24	77	43	-	-	5	0.350	1.64	16
10.66	117.9	141.9	141.9	117.9	0.6	1.8	0.5	6	clean SAND to silty SAND	125	5.0	28	24	24	79	44	-	-	5	0.350	1.60	16
10.83	118.2	141.1	141.1	118.2	0.5	1.6	0.5	6	clean SAND to silty SAND	125	5.0	28	24	24	78	43	-	-	5	0.350	1.59	16
10.99	115.4	136.8	136.8	115.5	0.5	1.5	0.5	6	clean SAND to silty SAND	125	5.0	27	23	23	77	43	-	-	5	0.350	1.60	16
11.16	112.6	132.5	132.5	112.7	0.5	1.4	0.5	6	clean SAND to silty SAND	125	5.0	26	23	23	76	43	-	-	5	0.350	1.62	16
11.32	111.6	130.3	130.3	111.7	0.5	1.4	0.4	6	clean SAND to silty SAND	125	5.0	26	22	22	76	43	-	-	5	0.350	1.60	16
11.48	108.5	125.8	125.8	108.6	0.4	1.3	0.4	6	clean SAND to silty SAND	125	5.0	25	22	21	75	43	-	-	5	0.350	1.61	16
11.65	94.4	108.6	112.5	94.4	0.5	1.3	0.5	6	clean SAND to silty SAND	125	5.0	22	19	19	70	42	-	-	6	0.350	1.70	16
11.81	77.1	88.1	98.6	77.2	0.4	1.0	0.6	6	clean SAND to silty SAND	125	5.0	18	15	16	63	41	-	-	8	0.350	1.82	16
11.98	62.4	70.8	93.1	62.4	0.6	1.0	0.9	6	clean SAND to silty SAND	125	5.0	14	12	14	56	40	-	-	13	0.350	2.01	16
12.14	52.7	59.4	94.8	52.8	0.7	0.9	1.3	5	silty SAND to sandy SILT	120	3.0	20	18	12	50	39	-	-	18	0.200	2.17	16
12.30	41.6	46.5	99.5	41.6	0.8	0.7	1.9	5	silty SAND to sandy SILT	120	3.0	16	14	11	42	37	-	-	25	0.200	2.35	16
12.47	38.6	43.0	102.0	38.7	0.8	0.8	2.2	5	silty SAND to sandy SILT	120	3.0	14	13	10	39	37	-	-	27	0.200	2.41	16
12.63	36.5	40.3	101.7	36.5	0.8	0.6	2.3	5	silty SAND to sandy SILT	120	3.0	13	12	10	37	36	-	-	28	0.200	2.45	16
12.80	34.0	37.3	105.9	34.0	0.9	0.0	2.6	4	clayy SILT to silty CLAY	115	2.0	19	17	9	-	-	2.3	9.9	31	0.070	2.51	15
12.96	26.7	33.6	-	26.6	0.9	-0.4	3.3	4	clayy SILT to silty CLAY	115	2.0	17	13	9	-	-	1.8	9.9	36	0.070	2.62	15
13.12	23.5	29.3	-	23.5	0.9	0.2	3.9	4	clayy SILT to silty CLAY	115	2.0	15	12	8	-	-	1.6	9.3	41	0.070	2.71	15
13.29	26.3	32.4	-	26.3	0.8	0.9	3.2	4	clayy SILT to silty CLAY	115	2.0	16	13	8	-	-	1.8	9.9	36	0.070	2.62	15
13.45	33.5	35.9	100.8	33.5	0.8	0.0	2.4	4	clayy SILT to silty CLAY	115	2.0	18	17	9	-	-	2.3	9.9	31	0.070	2.51	15
13.62	34.8	37.1	107.7	34.8	0.9	-0.6	2.7	4	clayy SILT to silty CLAY	115	2.0	19	17	9	-	-	2.4	9.9	32	0.070	2.53	15
13.78	32.3	35.9	-	32.3	1.1	-0.7	3.4	4	clayy SILT to silty CLAY	115	2.0	18	16	9	-	-	2.2	9.9	36	0.070	2.61	15
13.94	30.2	35.6	-	30.2	1.1	-0.7	3.8	4	clayy SILT to silty CLAY	115	2.0	18	15	9	-	-	2.1	9.9	37	0.070	2.64	15
14.11	29.0	33.8	-	29.0	1.1	-0.2	3.8	4	clayy SILT to silty CLAY	115	2.0	17	15	9	-	-	2.0	9.9	38	0.070	2.65	15
14.27	31.8	34.6	-	31.8	1.0	-0.5	3.4	4	clayy SILT to silty CLAY	115	2.0	17	16	9	-	-	2.2	9.9	36	0.070	2.61	15
14.44	33.5	36.1	-	33.5	1.1	-1.6	3.5	4	clayy SILT to silty CLAY	115	2.0	18	17	9	-	-	2.3	9.9	36	0.070	2.61	15
14.60	29.3	30.2	98.5	29.2	0.7	-1.6	2.6	4	clayy SILT to silty CLAY	115	2.0	15	15	8	-	-	2.0	9.9	35	0.070	2.59	15
14.76	29.6	31.4	102.7	29.6	0.8	1.8	2.8	4	clayy SILT to silty CLAY	115	2.0	16	15	8	-	-	2.0	9.9	35	0.070	2.59	15
14.93	48.4	49.4	105.0	48.5	1.0	1.2	2.0	5	silty SAND to sandy SILT	120	3.0	16	16	11	44	37	-	-	24	0.200	2.35	16
15.09	69.5	70.8	107.5	69.5	1.0	-0.4	1.5	5	silty SAND to sandy SILT	120	3.0	24	23	15	56	39	-	-	17	0.200	2.13	16
15.26	77.7	78.9	108.2	77.6	0.9	-0.9	1.2	5	silty SAND to sandy SILT	120	3.0	26	26	16	59	40	-	-	14	0.200	2.05	16
15.42	91.5	92.6	114.8	91.4	0.9	-0.9	1.0	6	clean SAND to silty SAND	125	5.0	19	18	18	64	40	-	-	12	0.350	1.95	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
15.58	97.3	98.3	114.5	97.3	0.8	-1.0	0.8	6	clean SAND to silty SAND	125	5.0	20	19	18	66	41	-	-	10	0.350	1.87	16
15.75	106.3	107.1	121.8	106.3	0.9	-0.9	0.8	6	clean SAND to silty SAND	125	5.0	21	21	20	69	41	-	-	9	0.350	1.84	16
15.91	122.5	123.0	137.3	122.5	1.1	-0.6	0.9	6	clean SAND to silty SAND	125	5.0	25	25	23	74	42	-	-	8	0.350	1.81	16
16.08	135.7	136.0	142.7	135.7	1.0	-0.4	0.7	6	clean SAND to silty SAND	125	5.0	27	27	24	77	42	-	-	6	0.350	1.72	16
16.24	143.3	143.2	150.8	143.3	1.1	-0.2	0.8	6	clean SAND to silty SAND	125	5.0	29	29	25	79	43	-	-	7	0.350	1.72	16
16.40	131.5	131.0	142.0	131.5	1.1	0.0	0.8	6	clean SAND to silty SAND	125	5.0	26	26	24	76	42	-	-	7	0.350	1.77	16
16.57	126.1	125.3	137.7	126.1	1.1	0.1	0.8	6	clean SAND to silty SAND	125	5.0	25	25	23	74	42	-	-	8	0.350	1.79	16
16.73	110.7	109.7	125.4	110.7	1.0	0.2	0.9	6	clean SAND to silty SAND	125	5.0	22	22	20	70	41	-	-	9	0.350	1.85	16
16.90	105.7	104.5	119.4	105.7	0.9	0.4	0.8	6	clean SAND to silty SAND	125	5.0	21	21	19	68	41	-	-	9	0.350	1.85	16
17.06	107.5	105.9	116.8	107.5	0.7	0.3	0.7	6	clean SAND to silty SAND	125	5.0	21	21	19	69	41	-	-	8	0.350	1.79	16
17.23	105.4	103.6	115.0	105.4	0.7	0.3	0.7	6	clean SAND to silty SAND	125	5.0	21	21	19	68	41	-	-	8	0.350	1.81	16
17.39	102.9	100.9	116.2	102.9	0.8	0.2	0.8	6	clean SAND to silty SAND	125	5.0	20	21	19	67	41	-	-	9	0.350	1.86	16
17.55	104.3	102.0	115.6	104.3	0.8	0.2	0.8	6	clean SAND to silty SAND	125	5.0	20	21	19	68	41	-	-	9	0.350	1.84	16
17.72	109.5	106.8	108.6	109.5	0.4	0.2	0.4	6	clean SAND to silty SAND	125	5.0	21	22	19	69	41	-	-	6	0.350	1.67	16
17.88	110.8	107.8	111.9	110.8	0.5	0.0	0.5	6	clean SAND to silty SAND	125	5.0	22	22	19	69	41	-	-	6	0.350	1.70	16
18.05	106.3	103.2	137.3	106.3	1.6	-0.4	1.5	5	silty SAND to sandy SILT	120	3.0	34	35	20	68	41	-	-	14	0.200	2.02	16
18.21	96.9	93.8	140.4	96.9	1.8	-0.1	1.9	5	silty SAND to sandy SILT	120	3.0	31	32	19	65	40	-	-	17	0.200	2.12	16
18.37	67.5	65.2	123.6	67.5	1.5	-0.4	2.2	5	silty SAND to sandy SILT	120	3.0	22	23	14	53	38	-	-	22	0.200	2.28	16
18.54	62.4	60.2	115.2	62.6	1.3	6.4	2.1	5	silty SAND to sandy SILT	120	3.0	20	21	13	50	38	-	-	22	0.200	2.29	16
18.70	113.8	109.4	141.8	113.9	1.7	6.0	1.5	6	clean SAND to silty SAND	125	5.0	22	23	21	70	41	-	-	13	0.350	2.00	16
18.87	114.6	109.9	135.2	114.7	1.4	2.1	1.2	6	clean SAND to silty SAND	125	5.0	22	23	21	70	41	-	-	11	0.350	1.94	16
19.03	80.8	77.3	111.9	80.8	1.1	1.1	1.4	5	silty SAND to sandy SILT	120	3.0	26	27	16	58	39	-	-	16	0.200	2.10	16
19.19	114.6	109.4	119.9	114.7	0.8	4.0	0.7	6	clean SAND to silty SAND	125	5.0	22	23	20	70	41	-	-	8	0.350	1.79	16
19.36	133.9	127.5	127.5	133.9	0.5	1.8	0.4	6	clean SAND to silty SAND	125	5.0	25	27	22	75	42	-	-	5	0.350	1.60	16
19.52	113.4	107.7	118.8	113.4	0.8	0.3	0.7	6	clean SAND to silty SAND	125	5.0	22	23	20	69	41	-	-	8	0.350	1.80	16
19.69	85.9	81.4	112.6	85.9	1.1	-0.1	1.3	5	silty SAND to sandy SILT	120	3.0	27	29	16	60	39	-	-	15	0.200	2.06	16
19.85	68.4	64.6	126.3	68.4	1.6	-0.6	2.3	5	silty SAND to sandy SILT	120	3.0	22	23	14	53	38	-	-	23	0.200	2.30	16
20.01	55.5	52.3	137.3	55.4	1.8	-1.5	3.3	4	clayy SILT to silty CLAY	115	2.0	26	28	13	-	-	3.8	9.9	29	0.070	2.47	15
20.18	44.8	42.0	-	44.7	1.7	-1.7	4.0	4	clayy SILT to silty CLAY	115	2.0	21	22	11	-	-	3.1	9.9	35	0.070	2.60	15
20.34	45.9	43.1	123.9	45.9	1.4	-2.3	3.1	4	clayy SILT to silty CLAY	115	2.0	22	23	11	-	-	3.2	9.9	32	0.070	2.52	15
20.51	40.2	37.6	124.7	40.1	1.4	-2.9	3.5	4	clayy SILT to silty CLAY	115	2.0	19	20	10	-	-	2.8	9.9	35	0.070	2.60	15
20.67	36.9	34.2	-	36.8	1.4	-2.5	4.0	4	clayy SILT to silty CLAY	115	2.0	17	18	9	-	-	2.5	9.9	39	0.070	2.67	15
20.83	58.7	54.8	133.0	58.7	1.7	-1.4	3.0	4	clayy SILT to silty CLAY	115	2.0	27	29	13	-	-	4.1	9.9	28	0.070	2.43	15
21.00	56.0	52.2	124.1	55.9	1.5	-2.5	2.7	5	silty SAND to sandy SILT	120	3.0	17	19	12	46	37	-	-	27	0.200	2.42	16
21.16	46.4	43.1	121.2	46.3	1.4	-2.5	3.0	4	clayy SILT to silty CLAY	115	2.0	22	23	11	-	-	3.2	9.9	31	0.070	2.51	15
21.33	95.2	88.4	122.8	95.2	1.4	-1.3	1.5	5	silty SAND to sandy SILT	120	3.0	29	32	18	63	40	-	-	15	0.200	2.06	16
21.49	154.5	143.1	151.2	154.5	1.2	-1.2	0.8	6	clean SAND to silty SAND	125	5.0	29	31	25	79	42	-	-	7	0.350	1.73	16
21.65	192.3	177.7	177.8	192.3	1.5	-0.5	0.8	6	clean SAND to silty SAND	125	5.0	36	38	31	86	43	-	-	5	0.350	1.65	16
21.82	218.5	201.4	201.4	218.5	1.5	-1.1	0.7	6	clean SAND to silty SAND	125	5.0	40	44	34	90	44	-	-	5	0.350	1.57	16
21.98	218.3	200.7	200.7	218.2	1.2	-1.0	0.6	6	clean SAND to silty SAND	125	5.0	40	44	33	90	44	-	-	5	0.350	1.51	16
22.15	224.4	205.9	205.9	224.4	1.2	-1.1	0.5	6	clean SAND to silty SAND	125	5.0	41	45	34	91	44	-	-	5	0.350	1.49	16
22.31	243.0	222.4	222.4	242.9	1.1	-1.2	0.5	6	clean SAND to silty SAND	125	5.0	44	49	36	93	44	-	-	5	0.350	1.43	16
22.47	222.4	203.1	203.1	222.3	0.9	-2.0	0.4	6	clean SAND to silty SAND	125	5.0	41	44	33	90	44	-	-	5	0.350	1.44	16
22.64	199.3	181.6	181.6	199.2	0.9	-3.1	0.4	6	clean SAND to silty SAND	125	5.0	36	40	30	87	43	-	-	5	0.350	1.49	16
22.80	174.7	158.8	158.8	174.6	1.0	-3.6	0.6	6	clean SAND to silty SAND	125	5.0	32	35	27	82	43	-	-	5	0.350	1.61	16
22.97	154.7	140.3	147.7	154.7	1.2	-3.5	0.8	6	clean SAND to silty SAND	125	5.0	28	31	25	78	42	-	-	7	0.350	1.72	16
23.13	149.8	135.6	144.9	149.7	1.2	-4.2	0.8	6	clean SAND to silty SAND	125	5.0	27	30	24	77	42	-	-	7	0.350	1.75	16
23.30	149.4	134.9	139.5	149.3	1.0	-4.0	0.6	6	clean SAND to silty SAND	125	5.0	27	30	24	77	42	-	-	6	0.350	1.69	16
23.46	149.9	135.1	134.9	149.8	0.8	-4.8	0.5	6	clean SAND to silty SAND	125	5.0	27	30	23	77	42	-	-	5	0.350	1.64	16
23.62	155.7	140.0	140.0	155.6	0.7	-4.5	0.4	6	clean SAND to silty SAND	125	5.0	28	31	24	78	42	-	-	5	0.350	1.58	16
23.79	162.0	145.4	145.4	161.9	0.9	-4.3	0.6	6	clean SAND to silty SAND	125	5.0	29	32	25	79	42	-	-	5	0.350	1.64	16
23.95	172.5	154.4	154.4	172.4	0.9	-4.2	0.5	6	clean SAND to silty SAND	125	5.0	31	34	26	81	42	-	-	5	0.350	1.60	16
24.12	183.9	164.2	164.2	183.8	1.0	-3.7	0.5	6	clean SAND to silty SAND	125	5.0	33	37	28	83	43	-	-	5	0.350	1.57	16
24.28	200.4	178.6	178.6	200.3	0.6	-3.9	0.3	6	clean SAND to silty SAND	125	5.0	36	40	29	86	43	-	-	5	0.350	1.41	16
24.44	212.9	189.3	189.3	212.8	0.7	-4.4	0.3	6	clean SAND to silty SAND	125	5.0	38	43	30	88	43	-	-	5	0.350	1.41	16
24.61	202.1	179.4	179.4	202.1	0.8	-4.4	0.4	6	clean SAND to silty SAND	125	5.0	36	40	29	86	43	-	-	5	0.350	1.47	16
24.77	193.4	171.3	171.3	193.3	0.9	-3.8	0.4	6	clean SAND to silty SAND	125	5.0	34	39	28	85	43	-	-	5	0.350	1.51	16
24.94	201.0	177.6	177.6	200.9	0.9	-4.7	0.4	6	clean SAND to silty SAND	125	5.0	36	40	29	86	43	-	-	5	0.350	1.50	16
25.10	201.4	177.6	177.6	201.3	1.0	-4.8	0.5	6	clean SAND to silty SAND	125	5.0	36	40	29	86	43	-	-	5	0.350	1.52	16
25.26	193.8	170.5	170.5	193.7	0.9	-4.6	0.5	6	clean SAND to silty SAND	125	5.0	34	39	28	85	43	-	-	5	0.350	1.52	16
25.43	186.2	163.5	163.5	186.1	0.6	-4.7	0.3	6	clean SAND to silty SAND	125	5.0	33	37	27	83	43	-	-	5	0.350	1.47	16
25.59	175.7	153.9	153.9	175.6	0.5	-5.0	0.3	6	clean SAND to silty SAND	125	5.0	31	35	25	81	42	-	-	5	0.350	1.46	16
25.76	154.2	134.9	134.9	154.1	0.7	-4.8	0.4	6	clean SAND to silty SAND	125	5.0	27	31	23	77	42	-	-	5	0.350	1.60	16
25.92	119.7	104.5	117.8	119.6	0.9	-4.8	0.8	6	clean SAND to silty SAND	125	5.0	21	24	19	68	40	-	-	9	0.350	1.83	16
26.08	75.1	65.4	106.5	75.0	1.2	-4.6	1.6	5	silty SAND to sandy SILT	120	3.0	22	25	14	53	38	-	-	18	0.200	2.18	16
26.25	42.4	36.8	106.4	42.3	1.1	-4.0	2.6	4	clayy SILT to silty CLAY	115	2.0	18	21	9	-	-	2.9	9.9	32	0.070	2.52	15
26.41	22.1	17.6	-	22.0	0.6	-3.5	3.1	3	silty CLAY to CLAY	115	1.5	12	15	5	-	-	1.5	5.4	48	0.005	2.83	15
26.58	14.3	11.4	-	14.3	0.3	-2.1	2.2	3	silty CLAY to CLAY	115	1.5	8	10	3	-	-	0.9	3.3	53	0.005	2.91	15
26.74	10.9	8.6	-	10.9	0.3	-1.0	2.7	3	silty CLAY to CLAY	115	1.5	6	7	3	-	-	0.7	2.4	64	0.005	3.09	15
26.90	10.8	8.5	-	10.8	0.3	-0.3	3.2	3	silty CLAY to CLAY	115	1.5	6	7	3	-	-	0.7	2.4	68	0.005	3.13	15
27.07	12.4	9.8	-	12.4	0.3	0.0	2.9	3	silty CLAY to CLAY	115	1.5	7	8	3	-	-	0.8	2.8	62	0.005	3.05	15
27.23	13.1	10.2	-	13.1	0.3	0.4	2.5	3	silty CLAY to CLAY	115	1.5	7	9	3	-	-	0.8	2.9	58	0.005	2.99	15
27.40	63.2	54.3	67.0	63.3	0.3	1.5	0.4	6	clean SAND to silty SAND	125	5.0	11	13	10	47	37	-	-	11	0.350	1.94	16
27.56	86.3	74.0	80.0	86.3	0.3	0.0	0.3	6	clean SAND to silty SAND	125	5.0	15	17	13	57	38	-	-	7	0.350	1.76	16
27.72	77.6	66.4	98.9	77.7	1.0	4.7	1.3	5	silty SAND to sandy SILT	120	3.0	22	26	14	53	38	-	-	16	0.200	2.12	16
27.89	58.3	49.8	94.3	58.4	0.9	5.2	1.6	5	silty SAND to sandy SILT	120	3.0	17	19	11	44	36	-	-	22	0.200	2.28	16
28.05	36.5	28.1	-	36.6	0.9	4.8	2.6	4	clayy SILT to silty CLAY	115	2.0	14	18	7	-	-	2.5	8.9	36	0.070	2.62	15
28.22	22.1	17.0	-	22.3	0.7	7.1	3.4	3	silty CLAY to CLAY	115	1.5	11	15	5	-	-	1.5	5.2	50	0.005	2.87	15
28.38	19.0	14.5	-	19.2	0.4	8.9	2.1	4	clayy SILT to silty CLAY	115	2.0	7	10	4	-	-	1.3	4.4	47	0.070	2.81	15
28.54	14.0	10.7	-	14.2	0.3	9.1	2.4	3	silty CLAY to CLAY	115	1.5	7	9	3	-	-	0.9	3.1	57	0.005	2.97	15
28.71	10.8	8.2	-	10.9	0.2	9.5	2.7	3	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.7	2.3	66	0.005	3.11	15
28.87	9.8	7.5	-	10.0	0.2	10.1	3.0	3	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	2.0	71	0.005	3.18	15
29.04	10.0	7.6	-	10.2	0.3	10.5	3.3	3	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	2.1	72	0.005	3.19	15
29.20	10.3	7.7	-	10.5	0.3	10.8	3.5	3	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	2.1	73	0.005	3.20	15
29.36	10.6	7.9	-	10.8	0.3	11.1	3.8	3	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.7	2.2	73	0.005	3.20	15
29.53	11.0	8.2	-	11.2	0.4	11.3	4.1	3	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.7	2.3	74	0.005	3.21	15
29.69	11.8	8.8	-	12.0	0.4	11.6	4.3	3	silty CLAY to CLAY	115	1.5	6	8	3	-	-	0.7	2.5	72	0.005	3.19	15
29.86	13.1	9.7	-	13.3	0.5	11.8	4.1	3	silty CLAY to CLAY	115	1.5	6	9	3	-	-	0.8	2.8	68	0.005	3.14	15
30.02	14.4	10.6	-	14.6	0.4	12.0	2.8	3	silty CLAY to CLAY	115	1.5	7	10	3	-	-	0.9	3.1	59	0.005	3.01	15
30.19	14.4	10.6	-	14.7	0.3	12.1	2.2	3	silty CLAY to CLAY	115	1.5	7	10	3	-	-	0.9	3.1	55	0.005	2.95	15
30.35	12.5	9.2	-	12.7	0.3	12.3	2.7	3	silty CLAY to CLAY	115	1.5	6	8	3	-	-	0.8	2.6	63	0.005	3.06	15
30.51	11.3	8.3	-	11.6	0.3	12.7	3.0	3	silty CLAY to CLAY	115	1.5	6	8	3	-	-	0.7	2.3	68	0.005	3.13	15
30.68	11.3	8.3	-	11.6	0.3	13.2	3.3	3	silty CLAY to CLAY	115	1.5	6	8	3	-	-	0.7	2.3	70	0.005	3.16	15
30.84	11.7	8.6	-	12.0	0.4	13.5	4.3	3	silty CLAY to CLAY	115	1.5	6	8	3	-	-	0.7	2.4	73	0.005	3.20	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: BAGG Engineering
Data File: SDF(863).cpt
CPT Date: 7/26/2023 10:01:25 AM
GW During Test: 15 ft

Sounding ID: CPT-04
Project No: COUSM-23-03
Cone/Rig: DDG1589

Depth ft	qc PS tsf	qc1n PS - *	q1ncs PS -	qt PS tsf *	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60% *	SPT R-N 60% *	SPT IcN1 60% *	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR - *	Fin Ic % *	D50 - mm	Ic SBT Indx *	Nk -
31.01	14.3	10.4	-	14.5	0.4	14.0	3.3	3	silty CLAY to CLAY	115	1.5	7	10	3	-	-	0.9	3.0	62	0.005	3.06	15
31.17	17.1	12.4	-	17.4	0.3	14.4	2.2	4	clayy SILT to silty CLAY	115	2.0	6	9	4	-	-	1.1	3.6	51	0.070	2.88	15
31.33	16.8	12.1	-	17.2	0.3	19.6	2.1	4	clayy SILT to silty CLAY	115	2.0	6	8	4	-	-	1.1	3.6	51	0.070	2.89	15
31.50	15.0	10.8	-	15.4	0.7	21.4	5.5	3	silty CLAY to CLAY	115	1.5	7	10	4	-	-	1.0	3.1	71	0.005	3.17	15
31.66	15.6	11.2	-	16.0	1.0	22.8	7.3	3	silty CLAY to CLAY	115	1.5	7	10	4	-	-	1.0	3.2	76	0.005	3.24	15
31.83	43.3	35.6	103.6	43.8	1.0	25.9	2.5	4	clayy SILT to silty CLAY	115	2.0	18	22	9	-	-	3.0	9.8	32	0.070	2.53	15
31.99	126.4	103.7	117.9	126.7	1.0	12.7	0.8	6	clean SAND to silty SAND	125	5.0	21	25	19	68	40	-	-	9	0.350	1.84	16
32.15	157.5	129.0	135.5	157.4	1.0	-5.8	0.7	6	clean SAND to silty SAND	125	5.0	26	32	23	75	41	-	-	6	0.350	1.72	16
32.32	143.2	117.0	130.2	143.1	1.2	-6.5	0.8	6	clean SAND to silty SAND	125	5.0	23	29	21	72	41	-	-	8	0.350	1.81	16
32.48	136.4	111.2	130.2	136.2	1.3	-5.6	1.0	6	clean SAND to silty SAND	125	5.0	22	27	21	71	40	-	-	10	0.350	1.88	16
32.65	141.8	115.5	133.0	141.7	1.4	-5.9	1.0	6	clean SAND to silty SAND	125	5.0	23	28	22	72	40	-	-	9	0.350	1.86	16
32.81	143.5	116.6	127.9	143.3	1.1	-6.8	0.8	6	clean SAND to silty SAND	125	5.0	23	29	21	72	41	-	-	8	0.350	1.79	16
32.97	146.4	118.7	126.5	146.2	0.9	-6.7	0.6	6	clean SAND to silty SAND	125	5.0	24	29	21	73	41	-	-	7	0.350	1.74	16
33.14	137.5	111.4	120.4	137.4	0.9	-6.9	0.6	6	clean SAND to silty SAND	125	5.0	22	27	20	71	40	-	-	7	0.350	1.76	16
33.30	105.7	85.5	112.8	105.6	1.2	-6.9	1.2	6	clean SAND to silty SAND	125	5.0	17	21	17	62	39	-	-	13	0.350	2.01	16
33.47	59.5	48.0	98.0	59.3	1.0	-6.5	1.8	5	silty SAND to sandy SILT	120	3.0	16	20	11	43	35	-	-	24	0.200	2.33	16
33.63	31.4	21.6	-	31.2	0.9	-6.2	3.1	4	clayy SILT to silty CLAY	115	2.0	11	16	6	-	-	2.1	6.7	44	0.070	2.76	15
33.79	20.1	13.8	-	20.0	0.6	-4.0	3.2	3	silty CLAY to CLAY	115	1.5	9	13	4	-	-	1.3	4.1	54	0.005	2.94	15
33.96	16.1	11.0	-	16.0	0.4	-0.5	3.0	3	silty CLAY to CLAY	115	1.5	7	11	4	-	-	1.0	3.2	59	0.005	3.01	15
34.12	15.9	10.9	-	16.0	0.4	2.4	2.9	3	silty CLAY to CLAY	115	1.5	7	11	3	-	-	1.0	3.1	59	0.005	3.01	15
34.29	15.2	10.3	-	15.3	0.3	4.3	2.5	3	silty CLAY to CLAY	115	1.5	7	10	3	-	-	1.0	2.9	58	0.005	3.00	15
34.45	14.4	9.8	-	14.5	0.3	4.9	2.8	3	silty CLAY to CLAY	115	1.5	7	10	3	-	-	0.9	2.8	61	0.005	3.04	15
34.61	12.9	8.7	-	13.0	0.3	5.0	3.0	3	silty CLAY to CLAY	115	1.5	6	9	3	-	-	0.8	2.4	66	0.005	3.11	15
34.78	12.9	8.7	-	13.0	0.3	4.6	3.1	3	silty CLAY to CLAY	115	1.5	6	9	3	-	-	0.8	2.4	67	0.005	3.12	15
34.94	12.9	8.7	-	13.0	0.3	4.5	3.1	3	silty CLAY to CLAY	115	1.5	6	9	3	-	-	0.8	2.4	67	0.005	3.12	15
35.11	12.9	8.7	-	13.0	0.4	5.7	3.3	3	silty CLAY to CLAY	115	1.5	6	9	3	-	-	0.8	2.4	68	0.005	3.13	15
35.27	13.2	8.8	-	13.3	0.4	6.7	3.2	3	silty CLAY to CLAY	115	1.5	6	9	3	-	-	0.8	2.4	67	0.005	3.12	15
35.43	13.6	9.0	-	13.7	0.3	8.0	3.0	3	silty CLAY to CLAY	115	1.5	6	9	3	-	-	0.9	2.5	65	0.005	3.09	15
35.60	14.0	9.3	-	14.2	0.4	9.5	3.1	3	silty CLAY to CLAY	115	1.5	6	9	3	-	-	0.9	2.6	65	0.005	3.09	15
35.76	14.2	9.4	-	14.4	0.4	11.3	3.6	3	silty CLAY to CLAY	115	1.5	6	9	3	-	-	0.9	2.6	67	0.005	3.12	15
35.93	15.5	10.3	-	15.8	0.6	13.9	4.6	3	silty CLAY to CLAY	115	1.5	7	10	4	-	-	1.0	2.9	69	0.005	3.15	15
36.09	20.2	13.3	-	20.5	1.1	17.5	6.2	3	silty CLAY to CLAY	115	1.5	9	13	5	-	-	1.3	3.9	68	0.005	3.13	15
36.26	27.0	17.7	-	27.5	1.8	22.3	7.1	3	silty CLAY to CLAY	115	1.5	12	18	6	-	-	1.8	5.4	63	0.005	3.06	15
36.42	39.7	26.0	-	40.2	2.3	27.0	6.2	3	silty CLAY to CLAY	115	1.5	17	26	8	-	-	2.7	8.1	52	0.005	2.89	15
36.58	43.9	28.7	-	44.3	2.6	21.2	6.3	3	silty CLAY to CLAY	115	1.5	19	29	8	-	-	3.0	9.0	50	0.005	2.87	15
36.75	46.7	30.4	-	47.2	3.0	23.9	6.6	3	silty CLAY to CLAY	115	1.5	20	31	9	-	-	3.2	9.6	50	0.005	2.86	15
36.91	65.4	42.5	-	65.8	3.0	16.0	4.8	4	clayy SILT to silty CLAY	115	2.0	21	33	11	-	-	4.5	9.9	38	0.070	2.66	15
37.08	70.3	45.5	-	70.2	3.0	-1.4	4.4	4	clayy SILT to silty CLAY	115	2.0	23	35	12	-	-	4.9	9.9	36	0.070	2.61	15
37.24	44.3	28.6	-	44.3	1.7	-3.5	3.9	4	clayy SILT to silty CLAY	115	2.0	14	22	8	-	-	3.0	9.0	42	0.070	2.73	15
37.40	26.3	17.0	-	26.3	1.1	-3.6	4.4	3	silty CLAY to CLAY	115	1.5	11	18	5	-	-	1.8	5.1	55	0.005	2.94	15
37.57	17.4	11.2	-	17.4	0.8	-2.0	5.4	3	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.1	3.2	70	0.005	3.16	15
37.73	15.7	10.0	-	15.7	0.7	2.0	5.3	3	silty CLAY to CLAY	115	1.5	7	10	4	-	-	1.0	2.8	73	0.005	3.19	15
37.90	14.7	9.4	-	14.8	0.7	2.6	5.2	3	silty CLAY to CLAY	115	1.5	6	10	3	-	-	0.9	2.6	75	0.005	3.22	15
38.06	14.3	9.1	-	14.4	0.6	2.9	4.7	3	silty CLAY to CLAY	115	1.5	6	10	3	-	-	0.9	2.5	73	0.005	3.20	15
38.22	14.3	9.1	-	14.3	0.4	3.1	3.2	3	silty CLAY to CLAY	115	1.5	6	10	3	-	-	0.9	2.5	66	0.005	3.11	15
38.39	14.7	9.3	-	14.7	0.5	3.3	3.7	3	silty CLAY to CLAY	115	1.5	6	10	3	-	-	0.9	2.6	68	0.005	3.14	15
38.55	15.1	9.5	-	15.2	0.5	3.5	3.8	3	silty CLAY to CLAY	115	1.5	6	10	3	-	-	1.0	2.7	68	0.005	3.13	15
38.72	12.4	7.8	-	12.5	0.7	4.4	7.0	3	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.8	2.1	87	0.005	3.37	15
38.88	17.8	11.2	-	17.9	1.3	5.5	8.4	3	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.1	3.2	79	0.005	3.28	15
39.04	23.1	14.5	-	23.3	2.4	6.7	9.9	3	silty CLAY to CLAY	115	1.5	10	15	5	-	-	1.5	4.3	76	0.005	3.23	15
39.21	44.8	28.0	-	45.0	3.0	9.5	7.1	3	silty CLAY to CLAY	115	1.5	19	30	8	-	-	3.1	8.8	53	0.005	2.91	15
39.37	59.4	37.0	-	59.3	3.2	-2.2	5.6	3	silty CLAY to CLAY	115	1.5	25	40	10	-	-	4.1	9.9	43	0.005	2.75	15
39.54	70.9	44.1	-	71.0	3.6	3.5	5.2	3	silty CLAY to CLAY	115	1.5	29	47	12	-	-	4.9	9.9	39	0.005	2.67	15
39.70	109.0	83.4	180.7	109.0	3.8	-0.8	3.6	4	clayy SILT to silty CLAY	115	2.0	42	54	19	-	-	7.6	9.9	25	0.070	2.36	15
39.86	106.0	81.0	175.9	105.9	3.6	-6.4	3.5	4	clayy SILT to silty CLAY	115	2.0	40	53	18	-	-	7.4	9.9	25	0.070	2.36	15
40.03	121.0	92.3	164.5	120.9	3.2	-5.0	2.7	5	silty SAND to sandy SILT	120	3.0	31	40	20	64	39	-	-	21	0.200	2.24	16
40.19	171.2	130.4	161.5	171.1	2.5	-6.2	1.5	6	clean SAND to silty SAND	125	5.0	26	34	25	76	41	-	-	12	0.350	1.95	16
40.36	197.6	150.2	169.5	197.4	2.3	-6.5	1.2	6	clean SAND to silty SAND	125	5.0	30	40	28	80	42	-	-	9	0.350	1.83	16
40.52	208.5	158.3	159.1	208.4	1.4	-6.0	0.7	6	clean SAND to silty SAND	125	5.0	32	42	27	82	42	-	-	5	0.350	1.65	16
40.68	224.5	170.2	177.5	224.4	2.0	-6.7	0.9	6	clean SAND to silty SAND	125	5.0	34	45	30	85	42	-	-	6	0.350	1.71	16
40.85	234.8	177.7	190.1	234.7	2.5	-6.9	1.1	6	clean SAND to silty SAND	125	5.0	36	47	32	86	42	-	-	7	0.350	1.75	16
41.01	233.5	176.4	187.9	233.4	2.4	-5.5	1.0	6	clean SAND to silty SAND	125	5.0	35	47	31	86	42	-	-	7	0.350	1.74	16
41.18	244.0	184.1	189.2	243.9	2.2	-5.8	0.9	6	clean SAND to silty SAND	125	5.0	37	49	32	87	43	-	-	6	0.350	1.69	16
41.34	250.0	188.3	190.9	249.9	2.1	-5.9	0.9	6	clean SAND to silty SAND	125	5.0	38	50	33	88	43	-	-	5	0.350	1.66	16
41.50	256.9	193.2	195.7	256.8	2.2	-6.0	0.9	6	clean SAND to silty SAND	125	5.0	39	51	34	89	43	-	-	5	0.350	1.66	16
41.67	261.1	196.1	196.5	261.0	2.2	-6.0	0.8	6	clean SAND to silty SAND	125	5.0	39	52	34	89	43	-	-	5	0.350	1.65	16
41.83	257.3	193.0	201.5	257.2	2.6	-6.0	1.0	6	clean SAND to silty SAND	125	5.0	39	51	34	89	43	-	-	6	0.350	1.71	16
42.00	274.7	205.7	209.4	274.6	2.6	-6.1	1.0	6	clean SAND to silty SAND	125	5.0	41	55	36	91	43	-	-	6	0.350	1.67	16
42.16	290.3	217.0	224.8	290.2	3.1	-4.6	1.1	6	clean SAND to silty SAND	125	5.0	43	58	38	93	43	-	-	6	0.350	1.70	16
42.32	297.7	222.2	231.2	297.6	3.4	-4.0	1.1	6	clean SAND to silty SAND	125	5.0	44	60	39	93	43	-	-	6	0.350	1.70	16
42.49	291.9	217.6	224.0	291.8	3.1	-2.7	1.1	6	clean SAND to silty SAND	125	5.0	44	58	38	93	43	-	-	6	0.350	1.69	16
42.65	259.8	193.4	195.8	259.8	2.3	-4.2	0.9	6	clean SAND to silty SAND	125	5.0	39	52	34	89	43	-	-	5	0.350	1.66	16
42.82	255.4	189.8	189.8	255.3	1.9	-4.6	0.8	6	clean SAND to silty SAND	125	5.0	38	51	33	88	43	-	-	5	0.350	1.63	16
42.98	235.7	174.9	174.7	235.6	1.7	-5.0	0.7	6	clean SAND to silty SAND	125	5.0	35	47	30	85	42	-	-	5	0.350	1.64	16
43.15	231.1	171.2	171.2	231.0	1.6	-4.9	0.7	6	clean SAND to silty SAND	125	5.0	34	46	29	85	42	-	-	5	0.350	1.64	16
43.31	225.5	166.8	167.6	225.4	1.6	-5.0	0.7	6	clean SAND to silty SAND	125	5.0	33	45	29	84	42	-	-	5	0.350	1.65	16
43.47	227.5	168.1	168.1	227.4	1.1	-4.9	0.5	6	clean SAND to silty SAND	125	5.0	34	46	28	84	42	-	-	5	0.350	1.55	16
43.64	223.1	164.5	164.5	223.0	1.3	-4.6	0.6	6	clean SAND to silty SAND	125	5.0	33	45	28	83	42	-	-	5	0.350	1.59	16
43.80	231.2	170.3	170.3	231.1	1.5	-4.6	0.6	6	clean SAND to silty SAND	125	5.0	34	46	29	85	42	-	-	5	0.350	1.61	16
43.97	219.8	161.6	168.3	219.7	1.8	-5.0	0.8	6	clean SAND to silty SAND	125	5.0	32	44	29	83	42	-	-	6	0.350	1.71	16
44.13	210.4	154.5	166.3	210.4	2.0	-4.5	0.9	6	clean SAND to silty SAND	125	5.0	31	42	28	81	41	-	-	7	0.350	1.76	16
44.29	229.1	168.0	177.4	229.0	2.1	-3.9	0.9	6	clean SAND to silty SAND	125	5.0	34	46	30	84	42	-	-	7	0.350	1.73	16
44.46	226.4	165.8	173.1	226.3	2.0	-4.0	0.9	6	clean SAND to silty SAND	125	5.0	33	45	29	84	42	-	-	6	0.350	1.71	16
44.62	234.2	171.3	173.7	234.2	1.8	-4.0	0.8	6	clean SAND to silty SAND	125	5.0	34	47	30	85	42	-	-	5	0.350	1.67	16
44.79	271.6	198.3	198.3	271.5	2.0	-4.0	0.8	6	clean SAND to silty SAND	125	5.0	40	54	34	90	43	-	-	5	0.350	1.61	16
44.95	298.2	217.4	217.4	298.1	2.0	-4.0	0.7	6	clean SAND to silty SAND	125	5.0	43	60	36	93	43	-	-	5	0.350	1.55	16
45.11	283.1	206.1	206.1	283.0	1.9	-4.4	0.7	6	clean SAND to silty SAND	125	5.0	41	57	35	91	43	-	-	5	0.350	1.57	16
45.28	276.6	201.1	201.1	276.6	1.8	-3.3	0.7	6	clean SAND to silty SAND	125	5.0	40	55	34	90	43	-	-	5	0.350	1.56	16
45.44	287.6	208.7	208.7	287.5	1.6	-3.4	0.6	6	clean SAND to silty SAND	125	5.0	42	58	35	91	43	-	-	5	0.350	1.51	16
45.61	285.0	206.6	206.6	285.0	1.5	-2.3	0.5	6	clean SAND to silty SAND	125	5.0	41	57	34	91	43	-	-	5	0.350	1.49	16
45.77	267.3	193.4	193.4	267.2	1.4	-2.8	0.5	6	clean SAND to silty SAND	125	5.0	39	53	32	89	43	-	-	5	0.350	1.52	16
45.93	248.1	179.3	179.3	248.0	1.5	-3.3	0.6	6	clean SAND to silty SAND	125	5.0	36	50	30	86	42	-	-	5	0.350	1.59	16
46.10	233.8	168.7	168.7	233.7	1.3	-3.8	0.6	6	clean SAND to silty SAND	125	5.0	34	47	29	84	42	-	-	5	0.350	1.58	16
46.26	212.7	153.3	153.3	212.6	1.3	-4.2	0.6	6	clean SAND to silty SAND	125	5.0	31	43	26	81	41	-	-	5	0.350	1.64	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: BAGG Engineering
Data File: SDF(863).cpt
CPT Date: 7/26/2023 10:01:25 AM
GW During Test: 15 ft

Sounding ID: CPT-04
Project No: COUSM-23-03
Cone/Rig: DDG1589

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
46.43	201.5	145.0	145.7	201.4	1.2	-4.2	0.6	6	clean SAND to silty SAND	125	5.0	29	40	25	79	41	-	-	5	0.350	1.65	16
46.59	205.2	147.5	148.9	205.1	1.3	-3.8	0.6	6	clean SAND to silty SAND	125	5.0	29	41	26	80	41	-	-	5	0.350	1.66	16
46.75	222.6	159.7	164.9	222.5	1.7	-4.0	0.8	6	clean SAND to silty SAND	125	5.0	32	45	28	82	42	-	-	6	0.350	1.69	16
46.92	239.5	171.6	171.6	239.4	1.4	-4.1	0.6	6	clean SAND to silty SAND	125	5.0	34	48	29	85	42	-	-	5	0.350	1.59	16
47.08	256.7	183.7	183.7	256.6	1.5	-4.0	0.6	6	clean SAND to silty SAND	125	5.0	37	51	31	87	42	-	-	5	0.350	1.57	16
47.25	250.5	179.0	179.0	250.5	1.7	-3.2	0.7	6	clean SAND to silty SAND	125	5.0	36	50	31	86	42	-	-	5	0.350	1.62	16
47.41	245.8	175.4	175.4	245.7	1.4	-3.2	0.6	6	clean SAND to silty SAND	125	5.0	35	49	30	86	42	-	-	5	0.350	1.57	16
47.57	258.6	184.3	184.3	258.6	1.0	-4.7	0.4	6	clean SAND to silty SAND	125	5.0	37	52	30	87	42	-	-	5	0.350	1.47	16
47.74	247.3	176.0	176.0	247.2	1.0	-4.8	0.4	6	clean SAND to silty SAND	125	5.0	35	49	29	86	42	-	-	5	0.350	1.49	16
47.90	233.1	165.7	165.7	233.0	0.9	-4.8	0.4	6	clean SAND to silty SAND	125	5.0	33	47	27	84	42	-	-	5	0.350	1.49	16
48.07	214.3	152.1	152.1	214.2	1.1	-4.7	0.5	6	clean SAND to silty SAND	125	5.0	30	43	26	81	41	-	-	5	0.350	1.60	16
48.23	173.1	122.7	139.1	173.0	1.6	-4.4	1.0	6	clean SAND to silty SAND	125	5.0	25	35	23	74	40	-	-	9	0.350	1.84	16
48.39	147.2	104.2	144.4	147.1	2.5	-4.5	1.7	5	silty SAND to sandy SILT	120	3.0	35	49	21	68	39	-	-	15	0.200	2.06	16
48.56	107.6	76.1	142.8	107.5	2.6	-4.1	2.5	5	silty SAND to sandy SILT	120	3.0	25	36	17	58	37	-	-	22	0.200	2.28	16
48.72	89.2	63.0	162.9	89.2	3.2	-3.7	3.8	4	clayy SILT to silty CLAY	115	2.0	32	45	15	-	-	6.2	9.9	29	0.070	2.46	15
48.89	77.8	41.0	-	77.7	4.1	-3.1	5.5	3	silty CLAY to CLAY	115	1.5	27	52	11	-	-	5.4	9.9	41	0.005	2.71	15
49.05	92.7	65.3	172.9	92.6	3.6	-2.8	4.1	4	clayy SILT to silty CLAY	115	2.0	33	46	16	-	-	6.4	9.9	30	0.070	2.48	15
49.22	176.4	124.2	166.9	176.4	3.2	-3.4	1.9	5	silty SAND to sandy SILT	120	3.0	41	59	25	74	40	-	-	14	0.200	2.03	16
49.38	204.4	143.7	158.7	204.3	2.0	-4.7	1.0	6	clean SAND to silty SAND	125	5.0	29	41	26	79	41	-	-	8	0.350	1.80	16
49.54	192.9	135.4	159.3	192.8	2.4	-4.7	1.3	6	clean SAND to silty SAND	125	5.0	27	39	25	77	41	-	-	10	0.350	1.89	16
49.71	147.3	103.2	161.3	147.2	3.3	-4.8	2.3	5	silty SAND to sandy SILT	120	3.0	34	49	22	68	39	-	-	18	0.200	2.15	16
49.87	122.6	85.8	155.0	122.5	3.1	-5.1	2.6	5	silty SAND to sandy SILT	120	3.0	29	41	19	62	38	-	-	21	0.200	2.25	16
50.04	115.3	80.6	169.7	115.2	3.7	-5.1	3.3	5	silty SAND to sandy SILT	120	3.0	27	38	18	60	38	-	-	24	0.200	2.35	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

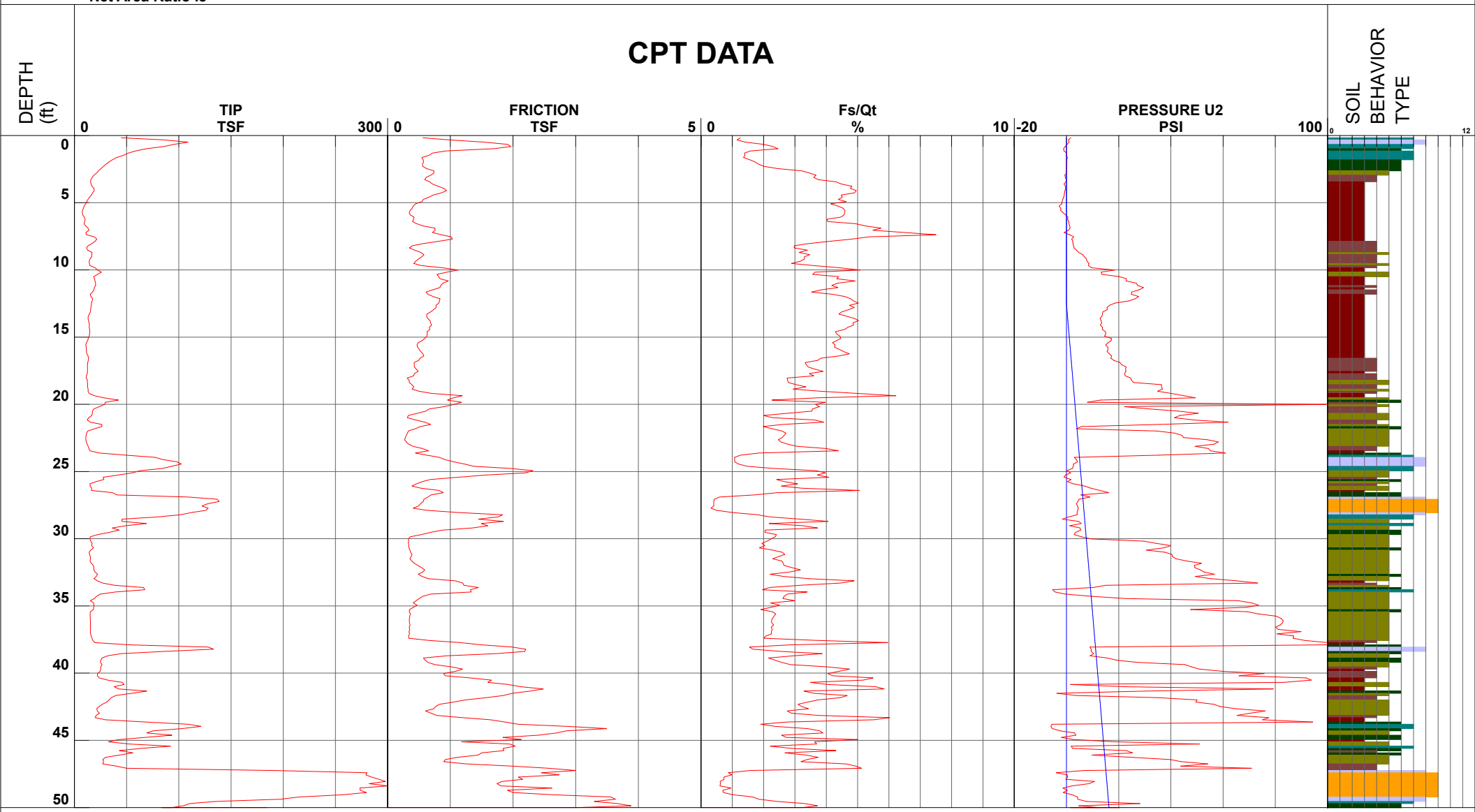
Middle Earth Geo Testing

BAGG Engineering

Project	SMC-HMB Farmworker Housing project	Operator	AJ-ER	Filename	SDF(865).cpt
Job Number	COUSM-23-03	Cone Number	DDG1589	GPS	
Hole Number	CPT-05	Date and Time	7/26/2023 1:04:56 PM	Maximum Depth	50.52 ft
EST GW Depth During Test		12.50 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Cone Size 15cm²

S*Soil behavior type and SPT based on data from UBC-1983

SMC-HMB Farmworker Housing project

Project ID: BAGG Engineering
Data File: SDF(865).cpt
CPT Date: 7/26/2023 1:04:56 PM
GW During Test: 13 ft

Sounding ID: CPT-05
Project No: COUSM-23-03
Cone/Rig: DDG1589

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
0.33	85.5	137.2	156.9	85.5	1.0	0.8	1.2	6	clean SAND to silty SAND	125	5.0	27	17	25	77	48	-	-	9	0.350	1.85	16
0.49	108.8	174.4	198.4	108.8	1.5	1.0	1.4	6	clean SAND to silty SAND	125	5.0	35	22	32	85	48	-	-	9	0.350	1.84	16
0.66	95.4	152.9	197.4	95.4	1.9	0.2	2.0	5	silty SAND to sandy SILT	120	3.0	51	32	30	81	48	-	-	13	0.200	1.99	16
0.82	85.9	137.8	192.3	85.9	2.0	-0.5	2.3	5	silty SAND to sandy SILT	120	3.0	46	29	28	78	48	-	-	15	0.200	2.07	16
0.98	69.0	110.7	172.2	69.0	1.7	-1.1	2.5	5	silty SAND to sandy SILT	120	3.0	37	23	23	70	48	-	-	17	0.200	2.15	16
1.15	58.6	94.0	130.7	58.6	0.9	-0.9	1.6	5	silty SAND to sandy SILT	120	3.0	31	20	19	65	48	-	-	15	0.200	2.06	16
1.31	51.6	82.7	115.6	51.6	0.7	0.1	1.4	5	silty SAND to sandy SILT	120	3.0	28	17	17	61	48	-	-	15	0.200	2.07	16
1.48	47.0	75.4	109.7	47.0	0.7	0.1	1.4	5	silty SAND to sandy SILT	120	3.0	25	16	15	58	48	-	-	16	0.200	2.10	16
1.64	40.2	64.5	99.2	40.2	0.5	0.3	1.4	5	silty SAND to sandy SILT	120	3.0	21	13	13	53	47	-	-	17	0.200	2.14	16
1.80	36.4	58.3	99.4	36.4	0.6	0.1	1.6	5	silty SAND to sandy SILT	120	3.0	19	12	12	49	46	-	-	20	0.200	2.22	16
1.97	33.3	53.4	99.6	33.3	0.6	0.1	1.7	5	silty SAND to sandy SILT	120	3.0	18	11	12	46	46	-	-	22	0.200	2.27	16
2.13	30.3	48.6	98.2	30.3	0.6	0.1	1.8	5	silty SAND to sandy SILT	120	3.0	16	10	11	43	45	-	-	23	0.200	2.32	16
2.30	27.8	44.6	99.1	27.8	0.6	0.0	2.0	5	silty SAND to sandy SILT	120	3.0	15	9	10	40	44	-	-	25	0.200	2.38	16
2.46	25.3	40.6	105.3	25.3	0.6	0.1	2.5	5	silty SAND to sandy SILT	120	3.0	14	8	10	37	43	-	-	29	0.200	2.46	16
2.62	23.0	36.9	117.0	23.0	0.7	0.0	3.2	4	clayy SILT to silty CLAY	115	2.0	18	11	9	-	-	1.6	9.9	34	0.070	2.57	15
2.79	21.3	34.1	-	21.3	0.7	0.0	3.5	4	clayy SILT to silty CLAY	115	2.0	17	11	9	-	-	1.5	9.9	36	0.070	2.62	15
2.95	18.7	30.0	-	18.7	0.7	-0.6	3.7	4	clayy SILT to silty CLAY	115	2.0	15	9	8	-	-	1.3	9.9	39	0.070	2.68	15
3.12	17.0	27.3	-	17.0	0.6	-0.4	3.6	4	clayy SILT to silty CLAY	115	2.0	14	8	7	-	-	1.2	9.9	41	0.070	2.71	15
3.28	15.8	25.3	-	15.8	0.6	-0.1	3.8	4	clayy SILT to silty CLAY	115	2.0	13	8	7	-	-	1.1	9.9	43	0.070	2.74	15
3.45	15.6	24.9	-	15.6	0.7	-0.2	4.4	3	silty CLAY to CLAY	115	1.5	17	10	7	-	-	1.1	9.9	45	0.005	2.79	15
3.61	15.9	25.6	-	15.9	0.7	-1.0	4.5	3	silty CLAY to CLAY	115	1.5	17	11	7	-	-	1.1	9.9	46	0.005	2.79	15
3.77	16.7	26.8	-	16.7	0.8	-0.4	4.9	3	silty CLAY to CLAY	115	1.5	18	11	8	-	-	1.2	9.9	46	0.005	2.80	15
3.94	18.8	30.1	-	18.8	0.9	-0.3	4.8	3	silty CLAY to CLAY	115	1.5	20	13	8	-	-	1.3	9.9	44	0.005	2.76	15
4.10	19.0	30.4	-	18.9	0.9	-0.6	5.0	3	silty CLAY to CLAY	115	1.5	20	13	8	-	-	1.3	9.9	44	0.005	2.77	15
4.27	17.5	28.1	-	17.5	0.9	-0.8	5.0	3	silty CLAY to CLAY	115	1.5	19	12	8	-	-	1.2	9.9	45	0.005	2.79	15
4.43	16.3	26.2	-	16.3	0.7	-0.8	4.6	3	silty CLAY to CLAY	115	1.5	17	11	7	-	-	1.1	9.9	45	0.005	2.79	15
4.59	14.6	23.3	-	14.5	0.7	-1.0	4.6	3	silty CLAY to CLAY	115	1.5	16	10	7	-	-	1.0	9.9	48	0.005	2.83	15
4.76	13.0	20.8	-	12.9	0.6	-1.4	4.5	3	silty CLAY to CLAY	115	1.5	14	9	6	-	-	0.9	9.9	49	0.005	2.86	15
4.92	11.8	18.9	-	11.7	0.5	-1.7	4.8	3	silty CLAY to CLAY	115	1.5	13	8	6	-	-	0.8	9.9	53	0.005	2.91	15
5.09	10.7	17.2	-	10.7	0.4	-1.8	4.3	3	silty CLAY to CLAY	115	1.5	11	7	5	-	-	0.7	9.9	53	0.005	2.91	15
5.25	9.4	15.1	-	9.3	0.4	-2.8	4.5	3	silty CLAY to CLAY	115	1.5	10	6	5	-	-	0.6	9.7	57	0.005	2.97	15
5.41	8.6	13.8	-	8.6	0.4	-2.2	4.7	3	silty CLAY to CLAY	115	1.5	9	6	4	-	-	0.6	8.6	59	0.005	3.01	15
5.58	7.8	12.5	-	7.7	0.4	-2.2	4.8	3	silty CLAY to CLAY	115	1.5	8	5	4	-	-	0.5	7.5	62	0.005	3.06	15
5.74	7.5	12.0	-	7.4	0.3	-1.3	4.8	3	silty CLAY to CLAY	115	1.5	8	5	4	-	-	0.5	7.0	63	0.005	3.07	15
5.91	7.9	12.7	-	7.9	0.4	-0.3	4.8	3	silty CLAY to CLAY	115	1.5	8	5	4	-	-	0.5	7.2	62	0.005	3.05	15
6.07	9.5	15.2	-	9.5	0.4	0.5	4.6	3	silty CLAY to CLAY	115	1.5	10	6	5	-	-	0.6	8.4	57	0.005	2.98	15
6.23	10.2	16.4	-	10.2	0.4	0.4	4.2	3	silty CLAY to CLAY	115	1.5	11	7	5	-	-	0.7	8.9	53	0.005	2.92	15
6.40	9.8	15.7	-	9.8	0.4	0.8	4.2	3	silty CLAY to CLAY	115	1.5	10	7	5	-	-	0.7	8.3	55	0.005	2.94	15
6.56	9.3	15.0	-	9.4	0.5	0.9	5.1	3	silty CLAY to CLAY	115	1.5	10	6	5	-	-	0.6	7.7	59	0.005	3.01	15
6.73	10.7	17.2	-	10.8	0.6	1.2	5.4	3	silty CLAY to CLAY	115	1.5	11	7	5	-	-	0.7	8.7	57	0.005	2.98	15
6.89	13.1	21.1	-	13.2	0.8	1.4	5.9	3	silty CLAY to CLAY	115	1.5	14	9	6	-	-	0.9	9.9	54	0.005	2.94	15
7.05	13.8	22.1	-	13.8	0.8	0.7	5.7	3	silty CLAY to CLAY	115	1.5	15	9	7	-	-	0.9	9.9	53	0.005	2.91	15
7.22	11.0	17.7	-	11.0	0.7	-0.9	6.8	3	silty CLAY to CLAY	115	1.5	12	7	6	-	-	0.7	8.3	61	0.005	3.04	15
7.38	11.4	18.3	-	11.4	0.9	1.2	7.8	3	silty CLAY to CLAY	115	1.5	12	8	6	-	-	0.8	8.4	63	0.005	3.07	15
7.55	18.9	30.4	-	19.0	1.0	2.7	5.5	3	silty CLAY to CLAY	115	1.5	20	13	9	-	-	1.3	9.9	46	0.005	2.80	15
7.71	21.4	34.4	-	21.5	1.0	2.0	4.9	3	silty CLAY to CLAY	115	1.5	23	14	9	-	-	1.5	9.9	42	0.005	2.73	15
7.87	19.8	31.7	-	19.8	0.8	2.4	4.2	4	clayy SILT to silty CLAY	115	2.0	16	10	9	-	-	1.4	9.9	41	0.070	2.70	15
8.04	16.6	26.7	-	16.7	0.6	2.4	3.5	4	clayy SILT to silty CLAY	115	2.0	13	8	7	-	-	1.1	9.9	41	0.070	2.71	15
8.20	13.2	21.2	-	13.3	0.4	2.7	3.1	4	clayy SILT to silty CLAY	115	2.0	11	7	6	-	-	0.9	8.8	43	0.070	2.75	15
8.37	11.6	18.7	-	11.7	0.3	2.9	3.1	4	clayy SILT to silty CLAY	115	2.0	9	6	5	-	-	0.8	7.5	46	0.070	2.80	15
8.53	12.6	20.2	-	12.7	0.4	3.8	3.5	3	silty CLAY to CLAY	115	1.5	13	8	6	-	-	0.9	8.0	46	0.005	2.81	15
8.69	16.8	27.0	-	16.9	0.5	4.7	3.2	4	clayy SILT to silty CLAY	115	2.0	14	8	7	-	-	1.2	9.9	40	0.070	2.68	15
8.86	16.7	26.8	-	16.8	0.6	6.1	3.6	4	clayy SILT to silty CLAY	115	2.0	13	8	7	-	-	1.1	9.9	41	0.070	2.72	15
9.02	16.5	26.4	-	16.6	0.5	6.9	3.4	4	clayy SILT to silty CLAY	115	2.0	13	8	7	-	-	1.1	9.9	41	0.070	2.71	15
9.19	14.9	23.9	-	15.1	0.5	7.7	3.4	4	clayy SILT to silty CLAY	115	2.0	12	7	7	-	-	1.0	8.9	43	0.070	2.74	15
9.35	14.1	22.6	-	14.3	0.4	7.8	3.3	4	clayy SILT to silty CLAY	115	2.0	11	7	6	-	-	1.0	8.2	43	0.070	2.75	15
9.51	14.4	23.1	-	14.6	0.4	8.6	3.0	4	clayy SILT to silty CLAY	115	2.0	12	7	6	-	-	1.0	8.2	41	0.070	2.72	15
9.68	14.8	23.7	-	15.0	0.5	8.3	3.7	4	clayy SILT to silty CLAY	115	2.0	12	7	7	-	-	1.0	8.3	44	0.070	2.77	15
9.84	19.8	31.8	-	20.0	0.9	9.6	4.6	3	silty CLAY to CLAY	115	1.5	21	13	9	-	-	1.4	9.9	42	0.005	2.73	15
10.01	22.1	35.4	-	22.4	1.1	18.4	5.2	3	silty CLAY to CLAY	115	1.5	24	15	10	-	-	1.5	9.9	42	0.005	2.74	15
10.17	25.9	36.7	-	26.1	0.9	13.3	3.7	4	clayy SILT to silty CLAY	115	2.0	18	13	9	-	-	1.8	9.9	36	0.070	2.62	15
10.34	22.1	35.4	-	22.4	0.8	13.6	3.7	4	clayy SILT to silty CLAY	115	2.0	18	11	9	-	-	1.5	9.9	37	0.070	2.63	15
10.50	18.5	29.7	-	18.9	0.8	20.2	4.5	3	silty CLAY to CLAY	115	1.5	20	12	8	-	-	1.3	9.7	43	0.005	2.75	15
10.66	19.3	30.9	-	19.7	0.8	22.9	4.5	3	silty CLAY to CLAY	115	1.5	21	13	8	-	-	1.3	9.9	42	0.005	2.73	15
10.83	19.7	31.2	-	20.1	1.0	22.9	5.1	3	silty CLAY to CLAY	115	1.5	21	13	9	-	-	1.3	9.9	44	0.005	2.77	15
10.99	20.2	31.7	-	20.8	0.9	26.7	4.5	3	silty CLAY to CLAY	115	1.5	21	13	9	-	-	1.4	9.9	42	0.005	2.73	15
11.16	20.3	31.3	-	20.9	0.8	27.3	4.3	4	clayy SILT to silty CLAY	115	2.0	16	10	9	-	-	1.4	9.9	41	0.070	2.72	15
11.32	19.1	29.0	-	19.7	0.8	29.5	4.5	3	silty CLAY to CLAY	115	1.5	19	13	8	-	-	1.3	9.2	44	0.005	2.76	15
11.48	18.7	28.0	-	19.2	0.7	27.9	4.0	4	clayy SILT to silty CLAY	115	2.0	14	9	8	-	-	1.3	8.9	42	0.070	2.73	15
11.65	17.3	25.6	-	17.8	0.6	25.0	3.7	4	clayy SILT to silty CLAY	115	2.0	13	9	7	-	-	1.2	8.1	43	0.070	2.74	15
11.81	15.3	22.3	-	15.8	0.6	24.9	4.4	3	silty CLAY to CLAY	115	1.5	15	10	6	-	-	1.0	7.0	48	0.005	2.84	15
11.98	15.8	22.7	-	16.3	0.7	27.6	4.8	3	silty CLAY to CLAY	115	1.5	15	11	7	-	-	1.1	7.2	49	0.005	2.86	15
12.14	17.5	24.9	-	18.1	0.8	26.4	5.0	3	silty CLAY to CLAY	115	1.5	17	12	7	-	-	1.2	7.9	48	0.005	2.84	15
12.30	17.0	23.8	-	17.5	0.8	24.0	5.1	3	silty CLAY to CLAY	115	1.5	16	11	7	-	-	1.2	7.5	49	0.005	2.86	15
12.47	16.2	22.4	-	16.6	0.8	18.5	5.3	3	silty CLAY to CLAY	115	1.5	15	11	7	-	-	1.1	7.1	51	0.005	2.89	15
12.63	16.3	22.2	-	16.6	0.8	16.5	5.0	3	silty CLAY to CLAY	115	1.5	15	11	7	-	-	1.1	7.0	50	0.005	2.88	15
12.80	15.8	21.3	-	16.1	0.8	15.5	5.1	3	silty CLAY to CLAY	115	1.5	14	11	6	-	-	1.1	6.7	52	0.005	2.90	15
12.96	15.5	20.7	-	15.9	0.7	15.6	5.0	3	silty CLAY to CLAY	115	1.5	14	10	6	-	-	1.0	6.5	52	0.005	2.90	15
13.12	15.3	20.2	-	15.6	0.7	13.9	4.7	3	silty CLAY to CLAY	115	1.5	13	10	6	-	-	1.0	6.3	52	0.005	2.89	15
13.29	14.3	18.7	-	14.5	0.6	13.8	4.6	3	silty CLAY to CLAY	115	1.5	12	10	6	-	-	1.0	5.8	53	0.005	2.92	15
13.45	13.3	17.4	-	13.6	0.6	13.6	4.9	3	silty CLAY to CLAY	115	1.5	12	9	5	-	-	0.9	5.4	56	0.005	2.96	15
13.62	13.0	16.9	-	13.3	0.6	12.9	5.2	3	silty CLAY to CLAY	115	1.5	11	9	5	-	-	0.9	5.3	57	0.005	2.98	15
13.78	13.5	17.4	-	13.7	0.7	13.3	5.3	3	silty CLAY to CLAY	115	1.5	12	9	5	-	-	0.9	5.4	57	0.005	2.98	15
13.94	14.1	18.1	-	14.4	0.7	13.5	5.1	3	silty CLAY to CLAY	115	1.5	12	9	6	-	-	0.9	5.6	56	0.005	2.96	15
14.11	14.4	18.4	-	14.6	0.7	13.0	5.2	3	silty CLAY to CLAY	115	1.5	12	10	6	-	-	1.0	5.7	55	0.005	2.95	15
14.27	14.2	18.0	-	14.4	0.7	13.8	5.0	3	silty CLAY to CLAY	115	1.5	12	9	6	-	-	0.9	5.6	55	0.005	2.95	15
14.44	14.6	18.5	-	14.9	0.7	13.7	4.9	3	silty CLAY to CLAY	115	1.5	12	10	6	-	-	1.0	5.8	54	0.005	2.93	15
14.60	14.6	18.4	-	14.9	0.6	14.9	4.6	3	silty CLAY to CLAY	115	1.5	12	10	6	-	-	1.0	5.7	53	0.005	2.92	15
14.76	14.6	18.2	-	14.9	0.6	15.1	4.6	3	silty CLAY to CLAY	115	1.5	12	10	6	-	-	1.0	5.7	53	0.005	2.92	15
14.93	14.1	17.6	-	14.4	0.6	14.6	4.7	3	silty CLAY to CLAY	115	1.5	12	9	5	-	-	0.9	5.4	55	0.005	2.94	15
15.09	13.3	16.4	-	13.6	0.6	17.2	4.8	3	silty CLAY to CLAY	115	1.5	11	9	5	-	-	0.9	5.1	57	0.005	2.97	15
15.26	12.7	15.6	-	13.0	0.5	17.1	4.7	3	silty CLAY to CLAY	115	1.5	10	8	5	-	-	0.8	4.8	57	0.005	2.98	15
15.42	11.5	14.1	-	11.9	0.5	15.9	4.6	3	silty CLAY to CLAY	115	1.5	9	8	5	-	-	0.8	4.3	59	0.005	3.01	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
15.58	10.9	13.3	-	11.2	0.5	15.0	4.7	3	silty CLAY to CLAY	115	1.5	9	7	4	-	-	0.7	4.0	61	0.005	3.04	15
15.75	11.3	13.7	-	11.6	0.5	15.8	4.6	3	silty CLAY to CLAY	115	1.5	9	8	4	-	-	0.7	4.1	61	0.005	3.03	15
15.91	11.4	13.7	-	11.7	0.5	15.9	4.8	3	silty CLAY to CLAY	115	1.5	9	8	4	-	-	0.7	4.2	61	0.005	3.04	15
16.08	11.6	13.9	-	11.9	0.5	15.6	5.0	3	silty CLAY to CLAY	115	1.5	9	8	5	-	-	0.8	4.2	61	0.005	3.04	15
16.24	11.9	14.2	-	12.2	0.6	16.4	5.1	3	silty CLAY to CLAY	115	1.5	9	8	5	-	-	0.8	4.3	62	0.005	3.05	15
16.40	13.1	15.6	-	13.5	0.6	17.3	4.8	3	silty CLAY to CLAY	115	1.5	10	9	5	-	-	0.9	4.8	58	0.005	2.99	15
16.57	13.5	16.0	-	13.9	0.5	17.0	4.1	3	silty CLAY to CLAY	115	1.5	11	9	5	-	-	0.9	4.9	55	0.005	2.94	15
16.73	13.3	15.6	-	13.6	0.5	18.1	4.0	3	silty CLAY to CLAY	115	1.5	10	9	5	-	-	0.9	4.8	55	0.005	2.94	15
16.90	12.7	14.9	-	13.1	0.4	20.5	3.6	3	silty CLAY to CLAY	115	1.5	10	8	5	-	-	0.8	4.5	54	0.005	2.93	15
17.06	12.6	14.7	-	13.0	0.4	21.1	3.6	3	silty CLAY to CLAY	115	1.5	10	8	5	-	-	0.8	4.5	55	0.005	2.94	15
17.23	12.5	14.4	-	12.9	0.4	22.9	3.7	3	silty CLAY to CLAY	115	1.5	10	8	4	-	-	0.8	4.4	55	0.005	2.95	15
17.39	12.6	14.5	-	13.0	0.5	22.6	4.0	3	silty CLAY to CLAY	115	1.5	10	8	5	-	-	0.8	4.4	56	0.005	2.97	15
17.55	12.5	14.3	-	13.0	0.5	22.8	4.2	3	silty CLAY to CLAY	115	1.5	10	8	5	-	-	0.8	4.4	58	0.005	2.99	15
17.72	12.3	14.0	-	12.7	0.4	22.3	3.8	3	silty CLAY to CLAY	115	1.5	9	8	4	-	-	0.8	4.2	56	0.005	2.97	15
17.88	11.5	13.0	-	11.9	0.4	22.5	4.0	3	silty CLAY to CLAY	115	1.5	9	8	4	-	-	0.7	3.9	59	0.005	3.01	15
18.05	11.4	12.8	-	11.8	0.3	24.7	3.0	3	silty CLAY to CLAY	115	1.5	9	8	4	-	-	0.7	3.8	55	0.005	2.95	15
18.21	12.4	13.9	-	12.9	0.3	24.9	3.0	3	silty CLAY to CLAY	115	1.5	9	8	4	-	-	0.8	4.2	53	0.005	2.91	15
18.37	12.4	13.9	-	12.9	0.3	25.7	3.1	3	silty CLAY to CLAY	115	1.5	9	8	4	-	-	0.8	4.2	53	0.005	2.92	15
18.54	12.7	14.2	-	13.4	0.4	36.4	3.3	3	silty CLAY to CLAY	115	1.5	9	8	4	-	-	0.8	4.3	54	0.005	2.93	15
18.70	12.5	13.8	-	13.2	0.4	36.4	3.7	3	silty CLAY to CLAY	115	1.5	9	8	4	-	-	0.8	4.2	56	0.005	2.97	15
18.87	13.2	14.5	-	13.9	0.4	36.7	3.2	3	silty CLAY to CLAY	115	1.5	10	9	4	-	-	0.9	4.4	53	0.005	2.91	15
19.03	13.1	14.4	-	13.8	0.5	34.9	4.2	3	silty CLAY to CLAY	115	1.5	10	9	5	-	-	0.9	4.4	57	0.005	2.98	15
19.19	14.1	15.4	-	14.9	0.7	40.2	5.4	3	silty CLAY to CLAY	115	1.5	10	9	5	-	-	0.9	4.7	61	0.005	3.03	15
19.36	19.1	20.8	-	20.0	1.2	45.0	6.6	3	silty CLAY to CLAY	115	1.5	14	13	7	-	-	1.3	6.4	58	0.005	2.99	15
19.52	28.2	30.5	-	29.2	1.0	49.3	3.9	4	clayy SILT to silty CLAY	115	2.0	15	14	8	-	-	1.9	9.7	40	0.070	2.70	15
19.69	42.1	42.4	105.6	42.4	1.0	13.1	2.3	5	silty SAND to sandy SILT	120	3.0	14	14	10	39	36	-	-	28	0.200	2.44	16
19.85	29.7	31.8	-	29.9	1.2	8.0	4.1	4	clayy SILT to silty CLAY	115	2.0	16	15	9	-	-	2.0	9.9	41	0.070	2.70	15
20.01	29.0	30.8	-	30.9	1.1	99.5	3.8	4	clayy SILT to silty CLAY	115	2.0	15	14	8	-	-	2.0	9.8	40	0.070	2.69	15
20.18	23.8	25.2	-	24.2	0.9	22.2	4.0	3	silty CLAY to CLAY	115	1.5	17	16	7	-	-	1.6	7.9	44	0.005	2.77	15
20.34	18.7	19.8	-	19.3	0.7	31.4	3.8	3	silty CLAY to CLAY	115	1.5	13	12	6	-	-	1.3	6.1	49	0.005	2.84	15
20.51	17.2	18.1	-	18.0	0.6	42.8	3.8	3	silty CLAY to CLAY	115	1.5	12	11	5	-	-	1.1	5.5	51	0.005	2.88	15
20.67	17.2	18.0	-	18.2	0.5	50.5	3.0	4	clayy SILT to silty CLAY	115	2.0	9	9	5	-	-	1.1	5.5	47	0.070	2.81	15
20.83	16.5	17.2	-	17.4	0.3	43.4	2.1	4	clayy SILT to silty CLAY	115	2.0	9	8	5	-	-	1.1	5.3	43	0.070	2.75	15
21.00	13.7	14.2	-	14.5	0.3	41.3	2.5	4	clayy SILT to silty CLAY	115	2.0	7	7	4	-	-	0.9	4.3	50	0.070	2.86	15
21.16	12.3	12.7	-	13.3	0.4	48.7	4.0	3	silty CLAY to CLAY	115	1.5	8	8	4	-	-	0.8	3.8	60	0.005	3.02	15
21.33	15.2	15.6	-	16.4	0.6	61.9	4.3	3	silty CLAY to CLAY	115	1.5	10	10	5	-	-	1.0	4.7	56	0.005	2.96	15
21.49	26.2	26.8	-	26.9	0.7	35.8	2.7	4	clayy SILT to silty CLAY	115	2.0	13	13	7	-	-	1.8	8.4	38	0.070	2.65	15
21.65	26.3	25.8	83.8	26.5	0.5	5.8	2.1	4	clayy SILT to silty CLAY	115	2.0	13	13	7	-	-	1.8	8.4	35	0.070	2.59	15
21.82	19.3	19.6	-	19.4	0.4	3.9	2.4	4	clayy SILT to silty CLAY	115	2.0	10	10	5	-	-	1.3	6.0	42	0.070	2.73	15
21.98	12.8	12.9	-	13.5	0.3	34.6	2.9	3	silty CLAY to CLAY	115	1.5	9	9	4	-	-	0.8	3.8	54	0.005	2.93	15
22.15	11.7	11.7	-	12.5	0.3	41.4	3.0	3	silty CLAY to CLAY	115	1.5	8	8	4	-	-	0.8	3.4	57	0.005	2.98	15
22.31	11.2	11.2	-	12.1	0.3	44.3	3.0	3	silty CLAY to CLAY	115	1.5	7	7	4	-	-	0.7	3.3	59	0.005	3.00	15
22.47	11.0	10.9	-	11.9	0.3	44.9	2.9	3	silty CLAY to CLAY	115	1.5	7	7	4	-	-	0.7	3.2	59	0.005	3.00	15
22.64	11.0	10.9	-	12.0	0.3	54.0	2.8	3	silty CLAY to CLAY	115	1.5	7	7	3	-	-	0.7	3.2	58	0.005	2.99	15
22.80	11.6	11.5	-	12.8	0.3	58.2	2.9	3	silty CLAY to CLAY	115	1.5	8	8	4	-	-	0.8	3.4	57	0.005	2.98	15
22.97	12.1	12.0	-	13.3	0.3	56.5	3.1	3	silty CLAY to CLAY	115	1.5	8	8	4	-	-	0.8	3.5	57	0.005	2.98	15
23.13	13.2	12.9	-	14.2	0.4	49.3	3.4	3	silty CLAY to CLAY	115	1.5	9	9	4	-	-	0.9	3.8	57	0.005	2.98	15
23.30	13.9	13.5	-	14.9	0.6	54.4	4.4	3	silty CLAY to CLAY	115	1.5	9	9	4	-	-	0.9	4.0	60	0.005	3.03	15
23.46	14.9	14.5	-	16.0	0.7	55.1	4.8	3	silty CLAY to CLAY	115	1.5	10	10	5	-	-	1.0	4.3	60	0.005	3.02	15
23.62	24.0	23.2	-	25.2	0.4	60.8	2.0	4	clayy SILT to silty CLAY	115	2.0	12	12	6	-	-	1.6	7.2	36	0.070	2.61	15
23.79	49.0	46.7	84.2	49.7	0.6	35.6	1.3	5	silty SAND to sandy SILT	120	3.0	16	16	10	42	36	-	-	21	0.200	2.25	16
23.95	77.4	73.6	100.1	77.5	0.8	3.0	1.1	6	clean SAND to silty SAND	125	5.0	15	15	15	57	39	-	-	14	0.350	2.04	16
24.12	84.9	80.5	106.1	84.9	0.9	3.8	1.1	6	clean SAND to silty SAND	125	5.0	16	17	16	60	39	-	-	13	0.350	2.01	16
24.28	98.4	93.1	116.9	98.5	1.1	4.2	1.1	6	clean SAND to silty SAND	125	5.0	19	20	18	65	40	-	-	12	0.350	1.96	16
24.44	102.3	96.7	123.4	102.4	1.2	2.7	1.2	6	clean SAND to silty SAND	125	5.0	19	20	19	66	40	-	-	12	0.350	1.98	16
24.61	92.9	87.5	123.5	93.0	1.4	2.6	1.5	5	silty SAND to sandy SILT	120	3.0	29	31	18	63	40	-	-	15	0.200	2.07	16
24.77	84.6	79.5	141.0	84.6	2.0	2.3	2.4	5	silty SAND to sandy SILT	120	3.0	27	28	17	59	39	-	-	20	0.200	2.24	16
24.94	63.1	59.2	157.3	63.1	2.3	0.1	3.8	4	clayy SILT to silty CLAY	115	2.0	30	32	14	-	-	4.4	9.9	30	0.070	2.48	15
25.10	55.4	51.9	155.7	55.4	2.2	1.6	4.1	4	clayy SILT to silty CLAY	115	2.0	26	28	13	-	-	3.8	9.9	33	0.070	2.54	15
25.26	42.1	38.9	-	42.1	1.6	-0.4	3.8	4	clayy SILT to silty CLAY	115	2.0	19	21	10	-	-	2.9	9.9	36	0.070	2.62	15
25.43	27.6	25.4	-	27.5	1.1	-0.9	4.3	3	silty CLAY to CLAY	115	1.5	17	18	7	-	-	1.9	7.9	46	0.005	2.79	15
25.59	28.3	26.0	-	28.3	0.7	1.7	2.5	4	clayy SILT to silty CLAY	115	2.0	13	14	7	-	-	1.9	8.1	37	0.070	2.64	15
25.76	20.8	19.0	-	20.8	0.6	0.3	2.9	4	clayy SILT to silty CLAY	115	2.0	10	10	5	-	-	1.4	5.8	45	0.070	2.79	15
25.92	14.9	13.6	-	15.0	0.5	2.7	3.4	3	silty CLAY to CLAY	115	1.5	9	10	4	-	-	1.0	4.0	56	0.005	2.96	15
26.08	15.1	13.7	-	15.2	0.4	7.0	2.9	3	silty CLAY to CLAY	115	1.5	9	10	4	-	-	1.0	4.1	53	0.005	2.91	15
26.25	16.5	14.9	-	16.7	0.5	9.4	3.5	3	silty CLAY to CLAY	115	1.5	10	11	5	-	-	1.1	4.5	54	0.005	2.93	15
26.41	16.2	14.6	-	16.4	0.8	12.8	5.6	3	silty CLAY to CLAY	115	1.5	10	11	5	-	-	1.1	4.4	63	0.005	3.06	15
26.58	36.5	33.5	101.6	36.8	0.9	16.2	2.5	4	clayy SILT to silty CLAY	115	2.0	17	18	8	-	-	2.5	9.9	33	0.070	2.55	15
26.74	40.6	37.3	88.3	40.7	0.7	5.5	1.8	5	silty SAND to sandy SILT	120	3.0	12	14	9	34	35	-	-	27	0.200	2.41	16
26.90	109.1	100.0	109.3	109.3	0.6	9.0	0.6	6	clean SAND to silty SAND	125	5.0	20	22	18	67	40	-	-	8	0.350	1.78	16
27.07	136.9	125.1	125.1	136.9	0.6	4.8	0.4	6	clean SAND to silty SAND	125	5.0	25	27	21	74	42	-	-	5	0.350	1.62	16
27.23	138.6	126.4	126.4	138.7	0.6	4.3	0.4	6	clean SAND to silty SAND	125	5.0	25	28	22	75	42	-	-	5	0.350	1.61	16
27.40	127.7	116.1	115.8	127.8	0.5	3.8	0.4	6	clean SAND to silty SAND	125	5.0	23	26	20	72	41	-	-	5	0.350	1.64	16
27.56	122.2	110.9	111.7	122.2	0.5	4.2	0.4	6	clean SAND to silty SAND	125	5.0	22	24	19	70	41	-	-	5	0.350	1.66	16
27.72	128.1	116.0	116.0	128.2	0.4	4.5	0.3	6	clean SAND to silty SAND	125	5.0	23	26	20	72	41	-	-	5	0.350	1.59	16
27.89	126.0	113.9	117.5	126.1	0.6	4.3	0.5	6	clean SAND to silty SAND	125	5.0	23	25	20	71	41	-	-	6	0.350	1.69	16
28.05	112.2	101.1	122.2	112.2	1.1	4.1	1.0	6	clean SAND to silty SAND	125	5.0	20	22	19	67	40	-	-	11	0.350	1.92	16
28.22	101.2	91.0	136.5	101.2	1.8	4.1	1.8	5	silty SAND to sandy SILT	120	3.0	30	34	19	64	40	-	-	17	0.200	2.12	16
28.38	80.1	71.9	131.0	80.1	1.8	0.9	2.2	5	silty SAND to sandy SILT	120	3.0	24	27	16	56	38	-	-	21	0.200	2.26	16
28.54	45.5	40.8	125.4	45.5	1.4	-1.6	3.3	4	clayy SILT to silty CLAY	115	2.0	20	23	10	-	-	3.1	9.9	33	0.070	2.56	15
28.71	45.5	38.6	-	45.6	1.8	4.7	4.2	4	clayy SILT to silty CLAY	115	2.0	19	23	10	-	-	3.1	9.9	38	0.070	2.65	15
28.87	68.9	61.5	121.1	69.0	1.5	5.6	2.2	5	silty SAND to sandy SILT	120	3.0	21	23	14	51	37	-	-	23	0.200	2.31	16
29.04	49.0	43.6	130.6	49.0	1.6	1.3	3.4	4	clayy SILT to silty CLAY	115	2.0	22	24	11	-	-	3.4	9.9	33	0.070	2.54	15
29.20	36.3	30.4	-	36.4	1.4	5.2	3.9	4	clayy SILT to silty CLAY	115	2.0	15	18	8	-	-	2.5	9.6	41	0.070	2.70	15
29.36	42.8	38.0	97.5	42.9	0.9	5.5	2.1	5	silty SAND to sandy SILT	120	3.0	13	14	9	35	35	-	-	29	0.200	2.46	16
29.53	33.6	29.8	89.8	33.6	0.7	3.5	2.2	4	clayy SILT to silty CLAY	115	2.0	15	17	7	-	-	2.3	8.7	33	0.070	2.55	15
29.69	22.5	18.6	-	22.5	0.5	3.0	2.6	4	clayy SILT to silty CLAY	115	2.0	9	11	5	-	-	1.5	5.7	44	0.070	2.77	15
29.86	15.2	12.6	-	15.3	0.4	5.7	2.7	3	silty CLAY to CLAY	115	1.5	8	10	4	-	-	1.0	3.7	54	0.005	2.93	15
30.02	14.9	12.3	-	15.1	0.3	9.5	2.5	3	silty CLAY to CLAY	115	1.5	8	10	4	-	-	1.0	3.6	54	0.005	2.93	15
30.19	15.8	13.0	-	16.4	0.3	29.6	2.4	3	silty CLAY to CLAY	115	1.5	9	11	4	-	-	1.0	3.8	51	0.005	2.89	15
30.35	17.1	14.0	-	17.7	0.3	34.4	2.2	4	clayy SILT to silty CLAY	115	2.0	7	9	4	-	-	1.1	4.1	48	0.070	2.84	15
30.51	16.5	13.4	-	17.3	0.3	40.0	2.3	4	clayy SILT to silty CLAY	115	2.0	7	8	4	-	-	1.1	3.9	50	0.070	2.87	15
30.68	18.3	14.8	-	19.0	0.3	37.3	2.1	4	clayy SILT to silty CLAY	115	2.0	7	9	4	-	-	1.2	4.4	46	0.070	2.80	15
30.84	15.6	12.6	-	16.2	0.4	30.6	2.6	3	silty CLAY to CLAY	115	1.5	8	10	4	-	-	1.0	3.7	53	0.005	2.92	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: BAGG Engineering
Data File: SDF(865).cpt
CPT Date: 7/26/2023 1:04:56 PM
GW During Test: 13 ft

Sounding ID: CPT-05
Project No: COUSM-23-03
Cone/Rig: DDG1589

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
31.01	14.1	11.4	-	14.9	0.4	37.7	3.0	3	silty CLAY to CLAY	115	1.5	8	9	4	-	-	0.9	3.3	58	0.005	3.00	15
31.17	14.6	11.7	-	15.4	0.4	40.3	3.1	3	silty CLAY to CLAY	115	1.5	8	10	4	-	-	0.9	3.4	58	0.005	2.99	15
31.33	15.2	12.2	-	16.0	0.4	40.6	2.8	3	silty CLAY to CLAY	115	1.5	8	10	4	-	-	1.0	3.5	56	0.005	2.96	15
31.50	15.5	12.3	-	16.3	0.4	42.0	2.6	3	silty CLAY to CLAY	115	1.5	8	10	4	-	-	1.0	3.6	54	0.005	2.93	15
31.66	15.0	11.9	-	15.9	0.4	46.1	2.9	3	silty CLAY to CLAY	115	1.5	8	10	4	-	-	1.0	3.4	57	0.005	2.98	15
31.83	16.1	12.8	-	17.2	0.4	51.7	3.0	3	silty CLAY to CLAY	115	1.5	9	11	4	-	-	1.1	3.7	55	0.005	2.95	15
31.99	18.1	14.3	-	19.1	0.5	49.0	3.0	3	silty CLAY to CLAY	115	1.5	10	12	4	-	-	1.2	4.2	52	0.005	2.90	15
32.15	18.6	14.6	-	19.6	0.5	49.2	3.2	3	silty CLAY to CLAY	115	1.5	10	12	4	-	-	1.2	4.3	53	0.005	2.92	15
32.32	18.6	14.6	-	19.6	0.6	51.3	3.5	3	silty CLAY to CLAY	115	1.5	10	12	4	-	-	1.2	4.3	55	0.005	2.94	15
32.48	19.7	15.4	-	20.7	0.6	52.7	3.1	3	silty CLAY to CLAY	115	1.5	10	13	5	-	-	1.3	4.6	51	0.005	2.89	15
32.65	22.2	17.3	-	23.3	0.5	56.7	2.4	4	clayy SILT to silty CLAY	115	2.0	9	11	5	-	-	1.5	5.2	45	0.070	2.78	15
32.81	20.9	16.2	-	21.9	0.6	49.3	2.9	3	silty CLAY to CLAY	115	1.5	11	14	5	-	-	1.4	4.9	49	0.005	2.85	15
32.97	18.8	14.5	-	19.9	0.6	55.3	3.8	3	silty CLAY to CLAY	115	1.5	10	13	5	-	-	1.2	4.3	56	0.005	2.97	15
33.14	22.1	17.0	-	23.3	1.1	65.1	5.4	3	silty CLAY to CLAY	115	1.5	11	15	5	-	-	1.5	5.1	58	0.005	3.00	15
33.30	26.9	20.7	-	28.3	1.2	73.2	4.8	3	silty CLAY to CLAY	115	1.5	14	18	6	-	-	1.8	6.3	52	0.005	2.90	15
33.47	38.4	29.4	-	38.7	1.2	15.1	3.3	4	clayy SILT to silty CLAY	115	2.0	15	19	8	-	-	2.6	9.2	39	0.070	2.67	15
33.63	66.2	56.2	117.3	66.4	1.4	10.1	2.3	5	silty SAND to sandy SILT	120	3.0	19	22	13	48	37	-	-	24	0.200	2.34	16
33.79	67.3	57.0	111.9	67.2	1.3	-5.3	2.0	5	silty SAND to sandy SILT	120	3.0	19	22	13	48	37	-	-	23	0.200	2.30	16
33.96	39.4	29.8	-	39.3	1.3	-4.3	3.6	4	clayy SILT to silty CLAY	115	2.0	15	20	8	-	-	2.7	9.4	40	0.070	2.69	15
34.12	24.8	18.8	-	24.8	0.7	-0.5	3.0	4	clayy SILT to silty CLAY	115	2.0	9	12	5	-	-	1.7	5.7	46	0.070	2.80	15
34.29	21.1	15.9	-	21.3	0.6	9.7	2.9	3	silty CLAY to CLAY	115	1.5	11	14	5	-	-	1.4	4.7	50	0.005	2.86	15
34.45	19.1	14.4	-	19.6	0.5	22.9	2.9	3	silty CLAY to CLAY	115	1.5	10	13	4	-	-	1.3	4.2	52	0.005	2.90	15
34.61	15.2	11.4	-	16.5	0.5	65.7	3.5	3	silty CLAY to CLAY	115	1.5	8	10	4	-	-	1.0	3.3	61	0.005	3.04	15
34.78	18.3	13.7	-	19.7	0.4	70.9	2.5	3	silty CLAY to CLAY	115	1.5	9	12	4	-	-	1.2	4.0	51	0.005	2.88	15
34.94	18.7	13.9	-	20.2	0.5	73.6	2.8	3	silty CLAY to CLAY	115	1.5	9	12	4	-	-	1.2	4.1	52	0.005	2.90	15
35.11	18.4	13.6	-	19.7	0.4	68.9	2.5	3	silty CLAY to CLAY	115	1.5	9	12	4	-	-	1.2	4.0	51	0.005	2.89	15
35.27	18.2	13.5	-	19.2	0.3	47.5	2.2	4	clayy SILT to silty CLAY	115	2.0	7	9	4	-	-	1.2	3.9	49	0.070	2.85	15
35.43	15.2	11.2	-	16.6	0.3	69.4	2.6	3	silty CLAY to CLAY	115	1.5	7	10	4	-	-	1.0	3.2	57	0.005	2.98	15
35.60	15.1	11.1	-	16.5	0.4	73.4	2.8	3	silty CLAY to CLAY	115	1.5	7	10	4	-	-	1.0	3.2	58	0.005	2.99	15
35.76	15.1	11.0	-	16.7	0.4	80.2	2.7	3	silty CLAY to CLAY	115	1.5	7	10	3	-	-	1.0	3.1	58	0.005	2.99	15
35.93	15.2	11.1	-	16.8	0.3	82.1	2.6	3	silty CLAY to CLAY	115	1.5	7	10	4	-	-	1.0	3.2	57	0.005	2.98	15
36.09	15.3	11.1	-	17.0	0.3	82.9	2.6	3	silty CLAY to CLAY	115	1.5	7	10	4	-	-	1.0	3.2	57	0.005	2.98	15
36.26	15.4	11.2	-	17.0	0.3	82.8	2.6	3	silty CLAY to CLAY	115	1.5	7	10	4	-	-	1.0	3.2	57	0.005	2.98	15
36.42	15.4	11.2	-	17.0	0.4	81.9	2.7	3	silty CLAY to CLAY	115	1.5	7	10	4	-	-	1.0	3.2	57	0.005	2.98	15
36.58	15.3	11.1	-	16.9	0.3	80.1	2.6	3	silty CLAY to CLAY	115	1.5	7	10	3	-	-	1.0	3.1	57	0.005	2.98	15
36.75	15.5	11.1	-	17.1	0.4	81.1	2.6	3	silty CLAY to CLAY	115	1.5	7	10	4	-	-	1.0	3.2	57	0.005	2.98	15
36.91	15.1	10.8	-	16.9	0.3	89.8	2.6	3	silty CLAY to CLAY	115	1.5	7	10	3	-	-	1.0	3.1	58	0.005	2.99	15
37.08	15.5	11.0	-	17.1	0.3	80.6	2.6	3	silty CLAY to CLAY	115	1.5	7	10	3	-	-	1.0	3.1	57	0.005	2.98	15
37.24	16.1	11.4	-	17.8	0.3	87.1	2.4	3	silty CLAY to CLAY	115	1.5	8	11	4	-	-	1.0	3.3	55	0.005	2.95	15
37.40	16.9	12.0	-	18.6	0.3	86.8	2.3	3	silty CLAY to CLAY	115	1.5	8	11	4	-	-	1.1	3.4	53	0.005	2.92	15
37.57	17.7	12.5	-	19.4	0.7	91.3	4.3	3	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.1	3.6	62	0.005	3.06	15
37.73	19.4	13.7	-	21.5	1.2	103.1	6.7	3	silty CLAY to CLAY	115	1.5	9	13	5	-	-	1.3	4.0	69	0.005	3.14	15
37.90	52.0	42.4	121.5	54.4	1.5	121.6	3.0	4	clayy SILT to silty CLAY	115	2.0	21	26	10	-	-	3.6	9.9	32	0.070	2.52	15
38.06	128.2	104.2	140.5	128.3	2.0	9.0	1.6	5	silty SAND to sandy SILT	120	3.0	35	43	21	68	40	-	-	14	0.200	2.03	16
38.22	133.3	108.2	147.1	133.4	2.2	9.5	1.7	5	silty SAND to sandy SILT	120	3.0	36	44	22	70	40	-	-	14	0.200	2.04	16
38.39	86.0	69.7	139.5	86.1	2.2	9.5	2.6	5	silty SAND to sandy SILT	120	3.0	23	29	16	55	38	-	-	23	0.200	2.32	16
38.55	44.6	31.0	-	44.8	1.7	10.4	4.1	4	clayy SILT to silty CLAY	115	2.0	15	22	8	-	-	3.1	9.7	41	0.070	2.71	15
38.72	32.1	22.2	-	32.2	0.9	9.0	3.2	4	clayy SILT to silty CLAY	115	2.0	11	16	6	-	-	2.2	6.8	44	0.070	2.76	15
38.88	26.5	18.3	-	26.8	0.6	15.6	2.4	4	clayy SILT to silty CLAY	115	2.0	9	13	5	-	-	1.8	5.5	43	0.070	2.75	15
39.04	25.2	17.4	-	25.6	0.6	19.3	2.6	4	clayy SILT to silty CLAY	115	2.0	9	13	5	-	-	1.7	5.2	46	0.070	2.80	15
39.21	25.0	17.1	-	25.5	0.6	27.1	2.8	4	clayy SILT to silty CLAY	115	2.0	9	12	5	-	-	1.7	5.1	47	0.070	2.83	15
39.37	26.4	18.0	-	27.3	0.8	45.3	3.1	3	silty CLAY to CLAY	115	1.5	12	18	5	-	-	1.8	5.4	48	0.005	2.83	15
39.54	25.2	17.2	-	26.2	1.0	47.9	4.4	3	silty CLAY to CLAY	115	1.5	11	17	5	-	-	1.7	5.2	55	0.005	2.94	15
39.70	25.2	17.1	-	26.2	1.2	50.9	5.2	3	silty CLAY to CLAY	115	1.5	11	17	5	-	-	1.7	5.1	58	0.005	2.99	15
39.86	24.7	16.7	-	25.8	1.1	59.7	4.9	3	silty CLAY to CLAY	115	1.5	11	16	5	-	-	1.6	5.0	57	0.005	2.98	15
40.03	22.1	14.9	-	23.6	0.9	75.8	4.5	3	silty CLAY to CLAY	115	1.5	10	15	5	-	-	1.5	4.4	59	0.005	3.00	15
40.19	21.9	14.8	-	23.2	0.9	66.1	4.7	3	silty CLAY to CLAY	115	1.5	10	15	5	-	-	1.4	4.4	60	0.005	3.02	15
40.36	23.9	16.0	-	25.7	1.3	91.7	6.1	3	silty CLAY to CLAY	115	1.5	11	16	5	-	-	1.6	4.8	62	0.005	3.06	15
40.52	32.0	21.4	-	33.8	1.7	93.8	5.6	3	silty CLAY to CLAY	115	1.5	14	21	7	-	-	2.2	6.5	54	0.005	2.93	15
40.68	45.7	30.5	-	47.4	1.6	83.2	3.7	4	clayy SILT to silty CLAY	115	2.0	15	23	8	-	-	3.1	9.6	40	0.070	2.69	15
40.85	47.6	31.7	-	47.6	1.9	1.5	4.3	4	clayy SILT to silty CLAY	115	2.0	16	24	9	-	-	3.3	9.9	41	0.070	2.72	15
41.01	38.1	25.3	-	38.6	2.1	22.1	5.9	3	silty CLAY to CLAY	115	1.5	17	25	8	-	-	2.6	7.8	51	0.005	2.89	15
41.18	42.5	28.1	-	44.0	2.5	79.2	6.2	3	silty CLAY to CLAY	115	1.5	19	28	8	-	-	2.9	8.8	50	0.005	2.87	15
41.34	69.3	54.7	144.5	69.9	2.3	30.4	3.4	4	clayy SILT to silty CLAY	115	2.0	27	35	13	-	-	4.8	9.9	30	0.070	2.47	15
41.50	55.1	36.3	-	55.0	2.0	-3.7	3.8	4	clayy SILT to silty CLAY	115	2.0	18	28	9	-	-	3.8	9.9	37	0.070	2.64	15
41.67	39.5	26.0	-	39.6	1.8	4.0	5.0	3	silty CLAY to CLAY	115	1.5	17	26	7	-	-	2.7	8.0	48	0.005	2.83	15
41.83	35.3	23.1	-	36.0	1.6	35.0	4.8	3	silty CLAY to CLAY	115	1.5	15	24	7	-	-	2.4	7.1	49	0.005	2.86	15
42.00	33.2	21.7	-	34.2	1.2	50.0	4.0	3	silty CLAY to CLAY	115	1.5	14	22	6	-	-	2.2	6.6	48	0.005	2.83	15
42.16	30.9	20.1	-	31.9	1.1	49.5	3.7	3	silty CLAY to CLAY	115	1.5	13	21	6	-	-	2.1	6.1	48	0.005	2.84	15
42.32	26.8	17.4	-	27.9	0.8	56.4	3.4	3	silty CLAY to CLAY	115	1.5	12	18	5	-	-	1.8	5.2	50	0.005	2.87	15
42.49	23.8	15.4	-	24.9	0.8	58.8	3.6	3	silty CLAY to CLAY	115	1.5	10	16	5	-	-	1.6	4.6	54	0.005	2.93	15
42.65	21.4	13.8	-	22.7	0.7	64.9	3.9	3	silty CLAY to CLAY	115	1.5	9	14	4	-	-	1.4	4.0	58	0.005	2.99	15
42.82	22.0	14.1	-	23.5	0.6	76.1	3.1	3	silty CLAY to CLAY	115	1.5	9	15	4	-	-	1.4	4.1	54	0.005	2.92	15
42.98	24.0	15.4	-	25.3	0.7	70.4	3.2	3	silty CLAY to CLAY	115	1.5	10	16	5	-	-	1.6	4.5	52	0.005	2.90	15
43.15	20.8	13.3	-	22.1	0.8	65.3	4.3	3	silty CLAY to CLAY	115	1.5	9	14	4	-	-	1.4	3.9	61	0.005	3.03	15
43.31	19.9	12.7	-	21.4	1.2	77.5	6.9	3	silty CLAY to CLAY	115	1.5	8	13	5	-	-	1.3	3.7	72	0.005	3.18	15
43.47	29.8	19.0	-	31.2	1.6	75.0	6.0	3	silty CLAY to CLAY	115	1.5	13	20	6	-	-	2.0	5.7	58	0.005	3.00	15
43.64	68.2	52.8	129.3	70.0	1.9	94.3	2.9	4	clayy SILT to silty CLAY	115	2.0	26	34	12	-	-	4.7	9.9	28	0.070	2.43	15
43.80	109.0	84.3	134.1	108.9	2.1	-5.5	2.0	5	silty SAND to sandy SILT	120	3.0	28	36	18	61	38	-	-	18	0.200	2.17	16
43.97	121.1	93.5	156.3	121.0	2.9	-5.9	2.4	5	silty SAND to sandy SILT	120	3.0	31	40	20	65	39	-	-	19	0.200	2.20	16
44.13	102.9	79.3	173.3	102.8	3.5	-5.4	3.5	4	clayy SILT to silty CLAY	115	2.0	40	51	18	-	-	7.2	9.9	25	0.070	2.37	15
44.29	75.2	57.9	160.6	75.2	2.9	-2.4	3.9	4	clayy SILT to silty CLAY	115	2.0	29	38	14	-	-	5.2	9.9	31	0.070	2.50	15
44.46	69.3	53.2	157.7	69.3	2.7	3.1	4.0	4	clayy SILT to silty CLAY	115	2.0	27	35	13	-	-	4.8	9.9	32	0.070	2.54	15
44.62	93.3	71.6	142.5	93.4	2.4	3.6	2.6	5	silty SAND to sandy SILT	120	3.0	24	31	16	56	37	-	-	23	0.200	2.31	16
44.79	67.5	51.7	127.9	67.4	1.8	-2.0	2.8	4	clayy SILT to silty CLAY	115	2.0	26	34	12	-	-	4.7	9.9	28	0.070	2.44	15
44.95	42.6	26.5	-	42.7	2.1	2.7	5.3	3	silty CLAY to CLAY	115	1.5	18	28	8	-	-	2.9	8.2	49	0.005	2.85	15
45.11	32.5	20.1	-	32.9	1.2	18.6	3.9	3	silty CLAY to CLAY	115	1.5	13	22	6	-	-	2.2	6.1	49	0.005	2.85	15
45.28	52.7	32.5	-	53.7	1.9	50.9	3.9	4	clayy SILT to silty CLAY	115	2.0	16	26	9	-	-	3.6	9.9	40	0.070	2.68	15
45.44	92.1	70.2	130.8	92.1	2.0	1.8	2.3	5	silty SAND to sandy SILT	120	3.0	23	31	15	55	37	-	-	22	0.200	2.27	16
45.61	63.9	48.6	128.9	63.9	1.8	2.4	3.0	4	clayy SILT to silty CLAY	115	2.0	24	32	12	-	-	4.4	9.9	30	0.070	2.48	15
45.77	43.1	26.4	-	43.5	1.9	22.9	4.6	3	silty CLAY to CLAY	115	1.5	18	29	7	-	-	2.9	8.2	46	0.005	2.80	15
45.93	56.0	42.5	117.9	56.5	1.5	25.3	2.8	4	clayy SILT to silty CLAY	115	2.0	21	28	10	-	-	3.8	9.9	31	0.070	2.50	15
46.10	43.1	26.2	-	43.3	1.4	9.7	3.6	4	clayy SILT to silty CLAY	115	2.0	13	22	7	-	-	2.9	8.1	42	0.070	2.73	15
46.26	29.8	18.1	-	30.3	1.1	24.8	4.1	3	silty CLAY to CLAY	115	1.5	12	20	5	-	-	2.0	5.4	52	0.005	2.90	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: BAGG Engineering
Data File: SDF(865).cpt
CPT Date: 7/26/2023 1:04:56 PM
GW During Test: 13 ft

Sounding ID: CPT-05
Project No: COUSM-23-03
Cone/Rig: DDG1589

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
46.43	27.2	16.5	-	28.0	0.9	39.8	3.8	3	silty CLAY to CLAY	115	1.5	11	18	5	-	-	1.8	4.9	53	0.005	2.92	15
46.59	28.0	16.9	-	28.9	0.9	44.1	3.5	3	silty CLAY to CLAY	115	1.5	11	19	5	-	-	1.9	5.1	51	0.005	2.89	15
46.75	27.1	16.4	-	28.2	1.3	54.2	5.1	3	silty CLAY to CLAY	115	1.5	11	18	5	-	-	1.8	4.9	59	0.005	3.00	15
46.92	40.4	24.3	-	41.2	2.0	43.7	5.3	3	silty CLAY to CLAY	115	1.5	16	27	7	-	-	2.7	7.5	50	0.005	2.87	15
47.08	50.2	30.1	-	51.6	2.6	70.9	5.4	3	silty CLAY to CLAY	115	1.5	20	33	9	-	-	3.4	9.4	46	0.005	2.81	15
47.25	191.3	143.7	176.5	191.4	3.0	6.7	1.6	6	clean SAND to silty SAND	125	5.0	29	38	28	79	41	-	-	11	0.350	1.94	16
47.41	280.2	210.2	210.2	280.1	2.5	-4.0	0.9	6	clean SAND to silty SAND	125	5.0	42	56	36	92	43	-	-	5	0.350	1.64	16
47.57	279.2	209.1	213.6	279.2	2.7	0.3	1.0	6	clean SAND to silty SAND	125	5.0	42	56	37	91	43	-	-	6	0.350	1.68	16
47.74	284.6	212.8	212.8	284.6	2.1	0.5	0.7	6	clean SAND to silty SAND	125	5.0	43	57	36	92	43	-	-	5	0.350	1.58	16
47.90	291.8	217.9	217.9	291.8	2.2	-0.2	0.7	6	clean SAND to silty SAND	125	5.0	44	58	37	93	43	-	-	5	0.350	1.58	16
48.07	297.8	222.0	222.0	298.0	1.8	10.7	0.6	6	clean SAND to silty SAND	125	5.0	44	60	37	93	43	-	-	5	0.350	1.51	16
48.23	282.4	210.2	210.2	282.5	1.7	8.6	0.6	6	clean SAND to silty SAND	125	5.0	42	56	35	92	43	-	-	5	0.350	1.54	16
48.39	300.1	223.1	223.1	300.2	1.8	2.1	0.6	6	clean SAND to silty SAND	125	5.0	45	60	37	93	43	-	-	5	0.350	1.51	16
48.56	273.4	202.9	207.6	273.4	2.6	-1.4	1.0	6	clean SAND to silty SAND	125	5.0	41	55	35	90	43	-	-	6	0.350	1.68	16
48.72	273.8	202.9	202.9	273.8	1.9	0.3	0.7	6	clean SAND to silty SAND	125	5.0	41	55	34	90	43	-	-	5	0.350	1.58	16
48.89	279.6	206.9	206.9	279.5	2.0	-1.2	0.7	6	clean SAND to silty SAND	125	5.0	41	56	35	91	43	-	-	5	0.350	1.58	16
49.05	257.4	190.2	199.7	257.5	2.6	2.1	1.0	6	clean SAND to silty SAND	125	5.0	38	51	34	88	43	-	-	6	0.350	1.72	16
49.22	215.3	158.8	193.0	215.3	3.6	4.3	1.7	6	clean SAND to silty SAND	125	5.0	32	43	30	82	42	-	-	11	0.350	1.93	16
49.38	197.6	145.5	186.8	197.7	3.6	4.3	1.9	6	clean SAND to silty SAND	125	5.0	29	40	28	79	41	-	-	13	0.350	1.99	16
49.54	135.3	99.5	164.0	135.5	3.3	7.6	2.5	5	silty SAND to sandy SILT	120	3.0	33	45	21	67	39	-	-	19	0.200	2.19	16
49.71	110.5	81.1	173.3	111.0	3.7	28.1	3.4	5	silty SAND to sandy SILT	120	3.0	27	37	18	60	38	-	-	25	0.200	2.35	16
49.87	104.5	76.6	179.9	104.6	3.9	4.7	3.8	4	clayy SILT to silty CLAY	115	2.0	38	52	18	-	-	7.3	9.9	27	0.070	2.41	15
50.04	93.0	68.1	157.8	93.2	3.0	12.5	3.3	4	clayy SILT to silty CLAY	115	2.0	34	46	16	-	-	6.4	9.9	26	0.070	2.40	15

* Indicates the parameter was calculated using the normalized point stress.
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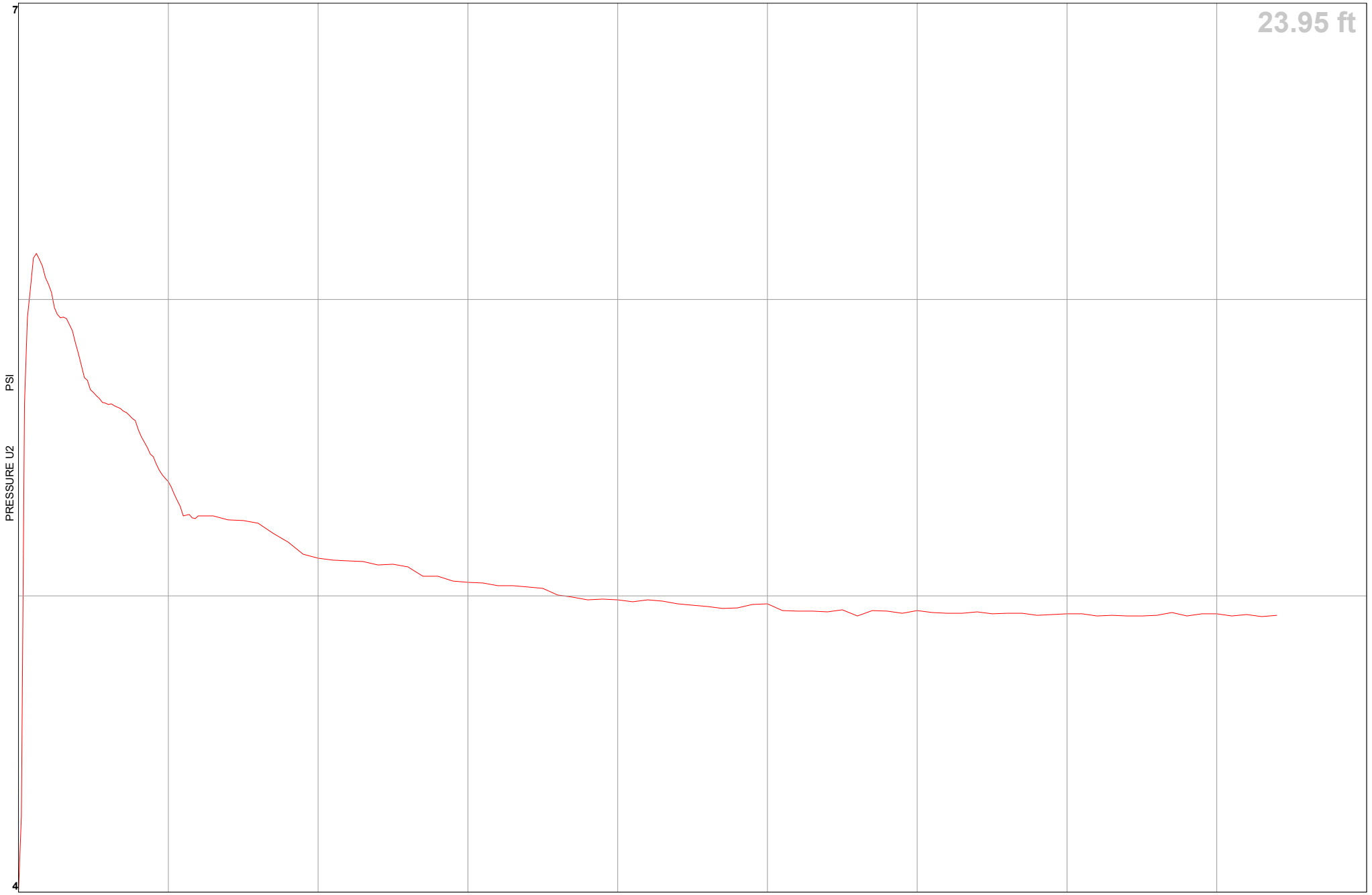
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

BAGG Engineering

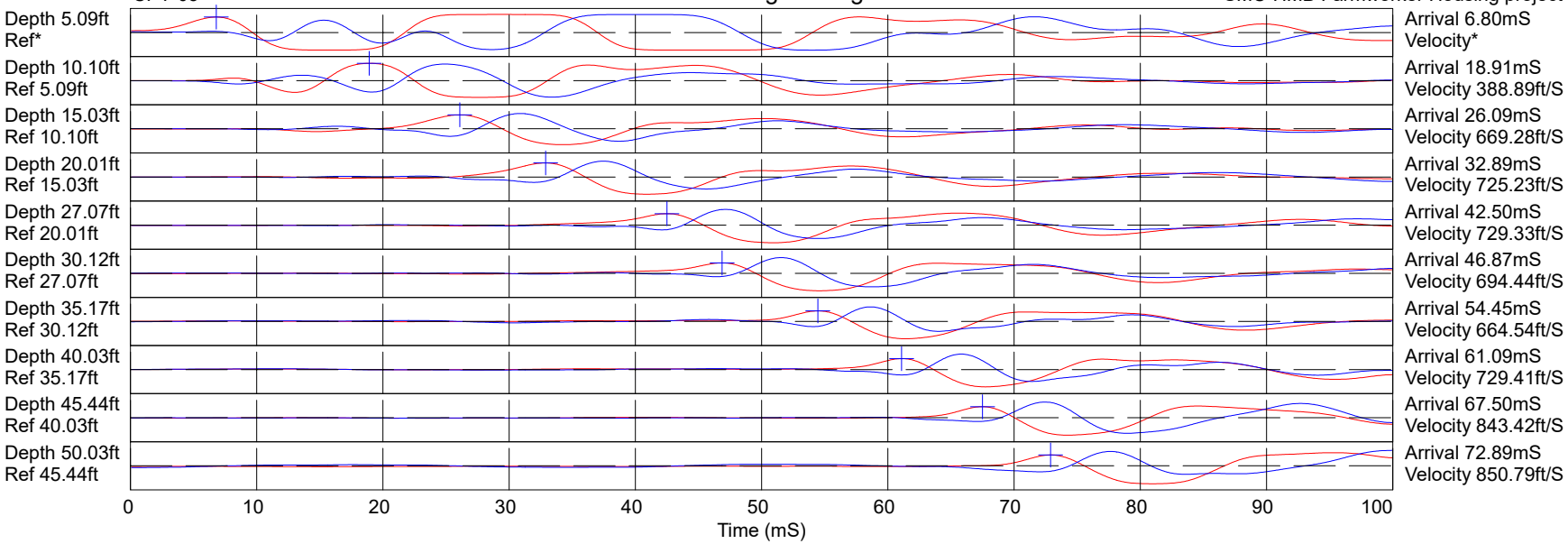
Location	SMC-HMB Farmworker Housing projec	Operator	AJ-ER		
Job Number	COUSM-23-03	Cone Number	DDG1589	GPS	
Hole Number	CPT-05	Date and Time	7/26/2023 1:04:56 PM		
Equilized Pressure	4.9	EST GW Depth During Test	12.5		



CPT-05

BAGG Engineering

SMC-HMB Farmworker Housing project



Hammer to Rod String Distance (ft): 2.67

* = Not Determined

COMMENT:

APPENDIX B

2021 Boring & CPT Logs
(B-1 through B-5; CPT-1 & CPT-2)

BORING LOG

Boring No. B-1
Page 1 of 1

JOB NAME: Proposed Corporation Yard Renovation, City of Half Moon Bay
JOB NO.: HALFM-21-01
CLIENT: City of Half Moon Bay
DATE DRILLED: 9/29/2021
LOCATION: 880 Stone Pine Rd, Half Moon Bay
ELEVATION: 86± feet
DRILLER: West Coast Exploration Inc.
LOGGED BY: JL
DRILL METHOD: Truck-Mounted Drilling Rig - 4½" Diam. Continuous Flight Augers

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
						0			Approx. 6" topsoil over screen	
								CL	SANDY LEAN CLAY: dark brown, very stiff, dry to moist, well-graded sand, few organic	
DSX	320	26.9	480	15.8	88		14 18 20			
						3				
							12		... brown to dark brown with orange-brown specks, very stiff, moist, increased sand content, some medium to coarse sand	
DSX	500	13.6	1050	8.8	119		16			Swell=0.2%
DSX	2000	15.2	1630	9.4	112		16			
						6				
									... contains pockets of wet medium-grained sand	
							5		... brown, stiff, moist to wet, fine to medium sand, few coarse sand, contains lense of sandy silt	
DS	1100	NAT	920	19.9	107	9	8 11			
									... lense of medium to coarse sand	
						12			... lense of sandy silt	
				21.2			8	SC	CLAYEY SAND: dark brown, medium dense, wet, medium to coarse sand	Fines=31% LL=28, PI=9
DS	1800	NAT	1630	18.9	101		12			
DS	3500	NAT	2720	19.5	104	15	20			
									The boring was terminated at approximately 15 feet bgs.	
									Groundwater was not encountered in the boring.	
						18			The borehole was backfilled with cement grout.	

BORING LOG

Boring No. B-2
Page 1 of 2

JOB NAME: Proposed Corporation Yard Renovation, City of Half Moon Bay
JOB NO.: HALFM-21-01
CLIENT: City of Half Moon Bay
DATE DRILLED: 9/29/2021
LOCATION: 880 Stone Pine Rd, Half Moon Bay
ELEVATION: 86± feet
DRILLER: West Coast Exploration Inc.
LOGGED BY: JL
DRILL METHOD: Truck-Mounted Drilling Rig - 4½" Diam. Continuous Flight Augers

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
						0			Approx. 2" gravel over 1" sand	
							9	CL	SANDY LEAN CLAY: dark gray, very stiff, moist, well-graded sand, reworked in the upper approx. 1'	
DSX	320	20.3	790	2.3	122		11			Swell=0.5%
DSX	1500	20.7	1500	18.8	102		15		... dark brown at about 2'	
						3				
				25.4			5			
							9		... brown, stiff, moist, fine sand, few medium sand	
							10			
						6				
DS	1000	NAT	1340	30.8	91		10		... mottled brown and orange-brown, very stiff, moist, fine sand, trace medium sand	
						9	12			
							15			
						12				
									... lense of wet medium-grained sand	
							14			
DS	3000	NAT	1400	22.7	104		14		... brown, medium stiff, moist to wet	
							26			
						15			... pockets of wet well-graded sand with fine gravel	
								SC	CLAYEY SAND: brown, medium dense to dense, wet, fine to medium sand, few coarse sand	
						18				
							9			

BORING LOG

Boring No. B-2
Page 2 of 2

JOB NAME: Proposed Corporation Yard Renovation, City of Half Moon Bay *JOB NO.:* HALFM-21-01

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
DS	2500	NAT	1790	23.1	102		16 28			Fines=37%
						21			The boring was terminated at approximately 20 feet bgs. Groundwater was not encountered in the boring. The borehole was backfilled with cement grout.	
						24				
						27				
						30				
						33				
						36				
						39				

BORING LOG

Boring No. B-3
Page 1 of 2

JOB NAME: Proposed Corporation Yard Renovation, City of Half Moon Bay
JOB NO.: HALFM-21-01
CLIENT: City of Half Moon Bay
DATE DRILLED: 9/29/2021
LOCATION: 880 Stone Pine Rd, Half Moon Bay
ELEVATION: 84± feet
DRILLER: West Coast Exploration Inc.
LOGGED BY: JL
DRILL METHOD: Truck-Mounted Drilling Rig - 4½" Diam. Continuous Flight Augers

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
						0			Approx. 6" topsoil over screen	
DS	320	NAT	2720	12.9	107		11	CH	SANDY FAT CLAY: dark gray to dark brown, hard, moist, well-graded sand, few organic	LL=52, PI=25
DS	1500	NAT	3130	16.0	97		16			
							17			
						3		CL	SANDY LEAN CLAY: dark brown, hard, moist, some medium sand, few fine and coarse sand	
DS	400	NAT	2250	14.4	112		12			Fines=59%
							16			
							25			
						6				
				30.3	91		10		... mottled brown and orange-brown, very stiff, moist, fine sand, few medium to coarse sand	
						9	17			
							21			
						12			... mottled brown and orange-brown with dark gray specks, stiff, moist, moderately plastic	
DS	1700	NAT	1160	27.0	98		9			
							10		... lense of sandy silt	
						15	18			
						18				
							10			

BORING LOG

Boring No. B-3
Page 2 of 2

JOB NAME: Proposed Corporation Yard Renovation, City of Half Moon Bay *JOB NO.:* HALFM-21-01

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
				30.6	92		16 20		... brown, stiff, moist to wet	
						21		CH	FAT CLAY with SAND: dark olive-gray with trace dark gray, medium stiff, moist, few fine sand	
DS	3000	NAT	1340	23.9	104	24	7 8 10		... stiff, moist, increased fine sand content	
						27			The boring was terminated at approximately 25 feet bgs. Groundwater was not encountered in the boring. The borehole was backfilled with cement grout.	
						30				
						33				
						36				
						39				

BORING LOG

Boring No. B-4
Page 1 of 1

JOB NAME: Proposed Corporation Yard Renovation, City of Half Moon Bay
JOB NO.: HALFM-21-01
CLIENT: City of Half Moon Bay
DATE DRILLED: 9/29/2021
LOCATION: 880 Stone Pine Rd, Half Moon Bay
ELEVATION: 83± feet
DRILLER: West Coast Exploration Inc.
LOGGED BY: JL
DRILL METHOD: Truck-Mounted Drilling Rig - 4½" Diam. Continuous Flight Augers

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
DSX	320	21.9	1210	16.1	108	0	11 18 26		Approx. 6" topsoil over screen	Swell=4.6%
								CH	SANDY FAT CLAY: dark gray-brown, hard, dry to moist, well-graded sand, few fine gravel, trace organic	
				13.5	115	3	15 18 22	CL	SANDY LEAN CLAY: dark brown, very stiff, dry to moist, some well-graded sand, trace fine gravel	
						6			The boring was terminated at approximately 5 feet bgs. Groundwater was not encountered in the boring. The borehole was backfilled with cement grout.	
						9				
						12				
						15				
						18				

BORING LOG

Boring No. B-5
Page 1 of 1

JOB NAME: Proposed Corporation Yard Renovation, City of Half Moon Bay
JOB NO.: HALFM-21-01
CLIENT: City of Half Moon Bay
DATE DRILLED: 9/29/2021
LOCATION: 880 Stone Pine Rd, Half Moon Bay
ELEVATION: 85± feet
DRILLER: West Coast Exploration Inc.
LOGGED BY: JL
DRILL METHOD: Truck-Mounted Drilling Rig - 4½" Diam. Continuous Flight Augers

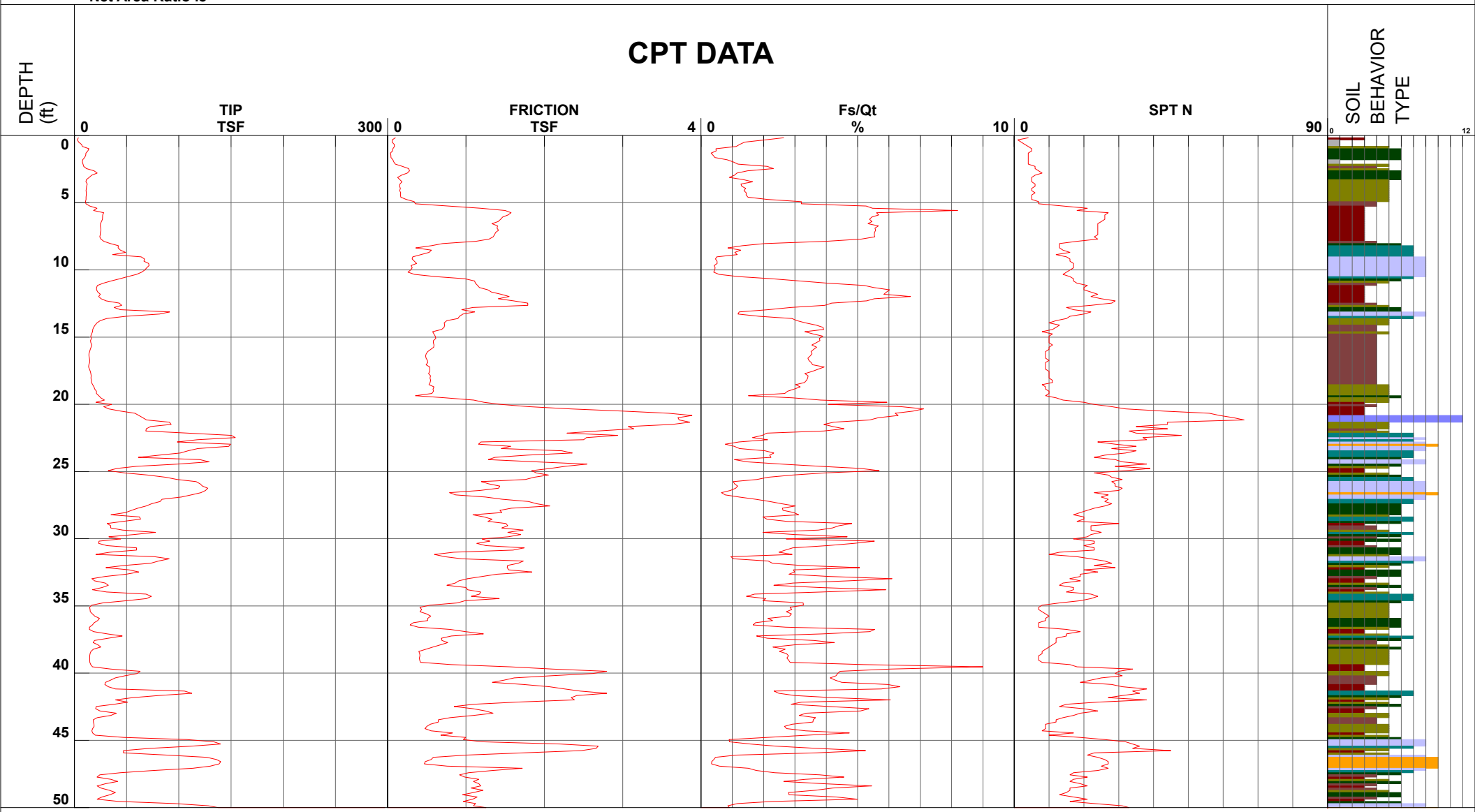
Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
						0			Approx. 6" topsoil	
DS	320	NAT	420	14.4	85		12 21 23	CL	SANDY LEAN CLAY: dark gray, very stiff, dry to moist, well-graded sand, trace organic	LL=31, PI=12
DS DS	400 2000	NAT NAT	740 1710	13.2 13.2	107 107	3	7 8 8		... dark brown, stiff, moist, increased sand content, well-graded sand, trace organic	
						6			The boring was terminated at approximately 5 feet bgs. Groundwater was not encountered in the boring. The borehole was backfilled with cement grout.	
						9				
						12				
						15				
						18				

BAGG Engineers

Project	Corporation Yard Improvements Project	Operator	JM-IY	Filename	SDF(359).cpt
Job Number	HALFM-21-01	Cone Number	DPG1556	GPS	
Hole Number	CPT-01	Date and Time	10/8/2021 2:00:06 PM	Maximum Depth	50.69 ft
EST GW Depth During Test		19.00 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Cone Size 15cm squared

S*Soil behavior type and SPT based on data from UBC-1983

Corporation Yard Improvements Project

Project ID: BAGG Engineers
Data File: SDF(359).cpt
CPT Date: 10/8/2021 2:00:06 PM
GW During Test: 18 ft

Sounding ID: CPT-01
Project No: HALFM-21-01
Cone/Rig: DPG1556

Depth ft	qc PS tsf	qc1n PS - *	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
0.33	2.8	4.5	-	2.8	0.1	0.3	2.1	3	silty CLAY to CLAY	115	1.5	3	2	2	-	-	0.2	9.9	73	0.005	3.21	15
0.49	4.1	6.6	-	4.1	0.1	0.1	1.4	3	silty CLAY to CLAY	115	1.5	4	3	2	-	-	0.3	9.9	57	0.005	2.98	15
0.66	6.8	10.9	-	6.8	0.1	0.3	1.2	4	clayy SILT to silty CLAY	115	2.0	5	3	3	-	-	0.5	9.9	44	0.070	2.77	15
0.82	7.8	12.5	-	7.8	0.1	0.2	1.1	4	clayy SILT to silty CLAY	115	2.0	6	4	3	-	-	0.5	9.9	40	0.070	2.70	15
0.98	13.9	22.4	43.9	13.9	0.1	0.2	0.5	5	silty SAND to sandy SILT	120	3.0	7	5	5	18	45	-	-	23	0.200	2.31	16
1.15	12.8	20.6	43.0	12.8	0.1	0.7	0.5	5	silty SAND to sandy SILT	120	3.0	7	4	5	15	44	-	-	24	0.200	2.34	16
1.31	11.0	17.7	37.1	11.1	0.0	0.6	0.3	5	silty SAND to sandy SILT	120	3.0	6	4	4	10	42	-	-	24	0.200	2.34	16
1.48	10.8	17.4	38.5	10.8	0.0	0.4	0.4	5	silty SAND to sandy SILT	120	3.0	6	4	4	9	42	-	-	25	0.200	2.38	16
1.64	9.7	15.5	38.8	9.7	0.0	0.6	0.4	5	silty SAND to sandy SILT	120	3.0	5	3	4	6	41	-	-	28	0.200	2.44	16
1.80	8.0	12.8	-	8.0	0.1	0.4	0.8	4	clayy SILT to silty CLAY	115	2.0	6	4	3	-	-	0.6	9.9	37	0.070	2.63	15
1.97	7.6	12.2	-	7.6	0.1	0.4	1.0	4	clayy SILT to silty CLAY	115	2.0	6	4	3	-	-	0.5	9.9	40	0.070	2.69	15
2.13	8.3	13.3	-	8.3	0.1	0.4	1.2	4	clayy SILT to silty CLAY	115	2.0	7	4	4	-	-	0.6	9.9	40	0.070	2.69	15
2.30	8.9	14.3	-	8.9	0.2	0.5	2.1	4	clayy SILT to silty CLAY	115	2.0	7	4	4	-	-	0.6	9.9	46	0.070	2.79	15
2.46	11.6	18.6	-	11.6	0.3	0.5	2.3	4	clayy SILT to silty CLAY	115	2.0	9	6	5	-	-	0.8	9.9	41	0.070	2.72	15
2.62	18.8	30.2	74.0	18.8	0.3	0.7	1.5	5	silty SAND to sandy SILT	120	3.0	10	6	7	27	42	-	-	28	0.200	2.43	16
2.79	21.8	35.0	70.1	21.8	0.3	1.2	1.2	5	silty SAND to sandy SILT	120	3.0	12	7	8	32	42	-	-	23	0.200	2.32	16
2.95	16.6	26.6	61.7	16.6	0.2	0.6	1.1	5	silty SAND to sandy SILT	120	3.0	9	6	6	23	40	-	-	26	0.200	2.40	16
3.12	14.1	22.7	55.1	14.2	0.1	0.6	0.9	5	silty SAND to sandy SILT	120	3.0	8	5	5	18	39	-	-	28	0.200	2.43	16
3.28	11.5	18.4	60.8	11.5	0.2	0.6	1.4	4	clayy SILT to silty CLAY	115	2.0	9	6	5	-	-	0.8	9.9	35	0.070	2.60	15
3.45	11.1	17.8	-	11.1	0.2	0.4	1.7	4	clayy SILT to silty CLAY	115	2.0	9	6	5	-	-	0.8	9.9	38	0.070	2.66	15
3.61	12.3	19.8	60.7	12.3	0.2	0.2	1.3	4	clayy SILT to silty CLAY	115	2.0	10	6	5	-	-	0.9	9.9	33	0.070	2.56	15
3.77	11.7	18.8	60.3	11.7	0.2	0.3	1.3	4	clayy SILT to silty CLAY	115	2.0	9	6	5	-	-	0.8	9.9	34	0.070	2.58	15
3.94	11.4	18.3	-	11.4	0.2	0.3	1.5	4	clayy SILT to silty CLAY	115	2.0	9	6	5	-	-	0.8	9.9	36	0.070	2.61	15
4.10	11.2	17.9	-	11.2	0.2	0.3	1.4	4	clayy SILT to silty CLAY	115	2.0	9	6	5	-	-	0.8	9.9	36	0.070	2.61	15
4.27	11.5	18.4	-	11.5	0.2	0.4	1.5	4	clayy SILT to silty CLAY	115	2.0	9	6	5	-	-	0.8	9.9	36	0.070	2.61	15
4.43	11.4	18.2	-	11.4	0.2	0.4	1.5	4	clayy SILT to silty CLAY	115	2.0	9	6	5	-	-	0.8	9.9	36	0.070	2.62	15
4.59	11.1	17.9	-	11.2	0.2	0.2	1.5	4	clayy SILT to silty CLAY	115	2.0	9	6	5	-	-	0.8	9.9	37	0.070	2.64	15
4.76	11.2	17.9	-	11.2	0.2	0.2	2.2	4	clayy SILT to silty CLAY	115	2.0	9	6	5	-	-	0.8	9.9	41	0.070	2.72	15
4.92	10.6	17.0	-	10.6	0.3	0.1	3.3	3	silty CLAY to CLAY	115	1.5	11	7	5	-	-	0.7	9.9	49	0.005	2.84	15
5.09	11.0	17.7	-	11.0	0.4	0.5	3.3	3	silty CLAY to CLAY	115	1.5	12	7	5	-	-	0.8	9.9	48	0.005	2.83	15
5.25	14.6	23.5	-	14.7	0.8	0.9	5.4	3	silty CLAY to CLAY	115	1.5	16	10	7	-	-	1.0	9.9	50	0.005	2.87	15
5.41	21.7	34.8	-	21.7	1.2	0.8	5.6	3	silty CLAY to CLAY	115	1.5	23	14	10	-	-	1.5	9.9	44	0.005	2.76	15
5.58	18.3	29.3	-	18.3	1.5	0.5	8.3	3	silty CLAY to CLAY	115	1.5	20	12	9	-	-	1.3	9.9	54	0.005	2.94	15
5.74	28.1	45.1	-	28.1	1.6	0.6	5.7	3	silty CLAY to CLAY	115	1.5	30	19	12	-	-	2.0	9.9	40	0.005	2.69	15
5.91	27.1	43.4	-	27.1	1.5	0.1	5.7	3	silty CLAY to CLAY	115	1.5	29	18	12	-	-	1.9	9.9	41	0.005	2.70	15
6.07	26.9	43.2	-	26.9	1.5	-0.3	5.5	3	silty CLAY to CLAY	115	1.5	29	18	12	-	-	1.9	9.9	40	0.005	2.69	15
6.23	26.8	43.0	-	26.8	1.4	-0.6	5.5	3	silty CLAY to CLAY	115	1.5	29	18	11	-	-	1.9	9.9	40	0.005	2.69	15
6.40	25.9	41.5	-	25.8	1.4	-2.3	5.5	3	silty CLAY to CLAY	115	1.5	28	17	11	-	-	1.8	9.9	41	0.005	2.70	15
6.56	25.0	40.1	-	25.0	1.3	-1.4	5.4	3	silty CLAY to CLAY	115	1.5	27	17	11	-	-	1.7	9.9	41	0.005	2.71	15
6.73	24.8	39.7	-	24.7	1.4	-0.9	5.8	3	silty CLAY to CLAY	115	1.5	26	17	11	-	-	1.7	9.9	42	0.005	2.73	15
6.89	25.1	40.3	-	25.1	1.4	-0.5	5.6	3	silty CLAY to CLAY	115	1.5	27	17	11	-	-	1.7	9.9	41	0.005	2.72	15
7.05	25.4	40.7	-	25.4	1.4	0.1	5.7	3	silty CLAY to CLAY	115	1.5	27	17	11	-	-	1.8	9.9	41	0.005	2.72	15
7.22	24.9	39.9	-	24.9	1.4	1.5	5.6	3	silty CLAY to CLAY	115	1.5	27	17	11	-	-	1.7	9.9	42	0.005	2.72	15
7.38	24.7	39.6	-	24.7	1.4	1.1	5.6	3	silty CLAY to CLAY	115	1.5	26	16	11	-	-	1.7	9.9	42	0.005	2.72	15
7.55	24.3	39.0	-	24.3	1.3	1.7	5.6	3	silty CLAY to CLAY	115	1.5	26	16	11	-	-	1.7	9.9	42	0.005	2.73	15
7.71	25.3	40.6	-	25.3	1.3	2.2	5.2	3	silty CLAY to CLAY	115	1.5	27	17	11	-	-	1.8	9.9	40	0.005	2.69	15
7.87	28.2	45.2	145.1	28.2	1.1	0.0	4.1	4	clayy SILT to silty CLAY	115	2.0	23	14	11	-	-	2.0	9.9	34	0.070	2.58	15
8.04	34.4	49.0	104.8	34.4	0.7	-1.0	2.1	5	silty SAND to sandy SILT	120	3.0	16	11	11	43	39	-	-	25	0.200	2.36	16
8.20	42.1	59.3	94.8	42.1	0.6	0.1	1.3	5	silty SAND to sandy SILT	120	3.0	20	14	12	50	40	-	-	18	0.200	2.17	16
8.37	41.9	58.4	81.4	41.9	0.4	0.2	0.9	5	silty SAND to sandy SILT	120	3.0	19	14	12	49	40	-	-	15	0.200	2.06	16
8.53	44.1	60.8	94.4	44.1	0.6	0.2	1.3	5	silty SAND to sandy SILT	120	3.0	20	15	13	51	40	-	-	17	0.200	2.15	16
8.69	49.1	67.0	94.4	49.1	0.5	0.7	1.1	5	silty SAND to sandy SILT	120	3.0	22	16	14	54	40	-	-	15	0.200	2.07	16
8.86	36.6	49.6	82.5	36.7	0.4	0.6	1.2	5	silty SAND to sandy SILT	120	3.0	17	12	11	44	39	-	-	19	0.200	2.20	16
9.02	64.0	85.7	94.7	64.0	0.3	0.4	0.5	6	clean SAND to silty SAND	125	5.0	17	13	16	62	42	-	-	8	0.350	1.80	16
9.19	67.1	89.1	96.3	67.1	0.3	0.3	0.5	6	clean SAND to silty SAND	125	5.0	18	13	16	63	42	-	-	7	0.350	1.76	16
9.35	66.6	87.6	96.5	66.7	0.3	0.4	0.5	6	clean SAND to silty SAND	125	5.0	18	13	16	63	42	-	-	8	0.350	1.79	16
9.51	71.1	92.7	100.9	71.1	0.4	0.5	0.5	6	clean SAND to silty SAND	125	5.0	19	14	17	64	42	-	-	8	0.350	1.77	16
9.68	71.5	92.4	97.6	71.6	0.3	0.6	0.4	6	clean SAND to silty SAND	125	5.0	18	14	16	64	42	-	-	7	0.350	1.73	16
9.84	69.2	88.6	95.6	69.2	0.3	0.6	0.5	6	clean SAND to silty SAND	125	5.0	18	14	16	63	41	-	-	7	0.350	1.76	16
10.01	67.4	85.4	92.5	67.4	0.3	0.6	0.4	6	clean SAND to silty SAND	125	5.0	17	13	15	62	41	-	-	7	0.350	1.77	16
10.17	64.4	81.0	88.0	64.4	0.3	0.5	0.4	6	clean SAND to silty SAND	125	5.0	16	13	15	60	41	-	-	8	0.350	1.77	16
10.34	59.5	74.2	87.0	59.5	0.3	0.4	0.6	6	clean SAND to silty SAND	125	5.0	15	12	14	57	40	-	-	10	0.350	1.88	16
10.50	51.0	63.0	94.6	51.0	0.6	0.4	1.2	5	silty SAND to sandy SILT	120	3.0	21	17	13	52	39	-	-	17	0.200	2.12	16
10.66	43.5	53.4	114.6	43.5	1.0	0.4	2.3	5	silty SAND to sandy SILT	120	3.0	18	15	12	46	38	-	-	25	0.200	2.36	16
10.83	35.1	42.7	124.8	35.1	1.1	0.8	3.2	4	clayy SILT to silty CLAY	115	2.0	21	18	11	-	-	2.4	9.9	32	0.070	2.53	15
10.99	27.6	42.7	-	27.6	1.1	1.4	4.2	4	clayy SILT to silty CLAY	115	2.0	21	14	11	-	-	1.9	9.9	36	0.070	2.61	15
11.16	22.1	33.6	-	22.2	1.1	7.2	5.4	3	silty CLAY to CLAY	115	1.5	22	15	9	-	-	1.5	9.9	44	0.005	2.76	15
11.32	21.2	31.9	-	21.4	1.2	8.5	5.7	3	silty CLAY to CLAY	115	1.5	21	14	9	-	-	1.5	9.9	46	0.005	2.80	15
11.48	21.2	31.5	-	21.4	1.3	9.1	6.2	3	silty CLAY to CLAY	115	1.5	21	14	9	-	-	1.5	9.9	48	0.005	2.83	15
11.65	22.4	32.7	-	22.6	1.3	10.2	6.1	3	silty CLAY to CLAY	115	1.5	22	15	9	-	-	1.5	9.9	47	0.005	2.81	15
11.81	24.8	35.8	-	25.0	1.4	9.7	6.0	3	silty CLAY to CLAY	115	1.5	24	17	10	-	-	1.7	9.9	45	0.005	2.78	15
11.98	23.2	33.0	-	23.4	1.6	9.9	6.9	3	silty CLAY to CLAY	115	1.5	22	15	10	-	-	1.6	9.9	49	0.005	2.85	15
12.14	25.6	35.9	-	25.8	1.4	12.8	5.7	3	silty CLAY to CLAY	115	1.5	24	17	10	-	-	1.8	9.9	44	0.005	2.76	15
12.30	30.4	42.1	-	30.7	1.6	15.9	5.4	3	silty CLAY to CLAY	115	1.5	28	20	11	-	-	2.1	9.9	40	0.005	2.69	15
12.47	42.9	48.7	154.0	43.3	1.8	21.0	4.2	4	clayy SILT to silty CLAY	115	2.0	24	21	12	-	-	3.0	9.9	34	0.070	2.57	15
12.63	45.3	51.2	152.5	45.6	1.8	11.8	4.0	4	clayy SILT to silty CLAY	115	2.0	26	23	13	-	-	3.2	9.9	33	0.070	2.54	15
12.80	38.0	42.6	118.5	38.4	1.1	21.9	2.9	4	clayy SILT to silty CLAY	115	2.0	21	19	10	-	-	2.6	9.9	31	0.070	2.50	15
12.96	44.1	49.1	107.9	45.0	0.9	46.9	2.2	5	silty SAND to sandy SILT	120	3.0	16	15	11	44	37	-	-	25	0.200	2.37	16
13.12	91.1	100.9	127.3	91.5	1.1	16.6	1.2	6	clean SAND to silty SAND	125	5.0	20	18	20	67	41	-	-	12	0.350	1.97	16
13.29	81.5	89.6	116.4	81.6	1.0	3.9	1.2	6	clean SAND to silty SAND	125	5.0	18	16	18	63	41	-	-	13	0.350	2.00	16
13.45	49.4	53.9	104.8	49.4	0.9	2.7	1.9	5	silty SAND to sandy SILT	120	3.0	18	16	12	47	38	-	-	22	0.200	2.30	16
13.62	30.9	33.6	109.1	31.0	0.9	5.2	3.0	4	clayy SILT to silty CLAY	115	2.0	17	15	9	-	-	2.1	9.9	35	0.070	2.59	15
13.78	24.7	30.5	-	24.9	0.8	9.2	3.2	4	clayy SILT to silty CLAY	115	2.0	15	12	8	-	-	1.7	9.7	37	0.070	2.64	15
13.94	21.7	26.5	-	21.9	0.7	10.4	3.5	4	clayy SILT to silty CLAY	115	2.0	13	11	7	-	-	1.5	8.4	41	0.070	2.71	15
14.11	19.8	24.0	-	20.0	0.7	9.1	3.8	4	clayy SILT to silty CLAY	115	2.0	12	10	7	-	-	1.3	7.6	45	0.070	2.77	15
14.27	18.5	22.1	-	18.7	0.7	9.5	4.1	3	silty CLAY to CLAY	115	1.5	15	12	6	-	-	1.2	7.0	47	0.005	2.82	15
14.44	17.6	20.8	-	17.8	0.7	10.2	4.1	3	silty CLAY to CLAY	115	1.5	14	12	6	-	-	1.2	6.5	49	0.005	2.84	15
14.60	17.3	20.2	-	17.5	0.6	11.5	3.5	3	silty CLAY to CLAY	115	1.5	13	12	6	-	-	1.2	6.3	46	0.005	2.81	15
14.76	16.5	19.1	-	16.7	0.6	10.5	3.8	3	silty CLAY to CLAY	115	1.5	13	11	6	-	-	1.1	6.0	49	0.005	2.85	15
14.93	15.6	17.9	-	15.9	0.6	11.5	4.1	3	silty CLAY to CLAY	115	1.5	12	10	5	-	-	1.0	5.6	52	0.005	2.90	15
15.09	16.3	18.4	-	16.5	0.6	11.1	4.0	3	silty CLAY to CLAY	115	1.5	12	11	5	-	-	1.1	5.7	51	0.005	2.88	15
15.26	15.4	17.2	-	15.6	0.6	11.7	4.0	3	silty CLAY to CLAY	115	1.5	11	10	5	-	-	1.0	5.4	52	0.005	2.90	15
15.42	15.8	17.5	-	16.1	0.6	11.8	3.9	3	silty CLAY to CLAY	115	1.5	12	11	5	-	-	1.1	5.4	51	0.005	2.89	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
15.58	16.7	18.3	-	16.9	0.6	11.0	3.7	3	silty CLAY to CLAY	115	1.5	12	11	5	-	-	1.1	5.7	50	0.005	2.86	15
15.75	15.9	17.3	-	16.1	0.6	7.3	3.9	3	silty CLAY to CLAY	115	1.5	12	11	5	-	-	1.1	5.4	52	0.005	2.90	15
15.91	15.3	16.4	-	15.4	0.5	6.4	3.8	3	silty CLAY to CLAY	115	1.5	11	10	5	-	-	1.0	5.1	53	0.005	2.91	15
16.08	14.6	15.5	-	14.7	0.5	7.2	3.8	3	silty CLAY to CLAY	115	1.5	10	10	5	-	-	1.0	4.8	54	0.005	2.92	15
16.24	13.9	14.6	-	14.1	0.5	8.8	3.8	3	silty CLAY to CLAY	115	1.5	10	9	5	-	-	0.9	4.5	55	0.005	2.95	15
16.40	13.9	14.5	-	14.1	0.5	9.7	3.7	3	silty CLAY to CLAY	115	1.5	10	9	4	-	-	0.9	4.4	55	0.005	2.95	15
16.57	14.3	14.8	-	14.5	0.5	10.1	3.7	3	silty CLAY to CLAY	115	1.5	10	10	5	-	-	0.9	4.6	54	0.005	2.93	15
16.73	14.7	15.1	-	15.0	0.5	11.0	3.7	3	silty CLAY to CLAY	115	1.5	10	10	5	-	-	1.0	4.6	54	0.005	2.93	15
16.90	14.6	14.7	-	14.8	0.5	10.6	3.8	3	silty CLAY to CLAY	115	1.5	10	10	5	-	-	1.0	4.5	55	0.005	2.94	15
17.06	13.8	13.8	-	14.0	0.5	11.0	3.8	3	silty CLAY to CLAY	115	1.5	9	9	4	-	-	0.9	4.2	57	0.005	2.97	15
17.23	13.7	13.6	-	13.9	0.5	11.7	4.2	3	silty CLAY to CLAY	115	1.5	9	9	4	-	-	0.9	4.1	59	0.005	3.01	15
17.39	14.4	14.2	-	14.7	0.5	13.3	4.0	3	silty CLAY to CLAY	115	1.5	9	10	4	-	-	0.9	4.4	57	0.005	2.97	15
17.55	15.1	14.7	-	15.4	0.5	13.5	3.8	3	silty CLAY to CLAY	115	1.5	10	10	5	-	-	1.0	4.5	55	0.005	2.95	15
17.72	15.8	15.2	-	16.0	0.5	14.7	3.5	3	silty CLAY to CLAY	115	1.5	10	11	5	-	-	1.0	4.7	53	0.005	2.92	15
17.88	16.1	15.4	-	16.4	0.5	15.8	3.7	3	silty CLAY to CLAY	115	1.5	10	11	5	-	-	1.1	4.7	53	0.005	2.92	15
18.05	15.9	15.1	-	16.2	0.5	17.5	3.6	3	silty CLAY to CLAY	115	1.5	10	11	5	-	-	1.0	4.7	54	0.005	2.93	15
18.21	16.3	15.5	-	16.7	0.5	18.4	3.6	3	silty CLAY to CLAY	115	1.5	10	11	5	-	-	1.1	4.8	53	0.005	2.91	15
18.37	16.4	15.5	-	16.7	0.5	17.9	3.5	3	silty CLAY to CLAY	115	1.5	10	11	5	-	-	1.1	4.8	53	0.005	2.91	15
18.54	17.4	16.4	-	17.8	0.5	19.4	3.2	3	silty CLAY to CLAY	115	1.5	11	12	5	-	-	1.2	5.1	50	0.005	2.86	15
18.70	18.7	17.5	-	19.1	0.6	20.7	3.4	3	silty CLAY to CLAY	115	1.5	12	12	5	-	-	1.2	5.4	49	0.005	2.85	15
18.87	19.5	18.2	-	19.9	0.6	23.1	3.2	3	silty CLAY to CLAY	115	1.5	12	13	5	-	-	1.3	5.7	47	0.005	2.82	15
19.03	21.2	19.7	-	21.6	0.6	24.5	2.9	4	clayy SILT to silty CLAY	115	2.0	10	11	5	-	-	1.4	6.2	44	0.070	2.77	15
19.19	21.1	19.6	-	21.7	0.6	30.2	2.8	4	clayy SILT to silty CLAY	115	2.0	10	11	5	-	-	1.4	6.1	44	0.070	2.76	15
19.36	23.4	21.8	69.9	24.0	0.4	32.7	1.6	4	clayy SILT to silty CLAY	115	2.0	11	12	6	-	-	1.6	6.8	34	0.070	2.58	15
19.52	25.2	23.2	-	26.0	0.7	37.7	3.1	4	clayy SILT to silty CLAY	115	2.0	12	13	6	-	-	1.7	7.3	42	0.070	2.73	15
19.69	28.8	26.3	-	29.4	1.1	34.6	4.0	4	clayy SILT to silty CLAY	115	2.0	13	14	7	-	-	2.0	8.3	43	0.070	2.75	15
19.85	20.7	18.9	-	21.4	1.2	33.2	6.3	3	silty CLAY to CLAY	115	1.5	13	14	6	-	-	1.4	5.9	58	0.005	3.00	15
20.01	35.5	32.2	-	36.2	1.4	35.8	4.2	4	clayy SILT to silty CLAY	115	2.0	16	18	9	-	-	2.4	9.9	41	0.070	2.70	15
20.18	28.2	25.5	-	29.4	1.8	60.8	6.7	3	silty CLAY to CLAY	115	1.5	17	19	8	-	-	1.9	8.1	53	0.005	2.92	15
20.34	32.8	29.6	-	34.1	2.3	64.2	7.4	3	silty CLAY to CLAY	115	1.5	20	22	9	-	-	2.2	9.4	52	0.005	2.90	15
20.51	44.4	39.9	-	45.6	3.0	61.3	7.0	3	silty CLAY to CLAY	115	1.5	27	30	11	-	-	3.1	9.9	45	0.005	2.79	15
20.67	57.8	51.7	-	58.1	3.6	13.1	6.3	3	silty CLAY to CLAY	115	1.5	34	39	14	-	-	4.0	9.9	40	0.005	2.68	15
20.83	61.7	55.0	-	61.8	3.9	4.6	6.4	3	silty CLAY to CLAY	115	1.5	37	41	15	-	-	4.3	9.9	39	0.005	2.67	15
21.00	65.5	58.1	-	65.7	3.7	8.9	5.8	4	clayy SILT to silty CLAY	115	2.0	29	33	15	-	-	4.5	9.9	36	0.070	2.62	15
21.16	69.0	63.1	202.1	69.3	3.7	12.2	5.5	4	clayy SILT to silty CLAY	115	2.0	32	35	16	-	-	4.8	9.9	34	0.070	2.58	15
21.33	91.0	82.9	198.9	91.1	3.9	8.5	4.3	4	clayy SILT to silty CLAY	115	2.0	41	45	19	-	-	6.3	9.9	27	0.070	2.42	15
21.49	92.6	84.3	191.6	92.6	3.6	-0.5	4.0	4	clayy SILT to silty CLAY	115	2.0	42	46	19	-	-	6.5	9.9	26	0.070	2.39	15
21.65	73.0	66.3	178.3	73.0	3.1	-1.2	4.3	4	clayy SILT to silty CLAY	115	2.0	33	37	16	-	-	5.1	9.9	30	0.070	2.48	15
21.82	68.8	62.4	182.1	68.9	3.1	6.1	4.6	4	clayy SILT to silty CLAY	115	2.0	31	34	15	-	-	4.8	9.9	32	0.070	2.53	15
21.98	68.4	61.8	165.8	68.5	2.7	7.3	4.0	4	clayy SILT to silty CLAY	115	2.0	31	34	15	-	-	4.7	9.9	30	0.070	2.48	15
22.15	108.8	98.2	151.3	109.0	2.3	12.6	2.1	5	silty SAND to sandy SILT	120	3.0	33	36	20	66	40	-	-	17	0.200	2.14	16
22.31	150.3	135.5	180.4	150.4	2.9	2.5	2.0	5	silty SAND to sandy SILT	120	3.0	45	50	27	77	42	-	-	14	0.200	2.02	16
22.47	154.1	138.6	173.7	154.2	2.5	2.5	1.7	6	clean SAND to silty SAND	125	5.0	28	31	27	78	42	-	-	12	0.350	1.96	16
22.64	117.8	105.7	158.7	117.8	2.5	2.8	2.1	5	silty SAND to sandy SILT	120	3.0	35	39	22	69	41	-	-	17	0.200	2.12	16
22.80	98.6	88.3	116.3	99.0	1.2	21.1	1.2	6	clean SAND to silty SAND	125	5.0	18	20	17	63	40	-	-	13	0.350	2.01	16
22.97	149.5	133.5	143.0	149.6	1.2	6.9	0.8	6	clean SAND to silty SAND	125	5.0	27	30	24	77	42	-	-	7	0.350	1.75	16
23.13	147.9	131.9	150.2	148.0	1.6	3.5	1.1	6	clean SAND to silty SAND	125	5.0	26	30	24	76	42	-	-	9	0.350	1.84	16
23.30	118.2	105.2	131.5	118.3	1.4	2.2	1.2	6	clean SAND to silty SAND	125	5.0	21	24	20	69	40	-	-	12	0.350	1.96	16
23.46	108.9	96.7	148.1	109.0	2.2	3.8	2.1	5	silty SAND to sandy SILT	120	3.0	32	36	20	66	40	-	-	17	0.200	2.14	16
23.62	101.3	89.8	150.4	101.4	2.4	2.9	2.4	5	silty SAND to sandy SILT	120	3.0	30	34	19	63	40	-	-	19	0.200	2.20	16
23.79	81.2	71.8	130.3	81.3	1.8	1.7	2.2	5	silty SAND to sandy SILT	120	3.0	24	27	16	56	38	-	-	21	0.200	2.26	16
23.95	61.1	54.0	115.6	61.2	1.4	3.7	2.3	5	silty SAND to sandy SILT	120	3.0	18	20	12	47	37	-	-	25	0.200	2.36	16
24.12	120.2	105.9	127.6	120.5	1.3	15.2	1.1	6	clean SAND to silty SAND	125	5.0	21	24	20	69	40	-	-	11	0.350	1.92	16
24.28	129.0	113.4	145.7	129.1	1.9	3.0	1.5	6	clean SAND to silty SAND	125	5.0	23	26	22	71	41	-	-	13	0.350	1.99	16
24.44	99.4	87.2	155.1	99.4	2.5	2.8	2.6	5	silty SAND to sandy SILT	120	3.0	29	33	19	62	39	-	-	20	0.200	2.24	16
24.61	59.6	52.2	151.9	59.7	2.3	2.8	3.9	4	clayy SILT to silty CLAY	115	2.0	26	30	13	-	-	4.1	9.9	32	0.070	2.53	15
24.77	40.7	33.0	-	40.9	2.1	8.3	5.3	3	silty CLAY to CLAY	115	1.5	22	27	9	-	-	2.8	9.9	44	0.005	2.77	15
24.94	32.3	26.1	-	33.2	1.8	41.7	6.0	3	silty CLAY to CLAY	115	1.5	17	22	8	-	-	2.2	8.2	51	0.005	2.88	15
25.10	48.1	38.6	-	48.9	1.9	44.6	4.1	4	clayy SILT to silty CLAY	115	2.0	19	24	10	-	-	3.3	9.9	37	0.070	2.64	15
25.26	70.0	60.9	140.3	70.3	2.1	16.5	3.0	4	clayy SILT to silty CLAY	115	2.0	30	35	14	-	-	4.9	9.9	26	0.070	2.40	15
25.43	87.4	75.8	132.5	87.6	1.9	10.2	2.2	5	silty SAND to sandy SILT	120	3.0	25	29	16	58	39	-	-	20	0.200	2.23	16
25.59	98.4	85.3	130.5	98.6	1.8	6.3	1.8	5	silty SAND to sandy SILT	120	3.0	28	33	18	62	39	-	-	17	0.200	2.14	16
25.76	116.5	100.7	122.1	116.6	1.2	4.7	1.0	6	clean SAND to silty SAND	125	5.0	20	23	19	67	40	-	-	11	0.350	1.92	16
25.92	120.4	103.8	126.0	120.4	1.3	3.0	1.1	6	clean SAND to silty SAND	125	5.0	21	24	20	68	40	-	-	11	0.350	1.93	16
26.08	122.6	105.6	130.2	122.6	1.4	2.3	1.2	6	clean SAND to silty SAND	125	5.0	21	25	20	69	40	-	-	11	0.350	1.94	16
26.25	127.7	109.8	132.2	127.8	1.4	2.2	1.1	6	clean SAND to silty SAND	125	5.0	22	26	21	70	41	-	-	11	0.350	1.92	16
26.41	125.6	107.8	125.7	125.7	1.2	1.4	1.0	6	clean SAND to silty SAND	125	5.0	22	25	20	69	40	-	-	10	0.350	1.88	16
26.58	121.1	103.6	114.1	121.1	0.8	0.4	0.7	6	clean SAND to silty SAND	125	5.0	21	24	19	68	40	-	-	8	0.350	1.79	16
26.74	111.8	95.5	110.7	111.8	0.9	-0.8	0.8	6	clean SAND to silty SAND	125	5.0	19	22	18	65	40	-	-	10	0.350	1.87	16
26.90	102.4	87.3	115.9	102.4	1.2	1.0	1.2	6	clean SAND to silty SAND	125	5.0	17	20	17	63	39	-	-	14	0.350	2.02	16
27.07	83.9	71.4	117.5	83.9	1.5	1.5	1.8	5	silty SAND to sandy SILT	120	3.0	24	28	15	56	38	-	-	19	0.200	2.19	16
27.23	82.0	69.7	128.6	82.1	1.8	1.8	2.2	5	silty SAND to sandy SILT	120	3.0	23	27	15	55	38	-	-	21	0.200	2.27	16
27.40	74.0	62.7	132.8	74.0	1.9	0.9	2.6	5	silty SAND to sandy SILT	120	3.0	21	25	14	52	37	-	-	24	0.200	2.35	16
27.56	68.7	58.1	139.8	68.7	2.1	0.1	3.1	4	clayy SILT to silty CLAY	115	2.0	29	34	14	-	-	4.8	9.9	27	0.070	2.42	15
27.72	60.8	51.3	122.7	60.8	1.6	0.2	2.7	5	silty SAND to sandy SILT	120	3.0	17	20	12	45	36	-	-	27	0.200	2.42	16
27.89	54.8	46.2	118.1	54.8	1.4	0.0	2.7	4	clayy SILT to silty CLAY	115	2.0	23	27	11	-	-	3.8	9.9	29	0.070	2.46	15
28.05	49.1	41.3	121.1	49.1	1.5	0.0	3.1	4	clayy SILT to silty CLAY	115	2.0	21	25	10	-	-	3.4	9.9	32	0.070	2.53	15
28.22	34.9	26.2	-	35.0	1.1	3.3	3.3	4	clayy SILT to silty CLAY	115	2.0	13	17	7	-	-	2.4	8.2	41	0.070	2.70	15
28.38	62.3	52.3	107.6	62.4	1.2	4.7	2.0	5	silty SAND to sandy SILT	120	3.0	17	21	12	46	36	-	-	24	0.200	2.33	16
28.54	63.3	53.1	111.7	63.3	1.3	1.1	2.2	5	silty SAND to sandy SILT	120	3.0	18	21	12	46	36	-	-	24	0.200	2.35	16
28.71	46.6	39.0	113.8	46.6	1.3	1.0	2.9	4	clayy SILT to silty CLAY	115	2.0	19	23	10	-	-	3.2	9.9	32	0.070	2.53	15
28.87	31.4	23.2	-	31.4	1.5	2.5	5.1	3	silty CLAY to CLAY	115	1.5	15	21	7	-	-	2.1	7.2	50	0.005	2.87	15
29.04	34.8	25.7	-	34.9	1.5	4.7	4.6	3	silty CLAY to CLAY	115	1.5	17	23	7	-	-	2.4	8.1	47	0.005	2.81	15
29.20	34.7	25.5	-	34.8	1.5	4.3	4.4	3	silty CLAY to CLAY	115	1.5	17	23	7	-	-	2.4	8.0	46	0.005	2.80	15
29.36	46.2	33.8	-	46.3	1.7	7.2	3.9	4	clayy SILT to silty CLAY	115	2.0	17	23	9	-	-	3.2	9.9	39	0.070	2.67	15
29.53	77.6	64.4	118.1	77.7	1.5	6.3	2.0	5	silty SAND to sandy SILT	120	3.0	21	26	14	52	37	-	-	21	0.200	2.26	16
29.69	56.9	47.1	128.0	56.9	1.7	2.9	3.1	4	clayy SILT to silty CLAY	115	2.0	24	28	11	-	-	3.9	9.9	30	0.070	2.49	15
29.86	33.0	23.9	-	33.1	1.5	6.0	4.9	3	silty CLAY to CLAY	115	1.5	16	22	7	-	-	2.2	7.5	49	0.005	2.85	15
30.02	44.3	36.6	110.9	44.6	1.2	12.4	2.8	4	clayy SILT to silty CLAY	115	2.0	18	22	9	-	-	3.0	9.9	33	0.070	2.55	15
30.19	23.6	17.0	-	23.7	1.3	10.0	6.0	3	silty CLAY to CLAY	115	1.5	11	16	6	-	-	1.6	5.2	60	0.005	3.03	15
30.35	23.3	16.7	-	23.8	1.1	25.3	5.3	3	silty CLAY to CLAY	115	1.5	11	16	5	-	-	1.5	5.1	58	0.005	3.00	15
30.51	31.2	22.3	-	31.7	1.3	28.1	4.3	3	silty CLAY to CLAY	115	1.5	15	21	6	-	-	2.1	6.9	48	0.005	2.83	15
30.68	59.5	48.8	128.4	59.8	1.7	16.5	3.0	4	clayy SILT to silty CLAY	115	2.0	24	30	12	-	-	4.1	9.9	29	0.070	2.47	15
30.84	59.5	48.7	122.7	59.5	1.6	2.5	2.8	4	clayy SILT to silty CLAY	115	2.0	24	30	12	-	-	4.1	9.9	28	0.070	2.45	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
31.01	33.9	24.1	-	34.0	0.8	1.2	2.6	4	clayy SILT to silty CLAY	115	2.0	12	17	6	-	-	2.3	7.5	39	0.070	2.67	15
31.17	20.6	14.5	-	20.7	0.6	4.9	3.2	3	silty CLAY to CLAY	115	1.5	10	14	4	-	-	1.4	4.4	53	0.005	2.91	15
31.33	76.6	62.5	88.1	76.9	0.7	17.2	1.0	5	silty SAND to sandy SILT	120	3.0	21	26	13	51	37	-	-	15	0.200	2.07	16
31.50	90.8	73.9	99.9	90.8	0.9	2.3	1.1	6	clean SAND to silty SAND	125	5.0	15	18	15	57	38	-	-	14	0.350	2.04	16
31.66	80.6	65.5	124.0	80.6	1.7	0.5	2.2	5	silty SAND to sandy SILT	120	3.0	22	27	14	53	37	-	-	22	0.200	2.28	16
31.83	72.9	59.2	122.1	72.9	1.7	-0.6	2.3	5	silty SAND to sandy SILT	120	3.0	20	24	13	50	37	-	-	24	0.200	2.33	16
31.99	48.5	33.7	-	48.4	1.5	-1.7	3.3	4	clayy SILT to silty CLAY	115	2.0	17	24	9	-	-	3.3	9.9	36	0.070	2.62	15
32.15	30.1	20.9	-	30.1	1.5	-0.8	5.4	3	silty CLAY to CLAY	115	1.5	14	20	6	-	-	2.0	6.5	54	0.005	2.93	15
32.32	52.4	42.3	122.3	52.5	1.5	2.8	3.1	4	clayy SILT to silty CLAY	115	2.0	21	26	10	-	-	3.6	9.9	32	0.070	2.52	15
32.48	61.6	49.7	131.0	61.6	1.8	1.1	3.1	4	clayy SILT to silty CLAY	115	2.0	25	31	12	-	-	4.3	9.9	29	0.070	2.47	15
32.65	49.6	39.9	116.7	49.6	1.4	-0.7	2.9	4	clayy SILT to silty CLAY	115	2.0	20	25	10	-	-	3.4	9.9	32	0.070	2.53	15
32.81	29.5	20.3	-	29.5	1.2	-1.4	4.4	3	silty CLAY to CLAY	115	1.5	14	20	6	-	-	2.0	6.2	50	0.005	2.88	15
32.97	16.8	11.5	-	16.8	1.0	-0.2	6.9	3	silty CLAY to CLAY	115	1.5	8	11	4	-	-	1.1	3.3	74	0.005	3.21	15
33.14	19.2	13.1	-	19.3	0.9	4.9	5.3	3	silty CLAY to CLAY	115	1.5	9	13	4	-	-	1.3	3.9	64	0.005	3.09	15
33.30	29.4	20.0	-	29.7	0.9	15.1	3.1	4	clayy SILT to silty CLAY	115	2.0	10	15	6	-	-	2.0	6.2	45	0.070	2.79	15
33.47	32.6	22.1	-	32.8	0.8	12.0	2.5	4	clayy SILT to silty CLAY	115	2.0	11	16	6	-	-	2.2	6.8	40	0.070	2.69	15
33.63	26.5	17.9	-	26.8	1.0	10.6	4.1	3	silty CLAY to CLAY	115	1.5	12	18	5	-	-	1.8	5.5	52	0.005	2.90	15
33.79	17.3	11.6	-	17.5	1.0	12.9	6.7	3	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.1	3.4	73	0.005	3.20	15
33.96	30.7	20.6	-	31.1	1.2	21.1	4.1	3	silty CLAY to CLAY	115	1.5	14	20	6	-	-	2.1	6.4	49	0.005	2.85	15
34.12	68.6	54.5	102.8	68.8	1.2	11.7	1.8	5	silty SAND to sandy SILT	120	3.0	18	23	12	47	36	-	-	22	0.200	2.28	16
34.29	73.7	58.5	98.9	73.7	1.1	0.5	1.5	5	silty SAND to sandy SILT	120	3.0	19	25	12	49	36	-	-	19	0.200	2.21	16
34.45	69.1	54.7	112.5	69.1	1.4	2.5	2.1	5	silty SAND to sandy SILT	120	3.0	18	23	12	47	36	-	-	24	0.200	2.33	16
34.61	49.9	39.5	97.3	49.9	1.0	0.3	2.1	5	silty SAND to sandy SILT	120	3.0	13	17	9	36	34	-	-	28	0.200	2.44	16
34.78	27.2	18.0	-	27.3	0.9	1.4	3.5	3	silty CLAY to CLAY	115	1.5	12	18	5	-	-	1.8	5.5	50	0.005	2.86	15
34.94	16.6	10.9	-	16.8	0.5	10.5	3.7	3	silty CLAY to CLAY	115	1.5	7	11	4	-	-	1.1	3.2	63	0.005	3.07	15
35.11	14.5	9.6	-	15.2	0.4	35.2	3.3	3	silty CLAY to CLAY	115	1.5	6	10	3	-	-	0.9	2.7	65	0.005	3.09	15
35.27	14.9	9.8	-	15.7	0.4	38.9	3.4	3	silty CLAY to CLAY	115	1.5	7	10	3	-	-	0.9	2.8	64	0.005	3.09	15
35.43	15.2	9.9	-	16.0	0.4	40.8	3.2	3	silty CLAY to CLAY	115	1.5	7	10	3	-	-	1.0	2.8	63	0.005	3.06	15
35.60	17.2	11.2	-	18.0	0.5	43.4	3.3	3	silty CLAY to CLAY	115	1.5	7	11	4	-	-	1.1	3.2	60	0.005	3.02	15
35.76	19.4	12.6	-	20.2	0.5	40.5	3.2	3	silty CLAY to CLAY	115	1.5	8	13	4	-	-	1.3	3.7	56	0.005	2.97	15
35.93	24.0	15.6	-	25.0	0.5	49.0	2.3	4	clayy SILT to silty CLAY	115	2.0	8	12	4	-	-	1.6	4.7	47	0.070	2.81	15
36.09	22.3	14.4	-	23.0	0.5	36.6	2.5	4	clayy SILT to silty CLAY	115	2.0	7	11	4	-	-	1.5	4.3	50	0.070	2.86	15
36.26	18.9	12.2	-	19.7	0.3	42.8	2.0	4	clayy SILT to silty CLAY	115	2.0	6	9	4	-	-	1.2	3.6	50	0.070	2.87	15
36.42	17.2	11.1	-	18.2	0.3	46.5	1.9	4	clayy SILT to silty CLAY	115	2.0	6	9	3	-	-	1.1	3.2	52	0.070	2.90	15
36.58	14.5	9.3	-	15.4	0.4	47.6	3.2	3	silty CLAY to CLAY	115	1.5	6	10	3	-	-	0.9	2.6	65	0.005	3.09	15
36.75	14.4	9.2	-	15.5	0.8	54.8	6.5	3	silty CLAY to CLAY	115	1.5	6	10	4	-	-	0.9	2.6	80	0.005	3.28	15
36.91	18.4	11.8	-	19.6	1.0	61.2	6.1	3	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.2	3.4	71	0.005	3.17	15
37.08	31.4	20.0	-	32.3	1.2	42.1	4.2	3	silty CLAY to CLAY	115	1.5	13	21	6	-	-	2.1	6.1	50	0.005	2.87	15
37.24	45.8	35.4	89.2	46.2	0.8	18.8	1.9	5	silty SAND to sandy SILT	120	3.0	12	15	8	33	33	-	-	28	0.200	2.45	16
37.40	32.4	20.5	-	32.6	0.7	8.9	2.3	4	clayy SILT to silty CLAY	115	2.0	10	16	5	-	-	2.2	6.3	40	0.070	2.70	15
37.57	19.2	12.1	-	19.6	0.7	20.7	4.1	3	silty CLAY to CLAY	115	1.5	8	13	4	-	-	1.2	3.5	62	0.005	3.05	15
37.73	18.0	11.3	-	18.9	0.8	44.3	4.9	3	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.2	3.3	67	0.005	3.12	15
37.90	22.5	14.1	-	23.5	0.7	48.9	3.3	3	silty CLAY to CLAY	115	1.5	9	15	4	-	-	1.5	4.2	54	0.005	2.94	15
38.06	25.2	15.8	-	26.2	0.6	50.7	2.5	4	clayy SILT to silty CLAY	115	2.0	8	13	5	-	-	1.7	4.7	47	0.070	2.82	15
38.22	18.2	11.4	-	19.1	0.5	45.3	3.1	3	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.2	3.3	59	0.005	3.00	15
38.39	15.8	9.9	-	16.9	0.4	53.8	2.9	3	silty CLAY to CLAY	115	1.5	7	11	3	-	-	1.0	2.8	62	0.005	3.05	15
38.55	15.0	9.3	-	16.1	0.4	58.3	3.2	3	silty CLAY to CLAY	115	1.5	6	10	3	-	-	0.9	2.6	65	0.005	3.10	15
38.72	14.7	9.1	-	16.0	0.4	61.7	3.3	3	silty CLAY to CLAY	115	1.5	6	10	3	-	-	0.9	2.5	66	0.005	3.11	15
38.88	14.7	9.1	-	16.0	0.4	62.7	3.2	3	silty CLAY to CLAY	115	1.5	6	10	3	-	-	0.9	2.5	66	0.005	3.11	15
39.04	14.6	9.0	-	15.9	0.4	63.6	3.3	3	silty CLAY to CLAY	115	1.5	6	10	3	-	-	0.9	2.5	67	0.005	3.12	15
39.21	14.8	9.1	-	16.1	0.4	66.6	3.4	3	silty CLAY to CLAY	115	1.5	6	10	3	-	-	0.9	2.5	67	0.005	3.12	15
39.37	15.6	9.6	-	16.9	0.8	66.9	6.1	3	silty CLAY to CLAY	115	1.5	6	10	4	-	-	1.0	2.7	77	0.005	3.25	15
39.54	17.4	10.6	-	18.9	1.6	74.9	9.9	3	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.1	3.0	85	0.005	3.35	15
39.70	34.8	21.2	-	36.4	2.1	82.4	6.5	3	silty CLAY to CLAY	115	1.5	14	23	7	-	-	2.3	6.5	57	0.005	2.97	15
39.86	62.9	38.2	-	63.9	2.8	47.7	4.6	4	clayy SILT to silty CLAY	115	2.0	19	31	10	-	-	4.3	9.9	39	0.070	2.68	15
40.03	60.0	36.4	-	60.1	2.6	5.6	4.5	4	clayy SILT to silty CLAY	115	2.0	18	30	10	-	-	4.1	9.9	40	0.070	2.69	15
40.19	48.4	29.2	-	48.4	2.1	0.1	4.5	3	silty CLAY to CLAY	115	1.5	19	32	8	-	-	3.3	9.2	44	0.005	2.76	15
40.36	39.2	23.6	-	39.2	1.6	3.1	4.4	3	silty CLAY to CLAY	115	1.5	16	26	7	-	-	2.7	7.3	47	0.005	2.83	15
40.52	34.7	20.9	-	34.8	1.5	5.7	4.6	3	silty CLAY to CLAY	115	1.5	14	23	6	-	-	2.3	6.4	51	0.005	2.88	15
40.68	29.7	17.8	-	29.9	1.3	8.1	4.9	3	silty CLAY to CLAY	115	1.5	12	20	6	-	-	2.0	5.4	55	0.005	2.95	15
40.85	29.1	17.4	-	29.3	1.7	12.3	6.5	3	silty CLAY to CLAY	115	1.5	12	19	6	-	-	1.9	5.3	62	0.005	3.04	15
41.01	32.5	19.4	-	32.8	2.1	15.8	6.9	3	silty CLAY to CLAY	115	1.5	13	22	6	-	-	2.2	5.9	60	0.005	3.02	15
41.18	39.3	23.4	-	39.7	2.3	22.7	6.1	3	silty CLAY to CLAY	115	1.5	16	26	7	-	-	2.7	7.2	54	0.005	2.93	15
41.34	105.4	78.9	141.6	105.6	2.5	8.2	2.4	5	silty SAND to sandy SILT	120	3.0	26	35	17	59	38	-	-	21	0.200	2.25	16
41.50	112.5	84.0	150.9	112.5	2.8	-0.3	2.5	5	silty SAND to sandy SILT	120	3.0	28	37	18	61	38	-	-	21	0.200	2.25	16
41.67	80.6	60.1	142.5	80.5	2.4	-2.5	3.1	4	clayy SILT to silty CLAY	115	2.0	30	40	14	-	-	5.6	9.9	27	0.070	2.41	15
41.83	55.7	32.8	-	55.7	2.3	-1.7	4.4	3	silty CLAY to CLAY	115	1.5	22	37	9	-	-	3.8	9.9	41	0.005	2.71	15
42.00	39.4	23.1	-	39.4	2.4	1.8	6.5	3	silty CLAY to CLAY	115	1.5	15	26	7	-	-	2.7	7.2	55	0.005	2.95	15
42.16	51.0	29.9	-	51.2	1.6	6.3	3.4	4	clayy SILT to silty CLAY	115	2.0	15	26	8	-	-	3.5	9.4	39	0.070	2.67	15
42.32	38.3	22.3	-	38.3	1.1	1.7	3.1	4	clayy SILT to silty CLAY	115	2.0	11	19	6	-	-	2.6	6.9	43	0.070	2.75	15
42.49	20.8	12.1	-	20.9	0.8	3.1	4.6	3	silty CLAY to CLAY	115	1.5	8	14	4	-	-	1.4	3.5	64	0.005	3.08	15
42.65	20.4	11.8	-	20.5	1.1	7.6	6.1	3	silty CLAY to CLAY	115	1.5	8	14	4	-	-	1.3	3.4	71	0.005	3.17	15
42.82	24.5	14.2	-	24.7	1.2	10.1	5.7	3	silty CLAY to CLAY	115	1.5	9	16	5	-	-	1.6	4.2	64	0.005	3.08	15
42.98	40.2	23.2	-	40.4	1.3	14.2	3.6	4	clayy SILT to silty CLAY	115	2.0	12	20	6	-	-	2.7	7.2	44	0.070	2.77	15
43.15	34.9	20.1	-	35.0	1.1	6.2	3.4	3	silty CLAY to CLAY	115	1.5	13	23	6	-	-	2.3	6.2	47	0.005	2.81	15
43.31	21.8	12.6	-	21.9	0.8	5.9	4.1	3	silty CLAY to CLAY	115	1.5	8	15	4	-	-	1.4	3.7	61	0.005	3.04	15
43.47	18.1	10.4	-	18.3	0.6	12.7	4.2	3	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.2	2.9	67	0.005	3.12	15
43.64	18.2	10.4	-	18.5	0.6	17.0	4.2	3	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.2	2.9	67	0.005	3.12	15
43.80	18.7	10.7	-	19.1	0.5	21.1	3.4	3	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.2	3.0	62	0.005	3.05	15
43.97	18.8	10.7	-	19.3	0.5	23.6	3.1	3	silty CLAY to CLAY	115	1.5	7	13	3	-	-	1.2	3.1	61	0.005	3.03	15
44.13	17.4	9.9	-	17.9	0.5	25.7	3.2	3	silty CLAY to CLAY	115	1.5	7	12	3	-	-	1.1	2.8	64	0.005	3.07	15
44.29	16.6	9.4	-	17.4	0.6	37.8	4.0	3	silty CLAY to CLAY	115	1.5	6	11	3	-	-	1.1	2.6	69	0.005	3.15	15
44.46	17.5	9.9	-	18.3	0.8	43.5	5.6	3	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.1	2.8	74	0.005	3.22	15
44.62	20.0	11.3	-	21.0	0.7	51.0	3.9	3	silty CLAY to CLAY	115	1.5	8	13	4	-	-	1.3	3.2	63	0.005	3.07	15
44.79	47.4	34.6	96.8	48.9	1.0	76.0	2.2	4	clayy SILT to silty CLAY	115	2.0	17	24	8	-	-	3.2	8.3	31	0.070	2.51	15
44.95	107.7	78.4	99.9	107.9	1.0	11.5	0.9	6	clean SAND to silty SAND	125	5.0	16	22	15	59	38	-	-	12	0.350	1.98	16
45.11	133.5	97.0	115.8	133.5	1.2	-0.3	0.9	6	clean SAND to silty SAND	125	5.0	19	27	18	66	39	-	-	11	0.350	1.91	16
45.28	140.0	101.6	139.1	139.9	2.2	-3.5	1.6	5	silty SAND to sandy SILT	120	3.0	34	47	20	68	39	-	-	14	0.200	2.05	16
45.44	112.3	81.4	145.9	112.3	2.7	-3.3	2.4	5	silty SAND to sandy SILT	120	3.0	27	37	18	60	38	-	-	21	0.200	2.25	16
45.61	71.9	39.9	-	71.8	2.7	-2.9	3.8	4	clayy SILT to silty CLAY	115	2.0	20	36	10	-	-	5.0	9.9	36	0.070	2.61	15
45.77	47.0	26.1	-	47.0	2.5	-1.2	5.6	3	silty CLAY to CLAY	115	1.5	17	31	8	-	-	3.2	8.1	50	0.005	2.86	15
45.93	47.0	26.0	-	47.1	1.7	1.7	3.9	4	clayy SILT to silty CLAY	115	2.0	13	24	7	-	-	3.2	8.1	44	0.070	2.76	15
46.10	88.4	63.8	94.7	88.5	1.0	3.2	1.2	5	silty SAND to sandy SILT	120	3.0	21	29	13	52	36	-	-	16	0.200	2.12	16
46.26	126.8	91.3	98.6	126.8	0.6	-0.1	0.5	6	clean SAND to silty SAND	125	5.0	18	25	16	64	39	-	-	7	0.350	1.76	16

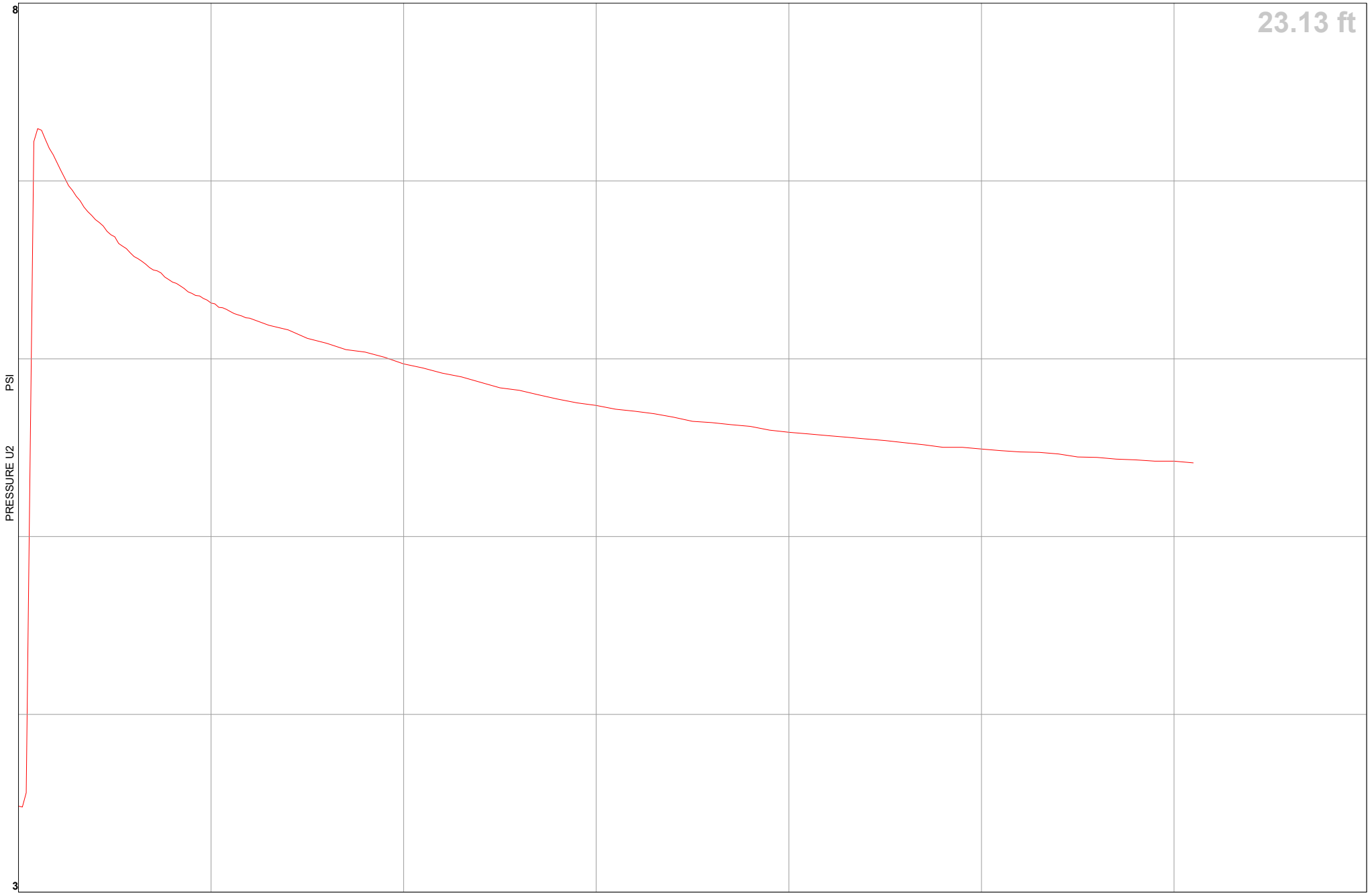
* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR - -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
46.43	136.2	98.0	102.2	136.2	0.6	-0.5	0.4	6	clean SAND to silty SAND	125	5.0	20	27	17	66	39	-	-	6	0.350	1.71	16
46.59	140.1	100.7	101.8	140.1	0.5	0.1	0.3	6	clean SAND to silty SAND	125	5.0	20	28	17	67	39	-	-	5	0.350	1.66	16
46.75	138.6	99.4	100.7	138.6	0.5	0.0	0.3	6	clean SAND to silty SAND	125	5.0	20	28	17	67	39	-	-	5	0.350	1.66	16
46.92	130.1	93.2	103.7	130.1	0.8	-0.5	0.6	6	clean SAND to silty SAND	125	5.0	19	26	17	65	39	-	-	8	0.350	1.81	16
47.08	113.5	81.1	119.9	113.4	1.7	-0.8	1.6	5	silty SAND to sandy SILT	120	3.0	27	38	17	60	38	-	-	16	0.200	2.11	16
47.25	75.6	54.0	104.8	75.6	1.3	-0.7	1.8	5	silty SAND to sandy SILT	120	3.0	18	25	12	47	35	-	-	22	0.200	2.30	16
47.41	43.9	23.7	-	43.9	1.0	0.1	2.5	4	clayy SILT to silty CLAY	115	2.0	12	22	6	-	-	3.0	7.3	39	0.070	2.67	15
47.57	24.2	13.0	-	24.7	0.9	22.7	4.3	3	silty CLAY to CLAY	115	1.5	9	16	4	-	-	1.6	3.8	61	0.005	3.04	15
47.74	21.6	11.6	-	22.4	1.0	38.3	5.2	3	silty CLAY to CLAY	115	1.5	8	14	4	-	-	1.4	3.3	68	0.005	3.14	15
47.90	34.9	18.7	-	35.9	1.2	51.5	3.6	3	silty CLAY to CLAY	115	1.5	12	23	5	-	-	2.3	5.7	49	0.005	2.86	15
48.07	41.4	22.1	-	41.7	1.1	11.4	2.8	4	clayy SILT to silty CLAY	115	2.0	11	21	6	-	-	2.8	6.8	42	0.070	2.73	15
48.23	30.0	16.0	-	30.1	1.2	6.9	4.3	3	silty CLAY to CLAY	115	1.5	11	20	5	-	-	2.0	4.8	56	0.005	2.96	15
48.39	21.8	11.6	-	22.0	1.2	12.8	6.3	3	silty CLAY to CLAY	115	1.5	8	15	4	-	-	1.4	3.3	72	0.005	3.19	15
48.56	25.4	13.5	-	25.7	1.1	16.7	4.7	3	silty CLAY to CLAY	115	1.5	9	17	4	-	-	1.7	3.9	62	0.005	3.05	15
48.72	33.4	17.7	-	33.7	1.2	17.9	4.0	3	silty CLAY to CLAY	115	1.5	12	22	5	-	-	2.2	5.3	52	0.005	2.90	15
48.89	39.2	20.7	-	39.5	1.1	12.0	3.0	4	clayy SILT to silty CLAY	115	2.0	10	20	6	-	-	2.6	6.3	44	0.070	2.77	15
49.05	34.1	18.0	-	34.1	1.0	2.7	3.1	3	silty CLAY to CLAY	115	1.5	12	23	5	-	-	2.3	5.4	48	0.005	2.83	15
49.22	26.5	13.9	-	26.6	1.1	3.9	4.8	3	silty CLAY to CLAY	115	1.5	9	18	5	-	-	1.7	4.1	62	0.005	3.04	15
49.38	21.7	11.4	-	21.9	1.1	7.3	5.8	3	silty CLAY to CLAY	115	1.5	8	14	4	-	-	1.4	3.3	71	0.005	3.17	15
49.54	42.3	22.1	-	42.5	1.0	13.9	2.5	4	clayy SILT to silty CLAY	115	2.0	11	21	6	-	-	2.9	6.8	40	0.070	2.69	15
49.71	96.2	67.6	98.7	96.3	1.1	4.3	1.2	5	silty SAND to sandy SILT	120	3.0	23	32	14	54	37	-	-	16	0.200	2.10	16
49.87	128.4	90.1	108.5	128.5	1.1	5.7	0.9	6	clean SAND to silty SAND	125	5.0	18	26	17	64	38	-	-	11	0.350	1.92	16
50.04	137.7	96.5	115.6	137.8	1.3	3.5	0.9	6	clean SAND to silty SAND	125	5.0	19	28	18	66	39	-	-	11	0.350	1.91	16
50.20	165.3	115.6	126.5	165.4	1.2	8.9	0.7	6	clean SAND to silty SAND	125	5.0	23	33	21	72	40	-	-	8	0.350	1.78	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

BAGG Engineers

Location	Corporation Yard Improvements Projec	Operator	JM-IY		
Job Number	HALFM-21-01	Cone Number	DPG1556	GPS	
Hole Number	CPT-01	Date and Time	10/8/2021 2:00:06 PM		
Equilized Pressure	5.4	EST GW Depth During Test	10.6		

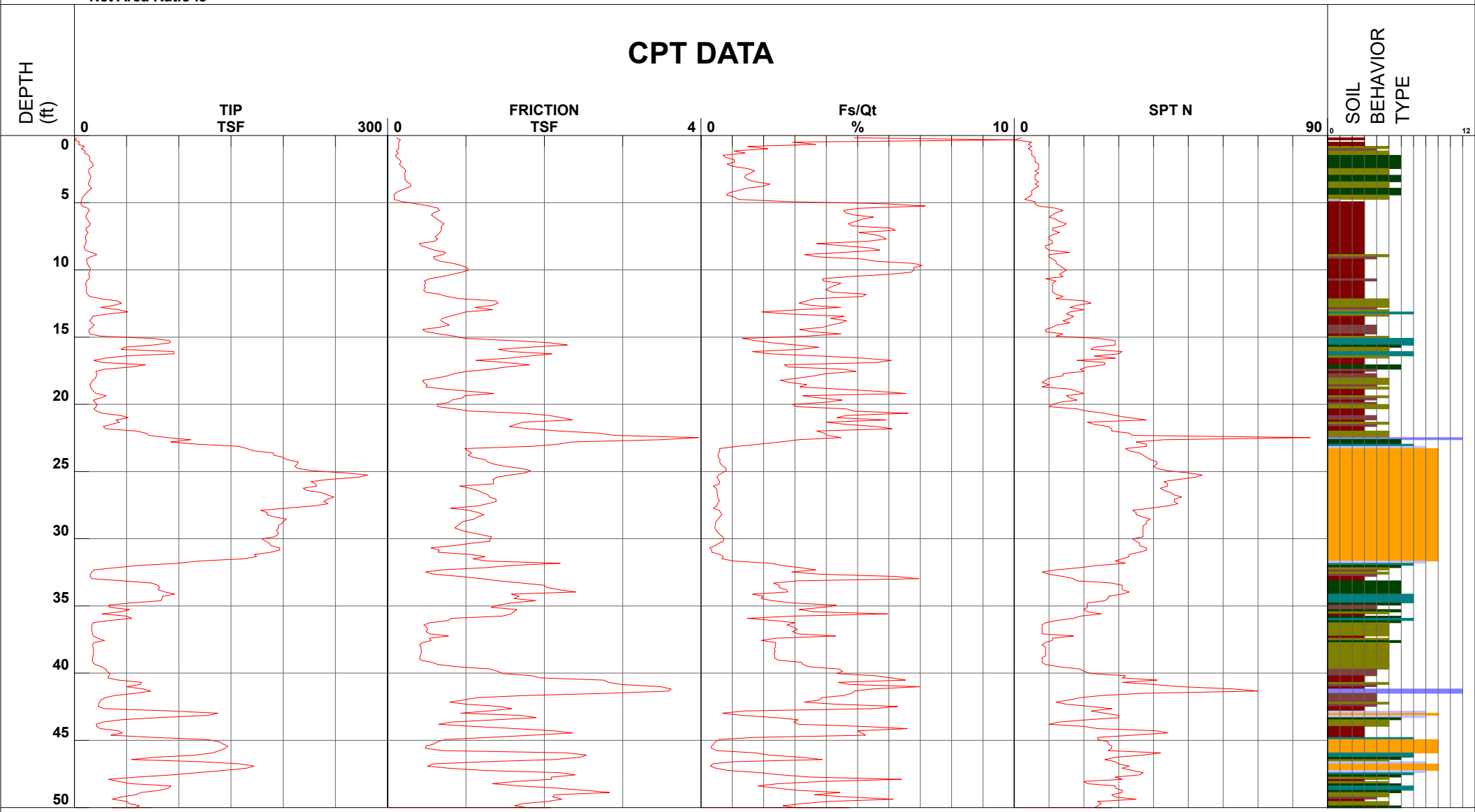


BAGG Engineers

Project	Corporation Yard Improvements Project	Operator	JM-IY	Filename	SDF(360).cpt
Job Number	HALFM-21-01	Cone Number	DPG1556	GPS	
Hole Number	CPT-02	Date and Time	10/8/2021 3:02:21 PM	Maximum Depth	50.69 ft
EST GW Depth During Test		18.30 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Cone Size 15cm squared

S*Soil behavior type and SPT based on data from UBC-1983

Corporation Yard Improvements Project

Project ID: BAGGS Engineering
Data File: SDF(360).cpt
CPT Date: 10/8/2021 3:02:21 PM
GW During Test: 18 ft

Sounding ID: CPT-02
Project No: HALFM-21-01
Cone/Rig: DPG1556

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
0.33	1.1	0.9	-	1.1	0.2	1.3	9.9	2	Organic SOILS - Peats	100	1.0	1	1	1	-	-	0.1	9.9	95	0.100	4.16	10
0.49	4.9	7.8	-	4.9	0.1	1.1	2.9	3	silty CLAY to CLAY	115	1.5	5	3	3	-	-	0.3	9.9	64	0.005	3.08	15
0.66	3.9	6.2	-	3.9	0.1	0.9	3.7	3	silty CLAY to CLAY	115	1.5	4	3	2	-	-	0.3	9.9	75	0.005	3.22	15
0.82	9.5	15.2	-	9.5	0.1	1.1	1.5	4	clayy SILT to silty CLAY	115	2.0	8	5	4	-	-	0.7	9.9	39	0.070	2.68	15
0.98	6.7	10.7	-	6.7	0.1	1.1	2.1	4	clayy SILT to silty CLAY	115	2.0	5	3	3	-	-	0.5	9.9	52	0.070	2.89	15
1.15	10.4	16.6	52.7	10.4	0.1	1.1	1.1	4	clayy SILT to silty CLAY	115	2.0	8	5	4	-	-	0.7	9.9	34	0.070	2.57	15
1.31	9.7	15.5	-	9.7	0.1	1.8	1.4	4	clayy SILT to silty CLAY	115	2.0	8	5	4	-	-	0.7	9.9	38	0.070	2.66	15
1.48	13.6	21.8	49.4	13.6	0.1	1.7	0.7	5	silty SAND to sandy SILT	120	3.0	7	5	5	17	43	-	-	26	0.200	2.39	16
1.64	14.8	23.7	53.0	14.8	0.1	1.6	0.8	5	silty SAND to sandy SILT	120	3.0	8	5	5	19	43	-	-	26	0.200	2.38	16
1.80	14.5	23.2	58.7	14.5	0.2	2.0	1.1	5	silty SAND to sandy SILT	120	3.0	8	5	6	19	42	-	-	28	0.200	2.45	16
1.97	16.1	25.8	61.0	16.1	0.2	1.7	1.1	5	silty SAND to sandy SILT	120	3.0	9	5	6	22	42	-	-	27	0.200	2.41	16
2.13	17.8	28.5	57.6	17.8	0.1	2.0	0.8	5	silty SAND to sandy SILT	120	3.0	10	6	6	26	42	-	-	23	0.200	2.32	16
2.30	17.6	28.3	61.4	17.7	0.2	1.9	1.0	5	silty SAND to sandy SILT	120	3.0	9	6	6	25	42	-	-	25	0.200	2.36	16
2.46	14.2	22.8	67.5	14.3	0.2	1.6	1.5	5	silty SAND to sandy SILT	120	3.0	8	5	6	18	41	-	-	32	0.200	2.54	16
2.62	13.5	21.7	70.7	13.6	0.2	1.5	1.7	4	clayy SILT to silty CLAY	115	2.0	11	7	6	-	-	0.9	9.9	35	0.070	2.59	15
2.79	13.8	22.2	68.6	13.9	0.2	1.7	1.6	4	clayy SILT to silty CLAY	115	2.0	11	7	6	-	-	1.0	9.9	33	0.070	2.56	15
2.95	15.4	24.8	68.2	15.5	0.2	2.0	1.4	5	silty SAND to sandy SILT	120	3.0	8	5	6	21	40	-	-	31	0.200	2.50	16
3.12	15.7	25.1	67.8	15.7	0.2	1.8	1.4	5	silty SAND to sandy SILT	120	3.0	8	5	6	21	40	-	-	30	0.200	2.49	16
3.28	14.9	23.8	69.0	14.9	0.2	1.5	1.5	5	silty SAND to sandy SILT	120	3.0	8	5	6	20	39	-	-	32	0.200	2.52	16
3.45	14.2	22.7	72.3	14.2	0.2	1.5	1.8	4	clayy SILT to silty CLAY	115	2.0	11	7	6	-	-	1.0	9.9	34	0.070	2.58	15
3.61	13.3	21.4	-	13.4	0.3	1.6	2.2	4	clayy SILT to silty CLAY	115	2.0	11	7	6	-	-	0.9	9.9	38	0.070	2.66	15
3.77	14.9	23.9	78.4	14.9	0.3	1.9	2.0	4	clayy SILT to silty CLAY	115	2.0	12	7	6	-	-	1.0	9.9	35	0.070	2.59	15
3.94	16.6	26.6	70.2	16.6	0.2	1.6	1.5	5	silty SAND to sandy SILT	120	3.0	9	6	6	23	39	-	-	30	0.200	2.47	16
4.10	13.5	21.6	60.2	13.5	0.2	1.6	1.2	5	silty SAND to sandy SILT	120	3.0	7	4	5	16	37	-	-	31	0.200	2.50	16
4.27	11.8	18.9	52.1	11.8	0.1	1.5	0.9	5	silty SAND to sandy SILT	120	3.0	6	4	5	12	36	-	-	31	0.200	2.50	16
4.43	9.7	15.6	48.1	9.7	0.1	1.5	0.8	5	silty SAND to sandy SILT	120	3.0	5	3	4	6	35	-	-	33	0.200	2.56	16
4.59	7.9	12.7	-	7.9	0.1	1.2	1.1	4	clayy SILT to silty CLAY	115	2.0	6	4	3	-	-	0.5	9.4	40	0.070	2.70	15
4.76	7.1	11.4	-	7.2	0.1	1.1	1.2	4	clayy SILT to silty CLAY	115	2.0	6	4	3	-	-	0.5	8.2	44	0.070	2.76	15
4.92	6.5	10.4	-	6.5	0.2	1.1	3.0	3	silty CLAY to CLAY	115	1.5	7	4	3	-	-	0.4	7.1	58	0.005	3.00	15
5.09	6.3	10.1	-	6.3	0.4	1.2	6.2	3	silty CLAY to CLAY	115	1.5	7	4	4	-	-	0.4	6.7	73	0.005	3.20	15
5.25	7.5	12.0	-	7.5	0.5	1.2	7.5	3	silty CLAY to CLAY	115	1.5	8	5	4	-	-	0.5	7.8	72	0.005	3.19	15
5.41	12.8	20.5	-	12.8	0.6	1.4	5.2	3	silty CLAY to CLAY	115	1.5	14	9	6	-	-	0.9	9.9	52	0.005	2.91	15
5.58	14.5	23.3	-	14.5	0.7	1.8	4.7	3	silty CLAY to CLAY	115	1.5	16	10	7	-	-	1.0	9.9	48	0.005	2.83	15
5.74	12.8	20.5	-	12.8	0.6	2.2	4.7	3	silty CLAY to CLAY	115	1.5	14	9	6	-	-	0.9	9.9	51	0.005	2.88	15
5.91	11.4	18.3	-	11.5	0.6	2.7	5.0	3	silty CLAY to CLAY	115	1.5	12	8	6	-	-	0.8	9.9	54	0.005	2.94	15
6.07	10.8	17.3	-	10.9	0.6	3.7	5.7	3	silty CLAY to CLAY	115	1.5	12	7	5	-	-	0.7	9.8	58	0.005	2.99	15
6.23	12.3	19.7	-	12.4	0.6	5.1	5.3	3	silty CLAY to CLAY	115	1.5	13	8	6	-	-	0.8	9.9	54	0.005	2.93	15
6.40	13.8	22.1	-	13.9	0.7	5.7	5.1	3	silty CLAY to CLAY	115	1.5	15	9	7	-	-	0.9	9.9	50	0.005	2.88	15
6.56	15.3	24.5	-	15.4	0.7	6.1	4.8	3	silty CLAY to CLAY	115	1.5	16	10	7	-	-	1.1	9.9	48	0.005	2.83	15
6.73	14.3	22.9	-	14.4	0.7	3.3	5.0	3	silty CLAY to CLAY	115	1.5	15	10	7	-	-	1.0	9.9	49	0.005	2.86	15
6.89	11.2	18.0	-	11.3	0.7	3.2	6.3	3	silty CLAY to CLAY	115	1.5	12	7	6	-	-	0.8	9.0	59	0.005	3.01	15
7.05	11.1	17.8	-	11.2	0.7	4.4	6.4	3	silty CLAY to CLAY	115	1.5	12	7	6	-	-	0.8	8.6	60	0.005	3.02	15
7.22	13.2	21.1	-	13.3	0.7	5.4	5.2	3	silty CLAY to CLAY	115	1.5	14	9	6	-	-	0.9	9.9	52	0.005	2.90	15
7.38	11.6	18.6	-	11.7	0.6	4.3	5.7	3	silty CLAY to CLAY	115	1.5	12	8	6	-	-	0.8	8.6	57	0.005	2.97	15
7.55	10.5	16.8	-	10.6	0.6	4.9	6.1	3	silty CLAY to CLAY	115	1.5	11	7	5	-	-	0.7	7.6	60	0.005	3.02	15
7.71	10.8	17.3	-	10.9	0.6	6.2	6.2	3	silty CLAY to CLAY	115	1.5	12	7	6	-	-	0.7	7.6	60	0.005	3.02	15
7.87	11.3	18.1	-	11.4	0.6	6.4	5.5	3	silty CLAY to CLAY	115	1.5	12	8	6	-	-	0.8	7.9	56	0.005	2.97	15
8.04	11.0	17.6	-	11.1	0.4	6.6	3.9	3	silty CLAY to CLAY	115	1.5	12	7	5	-	-	0.7	7.5	51	0.005	2.88	15
8.20	9.5	15.2	-	9.6	0.4	7.3	4.7	3	silty CLAY to CLAY	115	1.5	10	6	5	-	-	0.6	6.2	58	0.005	2.99	15
8.37	9.5	15.2	-	9.7	0.5	8.2	5.7	3	silty CLAY to CLAY	115	1.5	10	6	5	-	-	0.6	6.1	61	0.005	3.04	15
8.53	10.4	16.7	-	10.6	0.6	8.8	6.0	3	silty CLAY to CLAY	115	1.5	11	7	5	-	-	0.7	6.6	60	0.005	3.02	15
8.69	16.3	26.2	-	16.5	0.7	8.9	4.7	3	silty CLAY to CLAY	115	1.5	17	11	7	-	-	1.1	9.9	46	0.005	2.80	15
8.86	21.4	34.4	-	21.6	0.7	6.4	3.4	4	clayy SILT to silty CLAY	115	2.0	17	11	9	-	-	1.5	9.9	36	0.070	2.62	15
9.02	15.7	25.2	-	15.8	0.6	6.4	3.9	4	clayy SILT to silty CLAY	115	2.0	13	8	7	-	-	1.1	9.6	44	0.070	2.76	15
9.19	11.7	18.7	-	11.8	0.6	7.4	5.4	3	silty CLAY to CLAY	115	1.5	12	8	6	-	-	0.8	6.9	55	0.005	2.95	15
9.35	12.0	19.3	-	12.2	0.7	8.2	5.8	3	silty CLAY to CLAY	115	1.5	13	8	6	-	-	0.8	7.0	56	0.005	2.97	15
9.51	12.3	19.8	-	12.5	0.8	8.2	7.1	3	silty CLAY to CLAY	115	1.5	13	8	6	-	-	0.8	7.1	60	0.005	3.02	15
9.68	13.4	21.4	-	13.5	0.9	9.3	7.4	3	silty CLAY to CLAY	115	1.5	14	9	7	-	-	0.9	7.5	59	0.005	3.00	15
9.84	14.9	23.9	-	15.1	1.0	10.2	7.1	3	silty CLAY to CLAY	115	1.5	16	10	7	-	-	1.0	8.3	55	0.005	2.95	15
10.01	15.2	24.3	-	15.4	1.0	9.8	7.1	3	silty CLAY to CLAY	115	1.5	16	10	8	-	-	1.0	8.3	55	0.005	2.95	15
10.17	14.1	22.7	-	14.3	1.0	9.9	7.0	3	silty CLAY to CLAY	115	1.5	15	9	7	-	-	1.0	7.6	56	0.005	2.97	15
10.34	13.7	22.0	-	13.9	0.8	9.5	6.3	3	silty CLAY to CLAY	115	1.5	15	9	7	-	-	0.9	7.3	55	0.005	2.94	15
10.50	14.7	23.5	-	14.9	0.7	10.4	4.9	3	silty CLAY to CLAY	115	1.5	16	10	7	-	-	1.0	7.6	49	0.005	2.85	15
10.66	13.7	22.0	-	13.9	0.5	10.1	4.1	3	silty CLAY to CLAY	115	1.5	15	9	6	-	-	0.9	7.0	47	0.005	2.82	15
10.83	12.0	19.2	-	12.2	0.5	10.2	4.1	3	silty CLAY to CLAY	115	1.5	13	8	6	-	-	0.8	6.0	50	0.005	2.87	15
10.99	10.9	17.1	-	11.1	0.5	10.2	4.7	3	silty CLAY to CLAY	115	1.5	11	7	5	-	-	0.7	5.3	55	0.005	2.95	15
11.16	10.9	16.9	-	11.1	0.5	10.3	4.5	3	silty CLAY to CLAY	115	1.5	11	7	5	-	-	0.7	5.2	55	0.005	2.94	15
11.32	11.7	17.9	-	11.9	0.5	10.6	4.3	3	silty CLAY to CLAY	115	1.5	12	8	5	-	-	0.8	5.6	53	0.005	2.91	15
11.48	11.5	17.4	-	11.8	0.5	11.0	4.2	3	silty CLAY to CLAY	115	1.5	12	8	5	-	-	0.8	5.4	53	0.005	2.91	15
11.65	11.5	17.1	-	11.7	0.5	11.1	4.4	3	silty CLAY to CLAY	115	1.5	11	8	5	-	-	0.8	5.3	54	0.005	2.93	15
11.81	12.5	18.3	-	12.7	0.7	12.1	5.6	3	silty CLAY to CLAY	115	1.5	12	8	6	-	-	0.8	5.7	57	0.005	2.98	15
11.98	14.8	21.4	-	15.0	0.8	11.9	5.4	3	silty CLAY to CLAY	115	1.5	14	10	6	-	-	1.0	6.7	53	0.005	2.91	15
12.14	25.4	36.3	-	25.7	0.9	12.5	3.7	4	clayy SILT to silty CLAY	115	2.0	18	13	9	-	-	1.7	9.9	37	0.070	2.63	15
12.30	40.8	47.1	134.8	41.0	1.4	7.4	3.4	4	clayy SILT to silty CLAY	115	2.0	24	20	12	-	-	2.8	9.9	32	0.070	2.52	15
12.47	45.0	51.5	134.2	45.1	1.4	4.9	3.2	4	clayy SILT to silty CLAY	115	2.0	26	23	12	-	-	3.1	9.9	29	0.070	2.47	15
12.63	38.2	43.5	132.9	38.3	1.3	5.3	3.6	4	clayy SILT to silty CLAY	115	2.0	22	19	11	-	-	2.6	9.9	33	0.070	2.55	15
12.80	25.0	33.9	-	25.2	1.1	8.1	4.6	3	silty CLAY to CLAY	115	1.5	23	17	9	-	-	1.7	9.9	41	0.005	2.71	15
12.96	42.5	47.7	130.7	42.7	1.3	10.6	3.2	4	clayy SILT to silty CLAY	115	2.0	24	21	12	-	-	3.0	9.9	30	0.070	2.49	15
13.12	51.3	57.2	110.0	51.4	1.0	6.9	2.0	5	silty SAND to sandy SILT	120	3.0	19	17	13	49	38	-	-	22	0.200	2.29	16
13.29	31.8	35.2	109.7	31.9	0.9	6.5	2.9	4	clayy SILT to silty CLAY	115	2.0	18	16	9	-	-	2.2	9.9	34	0.070	2.56	15
13.45	17.3	22.3	-	17.6	0.8	12.3	4.8	3	silty CLAY to CLAY	115	1.5	15	12	7	-	-	1.2	7.0	50	0.005	2.86	15
13.62	16.7	21.2	-	16.9	0.7	11.7	4.3	3	silty CLAY to CLAY	115	1.5	14	11	6	-	-	1.1	6.7	49	0.005	2.85	15
13.78	14.6	18.4	-	14.9	0.7	12.5	4.9	3	silty CLAY to CLAY	115	1.5	12	10	6	-	-	1.0	5.7	54	0.005	2.94	15
13.94	16.3	20.2	-	16.5	0.7	13.7	4.7	3	silty CLAY to CLAY	115	1.5	13	11	6	-	-	1.1	6.3	51	0.005	2.89	15
14.11	19.1	23.4	-	19.3	0.8	13.6	4.3	3	silty CLAY to CLAY	115	1.5	16	13	7	-	-	1.3	7.4	47	0.005	2.82	15
14.27	16.8	20.3	-	17.0	0.7	12.9	4.1	3	silty CLAY to CLAY	115	1.5	14	11	6	-	-	1.1	6.4	49	0.005	2.85	15
14.44	14.3	17.1	-	14.5	0.4	13.1	3.3	3	silty CLAY to CLAY	115	1.5	11	10	5	-	-	0.9	5.3	49	0.005	2.86	15
14.60	13.8	16.4	-	14.1	0.5	14.0	3.8	3	silty CLAY to CLAY	115	1.5	11	9	5	-	-	0.9	5.1	52	0.005	2.91	15
14.76	14.8	17.4	-	15.1	0.7	14.0	4.7	3	silty CLAY to CLAY	115	1.5	12	10	5	-	-	1.0	5.4	55	0.005	2.95	15
14.93	25.3	29.4	-	25.6	0.9	15.9	3.5	4	clayy SILT to silty CLAY	115	2.0	15	13	8	-	-	1.7	9.4	39	0.070	2.68	15
15.09	74.5	77.5	110.1	74.7	1.0	10.9	1.3	5	silty SAND to sandy SILT	120	3.0	26	25	16	59	40	-	-	15	0.200	2.08	16
15.26	91.1	94.3	136.8	91.3	1.6	10.5	1.8	5	silty SAND to sandy SILT	120	3.0	31	30	19	65	41	-	-	16	0.200	2.10	16
15.42	91.8	94.5	152.0	92.0	2.1	9.9	2.3	5	silty SAND to sandy SILT	120	3.0	31	31	20	65	41	-	-	18	0.200	2.18	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
15.58	75.6	77.4	158.6	75.8	2.3	7.5	3.1	5	silty SAND to sandy SILT	120	3.0	26	25	17	59	40	-	-	24	0.200	2.33	16
15.75	48.0	48.9	145.8	48.2	1.8	10.0	3.8	4	clayy SILT to silty CLAY	115	2.0	24	24	12	-	-	3.3	9.9	33	0.070	2.54	15
15.91	44.7	45.2	128.1	45.0	1.4	15.0	3.2	4	clayy SILT to silty CLAY	115	2.0	23	22	11	-	-	3.1	9.9	31	0.070	2.51	15
16.08	95.4	96.1	135.4	95.8	1.6	22.7	1.7	5	silty SAND to sandy SILT	120	3.0	32	32	19	66	41	-	-	15	0.200	2.07	16
16.24	95.3	95.5	151.4	95.5	2.1	9.1	2.2	5	silty SAND to sandy SILT	120	3.0	32	32	20	65	41	-	-	18	0.200	2.17	16
16.40	48.8	48.6	145.0	48.9	1.8	5.7	3.8	4	clayy SILT to silty CLAY	115	2.0	24	24	12	-	-	3.4	9.9	33	0.070	2.54	15
16.57	29.7	31.0	-	29.9	1.5	8.7	5.4	3	silty CLAY to CLAY	115	1.5	21	20	9	-	-	2.0	9.9	45	0.005	2.79	15
16.73	18.5	19.2	-	18.8	1.1	12.0	6.4	3	silty CLAY to CLAY	115	1.5	13	12	6	-	-	1.2	6.0	58	0.005	3.00	15
16.90	26.9	27.6	-	27.3	1.5	19.4	5.8	3	silty CLAY to CLAY	115	1.5	18	18	8	-	-	1.8	8.8	49	0.005	2.85	15
17.06	68.3	66.8	138.0	68.6	1.8	15.6	2.7	5	silty SAND to sandy SILT	120	3.0	22	23	15	54	38	-	-	24	0.200	2.34	16
17.23	54.4	52.9	127.6	54.5	1.5	9.3	2.8	4	clayy SILT to silty CLAY	115	2.0	26	27	12	-	-	3.8	9.9	27	0.070	2.42	15
17.39	28.8	28.6	-	29.1	1.3	12.7	4.7	3	silty CLAY to CLAY	115	1.5	19	19	8	-	-	2.0	9.1	45	0.005	2.78	15
17.55	20.6	20.3	-	21.0	1.0	19.9	5.2	3	silty CLAY to CLAY	115	1.5	14	14	6	-	-	1.4	6.4	53	0.005	2.92	15
17.72	21.2	20.7	-	21.6	0.8	20.2	4.2	3	silty CLAY to CLAY	115	1.5	14	14	6	-	-	1.4	6.5	49	0.005	2.85	15
17.88	21.2	20.5	-	21.6	0.8	19.4	3.8	3	silty CLAY to CLAY	115	1.5	14	14	6	-	-	1.4	6.4	48	0.005	2.83	15
18.05	20.1	19.4	-	20.5	0.6	20.2	3.3	4	clayy SILT to silty CLAY	115	2.0	10	10	6	-	-	1.4	6.1	46	0.070	2.81	15
18.21	17.7	17.0	-	18.1	0.4	18.9	2.7	4	clayy SILT to silty CLAY	115	2.0	8	9	5	-	-	1.2	5.3	46	0.070	2.80	15
18.37	16.3	15.5	-	16.7	0.5	19.6	3.0	3	silty CLAY to CLAY	115	1.5	10	11	5	-	-	1.1	4.8	50	0.005	2.87	15
18.54	14.9	14.2	-	15.3	0.5	19.8	3.6	3	silty CLAY to CLAY	115	1.5	9	10	4	-	-	1.0	4.3	55	0.005	2.95	15
18.70	15.4	14.6	-	15.9	0.5	25.4	3.4	3	silty CLAY to CLAY	115	1.5	10	10	4	-	-	1.0	4.5	53	0.005	2.92	15
18.87	16.7	15.8	-	17.2	0.7	26.2	4.7	3	silty CLAY to CLAY	115	1.5	11	11	5	-	-	1.1	4.9	57	0.005	2.98	15
19.03	18.4	17.2	-	18.9	1.0	26.8	6.0	3	silty CLAY to CLAY	115	1.5	11	12	6	-	-	1.2	5.3	60	0.005	3.02	15
19.19	20.7	19.4	-	21.2	1.4	27.5	6.9	3	silty CLAY to CLAY	115	1.5	13	14	6	-	-	1.4	6.0	60	0.005	3.02	15
19.36	30.4	28.3	-	30.9	1.0	27.6	3.4	4	clayy SILT to silty CLAY	115	2.0	14	15	8	-	-	2.1	9.0	40	0.070	2.68	15
19.52	25.5	23.7	-	25.9	1.0	18.3	3.9	3	silty CLAY to CLAY	115	1.5	16	17	7	-	-	1.7	7.5	45	0.005	2.79	15
19.69	18.2	16.8	-	18.6	0.8	20.0	4.8	3	silty CLAY to CLAY	115	1.5	11	12	5	-	-	1.2	5.2	56	0.005	2.96	15
19.85	19.7	18.1	-	20.2	0.8	23.4	4.2	3	silty CLAY to CLAY	115	1.5	12	13	5	-	-	1.3	5.6	52	0.005	2.90	15
20.01	21.7	19.9	-	22.2	0.6	22.0	3.1	4	clayy SILT to silty CLAY	115	2.0	10	11	6	-	-	1.5	6.2	45	0.070	2.78	15
20.18	21.0	19.1	-	21.4	0.6	22.4	3.2	4	clayy SILT to silty CLAY	115	2.0	10	10	5	-	-	1.4	6.0	46	0.070	2.81	15
20.34	18.5	16.8	-	19.0	0.9	24.0	5.0	3	silty CLAY to CLAY	115	1.5	11	12	5	-	-	1.2	5.2	57	0.005	2.97	15
20.51	21.4	19.4	-	21.9	1.0	25.1	5.2	3	silty CLAY to CLAY	115	1.5	13	14	6	-	-	1.4	6.1	54	0.005	2.93	15
20.67	26.4	23.8	-	26.9	1.7	26.1	6.9	3	silty CLAY to CLAY	115	1.5	16	18	7	-	-	1.8	7.5	55	0.005	2.95	15
20.83	44.6	40.1	-	45.1	2.1	26.2	4.8	4	clayy SILT to silty CLAY	115	2.0	20	22	11	-	-	3.1	9.9	39	0.070	2.67	15
21.00	51.4	46.0	-	51.6	2.2	7.4	4.4	4	clayy SILT to silty CLAY	115	2.0	23	26	12	-	-	3.6	9.9	36	0.070	2.61	15
21.16	39.9	35.5	-	40.0	2.4	7.6	6.1	3	silty CLAY to CLAY	115	1.5	24	27	10	-	-	2.7	9.9	45	0.005	2.79	15
21.33	43.1	38.3	-	43.3	1.7	7.8	4.1	4	clayy SILT to silty CLAY	115	2.0	19	22	10	-	-	3.0	9.9	37	0.070	2.64	15
21.49	35.2	31.2	-	35.3	1.6	4.5	4.8	3	silty CLAY to CLAY	115	1.5	21	23	9	-	-	2.4	9.9	43	0.005	2.75	15
21.65	27.7	24.5	-	27.8	1.6	4.6	5.9	3	silty CLAY to CLAY	115	1.5	16	18	7	-	-	1.9	7.7	52	0.005	2.89	15
21.82	29.6	26.0	-	29.7	1.8	8.0	6.4	3	silty CLAY to CLAY	115	1.5	17	20	8	-	-	2.0	8.2	52	0.005	2.90	15
21.98	59.2	53.8	151.0	59.4	2.2	9.1	3.8	4	clayy SILT to silty CLAY	115	2.0	27	30	13	-	-	4.1	9.9	31	0.070	2.51	15
22.15	68.3	61.9	166.2	68.4	2.7	4.5	4.0	4	clayy SILT to silty CLAY	115	2.0	31	34	15	-	-	4.7	9.9	30	0.070	2.48	15
22.31	71.4	64.7	172.4	71.5	2.9	4.5	4.1	4	clayy SILT to silty CLAY	115	2.0	32	36	16	-	-	5.0	9.9	30	0.070	2.48	15
22.47	88.7	80.2	202.1	88.8	4.0	5.4	4.5	4	clayy SILT to silty CLAY	115	2.0	40	44	19	-	-	6.2	9.9	28	0.070	2.45	15
22.64	111.6	100.6	184.9	111.6	3.5	3.9	3.2	5	silty SAND to sandy SILT	120	3.0	34	37	22	67	40	-	-	21	0.200	2.26	16
22.80	92.4	83.1	150.8	92.4	2.4	2.0	2.6	5	silty SAND to sandy SILT	120	3.0	28	31	18	61	39	-	-	21	0.200	2.26	16
22.97	117.3	105.4	150.0	117.5	2.2	12.2	1.9	5	silty SAND to sandy SILT	120	3.0	35	39	21	69	41	-	-	15	0.200	2.08	16
23.13	157.3	141.0	161.6	157.3	1.8	3.1	1.2	6	clean SAND to silty SAND	125	5.0	28	31	26	78	42	-	-	9	0.350	1.85	16
23.30	165.3	147.8	147.6	165.4	1.0	3.3	0.6	6	clean SAND to silty SAND	125	5.0	30	33	26	80	42	-	-	5	0.350	1.64	16
23.46	171.3	152.9	152.9	171.4	1.0	2.9	0.6	6	clean SAND to silty SAND	125	5.0	31	34	26	81	42	-	-	5	0.350	1.63	16
23.62	190.4	169.6	169.6	190.5	1.1	3.0	0.6	6	clean SAND to silty SAND	125	5.0	34	38	29	84	43	-	-	5	0.350	1.58	16
23.79	190.9	169.7	169.7	191.0	1.0	3.1	0.5	6	clean SAND to silty SAND	125	5.0	34	38	29	84	43	-	-	5	0.350	1.57	16
23.95	199.7	177.1	177.1	199.8	1.1	2.5	0.6	6	clean SAND to silty SAND	125	5.0	35	40	30	86	43	-	-	5	0.350	1.56	16
24.12	203.2	179.8	179.8	203.2	1.2	2.7	0.6	6	clean SAND to silty SAND	125	5.0	36	41	30	86	43	-	-	5	0.350	1.58	16
24.28	214.2	189.1	189.1	214.2	1.3	2.7	0.6	6	clean SAND to silty SAND	125	5.0	38	43	32	88	43	-	-	5	0.350	1.56	16
24.44	213.4	188.0	188.0	213.4	1.4	2.5	0.6	6	clean SAND to silty SAND	125	5.0	38	43	32	88	43	-	-	5	0.350	1.58	16
24.61	211.3	185.8	185.8	211.3	1.5	2.5	0.7	6	clean SAND to silty SAND	125	5.0	37	42	32	87	43	-	-	5	0.350	1.61	16
24.77	213.9	187.7	187.5	214.0	1.7	2.5	0.8	6	clean SAND to silty SAND	125	5.0	38	43	32	88	43	-	-	5	0.350	1.64	16
24.94	227.3	199.1	199.1	227.4	1.8	2.8	0.8	6	clean SAND to silty SAND	125	5.0	40	45	34	90	44	-	-	5	0.350	1.63	16
25.10	258.6	225.9	225.9	258.6	1.8	3.1	0.7	6	clean SAND to silty SAND	125	5.0	45	52	38	94	44	-	-	5	0.350	1.54	16
25.26	280.9	244.9	244.9	281.0	1.6	2.6	0.6	6	clean SAND to silty SAND	125	5.0	49	56	40	95	45	-	-	5	0.350	1.45	16
25.43	271.9	236.6	236.6	272.0	1.4	2.4	0.5	6	clean SAND to silty SAND	125	5.0	47	54	38	95	44	-	-	5	0.350	1.44	16
25.59	243.1	211.1	211.1	243.2	1.3	2.0	0.6	6	clean SAND to silty SAND	125	5.0	42	49	35	92	44	-	-	5	0.350	1.50	16
25.76	226.7	196.5	196.5	226.8	1.4	1.9	0.6	6	clean SAND to silty SAND	125	5.0	39	45	33	89	44	-	-	5	0.350	1.55	16
25.92	230.9	199.7	199.7	230.9	1.3	1.9	0.6	6	clean SAND to silty SAND	125	5.0	40	46	33	90	44	-	-	5	0.350	1.53	16
26.08	231.9	200.1	200.1	231.9	0.9	1.9	0.4	6	clean SAND to silty SAND	125	5.0	40	46	32	90	44	-	-	5	0.350	1.43	16
26.25	219.1	188.7	188.7	219.1	1.0	1.6	0.5	6	clean SAND to silty SAND	125	5.0	38	44	31	88	43	-	-	5	0.350	1.50	16
26.41	222.8	191.5	191.5	222.8	1.1	1.2	0.5	6	clean SAND to silty SAND	125	5.0	38	45	32	88	43	-	-	5	0.350	1.51	16
26.58	237.0	203.3	203.3	237.0	1.2	1.4	0.5	6	clean SAND to silty SAND	125	5.0	41	47	33	90	44	-	-	5	0.350	1.49	16
26.74	242.2	207.4	207.4	242.2	1.3	0.7	0.5	6	clean SAND to silty SAND	125	5.0	41	48	34	91	44	-	-	5	0.350	1.49	16
26.90	248.4	212.2	212.2	248.3	1.3	-0.8	0.5	6	clean SAND to silty SAND	125	5.0	42	50	35	92	44	-	-	5	0.350	1.48	16
27.07	242.5	206.8	206.8	242.5	1.4	-1.0	0.6	6	clean SAND to silty SAND	125	5.0	41	48	34	91	44	-	-	5	0.350	1.52	16
27.23	238.7	203.2	203.2	238.7	1.4	-0.6	0.6	6	clean SAND to silty SAND	125	5.0	41	48	34	90	44	-	-	5	0.350	1.53	16
27.40	243.0	206.4	206.4	242.9	1.3	-0.8	0.5	6	clean SAND to silty SAND	125	5.0	41	49	34	91	44	-	-	5	0.350	1.49	16
27.56	229.0	194.1	194.1	228.9	1.1	-0.9	0.5	6	clean SAND to silty SAND	125	5.0	39	46	32	89	43	-	-	5	0.350	1.50	16
27.72	202.4	171.3	171.3	202.4	0.8	-1.3	0.4	6	clean SAND to silty SAND	125	5.0	34	40	28	85	43	-	-	5	0.350	1.49	16
27.89	178.5	150.8	150.8	178.5	1.0	-1.7	0.6	6	clean SAND to silty SAND	125	5.0	30	36	26	81	42	-	-	5	0.350	1.63	16
28.05	184.6	155.6	155.6	184.5	1.2	-1.7	0.6	6	clean SAND to silty SAND	125	5.0	31	37	27	82	42	-	-	5	0.350	1.64	16
28.22	184.5	155.2	156.4	184.5	1.2	-1.4	0.7	6	clean SAND to silty SAND	125	5.0	31	37	27	82	42	-	-	5	0.350	1.66	16
28.38	191.3	160.6	160.6	191.3	1.1	-2.2	0.6	6	clean SAND to silty SAND	125	5.0	32	38	27	83	42	-	-	5	0.350	1.62	16
28.54	203.1	170.2	170.2	203.0	1.1	-2.7	0.5	6	clean SAND to silty SAND	125	5.0	34	41	29	85	43	-	-	5	0.350	1.57	16
28.71	200.6	167.8	167.8	200.5	1.0	-3.3	0.5	6	clean SAND to silty SAND	125	5.0	34	40	28	84	43	-	-	5	0.350	1.54	16
28.87	198.4	165.6	165.6	198.3	0.9	-3.2	0.5	6	clean SAND to silty SAND	125	5.0	33	40	28	84	42	-	-	5	0.350	1.54	16
29.04	195.1	162.5	162.5	195.0	0.9	-3.4	0.5	6	clean SAND to silty SAND	125	5.0	33	39	27	83	42	-	-	5	0.350	1.54	16
29.20	195.5	162.6	162.6	195.5	0.9	-3.6	0.4	6	clean SAND to silty SAND	125	5.0	33	39	27	83	42	-	-	5	0.350	1.53	16
29.36	193.4	160.6	160.6	193.4	0.9	-3.6	0.5	6	clean SAND to silty SAND	125	5.0	32	39	27	83	42	-	-	5	0.350	1.56	16
29.53	195.4	161.9	161.9	195.3	1.0	-3.7	0.5	6	clean SAND to silty SAND	125	5.0	32	39	27	83	42	-	-	5	0.350	1.58	16
29.69	194.8	161.1	161.1	194.7	1.2	-3.7	0.6	6	clean SAND to silty SAND	125	5.0	32	39	28	83	42	-	-	5	0.350	1.62	16
29.86	191.5	158.1	159.8	191.4	1.3	-3.8	0.7	6	clean SAND to silty SAND	125	5.0	32	38	27	82	42	-	-	5	0.350	1.66	16
30.02	179.8	148.1	153.4	179.7	1.3	-3.8	0.7	6	clean SAND to silty SAND	125	5.0	30	36	26	80	42	-	-	6	0.350	1.70	16
30.19	183.1	150.5	154.8	183.0	1.3	-3.9	0.7	6	clean SAND to silty SAND	125	5.0	30	37	26	81	42	-	-	6	0.350	1.69	16
30.35	186.9	153.4	153.4	186.8	1.1	-4.0	0.6	6	clean SAND to silty SAND	125	5.0	31	37	26	81	42	-	-	5	0.350	1.62	16
30.51	188.3	154.3	154.3	188.2	0.9	-3.8	0.5	6	clean SAND to silty SAND	125	5.0	31	38	26	81	42	-	-	5	0.350	1.56	16
30.68	196.7	160.9	160.9	196.6	0.6	-4.0	0.3	6	clean SAND to silty SAND	125	5.0	32	39	26	83	42	-	-	5	0.350	1.43	16
30.84	196.5	160.4	160.4	196.4	0.7	-4.0	0.3	6	clean SAND to silty SAND	125	5.0	32	39	26	83	42	-	-	5	0.350	1.47	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
31.01	188.4	153.5	153.5	188.3	0.6	-4.1	0.3	6	clean SAND to silty SAND	125	5.0	31	38	25	81	42	-	-	5	0.350	1.49	16
31.17	172.3	140.2	142.6	172.3	1.1	-2.4	0.6	6	clean SAND to silty SAND	125	5.0	28	34	24	78	42	-	-	6	0.350	1.67	16
31.33	174.4	141.6	147.6	174.3	1.2	-3.5	0.7	6	clean SAND to silty SAND	125	5.0	28	35	25	78	42	-	-	6	0.350	1.71	16
31.50	161.9	131.2	137.7	161.8	1.1	-4.0	0.7	6	clean SAND to silty SAND	125	5.0	26	32	23	76	41	-	-	6	0.350	1.72	16
31.66	119.2	96.5	119.4	119.1	1.3	-4.7	1.1	6	clean SAND to silty SAND	125	5.0	19	24	19	66	39	-	-	12	0.350	1.95	16
31.83	98.9	79.9	139.1	98.8	2.2	-4.9	2.3	5	silty SAND to sandy SILT	120	3.0	27	33	17	60	38	-	-	20	0.200	2.23	16
31.99	62.1	50.1	120.7	62.0	1.6	-4.3	2.6	5	silty SAND to sandy SILT	120	3.0	17	21	12	44	36	-	-	27	0.200	2.42	16
32.15	39.8	27.3	-	39.7	1.3	-3.7	3.3	4	clayy SILT to silty CLAY	115	2.0	14	20	7	-	-	2.7	8.6	40	0.070	2.69	15
32.32	19.1	13.1	-	19.0	0.7	-2.1	4.1	3	silty CLAY to CLAY	115	1.5	9	13	4	-	-	1.2	3.9	60	0.005	3.02	15
32.48	16.6	11.4	-	16.6	0.5	-0.2	3.3	3	silty CLAY to CLAY	115	1.5	8	11	4	-	-	1.1	3.3	60	0.005	3.02	15
32.65	15.5	10.6	-	15.5	0.6	1.0	4.3	3	silty CLAY to CLAY	115	1.5	7	10	4	-	-	1.0	3.1	67	0.005	3.12	15
32.81	14.9	10.1	-	15.0	0.9	1.9	7.2	3	silty CLAY to CLAY	115	1.5	7	10	4	-	-	1.0	2.9	78	0.005	3.27	15
32.97	17.3	11.7	-	17.3	1.2	2.7	7.8	3	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.1	3.4	76	0.005	3.24	15
33.14	45.8	30.9	-	45.9	1.4	2.4	3.2	4	clayy SILT to silty CLAY	115	2.0	15	23	8	-	-	3.1	9.8	37	0.070	2.64	15
33.30	74.0	58.9	123.0	74.0	1.7	0.7	2.4	5	silty SAND to sandy SILT	120	3.0	20	25	13	50	37	-	-	24	0.200	2.34	16
33.47	80.1	63.7	132.0	80.0	2.0	-1.5	2.6	5	silty SAND to sandy SILT	120	3.0	21	27	14	52	37	-	-	24	0.200	2.34	16
33.63	81.6	64.8	133.1	81.6	2.0	-2.4	2.6	5	silty SAND to sandy SILT	120	3.0	22	27	15	53	37	-	-	24	0.200	2.33	16
33.79	80.2	63.6	138.4	80.1	2.2	-3.0	2.8	5	silty SAND to sandy SILT	120	3.0	21	27	15	52	37	-	-	25	0.200	2.37	16
33.96	86.7	68.7	144.3	86.6	2.4	-3.1	2.8	5	silty SAND to sandy SILT	120	3.0	23	29	16	55	37	-	-	24	0.200	2.34	16
34.12	95.8	75.8	118.7	95.8	1.6	-3.7	1.7	5	silty SAND to sandy SILT	120	3.0	25	32	16	58	38	-	-	18	0.200	2.16	16
34.29	84.5	66.7	120.5	84.4	1.7	-3.8	2.0	5	silty SAND to sandy SILT	120	3.0	22	28	15	54	37	-	-	21	0.200	2.25	16
34.45	84.0	66.2	118.4	83.9	1.6	-3.7	2.0	5	silty SAND to sandy SILT	120	3.0	22	28	14	53	37	-	-	21	0.200	2.25	16
34.61	82.9	65.2	127.6	82.8	1.9	-4.2	2.3	5	silty SAND to sandy SILT	120	3.0	22	28	14	53	37	-	-	23	0.200	2.30	16
34.78	54.2	42.6	121.9	54.1	1.6	-4.8	3.0	4	clayy SILT to silty CLAY	115	2.0	21	27	10	-	-	3.7	9.9	32	0.070	2.52	15
34.94	32.7	21.3	-	32.6	1.4	-4.8	4.6	3	silty CLAY to CLAY	115	1.5	14	22	6	-	-	2.2	6.6	50	0.005	2.87	15
35.11	33.6	21.9	-	33.5	1.3	-3.6	4.2	3	silty CLAY to CLAY	115	1.5	15	22	6	-	-	2.3	6.8	48	0.005	2.84	15
35.27	52.6	34.1	-	52.6	1.6	-3.5	3.3	4	clayy SILT to silty CLAY	115	2.0	17	26	9	-	-	3.6	9.9	36	0.070	2.61	15
35.43	44.6	28.9	-	44.5	1.6	-4.0	3.8	4	clayy SILT to silty CLAY	115	2.0	14	22	8	-	-	3.0	9.1	41	0.070	2.71	15
35.60	26.5	17.1	-	26.4	1.6	-3.5	6.5	3	silty CLAY to CLAY	115	1.5	11	18	6	-	-	1.8	5.2	62	0.005	3.05	15
35.76	50.0	32.2	-	50.0	1.5	-2.5	3.0	4	clayy SILT to silty CLAY	115	2.0	16	25	8	-	-	3.4	9.9	36	0.070	2.61	15
35.93	54.8	42.7	87.5	54.8	0.8	-3.2	1.5	5	silty SAND to sandy SILT	120	3.0	14	18	10	39	34	-	-	24	0.200	2.33	16
36.09	32.5	20.8	-	32.5	0.8	-3.6	2.5	4	clayy SILT to silty CLAY	115	2.0	10	16	6	-	-	2.2	6.4	41	0.070	2.72	15
36.26	18.0	11.5	-	18.0	0.5	-2.9	3.4	3	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.2	3.3	60	0.005	3.02	15
36.42	16.8	10.7	-	16.8	0.5	-1.9	3.2	3	silty CLAY to CLAY	115	1.5	7	11	3	-	-	1.1	3.1	61	0.005	3.03	15
36.58	16.9	10.7	-	16.8	0.5	-1.5	3.4	3	silty CLAY to CLAY	115	1.5	7	11	4	-	-	1.1	3.1	62	0.005	3.05	15
36.75	16.6	10.5	-	16.6	0.5	-1.2	3.5	3	silty CLAY to CLAY	115	1.5	7	11	4	-	-	1.1	3.0	63	0.005	3.07	15
36.91	16.7	10.6	-	16.7	0.5	-0.9	3.4	3	silty CLAY to CLAY	115	1.5	7	11	3	-	-	1.1	3.0	62	0.005	3.05	15
37.08	17.4	11.0	-	17.4	0.5	-0.7	3.5	3	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.1	3.2	62	0.005	3.05	15
37.24	18.1	11.3	-	18.0	0.8	-0.5	4.9	3	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.2	3.3	67	0.005	3.12	15
37.40	22.4	14.0	-	22.4	0.5	-0.1	2.6	3	silty CLAY to CLAY	115	1.5	9	15	4	-	-	1.5	4.2	51	0.005	2.88	15
37.57	28.9	18.0	-	28.9	0.6	-0.3	2.1	4	clayy SILT to silty CLAY	115	2.0	9	14	5	-	-	1.9	5.5	42	0.070	2.72	15
37.73	18.9	11.8	-	18.9	0.5	-0.4	2.7	3	silty CLAY to CLAY	115	1.5	8	13	4	-	-	1.2	3.4	56	0.005	2.96	15
37.90	17.1	10.6	-	17.1	0.4	0.7	2.7	3	silty CLAY to CLAY	115	1.5	7	11	3	-	-	1.1	3.0	59	0.005	3.00	15
38.06	18.0	11.2	-	18.0	0.4	0.8	2.7	3	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.2	3.2	57	0.005	2.98	15
38.22	18.2	11.2	-	18.2	0.4	0.9	2.7	3	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.2	3.3	57	0.005	2.97	15
38.39	18.3	11.3	-	18.3	0.4	1.0	2.7	3	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.2	3.3	57	0.005	2.98	15
38.55	18.2	11.2	-	18.2	0.4	1.1	2.7	3	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.2	3.2	57	0.005	2.98	15
38.72	17.8	10.9	-	17.8	0.4	1.2	2.7	3	silty CLAY to CLAY	115	1.5	7	12	3	-	-	1.1	3.1	58	0.005	2.99	15
38.88	17.3	10.6	-	17.3	0.4	1.3	2.7	3	silty CLAY to CLAY	115	1.5	7	12	3	-	-	1.1	3.0	59	0.005	3.00	15
39.04	17.1	10.4	-	17.2	0.4	1.4	2.9	3	silty CLAY to CLAY	115	1.5	7	11	3	-	-	1.1	3.0	60	0.005	3.02	15
39.21	17.7	10.7	-	17.7	0.6	1.5	3.7	3	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.1	3.1	64	0.005	3.07	15
39.37	19.8	12.0	-	19.8	0.6	1.6	3.7	3	silty CLAY to CLAY	115	1.5	8	13	4	-	-	1.3	3.5	60	0.005	3.03	15
39.54	26.3	15.9	-	26.3	0.9	2.0	3.8	3	silty CLAY to CLAY	115	1.5	11	18	5	-	-	1.7	4.8	54	0.005	2.93	15
39.70	29.7	17.9	-	29.7	1.3	1.7	4.8	3	silty CLAY to CLAY	115	1.5	12	20	6	-	-	2.0	5.4	55	0.005	2.95	15
39.86	31.1	18.7	-	31.1	1.4	1.7	4.9	3	silty CLAY to CLAY	115	1.5	12	21	6	-	-	2.1	5.7	54	0.005	2.94	15
40.03	34.0	20.4	-	34.0	1.5	1.7	4.7	3	silty CLAY to CLAY	115	1.5	14	23	6	-	-	2.3	6.3	52	0.005	2.89	15
40.19	33.0	19.8	-	33.1	1.8	1.6	6.0	3	silty CLAY to CLAY	115	1.5	13	22	6	-	-	2.2	6.1	57	0.005	2.98	15
40.36	32.1	19.2	-	32.2	1.9	1.8	6.5	3	silty CLAY to CLAY	115	1.5	13	21	6	-	-	2.2	5.9	59	0.005	3.01	15
40.52	42.3	25.2	-	42.4	2.8	2.0	6.9	3	silty CLAY to CLAY	115	1.5	17	28	8	-	-	2.9	7.8	54	0.005	2.94	15
40.68	64.4	38.2	-	64.4	2.8	1.5	4.5	4	clayy SILT to silty CLAY	115	2.0	19	32	10	-	-	4.4	9.9	39	0.070	2.67	15
40.85	62.6	37.1	-	62.6	3.0	-1.7	5.0	3	silty CLAY to CLAY	115	1.5	25	42	10	-	-	4.3	9.9	41	0.005	2.71	15
41.01	49.9	29.5	-	49.9	3.5	-1.6	7.3	3	silty CLAY to CLAY	115	1.5	20	33	9	-	-	3.4	9.3	52	0.005	2.90	15
41.18	66.1	38.9	-	66.1	3.6	-1.0	5.7	3	silty CLAY to CLAY	115	1.5	26	44	11	-	-	4.6	9.9	42	0.005	2.74	15
41.34	73.2	43.0	-	73.2	3.6	-1.4	5.1	3	silty CLAY to CLAY	115	1.5	29	49	11	-	-	5.1	9.9	39	0.005	2.67	15
41.50	58.5	34.3	-	58.4	2.8	-2.1	5.0	3	silty CLAY to CLAY	115	1.5	23	39	9	-	-	4.0	9.9	43	0.005	2.74	15
41.67	38.5	22.5	-	38.4	1.7	-2.7	4.8	3	silty CLAY to CLAY	115	1.5	15	26	7	-	-	2.6	6.9	50	0.005	2.87	15
41.83	29.6	17.3	-	29.6	1.1	-2.0	4.2	3	silty CLAY to CLAY	115	1.5	12	20	5	-	-	2.0	5.2	54	0.005	2.92	15
42.00	25.7	15.0	-	25.7	1.0	-1.5	4.2	3	silty CLAY to CLAY	115	1.5	10	17	5	-	-	1.7	4.5	57	0.005	2.98	15
42.16	24.1	14.0	-	24.0	0.8	-1.2	3.7	3	silty CLAY to CLAY	115	1.5	9	16	4	-	-	1.6	4.1	56	0.005	2.97	15
42.32	23.3	13.5	-	23.2	1.0	-0.9	4.9	3	silty CLAY to CLAY	115	1.5	9	16	4	-	-	1.5	4.0	62	0.005	3.06	15
42.49	22.9	13.2	-	22.8	1.4	-0.7	7.1	3	silty CLAY to CLAY	115	1.5	9	15	5	-	-	1.5	3.9	71	0.005	3.17	15
42.65	29.0	16.7	-	29.0	1.6	-0.3	6.0	3	silty CLAY to CLAY	115	1.5	11	19	5	-	-	1.9	5.0	61	0.005	3.04	15
42.82	92.1	67.8	105.2	92.1	1.3	0.2	1.4	5	silty SAND to sandy SILT	120	3.0	23	31	14	54	37	-	-	17	0.200	2.15	16
42.98	137.6	101.2	113.0	137.5	0.9	-3.1	0.7	6	clean SAND to silty SAND	125	5.0	20	28	19	67	39	-	-	8	0.350	1.81	16
43.15	127.0	93.3	125.0	126.9	1.7	-5.1	1.4	5	silty SAND to sandy SILT	120	3.0	31	42	19	65	39	-	-	14	0.200	2.03	16
43.31	78.6	57.7	124.9	78.5	1.9	-5.3	2.5	5	silty SAND to sandy SILT	120	3.0	19	26	13	49	36	-	-	25	0.200	2.36	16
43.47	44.6	25.3	-	44.5	1.4	-5.0	3.3	4	clayy SILT to silty CLAY	115	2.0	13	22	7	-	-	3.0	7.9	41	0.070	2.72	15
43.64	27.9	15.8	-	27.8	0.8	-4.1	3.3	3	silty CLAY to CLAY	115	1.5	11	19	5	-	-	1.8	4.7	51	0.005	2.89	15
43.80	20.9	11.8	-	20.9	0.7	-3.3	3.5	3	silty CLAY to CLAY	115	1.5	8	14	4	-	-	1.4	3.4	60	0.005	3.03	15
43.97	21.2	12.0	-	21.2	1.1	-1.3	5.8	3	silty CLAY to CLAY	115	1.5	8	14	4	-	-	1.4	3.5	69	0.005	3.15	15
44.13	24.8	14.0	-	24.8	1.6	-0.9	7.4	3	silty CLAY to CLAY	115	1.5	9	17	5	-	-	1.6	4.1	70	0.005	3.16	15
44.29	42.3	23.8	-	42.3	2.1	-0.3	5.3	3	silty CLAY to CLAY	115	1.5	16	28	7	-	-	2.9	7.4	51	0.005	2.88	15
44.46	46.0	25.8	-	46.0	2.4	-1.3	5.4	3	silty CLAY to CLAY	115	1.5	17	31	8	-	-	3.1	8.0	49	0.005	2.86	15
44.62	35.0	19.6	-	35.0	1.8	-1.4	5.7	3	silty CLAY to CLAY	115	1.5	13	23	6	-	-	2.3	6.0	56	0.005	2.96	15
44.79	76.4	55.4	103.5	76.4	1.3	-0.5	1.7	5	silty SAND to sandy SILT	120	3.0	18	25	12	48	36	-	-	22	0.200	2.27	16
44.95	127.1	92.1	102.7	127.1	0.7	-2.4	0.6	6	clean SAND to silty SAND	125	5.0	18	25	17	64	39	-	-	8	0.350	1.81	16
45.11	138.8	100.4	105.7	138.8	0.6	-3.7	0.5	6	clean SAND to silty SAND	125	5.0	20	28	18	67	39	-	-	7	0.350	1.72	16
45.28	142.4	102.8	106.2	142.3	0.6	-4.0	0.4	6	clean SAND to silty SAND	125	5.0	21	28	18	68	39	-	-	6	0.350	1.69	16
45.44	146.9	105.9	105.9	146.8	0.5	-4.1	0.3	6	clean SAND to silty SAND	125	5.0	21	29	18	69	39	-	-	5	0.350	1.64	16
45.61	144.3	103.9	103.8	144.2	0.5	-4.4	0.3	6	clean SAND to silty SAND	125	5.0	21	29	18	68	39	-	-	5	0.350	1.64	16
45.77	138.9	99.9	107.1	138.9	0.7	-4.5	0.5	6	clean SAND to silty SAND	125	5.0	20	28	18	67	39	-	-	7	0.350	1.75	16
45.93	132.3	95.0	137.9	132.2	2.3	-4.4	1.8	5	silty SAND to sandy SILT	120	3.0	32	44	19	65	39	-	-	16	0.200	2.10	16
46.10	116.6	83.6	141.6	116.5	2.5	-4.2	2.2	5	silty SAND to sandy SILT	120	3.0	28	39	18	61	38	-	-	19	0.200	2.21	16
46.26	76.2	54.6	142.7	76.1	2.4	-4.1	3.3	4	clayy SILT to silty CLAY	115	2.0	27	38	13	-	-	5.3	9.9	29	0.070	2.47	15

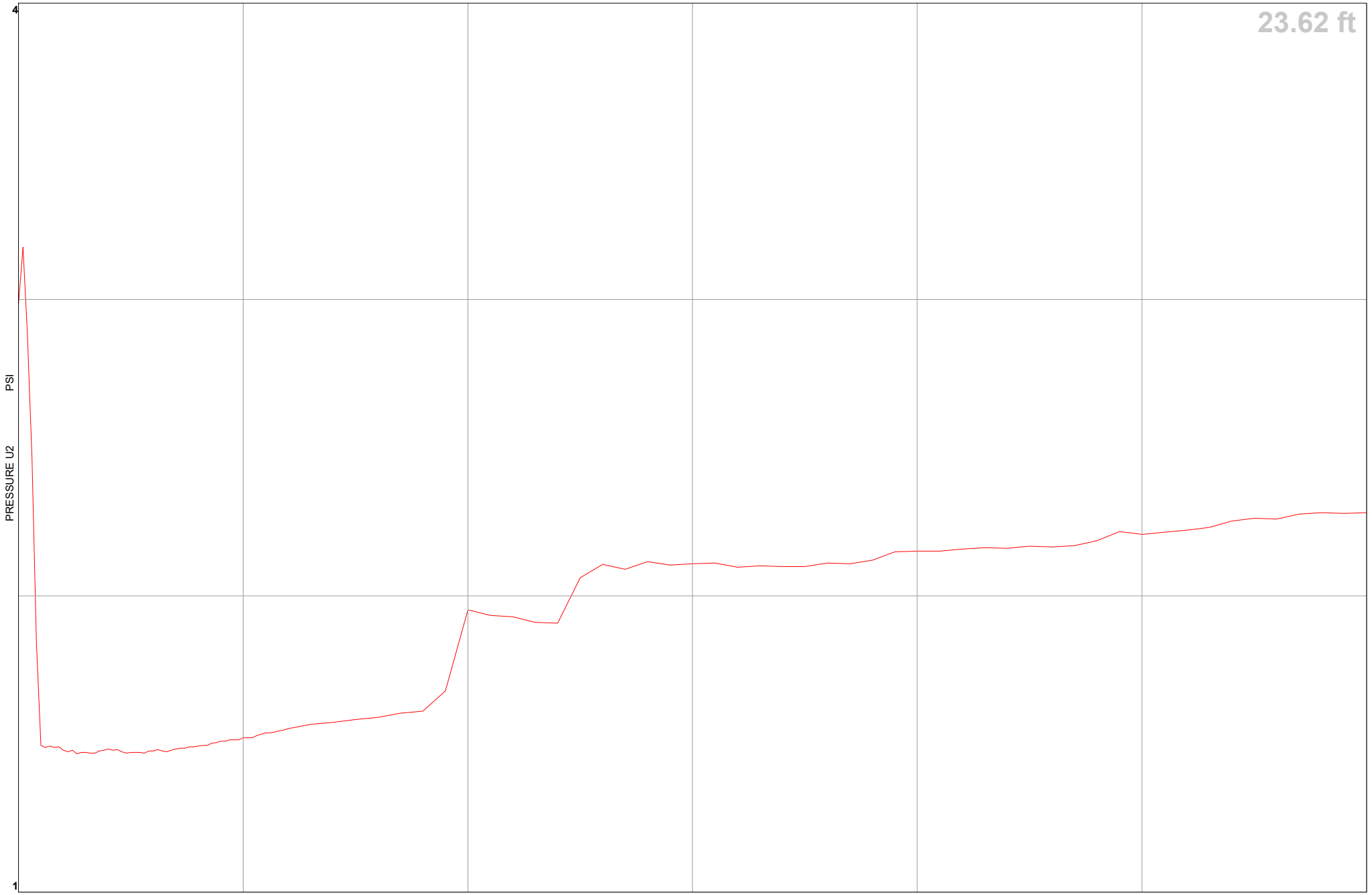
* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
46.43	54.8	29.7	-	54.8	2.1	-2.0	4.1	4	clayy SILT to silty CLAY	115	2.0	15	27	8	-	-	3.7	9.3	42	0.070	2.72	15
46.59	120.7	86.2	110.5	120.7	1.3	-0.9	1.1	6	clean SAND to silty SAND	125	5.0	17	24	17	62	38	-	-	13	0.350	1.99	16
46.75	159.2	113.6	113.6	159.1	0.6	-2.6	0.4	6	clean SAND to silty SAND	125	5.0	23	32	19	71	40	-	-	5	0.350	1.63	16
46.92	171.9	122.5	122.5	171.8	0.5	-3.4	0.3	6	clean SAND to silty SAND	125	5.0	24	34	21	74	40	-	-	5	0.350	1.56	16
47.08	164.5	117.0	119.5	164.4	0.8	-3.7	0.5	6	clean SAND to silty SAND	125	5.0	23	33	20	72	40	-	-	6	0.350	1.68	16
47.25	142.6	101.3	118.7	142.5	1.2	-4.3	0.9	6	clean SAND to silty SAND	125	5.0	20	29	19	67	39	-	-	10	0.350	1.88	16
47.41	117.2	83.2	132.5	117.1	2.2	-2.9	1.9	5	silty SAND to sandy SILT	120	3.0	28	39	17	61	38	-	-	18	0.200	2.17	16
47.57	93.6	66.3	137.1	93.5	2.4	-4.5	2.6	5	silty SAND to sandy SILT	120	3.0	22	31	15	53	37	-	-	24	0.200	2.34	16
47.74	59.8	31.8	-	59.7	2.1	-5.5	3.7	4	clayy SILT to silty CLAY	115	2.0	16	30	8	-	-	4.1	9.9	39	0.070	2.67	15
47.90	32.7	17.3	-	32.6	2.1	-5.5	7.0	3	silty CLAY to CLAY	115	1.5	12	22	6	-	-	2.2	5.2	63	0.005	3.07	15
48.07	42.2	22.3	-	42.1	1.6	-4.6	4.2	3	silty CLAY to CLAY	115	1.5	15	28	6	-	-	2.8	6.9	48	0.005	2.83	15
48.23	54.1	28.6	-	54.0	1.3	-4.9	2.6	4	clayy SILT to silty CLAY	115	2.0	14	27	7	-	-	3.7	8.9	36	0.070	2.61	15
48.39	92.4	65.1	115.2	92.3	1.7	-4.6	1.9	5	silty SAND to sandy SILT	120	3.0	22	31	14	53	36	-	-	20	0.200	2.24	16
48.56	90.3	63.5	129.5	90.2	2.1	-4.9	2.5	5	silty SAND to sandy SILT	120	3.0	21	30	14	52	36	-	-	24	0.200	2.33	16
48.72	82.0	57.6	142.4	81.9	2.5	-4.9	3.2	4	clayy SILT to silty CLAY	115	2.0	29	41	14	-	-	5.7	9.9	28	0.070	2.44	15
48.89	63.9	33.4	-	63.8	2.8	-4.5	4.6	3	silty CLAY to CLAY	115	1.5	22	43	9	-	-	4.4	9.9	42	0.005	2.73	15
49.05	58.7	30.6	-	58.6	2.1	-4.4	3.8	4	clayy SILT to silty CLAY	115	2.0	15	29	8	-	-	4.0	9.6	40	0.070	2.70	15
49.22	45.0	23.4	-	44.9	2.1	-4.6	5.0	3	silty CLAY to CLAY	115	1.5	16	30	7	-	-	3.0	7.2	50	0.005	2.87	15
49.38	36.3	18.8	-	36.2	2.2	-4.2	6.7	3	silty CLAY to CLAY	115	1.5	13	24	6	-	-	2.4	5.7	60	0.005	3.03	15
49.54	50.2	26.0	-	50.2	2.0	-3.9	4.3	3	silty CLAY to CLAY	115	1.5	17	33	7	-	-	3.4	8.1	45	0.005	2.79	15
49.71	52.6	27.2	-	52.5	1.7	-4.2	3.5	4	clayy SILT to silty CLAY	115	2.0	14	26	7	-	-	3.6	8.5	41	0.070	2.71	15
49.87	62.1	43.3	117.3	62.1	1.6	-4.3	2.7	4	clayy SILT to silty CLAY	115	2.0	22	31	10	-	-	4.3	9.9	30	0.070	2.49	15
50.04	58.9	30.3	-	58.8	1.8	-4.4	3.2	4	clayy SILT to silty CLAY	115	2.0	15	29	8	-	-	4.0	9.5	38	0.070	2.65	15
50.20	44.0	22.6	-	44.0	2.1	-4.5	5.1	3	silty CLAY to CLAY	115	1.5	15	29	7	-	-	3.0	7.0	51	0.005	2.88	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

BAGG Engineers

Location	Corporation Yard Improvements Projec	Operator	JM-IY		
Job Number	HALFM-21-01	Cone Number	DPG1556	GPS	
Hole Number	CPT-02	Date and Time	10/8/2021 3:02:21 PM		
Equilized Pressure	2.2	EST GW Depth During Test	18.3		



Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, clients can benefit from a lowered exposure to the subsurface problems that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed below, contact your GBA-member geotechnical engineer. Active involvement in the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Geotechnical-Engineering Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. *Those who rely on a geotechnical-engineering report prepared for a different client can be seriously misled*. No one except authorized client representatives should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one – not even you – should apply this report for any purpose or project except the one originally contemplated.*

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read it *in its entirety*. Do not rely on an executive summary. Do not read selected elements only. *Read this report in full.*

You Need to Inform Your Geotechnical Engineer about Change

Your geotechnical engineer considered unique, project-specific factors when designing the study behind this report and developing the confirmation-dependent recommendations the report conveys. A few typical factors include:

- the client's goals, objectives, budget, schedule, and risk-management preferences;
- the general nature of the structure involved, its size, configuration, and performance criteria;
- the structure's location and orientation on the site; and
- other planned or existing site improvements, such as retaining walls, access roads, parking lots, and underground utilities.

Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.*

This Report May Not Be Reliable

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, that it could be unwise to rely on a geotechnical-engineering report whose reliability may have been affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If your geotechnical engineer has not indicated an "apply-by" date on the report, ask what it should be*, and, in general, *if you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying it. A minor amount of additional testing or analysis – if any is required at all – could prevent major problems.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface through various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing were performed*. The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgment to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team from project start to project finish, so the individual can provide informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, *they are not final*, because the geotechnical engineer who developed them relied heavily on judgment and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* revealed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a full-time member of the design team, to:

- confer with other design-team members,
- help develop specifications,
- review pertinent elements of other design professionals' plans and specifications, and
- be on hand quickly whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction observation.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for informational purposes only*. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report, but they may rely on the factual data relative to the specific times, locations, and depths/elevations referenced. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely*. Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures*. If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. As a general rule, *do not rely on an environmental report prepared for a different client, site, or project, or that is more than six months old.*

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, none of the engineer's services were designed, conducted, or intended to prevent uncontrolled migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration.*** Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

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e-mail: info@geoprofessional.org www.geoprofessional.org

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APPENDIX E2

Geotechnical Review of Civil Drawings

October 25, 2023
BAGG Job No. COUSM-23-03

County of San Mateo
Department of Public Works
555 County Center, 5th Floor
Redwood City, CA 94063

c/o: Steven McGuckin, AIA
Capital Program Management, Inc

Geotechnical Review of Civil Drawings
SMC-HMB Farmworker Housing Project
880 Stone Pine Road
Half Moon Bay, San Mateo County, California

References:
1. Thirteen (13) sheets of civil drawings, titled *Stone Pine Cove, 880 Stone Pine Road, Half Moon Bay, San Mateo County, California,* prepared by BKF Engineers, dated 10/24/2023.
2. *Report, Geotechnical Engineering Investigation, SMC-HMB Farmworker Housing Project, 880 Stone Pine Road, Half Moon Bay, San Mateo County, California,* prepared by BAGG Engineers, dated August 23, 2023.

Dear Mr. McGuckin:

Per the request of the Project Civil Engineer (BKF Engineers), we have reviewed the civil drawings referenced above. The drawings have been reviewed based on the soils information and recommendations contained in our report as also referenced above.

It is our opinion the above-referenced civil plans have been prepared in general conformance with the intent of our recommendations. This opinion is contingent upon the geotechnical observation and testing by BAGG Engineers' field staff during site grading and subgrade preparation phases of the work to verify soil conditions are similar to those anticipated during design, and that the work in the field is performed as recommended and in accordance with the approved plans and specifications.

We trust this letter provides you with the information required at this time. If you have any questions or require additional information, please do not hesitate to contact us.

Very truly yours,
BAGG Engineers

Jingqi Liu
Project Engineer

Jason Van Zwol
VP/Chief Engineer

REGISTERED PROFESSIONAL ENGINEER
JASON VAN ZWOL
No.854
Exp 6/30/24
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APPENDIX F1

Stormwater Management Plan

SI2024-00001 - 880 STONE PINE RD / 03/04/2024

Redwood City
255 Shoreline Drive, Suite 200
Redwood City, CA 94065
Tel 650.482.6300
Fax 650.482.6399

STORMWATER MANAGEMENT PLAN

Stone Pine Cove
880 Stone Pine Road
Half Moon Bay, CA 94019
BKF Job No: 20211367-15

February 2024

ENGINEER'S CERTIFICATION

Approval and Certification of the Stormwater Management Plan

Project Name: Stone Pine Cove
880 Stone Pine Road
Half Moon Bay, CA

"The selection, sizing, and design of stormwater treatment and other control measures in this plan meet the requirements of Bay Area Municipal Regional Stormwater Permit (MRP) Order R2-2015-0049 and subsequent amendments."

Engineer's Signature	*Date*
Dale Leda, PE	C 78346
Engineer's Name	*PE License Number*
Project Manager - BKF Engineers	(650) 482-6457
Title and Affiliation	*Telephone Number*
dleda@bkf.com	
Email	

TABLE OF CONTENTS

1.0 Introduction 1
1.1 Project Description 1
1.2 Existing Site Conditions 2
1.2.1 Existing Land Use 2
1.2.2 Existing Tributary Area 2
1.2.4 FEMA Information 2
1.2.5 Soil Characteristics 2
1.3 Proposed Site Conditions 3
1.3.1 Proposed Land Use 3
1.3.2 Proposed Tributary Area 3
1.3.3 Proposed Improvements Associated with Groundwater 4
1.4 Project Requirements 4
1.4.1 Stormwater Quality 4
1.4.2 Stormwater Hydrology 5
2.0 STORMWATER QUALITY 6
2.1 Opportunities and Constraints for Stormwater Quality Measures 6
2.2 Source Control Measures 6
2.2.1 Permanent Controls and Operational BMPs 6
2.2.2 Construction Stormwater BMPs 8
2.3 Site Design Measures 8
2.4 Stormwater Treatment Measures 8
2.4.1 Drainage Management Areas (DMAs) 8
2.4.2 LID Treated DMAs 9
3.0 STORMWATER HYDROLOGY 10
3.1 Hydromodification Management / Stormwater Detention 10
4.0 MAINTENANCE 11
4.1 Post-Construction BMPs 11
4.2 Fiscal Resources 11
5.0 Appendices 12

1.0 INTRODUCTION

This Stormwater Management Plan (SWMP) is required per the San Mateo Countywide Water Pollution Prevention Program (SMCWPPP) NPDES Permit. The purpose of this SWMP is to address the water quality impacts from the proposed Stone Pine Cove project located at 880 Stone Pine Road (herein referred to as Project). Best Management Practices (BMP's), as recommended by the California Storm Water Quality Association (CASQA), and outlined in the NPDES Permit, will be used to improve storm water quality onsite. This SWMP is subject to revisions as needed by the project engineer.

1.1 Project Description

The Project includes onsite improvements on the 880 Stone Pine Road property and offsite improvements in the adjacent Stone Pine Road Right-of-Way (ROW). See Figure 1: Vicinity Map.

The onsite improvements include 47 manufactured home units, a management office unit, a sports court, a play structure, a community garden, and a recreation picnic area. New private streets will serve the manufactured homes and amenities.

The offsite improvements include construction of new curb, gutter and sidewalk along the south side of Stone Pine Road adjacent to the project site.



Figure 1: Vicinity Map

1.2 Existing Site Conditions

1.2.1 Existing Land Use

The project site is bounded by urban development to the west, San Mateo Road (Highway 92) to the north, a corporation yard to the east, and Pilarcitos Creek to the south. In the middle of the project site, there is an access road connecting the corporation yard to Stone Pine Road. The project site was previously used for agricultural operations over ten years ago with an earth-lined agricultural pond in the northwest corner and irrigation sheds in the southeast corner. The remaining area of the site is generally undeveloped where the surface cover is comprised of gravel roads, grass, shrubs, and trees (including heritage trees). The existing topography at the project site generally slopes south toward Pilarcitos Creek.

1.2.2 Existing Tributary Area

Approximately 5.2 acres of the onsite tributary area above the corporation yard access road are vegetated with trees and shrubs or grass area. In this area the topography slopes south at approximately 20%. The remaining 3.8 acres of the project site below the corporation yard access road are vegetated with trees and shrubs or grass and slopes south at approximately 0-5%. There is an existing 12" HDPE culvert running under the access road, connecting to a catch basin on the access road, and discharging to an existing lined bioretention area with an underdrain in the southwest corner of the project site. The bioretention overflow structure is routed to a rock dissipator outfall that discharges to Pilarcitos Creek. The stormwater on the south side of the corporation yard access road bypasses the bioretention area and flows south across the grass area and down the vegetated slope to Pilarcitos Creek as overland flow. See Appendix 2: Existing Topographic Survey.

The existing Stone Pine Road ROW fronting the project site primarily consists of an asphalt cul-de-sac fire truck turnaround with a concrete curb and gutter. The street slopes west and conveys runoff in the gutter to a sag inlets approximately 300 feet away in Stone Pine Road. Stormwater collected in the sag inlets discharges to Pilarcitos Creek.

1.2.4 FEMA Information

The Project is in close proximity to Pilarcitos Creek and a Federal Emergency Management Agency (FEMA) 100-year Zone A floodplain based on Flood Insurance Rate Map (FIRM) panel 06081C0260E. To supplement the FEMA FIRM panel, BKF Engineers prepared a Pilarcitos Creek Floodplain Study, dated June 29, 2023. The study modeled the 100-yr and 500-yr flood elevations of approximately 75.4-ft and 76.8-ft respectively at the project site (NAVD 88). See the complete floodplain study in Appendix 7: Pilarcitos Creek Floodplain Study.

Per City of Half Moon Bay requirements, all finished floor elevations for future residences on the project site must be at least 1-ft above the 100-year flood elevation.

1.2.5 Soil Characteristics

Soil data has been obtained from the project Geotechnical Engineering Investigation prepared by BAGG Engineers, dated August 23, 2023. The following are excerpts from the report, the extended excerpt from the soils report can be found in Appendix 8: Excerpt from Project Soils Report.

"Our boring and CPT profiles indicated the site is generally underlain by interlayered clayey and sandy soils; however, the depths of the sand layers, the thickness and consistency of each sandy layer, as well as the total amount of the sandy deposits with the explored depths, are non-uniform and vary from one location to another."

"Groundwater was first encountered in Borings B-6, B-7, and B-8 at the approximate depth of 17½, 19, and 15 feet bgs, respectively, and was measured upon completion of drilling and sampling at the depths of about 18 feet in B-6 and B-7 and about 9 feet bgs in Boring B-8. Groundwater was not encountered in Boring B-9 within its maximum explored depth of 20 feet. The CPTs estimated groundwater depths of about 15 feet in CPT-3 and about 12½ feet in CPT-5."

"Groundwater levels typically fluctuate due to seasonal changes such as variations in rainfall and temperature, hydrogeological variations such as groundwater pumping or recharging, and/or other factors not evident at the time of exploration. Plate 1.3 of the California Geological Survey (CGS, 2021) Seismic Hazard Zone Report 132 (SHZR 132), Seismic Hazard Zone Report for the Half Moon Bay 7.5-Minute Quadrangle, San Mateo County, California, indicates the depth to historically high groundwater level in the general site area is less than 10 feet."

"It is recommended that a minimum 5-percent slope away from the structures for a horizontal distance of at least 5 feet be established in adjacent planter areas and a minimum 1-percent slope away from the structures for a horizontal distance of at least 5 feet be established in areas containing hardscape. Drainage should not be allowed to pond on the site or adjacent to any foundation, and should be directed towards appropriate discharge points. Surface waters should not be permitted to drain over slopes. Any area where surface run-off becomes concentrated should be provided with a catch basin that discharges the collected runoff in a manner that will not cause erosion. Surface and subsurface drainage facilities and catchment areas should be checked frequently and cleaned or maintained throughout the project life, as necessary."

1.3 Proposed Site Conditions

1.3.1 Proposed Land Use

The proposed project is a multifamily residential development that will include forty-seven (47) residential manufactured home units, a management office unit, a sports court, a play structure, a community garden, and a recreation picnic area. New private streets will serve the manufactured homes and amenities.

1.3.2 Proposed Tributary Area

The proposed project's onsite tributary area boundary will remain unchanged with the drainage paths slightly altered by the proposed onsite improvements (see Appendix 3: Stormwater Control Plan). The private streets, residential units, and hardscape walkways will increase the onsite impervious area by 139,260 square feet (see below Table 1: Site Area Summary Table). The new impervious area will be treated by bioretention areas before discharging to Pilarcitos Creek.

Onsite Tributary Area Summary Table	
Total Onsite Tributary Area	414,745 sf
Existing Impervious Area	26,600 sf
Proposed Impervious Area	165,860 sf
Difference	139,260 sf
Impervious Area to be Created/Replaced	155,660 sf

Table 1: Site Area Summary Table

The existing 12" HDPE culvert across the existing access road will remain and be capped with a catch basin on the north side. Any runoff not captured by this catch basin and culvert will overland flow through a curb cut and valley gutter across the road.

Runoff from the proposed improvements is to be conveyed up by rolled curb and gutters along the private streets. Stormwater peak flows for the 25-year storm event will be contained in the private street and gutter pan at the critical point of concentration. See Appendix 11: Gutter Capacity Calculations.

A 12" HDPE culvert is proposed to facilitate drainage under the north access road spur. The culvert will capture the runoff from the northeast area of the site and discharge to a vegetated swale to the west of the road. The culvert is sized to provide adequate drainage for the 25-yr storm event. See Appendix 12: Culvert Capacity Calculations.

1.3.3 Proposed Improvements Associated with Groundwater

As stated in the geotechnical report, groundwater was encountered in most of the borings on the project site at depths as shallow as 9-ft below ground surface. To mitigate any impacts to the groundwater table, the proposed project will use subdrains and lined bioretention planters. The subdrains will be passive in nature, remove potential built-up water pressure, and provide additional slope stability. Surface runoff intrusion will be limited by avoiding the use of infiltration basins and domestic/irrigation wells as part of this project.

1.4 Project Requirements

1.4.1 Stormwater Quality

Per the SMCWPPP C.3 Stormwater Handbook, "Projects that create and/or replace 10,000 square feet or more of impervious surface must comply with Provision C.3". Therefore, the Project is a Regulated Project and will comply with Provision C.3 of the Municipal Regional Stormwater Permit (MRP), see Appendix 1: San Mateo County NPDES Forms and Worksheets for C.3 requirements checklist. Stormwater quality requirements under the MRP include source control measures, site design measures and treatment measures. See "Section 2.0 Stormwater Quality" of this report for discussion of opportunities, constraints and proposed measures for the Project.

1.4.2 Stormwater Hydrology

The MRP Provision C.3 requires Hydromodification Management (HM) Measures are employed to retain or detain and slowly release runoff so that post-development conditions do not exceed those of the pre-development conditions for projects that create and/or replace one acre or more of impervious surface and creates an increase in total impervious surface from the pre-project condition. Applicable projects shall be required to meet the HM Standard when they are located in areas of HM Applicability as shown on the revised San Mateo Countywide HM Map. See Appendix 5: San Mateo County Hydromodification Map.

The project creates and replaces 155,660 square feet of impervious area and the project lies within the HM Applicability area. Therefore, the project requires HM Measures be implemented to change the timing, peak discharge and volume of runoff from the proposed site to not exceed the pre-development condition. See “Section 3.0 Stormwater Hydrology” of this report for proposed HM Measures for the project.

2.0 STORMWATER QUALITY

2.1 Opportunities and Constraints for Stormwater Quality Measures

As described in the SMCWPPP C.3 Stormwater Handbook, identification of the opportunities and constraints presented by a project site can assist in the selection and design of storm water treatment and flow control facilities. An opportunity for this project is to retain existing landscape areas by clustering development in order to minimize impact.

Constraints presented by this project include:

- Existing function of the city's corporate yard requiring access through the site.
- Relatively shallow groundwater.
- Proximity to Pilarcitos Creek.

2.2 Source Control Measures

2.2.1 Permanent Controls and Operational BMPs

Potential pollutant sources, which will be present onsite, include, landscape/outdoor pesticide use, refuse areas, and sidewalks. The following table, based on the SMCWPPP Model Source Control Measures List, details the permanent controls and operational BMPs for each of these pollutant sources.

Potential Sources of Runoff Pollutants	Permanent Controls	Operational BMPs
Illegal Dumping to Storm Drain Inlets and Waterways	• On-site storm drain inlets shall be clearly marked with the words "No Dumping! Flows to Bay", or equivalent, using methods approved by the co-permittee.	• Maintenance staff to inspect on-site storm drain inlets and report any observations of illegal dumping to the co-permittee. • All on-site storm drain inlets shall be cleaned at least once per year immediately prior to the rainy season
Refuse Areas	• Refuse shall be disposed of in designated collection areas. • Adequate numbers of refuse and recycling receptacles shall be placed in public areas. • Signs shall be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar	• Adequate numbers of refuse and recycling receptacles shall be placed in public areas. • Receptacles shall be inspected regularly, and leaky receptacles shall be repaired or replaced. • Receptacles shall be covered. • Signs shall be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar. • Litter shall be picked up daily when the facility is in use and spills shall be cleaned up immediately.

		• Keep spill control materials available onsite. • See Fact Sheet SC-34, "Waste Handling and Disposal" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com
Landscape/Outdoor Pesticide Use	Final landscape plans for the project will: • Preserve existing native trees, shrubs and ground cover to the maximum extent possible. • Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to storm water pollution. • Where landscape areas are used to retain or detain storm water, specify plants that are tolerant of saturated solid conditions. • Consider using pest-resistant plants, especially adjacent to hardscape. • To ensure successful establishment, select plans appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interaction.	• Maintain landscaping using minimum or no pesticides. • See applicable operation BMPs in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com • Distribute Integrated Pest Management (IPM) educational materials to maintenance staff. At a minimum, educational materials will address the following topics: • Keeping pests out of buildings and landscaping using barriers, screens and caulking • Physical pest elimination techniques, such as weeding, squashing, trapping, washing or pruning out pests • Relying on natural enemies to eat pests • Proper use of pesticides as a last line of defense.
Potential Sources of Runoff Pollutants	**Permanent Controls**	**Operational BMPs**
Paved sidewalks		• Podium and sidewalks, shall be swept regularly to prevent the accumulation of litter and debris. • Debris from pressure washing shall be collected to prevent entry into the storm drain system. • Wash water containing any cleaning agent or degreaser shall be collected and discharged to the sanitary sewer and not discharged to a storm drain.

Table 2: Source Control Measures

2.2.2 Construction Stormwater BMPs

Common sources of pollutants from construction sites include: sediments from soil erosion; construction materials and waste (e.g., paint, solvents, concrete, drywall); landscaping runoff containing fertilizers and pesticides; and spilled oil, fuel, and other fluids from construction vehicles and heavy equipment. See Worksheet A in Appendix 1: C.3 and C.6 Development Review Checklist for a list of construction stormwater BMPs to be implemented during construction.

2.3 Site Design Measures

Site design measures are used during project planning with the purpose of minimizing stormwater pollutants. The most effective way to reduce the impact on stormwater is to maximize landscaping and pervious areas and minimize impervious surfaces on the site.

Some examples of Site Design Measures include:

- Minimize land disturbed
- Minimize impervious surfaces
- Minimum-impact street or parking lot design
- Cluster structures/pavement
- Pervious pavement
- Microdetention in landscape
- Other self-treating area
- Rainwater harvesting and use (e.g. rain barrel, cistern connected to roof drains)
- Protected riparian and wetland areas, riparian buffers

The proposed project intends to incorporate the following Site Design Measures:

- Direct runoff from roof, sidewalks, walkways, patios, driveways, and/or parking areas onto vegetated areas – Runoff from sidewalk and road directed to landscape areas and bioretention planters.
- Limit disturbance of natural water bodies and drainage systems – Stormwater runoff from project site treated and discharged in locations to mimic existing conditions.
- Conserve natural areas, including existing trees, other vegetation and soils – Project is clustered and preserves the remainder of the parcel in its existing condition.
- Minimize impervious surfaces –Impervious surface minimized through use of clustering development.

By implementing the above measures, the project will minimize runoff and the transport of pollutants in runoff by increasing infiltration of reducing impervious area meeting the intent of the C.3 requirements.

2.4 Stormwater Treatment Measures

2.4.1 Drainage Management Areas (DMAs)

The SMCWPPP C.3 Handbook states that the project site shall be divided into Drainage Management Areas (DMAs) and each DMA should be classified as one of the following: self-treating areas, self-retaining areas, or areas draining to Best Management Practices (BMPs). Preliminary sizing of the BMPs

has been provided for DMAs 1-3. This sizing has been calculated using the combination flow/volume techniques as outlined in the SMCWPPP C.3 Handbook(see Appendix 4: Combination Flow and Volume Calculations).

The DMAs for the project are described below and are delineated on the Stormwater Control Plan (see Appendix 3: Stormwater Control Plan).

2.4.2 LID Treated DMAs

Stormwater treatment for the proposed project will be comprised of 100% LID treatment methods in the form of bioretention areas. No mechanical treatment methods are proposed.

DMA 1 contains runoff from the access road, tributary grass area north of the access road, private streets, sidewalk, driveways and units located in the center of the site. The runoff will be collected via concrete gutters, discharge to bioretention areas for treatment, then discharged via the outlet structure to an existing rock outfall before ultimately flowing to Pilarcitos Creek. The bioretention area for DMA 1 is an expansion of the existing onsite bioretention area and will utilize the existing underdrains, outlet structure, and rock dissipater.

DMA 2 contains runoff from the private streets, sidewalk, driveways and units located in the northern area of the site. The runoff will be collected via concrete gutters, discharge to a bioretention area for treatment, then discharged via the outlet structure to a rock outfall adjacent to the bioretention area. The treated water will flow across the corporation yard access road via a valley gutter and discharge to the bioretention area in DMA 1.

DMA 3 contains runoff from the private streets, sidewalk, driveways and units located in the northeastern area of the site. The runoff will be collected via concrete gutters, discharged to bioretention areas for treatment. The bioretention outlet structure discharges to a new catch basin that is connected to an existing 12" culvert. The existing culvert discharges to a swale that ultimately flows to Pilarcitos Creek.

DMA	Type of LID Treatment	Contributing Impervious Area (sf)	Contributing Pervious Area[1] (sf)	Required LID Treatment[2] (sf)	Provided LID Treatment (sf)
1	Bioretention Area	136,675	238,390	4,590	4,600
2	Bioretention Area	19,140	2,975	556	660
3	Bioretention Area	10,045	7,520	305	350
Total	Bioretention Area	165,860	248,885	5,455	5,610

1.Pervious areas which drain to LID treatment are weighted as 10% equivalent impervious area for treatment sizing per the San Mateo County C.3 Manual.
2.The size of the bioretention area calculated using the combination flow and volume design basis as described in the San Mateo County C.3 Regulated Project Guide.

Table 3: Drainage Management Areas

3.0 STORMWATER HYDROLOGY

3.1 Hydromodification Management / Stormwater Detention

The Bay Area Hydrology Model (BAHM) software was used to design outlet orifices for LID treatment measures and to confirm that storage volumes provided were sufficient to mitigate net increase in peak flow caused by proposed development. A BAHM model was created for the project site separating each DMA and treatment measure. Offsite areas which contribute run-on into the site were also included in the model in accordance with BAHM standards of practice.

BAHM utilizes continuous simulation modelling, also known as the Hydrologic Simulation Program – FORTRAN (HSPF). This approach has been adopted by the SF Bay Area Regional Water Quality Control Board and provides a more accurate methodology than single-event modelling for the design of stormwater detention basins.

Passing BAHM results indicate that the proposed LID treatment measures provide sufficient storage volume such that post-development peak flows will be equal or less than pre-development peak flows for storm events ranging from 2-25 years. This mitigation meets the County of San Mateo hydromodification requirements. See Appendix 10: Tributary Areas Exhibits and Appendix 14: BAHM Results.

Design Storm Return Period	Peak Discharge per BAHM (cfs)	
	Pre-Development	Post-Development (Mitigated)
2-Year	6.19	6.07
5-Year	12.42	11.68
10-Year	15.64	14.63
25-Year	21.56	19.99

Table 4: BAHM Results Peak Flow Summary

4.0 MAINTENANCE

As established in the Owner's Certification, the operation and maintenance of the post-construction source control BMPs is the sole responsibility of the site owner.

4.1 Post-Construction BMPs

Post-construction BMPs are to be maintained in perpetuity. It will be the responsibility of the property owner to install, and then maintain the BMPs in accordance with this document. Maintenance requirements for LID Measures are shown below. For information regarding Source Control BMP maintenance, refer to the California Stormwater Quality Association (CASQA) Best Management Practice Handbook. It shall be noted that preventative maintenance such as removal of trash and debris from the site will help ensure proper function of the BMPs. See Appendix 10 for San Mateo County Technical Guidance on bioretention areas.

LID	Responsible Party	Minimum Maintenance Frequency	Unit/Annual Maintenance Costs
Bioretention Area	Owner	Semiannual inspection of plants and removal of sediment and debris. Plants to be irrigated during dry weather and replanted if necessary. If ponded water is observed 72 hours after a rainfall event, add soil to raise local low point; soils may need to be replaced after 5-10 years.	Included in Normal Landscape Maintenance

Table 5: Post Construction BMP Maintenance

4.2 Fiscal Resources

The funding and execution of BMP maintenance for the project will be the responsibility of the owner. The owner will be responsible for maintenance activities as follows: properly disposing of waste material within the Project site, maintaining landscaping in a manner that will prevent soil erosion and minimize sediment transport, maintaining drainage facilities in a clean manner and in a good repair, and properly maintaining all post-construction BMPs (both structural and non-structural) that exist within the project.

It should be noted that maintenance for any of the above-mentioned post-construction BMPs might be performed through third-party agreements; however, the ultimate responsibility of each facility rests on the owner.

5.0 APPENDICES

Appendix 1 San Mateo County NPDES Forms and Worksheets

Appendix 2 Existing Topographic Survey

Appendix 3 Stormwater Control Plan

Appendix 4 Combination Flow and Volume Calculations

Appendix 5 San Mateo Countywide Hydromodification Map

Appendix 6 Pilarcitos Creek Floodplain Study

Appendix 7 Excerpt from Soils Report

Appendix 8 LID Measure Technical Guides

Appendix 9 Project Treatment Measure Details

Appendix 10 Tributary Areas Exhibits

Appendix 11 Gutter Capacity Calculations

Appendix 12 Culvert Capacity Calculations

Appendix 13 NOAA Rainfall Intensity Chart

Appendix 14 Bay Area Hydrology Model Results

APPENDIX 1

San Mateo County NPDES Forms and Worksheets

C.3 and C.6 Development Review Checklist

Detailed Infiltration Feasibility Worksheet (NOT REQUIRED)

Detailed Rainwater Harvesting and Use Feasibility Worksheet (NOT REQUIRED)

SAN MATEO COUNTYWIDE
Water Pollution Prevention Program
Clean Water. Healthy Community.

SI2024-00001 - 880 STONE PINE RD / 03/04/2024

City/County	COUNTY OF SAN MATEO
Department	Planning & Building Department
Address	455 County Center, 2nd Floor, Redwood City, CA 94063
Phone	BLD: 650-599-7311/PLN: 650-363-1825
Website	http://planning.smcgov.org

C.3 and C.6 Development Review Checklist

Municipal Regional Stormwater Permit (MRP 3.0)
Stormwater Controls for Development Projects

Project Information (Enter information only into blue-highlighted cells - other cells are locked.)

I.A Enter Project Data (For "C.3 Regulated Projects," data will be reported in the municipality's stormwater Annual Report.)

Project Name:	Stone Pine Cove	Case Number:	
Project Address:	880 Stone Pine Rd, Half Moon Bay, CA 94019	Cross Street:	Erin Ln
Project APN:	056-260-180	Project Watershed:	Pilarcitos Creek Watershed
Applicant Name:	Capital Program Management	Project Phase No.	
Applicant Phone:	(916) 553-4400	Applicant Email Address:	stevenm@capitalpm.com

Development Type: (check all that apply)

- ☐ Small Single-Family Home Project (<10,000 sq. ft. of created and/or replaced impervious surface[1])
- ☐ Large Single-Family Home Project (≥10,000 sq. ft. of created and/or replaced impervious surface[1])
- ☐ Subdivision - Residential: Two or more lot development[2] — # of units:
- ☑ Multi-Family Residential — # of units: 47
- ☐ Commercial
- ☐ Industrial, Manufacturing
- ☐ Mixed-Use — # of units:
- ☐ New, widened or reconstructed roads related to parcel-based projects[3]
- ☐ Stand-alone pavement maintenance or construction work, or similar work related to parcel-based projects[3]
- ☐ Other redevelopment project as defined by MRP: creating, adding and/or replacing exterior existing impervious surface on a site where past development has occurred.
- ☐ Institutional: schools, libraries, jails, etc.
- ☐ Parks and trails, camp grounds, other recreational
- ☐ Kennels, Ranches
- ☐ Other, Please specify

Project Description (Don't include past or future phases)[4]: The proposed project includes 47 manufactured home units, a management office unit, a sports court, a play structure, a community garden, and a recreation picnic area. New private streets will serve the manufactured homes and amenities. Offsite improvements include construction of new curb, gutter and sidewalk at the site entrance, new utility connections, installation of traffic signage/striping, and istallation of 2 new curb ramps.

I.A.1 Total Project Area: 303,612 square feet (on and off-site)
I.A.2 Total Area on-site: 299,112 square feet (on the private property)
I.A.3 Total Area off-site: 4,500 square feet (frontage or area in Public Right of Way being improved)
I.A.4 Total Area of land disturbed during construction: 239,410 square feet
(Include all project on-site and off-site areas of clearing, grading, excavating and stockpiling)
I.A.5 Site slope: 3 %

I.A.6 Certification:

I certify that the information provided on this form is correct and acknowledge that, should the project exceed the amount of new and/or replaced impervious surface provided in this form, the as-built project may be subject to additional improvements.

☑ Preliminary Calculations Attached ☐ Final Calculations Attached ☑ Stormwater Control Plan Attached

Name of person completing the form:	Darren Gallagher	Title:	Project Engineer
Signature:	Darren Gallagher	Date:	2/28/2024
Phone Number:	(650) 482-6488	E-mail:	dgallagher@bkf.com

[1] Small and Large Detached Single-Family Homes that are not part of a common plan of development[2].

[2] Common Plans of Development (subdivisions or contiguous, commonly owned lots, for the construction of two or more homes developed within 1 year of each other), and/or constructed with shared utilities, are not considered single family home projects by the MRP.

[3] Stand-alone roadway or pavement projects, or pavement work that is part of a project, creating or replacing 5,000 sq. ft. or more of impervious surface may be subject to C.3 requirements - both in public and private areas. See the Roads Factsheet at: www.flowstobay.org/newdevelopment

[4] Project description examples: 5-story office building, industrial warehouse, residential with five 4-story buildings for 200 condominiums, etc.

I.B Is the project a "C.3 Regulated Project" per MRP Provision C.3.b? (Use table below to make determination)

Submitted on 03/04/2024

I.B.1 Enter the amount of Impervious surface Retained, Replaced or Created[5] by the project (use DMA Table in Worksheet D):

Table I.B.1 Impervious[6] and Pervious[6] Surfaces (Match DMA Summary Table in Worksheet D, if applicable)

	Pre-Project	Post-Project			
Impervious Surfaces (IS) (e.g., sidewalks, driveways, parking areas, patios, roads, rooftops, pools, pathways, etc.)	**I.B.1.a** Existing (Pre-Project) Impervious Surface (sq.ft.)	**I.B.1.b** Existing Impervious Surface to be Retained[5] (sq.ft.)	**I.B.1.c** Existing Impervious Surface to be Replaced[5] (sq.ft.)	**I.B.1.d** New Impervious Surface to be Created[5] (sq.ft.)	**I.B.1.e** Post-Project Impervious Surface (sq.ft.) (=b+c+d)
On-site area (within the parcel/private site boundaries)	26,600	10,200	6,960	148,700	165,860
Off-site area (e.g., frontage/other area in Public Right of Way)	2,700	-	2,000	-	2,000
Subtotal:	29,300	10,200	8,960	148,700	167,860
Total Impervious Surface Replaced and Created: *(sum of totals for columns I.B.1.c and I.B.1.d):*		**I.B.1.f**	**157,660** sq. ft.		
Pervious Surfaces (PS) (e.g., landscaping, pervious pavement, bioretention areas, parking strips, street trees, etc. - both on-site and off-site)	Existing (Pre-Project) Pervious Surface (sq.ft.)				Post-project Pervious Surface (sq.ft.)
All pervious off-site area (e.g., frontage/Public Right of Way)[6]	1,800				2,500
Landscaping area on-site	272,512				133,252
Pervious Pavement area on-site	-			**I.B.1.g**	-
Green Roof area on-site	-				-
Subtotal:	274,312	**50% Rule Calculation**			135,752
Total Project Area (should be equal to **I.A.1**)	303,612	**I.B.1.h**	**26** %		303,612

I.B.2 Please review and attach additional worksheets as required below using the Total Impervious Surface (IS) Replaced or Created in cell **I.B.1.f** from Table **I.B.1** above and other factors:

	Review Steps	Check One Yes	Check One No	Attach Worksheet
I.B.2.a	Does this project involve any earthwork and/or stockpiling of soil, aggregates etc? If YES, then Check Yes, and Complete Worksheet A. If NO, then Check No, and go to I.B.2.b	☑	☐	A
I.B.2.b	Is **I.B.1.f** greater than or equal to 2,500 sq.ft? If YES, then the Project is subject to Provision C.3.i. - complete Worksheets B, C and go to I.B.2.c. If NO, go to I.B.2.i - or ask municipal staff for Small Project Checklist.	☑	☐	B, C
I.B.2.c	Does the 50% rule apply to the project? Is **I.B.1.h** 50% or more? If YES, site design, source control and treatment requirements apply to the entire on-site area. Continue to I.B.2.d If NO, these requirements apply only to the impervious surface created and/or replaced. Continue to I.B.2.d	☐	☑	
I.B.2.d	Is this project a Roadway Project and is **I.B.1.f** greater than or equal to 5,000 sq.ft? If YES, project may be C.3 Regulated Project. See the Roadways Fact Sheet at: www.flowstobay.org/newdevelopment If NO, go to I.B.2.e	☐	☑	
I.B.2.e	Is **I.B.1.f** greater than or equal to 5,000 sq.ft? (Or 10,000 sq.ft. for a Large Single-Family Home?) If YES, project is a C.3 Regulated Project - complete Worksheet D. Then continue to I.B.2.f. If NO, then skip to I.B.2.g. - or ask municipal staff for Small Project Checklist.	☑	☐	D
I.B.2.f	Is **I.B.1.f** greater than or equal to 43,560 sq.ft, (i.e., one acre)? If YES, project may be subject to Hydromodification Management requirements - complete Worksheet E then go to I.B.2.g. If NO, then go to I.B.2.g.	☑	☐	E
I.B.2.g	Is **I.A.4** greater than or equal to 43,560 sq.ft., (i.e., one acre)? If YES, check box, obtain coverage under CA Construction General Permit & submit Notice of Intent to municipality- go to I.B.2.h. If NO, then go to I.B.2.h. For more information see: www.swrcb.ca.gov/water_issues/programs/stormwater/construction.shtml	☑	☐	
I.B.2.h	Is this a Special Project or does it have the potential to be a Special Project? If YES, complete Worksheet F - then continue to I.B.2.i. If NO, go to I.B.2.i.	☐	☑	F
I.B.2.i	Is this project a High Priority Site? (Determined by the Municipality. High Priority Sites can include those located within 100 ft. of a sensitive habitat, an Area of Special Biological Significance, a body of water, or on sites disturbing >=5,000 sq.ft. with slopes >=15% **(see I.A.5)** [or per municipal criteria/map.] Subject to monthly inspections from Oct 1 to April 30.) If YES, complete section G-2 on Worksheet G - then continue to I.B.2.j. and complete the Certification in Section **I.A.6** If NO, then go to I.B.2.j and complete the Certification in Section **I.A.6**	☐	☑	G
I.B.2.j	**For Municipal Staff Use Only**: Are you using Alternative Certification for the project review? If YES, then fill out section G-1 on Worksheet G. Fill out other sections of Worksheet G as appropriate. See cell **I.B.1.g** above - Is the project installing 3,000 square feet or more of pervious pavement? If YES, then fill out section G-3 on Worksheet G. Add to Municipal Inspection Lists (C.3 and C.3.h)	☐ ☐	☐ ☐	G

[5] "Retained" means to leave existing impervious surfaces in place; "Replaced" means to install new impervious surface where existing impervious surface is removed anywhere on the same site; and "Created" means the amount of new impervious surface being proposed which exceeds the total amount of existing impervious surface at the site.

[6] Per the MRP, pavement that meets the following definition of pervious pavement is NOT an impervious surface. Pervious pavement is defined as pavement that stores and infiltrates rainfall at a rate equal to immediately surrounding unpaved, landscaped areas, or that stores and infiltrates the rainfall runoff volume described in Provision C.3. Gravel pavement is not pervious unless it is constructed using pervious pavement system designs or runoff flows to adjacent landscaping. Pervious off-site areas include landscaped areas such as parking strips and street trees; off-site pervious pavement includes pervious concrete gutters and interlocking permeable concrete paver sidewalks, etc. 7/1/23

C.6 – Construction Stormwater BMPs

Identify Plan sheet showing the appropriate construction Best Management Practices (BMPs) used on this project:
(Applies to all projects with earthwork)

Yes	Plan Sheet	Best Management Practice (BMP)
☑	C7.1-7.3, OC4.0-4.1	Control and prevent the discharge of all potential pollutants, including pavement cutting wastes, paints, concrete, petroleum products, chemicals, wash water or sediments, rinse water from architectural copper, and non-stormwater discharges to storm drains and watercourses.
☑	C7.1-7.3, OC4.0-4.2	Store, handle, and dispose of construction materials/wastes properly to prevent contact with stormwater.
☑	C7.1-7.3, OC4.0-4.3	Do not clean, fuel, or maintain vehicles on-site, except in a designated area where wash water is contained and treated.
☑	C7.1-7.3, OC4.0-4.4	Train and provide instruction to all employees/subcontractors re: construction BMPs.
☑	C7.1-7.3, OC4.0-4.5	Protect all storm drain inlets in vicinity of site using sediment controls such as berms, fiber rolls, or filters.
☑	C7.1-7.3, OC4.0-4.6	Limit construction access routes and stabilize designated access points.
☑	C7.1-7.3, OC4.0-4.7	Attach the San Mateo Countywide Water Pollution Prevention Program's construction BMP plan sheet to project plans and require contractor to implement the applicable BMPs on the plan sheet.
☑	C7.1-7.3, OC4.0-4.8	Use temporary erosion controls to stabilize all denuded areas until permanent erosion controls are established.
☑	C7.1-7.3, OC4.0-4.9	Delineate with field markers clearing limits, easements, setbacks, sensitive or critical areas, buffer zones, trees, and drainage courses.
☑	C7.1-7.3, OC4.0-4.10	Provide notes, specifications, or attachments describing the following: ■ Construction, operation and maintenance of erosion and sediment controls, include inspection frequency; ■ Methods and schedule for grading, excavation, filling, clearing of vegetation, and storage and disposal of excavated or cleared material; ■ Specifications for vegetative cover & mulch, include methods and schedules for planting and fertilization; ■ Provisions for temporary and/or permanent irrigation.
☑	C7.1-7.3, OC4.0-4.11	Perform clearing and earth moving activities only during dry weather.
☑	C7.1-7.3, OC4.0-4.12	Use sediment controls or filtration to remove sediment when dewatering and obtain all necessary permits.
☑	C7.1-7.3, OC4.0-4.13	Trap sediment on-site, using BMPs such as sediment basins or traps, earthen dikes or berms, silt fences, check dams, soil blankets or mats, covers for soil stock piles, etc.
☑	C7.1-7.3, OC4.0-4.14	Divert on-site runoff around exposed areas; divert off-site runoff around the site (e.g., swales and dikes).
☑	C7.1-7.3, OC4.0-4.15	Protect adjacent properties and undisturbed areas from construction impacts using vegetative buffer strips, sediment barriers or filters, dikes, mulching, or other measures as appropriate.

C.3 – Source Controls

Select appropriate source controls and identify the detail/plan sheet where these elements are shown.

Yes	Detail/Plan Sheet No.	Features that require source control	Source Control Measures (Refer to Local Source Control List for detailed requirements)
☑	C4.0	Storm Drain	Mark on-site inlets with the words "No Dumping! Flows to Bay" or equivalent.
☐		Floor Drains	Plumb interior floor drains to sanitary sewer [or prohibit].
☐		Parking garage	Plumb interior parking garage floor drains to sanitary sewer.[8]
☑	L3.0, L4.0	Landscaping	■ Retain existing vegetation as practicable. ■ Follow ReScape (www.rescapeca.org) principles. Select diverse species appropriate to the site. Include plants that are pest- and/or disease-resistant, drought-tolerant, and/or attract beneficial insects. ■ Minimize use of pesticides and quick-release fertilizers. ■ Use efficient irrigation system; design to minimize runoff.
☐		Pool/Spa/Fountain	Provide connection to the sanitary sewer to facilitate draining.[8]
☐		Food Service Equipment (non-residential)	Provide sink or other area for equipment cleaning, which is: ■ Connected to a grease interceptor prior to sanitary sewer discharge.[8] ■ Large enough for the largest mat or piece of equipment to be cleaned. ■ Indoors or in an outdoor roofed area designed to prevent stormwater run-on and run-off, and signed to require equipment washing in this area.
☐		Refuse Areas	■ Provide a roofed and enclosed area for dumpsters, recycling containers, etc., designed to prevent stormwater run-on and runoff. ■ Connect any drains in or beneath dumpsters, compactors, and tallow bin areas serving food service facilities to the sanitary sewer.[8] ■ For more information, see the New Development Projects Litter Reduction Fact Sheet at: https://www.flowstobay.org/wp-content/uploads/2021/06/New-Dev-Litter-Reduction-Fact-Sheet-060421.pdf
☐		Outdoor Process Activities[9]	Perform process activities either indoors or in roofed outdoor area, designed to prevent stormwater run-on and runoff, and to drain to the sanitary sewer.[8]
☐		Outdoor Equipment/ Materials Storage	■ Cover the area or design to avoid pollutant contact with stormwater runoff. ■ Locate area only on paved and contained areas. ■ Roof storage areas that will contain non-hazardous liquids, drain to sanitary sewer[8], and contain by berms or similar.
☐		Vehicle/ Equipment Cleaning	■ Roofed, pave and berm wash area to prevent stormwater run-on and runoff, plumb to the sanitary sewer[8], and sign as a designated wash area. ■ Commercial car wash facilities shall discharge to the sanitary sewer.[8]
☐		Vehicle/ Equipment Repair and Maintenance	■ Designate repair/maintenance area indoors, or an outdoors area designed to prevent stormwater run-on and runoff and provide secondary containment. Do not install drains in the secondary containment areas. ■ No floor drains unless pretreated prior to discharge to the sanitary sewer.[8] ■ Connect containers or sinks used for parts cleaning to the sanitary sewer.[8]
☐		Fuel Dispensing Areas	■ Fueling areas shall have impermeable surface that is a) minimally graded to prevent ponding and b) separated from the rest of the site by a grade break. ■ Canopy shall extend at least 10 ft. in each direction from each pump and drain away from fueling area.
☐		Loading Docks	■ Cover and/or grade to minimize run-on to and runoff from the loading area. ■ Position downspouts to direct stormwater away from the loading area. ■ Drain water from loading dock areas to the sanitary sewer.[8] ■ Install door skirts between the trailers and the building.
☐		Fire Sprinklers	Design for discharge of fire sprinkler test water to landscape or sanitary sewer.[8]
☐		Miscellaneous Drain or Wash Water	■ Drain condensate of air conditioning units to landscaping. Large air conditioning units may connect to the sanitary sewer.[8] ■ Roof drains from equipment drain to landscaped area where practicable. ■ Drain boiler drain lines, roof top equipment, all wash water to sanitary sewer.[8]
☐		Architectural Copper Rinse Water	■ Drain rinse water to landscaping, discharge to sanitary sewer[8], or collect and dispose properly offsite. See flyer "Requirements for Architectural Copper."[10]

8 Any connection to the sanitary sewer system is subject to sanitary district approval.
9 Businesses that may have outdoor process activities/equipment include machine shops, auto repair, industries with pretreatment facilities.
10 See the Flowstobay website: https://flowstobay.org/wp-content/uploads/2020/04/ArchitecturalcopperBMPs.pdf

Low Impact Development – Site Design Measures

Select Appropriate Site Design Measures *(Required for C.3 Regulated Projects; all other projects are encouraged to implement site design measures, which may be required at municipality discretion.) Projects that create and/or replace between 2,500 and 5,000 sq.ft. of impervious surface, and detached single family homes that create/replace between 2,500 and 10,000 sq.ft. of impervious surface, must include* ***one of Site Design Measures a through f*** *(Provision C.3.i requirements).*[10] *Larger (>=5,000 sq.ft) projects must also include applicable Site Design Measures g through i. Consult with municipal staff about requirements for your project.*

Select appropriate site design measures and Identify the Plan Sheet where these elements are shown.

Yes	Plan Sheet No.	Site Design Measures
☐		a. Direct roof runoff into cisterns or rain barrels and use rainwater for irrigation or other non-potable use.
☑	C5.1	b. Direct roof runoff onto vegetated areas.
☑	C5.1	c. Direct runoff from sidewalks, walkways, and/or patios onto vegetated areas.
☑	C5.1	d. Direct runoff from driveways and/or uncovered parking lots onto vegetated areas.
☐		e. Construct sidewalks, walkways, and/or patios with pervious or permeable surfaces. Use the specifications in the C.3 Regulated Projects Guide downloadable at www.flowstobay.org/newdevelopment
☐		f. Construct bike lanes, driveways, and/or uncovered parking lots with pervious surfaces. Use the specifications in the C.3 Regulated Projects Guide downloadable at www.flowstobay.org/newdevelopment
☑	C5.1	g. Limit disturbance of natural water bodies and drainage systems; minimize compaction of highly permeable soils; protect slopes and channels; and minimize impacts from stormwater and urban runoff on the biological integrity of natural drainage systems and water bodies;
☑	C5.1	h. Conserve natural areas, including existing trees, other vegetation and soils.
☑	C5.1	i. Minimize impervious surfaces.

Regulated Projects can also consider the following site design measures to reduce treatment system sizing:

Yes	Plan Sheet No.	Site Design Measures
☐		j. Self-treating area (see Section 4.2 of the C.3 Regulated Projects Guide)
☐		k. Self-retaining area (see Section 4.3 of the C.3 Regulated Projects Guide)

[10] See MRP Provision C.3.a.i.(6) for non-C.3 Regulated Projects, C.3.c.i.(2)(a) for Regulated Projects, C.3.i for projects that create/replace between 2,500 and 5,000 sq.ft. of impervious surface and detached single family homes that create/replace between 2,500 and 10,000 sq.ft. of impervious surface.

Worksheet D

SI2024-00001 - 880 STONE PINE RD / 03/04/2024

C.3 Regulated Projects and Non-Regulated GI Projects

Stormwater Treatment Measures and Site Design Measures by Drainage Management Area (DMA)

Check all applicable boxes, answer questions and fill in cells related to the site design and treatment measure(s) included in the project.

Drainage Management Area Summary Table

Complete the information below at the Entitlement, Building Permit and Certificate of Occupancy stages for Regulated C.3 Projects and Non-Regulated Green Infrastructure Projects. (The first four cells are automatically filled in from the Project Info sheet.)

Project Name:	Stone Pine Cove		
Project Address:	880 Stone Pine Rd, Half Moon Bay, CA 94019		
Cross Streets:	Erin Ln		
APN:	056-260-180		
Special Project[11]?	No		**of C.3.d amount of runoff treated by Non-LID Systems on the Special Project site.**
C.3 Regulated?	Yes		
Public or Private Project?	Private	Public projects are those on public property or ROW; private projects are on privately-owned property but can include improvements in the public ROW required as part of the project.	

DMA Identification Number	Impervious Area[12] (ft^2)	Pervious Area[13] (ft^2)	Type of Site Design Measure or Treatment Measure[14]	Sizing Criteria Used[15]	Size Required[16]	Size Provided
Example DMA 1	5,000	2,000	Bioretention unlined with underdrain	2c: Flow	208 ft2	220 ft2
Example DMA 2	1,000	1,000	Self-retaining area	Other	< 2:1 ratio	1:1 ratio
Example DMA 3	1,000	-	Infiltration trench	1b: Volume	1,000 ft3	1,100 ft3
1	136,675	238,390	Bioretention lined with underdrain	3: Combination	4,590	4,600
2	19,140	2,975	Bioretention lined with underdrain	3: Combination	556	660
3	10,045	7,520	Bioretention lined with underdrain	3: Combination	309	350
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
add rows, if needed						
TOTALS	165,860	248,885	N/A	N/A	N/A	N/A
Totals from Project Info Sheet Cells	167,860	135,752				

Is the project harvesting and using rainwater? Yes ☐

Rainwater Harvesting/Use Measures:

- ☐ Rainwater Harvesting for indoor non-potable water use
- ☐ Rainwater Harvesting for landscape irrigation use

A long term Operations and Maintenance (O&M) Agreement and Plan for this project will be required. Please contact the municipality for an agreement template and/or consult the C.3 Regulated Projects Guide and table of contents at www.flowstobay.org/newdevelopment for maintenance plan templates for specific facility types.

11 Special Projects are smart growth, high density, transit-oriented or affordable housing developments with the criteria defined in Provision C.3.e.ii.(2), (3) or (4) (see Worksheet F).

12 The sq.ft. of impervious area within the Drainage Management Area

13 The sq.ft. of pervious area within the Drainage Management Area

14 "Lined" refers to an impermeable liner placed on the bottom of a bioretention area, such that no infiltration into native soil occurs.

15 Select from the menu which of the following Provision C.3.d.i hydraulic sizing methods was used, if any. Volume based approaches: 1(a) Urban Runoff Quality Management approach, or 1(b) 80% capture approach (recommended volume-based approach). Flow-based approaches: 2(a) 10% of 50-year peak flow approach, 2(b) 2 times the 85th percentile rainfall intensity approach, 2(c) 0.2-Inch-per-hour intensity approach (recommended flow-based approach - also known as the 4% rule for bioretention), or 3 Combination flow and volume-based approach. "Other" is used for Site Design Measures such as Self-Retaining or Self-Treating Areas.

16 Each DMA should drain to one treatment area (unless it is self-treating or self-retaining). If multiple DMAs are draining to one treatment area, they should be combined into one DMA. If one DMA drains to multiple treatment areas, that DMA should be split up so there is one DMA per treatment area (which allows the treatment area to be properly sized). 7/1/23

E-1 Is the project a Hydromodification[17] Management (HM) Project?

E-1.1 Is the total impervious area increased over the pre-project condition?

- ☑ Yes. Continue to E-1.2
- ☐ No. Go to Item E-1.3 and check “No.”

E-1.2 Is the site located in an HM Control Area per the HM Control Areas map (Appendix H of the C.3 Regulated Projects Guide)?

- ☑ Yes. Go to E-1.3 and Check "Yes".
- ☐ No. Attach map, indicating project location. Go to Item E-1.3 and check “No.”

E-1.3 Is the project a Hydromodification Management Project?

- ☑ Yes. The project is subject to HM requirements in Provision C.3.g of the Municipal Regional Stormwater Permit.
- ☐ No. The project is EXEMPT from HM requirements.

► If the project is subject to the HM requirements, incorporate in the project flow duration control measures designed such that post-project discharge rates and durations match pre-project discharge rates and durations.

► The Bay Area Hydrology Model (BAHM) has been developed to help size flow duration controls. See www.clearcreeksolutions.info/downloads. Guidance is provided in Chapter 7 of the C.3 Regulated Projects Guide.

E-2 Incorporate HM Controls (if required)

Are the applicable items provided with the Plans?

Yes	No	NA	
☑	☐	☐	Site plans with pre- and post-project impervious surface areas, surface flow directions of entire site, locations of flow duration controls and site design measures per HM site design requirement
☑	☐	☐	Soils report or other site-specific document showing soil type(s) on site
☑	☐	☐	If project uses the Bay Area Hydrology Model (BAHM), a list of model inputs and outputs.
☐	☐	☑	If project uses custom modeling, a summary of the modeling calculations with corresponding graph showing curve matching (existing, post-project, and post-project with HM controls curves), goodness of fit, and (allowable) low flow rate.
☐	☐	☑	If project uses the Impracticability Provision, a listing of all applicable costs and a brief description of the alternative HM project (name, location, date of start up, entity responsible for maintenance).
☐	☐	☑	If the project uses alternatives to the default BAHM approach or settings, a written description and rationale.

17 Hydromodification is the change in a site’s runoff hydrograph, including increases in flows and durations that results when land is developed (made more impervious). The effects of hydromodification include, but are not limited to, increased bed and bank erosion of receiving streams, loss of habitat, increased sediment transport and/or deposition, and increased flooding. Hydromodification control measures are designed to reduce these effects.

Complete this worksheet for projects that appear to meet the definition of "Special Project", per Provision C.3.e.ii of the Municipal Regional Stormwater Permit (MRP). The form assists in determining whether a project meets Special Project criteria, and the percentage of low impact development (LID) treatment reduction credit. Special Projects that implement less than 100% LID treatment must provide a narrative discussion of the feasibility or infeasibility of 100% LID treatment. See Appendix J of the C.3 Regulated Projects Guide (download at www.flowstobay.org/newdevelopment) for more information.

F-1

"Special Project" Determination (Check the boxes to determine if the project meets any of the following categories.)

Special Project Category "A"

Does the project have ALL of the following characteristics?

- ☐ Located in a municipality's designated central business district, downtown core area or downtown core zoning district, neighborhood business district or comparable pedestrian-oriented commercial district, or historic preservation site and/or district;
- ☐ Creates and/or replaces 0.5 acres or less of impervious surface - enter answer in F-2 table;
- ☐ Includes no surface parking, except for incidental parking for emergency vehicle access, ADA access, and passenger or freight loading zones;
- ☐ Has at least 85% coverage of the entire site by permanent structures. The remaining 15% portion of the site may be used for safety access, parking structure entrances, trash and recycling service, utility access, pedestrian connections, public uses, landscaping and stormwater treatment - enter answer in F-2 Table

☐ No (continue)

☐ Yes – Complete Section F-2 below

Special Project Category "B"

Does the project have ALL of the following characteristics?

- ☐ Located in a municipality's designated central business district, downtown core area or downtown core zoning district, neighborhood business district or comparable pedestrian-oriented commercial district, or historic preservation site and/or district[15];
- ☐ Creates and/or replaces more than 0.5 acres of impervious area and less than 2.0 acres - enter answer in F-2 Table;
- ☐ Includes no surface parking, except for incidental parking for emergency access, ADA access, and passenger or freight loading zones;
- ☐ Has at least 85% coverage of the entire site by permanent structures. The remaining 15% portion of the site may be used for safety access, parking structure entrances, trash and recycling service, utility access, pedestrian connections, public uses, landscaping and stormwater treatment - enter answer in F-2 Table;
- ☐ Minimum gross density of either 50 dwelling units per acre (for residential projects) or a Floor Area Ratio (FAR) of 2:1 (for commercial projects) - mixed use projects may use either criterion[16] - enter answer in F-2 Table;

☐ No (continue)

☐ Yes – Complete Section F-2 below

Special Project Category "C"

Complete the Special Project Category C - Affordable Housing Credit Calculator (AHCC) Worksheet.

Does the project meet ALL of the required characteristics for Category C?

☐ No

☐ Yes – Complete Section F-2 below

[15] And built as part of a municipality's stated objective to preserve/enhance a pedestrian-oriented type of urban design.

[16] The MRP establishes definitions for "Gross Density"(GD) & FAR. GD is defined as, "the total number of residential units divided by the acreage of the entire site area, including land occupied by public right-of-ways, recreational, civic, commercial and other non-residential uses." FAR is defined as," the Ratio of the total floor area on all floors of all buildings at a project site (except structures, floors, or floor areas dedicated to parking) to the total project site area.

F-2 LID Treatment Reduction Credit Calculation

If more than one category applies, choose only one of the applicable categories and fill out the table for that category.
Fill in all cells with blue highlighting that pertain to the chosen Special Project Category.

Category	Impervious Area Created/Replaced (sq. ft.)	Site Coverage (%)	Project Density[16] or FAR[16]	Density/Criteria	Allowable Credit (%)	Applied Credit (%)
A			N.A.	See above in F-1	100%	
B				Res ≥ 50 DU/ac or FAR ≥ 2:1	50%	
				Res ≥ 75 DU/ac or FAR ≥ 3:1	75%	
				Res ≥ 100 DU/ac or FAR ≥ 4:1	100%	
C	Affordable Housing Credit - from AHCC Worksheet):					
					TOTAL CREDIT =	0%

F-3 Narrative Discussion of the Feasibility/Infeasibility of 100% LID Treatment:

If project will implement less than 100% LID, prepare a discussion of the feasibility or infeasibility of 100% LID treatment, as described in Appendix J of the C.3 Regulated Projects Guide.

F-4 Select Certified Non-LID Treatment Measures:

If the project will include non-LID treatment measures, select a treatment measure certified for "Basic" General Use Level Designation (GULD) by the Washington State Department of Ecology's Technical Assessment Protocol – Ecology (TAPE[17]). See guidance in Appendix J of the C.3 Regulated Projects Guide (www.flowstobay.org/newdevelopment).

[17] TAPE certification is used in order to satisfy Special Project's reporting requirements in the MRP.

G-1 **Alternative Certification:** Were the treatment and/or HM control sizing and design reviewed by a qualified third-party professional that is not a member of the project team or agency staff?

☐ Yes ☐ No Name of Reviewer: _____

G-2 **High Priority Site:** High Priority Sites can include those located in or within 100 feet of a sensitive habitat, an Area of Special Biological Significance (ASBS), a body of water, or on "hillside projects" disturbing >=5,000 sq.ft. of land and with steep slopes (of >=15% - see cell **I.A.5** - or as identified by municipal criteria or map). These sites are subject to monthly inspections from Oct 1 to April 30. See MRP Provision C.6.e.ii.(2)(b) and C.6.e.ii.(2)(c).

☑ Yes ☐ No If yes, then add site to Staff's Monthly Rainy Season Construction Site Inspection List

G-3

Inspections of Sites with Pervious Pavement: Regulated projects that are installing 3,000 sq.ft. or more of pervious pavement (see cell **I.B.1.g**) (excluding private-use patios in single family homes, townhomes, or condominiums) must have the pavement system inspected by the jurisdiction upon completion of the installation and the site must be added to the jurisdiction's list of sites needing inspections at least once every five years – see provision C.3.h. Pervious pavement systems include pervious concrete, pervious asphalt, pervious pavers and grid pavers etc. and are described in the C3 Regulated Projects Guide downloadable at: www.flowstobay.org/newdevelopment.

☐ Yes ☐ No If yes, then add site to Staff's Lists for Construction and O&M inspections (C.3 and C.3.h)

Operations and Maintenance (O&M) Submittals

G-4 Stormwater Treatment Measure and/HM Control Owner or Operator's Information:

Name: _____

Address: _____

Phone: _____ Email: _____

► Applicant must call for inspection and receive inspection at completion of installation of treatment measures and/or hydromodification management controls including any pervious pavement areas of 3,000 sq.ft. or more.

The following questions apply to C.3 Regulated Projects and Hydromodification Management Projects.

		Yes	No	N/A
G-4.1	Was maintenance plan submitted?	☐	☐	☐
G-4.2	Was maintenance plan approved?	☐	☐	☐
G-4.3	Was maintenance agreement submitted? (Date executed: _____)	☐	☐	☐

► *Attach the executed maintenance agreement as an appendix to this checklist.*

G-5 **Annual Operations and Maintenance (O&M) Submittals (for municipal staff use only):**

For C.3 Regulated Projects and Hydromodification Management Projects, indicate the dates on which the Applicant submitted annual reports for project O&M:

_____

G-6 **Comments (for municipal staff use only):**

G-7 **NOTES (for municipal staff use only):**

Project Info Notes: SI2024-00001 - 880 STONE PINE RD / 03/04/2024

Worksheet A Notes: _____

Worksheet B Notes: _____

Worksheet C Notes: _____

Worksheet D Notes: _____

Worksheet E Notes: _____

Worksheet F Notes: _____

G-8 Project Close-Out (for municipal staff use only):

		Yes	No	N/A
8.1	Were final Conditions of Approval met?	☐	☐	
8.2	Was initial inspection of the completed treatment/HM measure(s) conducted? (Date of inspection: _____)	☐	☐	☐
8.3	Was maintenance plan submitted? (Date executed: _____)	☐	☐	☐
8.4	Was project information provided to staff responsible for O&M verification inspections? (Date provided to inspection staff: _____)	☐	☐	☐

G-9 Project Close-Out (Continued -- for municipal staff use only):

Name of staff confirming project is closed out: _____

Signature: _____ Date: _____

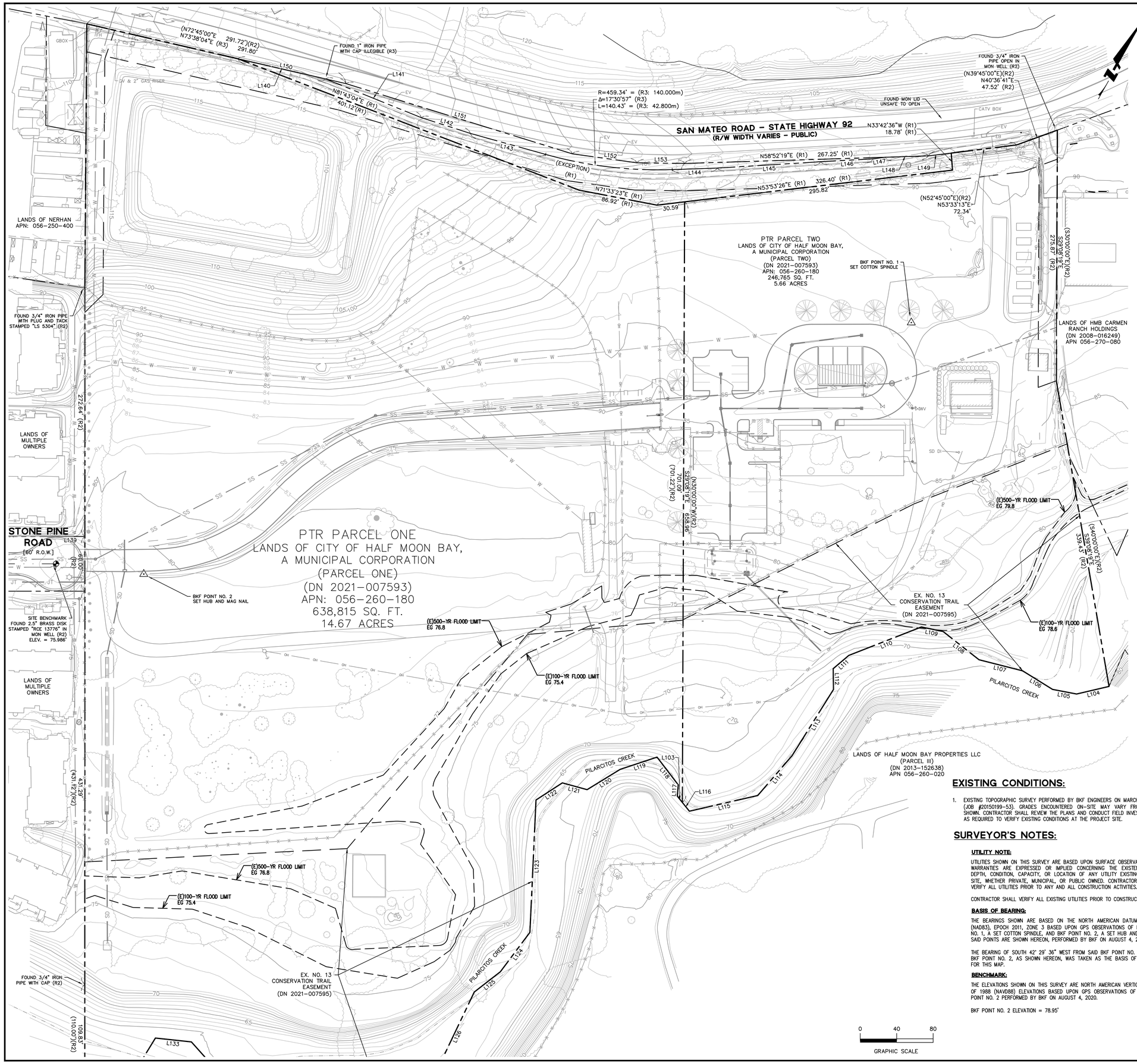
Name of O&M staff receiving information: _____

Signature: _____ Date: _____

APPENDIX 2

Topographic Survey

© BKF Engineers



LINE TABLE		
LINE NO.	DIRECTION	LENGTH
L103	N68°00'29"W	8.90'
L104	S47°25'02"W	36.52'
L105	S71°31'17"W	26.85'
L106	N87°28'52"W	38.62'
L107	S74°52'52"W	49.37'
L108	N81°09'28"W	50.08'
L109	S72°32'08"W	24.33'
L110	S39°14'12"W	85.57'
L111	S20°14'46"W	22.43'
L112	S30°07'13"E	22.83'
L113	S02°39'36"W	85.73'
L114	S11°24'28"W	57.62'
L115	S47°43'04"W	76.92'
L116	N68°00'29"W	12.29'
L117	N24°18'13"W	12.34'
L118	N66°42'59"W	38.40'
L119	S42°15'35"W	42.60'
L120	S29°04'36"W	42.58'
L121	S75°58'13"W	28.14'
L122	S27°39'47"W	34.46'
L123	S26°43'24"E	145.40'
L124	S07°30'40"W	54.02'
L125	S22°45'40"W	36.27'
L126	S03°51'49"E	104.20'
L127	S37°46'25"W	61.71'
L128	S19°33'41"W	107.45'
L129	S56°13'06"W	40.18'
L130	S88°49'22"W	58.28'
L131	N17°07'56"W	56.88'
L132	N71°05'20"W	72.28'
L133	S66°47'43"W	39.70'
L134	S02°07'42"W	62.88'
L135	S58°53'58"W	25.72'
L136	N57°38'51"W	11.15'
L137	S36°00'41"W	15.01'
L138	S29°20'59"E	30.00'
L139	N60°39'01"E	31.63'
L140	N73°38'04"E	98.77'
L141	N82°41'18"E	113.17'
L142	N78°26'58"E	56.56'
L143	N76°15'07"E	85.66'
L144	N58°44'09"E	49.57'
L145	N57°07'31"E	113.58'
L146	N57°32'14"E	57.76'
L147	N52°28'49"E	12.50'
L148	N58°52'19"E	47.99'
L149	N53°33'13"E	25.26'
L150	N73°38'04"E	121.87'
L151	N77°53'28"E	259.68'
L152	N68°33'21"E	71.61'
L153	N61°25'06"E	52.50'

RECORD LINE TABLE	
RECORD DIRECTION	RECORD LENGTH
(S46°33'28"W)(R2)	(36.53')(R2)
(S70°39'43"W)(R2)	(26.86')(R2)
(N88°20'26"W)(R2)	(38.63')(R2)
(S74°01'18"W)(R2)	(49.39')(R2)
(N82°01'02"W)(R2)	(50.10')(R2)
(S71°40'34"W)(R2)	(24.34')(R2)
(S38°22'38"W)(R2)	(85.60')(R2)
(S19°23'12"W)(R2)	(22.44')(R2)
(S30°58'47"E)(R2)	(22.84')(R2)
(S01°48'02"W)(R2)	(85.76')(R2)
(S10°32'54"W)(R2)	(57.64')(R2)
(S46°51'30"W)(R2)	(76.95')(R2)
(N68°52'03"W)(R2)	(12.22')(R2)
(N68°52'03"W)(R2)	(8.98')(R2)
(N25°09'47"W)(R2)	(12.34')(R2)
(N67°34'33"W)(R2)	(38.41')(R2)
(S41°24'01"W)(R2)	(42.61')(R2)
(S28°13'02"W)(R2)	(42.59')(R2)
(S75°06'39"W)(R2)	(28.15')(R2)
(S26°48'13"W)(R2)	(34.47')(R2)
(S27°34'58"E)(R2)	(145.45')(R2)
(S06°39'06"W)(R2)	(54.04')(R2)
(S21°54'06"W)(R2)	(36.28')(R2)
(S04°43'23"E)(R2)	(104.24')(R2)
(S36°54'51"W)(R2)	(61.73')(R2)
(S18°42'07"W)(R2)	(107.49')(R2)
(S55°21'32"W)(R2)	(40.19')(R2)
(S87°57'48"W)(R2)	(58.30')(R2)
(N17°59'30"W)(R2)	(56.90')(R2)
(N71°56'54"W)(R2)	(72.31')(R2)
(S65°56'09"W)(R2)	(39.71')(R2)
(S01°16'08"W)(R2)	(62.90')(R2)
(S58°02'24"W)(R2)	(25.73')(R2)
(N58°30'25"W)(R2)	(11.15')(R2)
(S35°09'07"W)(R2)	(15.02')(R2)
(S30°12'40"E)(R2)	(30.00')(R2)
(N59°47'20"E)(R2)	(31.50')(R2)
(N53°33'13"E)(R1)(R3)	(25.26')(R1)
(N58°52'19"E)(R1)(R3)	(R3: 14.628m) = 47.99'
(S52°28'49"W)(R3)	(R3: 3.811m) = 12.50'
(S57°32'14"W)(R3)	(R3: 17.604m) = 57.76'
(N57°07'31"E)(R3)	(R3: 34.616m) = 113.58'
(S58°44'09"W)(R3)	(R3: 15.108m) = 49.57'
(S76°15'07"W)(R3)	(R3: 26.108m) = 85.66'
(S78°26'58"W)(R3)	(R3: 17.237m) = 56.56'
(S82°41'18"W)(R3)	(R3: 34.491m) = 113.17'
(N73°38'04"E)(R3)	(R3: 30.104m) = 98.77'
(N73°38'04"E)(R1) (N72°45'00"E)(R2)	(121.88')(R1)
(N77°53'28"E)(R1) (N77°00'00"E)(R2)	(259.67')(R1) (260.04')(R2)
(N68°33'21"E)(R1) (N67°45'00"E)(R2)	(71.61')(R1) (71.28')(R2)
(N61°25'06"E)(R1) (N60°30'00"E)(R2)	(52.50')(R1) (52.80')(R1)

EXISTING CONDITIONS:

1. EXISTING TOPOGRAPHIC SURVEY PERFORMED BY BKF ENGINEERS ON MARCH 18, 2021 (JOB #20150199-53). GRADES ENCOUNTERED ON-SITE MAY VARY FROM THOSE SHOWN. CONTRACTOR SHALL REVIEW THE PLANS AND CONDUCT FIELD INVESTIGATIONS AS REQUIRED TO VERIFY EXISTING CONDITIONS AT THE PROJECT SITE.

SURVEYOR'S NOTES:

UTILITY NOTE:

UTILITIES SHOWN ON THIS SURVEY ARE BASED UPON SURFACE OBSERVATIONS. NO WARRANTIES ARE EXPRESSED OR IMPLIED CONCERNING THE EXISTENCE, SIZE, DEPTH, CONDITION, CAPACITY, OR LOCATION OF ANY UTILITY EXISTING ON THE SITE, WHETHER PRIVATE, MUNICIPAL, OR PUBLIC OWNED. CONTRACTOR(S) SHALL VERIFY ALL UTILITIES PRIOR TO ANY AND ALL CONSTRUCTION ACTIVITIES.

CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION

BASIS OF BEARING:

THE BEARINGS SHOWN ARE BASED ON THE NORTH AMERICAN DATUM OF 1983 (NAD83), EPOCH 2011, ZONE 3 BASED UPON GPS OBSERVATIONS OF BKF POINT NO. 1, A SET COTTON SPINDLE, AND BKF POINT NO. 2, A SET HUB AND TACK AS SAID POINTS ARE SHOWN HEREON, PERFORMED BY BKF ON AUGUST 4, 2020.

THE BEARING OF SOUTH 42° 29' 36" WEST FROM SAID BKF POINT NO. 1 TO SAID BKF POINT NO. 2, AS SHOWN HEREON, WAS TAKEN AS THE BASIS OF BEARINGS FOR THIS MAP.

BENCHMARK:

THE ELEVATIONS SHOWN ON THIS SURVEY ARE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) ELEVATIONS BASED UPON GPS OBSERVATIONS OF SAID BKF POINT NO. 2 PERFORMED BY BKF ON AUGUST 4, 2020.

BKF POINT NO. 2 ELEVATION = 78.95'

SURVEYORS STATEMENT

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION, IN CONFORMANCE WITH THE REQUIREMENTS OF THE PROFESSIONAL LAND SURVEYORS' ACT.

02/26/2024

DAVID JUNGMANN, PLS 9267

PROFESSIONAL LAND SURVEYOR DAVID C. JUNGMANN No. 9267 STATE OF CALIFORNIA

RECORD REFERENCES

(R1) GRANT DEED RECORDED OCTOBER 1, 2009 AS DOCUMENT NUMBER 2009-131257, OFFICIAL RECORDS OF SAN MATEO COUNTY.
(R2) RECORD OF SURVEY RECORDED APRIL 5, 2005 IN BOOK 27 OF LLS MAPS AT PAGE 40, OFFICIAL RECORDS OF SAN MATEO COUNTY.
(R3) RECORD OF SURVEY NO. 2460 RECORDED OCTOBER 10, 2013 IN BOOK 38 OF LLS MAPS AT PAGES 99-102OFFICIAL RECORDS OF SAN MATEO COUNTY.

SURVEYOR'S NOTE

RECORD DISTANCES PER (R3) ARE GRID DISTANCES IN METERS. (R3: #m) DENOTES DISTANCE MATCHING RECORD CONVERTED FROM GRID METERS TO GROUND U.S. SURVEY FEET. TO OBTAIN GROUND DISTANCES IN METERS, MULTIPLY (R3) GRID DISTANCES BY 1.000059093, AS STATED ON (R3). TO OBTAIN GROUND DISTANCES IN U.S. SURVEY FEET, MULTIPLY GROUND DISTANCES IN METERS BY THE CONVERSION FACTOR OF (3937/1200).

0 40 80
GRAPHIC SCALE

811 Know what's below. Call before you dig.

255 SHORELINE DRIVE
SUITE 200
REDWOOD CITY, CA 94065
(650) 482-6300
www.bkf.com

EXISTING CONDITIONS
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

No.	Revisions	Date
	BID SET	02/26/2024
	BUILDING PERMIT SET	02/29/2024

Date	02/29/2024
Scale	1" = 40'
Design	DJP
Drawn	DLG
Approved	DJL
Job No.	20211367-15

Drawing Number:
C1.1
OF

DRAWING NAME: K:\2021\211367-15_HMB_Coryard_Housing\ENG\hmbsheets.dwg
PLOT DATE: 02-29-24 PLOTTED BY: gold

APPENDIX 3

Stormwater Control Plan

© BKF Engineers



LEGEND:

- DMA BOUNDARY
- FLOW DIRECTION ARROW
- CREATED/REPLACED IMPERVIOUS HARDSCAPE
- CREATED/REPLACED IMPERVIOUS BUILDING
- EXISTING IMPERVIOUS HARDSCAPE RETAINED
- EXISTING IMPERVIOUS BUILDING RETAINED
- PROPOSED TREATMENT AREA

ONSITE TRIBUTARY AREA

DRAINAGE MANAGEMENT AREA (DMA)	IMPERVIOUS AREA	PERVIOUS AREA	EFFECTIVE IMPERVIOUS AREA	REQUIRED TREATMENT AREA	PROVIDED TREATMENT AREA
DMA 1	136,675	238,390	160,514	4,590	4,600
DMA 2	19,140	2,975	19,438	556	660
DMA 3	10,045	7,520	10,797	309	350
TOTAL	165,860	248,885	190,749	5,455	5,610

1. THE SIZE OF THE BIORETENTION AREA CALCULATED USING THE COMBINATION FLOW AND VOLUME DESIGN BASIS AS DESCRIBED IN THE SAN MATEO COUNTY C.3 REGULATED PROJECT GUIDE.
2. EFFECTIVE IMPERVIOUS AREA IS EQUAL TO THE TOTAL IMPERVIOUS ARE PLUS 0.1 TIMES THE TOTAL PERVIOUS AREA PER THE SAN MATEO COUNTY C.3 REGULATED PROJECTS GUIDE.

0 30 60
GRAPHIC SCALE

SEE SHEETS CO.0 AND CO.1 FOR NOTES AND LEGENDS

811 Know what's below. Call before you dig.

255 SHORELINE DRIVE
SUITE 200
REDWOOD CITY, CA 94065
(650) 482-6300
www.bkf.com

STORMWATER CONTROL PLAN
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

REGISTERED PROFESSIONAL ENGINEER — DAVID L. GOLD — CIVIL — STATE OF CALIFORNIA

REVIEW ONLY NOT FOR CONSTRUCTION

No.	Revisions	Date
	BID SET	02/26/2024
	BUILDING PERMIT SET	02/29/2024

Date 02/29/2024
Scale 1" = 30'
Design DJP
Drawn DLG
Approved DJL
Job No 20211367-15

Drawing Number:
C5.1
OF

DRAWING NAME: K:\2021\2113367-15_HMB_Corpyard_Housing\ENG\hmbsheets.dwg
PLOT DATE: 02-29-24 PLOTTED BY: gold

APPENDIX 4

Combination Flow and Volume Calculations

Worksheet for Calculating the Combination Flow and Volume Method

Instructions: After completing Section 1, make a copy of this Excel file for each Drainage Management Area within the project. Enter information specific to the project and DMA in the cells shaded in yellow. Cells shaded in light blue contain formulas and values that will be automatically calculated.

1.0 Project Information

1-1	Project Name:	Stone Pine Cove
1-2	City application ID:	
1-3	Site Address or APN:	056-260-180
1-4	Tract or Parcel Map No:	
1-5	Rainfall Region	3
1-6	Region Mean Annual Precipitation (MAP)	25.90
1-7	Site Mean Annual Precipitation (MAP)	29

The calculations presented here are based on the combination flow and volume sizing method provided in the Countywide Program's C.3 Technical Guidance, Version 5.0 (2016). The steps presented below are explained in Section 5.1 of the Guidance, applicable portions of which are included in this file, in the sheet named "Guidance from Chapter 5".

Click here for map

1-8 *MAP adjustment factor is automatically calculated as:* 1.10

(The "Site Mean Annual Precipitation (MAP)" is divided by the MAP for the applicable rain gauge, showin in Table 5-3, below.)
Refer to the map in Appendix C of the C.3 Technical Guidance to identify the Rainfall Region for the site.

2.0 Calculate Percentage of Impervious Surface for Drainage Management Area (DMA)

2-1 Name of DMA: DMA-1

For items 2-2 and 2-3, enter the areas in square feet for each type of surface within the DMA.

	Type of Surface	Area of surface type within DMA (Sq. Ft.)	Adjust Pervious Surface	Effective Impervious Area
2-2	Impervious surface	136,675	1.0	136,675
2-3	Pervious surface	238,390	0.1	23,839
	Total DMA Area (square feet) =	375,065		

2-4 *Total Effective Impervious Area (EIA)* 160,514 Square feet

3.0 Calculate Unit Basin Storage Volume in Inches

Table 5-3. Unit Basin Storage Volumes in Inches for 80 Percent Capture Using 48-Hour Drawdowns, based on runoff coefficient

Region	Station, and Mean Annual Precipitation (Inches)	Runoff Coefficient of 1.0
1	Boulder Creek, 55.9"	2.04"
2	La Honda, 24.4"	0.86"
3	Half Moon Bay, 25.92"	0.82"
4	Palo Alto, 14.6"	0.64"
5	San Francisco, 21.0"	0.73"
6	San Francisco airport, 20.1"	0.85"
7	San Francisco Oceanside, 19.3"	0.72"

3-1 *Unit basin storage volume from Table 5-3:* 0.82

(The coefficient for this method is always 1.0, due to the conversion of any landscaping to effective impervious area.)

3-2 *Adjusted unit basin storage volume:* 0.90 Inches

(The unit basin storage volume [Item 3-1] is adjusted by applying the MAP adjustment factor [Item 1-8].)

3-3 *Required Capture Volume (in cubic feet):* 12,070 Cubic feet

(The adjusted unit basin sizing volume [Item 3-2] is multiplied by the DMA EIA [Item 2-4] and converted to cubic feet)

4.0 Calculate the Duration of the Rain Event

4-1	Rainfall intensity	0.2	Inches per hour
4-2	Divide Item 3-2 by Item 4-1	4.51	Hours of Rain Event Duration

5.0 Preliminary Estimate of Surface Area of Treatment Measure

5-1	4% of DMA EIA (Item 2-4)	6420.56	Square feet
5-2	Area 25% smaller than Item 5-1 (i.e., 3% of DMA EIA)	4815.42	Square feet
5-3	Volume of treated runoff for area in Item 5-2	9052.15	Cubic feet (Item 5-2 * 5 inches per hour * 1/12 * Item 4-2)

6.0 Initial Adjustment of Depth of Surface Ponding Area

6-1	Subtract Item 5-3 from Item 3-3	3017.38	Cubic feet (Amount of runoff to be stored in ponding area)
6-2	Divide Item 6-1 by Item 5-2	0.63	Feet (Depth of stored runoff in surface ponding area)
6-3	Convert Item 6-2 from feet to inches	7.52	Inches (Depth of stored runoff in surface ponding area)

6-4 If ponding depth in Item 6-3 meets your target depth (recommend 6"), skip to Item 8-1. If not, continue to Step 7-1.
(Note: Overflow outlet elevation should be set based on the calculated ponding depth.)

7.0 Optimize Size of Treatment Measure

7-1	Enter an area larger than Item 5-2	4590	Sq.ft. (enter larger area if you need less ponding depth.)
7-2	Volume of treated runoff for area in Item 7-1	8628.40	Cubic feet (Item 7-1 * 5 inches per hour * 1/12 * Item 4-2)
7-3	Subtract Item 7-2 from Item 3-3	3441.13	Cubic feet (Amount of runoff to be stored in ponding area)
7-4	Divide Item 7-3 by Item 7-1	0.75	Feet (Depth of stored runoff in surface ponding area)
7-5	Convert Item 7-4 from ft. to inches	9.00	Inches (Depth of stored runoff in surface ponding area)

7-6 If the ponding depth in Item 7-5 meets target, stop here. If not, repeat Steps 7-1 through 7-5 until you obtain target depth.
(Note: Overflow outlet elevation should be set based on the calculated ponding depth.)

8.0 Surface Area of Treatment Measure for DMA

8-1	Final surface area of treatment	4,590	Square feet (Either Item 5-2 or final amount in Item 7-1)

Worksheet for Calculating the Combination Flow and Volume Method

Instructions: After completing Section 1, make a copy of this Excel file for each Drainage Management Area within the project. Enter information specific to the project and DMA in the cells shaded in yellow. Cells shaded in light blue contain formulas and values that will be automatically calculated.

1.0 Project Information

1-1	Project Name:	Stone Pine Cove
1-2	City application ID:	
1-3	Site Address or APN:	056-260-180
1-4	Tract or Parcel Map No:	
1-5	Rainfall Region	3
1-6	Region Mean Annual Precipitation (MAP)	25.90
1-7	Site Mean Annual Precipitation (MAP)	29

The calculations presented here are based on the combination flow and volume sizing method provided in the Countywide Program's C.3 Technical Guidance, Version 5.0 (2016). The steps presented below are explained in Section 5.1 of the Guidance, applicable portions of which are included in this file, in the sheet named "Guidance from Chapter 5".

Click here for map

1-8 *MAP adjustment factor is automatically calculated as:* 1.10

(The "Site Mean Annual Precipitation (MAP)" is divided by the MAP for the applicable rain gauge, showin in Table 5-3, below.)
Refer to the map in Appendix C of the C.3 Technical Guidance to identify the Rainfall Region for the site.

2.0 Calculate Percentage of Impervious Surface for Drainage Management Area (DMA)

2-1 Name of DMA: DMA-2

For items 2-2 and 2-3, enter the areas in square feet for each type of surface within the DMA.

	Type of Surface	Area of surface type within DMA (Sq. Ft.)	Adjust Pervious Surface	Effective Impervious Area
2-2	Impervious surface	19,140	1.0	19,140
2-3	Pervious surface	2,975	0.1	298
	Total DMA Area (square feet) =	22,115		

2-4 *Total Effective Impervious Area (EIA)* 19,438 Square feet

3.0 Calculate Unit Basin Storage Volume in Inches

Table 5-3. Unit Basin Storage Volumes in Inches for 80 Percent Capture Using 48-Hour Drawdowns, based on runoff coefficient

Region	Station, and Mean Annual Precipitation (Inches)	Runoff Coefficient of 1.0
1	Boulder Creek, 55.9"	2.04"
2	La Honda, 24.4"	0.86"
3	Half Moon Bay, 25.92"	0.82"
4	Palo Alto, 14.6"	0.64"
5	San Francisco, 21.0"	0.73"
6	San Francisco airport, 20.1"	0.85"
7	San Francisco Oceanside, 19.3"	0.72"

3-1 *Unit basin storage volume from Table 5-3:* 0.82

(The coefficient for this method is always 1.0, due to the conversion of any landscaping to effective impervious area.)

3-2 *Adjusted unit basin storage volume:* 0.90 Inches

(The unit basin storage volume [Item 3-1] is adjusted by applying the MAP adjustment factor [Item 1-8].)

3-3 *Required Capture Volume (in cubic feet):* 1,462 Cubic feet

(The adjusted unit basin sizing volume [Item 3-2] is multiplied by the DMA EIA [Item 2-4] and converted to cubic feet)

4.0 Calculate the Duration of the Rain Event

4-1	Rainfall intensity	0.2	Inches per hour
4-2	Divide Item 3-2 by Item 4-1	4.51	Hours of Rain Event Duration

5.0 Preliminary Estimate of Surface Area of Treatment Measure

5-1	4% of DMA EIA (Item 2-4)	777.5	Square feet
5-2	Area 25% smaller than Item 5-1 (i.e., 3% of DMA EIA)	583.125	Square feet
5-3	Volume of treated runoff for area in Item 5-2	1096.17	Cubic feet (Item 5-2 * 5 inches per hour * 1/12 * Item 4-2)

6.0 Initial Adjustment of Depth of Surface Ponding Area

6-1	Subtract Item 5-3 from Item 3-3	365.39	Cubic feet (Amount of runoff to be stored in ponding area)
6-2	Divide Item 6-1 by Item 5-2	0.63	Feet (Depth of stored runoff in surface ponding area)
6-3	Convert Item 6-2 from feet to inches	7.52	Inches (Depth of stored runoff in surface ponding area)

6-4 If ponding depth in Item 6-3 meets your target depth (recommend 6"), skip to Item 8-1. If not, continue to Step 7-1.
(Note: Overflow outlet elevation should be set based on the calculated ponding depth.)

7.0 Optimize Size of Treatment Measure

7-1	Enter an area larger than Item 5-2	556	Sq.ft. (enter larger area if you need less ponding depth.)
7-2	Volume of treated runoff for area in Item 7-1	1045.18	Cubic feet (Item 7-1 * 5 inches per hour * 1/12 * Item 4-2)
7-3	Subtract Item 7-2 from Item 3-3	416.38	Cubic feet (Amount of runoff to be stored in ponding area)
7-4	Divide Item 7-3 by Item 7-1	0.75	Feet (Depth of stored runoff in surface ponding area)
7-5	Convert Item 7-4 from ft. to inches	8.99	Inches (Depth of stored runoff in surface ponding area)

7-6 If the ponding depth in Item 7-5 meets target, stop here. If not, repeat Steps 7-1 through 7-5 until you obtain target depth.
(Note: Overflow outlet elevation should be set based on the calculated ponding depth.)

8.0 Surface Area of Treatment Measure for DMA

8-1	Final surface area of treatment	556	Square feet (Either Item 5-2 or final amount in Item 7-1)

Worksheet for Calculating the Combination Flow and Volume Method

Instructions: After completing Section 1, make a copy of this Excel file for each Drainage Management Area within the project. Enter information specific to the project and DMA in the cells shaded in yellow. Cells shaded in light blue contain formulas and values that will be automatically calculated.

1.0 Project Information

1-1	Project Name:	Stone Pine Cove
1-2	City application ID:	
1-3	Site Address or APN:	056-260-180
1-4	Tract or Parcel Map No:	
1-5	Rainfall Region	3
1-6	Region Mean Annual Precipitation (MAP)	25.90
1-7	Site Mean Annual Precipitation (MAP)	29

The calculations presented here are based on the combination flow and volume sizing method provided in the Countywide Program's C.3 Technical Guidance, Version 5.0 (2016). The steps presented below are explained in Section 5.1 of the Guidance, applicable portions of which are included in this file, in the sheet named "Guidance from Chapter 5".

Click here for map

1-8 *MAP adjustment factor is automatically calculated as:* 1.10

(The "Site Mean Annual Precipitation (MAP)" is divided by the MAP for the applicable rain gauge, showin in Table 5-3, below.)
Refer to the map in Appendix C of the C.3 Technical Guidance to identify the Rainfall Region for the site.

2.0 Calculate Percentage of Impervious Surface for Drainage Management Area (DMA)

2-1 Name of DMA: DMA-3

For items 2-2 and 2-3, enter the areas in square feet for each type of surface within the DMA.

	Type of Surface	Area of surface type within DMA (Sq. Ft.)	Adjust Pervious Surface	Effective Impervious Area
2-2	Impervious surface	10,045	1.0	10,045
2-3	Pervious surface	7,520	0.1	752
	Total DMA Area (square feet) =	17,565		

2-4 *Total Effective Impervious Area (EIA)* 10,797 Square feet

3.0 Calculate Unit Basin Storage Volume in Inches

Table 5-3. Unit Basin Storage Volumes in Inches for 80 Percent Capture Using 48-Hour Drawdowns, based on runoff coefficient

Region	Station, and Mean Annual Precipitation (Inches)	Runoff Coefficient of 1.0
1	Boulder Creek, 55.9"	2.04"
2	La Honda, 24.4"	0.86"
3	Half Moon Bay, 25.92"	0.82"
4	Palo Alto, 14.6"	0.64"
5	San Francisco, 21.0"	0.73"
6	San Francisco airport, 20.1"	0.85"
7	San Francisco Oceanside, 19.3"	0.72"

3-1 *Unit basin storage volume from Table 5-3:* 0.82

(The coefficient for this method is always 1.0, due to the conversion of any landscaping to effective impervious area.)

3-2 *Adjusted unit basin storage volume:* 0.90 Inches

(The unit basin storage volume [Item 3-1] is adjusted by applying the MAP adjustment factor [Item 1-8].)

3-3 *Required Capture Volume (in cubic feet):* 812 Cubic feet

(The adjusted unit basin sizing volume [Item 3-2] is multiplied by the DMA EIA [Item 2-4] and converted to cubic feet)

4.0 Calculate the Duration of the Rain Event

4-1	Rainfall intensity	0.2	Inches per hour
4-2	Divide Item 3-2 by Item 4-1	4.51	Hours of Rain Event Duration

5.0 Preliminary Estimate of Surface Area of Treatment Measure

5-1	4% of DMA EIA (Item 2-4)	431.88	Square feet
5-2	Area 25% smaller than Item 5-1 (i.e., 3% of DMA EIA)	323.91	Square feet
5-3	Volume of treated runoff for area in Item 5-2	608.89	Cubic feet (Item 5-2 * 5 inches per hour * 1/12 * Item 4-2)

6.0 Initial Adjustment of Depth of Surface Ponding Area

6-1	Subtract Item 5-3 from Item 3-3	202.96	Cubic feet (Amount of runoff to be stored in ponding area)
6-2	Divide Item 6-1 by Item 5-2	0.63	Feet (Depth of stored runoff in surface ponding area)
6-3	Convert Item 6-2 from feet to inches	7.52	Inches (Depth of stored runoff in surface ponding area)

6-4 If ponding depth in Item 6-3 meets your target depth (recommend 6"), skip to Item 8-1. If not, continue to Step 7-1.
(Note: Overflow outlet elevation should be set based on the calculated ponding depth.)

7.0 Optimize Size of Treatment Measure

7-1	Enter an area larger than Item 5-2	309	Sq.ft. (enter larger area if you need less ponding depth.)
7-2	Volume of treated runoff for area in Item 7-1	580.87	Cubic feet (Item 7-1 * 5 inches per hour * 1/12 * Item 4-2)
7-3	Subtract Item 7-2 from Item 3-3	230.99	Cubic feet (Amount of runoff to be stored in ponding area)
7-4	Divide Item 7-3 by Item 7-1	0.75	Feet (Depth of stored runoff in surface ponding area)
7-5	Convert Item 7-4 from ft. to inches	8.97	Inches (Depth of stored runoff in surface ponding area)

7-6 If the ponding depth in Item 7-5 meets target, stop here. If not, repeat Steps 7-1 through 7-5 until you obtain target depth.
(Note: Overflow outlet elevation should be set based on the calculated ponding depth.)

8.0 Surface Area of Treatment Measure for DMA

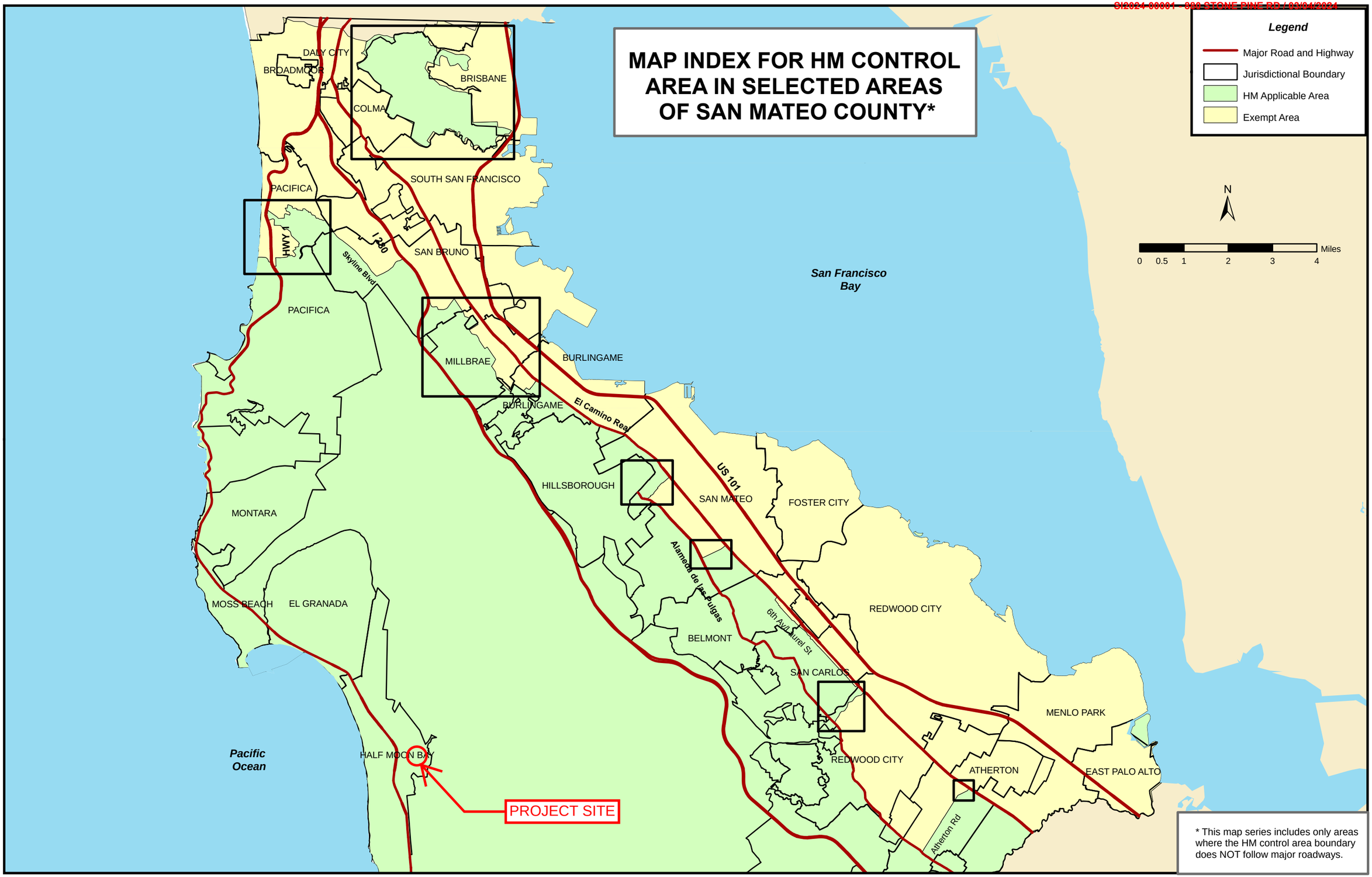
8-1	Final surface area of treatment	309	Square feet (Either Item 5-2 or final amount in Item 7-1)

APPENDIX 5

San Mateo Countywide Hydromodification Map

SI2024-00001 - 808 STONE PINE RD / 08/04/2024

MAP INDEX FOR HM CONTROL AREA IN SELECTED AREAS OF SAN MATEO COUNTY*



* This map series includes only areas where the HM control area boundary does NOT follow major roadways.

APPENDIX 6

Excerpt from Project Soil Report

6.0 SITE CONDITIONS

6.1 Subsurface Conditions

Borings B-4 through B-9 encountered a 1- to 2-foot-thick layer of artificial fill consisting predominantly of stiff sandy lean clay and/or medium dense clayey sand with varying gravel content; however, relatively dry and loose/soft surficial materials were observed at Boring B-6 and B-9 locations. Atterberg Limits testing on a fill soil sample obtained at a depth of about 1 foot below the ground surface (bgs) in Boring B-9 yielded a liquid limit of 40 and a plasticity index of 17, indicating the existing fill material is moderately expansive in nature.

Native soils encountered in the borings consisted predominantly of interlayered lean clay, clayey sand, silty sand, and/or well-graded sand with silt. The upper clay deposits were generally stiff to very stiff and become medium stiff as depth increases. The sandy deposits were mostly medium dense in consistency with a few loose sand layers in the upper about 15 feet of the profile in Boring B-6. In addition, thin, less than 6-inch-thick fat clay layers were observed in the deep borings below about 27 feet bgs. Atterberg Limits testing on native clay and/or clayey sand samples in the upper about 5 feet of the boring profiles yielded liquid limits in the range of 39 to 49 and plasticity indices between 15 and 25, indicating the near-surface native materials are moderately to highly expansive in nature.

CPT-3 through CPT-5 advanced as part of this investigation also revealed interlayered clayey, silty, and/or sandy deposits within the maximum explored depth of 50 feet. The encountered fine-grained soils were medium stiff to very stiff while the granular deposits, consisting predominantly of silty sand to sandy silt and/or clean sand to silty sand, were generally medium dense to dense in consistency. However, the CPT profiles showed large variation in the depth to the first sand layer and the total thickness of the granular deposits. Excluding the surficial ½ foot of topsoil, CPT-3 first encountered sandy deposits at the approximate depth of 8½ feet bgs. CPT-4, however, revealed sandy soils down to the depth of about 12½ feet bgs. At

location of CPT-5, the upper approximately 2½ feet of the profile also consisted of sandy materials; however, below 2½ bgs, CPT-5 revealed mostly clayey deposits with scattered, 2-inch- to 2½-foot-thick, sandy lenses. The total thickness of the medium dense sandy deposits in CPT-5 was about 7 feet, while CPT-3 and CPT-4 encountered approximately 17 feet and 24 feet of medium dense sand, respectively.

BAGG advanced five borings (Borings B-1 through B-5) and two CPTs (CPT-1 and CPT-2) as part of the previous investigation on the northeastern half of the site for the City of Half Moon Bay Corporation Yard project in 2021. The previous Borings B-1 through B-5 revealed predominantly clayey deposits within their maximum explored depths of 5 to 25 feet bgs, except that Boring B-1 encountered medium dense clayey sand below 13 feet to its bottom at 15 feet, and Boring B-2 encountered medium dense to dense clayey sand below 15½ feet to its bottom at 20 feet. The two sand layers may, however, extend further in depth. CPT-1 and CPT-2 revealed interbedded clayey and sandy deposits within the maximum explored depth of 50 feet.

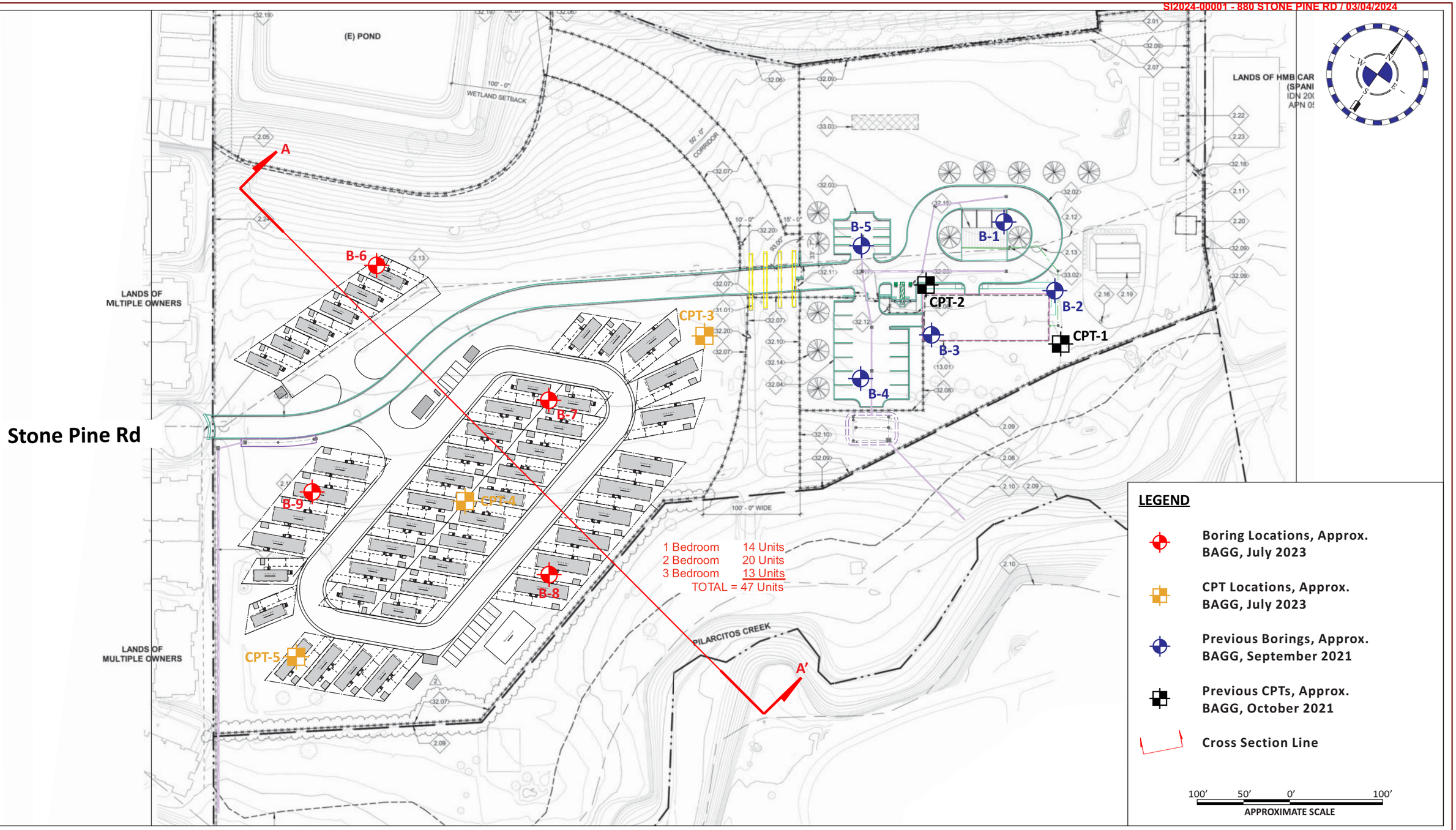
Our boring and CPT profiles indicated the site is generally underlain by interlayered clayey and sandy soils; however, the depths of the sand layers, the thickness and consistency of each sandy layer, as well as the total amount of the sandy deposits with the explored depths, are non-uniform and vary from one location to another. For more information regarding our interpretation of the subsurface materials, we refer you to Plates 10-A through 13-B, Boring Logs. The CPT data is presented in Appendix A attached to this report. The previous Boring B-1 through B-5 logs, as well as CPT-1 and CPT-2 data, are presented in the attached Appendix B.

6.2 Groundwater

Groundwater was first encountered in Borings B-6, B-7, and B-8 at the approximate depth of 17½, 19, and 15 feet bgs, respectively, and was measured upon completion of drilling and sampling at the depths of about 18 feet in B-6 and B-7 and about 9 feet bgs in Boring B-8. Groundwater was not encountered in Boring B-9 within its maximum explored depth of 20 feet. The CPTs estimated groundwater depths of about 15 feet in CPT-3 and about 12½ feet in CPT-5.

Groundwater was not encountered in the previous Borings B-1 through B-5, which were extended to the maximum depth of 25 feet bgs. CPT-1 and CPT-2 estimated groundwater depths of about 10½ and 18 feet bgs, respectively.

Groundwater levels typically fluctuate due to seasonal changes such as variations in rainfall and temperature, hydrogeological variations such as groundwater pumping or recharging, and/or other factors not evident at the time of exploration. Plate 1.3 of the California Geological Survey (CGS, 2021) Seismic Hazard Zone Report 132 (SHZR 132), *Seismic Hazard Zone Report for the Half Moon Bay 7.5-Minute Quadrangle, San Mateo County, California,* indicates the depth to historically high groundwater level in the general site area is less than 10 feet.



Base Map:
Conceptual site plan with BKF markups, unsigned, undated.

GEOTECHNICAL ENGINEERING INVESTIGATION
SMC-HMB FARMWORKER HOUSING PROJECT
880 STONE PINE ROAD
HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA

BAGG ENGINEERS

SITE PLAN

PROJECT NO.:	SCALE:	DATE	PLATE
COUSM-23-03	1" ≈ 100'	August 2023	2

APPENDIX 7

Pilarcitos Creek Floodplain Study

TECHNICAL MEMORANDUM

Date: June 29, 2023 **BKF Job Number: 20211367-15**

To: Krzysztof Lisaj, County of San Mateo

From: Stephanie Tanverakul, PE, BKF Engineers
Kim Baxter, BKF Engineers

Subject: **Pilarcitos Creek Floodplain Study**

A. INTRODUCTION

New farm worker housing consisting of approximately 50 manufactured units and related infrastructure is being proposed for development at the City of Half Moon's Bay Corporate Yard at 880 Stone Pine Road (Project). The Project is in close proximity to Pilarcitos Creek and a Federal Emergency Management Agency (FEMA) 100-year Zone A floodplain, shown on Figure 1, based on Flood Insurance Rate map (FIRM) panel 06081C0260E.

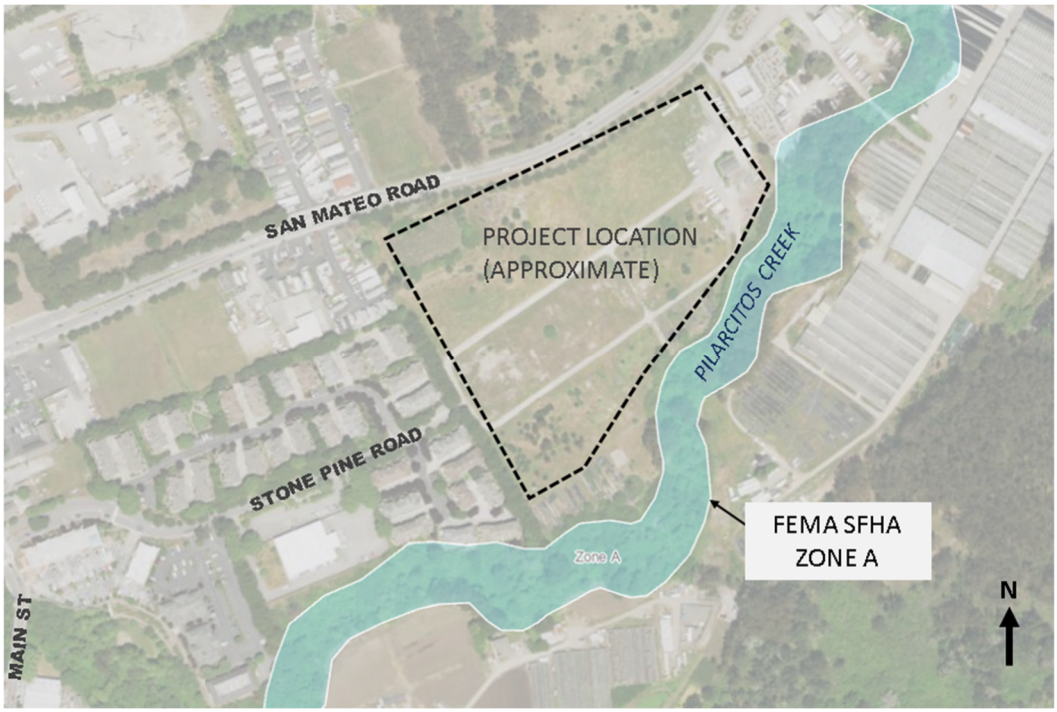


FIGURE 1: Project Location with FEMA SHFA Overlay

FEMA SFHA Zone A areas are estimated based on approximate methodologies without a detailed hydraulic model and so do not have base flood elevations (BFEs) shown. FEMA hydraulic analysis for this section of Pilarcitos Creek has not been updated since 1980. The Zone A mapped area near the project site shows inconsistent flood plain limits compared with recent topography and the overall Zone A boundary is low resolution.

BKF ENGINEERS
255 Shoreline Drive, Suite 200, Redwood City, CA 94065 | 650.482.6300

The purpose of this technical memorandum is to document the hydrologic and hydraulic analysis conducted using publicly available high-resolution topographic data to estimate 100-year and 500-year flood extents and flood elevations. The estimated flood extents and elevations can be used in the Project design to estimate protection from flood damage in extreme storm events.

B. HYDROLOGY

Estimation of the 100-year and 500-year peak flow is based on the long-term stream gage record for Pilarcitos Creek (USGS 11162630) located approximately 3,000 feet downstream of the Project. Since 1967, the USGS has operated the gaging station providing 56 verified annual peak flow values. A statistical analysis of the historical annual peak flows was performed following flood frequency estimation methodology using USGS PeakFQ software. The PeakFQ output is provided in Appendix A. The 100-year peak flow is estimated to be 3,444 cfs and the 500-year peak flow is estimated to be 4,838 cfs at the Project site.

Hydrographs for a 100-year, 24-hour and 500-year, 24-hour storm were estimated using streamflow data at the Pilarcitos Creek gauge. A unit hydrograph was created from streamflow data at the USGS Pilarcitos gauge that was then scaled to the estimated peak flows.

C. HYDRAULIC ANALYSIS

A two-dimensional (2D) model was setup using U.S. Army Corps of Engineers HEC-RAS hydraulic modeling software. The 2D model is setup to analyze the full length of the channel adjacent to the Project, and also extends a few hundred feet upstream and downstream from the Project. Model extents are shown on Figure 2.

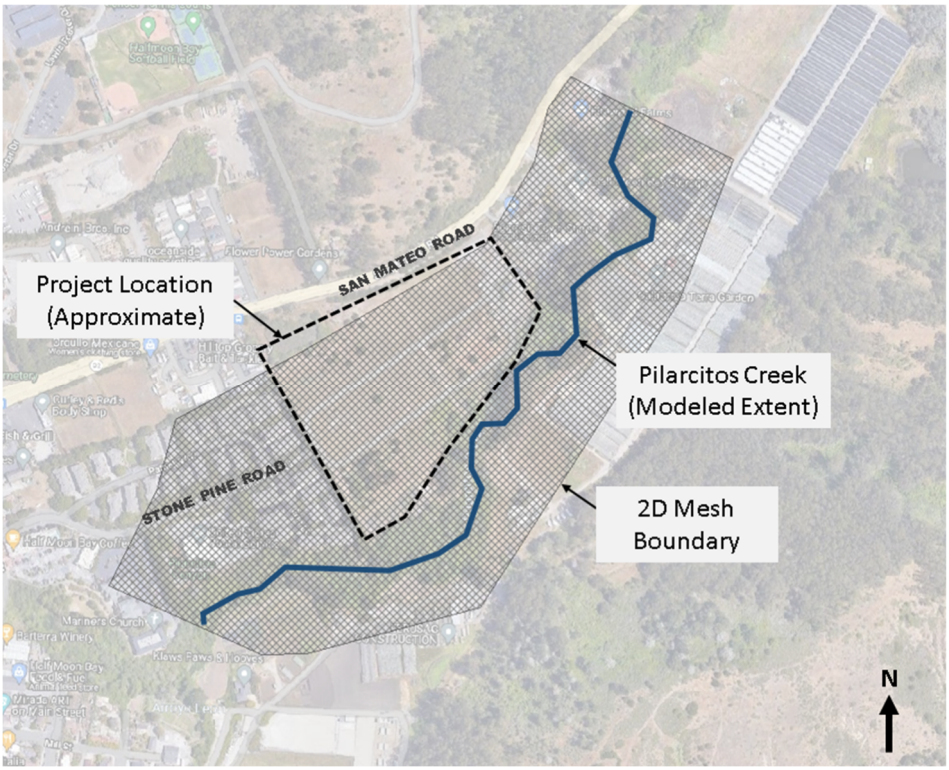


FIGURE 2: HEC-RAS Model Setup

Hydraulic parameters used in the model include:

Datum and Elevations: The County of San Mateo 2018 Digital Elevation Model (DEM) is used.

Hydraulic Model: A 5-foot by 5-foot cell size is used for the 2D grid to compute overland flow depth and extent in the HEC-RAS model.

Roughness Coefficient: A Manning's roughness of 0.04 is used for the HEC-RAS 2D grid surface roughness. The Manning's roughness factor was estimated based on guidance from National Resources Conservation Service (NRCS) of the U.S. Department of Agriculture (USDA). The HEC-RAS manual recommends a range of 0.03 and 0.05 for developed, open space areas that contain a mixture of some constructed material and mostly vegetation.

Boundary Conditions: The downstream boundary condition is set to normal depth using a slope of 0.01. The upstream boundary condition is set to the 100-year and 500-year hydrographs.

D. RESULTS

The estimated flood elevations at the Project site for the 100-year and 500-year storm events are presented in Table 1 below. Figures 4 and 5 illustrate the estimated flooding extents. The water surface elevation of the flood extents in the Project site are shown on Figures 6 and 7.

TABLE 1: Maximum Flood Water Surface Elevation

Cross-Section Number (see Figures 3 and 4)	100-Year Max Water Surface Elevation (ft)	500-Year Max Water Surface Elevation (ft)
1	78.55	79.82
2	76.26	77.82
3	75.68	76.88
4	75.58	76.83
5	75.48	76.92
6	75.40	76.86

E. DISCUSSION AND STUDY LIMITATIONS

The HEC-RAS model was built using 2018 County DEM and does not account for new developments or other land changes since 2018. These land changes may or may not have an impact on the modeling results presented here.

For the modeling effort in this memo, we assumed a Manning's roughness coefficient based on visual aerial assessment of the area and recommendations by the HEC-RAS manual by the Army Corps of Engineers and NRCS. The overland area 2D modeled area is assumed to be mostly developed open space area. Although the roughness assessment accounts for vegetation in and around the channel that is consistent with NRCS standards, large obstructions such as fallen trees and debris have the potential to impact overall Manning's roughness coefficient and affect capacity of the creek.

Pilarcitos Reservoir is at the upstream end of Pilarcitos Creek, and is operated by the SFPUC for water storage and diversion. SFPUC releases water from the reservoir to the portion of Pilarcitos Creek

upstream of Stone Dam only during specific times for use by Coastside CWD and diversion to San Andreas Reservoir or Crystal Springs Reservoir. Figure 3 shows the Pilarcitos watershed with the reservoir, dams, and project location shown. Under normal operations, intentional releases from Stone Dam into Pilarcitos Creek do not occur. In the rare instances where releases from the dam have occurred during past flood events, this additional flow was captured in the downstream USGS stream gage and is thus factored into our statistical analysis and design peak flows referred to above.

Our analysis assumes that SFPUC will continue to maintain dams along Pilarcitos Creek and will manage them with the same operating procedures which have been utilized during past storm events.

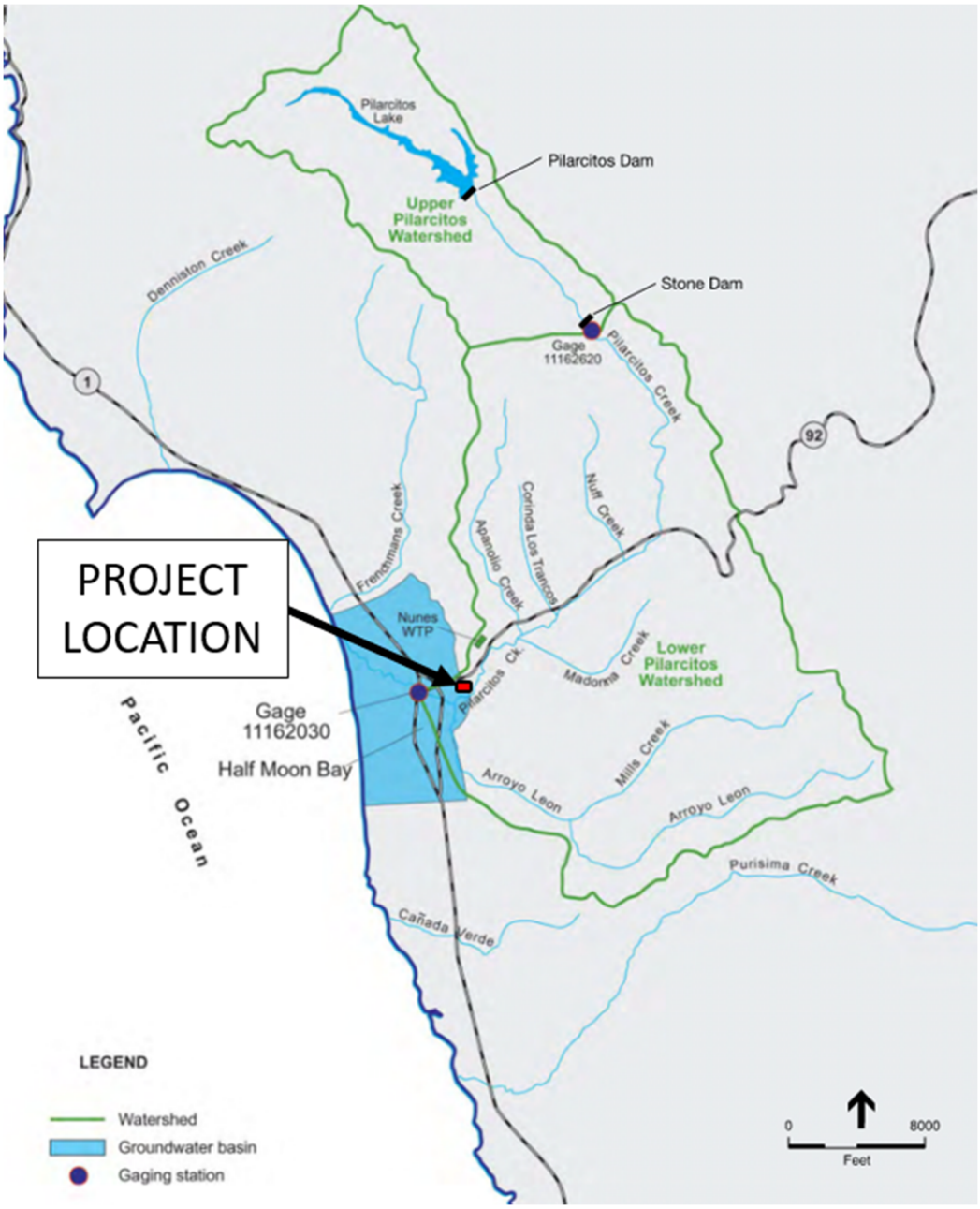


FIGURE 3: Pilarcitos Creek Watershed
(figure source: Todd Engineers)

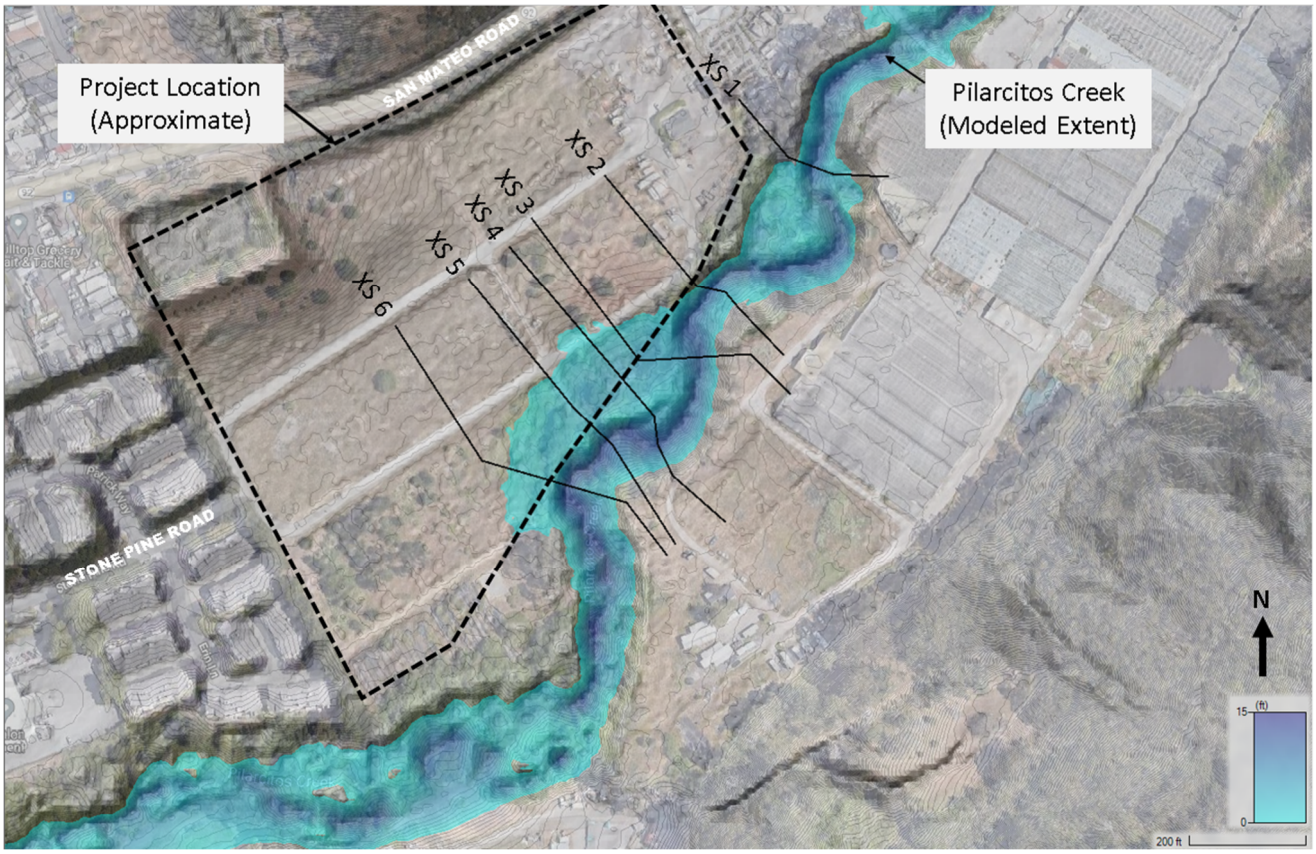


FIGURE 4: 100-Year Event, Maximum Depth

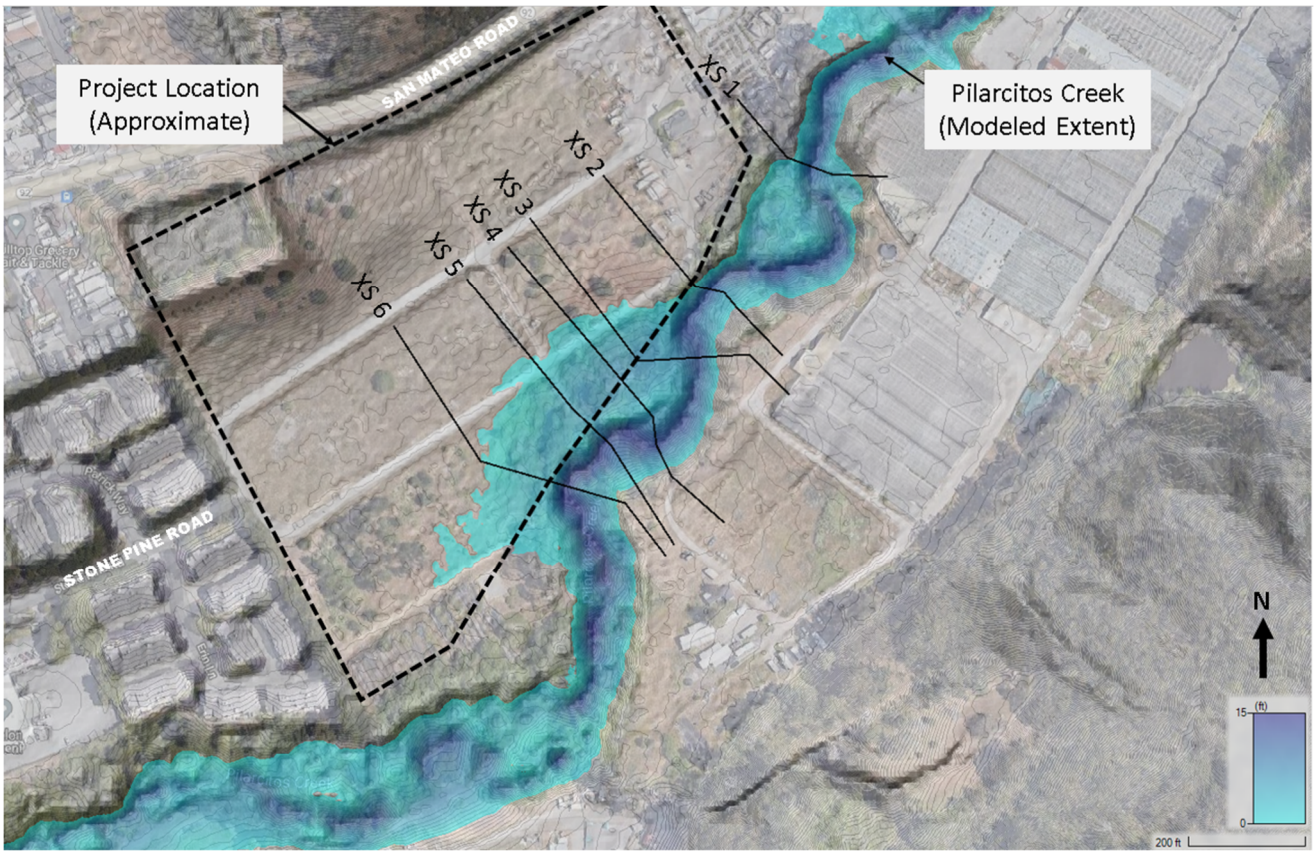


FIGURE 5: 500-Year Event, Maximum Depth



FIGURE 6: 100-Year Event, Maximum Water Surface Elevation

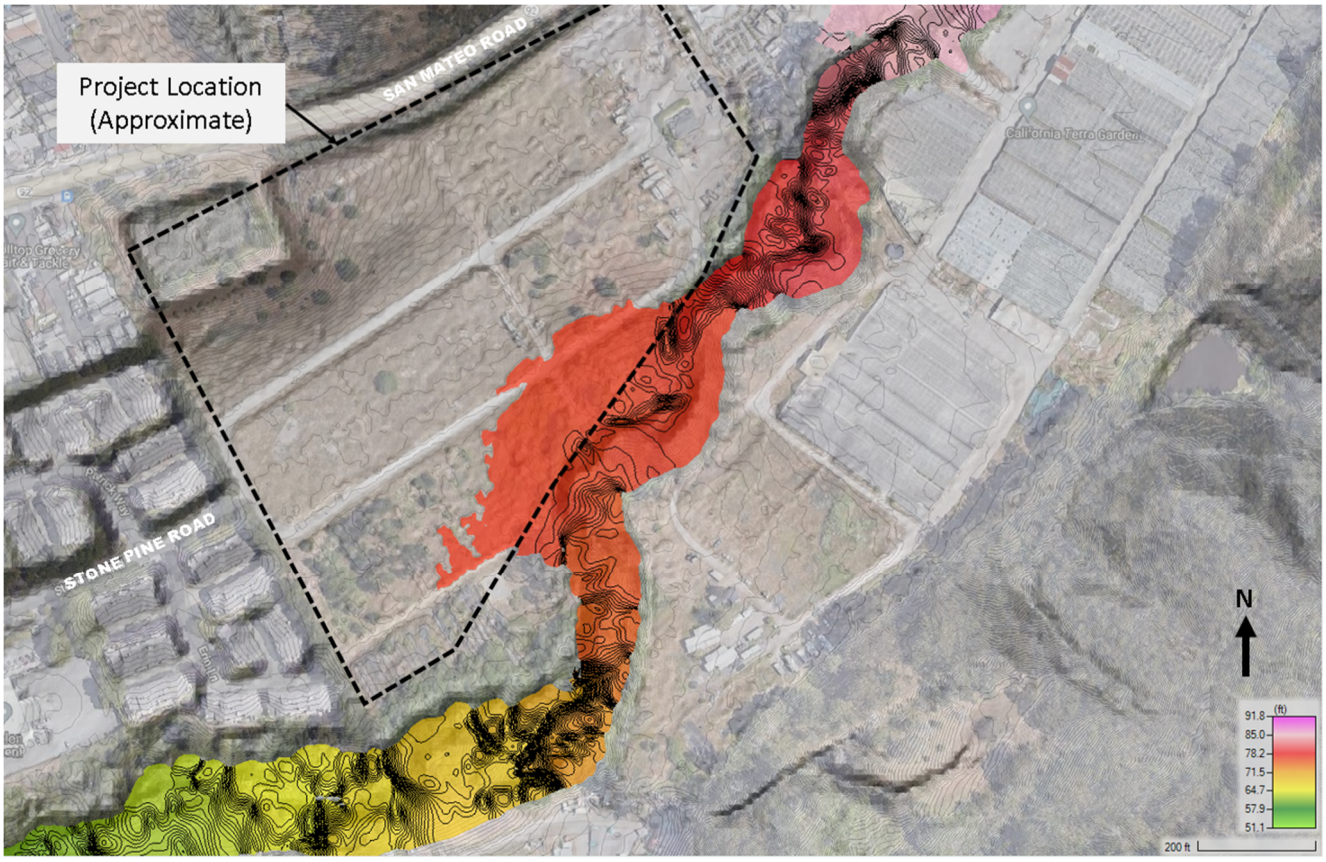


FIGURE 7: 500-Year Event, Maximum Water Surface Elevation

APPENDIX 8

LID Measure Technical Guides

- Bioretention Areas

6.1 Bioretention Area

Overview



Figure 6-2: Bioretention area (Credit: City of Brisbane)

Description

Bioretention areas (also known as "rain gardens") are concave or low and flat landscaped areas that function as soil and plant-based filtration devices that remove pollutants through physical and biological treatment processes. Bioretention areas can be any shape, including linear. Linear bioretention areas are sometimes referred to as stormwater planters. The GI Design Guide alternatively refers to bioretention areas as stormwater planters, stormwater curb extensions or rain gardens depending on the setting/location. Rain gardens in residential settings are sometimes simple bowl-shaped landscapes.

Bioretention areas consist of the following layers, starting from the top: a surface ponding area, plants, a layer of mulch, Biotreatment Soil Media (BSM), and an underlying layer of Class 2 Permeable material (Class 2 Perm) with an underdrain (if needed) that connects to the municipal storm drain system.

Bioretention areas should be designed to distribute stormwater runoff evenly within the surface ponding area. The water is temporarily stored in the ponding area and infiltrates through the BSM, which is engineered to have a high rate of permeability. From there, the water filters down into the underlying Class 2 Perm layer.

The Class 2 Perm layer of the bioretention area may be designed to either maximize infiltration or prevent infiltration to the underlying soils. In bioretention areas that maximize infiltration, the underdrain should be raised at least 6 inches above the bottom of the Class 2 Perm layer, and there should be no liner between the bottom of the Class 2 Perm layer and the surrounding soils. Maximizing infiltration is encouraged where conditions are suitable for infiltration – check with the geotechnical engineer. Where infiltration is precluded, the bioretention area should be fully lined with waterproof material, and the underdrain placed at the bottom of the Class 2 Perm layer.

Best uses
- Any type of development
- Drainage area up to two acres
- Landscape design element

Advantages
- Detains low flows
- Landscape feature
- Low maintenance
- Reliable once established

Limitations
- Not appropriate where soil is unstable
- Typically requires irrigation
- Susceptible to clogging if installed without protection from construction site soils

For strategies and examples of how to retrofit sites and parcels to include bioretention areas, see Sections 3.2 and 3.3 of the GI Design Guide.

Remember that stormwater control measures should be located in areas that can be accessible at any given time for the purpose of operation and maintenance and inspections. Bioretention units should not be located on inaccessible private property such as residential backyards. See Table 6-3 below for recommended bioretention area locations.

Siting

Table 6-3: Recommended locations for bioretention areas (rain gardens)

Recommended Locations	Bioretention
Parking Lot	•
Roof	
Driveway	•
Podium-level	
Close to building	
Away from Buildings	•
Underground	





Figure 6-3: Bioretention area in a multi-family residential property in Redwood City (top; Credit: EOA, Inc.) and in a parking lot in Burlingame (bottom; Credit: SMCWPPP)

Design and Sizing Guidelines

Drainage Area and Setback Requirements

- Setback from structures 10' or as required by structural or geotechnical engineer, or local jurisdiction.
- Follow property line set-back requirements per local jurisdiction zoning. If the bioretention area is on or near the property line, consider if flow from adjacent properties that may cross the property line will affect the sizing of the system.
- Area draining to the bioretention area should not exceed 2 acres.
- Area draining to the bioretention area should not contain a significant source of soil erosion, such as high velocity flows along slopes not stabilized with vegetation or hardscape.
- Areas immediately adjacent to bioretention area should have slopes more than 0.5% for pavement and more than 1% for vegetated areas.

Treatment Dimensions, Grading and Sizing

- It is recommended that bioretention areas be sized to 4% of the impervious surface area on the project site which corresponds to a surface loading rate of 5 inches per hour and a rainfall intensity of 0.2 inches per hour. The area of impervious surface multiplied by 0.04 sizing factor will equal the footprint of the bioretention area. Alternatively, if there are site or infiltration constraints, bioretention sizing may be calculated using the flow-based treatment standard, or the combination flow- and volume-based treatment standard described in Section 5.1 based on the flow entering the basin at the treatment flow rate over the initial hours of the storm until the treatment volume is attained. See Appendix E for more guidance on infiltration issues.
- Where there is a positive surface overflow, bioretention areas should have freeboard of at least 0.2 feet to the lowest structural member versus the 100-year storm water level in the bioretention area, unless local jurisdiction has other requirements.
- Where the bioretention area is in a sump that depends on outflow through a catch basin, the bioretention area should have a freeboard of at least 0.5 feet to the lowest building finished floor elevation (including garage and excluding crawl space) for conditions with the outlet 50 percent clogged, unless local jurisdiction has other requirements. Where the freeboard cannot be provided, an emergency pump may be allowed on a case-by-case basis.
- Allow 2 inches of freeboard between the rim elevation of the outfall grate and elevation of the emergency overflow above the overflow grate such as the top of a flow-through planter wall.
- Side slopes should not exceed 3:1; downstream slope for overflow should not exceed 3:1.
- Bioretention areas, including linear treatment measures, should not be constructed on slopes greater than 4%, unless constructed as a series of relatively horizontal bioretention cells. A bioretention facility should be one level (maximum 2% inner cell slope), shallow basin or a series of basins. As runoff enters each basin, it should flood and fill throughout before runoff overflows to the outlet or to the next downstream basin. This will help prevent movement of surface mulch and soil. In a linear bioretention area, check dams should be placed for every 4 to 6 inches of elevation change and so that the top of each dam is at least as high as the toe of the next upstream

dam. A similar principle applies to bioretention facilities built as terraced roadway shoulders[31]. The slope within cells should not exceed 2% and check dams should be used to hold flow above the 2% level before allowing flow to enter the next cell. Bioretention cells are not recommended if overall slope exceeds 8%. If designing a sloped bioretention area with a surface reservoir (volume method or combined flow and volume method), the slope will have to be factored in the calculation of the surface reservoir height. See Appendix E for more guidance on infiltration measures. **See Section 4.3 of the GI Design Guide for guidance on how to deal with steep topography** using check dams and weirs.

- Surface ponding depths may vary, with a recommended depth of 6 inches (measured from the top of the BSM layer – not the mulch layer - to the overflow rim elevation) and a maximum depth of 12 inches. If ponding depths exceed 6 inches, the landscape architect may want to consider effects on the planting palette. The 3" mulch layer can be within the 6" ponding depth.

Inlets to Treatment Measure

- Flow may enter the treatment measure in the following ways (see example drawings in Section 5.13):
    - As overland flow from landscaping (no special requirements);
    - As overland flow from pavement (cutoff wall required);
    - Through a curb opening;
    - Through a curb drain;
    - Within a drop structure through a stepped manhole (refer to Figure 5-1 in Section 5.6);
    - Through a bubble-up emitter; and/or
    - Through a roof leader or other conveyance from a building roof.
- Where flows enter the biotreatment area, allow a change in elevation of 4-6 inches between the paved surface and the biotreatment soil media elevation (i.e. a recommended 2" drop from the inlet to the mulch or splash block), so that vegetation or mulch build-up does not obstruct flow.
- Splash blocks or splash aprons with or without grouted cobble, pea gravel, plants or mulch should be installed to dissipate flow energy and velocity where runoff enters the treatment measure, and at the downstream side of tiers, weirs and check dams to prevent erosion.

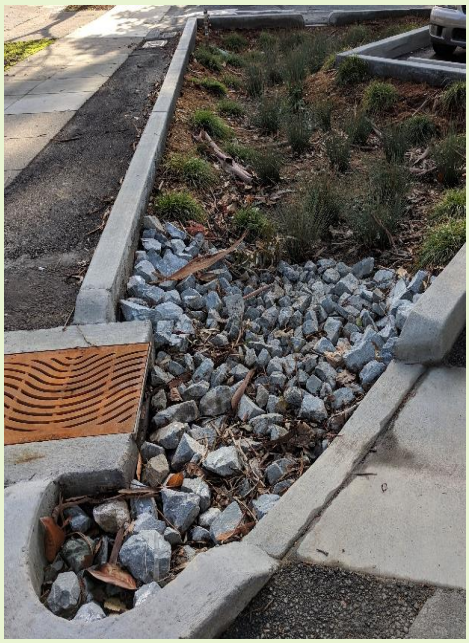


Figure 6-4: Examples of curb cut inlets at a bioretention area in Burlingame (Credit: City of Burlingame)

[31] Contra Costa Clean Water Program. February 2012. C.3 Stormwater Guidebook, 6th Edition and Stormwater Management Handbook: Implementing Green Infrastructure in Northern Kentucky Communities, 2009. www.epa.gov/smartgrowth/publications.htm)

- Curb openings should be a minimum of 18 inches wide (or 12" if allowed by the municipality), with the number and locations designed so that runoff is dispersed throughout the bioretention area or through the use of a flow spreading system.
- Bubble-up emitters and pipes to bubble-up emitters should have weep holes to avoid standing water inside after storm events.

Vegetation



Figure 6-5: Bioretention area featuring several plant types (Credit: City of Burlingame)

- Plant species should be suitable to well-drained soil and occasional inundation. See planting guidance in Appendix A.
- Shrubs and small trees should be placed to anchor the bioretention area cover.
- Tree planting should be as required by the municipality. If larger trees are selected, plant them at the periphery of the bioretention area, where roots can access non-BSM soils outside the area.
- Underdrain trenches can be placed at the edge of tree planting zones, as needed, to maximize distance between tree roots and the underdrain, but the underdrain trench must still be located somewhere under the BSM section and within the Class 2 Perm material layer.
- Use integrated pest management (IPM) and/or Bay-Friendly principles in the landscape design to help avoid or minimize any use of synthetic pesticides and quick-release fertilizer. Check with the local jurisdiction for any local policies regarding the use of pesticides and fertilizers.
- Irrigation should be provided as needed to maintain plant health. If irrigation cannot be provided, then watering by hand should be accommodated weekly through plant establishment – typically through the first six months depending on the season and levels of precipitation.
- Trees and vegetation should not block inflow, create traffic or safety issues, or obstruct utilities.

Soil and Drainage Considerations Specific to Bioretention Areas

- Consideration of groundwater level and placement of the underdrain:
    1. If there is less than a 5-foot separation between the bottom of the facility and the seasonal high groundwater level, or infiltration is not allowed due to other site constraints, an impermeable liner should be placed between the Class 2 Perm and the bottom of the facility and the underdrain placed on top of that liner.
    2. If there is at least a 5-foot separation between the bottom of the facility and the seasonal high groundwater level, and geotechnical conditions allow infiltration, the facility should be unlined and the underdrain should be raised at least 6 inches above the bottom of the Class 2 Perm to allow storage and infiltration of treated water.

Soil and Drainage Considerations for All Biotreatment Systems

- Soil used in the bioretention area must meet the biotreatment soil media (BSM) specification included in Appendix K. Check with municipality for any additional requirements.
- Bioretention areas should have a minimum BSM depth of 18 inches.
- Install and maintain a 3-inch layer of composted arbor mulch (also called “aged mulch”) in areas between plantings. Rock mulches such as river cobble or pea gravel, or other mulches that resist floating may be used, but large rock mulch, such as cobble, should be used sparingly and only where absolutely necessary. Dyed, “micro-bark”, or “gorilla hair” mulches, as well as chipped wood mulch from recycled pallets and dimensional lumber, are not recommended. See Sections 4.9 and 6.3 of the GI Design Guide for more information on mulch.
- An underdrain system is generally required. Depending on the permeability of in situ soils, the local jurisdiction may allow installation without an underdrain on a case-by-case basis.
- Filter fabric should not be used around the underdrain or between the BSM and Class 2 Perm layer. Class 2 Perm performs the function of filter fabric (keeping the BSM from exiting the system through the underdrain) but is less prone to clogging.
- The underdrain should consist of a solid perforated or slotted HDPE or PVC pipe connected to a cleanout pipe(s) and to a storm drain or discharge point. Solid HDPE or triple-walled HDPE pipe, with smooth inner and outer layers and a corrugated middle layer, are recommended. The cleanout should consist of a vertical, rigid, non-perforated, non-corrugated PVC or HDPE pipe, with a minimum diameter of 4 inches and a watertight cap fit, raised or flush with the ground, or as required by municipality. There should be adequate fall (min. 0.5% slope) from the underdrain to the storm drain or discharge point. See Section 5.14 for more information on underdrains.
- The underdrain should be placed in a 12-inch thick layer of Caltrans Class 2 permeable material, or similar municipality-approved material. See Section 5.14 for more information on Class 2 permeable material.

Construction Requirements and Maintenance Plans

Construction Requirements for All Biotreatment Systems

- When excavating, avoid spreading fines of the soils on bottom and side slopes. Remove any smeared soiled surfaces and provide a natural soil interface into which water may percolate.
- Minimize compaction of existing soils. Protect from construction traffic.
- Protect the area from construction site runoff. Runoff from unstabilized areas should be diverted away from biotreatment facility.
- ***For additional construction guidelines, see Chapters 2, 4 and 5 of the GI Design Guide***. Specifically, see Sections 4.3 through 4.9 for construction strategies for dealing with slopes, overflows, poor soils, utilities, runoff capture, etc.

Remember

Maintenance Considerations for All Treatment Measures

- See Chapter 8 of this Guide for specific maintenance guidance. Specifically, see Section 8.3.1 for common maintenance concerns encountered for bioretention areas.
- ***See Chapter 6 of the GI Design Guide*** for landscape maintenance recommendations and information.
- A Maintenance Agreement should be provided and should state the parties' responsibility for maintenance and upkeep.
- Prepare a maintenance plan and submit with Maintenance Agreement. Maintenance plan templates are in Appendix G

Typical Design Details

Note that even though not shown in the details below, 3" of mulch will need to be added on top of the biotreatment soil media for all bioretention area measures - 2" of freeboard is also recommended.

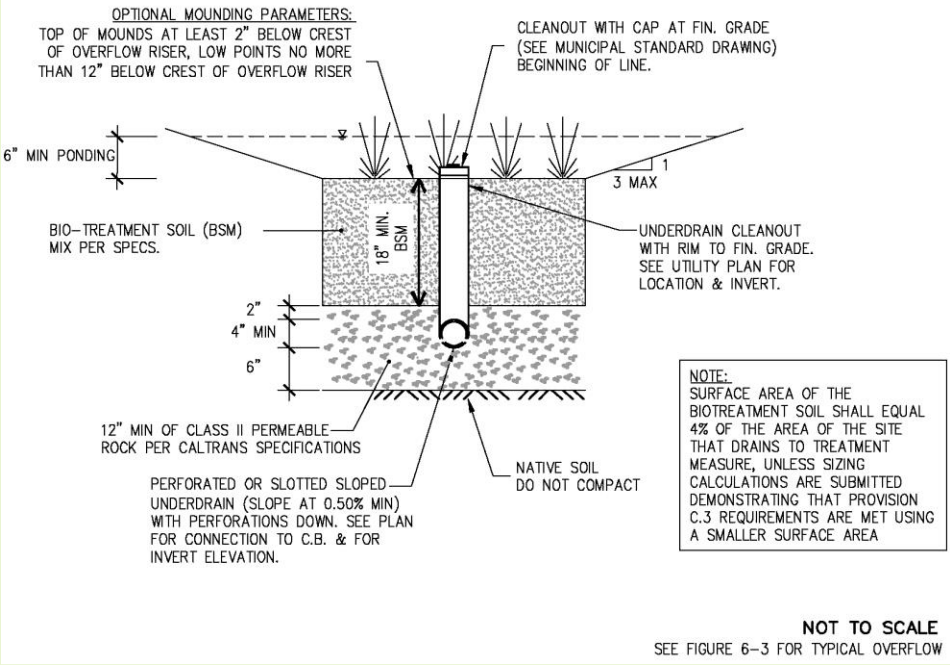


Figure 6-6: Cross Section, Bioretention Area with Infiltration

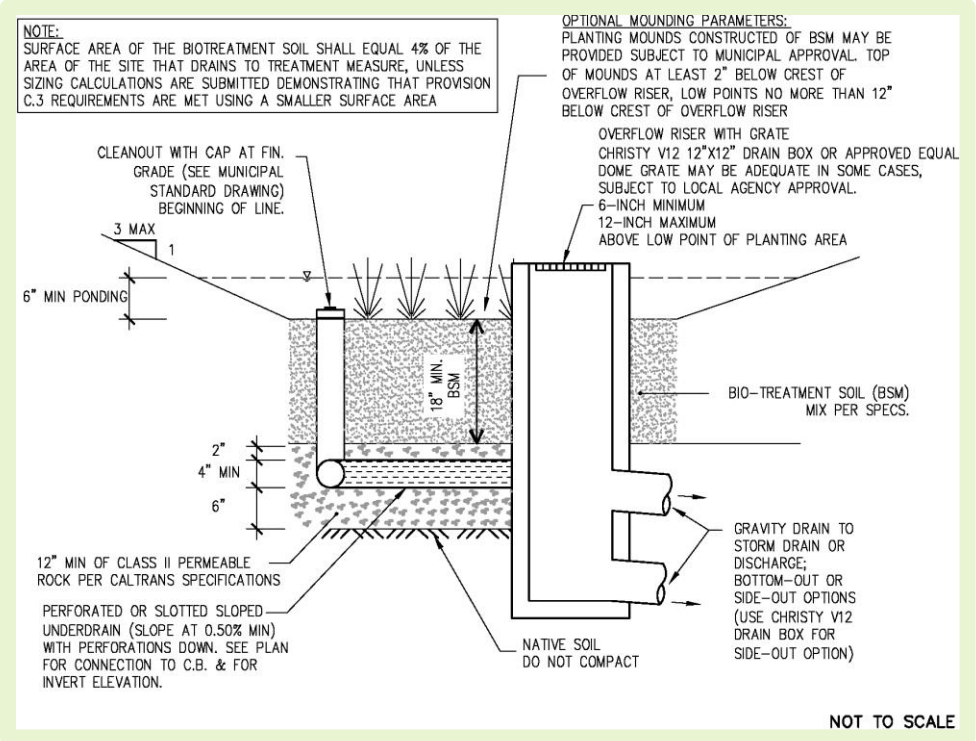


Figure 6-7: Cross Section, Bioretention Area (side view) with Infiltration

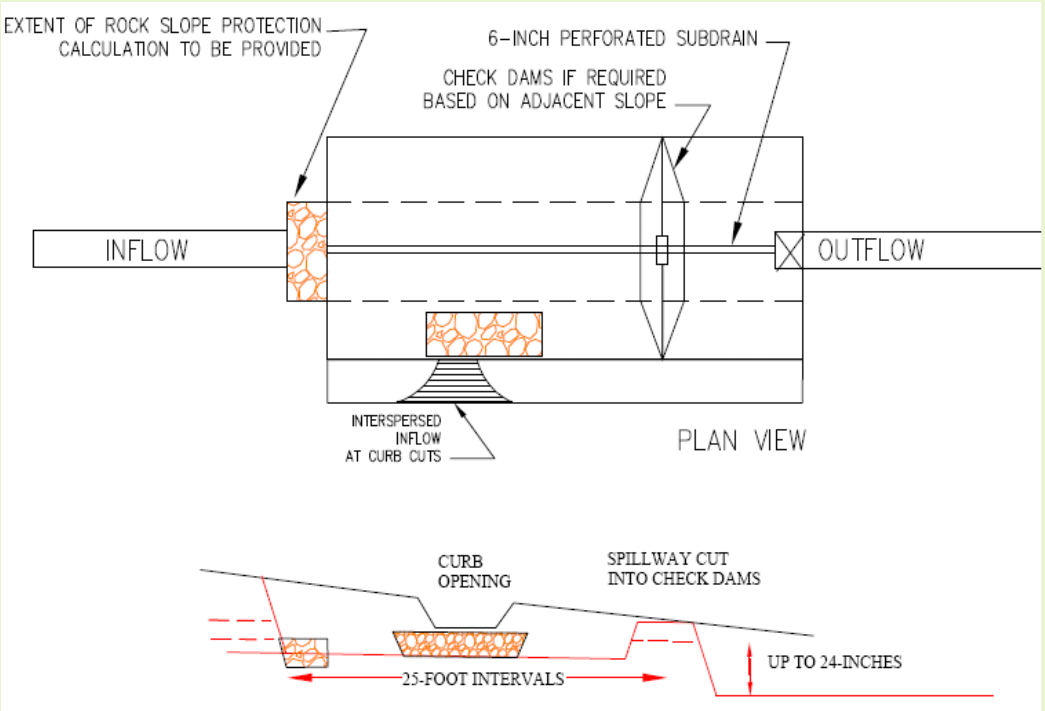


Figure 6-8: Check dam (plan view and profile) for installing a series of linear bioretention cells in sloped area

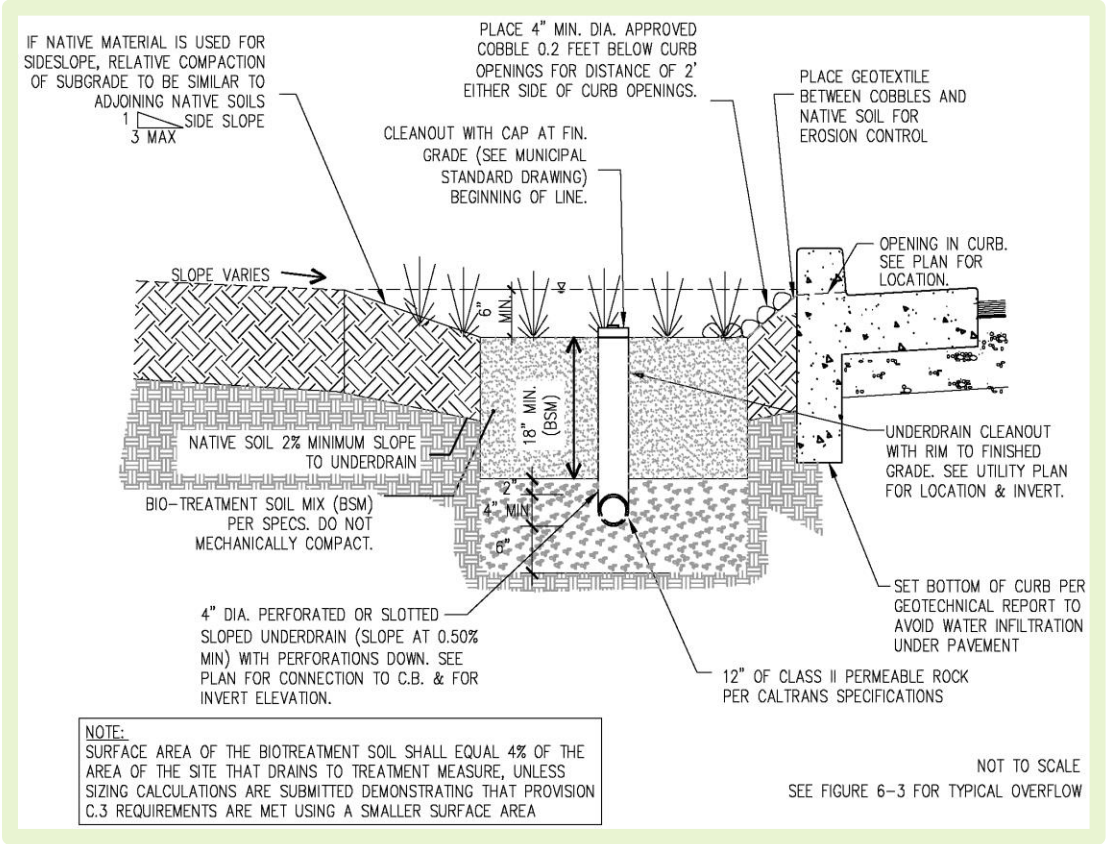


Figure 6-9: Cross section of bioretention area with infiltration showing inlet from pavement.

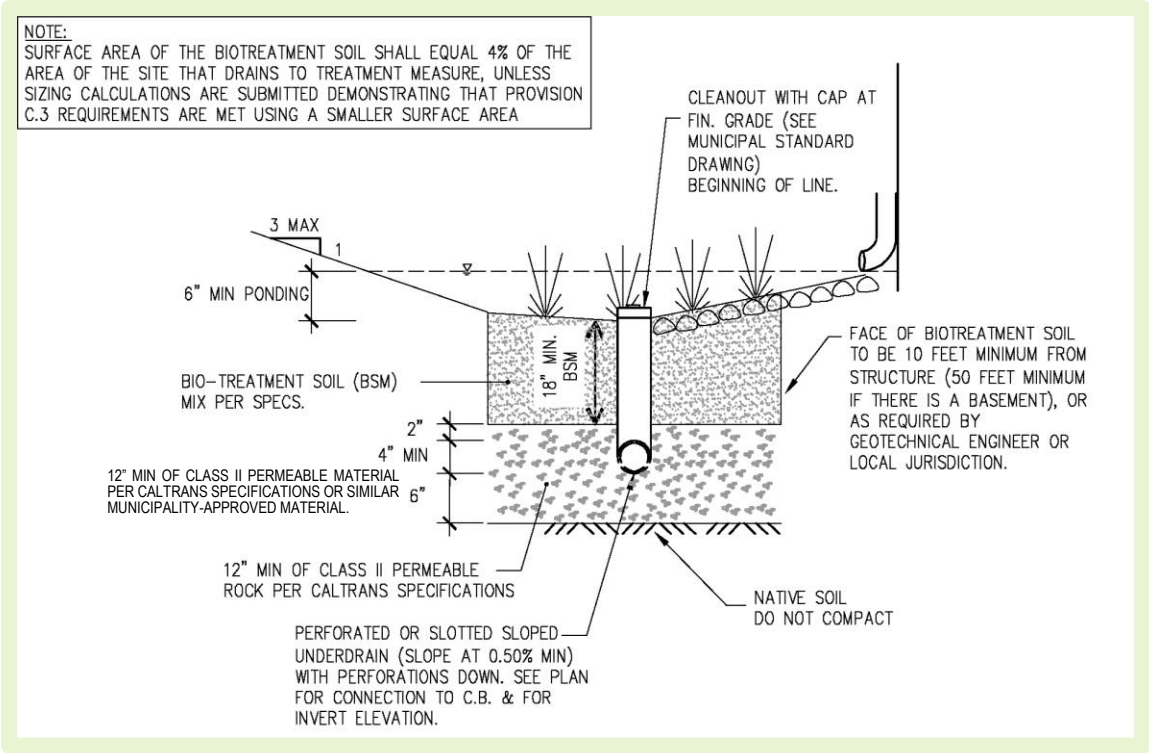


Figure 6-10: Bioretention area in landscaping to treat runoff from rainwater leaders (Not to Scale)

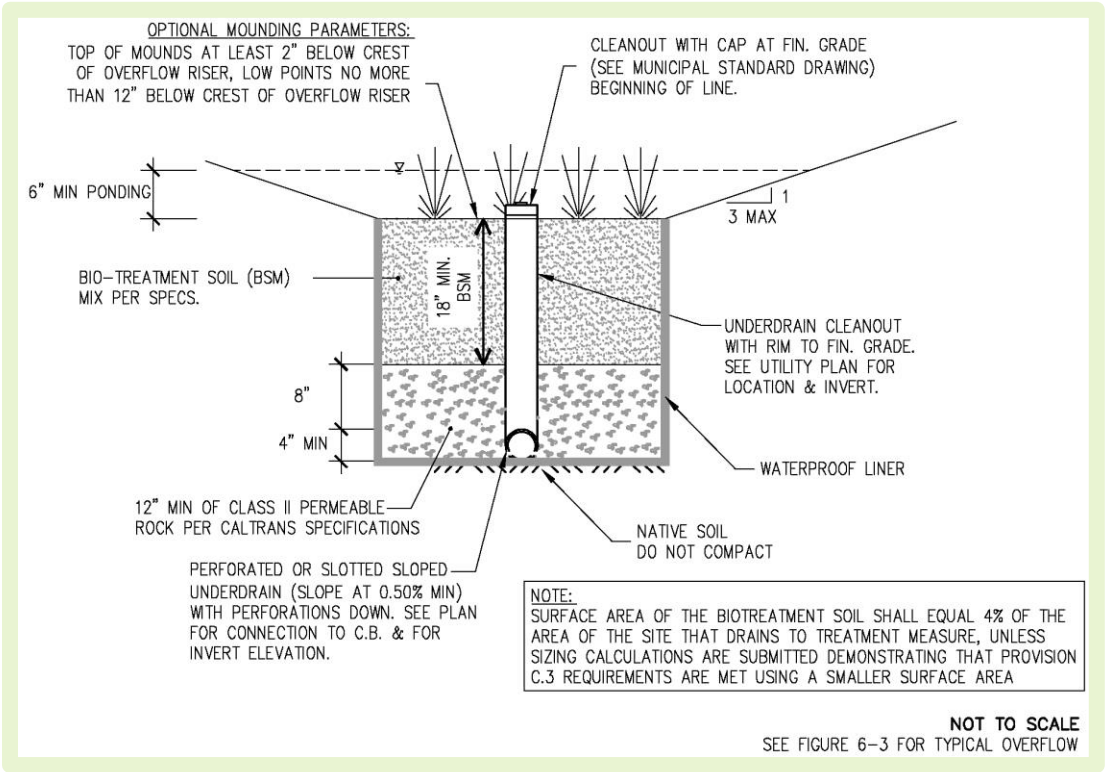
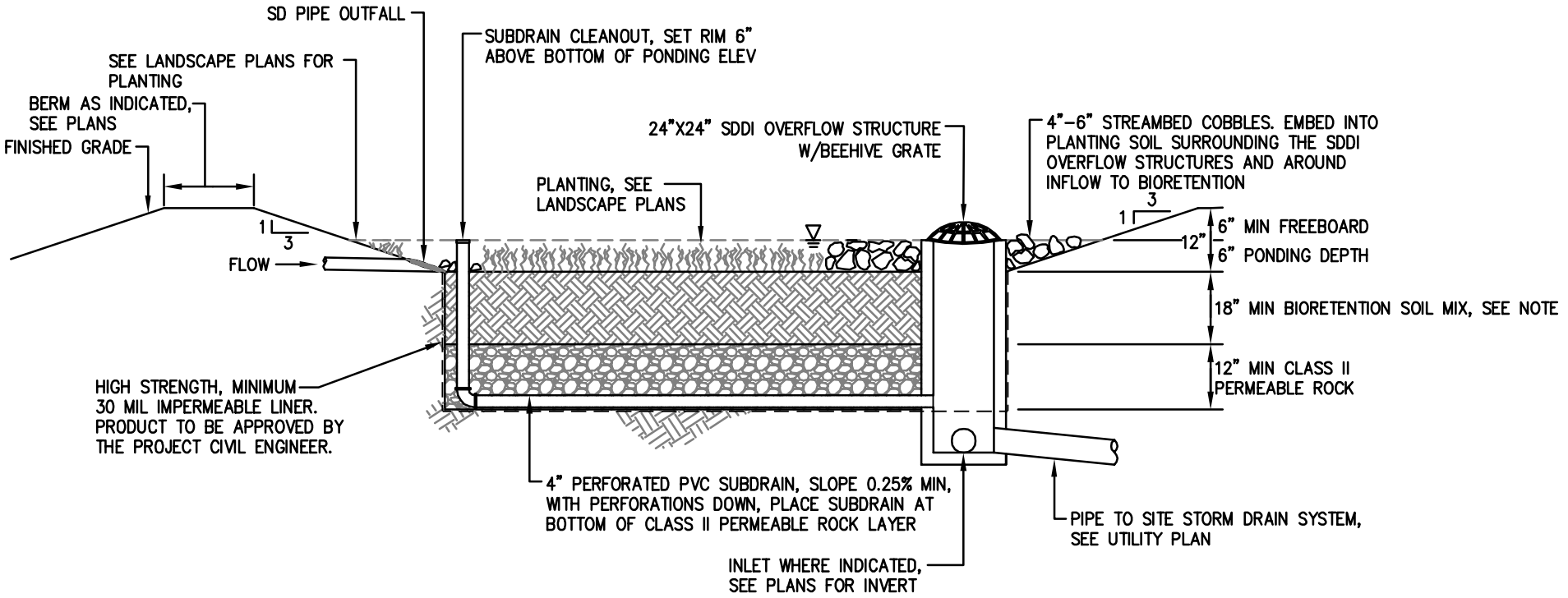


Figure 6-11: Cross section of lined bioretention area, for locations where infiltration is precluded.

APPENDIX 9

Project Treatment Measure Details

- Bioretention Area



NOTES:

1. COMPLETELY SURROUND SIDES AND BOTTOM OF BIORETENTION AREA WITH IMPERMEABLE LINER. NO INFILTRATION INTO SURROUNDING SOIL IS PERMITTED.
2. SEAL ALL LINER SEAMS WITH WATERPROOF TAPE AS RECOMMENDED BY LINER MANUFACTURER.
3. SEE PROJECT SPECIFICATIONS FOR BIOTREATMENT SOIL MIX.
4. SEE LANDSCAPE PLANTING PLAN FOR TREE LOCATIONS AND OTHER PLANT SPECIES IN BIORETENTION AREA.
5. BASE OF TRENCH SHALL SLOPE AT 0.25% TO PARALLEL UNDERDRAIN.
6. FILTER FABRIC SHOULD NOT BE USED IN OR AROUND THE UNDERDRAIN OR BETWEEN THE BSM AND CLASS II PERM.

1
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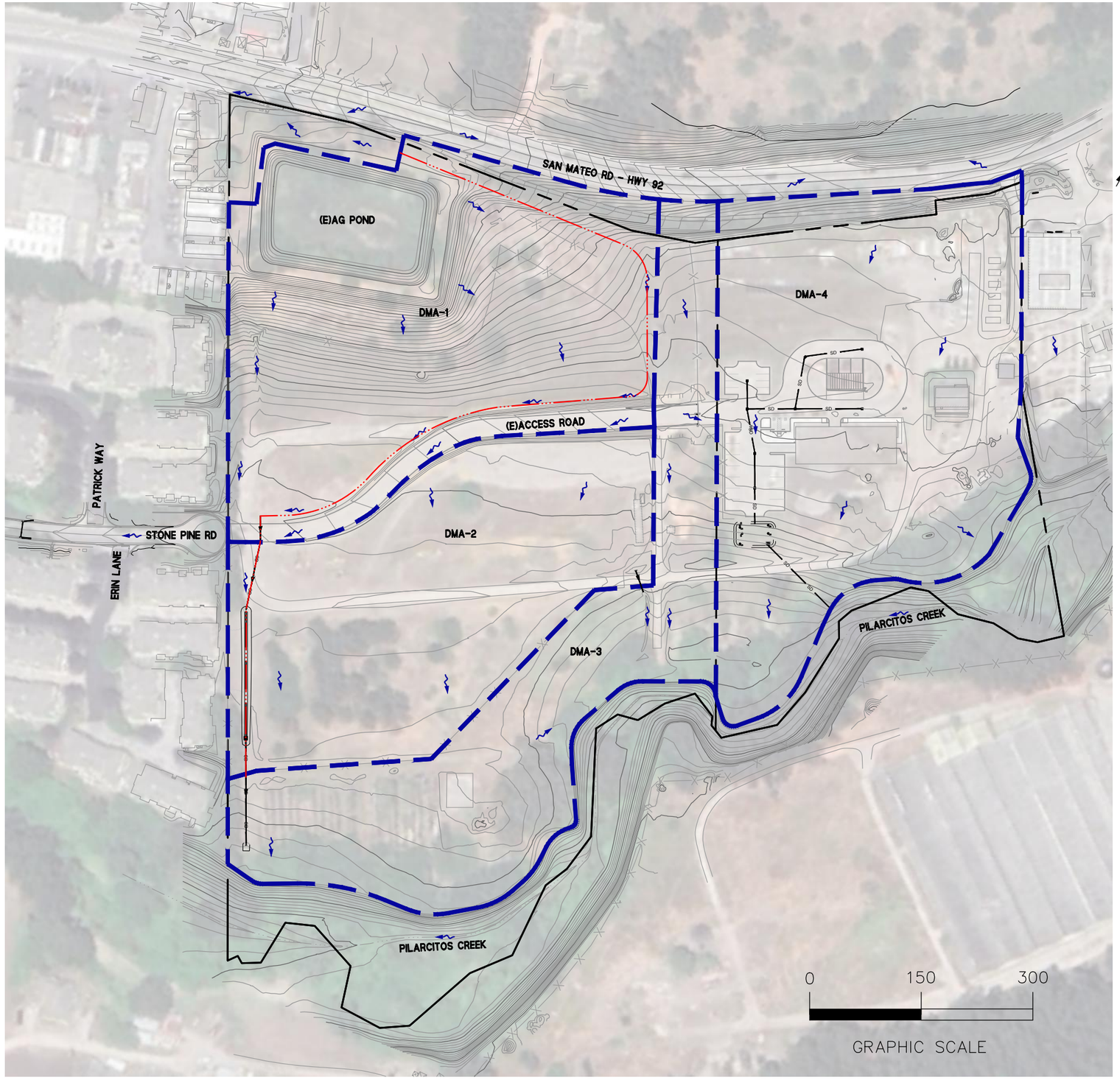
BIORETENTION AREA

NTS

APPENDIX 10

Tributary Areas Exhibits

© BKF ENGINEERS



LEGEND:

- (E)STORM DRAIN LINE
- PROPERTY LINE
- FLOW DIRECTION ARROW
- LONGEST DRAINAGE PATH
- DRAINAGE AREA BOUNDARY

(E) TRIBUTARY AREA	
(E) PERVIOUS AREA	702,355 SQ FT
(E) IMPERVIOUS AREA	112,890 SQ FT
TOTAL:	815,245 SQ FT

DRAWING NAME: K:\2021\21367-15_HMB_Corpyard_Housing\ENG\EXHIBITS\2023-10-25 Drainage Area\hmbexhibits.dwg
PLOT TIME: 02-29-24
PLOTTED BY: gold

255 SHORELINE DRIVE
SUITE 200
REDWOOD CITY, CA 94065
(650) 482-6300
www.bkf.com

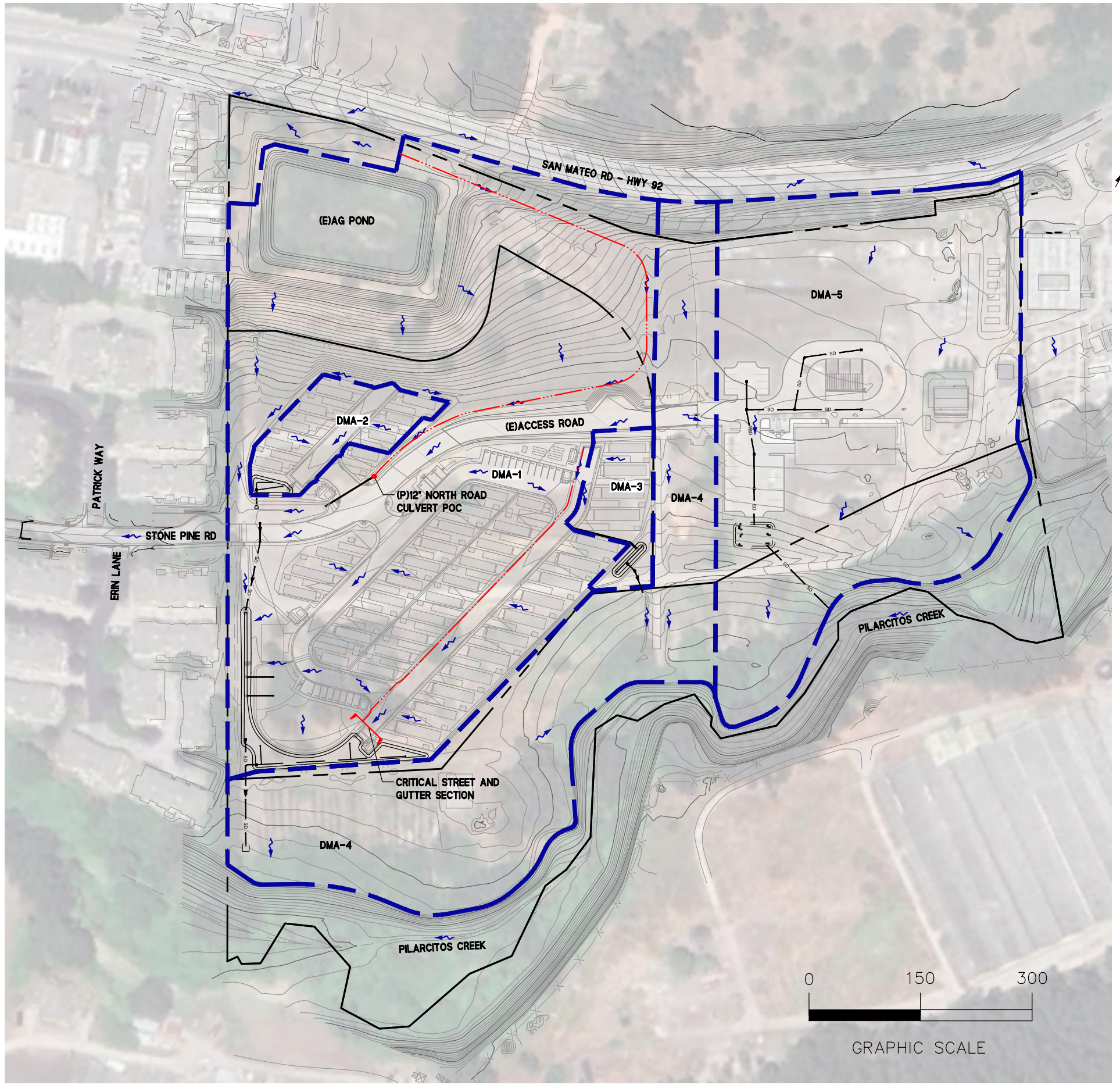
EXISTING TRIBUTARY AREA – BAHM
STONE PINE COVE
880 STONE PINE ROAD
HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA

No.	Revisions

Date: 02/27/2024
Scale: 1"=150'
Design: DJP
Drawn: DLG
Approved: DJL
Job No: 20211367-15

Drawing Number:
X-1
1 OF 2

© BKF ENGINEERS



LEGEND:

- (E)STORM DRAIN LINE
- PROPERTY LINE
- FLOW DIRECTION ARROW
- LONGEST DRAINAGE PATH
- DRAINAGE AREA BOUNDARY
- (P)STORM DRAIN LINE

(P) TRIBUTARY AREA	
(P) PERVIOUS AREA	563,190 SQ FT
(P) IMPERVIOUS AREA	254,055 SQ FT
TOTAL:	815,245 SQ FT

255 SHORELINE DRIVE
SUITE 200
REDWOOD CITY, CA 94065
(650) 482-6300
www.bkf.com

PROPOSED TRIBUTARY AREA - BAHM
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

No.	Revisions

Date: 02/27/2024
Scale: 1"=150'
Design: DJP
Drawn: DLG
Approved: DJL
Job No: 20211367-15

Drawing Number:
X-2
2 OF 2

DRAWING NAME: K:\2021\211367-15_AMB_Corpyard_Housing\ENG\EXHIBITS\2023-10-25 Drainage Area\hmbexhibits.dwg
PLOT TIME/DATE: 02-29-24
PLOTTED BY: gald

APPENDIX 11

Gutter Capacity Calculations

Redwood City Office
255 Shoreline Drive, Suite 200
Redwood City, CA, 94065
Tel 650.482.6300
Fax 650.482.6399

Discharge Calculations for 25-year Event
At Critical Street and Gutter Section

Project Address: 880 Stone Pine Road, Half Moon Bay
BKF Job No: 20211367-15
Date: 02/27/24
Calcs By: DLG

Time - Channel Flow (t_{ch}):

$t_{ch} = 0.0078L^{.77}s^{-.385}$ Kirpich Equation (Channel Flow)

L [ft] =	500	L is the length of the channel flow drainage path
s [ft/ft] =	0.009	S is the slope of the drainage path (0.9% slope)
t_{ch} [min] =	6	t_{ch} is the time of concentration to the critical street and gutter section

Intensity (I):

I [in/hr] =	3.39	NOAA 25-yr 6-min Rainfall Intensity

Area (A):

Impervious Area [ac] =	1.43	C = 0.9
Pervious Area [ac] =	0.16	C = 0.3
Total Tributary Area [ac] =	1.59	Area tributary to the critical street and gutter section

Runoff Coefficient (C):

C_{10} =	0.84	Composite Runoff Coefficient for 10-yr event
Multiplier =	1.10	for 25-yr event
C_{25} =	0.92	Runoff Coefficient for 25-yr event

Tributary Discharge (Q_P):

$Q_p = C_{25\text{-}yr} IA$

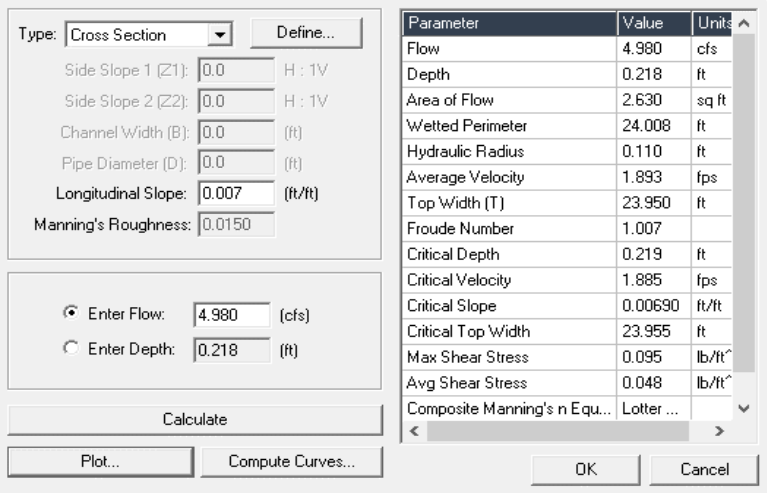
Q_P [cfs]=	4.98

Peak Flow at Critical Street and Gutter Section (see Tributary Areas Exhibit)

Redwood City Office
255 Shoreline Drive, Suite 200
Redwood City, CA, 94065
Tel 650.482.6300
Fax 650.482.6399

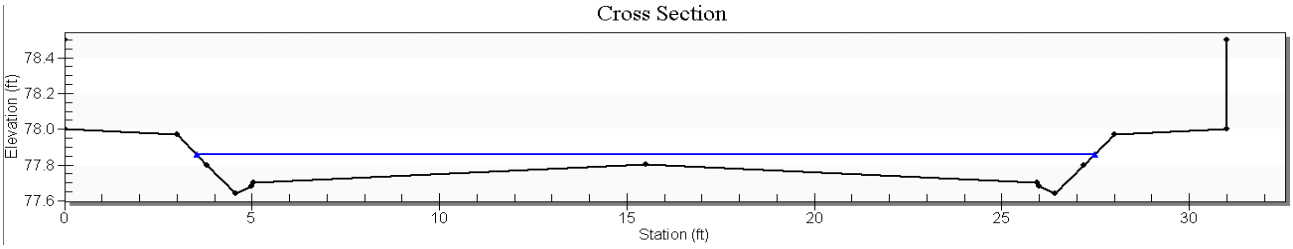
Depth of Critical Section Flow vs TC

Hydraulic Toolbox Analysis Summary:



Parameter	Value	Units
Flow	4.980	cfs
Depth	0.218	ft
Area of Flow	2.630	sq ft
Wetted Perimeter	24.008	ft
Hydraulic Radius	0.110	ft
Average Velocity	1.893	fps
Top Width (T)	23.950	ft
Froude Number	1.007	
Critical Depth	0.219	ft
Critical Velocity	1.885	fps
Critical Slope	0.00690	ft/ft
Critical Top Width	23.955	ft
Max Shear Stress	0.095	lb/ft^
Avg Shear Stress	0.048	lb/ft^
Composite Manning's n Equ...	Lotter ...	

Asymmetric Critical Cross Section Geometry:



Depth of Critical Section Flow vs TC (Continued)

Check d + section bottom elev < TC

Section Bottom Elev [ft] =	77.64
Section Top of Curb [ft] =	77.97
Section Crown Elev [ft] =	77.81
Flow Depth [ft] =	0.22

Flow Elev [ft] =	77.86
Check Crown Overtopping	YES
Check TC Overtopping	NO

Bottom Elevation + Flow Depth

APPENDIX 12

Culvert Capacity Calculations

Redwood City Office
255 Shoreline Drive, Suite 200
Redwood City, CA, 94065
Tel 650.482.6300
Fax 650.482.6399

Time of Concentration for 25-year Event
At (P)12" North Road Culvert

Project Address: 880 Stone Pine Rd, Half Moon Bay
BKF Job No: 20211367-15
Date: 10/25/23
Calcs By: DLG

Time of Concentration (t_c) — Kerby-Kirpich Method

$t_{ov} = 0.83\ (Ln(s^{-.5}))^{.467}$ — Kerby Equation (Overland Flow)

L [ft] =	300	L is the length of the overland flow drainage path
s [ft/ft] =	0.077	S is the slope of the drainage path (7.7% slope)
n [] =	0.4	n is a dimensionless retardance coefficent (average grass)
t_{ov} [min] =	14.1	t_{ov} is the overland flow time of concentration

$t_{ch} = 0.0078L^{.77}s^{-.385}$ — Kirpich Equation (Channel Flow)

L [ft] =	250	L is the length of the channel flow drainage path
s [ft/ft] =	0.050	S is the slope of the drainage path (5% slope)
t_{ch} [min] =	1.7	t_{ch} is the channel flow time of concentration

$t_{ch} = 0.0078L^{.77}s^{-.385}$ — Kirpich Equation (Channel Flow)

L [ft] =	350	L is the length of the channel flow drainage path
s [ft/ft] =	0.006	S is the slope of the drainage path (0.6% slope)
t_{ch} [min] =	5.1	t_{ch} is the channel flow time of concentration

$t_c = t_{ov} + t_{ch}$

t_c [min] =	21.0	t_c is the total time of concentration from the hydraulically most distant point of tributary area to SD POC #1 (see Tributary Areas Exhibit)

Redwood City Office
255 Shoreline Drive, Suite 200
Redwood City, CA, 94065
Tel 650.482.6300
Fax 650.482.6399

Discharge Calculations for 25-year Event
At (P)12" North Road Culvert

Project Address: 880 Stone Pine Rd, Half Moon Bay
BKF Job No: 20211367-15
Date: 10/25/23
Calcs By: DLG

Time of Concentration (t_C): See Time of Concentration Calculation

Total t_C [min]= 21

Intensity (I):

I [in/hr] = 1.79 NOAA 25-yr 21-min Rainfall Intensity

Area (A)

Impervious Area [ac] =	0.00	C = 0.9
Pervious Area [ac] =	2.46	C = 0.3
Total Tributary Area [ac] =	2.46	Area Tributary to SD POC #1 (see Tributary Areas Exhibit)

Composite Runoff Coefficient ($C_{25\text{-}yr}$):

C_{10} =	0.30	Composite Runoff Coefficient
Multiplier =	1.10	for 25-yr event
C_{25} =	0.33	for 25-yr event

Tributary Discharge (Q_P):

$Q_p = C_{25\text{-}yr} IA$

Q_P [cfs]= 1.5 Peak flow at (P)12" North Road Culvert (SD POC #1)

Redwood City Office
255 Shoreline Drive, Suite 200
Redwood City, CA, 94065
Tel 650.482.6300
Fax 650.482.6399

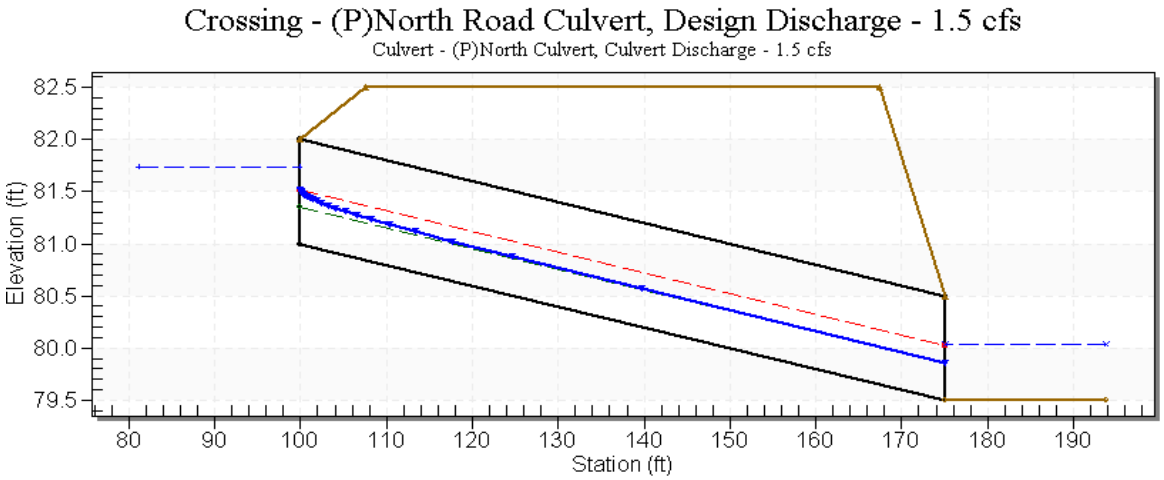
Pipe Capacity
At (P)12" North Road Culvert

Project Address: 880 Stone Pine Rd, Half Moon Bay
BKF Job No: 20211367-15
Date: 10/25/23
Calcs By: DLG

HY-8 Analysis Summary:

Headwater Elevation (ft)	Discharge Names	Total Discharge (cfs)	(P)North Culvert Discharge (cfs)	Roadway Discharge (cfs)	Iterations
81.58	Test	1.00	1.00	0.00	1
81.74	25yr	1.50	1.50	0.00	1
82.50	Overtopping	3.82	3.82	0.00	Overtopping

HY-8 Culvert Section:



APPENDIX 13

NOAA Rainfall Intensity Chart

SI2024-00001 - 880 STONE PINE RD / 03/04/2024

NOAA Atlas 14, Volume 6, Version 2
Location name: Half Moon Bay, California, USA*
Latitude: 37.4681°, Longitude: -122.4237°
Elevation: 78 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**1.80** (1.56-2.10)	**2.15** (1.86-2.52)	**2.62** (2.26-3.07)	**3.00** (2.56-3.56)	**3.54** (2.88-4.38)	**3.95** (3.14-5.02)	**4.38** (3.37-5.74)	**4.84** (3.60-6.55)	**5.45** (3.85-7.79)	**5.95** (4.03-8.87)
10-min	**1.29** (1.12-1.51)	**1.54** (1.33-1.81)	**1.88** (1.61-2.20)	**2.15** (1.84-2.55)	**2.53** (2.07-3.14)	**2.83** (2.25-3.60)	**3.14** (2.42-4.12)	**3.46** (2.57-4.70)	**3.91** (2.76-5.59)	**4.26** (2.89-6.35)
15-min	**1.04** (0.900-1.22)	**1.24** (1.07-1.46)	**1.51** (1.30-1.78)	**1.74** (1.48-2.06)	**2.04** (1.67-2.53)	**2.28** (1.82-2.90)	**2.53** (1.95-3.32)	**2.79** (2.08-3.79)	**3.15** (2.23-4.50)	**3.44** (2.33-5.12)
30-min	**0.724** (0.626-0.846)	**0.864** (0.746-1.01)	**1.05** (0.906-1.23)	**1.21** (1.03-1.43)	**1.42** (1.16-1.76)	**1.59** (1.26-2.02)	**1.76** (1.36-2.31)	**1.94** (1.44-2.63)	**2.19** (1.55-3.13)	**2.39** (1.62-3.56)
60-min	**0.512** (0.443-0.598)	**0.612** (0.528-0.716)	**0.744** (0.640-0.873)	**0.854** (0.727-1.01)	**1.00** (0.820-1.24)	**1.12** (0.893-1.43)	**1.24** (0.960-1.63)	**1.37** (1.02-1.86)	**1.55** (1.10-2.22)	**1.69** (1.14-2.52)
2-hr	**0.376** (0.325-0.439)	**0.440** (0.380-0.514)	**0.527** (0.454-0.619)	**0.602** (0.512-0.714)	**0.708** (0.578-0.876)	**0.794** (0.631-1.01)	**0.886** (0.683-1.16)	**0.985** (0.733-1.34)	**1.13** (0.796-1.61)	**1.24** (0.841-1.85)
3-hr	**0.314** (0.271-0.366)	**0.365** (0.315-0.427)	**0.437** (0.376-0.513)	**0.498** (0.424-0.591)	**0.588** (0.480-0.728)	**0.661** (0.525-0.840)	**0.740** (0.570-0.970)	**0.825** (0.614-1.12)	**0.949** (0.671-1.36)	**1.05** (0.713-1.57)
6-hr	**0.221** (0.191-0.259)	**0.259** (0.223-0.302)	**0.311** (0.268-0.365)	**0.357** (0.304-0.423)	**0.423** (0.345-0.524)	**0.479** (0.380-0.608)	**0.538** (0.415-0.706)	**0.604** (0.450-0.820)	**0.700** (0.495-1.00)	**0.781** (0.529-1.16)
12-hr	**0.142** (0.123-0.166)	**0.172** (0.148-0.201)	**0.213** (0.183-0.250)	**0.248** (0.211-0.294)	**0.298** (0.243-0.369)	**0.339** (0.269-0.431)	**0.383** (0.295-0.502)	**0.430** (0.320-0.584)	**0.498** (0.352-0.712)	**0.554** (0.375-0.826)
24-hr	**0.091** (0.083-0.101)	**0.114** (0.104-0.127)	**0.145** (0.132-0.162)	**0.171** (0.155-0.193)	**0.208** (0.183-0.242)	**0.237** (0.204-0.282)	**0.268** (0.226-0.325)	**0.301** (0.246-0.375)	**0.346** (0.273-0.449)	**0.383** (0.292-0.513)
2-day	**0.058** (0.053-0.064)	**0.072** (0.066-0.081)	**0.092** (0.084-0.103)	**0.109** (0.098-0.122)	**0.132** (0.116-0.154)	**0.151** (0.130-0.179)	**0.171** (0.143-0.207)	**0.192** (0.157-0.239)	**0.221** (0.174-0.287)	**0.245** (0.187-0.329)
3-day	**0.045** (0.041-0.050)	**0.056** (0.051-0.062)	**0.071** (0.065-0.079)	**0.083** (0.076-0.094)	**0.101** (0.089-0.118)	**0.115** (0.099-0.137)	**0.130** (0.110-0.158)	**0.146** (0.120-0.182)	**0.168** (0.133-0.218)	**0.187** (0.142-0.250)
4-day	**0.038** (0.034-0.042)	**0.047** (0.043-0.052)	**0.059** (0.054-0.066)	**0.070** (0.063-0.078)	**0.084** (0.074-0.098)	**0.095** (0.082-0.113)	**0.107** (0.090-0.130)	**0.120** (0.098-0.149)	**0.137** (0.108-0.177)	**0.151** (0.115-0.202)
7-day	**0.027** (0.024-0.030)	**0.034** (0.031-0.037)	**0.042** (0.039-0.048)	**0.050** (0.045-0.056)	**0.059** (0.052-0.069)	**0.066** (0.057-0.079)	**0.074** (0.062-0.089)	**0.081** (0.066-0.101)	**0.091** (0.071-0.118)	**0.098** (0.075-0.132)
10-day	**0.021** (0.019-0.023)	**0.027** (0.024-0.030)	**0.034** (0.031-0.038)	**0.039** (0.035-0.044)	**0.046** (0.041-0.054)	**0.052** (0.044-0.061)	**0.057** (0.048-0.069)	**0.062** (0.051-0.077)	**0.069** (0.054-0.089)	**0.074** (0.056-0.099)
20-day	**0.014** (0.012-0.015)	**0.018** (0.016-0.020)	**0.022** (0.020-0.025)	**0.026** (0.024-0.029)	**0.031** (0.027-0.036)	**0.034** (0.029-0.040)	**0.037** (0.031-0.045)	**0.040** (0.032-0.050)	**0.043** (0.034-0.056)	**0.046** (0.035-0.062)
30-day	**0.011** (0.010-0.012)	**0.014** (0.013-0.016)	**0.018** (0.017-0.021)	**0.021** (0.019-0.024)	**0.025** (0.022-0.029)	**0.027** (0.024-0.033)	**0.030** (0.025-0.036)	**0.032** (0.026-0.040)	**0.035** (0.027-0.045)	**0.036** (0.028-0.049)
45-day	**0.009** (0.008-0.010)	**0.012** (0.011-0.013)	**0.015** (0.014-0.017)	**0.018** (0.016-0.020)	**0.020** (0.018-0.024)	**0.022** (0.019-0.026)	**0.024** (0.020-0.029)	**0.026** (0.021-0.032)	**0.028** (0.022-0.036)	**0.029** (0.022-0.039)
60-day	**0.008** (0.008-0.009)	**0.011** (0.010-0.012)	**0.014** (0.012-0.015)	**0.016** (0.014-0.018)	**0.018** (0.016-0.021)	**0.020** (0.017-0.023)	**0.021** (0.018-0.026)	**0.023** (0.018-0.028)	**0.024** (0.019-0.031)	**0.025** (0.019-0.034)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

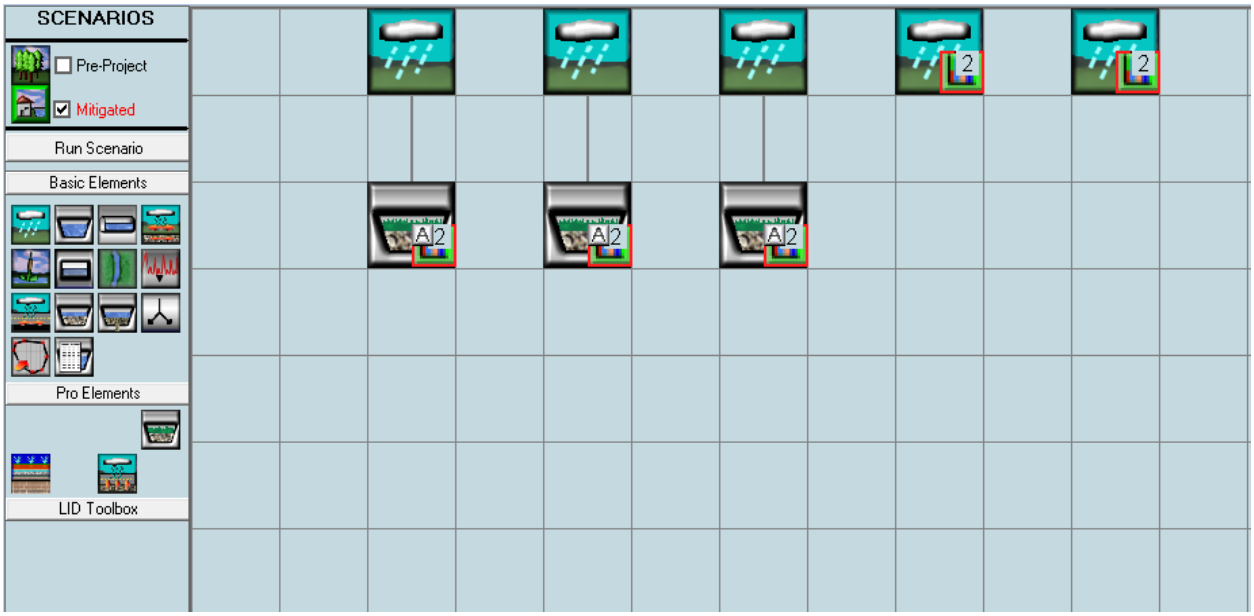
APPENDIX 14

Bay Area Hydrology Model Results

Existing BAHM Model



Proposed BAHM Model



BAHM2013
PROJECT REPORT

Project Name: Stone_Pine_Cove
Site Name: Stone Pine Cove
Site Address: 880 Stone Pine Road
City : Half Moon Bay
Report Date: 2/28/2024
Gage : San Francisco
Data Start : 1959/10/01
Data End : 1997/09/30
Precip Scale: 2.00
Version Date: 2018/11/27

Low Flow Threshold for POC 1 : 10 Percent of the 2 Year

High Flow Threshold for POC 1: 10 year

Low Flow Threshold for POC 2 : 10 Percent of the 2 Year

High Flow Threshold for POC 2: 10 year

PREDEVELOPED LAND USE

Name : DMA 1
Bypass: No

GroundWater: No

Pervious Land Use	acre
C D,Grass,Very(>20%)	5.07
Pervious Total	5.07

Impervious Land Use	acre
Roads,Flat(0-5%)	0.394
Impervious Total	0.394
Basin Total	5.464

Element Flows To:

Surface	Interflow	Groundwater
Surface oretention 1	Surface oretention 1	

Name : DMA 2

Bypass: No

GroundWater: No

Pervious Land Use	acre
B,Grass,Flat(0-5%)	3.841
Pervious Total	3.841

Impervious Land Use	acre
Roads,Flat(0-5%)	0.202
Roof Area	0.015
Impervious Total	0.217
Basin Total	4.058

Element Flows To:

Surface	Interflow	Groundwater

Name : Bioretention 1
Bottom Length: 170.00 ft.
Bottom Width: 3.77 ft.
Material thickness of first layer: 1.5
Material type for first layer: BAHM 5
Material thickness of second layer: 1
Material type for second layer: GRAVEL
Material thickness of third layer: 0
Material type for third layer: GRAVEL
Underdrain used
Underdrain Diameter (feet): 0.334
Orifice Diameter (in.): 4
Offset (in.): 0
Flow Through Underdrain (ac-ft.): 96.744
Total Outflow (ac-ft.): 231.041
Percent Through Underdrain: 41.87
Discharge Structure
Riser Height: 0.5 ft.
Riser Diameter: 24 in.

Element Flows To:

Outlet 1	Outlet 2

Bioretention 1 Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0797	0.0000	0.0000	0.0000
0.0385	0.0797	0.0002	0.0000	0.0000

0.0769	0.0786	0.0005	0.0000	0.0000
0.1154	0.0775	0.0007	0.0000	0.0000
0.1538	0.0765	0.0010	0.0000	0.0000
0.1923	0.0754	0.0012	0.0000	0.0000
0.2308	0.0743	0.0015	0.0000	0.0000
0.2692	0.0733	0.0018	0.0000	0.0000
0.3077	0.0722	0.0022	0.0000	0.0000
0.3462	0.0711	0.0025	0.0000	0.0000
0.3846	0.0701	0.0028	0.0000	0.0000
0.4231	0.0690	0.0032	0.0033	0.0000
0.4615	0.0680	0.0036	0.0039	0.0000
0.5000	0.0669	0.0039	0.0046	0.0000
0.5385	0.0659	0.0043	0.0053	0.0000
0.5769	0.0648	0.0048	0.0062	0.0000
0.6154	0.0638	0.0052	0.0072	0.0000
0.6538	0.0627	0.0056	0.0082	0.0000
0.6923	0.0617	0.0061	0.0094	0.0000
0.7308	0.0607	0.0065	0.0107	0.0000
0.7692	0.0596	0.0070	0.0121	0.0000
0.8077	0.0586	0.0075	0.0136	0.0000
0.8462	0.0576	0.0080	0.0153	0.0000
0.8846	0.0565	0.0086	0.0171	0.0000
0.9231	0.0555	0.0091	0.0189	0.0000
0.9615	0.0545	0.0097	0.0190	0.0000
1.0000	0.0535	0.0102	0.0211	0.0000
1.0385	0.0525	0.0108	0.0233	0.0000
1.0769	0.0514	0.0114	0.0256	0.0000
1.1154	0.0504	0.0120	0.0281	0.0000
1.1538	0.0494	0.0127	0.0307	0.0000
1.1923	0.0484	0.0133	0.0335	0.0000
1.2308	0.0474	0.0140	0.0364	0.0000
1.2692	0.0464	0.0146	0.0395	0.0000
1.3077	0.0454	0.0153	0.0427	0.0000
1.3462	0.0444	0.0160	0.0451	0.0000
1.3846	0.0434	0.0167	0.0461	0.0000
1.4231	0.0424	0.0175	0.0496	0.0000
1.4615	0.0414	0.0182	0.0533	0.0000
1.5000	0.0404	0.0190	0.0572	0.0000
1.5385	0.0395	0.0199	0.0612	0.0000
1.5769	0.0385	0.0207	0.0654	0.0000
1.6154	0.0375	0.0216	0.0697	0.0000
1.6538	0.0365	0.0225	0.0988	0.0000
1.6923	0.0355	0.0234	0.0988	0.0000
1.7308	0.0346	0.0243	0.0988	0.0000
1.7692	0.0336	0.0253	0.0988	0.0000
1.8077	0.0326	0.0263	0.0988	0.0000
1.8462	0.0317	0.0272	0.0988	0.0000
1.8846	0.0307	0.0282	0.0988	0.0000
1.9231	0.0297	0.0292	0.0988	0.0000
1.9615	0.0288	0.0303	0.0988	0.0000
2.0000	0.0278	0.0313	0.0988	0.0000
2.0385	0.0269	0.0324	0.0988	0.0000
2.0769	0.0259	0.0334	0.0988	0.0000
2.1154	0.0250	0.0345	0.0988	0.0000
2.1538	0.0240	0.0356	0.0988	0.0000
2.1923	0.0231	0.0368	0.0988	0.0000
2.2308	0.0221	0.0379	0.0988	0.0000

2.2692	0.0212	0.0391	0.0988	0.0000
2.3077	0.0203	0.0402	0.0988	0.0000
2.3462	0.0193	0.0414	0.0988	0.0000
2.3846	0.0184	0.0427	0.0988	0.0000
2.4231	0.0175	0.0439	0.0988	0.0000
2.4615	0.0165	0.0451	0.0988	0.0000
2.5000	0.0156	0.0464	0.0988	0.0000
2.5000	0.0147	0.0464	0.0988	0.0000

Surface oretention 1 Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Wetted Surface
2.5000	0.0797	0.0464	0.0000	0.0741	0.0000
2.5385	0.0808	0.0495	0.0000	0.0741	0.0000
2.5769	0.0819	0.0526	0.0000	0.0779	0.0000
2.6154	0.0829	0.0558	0.0000	0.0798	0.0000
2.6538	0.0840	0.0590	0.0000	0.0817	0.0000
2.6923	0.0851	0.0622	0.0000	0.0836	0.0000
2.7308	0.0862	0.0655	0.0000	0.0855	0.0000
2.7692	0.0873	0.0689	0.0000	0.0874	0.0000
2.8077	0.0884	0.0723	0.0000	0.0893	0.0000
2.8462	0.0895	0.0757	0.0000	0.0912	0.0000
2.8846	0.0906	0.0791	0.0000	0.0931	0.0000
2.9231	0.0917	0.0826	0.0000	0.0950	0.0000
2.9615	0.0928	0.0862	0.0000	0.0969	0.0000
3.0000	0.0939	0.0898	0.0000	0.0988	0.0000
3.0385	0.0950	0.0934	0.1601	0.1007	0.0000
3.0769	0.0962	0.0971	0.4524	0.1026	0.0000
3.1154	0.0973	0.1008	0.8304	0.1045	0.0000
3.1538	0.0984	0.1046	1.2766	0.1064	0.0000
3.1923	0.0995	0.1084	1.7799	0.1083	0.0000
3.2308	0.1006	0.1122	2.3316	0.1102	0.0000
3.2692	0.1018	0.1161	2.9237	0.1121	0.0000
3.3077	0.1029	0.1201	3.5484	0.1140	0.0000
3.3462	0.1040	0.1240	4.1981	0.1159	0.0000
3.3846	0.1052	0.1281	4.8649	0.1178	0.0000
3.4231	0.1063	0.1321	5.5408	0.1197	0.0000
3.4615	0.1074	0.1362	6.2177	0.1216	0.0000
3.5000	0.1086	0.1404	6.8875	0.1235	0.0000

Name : Surface oretention 1

Element Flows To:

Outlet 1	**Outlet 2**
Bioretention 1	

Name : DMA 3
Bypass: No

GroundWater: No

Pervious Land Use	**acre**
B,Grass,Flat(0-5%)	**1.192**
B,Grass,Mod(5-10%)	**2.296**
C D,Grass,Very(>20%)	**.138**

Pervious Total	3.626

Impervious Land Use	acre
Roads,Flat(0-5%)	0.184
Roof Area	0.002
Impervious Total	0.186
Basin Total	3.812

Element Flows To:
Surface Interflow Groundwater

Name : DMA 4
Bypass: No

GroundWater: No

Pervious Land Use	acre
B,Grass,Flat(0-5%)	1.9
B,Grass,Mod(5-10%)	1.377
C D,Grass,Very(>20%)	.321
Pervious Total	3.598

Impervious Land Use	acre
Roads,Flat(0-5%)	1.6
Roof Area	0.192
Impervious Total	1.792
Basin Total	5.39

Element Flows To:
Surface Interflow Groundwater

MITIGATED LAND USE

Name : DMA 3
Bypass: No

GroundWater: No

Pervious Land Use	acre

B,Grass,Flat(0-5%)	**.165**
Pervious Total	**0.165**

Impervious Land Use	**acre**
Roads,Flat(0-5%)	**0.157**
Roof Area	**0.074**
Impervious Total	**0.231**
Basin Total	**0.396**

Element Flows To:

Surface	**Interflow**	**Groundwater**
Surface retention 3	Surface retention 3	

Name : Bioretention 3
Bottom Length: 50.00 ft.
Bottom Width: 7.00 ft.
Material thickness of first layer: 1.5
Material type for first layer: BAHM 5
Material thickness of second layer: 1
Material type for second layer: GRAVEL
Material thickness of third layer: 0
Material type for third layer: GRAVEL
Underdrain used
Underdrain Diameter (feet): 0.334
Orifice Diameter (in.): 3
Offset (in.): 0
Flow Through Underdrain (ac-ft.): 21.419
Total Outflow (ac-ft.): 21.741
Percent Through Underdrain: 98.52
Discharge Structure
Riser Height: 0.75 ft.
Riser Diameter: 24 in.

Element Flows To:

Outlet 1	**Outlet 2**

Bioretention 3 Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0328	0.0000	0.0000	0.0000
0.0412	0.0325	0.0001	0.0000	0.0000
0.0824	0.0320	0.0003	0.0000	0.0000
0.1236	0.0315	0.0004	0.0000	0.0000
0.1648	0.0310	0.0005	0.0000	0.0000
0.2060	0.0306	0.0007	0.0000	0.0000
0.2473	0.0301	0.0008	0.0000	0.0000

0.2885	0.0296	0.0010	0.0000	0.0000
0.3297	0.0291	0.0012	0.0000	0.0000
0.3709	0.0287	0.0013	0.0000	0.0000
0.4121	0.0282	0.0015	0.0017	0.0000
0.4533	0.0277	0.0017	0.0020	0.0000
0.4945	0.0273	0.0019	0.0024	0.0000
0.5357	0.0268	0.0021	0.0028	0.0000
0.5769	0.0263	0.0023	0.0033	0.0000
0.6181	0.0259	0.0025	0.0039	0.0000
0.6593	0.0254	0.0027	0.0045	0.0000
0.7005	0.0250	0.0029	0.0052	0.0000
0.7418	0.0245	0.0031	0.0060	0.0000
0.7830	0.0241	0.0034	0.0068	0.0000
0.8242	0.0237	0.0036	0.0077	0.0000
0.8654	0.0232	0.0038	0.0087	0.0000
0.9066	0.0228	0.0041	0.0098	0.0000
0.9478	0.0224	0.0043	0.0110	0.0000
0.9890	0.0219	0.0046	0.0119	0.0000
1.0302	0.0215	0.0048	0.0122	0.0000
1.0714	0.0211	0.0051	0.0135	0.0000
1.1126	0.0207	0.0054	0.0150	0.0000
1.1538	0.0202	0.0057	0.0165	0.0000
1.1951	0.0198	0.0060	0.0181	0.0000
1.2363	0.0194	0.0063	0.0198	0.0000
1.2775	0.0190	0.0066	0.0216	0.0000
1.3187	0.0186	0.0069	0.0235	0.0000
1.3599	0.0182	0.0072	0.0255	0.0000
1.4011	0.0178	0.0075	0.0276	0.0000
1.4423	0.0174	0.0078	0.0288	0.0000
1.4835	0.0170	0.0082	0.0298	0.0000
1.5247	0.0166	0.0085	0.0321	0.0000
1.5659	0.0162	0.0089	0.0345	0.0000
1.6071	0.0158	0.0093	0.0369	0.0000
1.6484	0.0154	0.0097	0.0395	0.0000
1.6896	0.0151	0.0101	0.0608	0.0000
1.7308	0.0147	0.0105	0.0608	0.0000
1.7720	0.0143	0.0109	0.0608	0.0000
1.8132	0.0139	0.0113	0.0608	0.0000
1.8544	0.0136	0.0118	0.0608	0.0000
1.8956	0.0132	0.0122	0.0608	0.0000
1.9368	0.0128	0.0126	0.0608	0.0000
1.9780	0.0125	0.0131	0.0608	0.0000
2.0192	0.0121	0.0136	0.0608	0.0000
2.0604	0.0118	0.0140	0.0608	0.0000
2.1016	0.0114	0.0145	0.0608	0.0000
2.1429	0.0111	0.0150	0.0608	0.0000
2.1841	0.0107	0.0155	0.0608	0.0000
2.2253	0.0104	0.0160	0.0608	0.0000
2.2665	0.0100	0.0165	0.0608	0.0000
2.3077	0.0097	0.0170	0.0608	0.0000
2.3489	0.0094	0.0176	0.0608	0.0000
2.3901	0.0090	0.0181	0.0608	0.0000
2.4313	0.0087	0.0186	0.0608	0.0000
2.4725	0.0084	0.0192	0.0608	0.0000
2.5000	0.0080	0.0196	0.0608	0.0000

Surface retention 3 Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Wetted Surface
2.5000	0.0328	0.0196	0.0000	0.0405	0.0000
2.5412	0.0333	0.0209	0.0000	0.0405	0.0000
2.5824	0.0338	0.0223	0.0000	0.0427	0.0000
2.6236	0.0343	0.0237	0.0000	0.0438	0.0000
2.6648	0.0348	0.0251	0.0000	0.0450	0.0000
2.7060	0.0353	0.0266	0.0000	0.0461	0.0000
2.7473	0.0358	0.0280	0.0000	0.0472	0.0000
2.7885	0.0364	0.0295	0.0000	0.0483	0.0000
2.8297	0.0369	0.0310	0.0000	0.0494	0.0000
2.8709	0.0374	0.0326	0.0000	0.0505	0.0000
2.9121	0.0379	0.0341	0.0000	0.0516	0.0000
2.9533	0.0384	0.0357	0.0000	0.0528	0.0000
2.9945	0.0390	0.0373	0.0000	0.0539	0.0000
3.0357	0.0395	0.0389	0.0000	0.0550	0.0000
3.0769	0.0400	0.0405	0.0000	0.0561	0.0000
3.1181	0.0406	0.0422	0.0000	0.0572	0.0000
3.1593	0.0411	0.0439	0.0000	0.0583	0.0000
3.2005	0.0416	0.0456	0.0000	0.0594	0.0000
3.2418	0.0422	0.0473	0.0000	0.0605	0.0000
3.2830	0.0427	0.0491	0.1270	0.0617	0.0000
3.3242	0.0433	0.0508	0.4284	0.0628	0.0000
3.3654	0.0438	0.0526	0.8304	0.0639	0.0000
3.4066	0.0444	0.0544	1.3108	0.0650	0.0000
3.4478	0.0449	0.0563	1.8560	0.0661	0.0000
3.4890	0.0455	0.0581	2.4553	0.0672	0.0000
3.5302	0.0461	0.0600	3.0991	0.0683	0.0000
3.5714	0.0466	0.0619	3.7779	0.0694	0.0000
3.6126	0.0472	0.0639	4.4822	0.0706	0.0000
3.6538	0.0478	0.0658	5.2022	0.0717	0.0000
3.6951	0.0483	0.0678	5.9280	0.0728	0.0000
3.7363	0.0489	0.0698	6.6496	0.0739	0.0000
3.7500	0.0491	0.0705	7.3572	0.0743	0.0000

Name : Surface retention 3

Element Flows To:

Outlet 1	Outlet 2
Bioretention 3	

Name : DMA 1
Bypass: No

GroundWater: No

Pervious Land Use	acre
C D,Grass,Very(>20%)	4.518
B,Grass,Flat(0-5%)	.849
Pervious Total	5.367

Impervious Land Use	acre
Roads,Flat(0-5%)	2.518
Roof Area	0.544

Impervious Total	**3.062**
Basin Total	**8.429**

Element Flows To:

Surface	Interflow	Groundwater
Surface retention 1	Surface retention 1	

Name : DMA 2
Bypass: No

GroundWater: No

Pervious Land Use	acre
B,Grass,Flat(0-5%)	.053
Pervious Total	**0.053**

Impervious Land Use	acre
Roads,Flat(0-5%)	0.347
Roof Area	0.092
Impervious Total	**0.439**
Basin Total	**0.492**

Element Flows To:

Surface	Interflow	Groundwater
Surface retention 2	Surface retention 2	

Name : Bioretention 2
Bottom Length: 44.00 ft.
Bottom Width: 15.00 ft.
Material thickness of first layer: 1.5
Material type for first layer: BAHM 5
Material thickness of second layer: 1
Material type for second layer: GRAVEL
Material thickness of third layer: 0
Material type for third layer: GRAVEL
Underdrain used
Underdrain Diameter (feet): 0.334
Orifice Diameter (in.): 3
Offset (in.): 0
Flow Through Underdrain (ac-ft.): 34.383
Total Outflow (ac-ft.): 34.813
Percent Through Underdrain: 98.77

Discharge Structure
Riser Height: 0.75 ft.
Riser Diameter: 24 in.

Element Flows To:
Outlet 1 **Outlet 2**

Bioretention 2 Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0406	0.0000	0.0000	0.0000
0.0412	0.0403	0.0002	0.0000	0.0000
0.0824	0.0398	0.0005	0.0000	0.0000
0.1236	0.0393	0.0007	0.0000	0.0000
0.1648	0.0388	0.0010	0.0000	0.0000
0.2060	0.0383	0.0013	0.0000	0.0000
0.2473	0.0378	0.0015	0.0000	0.0000
0.2885	0.0373	0.0018	0.0000	0.0000
0.3297	0.0368	0.0021	0.0000	0.0000
0.3709	0.0364	0.0024	0.0000	0.0000
0.4121	0.0359	0.0026	0.0032	0.0000
0.4533	0.0354	0.0029	0.0038	0.0000
0.4945	0.0349	0.0032	0.0045	0.0000
0.5357	0.0345	0.0035	0.0053	0.0000
0.5769	0.0340	0.0039	0.0062	0.0000
0.6181	0.0335	0.0042	0.0073	0.0000
0.6593	0.0331	0.0045	0.0085	0.0000
0.7005	0.0326	0.0048	0.0098	0.0000
0.7418	0.0321	0.0052	0.0112	0.0000
0.7830	0.0317	0.0055	0.0128	0.0000
0.8242	0.0312	0.0059	0.0145	0.0000
0.8654	0.0308	0.0062	0.0164	0.0000
0.9066	0.0303	0.0066	0.0185	0.0000
0.9478	0.0299	0.0069	0.0207	0.0000
0.9890	0.0295	0.0073	0.0225	0.0000
1.0302	0.0290	0.0077	0.0230	0.0000
1.0714	0.0286	0.0081	0.0255	0.0000
1.1126	0.0282	0.0085	0.0282	0.0000
1.1538	0.0277	0.0089	0.0311	0.0000
1.1951	0.0273	0.0093	0.0341	0.0000
1.2363	0.0269	0.0097	0.0373	0.0000
1.2775	0.0265	0.0101	0.0407	0.0000
1.3187	0.0260	0.0105	0.0443	0.0000
1.3599	0.0256	0.0109	0.0480	0.0000
1.4011	0.0252	0.0114	0.0520	0.0000
1.4423	0.0248	0.0118	0.0542	0.0000
1.4835	0.0244	0.0123	0.0561	0.0000
1.5247	0.0240	0.0128	0.0604	0.0000
1.5659	0.0236	0.0133	0.0650	0.0000
1.6071	0.0232	0.0138	0.0697	0.0000
1.6484	0.0228	0.0143	0.0745	0.0000
1.6896	0.0224	0.0149	0.0865	0.0000
1.7308	0.0220	0.0154	0.1130	0.0000
1.7720	0.0216	0.0159	0.1146	0.0000

1.8132	0.0213	0.0165	0.1146	0.0000
1.8544	0.0209	0.0171	0.1146	0.0000
1.8956	0.0205	0.0176	0.1146	0.0000
1.9368	0.0201	0.0182	0.1146	0.0000
1.9780	0.0197	0.0188	0.1146	0.0000
2.0192	0.0194	0.0194	0.1146	0.0000
2.0604	0.0190	0.0200	0.1146	0.0000
2.1016	0.0186	0.0206	0.1146	0.0000
2.1429	0.0183	0.0212	0.1146	0.0000
2.1841	0.0179	0.0218	0.1146	0.0000
2.2253	0.0176	0.0225	0.1146	0.0000
2.2665	0.0172	0.0231	0.1146	0.0000
2.3077	0.0169	0.0238	0.1146	0.0000
2.3489	0.0165	0.0244	0.1146	0.0000
2.3901	0.0162	0.0251	0.1146	0.0000
2.4313	0.0158	0.0258	0.1146	0.0000
2.4725	0.0155	0.0265	0.1146	0.0000
2.5000	0.0152	0.0269	0.1146	0.0000

Surface retention 2 Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Wetted Surface
2.5000	0.0406	0.0269	0.0000	0.0764	0.0000
2.5412	0.0411	0.0286	0.0000	0.0764	0.0000
2.5824	0.0416	0.0303	0.0000	0.0806	0.0000
2.6236	0.0422	0.0320	0.0000	0.0827	0.0000
2.6648	0.0427	0.0338	0.0000	0.0848	0.0000
2.7060	0.0432	0.0355	0.0000	0.0869	0.0000
2.7473	0.0437	0.0373	0.0000	0.0890	0.0000
2.7885	0.0442	0.0392	0.0000	0.0911	0.0000
2.8297	0.0448	0.0410	0.0000	0.0932	0.0000
2.8709	0.0453	0.0428	0.0000	0.0953	0.0000
2.9121	0.0458	0.0447	0.0000	0.0974	0.0000
2.9533	0.0464	0.0466	0.0000	0.0995	0.0000
2.9945	0.0469	0.0485	0.0000	0.1016	0.0000
3.0357	0.0474	0.0505	0.0000	0.1037	0.0000
3.0769	0.0480	0.0525	0.0000	0.1058	0.0000
3.1181	0.0485	0.0544	0.0000	0.1079	0.0000
3.1593	0.0491	0.0564	0.0000	0.1100	0.0000
3.2005	0.0496	0.0585	0.0000	0.1121	0.0000
3.2418	0.0502	0.0605	0.0000	0.1142	0.0000
3.2830	0.0507	0.0626	0.1270	0.1163	0.0000
3.3242	0.0513	0.0647	0.4284	0.1184	0.0000
3.3654	0.0519	0.0668	0.8304	0.1205	0.0000
3.4066	0.0524	0.0690	1.3108	0.1226	0.0000
3.4478	0.0530	0.0712	1.8560	0.1247	0.0000
3.4890	0.0536	0.0734	2.4553	0.1268	0.0000
3.5302	0.0541	0.0756	3.0991	0.1289	0.0000
3.5714	0.0547	0.0778	3.7779	0.1310	0.0000
3.6126	0.0553	0.0801	4.4822	0.1331	0.0000
3.6538	0.0559	0.0824	5.2022	0.1351	0.0000
3.6951	0.0565	0.0847	5.9280	0.1372	0.0000
3.7363	0.0571	0.0870	6.6496	0.1393	0.0000
3.7500	0.0572	0.0878	7.3572	0.1400	0.0000

Name : Surface retention 2

Element Flows To:
Outlet 1 **Outlet 2**
Bioretention 2

Name : Bioretention 1
Bottom Length: 383.33 ft.
Bottom Width: 12.00 ft.
Material thickness of first layer: 1.5
Material type for first layer: BAHM 5
Material thickness of second layer: 1
Material type for second layer: GRAVEL
Material thickness of third layer: 0
Material type for third layer: GRAVEL
Underdrain used
Underdrain Diameter (feet): 0.334
Orifice Diameter (in.): 3
Offset (in.): 0
Flow Through Underdrain (ac-ft.): 335.076
Total Outflow (ac-ft.): 431.152
Percent Through Underdrain: 77.72
Discharge Structure
Riser Height: 0.75 ft.
Riser Diameter: 24 in.

Element Flows To:
Outlet 1 **Outlet 2**

Bioretention 1 Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.2469	0.0000	0.0000	0.0000
0.0412	0.2453	0.0017	0.0000	0.0000
0.0824	0.2429	0.0034	0.0000	0.0000
0.1236	0.2405	0.0051	0.0000	0.0000
0.1648	0.2381	0.0069	0.0000	0.0000
0.2060	0.2357	0.0087	0.0000	0.0000
0.2473	0.2333	0.0106	0.0000	0.0000
0.2885	0.2309	0.0124	0.0000	0.0000
0.3297	0.2285	0.0144	0.0000	0.0000
0.3709	0.2261	0.0163	0.0000	0.0000
0.4121	0.2237	0.0183	0.0224	0.0000
0.4533	0.2213	0.0203	0.0265	0.0000
0.4945	0.2189	0.0224	0.0314	0.0000
0.5357	0.2165	0.0245	0.0371	0.0000
0.5769	0.2142	0.0266	0.0435	0.0000
0.6181	0.2118	0.0288	0.0485	0.0000
0.6593	0.2094	0.0310	0.0591	0.0000
0.7005	0.2071	0.0332	0.0604	0.0000
0.7418	0.2047	0.0355	0.0702	0.0000
0.7830	0.2023	0.0378	0.0783	0.0000
0.8242	0.2000	0.0402	0.0788	0.0000
0.8654	0.1976	0.0425	0.0865	0.0000

0.9066	0.1952	0.0450	0.0935	0.0000
0.9478	0.1929	0.0474	0.1000	0.0000
0.9890	0.1905	0.0499	0.1061	0.0000
1.0302	0.1882	0.0524	0.1119	0.0000
1.0714	0.1859	0.0550	0.1173	0.0000
1.1126	0.1835	0.0576	0.1226	0.0000
1.1538	0.1812	0.0602	0.1276	0.0000
1.1951	0.1788	0.0629	0.1324	0.0000
1.2363	0.1765	0.0656	0.1370	0.0000
1.2775	0.1742	0.0684	0.1415	0.0000
1.3187	0.1719	0.0711	0.1458	0.0000
1.3599	0.1695	0.0740	0.1501	0.0000
1.4011	0.1672	0.0768	0.1542	0.0000
1.4423	0.1649	0.0797	0.1582	0.0000
1.4835	0.1626	0.0826	0.1620	0.0000
1.5247	0.1603	0.0859	0.1658	0.0000
1.5659	0.1580	0.0892	0.1696	0.0000
1.6071	0.1556	0.0925	0.1732	0.0000
1.6484	0.1533	0.0958	0.1768	0.0000
1.6896	0.1510	0.0992	0.1802	0.0000
1.7308	0.1487	0.1027	0.1837	0.0000
1.7720	0.1464	0.1062	0.1870	0.0000
1.8132	0.1442	0.1097	0.1903	0.0000
1.8544	0.1419	0.1132	0.1936	0.0000
1.8956	0.1396	0.1168	0.1968	0.0000
1.9368	0.1373	0.1205	0.1999	0.0000
1.9780	0.1350	0.1242	0.2030	0.0000
2.0192	0.1327	0.1279	0.2061	0.0000
2.0604	0.1305	0.1317	0.2091	0.0000
2.1016	0.1282	0.1355	0.2120	0.0000
2.1429	0.1259	0.1393	0.2150	0.0000
2.1841	0.1236	0.1432	0.2179	0.0000
2.2253	0.1214	0.1471	0.2207	0.0000
2.2665	0.1191	0.1511	0.2236	0.0000
2.3077	0.1169	0.1551	0.2264	0.0000
2.3489	0.1146	0.1591	0.2291	0.0000
2.3901	0.1123	0.1632	0.2319	0.0000
2.4313	0.1101	0.1674	0.2352	0.0000
2.4725	0.1078	0.1715	0.2409	0.0000
2.5000	0.1056	0.1744	0.2459	0.0000

Surface retention 1 Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Wetted Surface
2.5000	0.2469	0.1744	0.0000	0.5324	0.0000
2.5412	0.2493	0.1846	0.0000	0.5324	0.0000
2.5824	0.2517	0.1949	0.0000	0.5617	0.0000
2.6236	0.2542	0.2053	0.0000	0.5763	0.0000
2.6648	0.2566	0.2158	0.0000	0.5909	0.0000
2.7060	0.2590	0.2265	0.0000	0.6055	0.0000
2.7473	0.2614	0.2372	0.0000	0.6202	0.0000
2.7885	0.2639	0.2480	0.0000	0.6348	0.0000
2.8297	0.2663	0.2589	0.0000	0.6494	0.0000
2.8709	0.2687	0.2700	0.0000	0.6640	0.0000
2.9121	0.2712	0.2811	0.0000	0.6787	0.0000
2.9533	0.2736	0.2923	0.0000	0.6933	0.0000
2.9945	0.2761	0.3036	0.0000	0.7079	0.0000
3.0357	0.2785	0.3151	0.0000	0.7225	0.0000

3.0769	0.2810	0.3266	0.0000	0.7372	0.0000
3.1181	0.2834	0.3382	0.0000	0.7518	0.0000
3.1593	0.2859	0.3500	0.0000	0.7664	0.0000
3.2005	0.2883	0.3618	0.0000	0.7811	0.0000
3.2418	0.2908	0.3737	0.0000	0.7957	0.0000
3.2830	0.2933	0.3858	0.1270	0.8103	0.0000
3.3242	0.2957	0.3979	0.4284	0.8249	0.0000
3.3654	0.2982	0.4101	0.8304	0.8396	0.0000
3.4066	0.3007	0.4225	1.3108	0.8542	0.0000
3.4478	0.3032	0.4349	1.8560	0.8688	0.0000
3.4890	0.3056	0.4475	2.4553	0.8834	0.0000
3.5302	0.3081	0.4601	3.0991	0.8981	0.0000
3.5714	0.3106	0.4729	3.7779	0.9127	0.0000
3.6126	0.3131	0.4857	4.4822	0.9273	0.0000
3.6538	0.3156	0.4987	5.2022	0.9419	0.0000
3.6951	0.3181	0.5117	5.9280	0.9566	0.0000
3.7363	0.3206	0.5249	6.6496	0.9712	0.0000
3.7500	0.3214	0.5293	7.3572	0.9761	0.0000

Name : Surface retention 1

Element Flows To:

Outlet 1	**Outlet 2**
Bioretention 1	

Name : DMA 4
Bypass: Yes

GroundWater: No

Pervious Land Use	**acre**
B,Grass,Flat(0-5%)	**1.194**
B,Grass,Mod(5-10%)	**2.296**
C D,Grass,Very(>20%)	**.138**
Pervious Total	**3.628**

Impervious Land Use	**acre**
Roads,Flat(0-5%)	**0.184**
Impervious Total	**0.184**
Basin Total	**3.812**

Element Flows To:

Surface	**Interflow**	**Groundwater**

Name : DMA 5

Bypass: Yes

GroundWater: No

Pervious Land Use	acre
B,Grass,Flat(0-5%)	1.9
B,Grass,Mod(5-10%)	1.377
C D,Grass,Very(>20%)	.321
Pervious Total	3.598

Impervious Land Use	acre
Roads,Flat(0-5%)	1.6
Roof Area	0.192
Impervious Total	1.792
Basin Total	5.39

Element Flows To:

Surface	Interflow	Groundwater

ANALYSIS RESULTS

POC #1 was not reported because POC must exist in both scenarios and both scenarios must have been run.

Predeveloped Landuse Totals for POC #2
Total Pervious Area:16.135
Total Impervious Area:2.589

Mitigated Landuse Totals for POC #2
Total Pervious Area:12.811
Total Impervious Area:5.708

Flow Frequency Return Periods for Predeveloped. POC #2

Return Period	Flow(cfs)
2 year	6.189427
5 year	12.418056
10 year	15.643854
25 year	21.558818

Flow Frequency Return Periods for Mitigated. POC #2

Return Period	Flow(cfs)
2 year	6.067006
5 year	11.680992

10 year	14.627208
25 year	19.993079

Annual Peaks for Predeveloped and Mitigated. POC #2

Year	Predeveloped	Mitigated
1960	5.014	3.642
1961	4.093	3.885
1962	9.118	7.879
1963	6.292	5.570
1964	4.883	5.175
1965	4.742	4.023
1966	4.440	4.508
1967	7.561	7.389
1968	9.841	8.264
1969	11.559	10.207
1970	15.623	15.991
1971	9.860	8.008
1972	3.348	1.833
1973	9.728	9.620
1974	5.330	5.306
1975	6.003	5.320
1976	0.742	0.943
1977	3.951	3.365
1978	4.637	3.818
1979	5.524	5.844
1980	5.884	5.711
1981	4.213	6.044
1982	11.862	11.601
1983	33.895	30.181
1984	7.352	7.405
1985	8.552	6.212
1986	16.713	14.522
1987	6.220	6.236
1988	14.958	12.049
1989	7.140	6.186
1990	6.160	6.091
1991	3.184	2.666
1992	15.894	14.425
1993	10.451	10.379
1994	5.873	4.470
1995	15.032	15.895
1996	3.203	2.734
1997	15.146	13.130

Ranked Annual Peaks for Predeveloped and Mitigated. POC #2

Rank	Predeveloped	Mitigated
1	33.8949	30.1807
2	16.7125	15.9908
3	15.8941	15.8945
4	15.6230	14.5216
5	15.1460	14.4251
6	15.0316	13.1295
7	14.9582	12.0485
8	11.8624	11.6006
9	11.5594	10.3792

10	10.4510	10.2068
11	9.8600	9.6201
12	9.8413	8.2636
13	9.7276	8.0078
14	9.1182	7.8795
15	8.5517	7.4050
16	7.5613	7.3893
17	7.3522	6.2365
18	7.1400	6.2116
19	6.2923	6.1860
20	6.2204	6.0914
21	6.1600	6.0439
22	6.0025	5.8437
23	5.8836	5.7113
24	5.8730	5.5699
25	5.5239	5.3197
26	5.3296	5.3065
27	5.0144	5.1750
28	4.8834	4.5076
29	4.7416	4.4696
30	4.6367	4.0234
31	4.4402	3.8854
32	4.2135	3.8178
33	4.0929	3.6425
34	3.9514	3.3652
35	3.3483	2.7337
36	3.2034	2.6661
37	3.1836	1.8325
38	0.7423	0.9426

POC #2
The Facility PASSED

The Facility PASSED.

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.6189	2250	2424	107	Pass
0.7707	1852	1777	95	Pass
0.9225	1566	1404	89	Pass
1.0742	1318	1147	87	Pass
1.2260	1137	967	85	Pass
1.3778	982	831	84	Pass
1.5295	873	726	83	Pass
1.6813	764	639	83	Pass
1.8331	692	568	82	Pass
1.9848	620	502	80	Pass
2.1366	544	460	84	Pass
2.2884	497	403	81	Pass
2.4401	449	367	81	Pass
2.5919	406	338	83	Pass
2.7437	364	312	85	Pass
2.8954	324	278	85	Pass
3.0472	294	257	87	Pass
3.1990	263	228	86	Pass
3.3507	238	210	88	Pass
3.5025	207	193	93	Pass

3.6543	192	172	89	Pass
3.8060	179	151	84	Pass
3.9578	165	133	80	Pass
4.1096	147	122	82	Pass
4.2613	134	112	83	Pass
4.4131	123	106	86	Pass
4.5649	118	93	78	Pass
4.7166	103	86	83	Pass
4.8684	95	80	84	Pass
5.0202	88	79	89	Pass
5.1719	82	75	91	Pass
5.3237	78	69	88	Pass
5.4755	73	66	90	Pass
5.6272	69	64	92	Pass
5.7790	65	62	95	Pass
5.9308	58	54	93	Pass
6.0825	55	50	90	Pass
6.2343	49	45	91	Pass
6.3861	47	43	91	Pass
6.5378	44	40	90	Pass
6.6896	42	38	90	Pass
6.8414	41	37	90	Pass
6.9931	38	35	92	Pass
7.1449	37	32	86	Pass
7.2967	34	32	94	Pass
7.4484	33	28	84	Pass
7.6002	31	28	90	Pass
7.7520	31	28	90	Pass
7.9037	29	27	93	Pass
8.0555	28	24	85	Pass
8.2073	27	23	85	Pass
8.3590	26	21	80	Pass
8.5108	24	21	87	Pass
8.6626	23	20	86	Pass
8.8143	23	19	82	Pass
8.9661	23	18	78	Pass
9.1179	22	17	77	Pass
9.2696	21	17	80	Pass
9.4214	20	16	80	Pass
9.5732	20	16	80	Pass
9.7249	18	15	83	Pass
9.8767	15	15	100	Pass
10.0285	14	14	100	Pass
10.1802	14	14	100	Pass
10.3320	13	12	92	Pass
10.4838	12	11	91	Pass
10.6356	12	11	91	Pass
10.7873	12	10	83	Pass
10.9391	11	10	90	Pass
11.0909	11	10	90	Pass
11.2426	11	10	90	Pass
11.3944	11	10	90	Pass
11.5462	11	10	90	Pass
11.6979	10	9	90	Pass
11.8497	10	9	90	Pass
12.0015	9	9	100	Pass
12.1532	9	8	88	Pass

12.3050	9	8	88	Pass
12.4568	9	8	88	Pass
12.6085	9	8	88	Pass
12.7603	9	8	88	Pass
12.9121	8	8	100	Pass
13.0638	8	8	100	Pass
13.2156	8	7	87	Pass
13.3674	8	7	87	Pass
13.5191	8	7	87	Pass
13.6709	8	7	87	Pass
13.8227	8	6	75	Pass
13.9744	8	6	75	Pass
14.1262	8	6	75	Pass
14.2780	8	5	62	Pass
14.4297	8	5	62	Pass
14.5815	8	3	37	Pass
14.7333	8	3	37	Pass
14.8850	8	3	37	Pass
15.0368	7	3	42	Pass
15.1886	5	3	60	Pass
15.3403	5	3	60	Pass
15.4921	5	3	60	Pass
15.6439	4	3	75	Pass

Drawdown Time Results

POC #3 was not reported because POC must exist in both scenarios and both scenarios must have been run.**Perlnd and Implnd Changes**

No changes have been made.

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APPENDIX F2

Pilarcitos Creek Floodplain Study

TECHNICAL MEMORANDUM

Date: June 29, 2023 **BKF Job Number: 20211367-15**

To: Krzysztof Lisaj, County of San Mateo

From: Stephanie Tanverakul, PE, BKF Engineers
Kim Baxter, BKF Engineers

Subject: **Pilarcitos Creek Floodplain Study**

A. INTRODUCTION

New farm worker housing consisting of approximately 50 manufactured units and related infrastructure is being proposed for development at the City of Half Moon's Bay Corporate Yard at 880 Stone Pine Road (Project). The Project is in close proximity to Pilarcitos Creek and a Federal Emergency Management Agency (FEMA) 100-year Zone A floodplain, shown on Figure 1, based on Flood Insurance Rate map (FIRM) panel 06081C0260E.

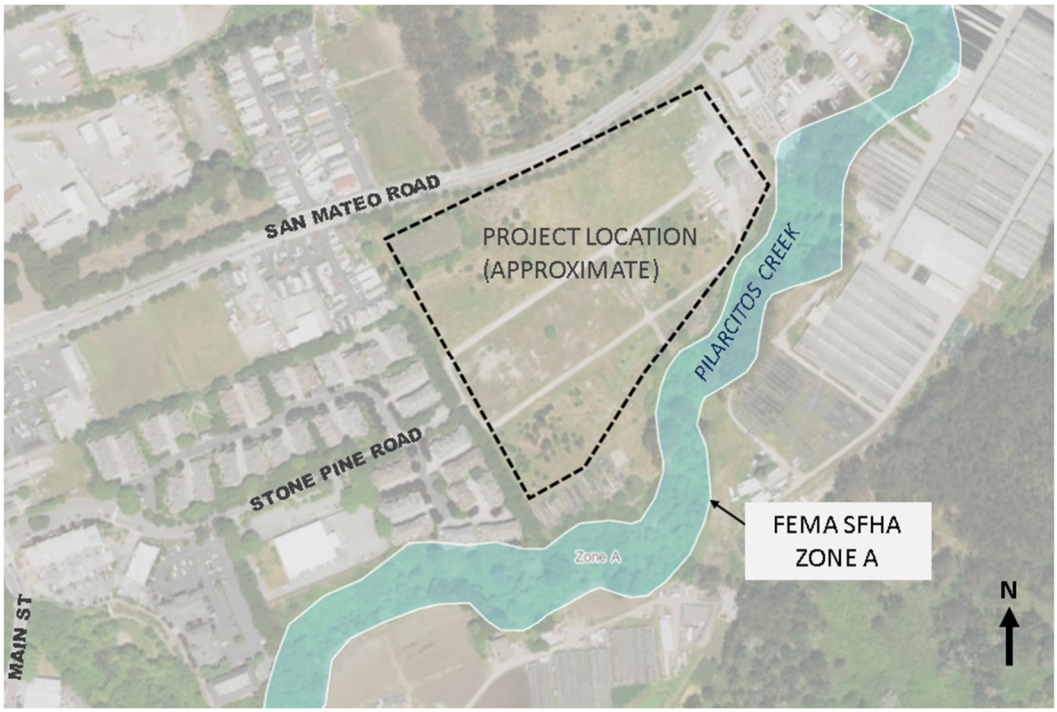


FIGURE 1: Project Location with FEMA SHFA Overlay

FEMA SFHA Zone A areas are estimated based on approximate methodologies without a detailed hydraulic model and so do not have base flood elevations (BFEs) shown. FEMA hydraulic analysis for this section of Pilarcitos Creek has not been updated since 1980. The Zone A mapped area near the project site shows inconsistent flood plain limits compared with recent topography and the overall Zone A boundary is low resolution.

BKF ENGINEERS
255 Shoreline Drive, Suite 200, Redwood City, CA 94065 | 650.482.6300

The purpose of this technical memorandum is to document the hydrologic and hydraulic analysis conducted using publicly available high-resolution topographic data to estimate 100-year and 500-year flood extents and flood elevations. The estimated flood extents and elevations can be used in the Project design to estimate protection from flood damage in extreme storm events.

B. HYDROLOGY

Estimation of the 100-year and 500-year peak flow is based on the long-term stream gage record for Pilarcitos Creek (USGS 11162630) located approximately 3,000 feet downstream of the Project. Since 1967, the USGS has operated the gaging station providing 56 verified annual peak flow values. A statistical analysis of the historical annual peak flows was performed following flood frequency estimation methodology using USGS PeakFQ software. The PeakFQ output is provided in Appendix A. The 100-year peak flow is estimated to be 3,444 cfs and the 500-year peak flow is estimated to be 4,838 cfs at the Project site.

Hydrographs for a 100-year, 24-hour and 500-year, 24-hour storm were estimated using streamflow data at the Pilarcitos Creek gauge. A unit hydrograph was created from streamflow data at the USGS Pilarcitos gauge that was then scaled to the estimated peak flows.

C. HYDRAULIC ANALYSIS

A two-dimensional (2D) model was setup using U.S. Army Corps of Engineers HEC-RAS hydraulic modeling software. The 2D model is setup to analyze the full length of the channel adjacent to the Project, and also extends a few hundred feet upstream and downstream from the Project. Model extents are shown on Figure 2.

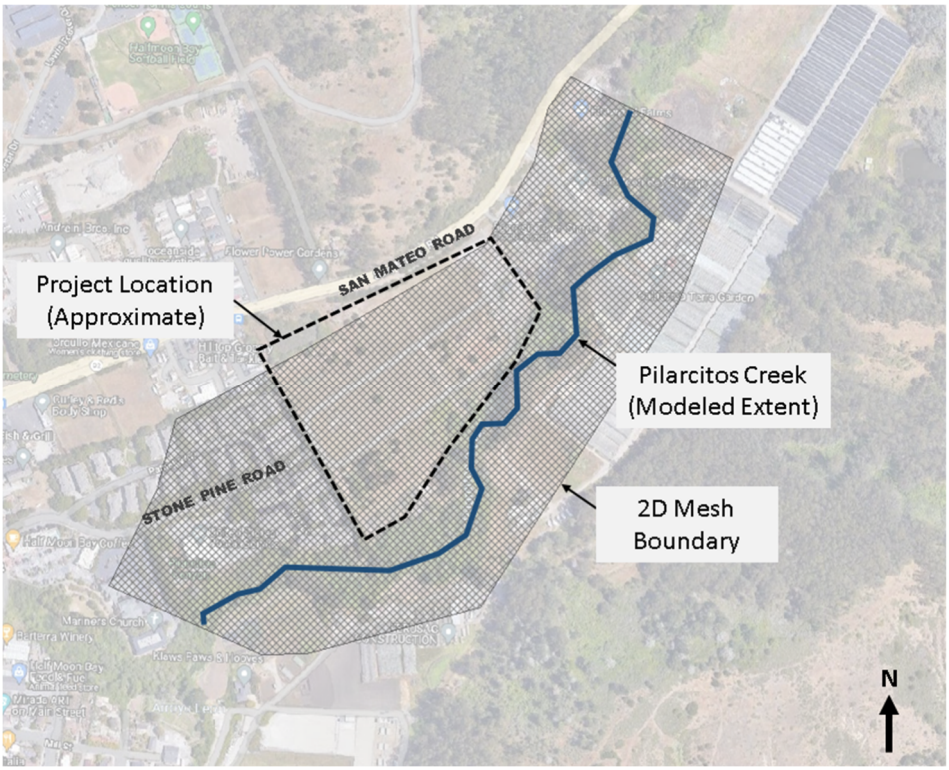


FIGURE 2: HEC-RAS Model Setup

Hydraulic parameters used in the model include:

Datum and Elevations: The County of San Mateo 2018 Digital Elevation Model (DEM) is used.

Hydraulic Model: A 5-foot by 5-foot cell size is used for the 2D grid to compute overland flow depth and extent in the HEC-RAS model.

Roughness Coefficient: A Manning's roughness of 0.04 is used for the HEC-RAS 2D grid surface roughness. The Manning's roughness factor was estimated based on guidance from National Resources Conservation Service (NRCS) of the U.S. Department of Agriculture (USDA). The HEC-RAS manual recommends a range of 0.03 and 0.05 for developed, open space areas that contain a mixture of some constructed material and mostly vegetation.

Boundary Conditions: The downstream boundary condition is set to normal depth using a slope of 0.01. The upstream boundary condition is set to the 100-year and 500-year hydrographs.

D. RESULTS

The estimated flood elevations at the Project site for the 100-year and 500-year storm events are presented in Table 1 below. Figures 4 and 5 illustrate the estimated flooding extents. The water surface elevation of the flood extents in the Project site are shown on Figures 6 and 7.

TABLE 1: Maximum Flood Water Surface Elevation

Cross-Section Number (see Figures 3 and 4)	100-Year Max Water Surface Elevation (ft)	500-Year Max Water Surface Elevation (ft)
1	78.55	79.82
2	76.26	77.82
3	75.68	76.88
4	75.58	76.83
5	75.48	76.92
6	75.40	76.86

E. DISCUSSION AND STUDY LIMITATIONS

The HEC-RAS model was built using 2018 County DEM and does not account for new developments or other land changes since 2018. These land changes may or may not have an impact on the modeling results presented here.

For the modeling effort in this memo, we assumed a Manning's roughness coefficient based on visual aerial assessment of the area and recommendations by the HEC-RAS manual by the Army Corps of Engineers and NRCS. The overland area 2D modeled area is assumed to be mostly developed open space area. Although the roughness assessment accounts for vegetation in and around the channel that is consistent with NRCS standards, large obstructions such as fallen trees and debris have the potential to impact overall Manning's roughness coefficient and affect capacity of the creek.

Pilarcitos Reservoir is at the upstream end of Pilarcitos Creek, and is operated by the SFPUC for water storage and diversion. SFPUC releases water from the reservoir to the portion of Pilarcitos Creek

upstream of Stone Dam only during specific times for use by Coastside CWD and diversion to San Andreas Reservoir or Crystal Springs Reservoir. Figure 3 shows the Pilarcitos watershed with the reservoir, dams, and project location shown. Under normal operations, intentional releases from Stone Dam into Pilarcitos Creek do not occur. In the rare instances where releases from the dam have occurred during past flood events, this additional flow was captured in the downstream USGS stream gage and is thus factored into our statistical analysis and design peak flows referred to above.

Our analysis assumes that SFPUC will continue to maintain dams along Pilarcitos Creek and will manage them with the same operating procedures which have been utilized during past storm events.

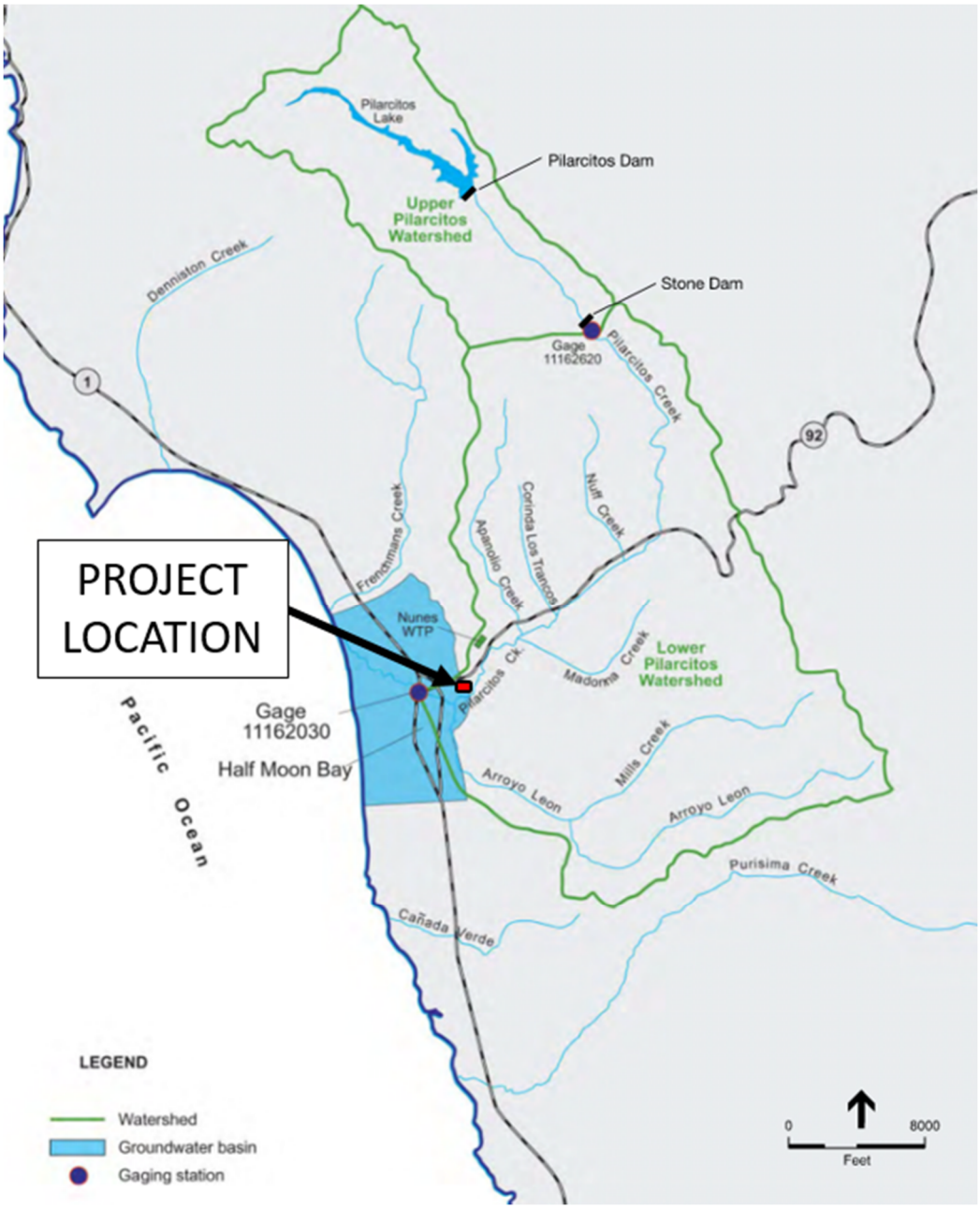


FIGURE 3: Pilarcitos Creek Watershed
(figure source: Todd Engineers)

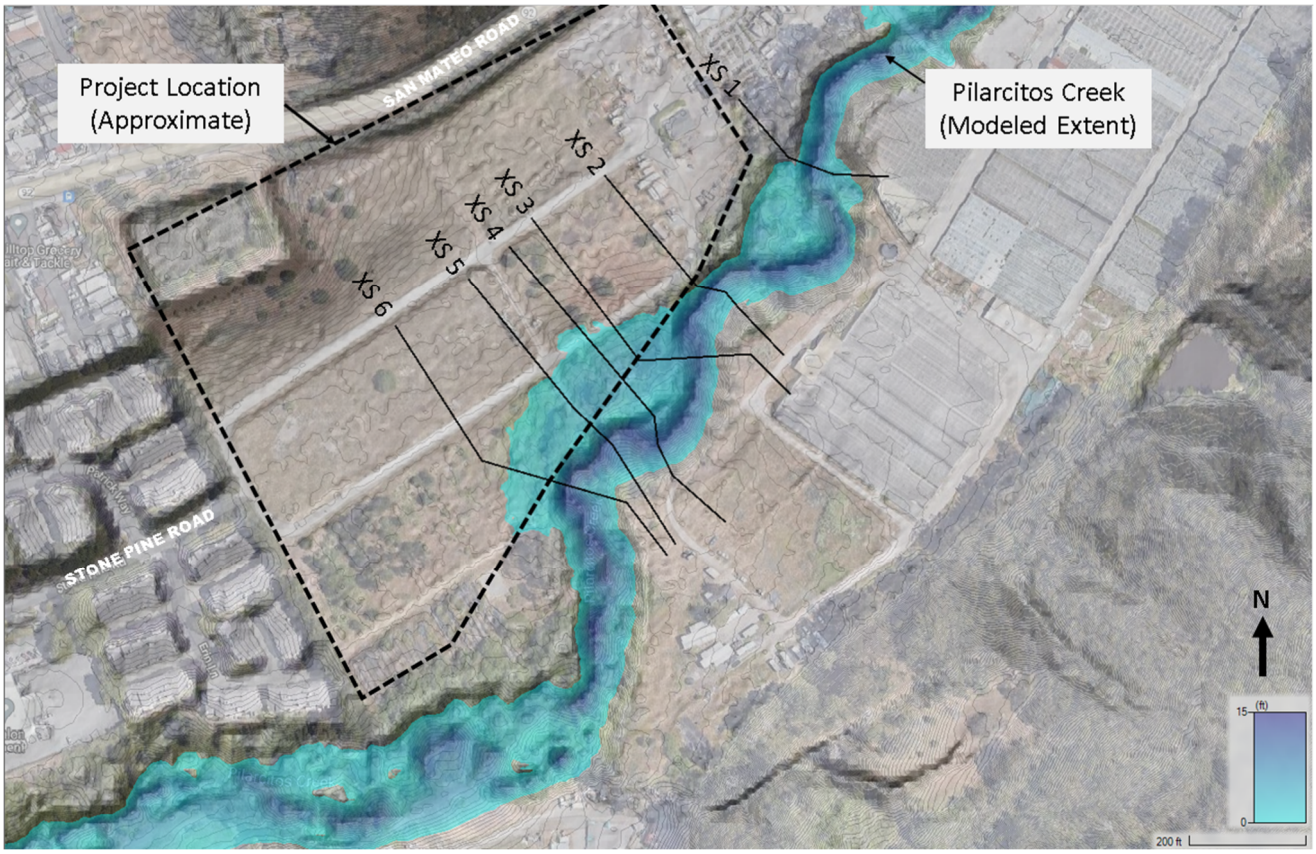


FIGURE 4: 100-Year Event, Maximum Depth

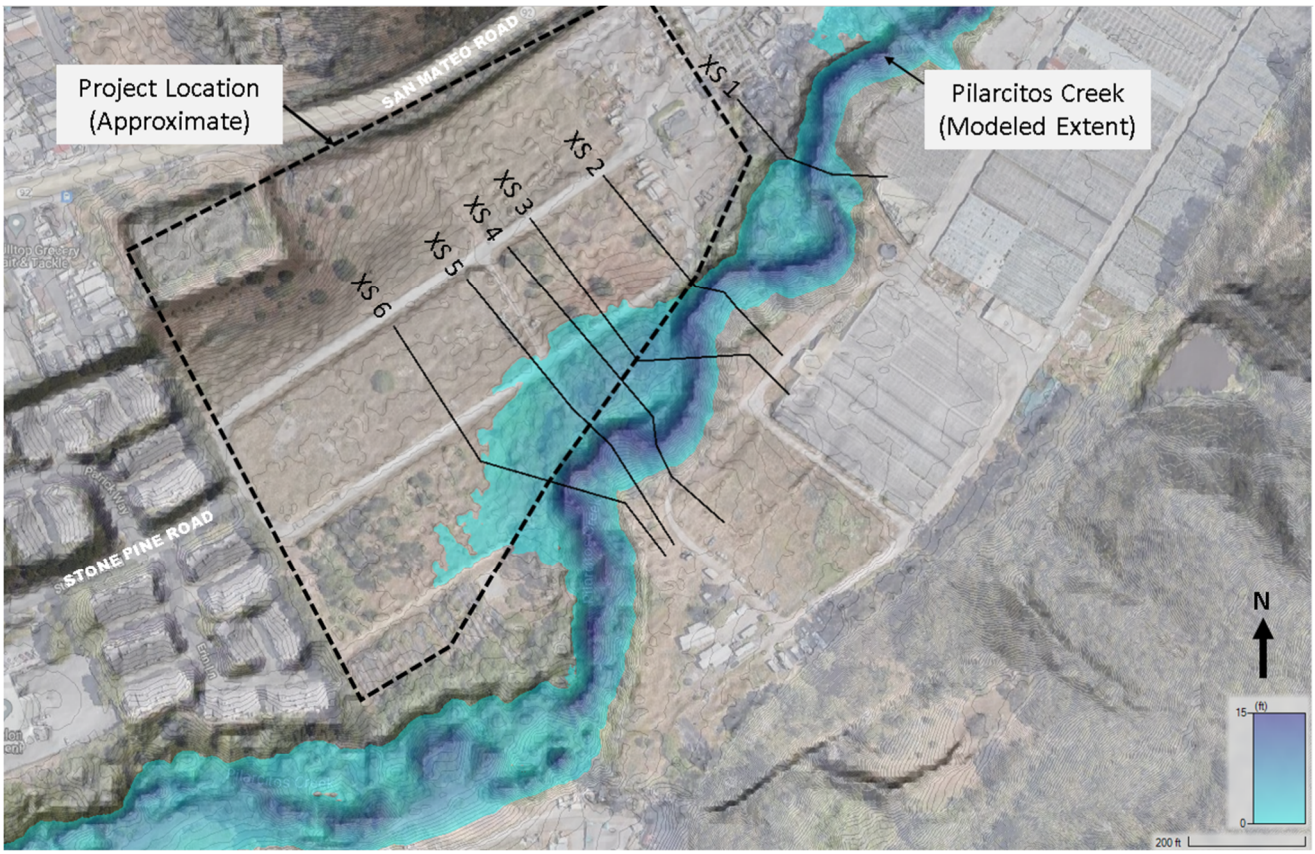


FIGURE 5: 500-Year Event, Maximum Depth



FIGURE 6: 100-Year Event, Maximum Water Surface Elevation

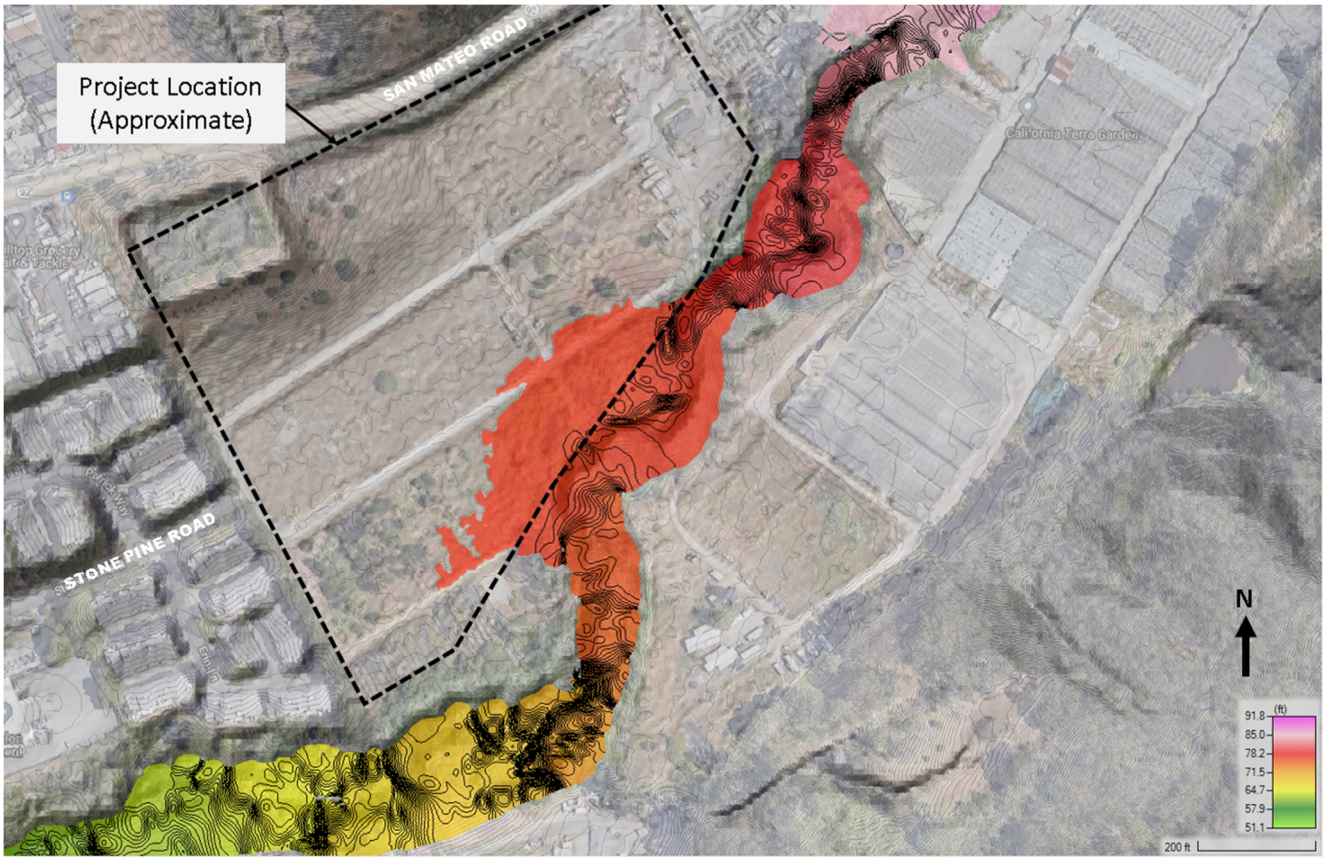


FIGURE 7: 500-Year Event, Maximum Water Surface Elevation

APPENDIX F3

Stormwater Pollution Prevention Plan for Stone Pine Cove

SI2024-00001
880 STONE PINE RD
03/04/2024

STORMWATER POLLUTION PREVENTION PLAN

for

STONE PINE COVE

Project Location:
880 Stone Pine Road,
Half Moon Bay, CA

WDID:
RISK LEVEL: 2

Legally Responsible Person (LRP):
Maz Bozorginia
501 Main Street
Half Moon Bay, CA
650-726-8251

Duly Authorized Representative (DAR):
None Identified

Site Operating Hours:
Monday – Friday: 7:00am - 6:00pm
Saturdays: 8:00am - 6:00pm
Sundays and Holidays: 10:00am - 6:00pm
Per City of Half Moon Bay Municipal Code Chapter 14.40.010

Estimated Project Dates:
Start of Construction: April 15, 2024
Completion of Construction: January 31, 2025

SWPPP Prepared by:
BKF Engineers
255 Shoreline Drive, Suite 200
Redwood City, CA 94065

SWPPP Preparation Date:
February 14, 2024

QSD Name and Signature:

Monica A. Cardenas

Contact Information

Role	Name	Phone Number	License or Certification Number, if Applicable
Qualified SWPPP Developer (QSD)	Monica A. Cardenas	408-467-9168	28484
Qualified SWPPP Practitioner (QSP)			
Qualified SWPPP Practitioner (QSP)			
QSP Delegate			
QSP Delegate			
QSP Delegate			
QSP Delegate			

Appendices

Appendix A:	Site Maps and Drawings
Appendix B:	Permit Registration Documents
Appendix C:	SWPPP Amendment QSD Certifications
Appendix D:	Submitted Changes of Information
Appendix E:	Construction Schedule
Appendix F:	Construction Activities, Materials Used, and Associated Pollutants
Appendix G:	CASQA Stormwater BMP Handbook: Construction Fact Sheets
Appendix H:	BMP Inspection Form
Appendix I:	Training Forms
Appendix J:	Responsible Parties
Appendix K:	Contractors and Subcontractors
Appendix L:	Calculations (Risk Analysis)
Appendix M:	Weather Reports
Appendix N:	Monitoring Records
Appendix O:	Example Storm Event Monitoring Forms
Appendix P:	Field Meter Instructions
Appendix Q:	Supplemental Information
Appendix R:	Active Treatment System and Passive Treatment Plans
Appendix S:	Construction General Permit
Appendix T:	Dewatering Requirements

Table of Contents

Table of Contents iv
Qualified SWPPP Developer vi
Amendment Log vii
Section 1 SWPPP Requirements 1-1
1.1 Introduction 1-1
1.2 Permit Registration Documents 1-1
1.3 SWPPP Availability and Implementation 1-2
1.4 SWPPP Amendments 1-2
1.5 Retention of Records 1-4
1.6 Reporting 1-4
1.7 Changes to Permit Coverage 1-6
1.8 Notice of Termination 1-6
Section 2 Project Information 2-1
2.1 Project and Site Description 2-1
2.1.1 Site Description 2-1
2.1.2 Existing Conditions 2-1
2.1.3 Existing Drainage 2-1
2.1.4 Geology and Groundwater 2-2
2.1.5 Project Description 2-2
2.1.6 Developed Condition 2-2
2.2 Permits and Governing Documents 2-3
2.3 Stormwater Run-On from Offsite Areas 2-4
2.4 Findings of the Construction Site Sediment and Receiving Water Risk Determination 2-5
2.5 Construction Schedule 2-6
2.6 Potential Construction Activity and Pollutant Sources 2-6
2.7 TMDL Requirements 2-7
2.8 Identification of Non-Stormwater Discharges 2-7
2.9 Required Site Map Information 2-8
Section 3 Best Management Practices 3-1
3.1 Schedule for BMP Implementation 3-1
3.2 Erosion and Sediment Control 3-2
3.2.1 Erosion Control 3-2
3.2.2 Sediment Controls 3-6

3.3 Non-Stormwater Controls and Waste and Materials Management....3-9
3.3.1 Non-Stormwater Controls....3-9
3.3.2 Materials Management and Waste Management....3-11
3.4 TMDL-Related BMPs....3-15
3.5 Post Construction Stormwater Management Measures....3-15
Section 4 BMP Inspection and Maintenance....4-1
4.1 BMP Inspection and Maintenance....4-1
Section 5 Training....5-1
Section 6 Responsible Parties and Operators....6-1
6.1 Responsible Parties....6-1
6.2 Contractor List....6-3
Section 7 Construction Site Monitoring Program....7-1
7.1 Purpose....7-1
7.2 Applicability of Permit Requirements....7-1
7.3. Weather and Precipitation Event Tracking....7-1
7.4 Monitoring Locations....7-2
7.5 Safety and Monitoring Exemptions....7-2
7.6 Visual Monitoring....7-3
7.7 Water Quality Sampling and Analysis....7-6
7.8 Active Treatment System Monitoring....7-24
7.9 Passive Treatment Monitoring....7-24
7.10 Watershed Monitoring Option....7-24
7.11 Quality Assurance and Quality Control....7-25
7.12 Records Retention....7-27
Section 8 References....8-1

Qualified SWPPP Developer

Approval and Certification of the Stormwater Pollution Prevention Plan

Project Name: *Stone Pine Cove*

Project Number/ID: *BKF# 20211367*

"This Stormwater Pollution Prevention Plan and its appendices were prepared under my direction to meet the requirements of the California Construction Stormwater General Permit (*Order No. 2022-0057-DWQ*). I certify that I am a Qualified SWPPP Developer in good standing as of the date signed below and will maintain up to date credentials for the duration of the project."

QSD Signature	*2/14/24* *Date*
Monica A. Cardenas *QSD Name*	*28484* *QSD Certificate Number*
Senior Project Engineer *Title and Affiliation*	*(408) 467-9168* *Telephone Number*
mcardenas@bkf.com *Email*	

Amendment Log

Project Name: *Stone Pine Cove*

Project Number/ID: *BKF#20211367*

Amendment No.	Date	Brief Description of Amendment (include section and page number)	Prepared and Approved By
			Name: QSD#
			Name: QSD#
			Name: QSD#

The SWPPP will be revised when:

- There is a 2022 CGP violation (2022 CGP Section VI.Q.1);
- There is a reduction or increase in total disturbed acreage (2022 CGP Section III.F.2. and F.4);
- BMPs are not effective and are not resulting in a reduction or elimination of pollutants in stormwater discharges and authorized non-stormwater discharges (2022 CGP Section VI.Q.1 and Attachment E Section III.C.5);
- There is a change in the project duration that changes the project Risk Type (2022 CGP Section III.F.1);
- Dischargers with projects where all construction activities (including passive treatment, active treatment systems, and/or active equipment) will be suspended for 30 days or more (2022 CGP Section III.G);
- There is a change in construction or operations that may affect the discharge of pollutants to surface waters, groundwater(s), or a municipal separate storm sewer system (MS4) (2022 CGP Sections IV.O. and VI.Q.1); or

When deemed necessary by the QSD. The QSD has determined that the changes listed in Table 1-1 can be field determined by the QSP. All other changes will be made by the QSD as formal amendments to the SWPPP. Note that the 2022 CGP requires that the QSD "revise the SWPPP to address potential problems identified by visual inspections, sampling data, comments from a QSP, or their own site observations (2022 CGP Section V.C.2.).

SWPPP Amendment QSD Certifications are located in Appendix C.

Section 1 SWPPP Requirements

1.1 INTRODUCTION

This Stormwater Pollution Prevention Plan (SWPPP) is designed to comply with California's *General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (2022 CGP),* State Water Resources Control Board (State Water Board) *Order No. 2022-0057-DWQ (NPDES No. CAS000002)* (Appendix S). This SWPPP has been prepared following the 2022 CGP SWPPP Template for Traditional Projects provided in the California Stormwater Quality Association (CASQA) Stormwater *Best Management Practice (BMP) Handbook: Construction* (CASQA 2023).

This project is considered a traditional construction project.

In accordance with the 2022 CGP, Section IV.O, this SWPPP is designed to address the following:

- Identification of all pollutants, their sources, and control mechanisms, including sources of sediment associated with all construction activities (e.g., sediment, paint, cement, stucco, cleaners, site erosion);
- Pollutant source assessments, including a list of potential pollutant sources and identification of site areas where additional BMPs are necessary to reduce or prevent pollutants in stormwater and authorized non-stormwater discharges, per the minimum requirements when developing the pollutant source assessment;
- Description of site-specific BMPs implemented to reduce or eliminate stormwater pollution;
- Where not otherwise required to be under a Regional Water Quality Control Board (Regional Water Board) permit, all non-stormwater discharges are identified and either eliminated, controlled, or treated;
- Site BMPs are effective and result in the reduction or elimination of pollutants in stormwater discharges and authorized non-stormwater discharges from construction activity to the Best Available Technology/Best Control Technology (BAT/BCT) standard; and;
- Stabilization BMPs are installed to reduce or eliminate pollutants after construction is completed are effective and maintained; and
- Calculations and design details, as well as BMP controls, are complete and correct.

The Stone Pine Cove site comprises approximately **5.6 ac.** of which **100%** will be disturbed. The Project is located at 880 Stone Pine Road, Half Moon Bay, California. The property is owned and developed by City of Half Moon Bay. The project's location is shown on the Site Maps in Appendix A.

1.2 PERMIT REGISTRATION DOCUMENTS

- Required Permit Registration Documents (PRDs) shall be submitted to the State Water Board via the Stormwater Multi Application and Report Tracking System (SMARTS) by the LRP or DAR. The project-specific PRDs include (2022 CGP Section III.A):

1. Notice of Intent (NOI);

2. Risk Level Determination (Construction Site Sediment and Receiving Water Risk Determination);
3. Site Drawings and Map;
4. SWPPP;
5. Applicable plans, calculations, and other supporting documentation for compliance with the Phase I or Phase II municipal separate storm sewer system (MS4) post construction requirements or the post-construction standards of the 2022 CGP:
    - ☒ San Mateo Countywide Water Pollution Prevention Program https://www.flowstobay.org/
    - ☒ The post construction plans and calculations submitted to or approved by the applicable Phase I or Phase II MS4; and/or
    - ☐ Post-construction water balance calculation;
6. Dischargers proposing an alternate K-factor or LS-factor must submit documentation to support the site-specific factors, if applicable;
7. Active Treatment System (ATS) Plan, if applicable;
8. Passive Treatment Plan, if applicable;
9. Dewatering Plan, if applicable;
10. Annual Fee per the current 23 California Code of Regulations Chapter 9 fee schedule for National Pollutant Discharge Elimination System (NPDES) stormwater permits; and
11. Signed Certification Statement (LRP Certification is provided electronically with SMARTS PRD submittal).

Site Maps can be found in Appendix A. A copy of the submitted PRDs shall also be kept in Appendix B along with the Waste Discharge Identification (WDID) confirmation.

1.3 SWPPP AVAILABILITY AND IMPLEMENTATION

The SWPPP will be available at the construction site during working hours listed at the gate and as approved by the City while construction is occurring and shall be made available upon request by federal, state, or municipal inspector. A current copy of the site-specific SWPPP and any site inspection reports required by the 2022 CGP may be kept in electronic format at the site so long as the information requested by a federal, state, or municipal inspector can be made available during an inspection. Legible maps in hard copy must be available at the site (2022 CGP Section IV.O.1.).

The SWPPP must be implemented at the appropriate level to protect water quality at all times throughout the life of the project. The SWPPP must remain on the site during construction activities, commencing with the initial mobilization and ending with the termination of coverage under the 2022 CGP.

1.4 SWPPP AMENDMENTS

SWPPP changes or amendments will be uploaded through SMARTS within 30 calendar days. The SWPPP will be revised when:

- If there is a 2022 CGP violation (2022 CGP Section VI.Q.1);

- There is a reduction or increase in total disturbed acreage (2022 CGP Section III.F.2 and F.4.);
- BMPs are not effective and are not resulting in a reduction or elimination of pollutants in stormwater discharges and authorized non-stormwater discharges (2022 CGP Section VI.Q.1 and Attachment D Section III.C.5);
- There is a change in the project duration that changes the project's risk level (2022 CGP Section III.F.1); or
- Dischargers with projects where all construction activities (including passive treatment, active treatment systems, and/or active equipment) will be suspended for 30 days or more (2022 CGP Section III.G.).

Additionally, the SWPPP will be amended when:

- There is a change in construction or operations that may affect the discharge of pollutants to surface waters, groundwater(s), or a municipal separate storm sewer system (MS4) (2022 CGP Sections IV.O. and VI.Q.1); or
- When deemed necessary by the QSD.

The QSD has determined that the changes listed in Table 1-1 can be field determined by the QSP. All other changes will be made by the QSD as formal amendments to the SWPPP. Note that the 2022 CGP requires that the QSD revise the SWPPP to address potential problems identified by visual inspections, sampling data, comments from a QSP, or their own site observations (2022 CGP Section V.C.2.).

The following items shall be included in each amendment:

- Who requested the amendment;
- The location of proposed change;
- The reason for change;
- The original BMP(s) proposed, if any;
- The new BMP(s) proposed; and
- QSD certification.

SWPPP amendments will be logged at the front of the SWPPP and SWPPP Amendment QSD certifications will be located in Appendix C. The SWPPP text will be revised, replaced and/or hand annotated as necessary to properly convey the amendment. SWPPP amendments must be made by a QSD. The following changes have been designated by the QSD as "to be field determined" and constitute minor changes that the QSP may implement based on field conditions. Changes made by the QSP are to be relayed to the QSD

Table 1-1 List of Changes to be Field Determined

Candidate changes for field location or determination by QSP (1)	Check changes that can be field located or field determined by QSP
Increase quantity of an Erosion or Sediment Control Measure	✓
Relocate/add stockpiles or stored materials	✓

Table 1-1 List of Changes to be Field Determined

Candidate changes for field location or determination by QSP (1)	Check changes that can be field located or field determined by QSP
Relocate or add toilets	✓
Relocate vehicle storage and/or fueling locations	✓
Relocate areas for waste storage	✓
Relocate water storage and/or water transfer location	✓
Changes to access points (entrance/exits)	✓
Change type or location of Erosion or Sediment Control Measure	✓
Minor changes to schedule or phases	✓
Changes in construction materials	✓, when TMDLs do not apply
(1) Any field changes not identified for field location or field determination by the QSP must be made as an amendment by the QSD.	

1.5 RETENTION OF RECORDS

Paper or electronic records of documents required by this SWPPP will be retained for a minimum of three years from the date generated or date submitted, whichever is later, for the following items:

- SWPPP;
- Visual monitoring reports;
- Sampling equipment calibration records;
- pH and turbidity sampling field sheets;
- Analytical laboratory reports; and
- BMP Progress Map(s)

These records will be available at the Site until construction is complete. Records assisting in the determination of compliance with the 2022 CGP will be made available within a reasonable time to the Regional Water Board, State Water Board, or U.S. Environmental Protection Agency (EPA) upon request. Requests by the Regional Water Board for retention of records for a period longer than three years will be adhered to.

1.6 REPORTING

Completed inspection checklists are not required to be submitted to the Regional Water Board. However, completed inspection checklists will be kept with the SWPPP on-site or electronically. The 2022 CGP requires that permittees prepare, certify, and electronically submit an Annual Report no later than September 1 of each year. Reporting requirements are identified in 2022 CGP Section VI.P. Annual reports will be filed in SMARTS and in accordance with information required by the online forms.

Planned changes in site construction activities that may result in non-compliance with the 2022 CGP are required to be provided in writing to the Regional Water Board and local stormwater agency in advance of the changes.

If a 2022 CGP discharge violation occurs, the QSP will immediately notify the LRP. The LRP will include information on the violation with the Annual Report. Corrective measures will be implemented immediately following identification of the discharge or written notice of non-compliance from the Regional Board. Discharges and corrective actions must be documented and include the following items:

- The date, time, location, nature of operation, and type of unauthorized discharge;
- The cause or nature of the notice or order;
- The BMPs deployed before the discharge event, or prior to receiving notice or order; and
- The date of deployment and type of BMPs deployed after the discharge event, or after receiving the notice or order, including additional measures installed or planned to reduce or prevent re-occurrence.

Results of (pH and turbidity, etc.) monitoring will be electronically submitted through SMARTS for all field sampling results within 30 days of the completion of the precipitation event or within 10 days if the field sampling results demonstrate the exceedance of the pH and/or turbidity NALs. See Section 7.7.2.7 for additional discussion of the reporting requirements.

Reporting requirements for pH and turbidity Receiving Water Monitoring Triggers are discussed in Section 7.7.2.7.

Results of non-visible pollutant monitoring and corrective actions will be electronically submitted within 30 days after obtaining analytical results or within 10 days if the analytical results demonstrate the exceedance of an applicable TMDL-related NAL or NEL or Basin Plan parameter. See Section 7.7.1.7 for additional discussion of the reporting requirements.

A NAL exceedance report will be prepared when requested, in writing, by the Regional Water Board.

In the event of a TMDL NEL exceedance, by the end of each reporting year the project will submit and certify, in SMARTS, documentation of the site assessment, SWPPP evaluation, and implementation of the corrective actions.

Results of monitoring (pH, turbidity, flowrate, volume discharged, and freeboard storage) will be electronically submitted monthly during the project. See the ATS Plan for additional discussion of the reporting requirements.

In the event of an ATS NEL exceedance results will be electronically certified and submitted to SMARTS within 24-hours of obtaining the results.

The Regional Water Board will be notified via email 24 hours prior to the beginning of a planned dewatering discharge.

In the event of an emergency dewatering, the Regional Water Board and applicable MS4 are to be notified within 24 hours of a discharge occurring. An emergency is defined as the need to protect human life and health or prevent severe property damage.

Results of (pH and turbidity, etc.) monitoring will be electronically submitted through SMARTS for all field sampling results within 30 days of the completion of the precipitation event or within 10 days if the field sampling results demonstrate the exceedance of the pH and/or turbidity NALs.

See Section 7.7.4.5 for additional discussion of the reporting requirements including contacts for Regional Water Board and MS4 notifications.

A Passive Treatment Plan will be submitted electronically 14 days before passive treatment chemicals are used on site. See the Passive Treatment Plan for additional discussion of the reporting requirements.

1.7 CHANGES TO PERMIT COVERAGE

The 2022 CGP allows for the reduction or increase of the total acreage covered under the 2022 CGP when: a portion of the project is complete and/or conditions for termination of coverage have been met; when ownership of a portion of the project is purchased by a different entity; or when new acreage is added to the project.

Modified PRDs will be filed electronically through a Change of Information (COI) within 30 days of a reduction or increase in total disturbed area if a change in permit-covered acreage is to be sought. The SWPPP will be modified appropriately and will be logged at the front of the SWPPP. SWPPP Amendments QSD Certifications will be located in Appendix C. COIs submitted electronically via SMARTS can be found in Appendix D.

1.8 NOTICE OF TERMINATION

A Notice of Termination (NOT) must be submitted electronically by the LRP or DAR via SMARTS to terminate coverage under the 2022 CGP.

According to the requirements of 2022 CGP Section III.H.4., the following final stabilization method will be used to satisfy final stabilization condition requirements:

70 percent final cover method supported by pre- and post-project photographs demonstrating stabilization.

RUSLE or RUSLE2 method with computation proof supported by pre- and post-project photographs demonstrating stabilization.

Custom method for which Regional Water Board approval has been obtained, supported by documentation required by the Regional Water Board and pre- and pos- project photographs demonstrating stabilization.

The Regional Water Board will consider a construction site complete when the conditions of the 2022 CGP Section III.H., have been met.

The discharger is required to submit the following in SMARTS:

- NOT SMARTS Form;
- QSP-prepared final NOT inspection which includes the QSP name and valid QSP certificate number;
- Final site map with photo orientation references;
- Photos demonstrating final stabilization and the applicable post-construction BMPs and/or low impact development; and
- A long-term maintenance plan for the post-construction stormwater runoff BMPs and/or low impact development features being implemented.

According to the 2022 CGP, the NOT will be automatically approved within 30 calendar days after the date the NOT was submitted, unless, within the 30 calendar days the Regional Water

Board notifies the discharger through SMARTS that the Notice of Termination has been denied, returned, or accepted for review (2022 CGP Section III.H.7).

Note: If an Annual Report has not been filed in the current reporting year, an Annual Report will need to be submitted prior to the NOT.

Section 2 Project Information

2.1 PROJECT AND SITE DESCRIPTION

2.1.1 Site Description

The Stone Pine Cove project site is Risk Level 2 and comprises approximately 5.6 ac and is located at 880 Stone Pine Road, Half Moon Bay, California. The project site is located approximately 2,500 feet east of the State Route 1 and 1.25 miles east of the Pacific shoreline in the City of Half Moon Bay, San Mateo County, California.

The distance to the nearest body of water (Pilarcitos Creek) is more than 50ft. Therefore, Surface Water Buffer requirements do not apply.

The site is bound by San Mateo Road (Highway 92) on the northwest, a commercial parcel on the northeast, Pilarcitos Creek on the east and southeast, and residential parcels on the west.

The project is located at 37.4695, -122.4222 and is identified on the Site Map in Appendix A.

2.1.2 Existing Conditions

As of the initial date of this SWPPP, the project site is comprised of an earth-lined agricultural pond in the northwest corner and irrigation sheds in the southeast corner. The remaining area of the site is generally undeveloped where the surface cover is comprised of gravel roads, grass, shrubs, and trees. There are no known sources of historic contamination at the site. Soil sampling and analysis is required when soil contamination is found or suspected. Results from any analysis will be located in Appendix Q.

2.1.3 Existing Drainage

The existing topography at the project site generally slopes south toward Pilarcitos Creek. The elevation of the project site ranges from elevation 91 ft to 77 ft above mean sea level (msl). The project site above the corporation yard access road are vegetated with trees and shrubs or grass area. In this area the topography slopes south at approximately 20%. The remaining of the project site below the corporation yard access road are vegetated with trees and shrubs or grass and slopes south at approximately 0-5%. There is an existing 12” HDPE culvert running under the access road, connecting to a catch basin on the access road, and discharging to an existing lined bioretention area with an underdrain in the southwest corner of the project site. The bioretention overflow structure is routed to a rock dissipator outfall that discharges to Pilarcitos Creek. The stormwater on the south side of the corporation yard access road bypasses the bioretention area and flows south across the grass area and down the vegetated slope to Pilarcitos Creek as overland flow.

Existing site topography, drainage patterns, and stormwater conveyance systems are shown on Site Maps Grading and Drainage Plans in Appendix A.

The project discharges to the Pilarcitos Lake and eventually to the Pacific Ocean. The water quality impairments (303 (d) list and TMDLs identified in the 2022 CGP Table H-1 for the receiving waters are identified in the Table 2-1.

Table 2-1 Applicable 303(d) List Impairments and TMDLs

Receiving Water	Water Quality Impairment	
	303(d) list	TMDL (2022 CGP Table H-1)
Pacific Ocean	Indicator Bacteria	No
Pilarcitos Creek	Not listed	Not listed

Additional compliance actions applicable to the project are discussed in more detail in Section 7.7.

2.1.4 Geology and Groundwater

From the geotechnical Investigation report, "Geotechnical Engineering Investigation SMC-HMB Farmworker Housing Project, 880 Stone Pine Road, Half Moon Bay, San Mateo County, California", prepared by BAGG Engineers, dated August 2023, the site is generally underlain by interlayered clayey and sandy soils; however, the depths of the sand layers, the thickness and consistency of each sandy layer, as well as the total amount of the sandy deposits with the explored depths, are non-uniform and vary from one location to another.

"Groundwater levels typically fluctuate due to seasonal changes such as variations in rainfall and temperature, hydrogeological variations such as groundwater pumping or recharging, and/or other factors not evident at the time of exploration. Plate 1.3 of the California Geological Survey (CGS, 2021) Seismic Hazard Zone Report 132 (SHZR 132), Seismic Hazard Zone Report for the Half Moon Bay 7.5-Minute Quadrangle, San Mateo County, California, indicates the depth to historically high groundwater level in the general site area is less than 10 feet." Excerpt from the project Geotechnical Report.

2.1.5 Project Description

The project includes onsite improvements on the 880 Stone Pine Road property and offsite improvements in the adjacent Stone Pine Road Right-of-Way (ROW). The onsite improvements include 47 manufactured home units, a management office unit, a sports court, a play structure, a community garden, and a recreation picnic area. New private streets will serve the manufactured homes and amenities. The offsite improvements include construction of new curb, gutter and sidewalk along the south side of Stone Pine Road adjacent to the project site.

Project grading will occur on approximately 5.6 acres of the project. The limits of grading are shown on Site Maps Grading and Drainage Plan in Appendix A.

If lime or other soil amendments are used, minimize the exposure of lime-treatments area and soil stockpiles to rain. Locations of lime-treated areas and soil stockpiles are to be field located and identified on the BMP Map in Appendix A.

Excavated materials not intended for use will be off-hauled in a timely manner. Soil stockpile locations are to be identified by the QSP on the BMP Map in Appendix A based on field conditions.

Construction activities will not be phased.

2.1.6 Developed Condition

Post-construction surface drainage will utilize lined bioretention areas with underdrains to comply with post-construction requirements.

Stormwater is directed to drainage inlets and swales around the site. Treated runoff discharges to Pilarcitos Creek and eventually to the Pacific Ocean.

Post-construction drainage patterns and conveyance systems are presented on Site Maps Grading and Utility Plans in Appendix A.

Table 2-2 Construction Site Estimates

Construction site area	5.6	acres
Total area of disturbance	5.6	acres
Percent impervious before construction	11.5	%
Runoff coefficient before construction	0.4	
Percent impervious after construction	65.6	%
Runoff coefficient after construction	0.7	

2.2 PERMITS AND GOVERNING DOCUMENTS

In addition to the 2022 CGP, the following documents have been taken into account while preparing this SWPPP:

- Regional Water Board requirements
- Basin Plan requirements
- Contract Documents
- Air Quality regulations and permits
- National Historic Preservation Act/Requirements of the State Historic Preservation Office
- Federal and State of California Endangered Species Act
- Clean Water Act Section 401 Water Quality Certifications and 404 Permits
- CA Department of Fish and Game 1600 Streambed Alteration Agreement (Not applicable)
- California Ocean Plan (Not applicable)
- State Water Board GeoTracker database (GeoTracker)
- San Mateo Countywide Water Pollution Prevention Program

2.3 STORMWATER RUN-ON FROM OFFSITE AREAS

Common sources of run-on are generated by point source discharges from upgradient developed land uses, creeks; streams or other water bodies that run through or discharge from the site; and upgradient non-point source discharges.

When run-on is observed, the stormwater runoff drainage area (acreage/square feet) and runoff coefficients contributing to offsite run-on is to be estimated and locations identified on the BMP Map in Appendix A. The anticipated off-site run-on (flow/volume) is to be estimated and calculations included in Appendix L.

There is no anticipated offsite run-on to this construction site. On the most northwest side of the lot, the graded upward slope has no concrete channel at the bottom or a curb. However, on top of the slope, there is a six-inch curb preventing run-on. The rest of the graded upward slope to the north side of the lot has a concrete channel at the bottom which is behind the exiting onsite six-inch curb. Further, the site is bound by vertical curbs, landscape berms, and is not located adjacent to a body of water.

However, the 2022 CGP requires that temporary BMPs be implemented to direct offsite run-on away from disturbed areas through the use of runoff controls. In the event of offsite run-on, a perimeter silt fence , earth dikes, earthen berms, sand/gravel bags, or combination of BMPs shall be deployed as directed by the QSP to eliminate run-on.

2.4 FINDINGS OF THE CONSTRUCTION SITE SEDIMENT AND RECEIVING WATER RISK DETERMINATION

A construction site risk assessment has been performed for the project and the resultant risk level is Risk Level 2.

The risk level was determined through several methods. The EPA's *Rainfall Erosivity Factor Calculator for Small Construction S*ites at: https://lew.epa.gov/ in accordance with the State Water Board Guidance for multi-year projects at: https://www.waterboards.ca.gov/water_issues/programs/stormwater/smarts/construction/docs/rfactor_guide.pdf, was used to calculate the Erosivity factor. K and LS values were obtained from the Caltrans Water Quality Planning Tool at: http://svctenvims.dot.ca.gov/wqpt/wqpt.aspx. The risk level is based on project duration, location, proximity to impaired receiving waters, and soil conditions. A copy of the Risk Level determination submitted on SMARTS with the PRDs is included in Appendix B.

Table 2-3 and Table 2-4 summarize the sediment and receiving water risk factors and document the sources of information used to derive the factors.

Table 2-3 Summary of Sediment Risk

RUSLE Factor	Value	Method for Establishing Value
R	50.24	
K	0.32	
LS	0.65	
Total Predicted Sediment Loss (tons/acre)		**10.45**
Overall Sediment Risk Low Sediment Risk < 15 tons/ acre Medium Sediment Risk >= 15 and < 75 tons/acre High Sediment Risk >= 75 tons/acre		☒ **Low** ☐ **Medium** ☐ **High**

Runoff from the project site discharges to Pilarcitos Creek and Pacific Ocean.

Table 2-4 Summary of Receiving Water Risk

Receiving Water Name	303(d) Listed for Sediment Related Pollutant (1)	TMDL for Sediment Related Pollutant (1)	Beneficial Uses of COLD, SPAWN, and MIGRATORY (1)
Pilarcitos Creek	☐ Yes ☒ No	☐ Yes ☒ No	☒ **Yes** ☐ No
Pacific Ocean	☐ Yes ☒ No	☐ Yes ☒ No	☐ Yes ☒ No
Overall Receiving Water Risk			☐ **Low** ☒ **High**
(1) If yes is selected for any option, the Receiving Water Risk is High			

Risk Level 2 sites are subject to both the narrative effluent limitations and numeric action limitations (NALs). The narrative effluent limitations require stormwater discharges associated with construction activity to minimize or prevent pollutants in stormwater and authorized non-

stormwater through the use of controls, structures and best management practices (BMPs). Discharges from Risk Level 2 sites are subject to NALs for pH and turbidity shown in Table 2-5. This SWPPP has been prepared to address Risk Level 2 requirements (2022 CGP Attachment D).

Table 2-5 Numeric Action Levels and Numeric Effluent Limits

Parameter	Unit	Numeric Action Level	Numeric Effluent Limit
pH	pH units	Lower NAL < 6.5 Upper NAL > 8.5	Not Applicable
Turbidity	NTU	> 250 NTU	Not Applicable

Projects that discharge to a water body and or watershed listed in Table H-2 are subject to both the narrative and numeric effluent limitations imposed by the TMDL requirements in Attachment H. Identified TMDLs for this project are listed in Table 2-7.

This SWPPP has been prepared to address the 2022 CGP TMDL requirements in Attachment H.

Table 2-7 TMDL Numeric Action Levels, Numeric Effluent Limits

TMDL	**Parameter** (pollutant)	**Unit** (Table H-2)	**Numeric Action Level** (Table H-2)	**Numeric Effluent Limit** (Table H-2)
None listed				

San Francisco Bay Regional Water Quality Control Board (Region 2)

TMDL	Pollutant
Lagunitas Creek Sediment TMDL	Sediment
Napa River Sediment TMDL	Sediment
Pescadero and Butano Creek Sediment TDML	Sediment
Sonoma Creek Sediment TMDL	Sediment

2.5 CONSTRUCTION SCHEDULE

The site sediment risk was determined based on construction taking place between April 15, 2024 and January 31, 2025. Modification or extension of the schedule (start and end dates) may affect risk determination and permit requirements. The LRP shall contact the QSD if the schedule changes during construction to address potential impact to the SWPPP. The estimated schedule for planned work can be found in Appendix E.

Significant land disturbing activities are not anticipated near receiving waters.

2.6 POTENTIAL CONSTRUCTION ACTIVITY AND POLLUTANT SOURCES

Appendix F includes a list of construction activities and associated materials that are anticipated to be used onsite as well as the pollutant source assessment form that was completed for the project. These activities and associated materials will or could potentially contribute pollutants, other than sediment, to stormwater runoff.

The anticipated activities and associated pollutants were used in Section 3 to select the BMPs for the project. Locations of anticipated pollutants and associated BMPs are shown on the BMP Map in Appendix A.

Additionally, proper measures will be taken to ensure that trench spoils or any other soils disturbed during construction activities that are contaminated are not discharged with stormwater or non-stormwater discharges into storm drains or water bodies (except pursuant to a separate NPDES Permit). If contaminated soils are found on site, and the responsible party cannot be identified or fails to take action, soils will be sampled to determine proper handling and protect public safety. The appropriate local, State, and federal agencies along with the appropriate Regional Water Board will be notified when contaminated soils are observed.

For sampling requirements for non-visible pollutants associated with construction activity, please refer to Section 7.7.1. For a full and complete list of onsite pollutants, refer to the Safety Data Sheets (SDS), which are retained onsite at the construction trailer or are available electronically at the site.

2.7 TMDL REQUIREMENTS

Based on the project's receiving water and the pollutant source assessment, the following TMDLs are applicable to the project (See 2022 CGP Attachment H).

Table 2-8 Project TMDLs

TMDL	Applicable Water Body/ Watershed	Pollutants	Additional TMDL-Related NAL or NEL	Compliance Actions
None listed	Pilarcitos Creek			
None listed	Pacific Ocean			

These TMDLs are also identified in Section 2.1.3. The applicable NALs and NELs are also identified in Section 2.4. BMP requirements related to TMDLs are discussed in Section 3.4. Monitoring requirements related to TMDLs are discussed further in Section 7.7.

2.8 IDENTIFICATION OF NON-STORMWATER DISCHARGES

Non-stormwater discharges into storm drainage systems or waterways, which are not authorized under the 2022 CGP and listed in the SWPPP, or authorized under a separate NPDES permit, are prohibited.

Non-stormwater discharges that are authorized from this project site include the following:

- Discharges from firefighting activities
- Fire hydrant flushing
- Pipe flushing and testing

- Water used to control dust
- Irrigation of vegetative erosion control measures
- Irrigation of landscape
- Uncontaminated ground water
- Discharges not subject to a separate NPDES permit adopted by the Regional Water Board.

These authorized non-stormwater discharges will be managed with the stormwater and non-stormwater BMPs described in Section 3 of this SWPPP and will be minimized under the direction of the QSP. Additionally, the non-stormwater discharges not applicable to this project are still allowable granted they do not contact potential pollutant sources.

Activities at this site that may result in unauthorized non-stormwater discharges include:

- Vehicle and equipment fueling and minor maintenance (major vehicle and equipment repairs are not permitted on-site)
- Small equipment cleaning (vehicle and large equipment cleaning is not permitted on-site)
- Slurries from concrete cutting and coring operations, PCC or AC grinding or recycling operations
- Dewatering operations of contaminated water
- Slurries from concrete or mortar mixing or cleaning operations
- Slurries from drilling or boring operations
- Blast residue from high-pressure washing of structures or surfaces
- Wash waters from painting equipment
- Sanitary and septic wastes
- Chemical leaks and/or spills of any kind including but not limited to petroleum, paints, cure compounds, etc.

Steps will be taken, including the implementation of appropriate BMPs, to ensure that unauthorized discharges are eliminated, controlled, disposed, or treated on-site.

Discharges of construction materials and wastes, such as fuel or paint, resulting from dumping, spills, or direct contact with rainwater or stormwater runoff, are also prohibited.

The following discharge(s) have been authorized by (a) regional NPDES permit(s):

- None

2.9 REQUIRED SITE MAP INFORMATION

The construction project's Site Map(s) showing the project location, surface water boundaries, geographic features, construction site perimeter and general topography, locations of storm drain inlets that receive runoff from the project, and other requirements identified in 2022 CGP Sections IV.O.2. k. and l are located in Appendix A. Table 2-9 identifies Maps or Sheet Nos. where required elements are illustrated.

Table 2-9 Required Map Information

Included on Map/Plan Sheet No. (1)	Required Element
Pre-Earthwork Drawings	
Exhibit 1 Vicinity Map, C1.1	Site and project boundaries
Geotechnical Report	Areas disturbed during geotechnical or other preconstruction investigation work
C1.1-C1.2	Existing roads and trails
Drainage Exhibit	Drainage areas
C7.1/ BMP Map	Discharge locations
C1.1	Existing storm drain system if applicable
BMP Map	Locations of storage areas for waste, construction materials, staging areas, stockpiles, vehicle storage and maintenance, access roads, water storage (Field located)
BMP Map	Locations of demolition (Field Located)
Construction and Earthwork Drawing(s)	
C2.1-C3.4	Site layout (grading plans) including roads
C2.1	Site and project boundaries
C5.1	Drainage areas
C7.1 /BMP Map	Discharge locations
C7.1 /BMP Map	Sampling locations
C1.2, C3.0-C3.4	Areas of soil disturbance (temporary or permanent)
C3.0-C3.4/BMP Map	Active areas of soil disturbance (cut or fill)
C7.1/ BMP Map	Locations of erosion control BMPs
C7.1 /BMP Map	Locations of sediment control BMPs
BMP Map	Locations of run-off BMPs, run-on conveyance, ATS (if applicable), storage areas, construction materials, stockpiles, vehicles, equipment, entrances/exits, fueling and water storages (field located)
C1.2/ BMP Map	Locations of demolition
BMP Map	Site-specific procedures to implement final stabilization BMPs as soon as reasonably practicable

Notes: (1) Indicate maps or drawings that information is included on (e.g., Vicinity Map, Site Map, Drainage Plans, Grading Plans, Progress Maps.)

Section 3 Best Management Practices

3.1 SCHEDULE FOR BMP IMPLEMENTATION

BMPs will be implemented as per the schedule indicated in Table 3-1.

Table 3-1 BMP Implementation Schedule

	BMP	Location	Implementation	Duration
Erosion Control BMPs	EC-1 Scheduling	Entirety of Site	Prior to Construction	Entirety of Project
	EC-2 Preservation of Existing Vegetation	Entirety of Site	When possible or as dictated by plans	Entirety of Project
	EC-3 Hydraulic Mulch	Disturbed areas	After 14 days of inactivity	After land disturbance
	EC-7 Geotextiles and Mats	Sloped disturbed areas	After 14 days of inactivity	After land disturbance
	EC-16 Non-Vegetative Stabilization	In-active Disturbed areas	Option for stabilization	After land disturbance
Sediment Control BMPs	SE-3 Silt Fence	See BMP Map	QSP Directed	QSP Directed
	SE-5 Fiber Rolls	Perimeter, See BMP Map	Start of Construction	Entirety of Project
	SE-7 Street Sweeping	Public and on-site access roads	Start of Construction	Entirety of Project
	SE-10 Storm Drain Inlet Protection	Inlets receiving discharge from the site	Start of Construction	Entirety of Project
Wind Erosion Control BMPs	WE-1 Wind Erosion Control	Entirety of Site	Start of Construction	Entirety of Project
Tracking Control BMPs	TC-1 Stabilized Construction Entrance	Vehicle Exits	Start of Construction	Entirety of Project
	TC-2 Stabilized Construction Road	Non-winterized construction roads	Prior to wet weather	Entirety of Project
	TC-3 Entrance Outlet Tire Wash	Contained Location at Construction Exit	QSP Directed	Entirety of Project
Non-Stormwater Control BMPs	NS-1Water Conservation Practices	Entirety of Site	Start of Construction	Entirety of Project
	NS-2 Dewatering Operations	See BMP Map	During Dewatering Operations	Entirety of Project
	NS-3 Paving and Grinding Operations	Where Paving Operations Occur	During Paving Operations	During Paving Operations
	NS-6 Illicit Connection/Discharge	Entirety of Site	Start of Construction	Entirety of Project

Table 3-1 BMP Implementation Schedule

	BMP	Location	Implementation	Duration
	NS-7 Portable Water/Irrigation	Entirety of Site	Start of Construction	Entirety of Project
	NS-11 Pile Driving Operations	Where Pile Driving Operations Occur	During Pile Driving Operations	During Pile Driving Operations
	NS-12 Concrete Curing	Entirety of Site	Foundation phase	Foundation phase
	N13-7 Concrete Finishing	Entirety of Site	Vertical phase	Vertical phase
Waste Management and Construction Material Control BMPs	WM-1 Material Delivery and Storage	Where material is delivered & stored	Start of Construction	Entirety of Project
	WM-2 Material Use	Where material is used	Start of Construction	Entirety of Project
	WM-3 Stockpile Management	Where stockpiled material is located	Start of Construction	Entirety of Project
	WM-4 Spill Prevention and Control	Where spills are located	Start of Construction	Entirety of Project
	WM-5 Solid Waste Management	Where waste is located	Start of Construction	Entirety of Project
	WM-6 Hazardous Waste Management	Where hazardous waste is located	Start of Construction	Entirety of Project
	WM-7 Contaminated Soil Management	Entirety of Site	If necessary	If necessary
	WM-8 Concrete Waste Management	Where washouts are located	Start of Construction	Entirety of Project
	WM-9 Sanitary/Septic Waste Management	Where portable toilets are located	Start of Construction	Entirety of Project

3.2 EROSION AND SEDIMENT CONTROL

Erosion and sediment controls are required by the 2022 CGP to provide effective reduction or elimination of sediment related pollutants in stormwater discharges and authorized non-stormwater discharges from the Site. Applicable BMPs are identified in this section for erosion control, sediment control, tracking control, and wind erosion control.

3.2.1 Erosion Control

Erosion control, also referred to as soil stabilization, consists of source control measures that are designed to prevent soil particles from detaching and becoming transported in stormwater runoff. Erosion control BMPs protect the soil surface by covering and/or binding soil particles.

This construction project will implement the following practices to provide effective temporary and final erosion control during construction:

1. Preserve existing vegetation where required and when feasible.
2. The area of soil disturbing operations shall be controlled such that the Contractor is able to implement erosion control BMPs quickly and effectively.
3. Stabilize non-active areas within 14 days of cessation of construction activities or sooner if stipulated by local requirements.
4. Control erosion in concentrated flow paths by applying erosion control blankets, check dams, erosion control seeding, or alternate methods.
5. Prior to the completion of construction, apply permanent erosion control to remaining disturbed soil areas.

Sufficient erosion control materials shall be maintained onsite to allow implementation in conformance with this SWPPP.

The following erosion control BMP selection table, Table 3-2 indicates the BMPs that will be implemented to control erosion on the construction site. Fact Sheets for temporary erosion control BMPs are provided in Appendix G.

These temporary erosion control BMPs shall be implemented in conformance with the following guidelines and as outlined in the BMP Factsheets provided in Appendix G. If there is a conflict between documents, the Site Map will prevail over narrative in the body of the SWPPP or guidance in the BMP Fact Sheets. Site specific details in the Site Map prevail over standard details included in the Site Map. The narrative in the body of the SWPPP prevails over guidance in the BMP Fact Sheets.

Table 3-2 Erosion Control BMPs

CASQA Fact Sheet	BMP Name	Considered for the Project [1]	BMP Used		If not used, state reason and alternate BMP, if applicable
			YES	NO	
EC-1	Scheduling	✓	✓		
EC-2	Preservation of Existing Vegetation	✓	✓		Where noted on plans & where possible
EC-3	Hydraulic Mulch	✓[2]	✓		As needed for temporary stabilization
EC-4	Hydroseed	✓[2]	✓		As needed for temporary or permanent stabilization
EC-5	Soil Binders	✓[2]		✓	Alternate option for temporary stabilization
EC-6	Straw Mulch	✓[2]	✓		As needed for temporary or permanent stabilization
EC-7	Geotextiles and Mats	✓[2]	✓		As needed for temporary or permanent stabilization
EC-8	Wood Mulching	✓[2]	✓		As needed for temporary or permanent stabilization
EC-9	Earth Dike and Drainage Swales	✓[3]	✓		As needed for run-on control
EC-10	Velocity Dissipation Devices	✓[3]		✓	Not anticipated
EC-11	Slope Drains	✓[3]		✓	Not anticipated
EC-12	Stream Bank Stabilization			✓	Not anticipated
EC-14	Compost Blankets	✓[2]		✓	Not anticipated
EC-15	Soil Preparation-Roughening	✓		✓	Not anticipated
EC-16	Non-Vegetated Stabilization	✓[2]	✓		As needed for temporary stabilization
WE-1	Wind Erosion Control	✓	✓		

[1] The 2022 CGP Fact Sheet Section I.R.1.d.through I.R.1.i.describes various BMPs that should be considered for use on the construction site.
[2] The QSD shall ensure implementation of one of the minimum measures listed or a combination thereof to achieve and maintain the Risk Level requirements.
[3] All run-on and runoff from the construction site shall be managed for Risk Level 2 and 3 and Risk Level 1 if the evaluation of quantity and quality of run-on and runoff deems them necessary or visual inspections show that the site requires these controls. Run-on from offsite shall be directed away from all disturbed areas, diversion of offsite flows may require design/analysis by a licensed civil engineer and/or additional environmental permitting.

EC-1 Scheduling

Scheduling is the development of a written plan that includes sequencing of activities and BMPs taking local climate into consideration. A primary objective of scheduling is to reduce the area and duration of soil exposed to rain and erosion.

For example, a hydroseed or hydraulic mulch truck can be scheduled to provide slope protection when it is known that a large graded area will be inactive for an extended period of time.

EC-2 Preservation of Existing Vegetation (Including a Surface Water Buffer)

In areas to remain, protect vegetation is important to the reduction of erosion. Existing vegetation should be kept in areas where construction will happen as long as possible to reduce erosion risk.

Provide and maintain a 50-foot undisturbed natural buffers and/or equivalent erosion and sediment control measures when a water of the U.S. is located within 50 feet of the site's earth disturbances.

EC-3 Hydraulic Mulch

Spray hydraulic mulch consists of fibrous materials mixed with water into slurry and sprayed onto the soil surface to provide temporary protection from wind and water erosion.

EC-4 Hydroseed

Hydroseeding combines hydraulic mulch with seed and sometimes a binder. The mulch provides temporary protection of exposed soils until vegetation is established. Hydroseed disturbed areas requiring temporary protection from wind and water erosion, or for permanent stabilization. Hydroseed is not a stand-alone BMP measure and should be combined with other measures (mulch, geotextiles, …) while vegetation is established.

EC-5 Soil Binders

Soil binders are soil stabilizing chemicals such as polymers, applied to exposed soil surfaces to provide temporary erosion controls. Soil binders come in liquid or powder form and are sprayed onto or mixed into the soil surface. Soil binders when used as a stand-alone practice, can often be incorporated into the soil and are a good alternative to mulch or seed where grading activities will soon resume.

EC-6 Straw Mulch

Straw mulch consists of placing a uniform layer of straw and incorporating it into the soil with a studded roller or crimper or tackifier to form an erosion-resistant layer. Straw mulch is suitable for disturbed area requiring temporary protection until permanent stabilization is established. Straw can be used as a stand-alone BMP or in combination with other measures until soils can be prepared for permanent vegetation.

EC-7 Geotextiles and Mats

Geotextiles and Mats are rolled erosion control products used on slopes, and in areas of high erosion exposure and where vegetation will be slow to establish. Geotextiles and mats cover disturbed soil from rain impacts, hold soil in place, and absorb moisture at the soil surface.

EC-8 Wood Mulching

Wood mulch consists of placing a layer of shredded wood mulch, bark or compost alone or in combination on flat disturbed soil areas. Wood mulch reduces erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing runoff. Wood mulching is suitable for

areas requiring temporary protection until permanent vegetation is established. Wood mulch may be used as permanent stabilization, generally used in areas with landscape.

EC-9 Earth Dike and Drainage Swales

Construct a berm or dike of compacted soil to divert water to a desired location. Create a depression in the soil or swale to direct flow around the site and to convey flow to drainage structures or landscape areas.

EC- 10Velocity Dissipation Devices

Provide energy dissipation devices using rock, grouted rip-rap or concrete rubble at discharge point of culverts, conduits or channels to reduce scour caused by concentrated flows.

EC-11 Slope Drains

Slope drains intercept and pipe surface runoff or groundwater to a stabilized watercourse, sediment trap or stabilized area. Slope drains are used with earth dikes and drainage ditches to intercept and direct surface flows away from slopes.

EC-12 Stream bank Stabilization

Not applicable

EC-15 Soil Preparation-Roughening

Preparation of exposed soil to create terrain with variations in surface to slow runoff.

EC-16 Non-Vegetated Stabilization

Provide effective soil cover for inactive areas and finished slopes, open space, utility backfill, and completed lots. In areas of high traffic, it may be warranted to install additional non-vegetative stabilization to prevent sediment from leaving the site.

WE-1 Wind Erosion Control

Control the air deposition of site materials and from site operations. Such particulates can include, but not limited to, sediment, nutrients, trash, metals, bacteria, oil and grease and organics. Keep disturbed soil damp. This is most noticeable paths traveled by construction equipment. In most cases, the use of a water truck to lightly spray down paths and stockpiles will prevent wind erosion.

3.2.2 Sediment Controls

Sediment controls are temporary or permanent structural measures that are intended to complement the selected erosion control measures and reduce sediment discharges from active construction areas. Sediment controls are designed to intercept and settle out soil particles that have been detached and transported by the force of water.

The following sediment control BMP selection table indicates the BMPs that will be implemented to control sediment on the construction site. Fact Sheets for temporary sediment control BMPs are provided in Appendix G.

These temporary sediment control BMPs will be implemented in conformance with the following guidelines and in accordance with the BMP Fact Sheets provided in Appendix G. If there is a conflict between documents, the Site Map will prevail over narrative in the body of the SWPPP or guidance in the BMP Fact Sheets. Site specific details in the Site Map prevail over standard details included in the Site Map. The narrative in the body of the SWPPP prevails over guidance in the BMP Fact Sheets.

Table 3-3 Temporary Sediment Control BMPs

CASQA Fact Sheet	BMP Name	Considered for the Project [1]	BMP used		If not used, state reason and alternate BMP, if applicable
			YES	NO	
SE-1	Silt Fence	✓[2] [3]	✓		
SE-2	Sediment Basin		✓		As needed to control release
SE-3	Sediment Trap	✓	✓		As needed to contain or slow down flows
SE-4	Check Dams	✓	✓		As needed to contain or slow down flows
SE-5	Fiber Rolls	✓[2][3]	✓		
SE-6	Gravel Bag Berm	✓[3]	✓		As needed to contain or slow down flows
SE-7	Street Sweeping	✓	✓		
SE-8	Sandbag Barrier	✓	✓		As needed to contain or slow down flows
SE-9	Straw Bale Barrier	✓		✓	Not anticipated
SE-10	Storm Drain Inlet Protection	✓ RL2&3	✓		
SE-11	ATS	✓		✓	Not anticipated
SE-12	Manufactured Linear Sediment Controls	✓		✓	Optional alternative
SE-13	Compost Sock and Berm	✓[3]		✓	Optional alternative
SE-14	Biofilter Bags	✓[3]		✓	Not applicable
NA	Passive Treatment System	✓		✓	Not anticipated
TC-1	Stabilized Construction Entrance and Exit	✓	✓		
TC-2	Stabilized Construction Roadway		✓		As needed for winterization
TC-3	Entrance Outlet Tire Wash	✓		✓	Not anticipated, as needed

[1] The 2022 CGPs Fact Sheet Section I.R.1.d through I.R.1.i describes various BMPs that should be considered for use on the construction site.
[2] The QSD shall ensure implementation of one of the minimum measures listed or a combination thereof to achieve and maintain the Risk Level requirements.
[3] All run-on and runoff from the construction site shall be managed. Risk Level 2 and 3 shall provide linear sediment control along toe of slope, face of slope, and at the grade breaks of exposed slope.

SE-1 Silt Fence

A silt fence is used to detail sediment-laden water, promoting sedimentation behind the fence. Silt fences are made of a woven geotextile that has been entrenched attached to supporting poles, and sometimes backed by a plastic or wire mesh for support.

SE-2 Sediment Basin

A sediment basinis a temporary basin with a controlled release stucture that is formed by excavation or construction of an embankment to detail sediment-laden runoff and allow sediment to settle out before discharging.

SE-3 Sediment Trap

A temporary basin formed by excavation and/or construction of an earthen embankment across a waterway or low drainage area to detain sediment-laden runoff and allow sediment to settle out before discharging.

SE-4 Check Dams

Check dams are small barriers construction of various materials (e.g. rock, sandbags, gravel bags) placed across a constructed swale or drainage ditch. Check dams reduce flow rates and trap sediment.

SE-5 Fiber Rolls

Fiber rolls are tubes of straw, coconut fiber or other biodegradable material wrapped by netting. Some fiber rolls are weighted with gravel cores. Fiber rolls are typically installed along contours in a trench and staked into place. Fiber rolls perform a variety of erosion control and sediment control functions including slowing flow, reducing slope length, ponding runoff , and releasing the runoff as sheet flow.

SE-6 Gravel Bag Berm

Gravel bag berms consist of a series of gravel-filled bags placed on a level contour to intercept sheet flows. Gravel bags pond runoff, allowing sediment to settle out, and slowly release runoff as sheet flow.

SE-7 Street Sweeping

Street sweeping and vacuuming includes using self-propelled and walk-behind equipment to remove sediment from streets, roads, and paved surfaces. Sweeping and vacuuming are suitable anywhere sediment is tracked from the project site onto public or private paved surfaces and within the project site on paved surfaces.

SE-8 Sandbag Barrier

A sandbag barrier is a series of sand-filled bags placed on a level contour to intercept or to divert sheet flows. Sandbag barriers can be used to pond runoff allowing sediment to settle out.

Se-9 Straw Bale Barrier

Not anticipated.

SE-10 Storm Drain Inlet Protection

Storm drain inlet protection consists of a sediment filter or ponding area in, around, or upstream of a storm drain inlet. These practices temporarily pond runoff before it enters the storm drain, allowing sediment to settle. Some practices remove sediment by filtering, but usually the ponding results in the greatest sediment reduction.

SE- 11 Active Treatment System

Active treatment systems (ATS) reduce turbidity by introducing chemicals to stormwater through direct dosing or an electrical current to flocculate fine suspended sediments that would otherwise remain in suspension and cause turbid discharges. ATS include several steps for containing water, dosing, filtering, and monitoring water quality throughout the treatment process and may have a separate NPDES permit.

SE-12 Manufactured Linear Sediment Controls

Silt fence and fiber rolls will be used in conjunction as the linear Sediment Control.

TC-1 Stabilized Construction Entrance and Exit

A stabilized construction entrance/exit is a defined access point that is stabilized to reduce the tracking of mud and dirt onto public roads. The access point can be stabilized with a rumble strip or a layer of appropriately sized rock underlain with a geotextile fabric.

TC-2 Stabilized Construction Roadway

Stabilized construction roads include paving, applying gravel or other forms of stabilization to access roads and other road cuts immediately after grading to prevent erosion and control dust. Road stabilization also includes grading roads to minimize flow down the road face and drainage controls manage flow and remove sediment.

TC-3 Entrance Outlet Tire Wash

Stabilized construction roads include paving, applying gravel or other forms of stabilization to access roads and other road cuts immediately after grading to prevent erosion and control dust. Road stabilization also includes grading roads to minimize flow down the road face and drainage controls manage flow and remove sediment.

TC-3 Entrance Outlet Tire Wash

A tire wash is an area located at stabilized construction exit to wash sediment and mud from tires and under carriages to prevent sediment from being carried off the project site**.**

3.3 NON-STORMWATER CONTROLS AND WASTE AND MATERIALS MANAGEMENT

3.3.1 Non-Stormwater Controls

Non-stormwater discharges into storm drainage systems or waterways which are not authorized under the 2022 CGP are prohibited. Non-stormwater discharges for which a separate NPDES permit is required by the local Regional Water Board are prohibited unless coverage under the separate NPDES permit has been obtained for the discharge. The selection of non-stormwater BMPs is based on the list of construction activities with a potential for non-stormwater discharges identified in Section 2.7 of this SWPPP.

The following non-stormwater control BMP selection table indicates the BMPs that will be implemented to control sediment on the construction site. Fact Sheets for temporary non-stormwater control BMPs are provided in Appendix G.

Non-stormwater BMPs will be implemented in conformance with the following guidelines and in accordance with the BMP Fact Sheets provided in Appendix G. If there is a conflict between documents, the Site Map will prevail over narrative in the body of the SWPPP or guidance in the BMP Fact Sheets. Site specific details in the Site Map prevail over standard details included in the Site Map. The narrative in the body of the SWPPP prevails over guidance in the BMP Fact Sheets.

Table 3-4 Temporary Non-Stormwater BMPs

CASQA Fact Sheet	BMP Name	Considered for the Project [1]	BMP used		If not used, state reason and alternate BMP, if applicable
			YES	NO	
NS-1	Water Conservation Practices	✓	✓		
NS-2	Dewatering Operation	✓	✓		
NS-3	Paving and Grinding Operation	✓	✓		
NS-4	Temporary Stream Crossing			✓	Not applicable
NS-5	Clear Water Diversion			✓	Not applicable
NS-6	Illicit Connection/Discharge	✓	✓		
NS-7	Potable Water/Irrigation	✓	✓		
NS-8	Vehicle and Equipment Cleaning	✓	✓		Off-site when possible
NS-9	Vehicle and Equipment Fueling	✓	✓		Off-site when possible
NS-10	Vehicle and Equipment Maintenance	✓	✓		Off-site when possible
NS-11	Pile Driving Operation	✓		✓	Not anticipated
NS-12	Concrete Curing	✓	✓		
NS-13	Concrete Finishing	✓	✓		
NS-14	Material and Equipment Use Over Water			✓	Not applicable
NS-15	Demolition Removal Adjacent to Water			✓	Not applicable
NS-16	Temporary Batch Plants			✓	Not applicable

[1] The 2022 CGP Fact Sheet Section I.R.1.d through I.R.1.i describes various BMPs that should be considered for use on the construction site.

NS-1 Water Conservation Practices

Water conservation practices use water during the construction in a manner that prevents erosion and the transport of pollutants offsite. BMPs include: limiting water use; repairing water leaks; limiting the contact of water with construction materials; and containing and reusing water or soaking water into the ground.

NS-2 Dewatering Operation

Dewatering operations manage the discharge of pollutants (primarily sediment) when contained stormwater must be removed from the site. These practices employ BMPs that trap sediment or cause it to settle out before discharge. Dewatering groundwater may require a separate NPDES permit; otherwise follow the regulations in Attachment J of the General Permit.

NS-3 Paving and Grinding Operation

When paving and grinding operations are active, contractor is to time activities around weather events and to implement BMPs to reduce material and pollution runoff.

NS-6 Illicit Connection/Discharge

Construction site shall only connect where permitted and discharge where permitted.

NS-7 Potable Water/Irrigation

Insure that potable water is not contaminated by other sources. Monitor irrigation to provide enough water to establish new and maintain existing landscape. Observe also that areas are not over watered to prevent erosion, wasting water and pollutants from leaving the site.

NS-8 Vehicle and Equipment Cleaning

Vehicle and equipment washing practices include: using offsite wash facilities; or washing in designated, contained areas; and eliminating dis- charges to the storm drain.

NS- 9 Vehicle and Equipment Fueling

Vehicle equipment fueling practices are designed to prevent fuel spills and leaks by using offsite facilities, fueling in designated areas, enclosing or covering stored fuel, implementing spill controls, and training workers in proper fueling procedures.

NS-10 Vehicle and Equipment Maintenance

Vehicle equipment maintenance is performed in a manner to maintain a clean and dry site. The best option is to perform maintenance at an offsite facility. Otherwise, perform maintenance in designated areas, where materials and waste can be properly stored, and spill prevention equipment is available.

NS-12 Concrete Curing

Insure that if any chemicals are used in the curing process that they do not wash out and enter the surround area and inlets.

NS-13 Concrete Finishing

If used on site, collect and properly dispose of water from high pressure blasting operations.

3.3.2 Materials Management and Waste Management

Materials management control practices consist of implementing procedural and structural BMPs for handling, storing, and using construction materials to prevent the release of those

materials into stormwater discharges. The amount and type of construction materials to be utilized at the Site will depend upon the type of construction and the length of the construction period. The materials may be used continuously, such as fuel for vehicles and equipment, or the materials may be used for a discrete period, such as soil binders for temporary stabilization.

Waste management consist of implementing procedural and structural BMPs for handling, storing, and ensuring proper disposal of wastes to prevent the release of those wastes into stormwater discharges. Waste management should be conducted in accordance with the Project's Construction Waste Management Plan if one is available.

Materials and waste management pollution control BMPs will be implemented to minimize stormwater contact with construction materials, wastes, and service areas; and to prevent materials and wastes from being discharged off-site. The primary mechanisms for stormwater contact that shall be addressed include:

- Direct contact with precipitation
- Contact with stormwater run-on and runoff
- Wind dispersion of loose materials
- Direct discharge to the storm drain system through spills or dumping
- Extended contact with some materials and wastes, such as asphalt cold mix and treated wood products, which can leach pollutants into stormwater.

A list of construction activities is provided in Section 2.6. The following Materials and Waste Management BMP selection table, Table 3-5, indicates the BMPs that shall be implemented to handle materials and control construction site wastes associated with these construction activities. Fact Sheets for Materials and Waste Management BMPs are provided in Appendix G.

Material management BMPs will be implemented in conformance with the following guidelines and in accordance with the BMP Fact Sheets provided in Appendix G. If there is a conflict between documents, the Site Map will prevail over narrative in the body of the SWPPP or guidance in the BMP Fact Sheets. Site specific details in the Site Map prevail over standard details included in the Site Map. The narrative in the body of the SWPPP prevails over guidance in the BMP Fact Sheets.

Table 3-5 Temporary Materials Management BMPs

CASQA Fact Sheet	BMP Name	Considered for Project [1]	BMP used		If not used, state reason and alternate BMP, if applicable
			YES	NO	
WM-01	Material Delivery and Storage	✓	✓		
WM-02	Material Use	✓	✓		
WM-03	Stockpile Management	✓	✓		
WM-04	Spill Prevention and Control	✓	✓		
WM-05	Solid Waste Management	✓	✓		
WM-06	Hazardous Waste Management	✓	✓		
WM-07	Contaminated Soil Management	✓	✓		If contaminated soil is present
WM-08	Concrete Waste Management	✓	✓		
WM-09	Sanitary-Septic Waste Management	✓	✓		
WM-10	Liquid Waste Management	✓	✓		

[1] The 2022 CGP Fact Sheet Section I.R.1.d through I.R.1.i describes various BMPs that should be considered for use on the construction site.

Ms-1 Material Delivery and Storage

Materials should not be able to be rained on or placed in flow paths. Stored in water tight containers with appropriate secondary containment or in a storage shed. All hazardous or flammable materials need to follow additional storage guidelines per regulatory agencies. A record of material should be kept on site and up to date.

MS-2 Material Use

Use only what is necessary, installed by trained employees and remaining material is returned to storage after use.

MS-3 Stockpile Management

Stockpile management practices prevent air and stormwater pollution from stockpiles (e.g., soil, sand, paving materials, and pressure-treated wood) by properly locating stockpiles, using perimeter barriers, and covering stockpiles.

MS-4 Spill Prevention and Control

Implement technics and use trained personnel to prevent spills from happening. If a spill occurs, inform and have trained personnel document, remove and properly dispose of spilt material. Area of spill should be monitored for non-visible after cleanup.

MS-5 Solid Waste Management

Designate areas to store and cover prior to removal from site. Trash cans shall be emptied daily. Make sure that toxic materials are disposed of into proper container and not into general construction waste bins.

MS-6 Hazardous Waste Management

Handling and disposal of hazardous waste shall be performed by a train employee and follow each materials guideline for disposal.

MS-7 Contaminated Soil Management

Proactivity prevent leaks and spills. Contaminated soil can be expensive to treat and dispose of properly. Identify location and extend of spill. With train personnel, remove all contaminated soil. Test and inspect site after removal to ensure all has been removed.

MS-8 Concrete Waste Management

Properly dispose of concrete waste into wash out areas. These areas should be appropriately sized and monitored for spills. If spill is found, follow spill procedure and implement solution to prevent further spills.

MS-9 Sanitary-Septic Waste Management

Sanitary or septic wastes shall be treated or disposed of in accordance with state and local requirements. The sanitary facilities shall be located at least 50 feet away from storm drains. The weekly QSP inspection shall include a review of sanitary facilities and disposal shall be monitored.

MS-10 Liquid Waste Management

Select designated liquid waste collection areas onsite. Inspect containers for leaks and repair any container that is not watertight. Locate containers in a covered area or in secondary containment.

3.4 TMDL-RELATED BMPS (NOT APPLICALBLE TO THIS SWPPP)

Receiving waters are not listed with a TMDL in Table H-1 and Table TH-2.

3.5 POST CONSTRUCTION STORMWATER MANAGEMENT MEASURES

Post construction BMPs are permanent measures installed during construction, designed to reduce or eliminate pollutant discharges from the site after construction is completed.

This project is subject to the post-construction reduction requirements of an existing NPDES Phase I/II MS4

The post construction runoff reduction requirements will be satisfied through the MS4 program, this project is exempt from 2022 CGP Provision IV.N.3. The MS4's post construction requirements and the post-construction plans and calculations submitted to or approved by the MS4 will be uploaded as part of the PRDs as required by the 2022 CGP Provision IV.N.2. The approved Long-Term Maintenance Plan will be uploaded with the NOT.

See Post-Construction Documentation in Appendix E for post-construction measures.

A plan for the post construction funding and maintenance has been developed to address at minimum of five years following construction. The post-construction BMPs that are described above will be funded and maintained as described in the Operations and Maintenance Plan that will be uploaded with the NOT.

Section 4 BMP Inspection and Maintenance

4.1 BMP INSPECTION AND MAINTENANCE

The 2022 CGP requires routine weekly inspections of BMPs, along with inspections before, during, and after qualifying precipitation events. A BMP inspection checklist must be filled out for inspections and maintained on-site with the SWPPP. The inspection checklist must include the necessary information covered in Section 7.6. A blank BMP Inspection Form can be found in Appendix H. Completed forms will be kept in Appendix N.

Maintenance, repair, or design and implementation of new BMPs alternatives will be begin withing 72 hours of the identification of failures or other shortcomings. Corrections will be completed as soon as possible, prior to the next forecasted precipitation event (2022 CGP Appendix D Section II.J).

The QSP will verify that all BMP maintenance and repairs were appropriately implemented during the next visual inspection following completion.

The QSP may delegate BMP maintenance and repair verification to an appropriately trained QSP Delegate.

Specific details for maintenance, inspection, and repair of Construction Site BMPs can be found in the BMP Factsheets in Appendix G.

Section 5 Training

Appendix J identifies the QSPs and QSP Delegates for the project. To promote stormwater management awareness specific for this project, periodic training of job-site personnel will be included as part of routine project meetings (e.g., daily/weekly tailgate safety meetings), or task specific training as needed. Refresher training will be provided as necessary.

The QSP will be responsible for providing this information at the meetings, and subsequently completing the Training Reporting Form shown in Appendix I, which identify the site-specific stormwater topics covered as well as the names of site personnel who attended the meeting.

The QSP may delegate specific tasks to trained QSP Delegates who have received the following training based on the guidelines developed by the Construction General Permit Training Team.

1. **Foundational training** for all QSP Delegate(s) regarding stormwater compliance roles and responsibilities, forecast information, and documentation and reporting procedures; and
2. **Site-specific training** regarding visual inspections, sampling procedures, and/or SWPPP and BMP implementation activities relevant to the responsibilities assigned to the QSP Delegate(s).

The delegate cannot perform the QSD and QSP inspections required in Section V.C.4 or Section V.D.2, respectively.

Documentation of training activities will be retained in Appendix I.

Section 6 Responsible Parties and Operators

6.1 RESPONSIBLE PARTIES

Dually Authorized Representatives (DARs) who are responsible for SWPPP implementation and have authority to sign permit-related documents are listed below. The DAR(s) assigned to this project are:

Name	Title	Phone Number

QSD(s) identified for the project are identified in Appendix J. The QSD will have primary responsibility for assessing how construction activities will affect sediment transport, erosion, and other discharges of pollutants in stormwater runoff throughout the project. The QSD is required to revise the SWPPP to address potential problems identified by visual inspections, sampling data, comments from a QSP, or their own site observations. The QSD is required to perform the following on-site visual inspections:

- Within 30 days of construction activities commencing on site;
- Within 30 days when a new QSD is assigned to the project;
- Twice annually, once August through October and once January through March;
- Within 14 calendar days after a numeric action level exceedance; and
- Within the time period requested in writing from Regional Water Board staff.

QSPs and QSP Delegates identified for the project are identified in Appendix J. The QSP will have primary responsibility and significant authority for the implementation, maintenance, and inspection/monitoring of SWPPP requirements. The QSP will be available at all times throughout the duration of the project.

Duties of the QSP include but are not limited to:

- Implementing all elements of the 2022 CGP and SWPPP, including, but not limited to:
    - Performing the following on-site visual inspections:
        - One inspection per calendar month; other weekly inspections in the month can be delegated to a trained QSP Delegate under the specific direction of the QSP.
        - Within 72 hours prior to a forecasted qualifying precipitation event, to inspect any areas of concern and to verify the status of any deficient BMPs, or other identified issues at the site. If extended forecast precipitation data (greater than 72 hours) is available from the *National Weather Service*, then the Pre-Precipitation Event inspection may be done up to 120 hours in advance.
        - Within 14 days after a NAL exceedance, the QSP shall visually inspect the drainage area for exceedance and document any areas of concern.
        - Prior to the submittal for the NOT or COI (for acreage changes) for all or part of the site.

  - Ensuring that all BMPs are implemented, inspected, and properly maintained;
  - Ensure that the SMARTS generated WDID Number Notification form is posted on-site, in a location viewable by the public or readily available upon request, and the dates are correct and match the dates listed in SMARTS.
- Implementing non-stormwater management, and materials and waste management activities such as: monitoring discharges; general Site clean-up; vehicle and equipment cleaning, fueling and maintenance; spill control; ensuring that no materials other than stormwater are discharged in quantities which will have an adverse effect on receiving waters or storm drain systems, etc.;
- Ensuring elimination of unauthorized discharges.
- The QSPs shall be assigned authority by the LRP to mobilize crews in order to make immediate repairs to the control measures.
- Coordinate with the Contractor(s) to assure the necessary corrections/repairs are made immediately and that the project complies with the SWPPP, the 2022 CGP, and approved plans at all times.
- Notifying the LRP or Duly Authorized Representative immediately of off-site discharges or other non-compliance events.
- Providing foundation and site-specific training to QSP Delegates and overseeing QSP Delegate work. Tasks that may be delegated to appropriately trained QSP-delegates include:
  - Performing non-stormwater and stormwater visual observations and inspections;
  - Performing stormwater sampling and analysis, as required; and
  - Performing routine inspections and observations.

Table 6-1. QSP and QSP Delegate Authorized Inspections

	Weekly BMP and NSW	Pre-QPE	Daily-QPE Visual Inspections	Post-QPE Visual Inspections	Post NAL Exceedances	Monthly BMP and NSW	NOT
QSP	X	X	X	X	X	X	X
QSP Delegate	X		X	X			

6.2 CONTRACTOR LIST

Contractor Name:	TBD
Title:	TBD
Contractor Company:	TBD
Address	TBD
Phone Number:	TBD
Phone Number (24/7)	TBD

Section 7 Construction Site Monitoring Program

7.1 Purpose

This Construction Site Monitoring Program was developed to address the following objectives:

1. To demonstrate that the site is in compliance with the Discharge Prohibitions and Numeric Action Levels (NALs) for Risk Level 2 and 3;
2. To demonstrate that the site is in compliance with TMDL NALs and Numeric Effluent Limitations (NELs) for sites with identified TMDLs;
3. To determine whether non-visible pollutants discharged from the construction site and are causing or contributing to exceedances of water quality objectives;
4. To determine whether immediate corrective actions, additional BMP implementation, or SWPPP revisions are necessary to reduce pollutants in stormwater discharges and authorized non-stormwater discharges;
5. To determine whether BMPs included in the SWPPP are effective in preventing or reducing pollutants in stormwater discharges and authorized non-stormwater discharges.

7.2 Applicability of Permit Requirements

This project has been determined to be a **Risk Level 2** project. The 2022 CGP identifies the following types of monitoring as being applicable for a **Risk Level 2** project.

Risk Level 1, 2, 3

- Visual inspections of BMPs;
- Visual monitoring of the site related to qualifying precipitation events;
- Visual monitoring of the site for non-stormwater discharges;
- Sampling and analysis of construction site runoff for non-visible pollutants [including TMDL pollutants] identified during the pollutant source assessments when applicable; and
- Sampling and analysis of construction site runoff as required by the Regional Water Board when applicable.

Additional monitoring for Risk Level 2 & 3

- Sampling and analysis of construction site runoff for pH and turbidity;

7.3 Weather and Precipitation Event Tracking

Visual monitoring and inspections requirements of the 2022 CGP are triggered by a Qualifying Precipitation Event. The 2022 CGP defines a Qualifying Precipitation Event as any weather pattern that is forecast to have a 50 percent or greater Probability of Precipitation (PoP) and a Quantitative Precipitation Forecast (QPF) of 0.5 inches or more within a 24-hour period. The event begins with the 24-hour period when 0.5 inches has been forecast and continues on subsequent 24-hour periods when 0.25 inches of precipitation or more is forecast.

7.3.1 Weather Tracking

The QSP should daily consult the National Oceanographic and Atmospheric Administration (NOAA) for the Forecast Weather Table Interface. The forecast and the probability of

precipitation (PoP) and the Quantitative Precipitation Forecast (QPF) can be obtained at the Forecast Weather Table Interface https://www.weather.gov/wrh/wxtable

Weather reports should be printed and maintained with the SWPPP in Appendix M or documented electronically and available upon request.

7.3.2 Rain Gauges

The QSP shall install one rain gauge on the project site. Locate the gauge in an open area away from obstructions such as trees or overhangs. Make sure that the top of the gauge is level. Make sure the rain gauge is not located in an area where rainwater can indirectly splash from sheds, equipment, trailers, etc.

The rain gauge shall be read daily during normal site scheduled hours. The rain gauge should be read at approximately the same time every day and the date and time of each reading recorded. An example rain gauge log sheet is provided in Appendix O. Retain rain gauge readings in Appendix N. Follow the rain gauge instructions to obtain accurate measurements.

Once the rain gauge reading has been recorded, accumulated rain shall be emptied, and the gauge reset. Electronically read rain gauges may also be used.

For comparison with the site rain gauge, check http://srh.noaa.gov/ by zip code for the nearest appropriate governmental rain gauge(s).

7.4 Monitoring Locations

Monitoring locations are shown on the Site Maps in Appendix A. Monitoring locations are described in the Sections 7.6 and 7.7.

Whenever changes in the construction site might affect the appropriateness of sampling locations, the sampling locations shall be revised accordingly. All such revisions shall be implemented as soon as feasible and the SWPPP amended. Temporary changes that result in a one-time additional sampling location do not require a SWPPP amendment.

7.5 Safety and Monitoring Exemptions

Safety practices for sample collection will be in accordance with the contractor's Health and Safety Plan for the project. A summary of the safety requirements that apply to sampling personnel is provided below.

- Sampling activities to occur a safe distance from vehicle traffic, construction equipment, excavation and trenches
- A visible safety vest is to be worn during sampling activities.

This project is not required to collect samples or conduct visual observations (inspections) under the following conditions (see Section III.B of the 2022 CGP):

- During dangerous weather conditions such as electrical storms, flooding, and high winds above 40 miles per hour;
- Outside of scheduled site operating hours; or

When the site is not accessible to personnel. Scheduled site business hours are listed on site.

If monitoring (visual monitoring or sample collection) of the site is unsafe because of the dangerous conditions noted above, then the QSP shall document the conditions for why an

exception to performing the monitoring was necessary. The exemption documentation will be filed in Appendix N and must be included in the Annual Report.

7.6 Visual Monitoring

Per Section III.B.2. of Attachment D in the 2022 CGP, "For inactive projects, dischargers may reduce the visual inspection frequency and suspend sampling per Section III.G of the 2022 CGP. Dischargers shall provide an explanation with supporting information for all missed visual inspections or sampling required by this Attachment, to be included in the Annual Report."

Visual monitoring includes observations and inspections. Inspections of BMPs are required to identify and record BMPs that need maintenance to operate effectively, that have failed, or that could fail to operate as intended. Visual observations of the site are required to observe storm water drainage areas to identify any spills, leaks, or uncontrolled pollutant sources.

Table 7-1 identifies the required frequency of visual observations and inspections. Inspections and observations will be conducted at the locations identified in Section 7.6.3.

Table 7-1 Summary of Visual Monitoring and Inspections

Type of Inspection	Frequency
Routine Inspections[1]	
BMP Inspections	Weekly[2]
Qualifying Precipitation Event Triggered Inspections	
Site Inspections Prior to a Qualifying Precipitation Event	Within 72 hours of a qualifying precipitation event or up to 120 hours prior if supported with forecast [2]
BMP Inspections During an Extended Qualifying Precipitation Event	Once every 24-hour period of a qualifying precipitation event[3]
Site Inspections Following a Qualifying Precipitation Event	Within 96 hours of a qualifying precipitation event[2]

[1] Inspections are required during scheduled site operating hours.

[2] Most BMPs must be inspected weekly; those identified below must be inspected more frequently.

[3] Inspections are required during scheduled site operating hours on days that the forecast predicts at least 0.25 inches of precipitation once the qualifying precipitation event commences.

7.6.1 Routine Observations and Inspections

Routine site inspections and visual monitoring are necessary to confirm that the project is in compliance with the requirements of the 2022 CGP.

7.6.1.1 Routine BMP Inspections

Inspections of BMPs are conducted to identify and record:

- BMPs that are properly installed;
- BMPs that need maintenance to operate effectively;
- BMPs that have failed; or

- BMPs that could fail to operate as intended.

7.6.1.2 Non-Stormwater Discharge Observations

Each drainage area will be inspected for the presence of or indications of prior unauthorized and authorized non-stormwater discharges. Inspections will record:

- Presence or evidence of any non-stormwater discharge (authorized or unauthorized);
- Identification and elimination of unauthorized non-stormwater discharges
- Pollutant characteristics (floating and suspended material, sheen, discoloration, turbidity, odor, etc.); and
- Source of discharge.

7.6.2 Qualifying Precipitation Event Triggered Observations and Inspections

Visual observations of the site and inspections of BMPs are required prior to a qualifying precipitation event; following a qualifying precipitation event, and every 24-hour period during a qualifying precipitation event. Pre-Qualifying Precipitation Event inspections will be conducted after consulting NOAA and determining that a precipitation event with a 50 percent or greater PoP and a QPF of 0.5 inches or more precipitation within a 24-hour period has been predicted by the National Weather Service Forecast Office.

7.6.2.1 Visual Observations Prior to a Forecasted Qualifying Precipitation Event

Within 72 hours prior to a qualifying precipitation event or up to 120 hours prior if extended forecast precipitation data is available, a stormwater visual monitoring site inspection will include observations of the following locations:

- All stormwater drainage areas to identify leaks, spills, or uncontrolled pollutant sources and when necessary, implement appropriate corrective actions.
- All BMPs to identify whether they have been properly implemented per the SWPPP and implement appropriate corrective actions, as necessary.
- All stormwater storage and containment areas to detect leaks and check for available capacity to prevent overflow.

The QSP must conduct the inspection prior to the qualifying precipitation event. Consistent with the requirements for a qualifying precipitation event, pre-rain BMP inspections and visual monitoring will be triggered by a NOAA forecast that indicates a 50 percent or greater probability of 0.5 inches of precipitation or more in a 24-hour period in the project area.

7.6.2.2 BMP Inspections During a Qualifying Precipitation Event

During an extended qualifying precipitation event BMP inspections will be conducted at least once every 24 hours. Qualifying precipitation events are extended for each subsequent 24-hour period forecast to have at least 0.25 inches of precipitation. The BMP inspections are to identify and record:

- If BMPs were adequately designed, implemented and effective.
- BMPs that require repair or replacement due to damage.
- Additional BMPs that need to be implemented and revise the SWPPP accordingly.

If the construction site is not accessible during the rain event, the visual inspections shall be performed at all relevant outfalls, discharge points, downstream locations. The inspections should record any projected maintenance activities.

7.6.2.3 Visual Observations Following a Qualifying Precipitation Event

Within 96 hours following the end of a qualifying precipitation event a stormwater visual monitoring site inspection is required to observe:

- If BMPs were adequately designed, implemented and effective.
- BMPs that require repair or replacement due to damage.
- Additional BMPs that need to be implemented and revise the SWPPP accordingly.

7.6.3 Visual Monitoring Procedures

Visual monitoring shall be conducted by the QSP or QSP Delegates.

The names, contact numbers and training qualifications of the QSPs or QSP Delegates assigned to conduct visual observations are provided in Appendix J.

Stormwater observations shall be documented on the *Visual Inspection Field Log Sheet* (see Appendix O) or equivalent inspection form. BMP inspections shall be documented on the site-specific BMP inspection checklist and include photographs of areas of concern along with the QSP's description of the problem.

The QSP shall provide the completed inspection reports in a timely manner to the project team including a designated representative of the owner and a designated representative of the General Contractor. QPE inspection reports may be distributed upon the conclusion of the rain event.

The completed reports will be kept in Appendix N or electronically available. Results of visual monitoring must be summarized and reported in the Annual Report.

7.6.4 Visual Monitoring Follow-Up and Reporting

Maintenance, repairs, and correction of deficiencies, including design changes to BMPs, identified by the observations or inspections, including required repairs or maintenance of BMPs, shall be initiated within 72 hours of identification and completed as soon as possible, prior to the next forecasted precipitation event.

When design changes to BMPs are required, the SWPPP shall be amended to reflect the changes.

Deficiencies identified in site inspection reports and correction of deficiencies will be tracked on the *Inspection Field Log Sheet, BMP Inspection Report* or equivalent inspection form and shall be kept in Appendix N or electronically available. QSP Delegates shall report issues identified during inspections that require corrective action to the QSP within 24 hours of the observation.

Results of visual monitoring must be summarized and reported in the Annual Report.

7.6.5 Visual Monitoring Locations

The inspections and observations identified in Sections 7.6.1 and 7.6.2 will be conducted at the locations identified in this section.

BMP locations are shown on the Site Maps in Appendix A.

Drainage Areas

Drainage area(s) include the project site, the Contractor's yard, staging areas, and storage areas. Drainage areas are shown on the Site Maps listed in Table 7-2 and located in Appendix A.

Drainage areas are dynamic through construction and will be identified by the QSP on the BMP Map to reflect active discharge locations based on field observations.

Table 7-2 Site Drainage Areas

Plan No	Site Map Name
C7.1	Staging and Erosion Control Plan
BMP Map	Contractor's Activities and BMP Map

Stormwater Storage Areas

Stormwater storage or containment area(s) are on the project site from which stormwater will be dewatered. Stormwater storage or containment area(s) will be identified by the QSP and shown on the Site Maps listed in Table 7-3 and located in Appendix A based on field observations.

Table 7-3 Stormwater Storage and Containment Areas (Dewatering Locations)

Location No.	Location
BMP Map	Contractor's Activities and BMP Map
C5.1	Stormwater Control Plan

Stormwater Discharge Locations

Site stormwater discharge location(s) are locations where runoff is discharged off-site. Discharge locations are shown on the Site Maps in Table 7-4 and located in Appendix A. Discharge locations will be identified and updated by the QSP to reflect active discharge locations based on field observations.

Table 7-4 Site Stormwater Discharge Locations

Location No.	Location
C7.1	Staging and Erosion Control Plan
BMP Map	Contractor's Activities and BMP Map
C5.1	Stormwater Control Plan

7.7 Water Quality Sampling and Analysis

7.7.1 Sampling and Analysis Plan for Non-Visible Pollutants in Stormwater Runoff Discharges

This Sampling and Analysis Plan for Non-Visible Pollutants describes the sampling and analysis strategy and schedule for monitoring non-visible pollutants in stormwater runoff discharges from the project site.

Sampling for non-visible pollutants, including those associated with TMDLs will be conducted when (1) a breach, leakage, malfunction, or spill is observed; and (2) the leak or spill has not been cleaned up prior to the rain event; and (3) there is the potential for discharge of non-visible pollutants to surface waters or drainage system.

Table 7-5 summarizes the potential non-visible pollutants identified in the pollutant source assessment Sections 2.6 and 2.7 and the water quality constituent or indicator for that pollutant.

Common sources of non-visible pollutants include existing site features, demolition of existing structures, soil amendments, construction materials and waste and construction activities.

Table 7-5 Potential Non-Visible Pollutants and Water Quality Indicator Constituents Based on Pollutant Source Assessment

Pollutant	Water Quality Indicator or Constituent	Source/Reason from Pollutant Source Assessment	TMDL Pollutant
Adhesives	COD, Phenols, SVOCs	Adhesives	No
Asphalt Work	COD, Phenols, SVOCs	Asphalt work and products	No
Acids	pH	Cleaning	No
Bleaches	Residual chlorine	Cleaning	No
TSP	Phosphate	Cleaning	No
Solvents	VOCs, SVOCs	Cleaning	No
Detergents	MBAS	Cleaning	No
Sealant (Methyl methacrylate)	SVOC	Concrete/Mason/Stucco work	No
Curing compounds	VOCs, SVOCs, pH	Concrete/Mason/Stucco work	No
Ash, slag, sand	pH, Al, Ca, Va, Zn	Concrete/Mason/Stucco work	No
Drywall	Cu, Al, General Minerals	Drywall	No
Treated Wood	Cu, Cr, As, Zn	Framing /Carpentry	No
Particle board	Formaldehyde	Framing /Carpentry	No
Untreated wood	BOD	Framing /Carpentry	No
Chemical Amendments	Constituents specific to materials	Grading / Earthworks	No
Contaminated Soil	Constituents specific to materials	Grading / Earthworks	No
Heating, Ventilation, Air Conditioning	Freon	Heating, Ventilation, Air Conditioning	No
Insulation	Al, Zn	Insulation	No

Table 7-5 Potential Non-Visible Pollutants and Water Quality Indicator Constituents Based on Pollutant Source Assessment

Pollutant	Water Quality Indicator or Constituent	Source/Reason from Pollutant Source Assessment	TMDL Pollutant
Pesticide / Herbicide	Product dependent, see label and check with Laboratory	Landscaping	No
Fertilizer	TKN, NO3, BOD, COD, DOC, Sulfate, NH3, Phosphate, Potassium	Landscaping	No
Aluminum sulfate	COD, VOCs,	Landscaping	No
Liquid Waste	Constituents specific to materials	Liquid Waste	No
Resins	COD, SVOCs	Painting	No
Thinners	COD, VOCs	Painting	No
Paint Strippers	VOCs, SVOCs, metals	Painting	No
Lacquers, varnishes, enamels	COD, VOCs, SVOCs	Painting	No
Sealants	COD	Painting	No
Adhesives	Phenols, SVOCs	Painting	No
Vegetation Stockpiles	BOD	Planting / Vegetation Management	No
Fertilizers	TKN, NO3, BOD, COD, DOC, sulfate, NH3, Phosphate, Potassium	Planting/Vegetation Management	No
Pesticides/Herbicide	Product dependent, see label	Planting / Vegetation Management	No
Solder, flux, pipe fitting	Cu, Pb, Sn, Zn	Plumbing	No
Removal of existing structures	Zn, VOCs, PCBs, Phenols, SVOCs	Removal of existing structures	No
Roofing	Cu, Pb, VOCs	Roofing	No
Sanitary Waste, Sewer breaks, Portable Toilets	BOD, Total/ Fecal coliform	Sanitary Waste, Sewer breaks, Portable Toilets	No
Polymer/Co-polymers	TKN, NO3, BOD, COD, DOC, Sulfate, Ni	Soil Preparation/ Amendments/ Dust Control	No
Lignin sulfate	TDS, alkalinity	Soil Preparation/ Amendments/ Dust Control	No
Psyllium	COD, TOC	Soil Preparation/ Amendments/ Dust Control	No
Guar/Plant Gums	COD, TOC, Ni	Soil Preparation/ Amendments/ Dust Control	No

Table 7-5 Potential Non-Visible Pollutants and Water Quality Indicator Constituents Based on Pollutant Source Assessment

Pollutant	Water Quality Indicator or Constituent	Source/Reason from Pollutant Source Assessment	TMDL Pollutant
Solid Waste (leakage)	BOD	Solid Waste (leakage)	No
Utility Line Testing/ Flushing	Residual chlorine, chloramines	Utility Line Testing/ Flushing	No
Oils, fuel	VOCs	Vehicle and Equipment Use	No

Run-on

The project has the potential to receive stormwater run-on from the following locations with the potential to contribute non-visible pollutants to stormwater discharges from the project. Locations of such run-on to the project site are shown on the Site Maps in Appendix A, when applicable. QSP to identify run-on locations on the BMP Map based on field observations.

- Run-on is ☒Yes, anticipated ☐Not anticipated

7.7.1.1 Sampling Schedule

Samples for the potential non-visible pollutant(s) and a sufficiently large unaffected background sample shall be collected during the first eight hours of discharge from rain events that result in a sufficient discharge for sample collection. Samples shall be collected during the site's scheduled hours and shall be collected regardless of the time of year and phase of the construction.

Collection of discharge samples for non-visible pollutant monitoring will be triggered only when any of the following conditions are observed during site inspections conducted prior to or during a rain event.

- Materials or wastes containing potential non-visible pollutants are not stored under watertight conditions. Watertight conditions are defined as (1) storage in a watertight container, (2) storage under a watertight roof or within a building, or (3) protected by temporary cover and containment that prevents stormwater contact and runoff from the storage area.
- Materials or wastes containing potential non-visible pollutants are stored under watertight conditions, but (1) a breach, malfunction, leakage, or spill is observed, (2) the leak or spill is not cleaned up prior to the rain event, and (3) there is the potential for discharge of non-visible pollutants to surface waters or a storm drain system.
- A construction activity, including but not limited to those in Section 2.6, with the potential to contribute non-visible pollutants (1) was occurring during or within 24 hours prior to the rain event, (2) BMPs were observed to be breached, malfunctioning, or improperly implemented, and (3) there is the potential for discharge of non-visible pollutants to surface waters or a storm drain system.
- Soil amendments that have the potential to change the chemical properties, engineering properties, or erosion resistance of the soil have been applied, and there is the potential for discharge of non-visible pollutants to surface waters or a storm drain system.

- Stormwater runoff from an area contaminated by historical usage of the site has been observed to combine with stormwater runoff from the site, and there is the potential for discharge of non-visible pollutants to surface waters or a storm drain system.
- Demolition materials, not previously investigated and found to be absent of applicable pollutants in reportable quantities and exposed to precipitation

7.7.1.2 Sampling Locations

Sampling locations are based on proximity to planned non-visible pollutant storage, occurrence or use, accessibility for sampling, and personnel safety. Planned non-visible pollutant sampling locations are an estimate and shown on the Site Maps in Appendix A. Actual locations are determined by the QSP and shown on the BMP Map based on field observations.

Contractor's Yard

Sampling location(s) on the project site and the contractor's yard are for the collection of samples of runoff from planned material and waste storage areas and areas where non-visible pollutant producing construction activities are planned. Sample location(s) are down-gradient of the contractor's yard and/or where materials are stored.

☒Yes, sample down gradient of where materials are stored.

☐No, materials are not stored on site.

Soil Amendments

Sampling locations for the collection of samples of runoff from drainage areas where soil amendments will be applied that have the potential to affect water quality. Potential locations are down-gradient of the existing building perimeter when existing fill is exposed to runoff.

☐Yes, _____. See the BMP Map.

☒None identified prior to preparation of this SWPPP

Historical Contamination

Sampling locations for the collection of samples of runoff from drainage areas contaminated by historical usage of the site.

☐Yes,_____. See the BMP Map.

☒None identified prior to preparation of this SWPPP

Demolition of Existing Structures

Sampling locations for the collection of samples of runoff from demolition materials not previously investigated for the absence of pollutants in reportable quantities and exposed to precipitation with runoff.

☐Yes,_____. See the BMP Map.

☒None identified prior to preparation of this SWPPP

Uncontaminated Sample

Sampling location(s) are for the collection of an uncontaminated sample of runoff as a background sample for comparison with the samples being analyzed for non-visible pollutants. The location(s) are selected such that the sample will not have come in contact with the operations, activities, or areas identified in Section 7.7.1 or with disturbed soils areas. QSP to identify the location based on field observations.

☒Yes, when sampling for a nonvisible pollutant. See the BMP Map.

Run-on

Sampling locations are for the collection of samples of run-on to the project site. Run-on from these locations has the potential to combine with discharges from the site being sampled for non-visible pollutants. These samples are intended to identify potential sources of non-visible pollutants that originate off the project site. QSP to identify the location based on field observations.

☒Yes, at the north side of the development. See the BMP Map.

☐No, run-on is not anticipated.

Additional Locations

If a stormwater visual monitoring site inspection conducted prior to or during a storm event identifies the presence of a material storage, waste storage, operations area with spills, or the potential for the discharge of non-visible pollutants to surface waters or a storm drain system that is at a location not listed above and has not been identified on the Site Maps, sampling locations will be selected by the QSP using the same rationale as that used to identify planned locations. Non-visible pollutant sampling locations shall be documented by the QSP on the pre-rain event inspection form prior to a forecasted qualifying precipitation event and the *Effluent Sampling Field Log Sheet* which are provided in Appendix O. Equivalent forms may be used.

7.7.1.3 Monitoring Preparation

Non-visible pollutant samples will be collected as directed by the lab or QSP.

An adequate stock of monitoring supplies and equipment for monitoring non-visible pollutants will be available on the project site prior to a sampling event. Monitoring supplies and equipment will be stored in a cool temperature environment that will not come into contact with rain or direct sunlight. The QSP or QSP Delegates responsible for sampling will be available to collect samples in accordance with the sampling schedule. Sampling supplies shall be maintained at the project site. *Effluent Sampling Field Log Sheets* and Chain of Custody (CoC) forms are provided in Appendix O.

7.7.1.4 Analytical Constituents

Table 7-7 lists the specific sources and types of potential non-visible pollutants based on the project pollutant source assessment and the water quality indicator constituent(s) for that pollutant. Table 7-7 provides the specific analytical methods and reporting limits for the potential non-visible pollutants. Analytical methods were selected in compliance with U.S. EPA sufficiently sensitive method requirements in 40 Code of Federal Regulations Part 136, as evidenced by the method detection limit and minimum level.

7.7.1.5 Sample Collection

Samples of discharge shall be collected at the designated non-visible pollutant sampling locations identified in Table 7-6 and shown on the Site Maps in Appendix A or in the locations determined by observed breaches, malfunctions, leakages, spills, operational areas, soil amendment application areas, and historical site usage areas that triggered the sampling event.

Grab samples shall be collected and preserved in accordance with the methods identified in the Table 7-7, "Sample Collection, Preservation and Analysis for Monitoring Non-Visible Pollutants" provided in Section 7.7.1.6. Only the QSP, or QSP Delegates trained on sample collection identified in Section 7.7.1.3 shall collect samples.

Sample collection and handling requirements are described in Section 7.7.7.

Table 7-7 Sample Collection, Preservation and Analysis for Monitoring Non-Visible Pollutants

Constituent	Analytical Method	Minimum Sample Volume	Sample Containers	Sample Preservation	Minimum Level	Method Detection Limit	Maximum Holding Time
Notes: Analytical laboratories may use the term Reporting Level in lieu of Minimum Level							

7.7.1.6 Sample Analysis

Samples shall be analyzed using the analytical methods identified in the Table 7-7.

Samples on the project site will be analyzed by an ELAP-approved lab as determined by the QSP for any constituents other than PH and turbidity. State-certified analytical laboratories can be found by using the Environmental Laboratory Accreditation Program's (ELAP) website at: http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx. Lab determined by QSP identified here when applicable.

Laboratory Name:

Street Address:

City, State Zip:

Telephone Number:

Point of Contact:

ELAP Certification Number:

Samples will be delivered to the laboratory by:

Driven by QSP/QSP Delegate/Contractor	☒	Yes	☐	No
Picked up by Laboratory Courier	☐	Yes	☒	No
Shipped	☐	Yes	☒	No

7.7.1.7 Data Evaluation and Reporting

The QSP shall complete an evaluation of the water quality sample analytical results based on a comparison of the results to the unaffected sample [and to the TMDL NALs or NELs].

Runoff/downgradient results shall be compared with the associated upgradient/unaffected results and any associated run-on results. Should the runoff/downgradient sample show an increased level of the tested analyte relative to the unaffected background sample, which cannot be explained by run-on results, the BMPs, site conditions, and surrounding influences shall be assessed to determine the probable cause for the increase.

As determined by the site and data evaluation, appropriate BMPs shall be repaired or modified to mitigate discharges of non-visible pollutant concentrations. Any revisions to the BMPs shall be recorded as an amendment to the SWPPP.

Analytical results of non-visible pollutant monitoring shall be submitted to SMARTS within 30 days of obtaining the analytical results. Results demonstrating an exceedance of an applicable TMDL-related NAL or NEL or Basin Plan parameter shall be submitted to SMARTS within 30 days of obtaining the analytical results.

The 2022 CGP prohibits the storm water discharges that contain hazardous substances equal to or in excess of reportable quantities established in 40 C.F.R. §§ 117.3 and 302.4. The results of any non-stormwater discharge results that indicate the presence of a hazardous substance in excess of established reportable quantities shall be immediately reported to the Regional Water Board and other agencies as required by 40 C.F.R. §§ 117.3 and 302.4.

The QSP shall compare the runoff sample results to the applicable TMDL NALs and/or NELs to determine whether the TMDL NALs and/or NELs have been exceeded, see Table 7-8.

Table 7-8 TMDL NAL and NEL Exceedances

Standard	Exceedance Evaluation
TMDL NAL	An exceedance occurs on the second, and each subsequent, analytical result for samples taken from any and all discharge location(s) within the same drainage area, during the same reporting year and taken in accordance with Attachment D Section III.D.3, that is above the concentration set forth in an applicable NAL.
TMDL NEL	An exceedance occurs on the second, and each subsequent, analytical result for samples taken from any and all discharge location(s) within the same drainage area, during the same reporting year and taken in accordance with Attachment D Section III.D.3, that is above the concentration set forth in an applicable NEL.

In the event that the TMDL NAL and/or NEL is exceeded, the QSP shall immediately notify the LRP or owner's representative and investigate the cause of the exceedance and identify corrective actions.

The LRP or DAR shall electronically report all analytical results to the State Water Board by the through SMARTS within 30 days of receiving the results. Exceedances of TMDL [NALs and/or NELs shall be electronically reported to the State Water Board by the LRP or DAR through SMARTS within 10 days of receiving the results.

If requested by the Regional Water Board in writing, a TMDL NAL Exceedance report will be submitted within 30 days of the request. The TMDL NAL Exceedance Report must contain the following information:

- Analytical method(s), method reporting unit(s), and Method Detection Limit(s) of each parameter;
- Date, place, time of sampling, visual observation, and/or measurements, including precipitation; and
- Description of the current BMPs associated with the sample that exceeded the TMDL NAL, a description of each corrective action taken including photographs, and date of implementation.

In the event of a TMDL NEL exceedance, by the end of each reporting year, project shall implement the following water quality based corrective actions:

- Conducting a site assessment to identify pollutant source(s) within the site that are associated with construction activity and whether the BMPs described in the SWPPP have been properly implemented;
- Evaluating the SWPPP and its implementation to determine whether additional BMPs or SWPPP implementation measures are necessary to reduce or prevent pollutants in all regulated discharges to comply applicable NELs, and
- Certifying and submitting through SMARTS a report of the above site assessment and SWPPP evaluation that:
    - Additional BMPs or SWPPP implementation measures have been identified and included in the SWPPP, or

- No additional BMPs or SWPPP implementation measures are required to reduce or prevent pollutants in all regulated discharges to comply with applicable NELs.

7.7.2 Sampling and Analysis Plan for pH and Turbidity in Stormwater Runoff Discharges

Sampling and analysis of runoff for pH and turbidity is required for **Risk Level 2** projects.

This Sampling and Analysis Plan describes the strategy for monitoring turbidity and pH levels of stormwater runoff discharges from the project site and run-on that may contribute to an exceedance of a Numeric Action Level (NAL).

Samples for pH and turbidity will be collected at all discharge points where stormwater is discharged off-site.

7.7.2.1 Sampling Schedule

Stormwater runoff samples shall be collected for pH and turbidity from each day of a qualifying precipitation event that results in a discharge from the project site. One sample from each discharge location will be collected each 24 hour period of active discharge during a qualifying precipitation event. Samples should be representative of the discharge flow and characteristics.

Run-on samples shall be collected whenever the QSP identifies that run-on has the potential to contribute to an exceedance of a NAL

7.7.2.2 Sampling Locations

Sampling locations are based on the site runoff discharge locations and locations where run-on enters the site, accessibility for sampling, and personnel safety. Planned pH and turbidity sampling locations are shown on the Site Maps in Appendix A. Sample locations will be identified and updated by the QSP and shown on the BMP Map to reflect active discharge locations characteristic of site runoff.

Table 7-9 Turbidity and pH Runoff Sample Locations

Sample Location Identifier	Sample Location Description	Sample Location
CE-#	Construction Exit	See BMP Map
CY-#	Contractor's Yard	See BMP Map
DL-#	Drainage Inlet	See BMP Map

Run-on

Sampling locations are for the collection of samples of run-on to the project site. Run-on from these locations has the potential to contribute to an exceedance of a NAL. Table 7-10 identifies any estimated run-on sample location(s). Actual locations, when applicable are determined by the QSP and shown on the BMP Map based of field observations.

☒Yes, anticipated ☐Not anticipated

Table 7-10 Turbidity and pH Run-On Sample Locations

Sample Location Identifier	Sample Location Description	Sample Location Latitude and Longitude (Decimal Degrees)
RO-#	At north side of the development. QSP to identify in the field.	See BMP Map

The project does not receive run-on with the potential to exceed NALs or Receiving Water Monitoring Triggers.

7.7.2.3 Monitoring Preparation

Turbidity and pH samples will be collected and analyzed by:

QSP ☒ Yes ☐ No

QSD Delegate ☒ Yes ☐ No

Names and contact information of samplers are listed in Appendix I.

An adequate stock of monitoring supplies and equipment for monitoring turbidity and will be available on the project site prior to a sampling event. Monitoring supplies and equipment will be stored in a cool temperature environment that will not come into contact with rain or direct sunlight. The QSP or QSP Delegates will be available to collect samples in accordance with the sampling schedule. Sampling supplies shall be maintained at the project site. *Effluent Sampling Field Log Sheets* and CoC forms provided in Appendix O.

The QSP or QSP Delegates will obtain and maintain the field-testing instruments, as identified in Section 7.7.2.6, for analyzing samples in the field. Field meter instructions are provided in Appendix P.

7.7.2.4 Field Parameters

Samples shall be analyzed for the constituents indicated in the Table 7-11.

Table 7-11 Sample Collection and Analysis for Monitoring Turbidity and pH

Parameter	Test Method	Minimum Sample Volume (1)	Sample Collection Container Type	Detection Limit (minimum)
Turbidity	Field meter/probe with calibrated portable instrument	500 mL	Polypropylene or glass (Do not collect in meter sample cells)	1 NTU
pH	Field meter/probe with calibrated portable instrument or calibrated pH test kit	100 mL	Polypropylene	0.2 pH units

Table 7-11 Sample Collection and Analysis for Monitoring Turbidity and pH

Parameter	Test Method	Minimum Sample Volume [1]	Sample Collection Container Type	Detection Limit (minimum)
Notes: [1] Minimum sample volume recommended. Specific volume requirements will vary by instrument; check instrument manufacturer instructions. L – Liter mL – Milliliter NTU – Nephelometric Turbidity Unit				

7.7.2.5 Sample Collection

Samples of discharge shall be collected at the designated runoff and run-on sampling locations listed in Tables 7-9 and 7-10 shown on the Site Maps in Appendix A. Run-on samples shall be collected within close proximity of the point of run-on to the project.

Sample collection and handling requirements are described in Section 7.7.7.

7.7.2.6 Field Measurements

The collection and analysis of samples for field analysis, collection, analysis and the calibration of equipment shall be in accordance with the field instrument manufacturer's specifications.

Immediately following collection, samples for field analysis shall be tested in accordance with the field instrument manufacturer's instructions and results recorded on the *Effluent Sampling Field Log Sheet or equivalent form*.

The field instrument(s) listed in Table 7-12 will be used to analyze the following constituents:

Table 7-12 Field Instruments

Field Instrument (Manufacturer and Model)	Constituent
Hanna HI98107 or equal	pH
Sper Scientific 860040 or equal	Turbidity

The manufacturers' instructions are included in Appendix P. Field sampling staff shall review the instructions prior to each sampling event and follow the instructions in completing measurement of the samples.

- The instrument(s) shall be maintained in accordance with manufacturer's instructions.
- The instrument(s) shall be calibrated before each sampling and analysis event.
- Maintenance and calibration records shall be maintained with the SWPPP.

The QSP may authorize alternate equipment provided that the equipment meets the 2022 CGP's requirements and the manufacturers' instructions for calibration and use are added to Appendix P.

7.7.2.7 Data Evaluation and Reporting

The LRP or DAR shall electronically report all stormwater pH and turbidity results to the State Water Board by the through SMARTS within 30 days of receiving the results. Exceedances of NALs shall be electronically reported to the State Water Board by the LRP or DAR through SMARTS within 10 days of receiving the results.

Numeric Action Levels

Compliance with the NALs for pH and turbidity is based on a single sample evaluation. A NAL exceedance occurs when any sample exceeds the turbidity NAL or is outside of the pH range shown in Table 7-13.

Table 7-13 Numeric Action Levels

Parameter	Unit	NAL
pH	pH units	Lower NAL < 6.5 Upper NAL > 8.5
Turbidity	NTU	>250

The QSP shall within 30 days of the sample collection submit copies of the completed *Effluent Sampling Field Log Sheets* to the LRP or owner's representative.

In the event that the pH or turbidity NAL is exceeded, the QSP shall immediately notify the LRP or the owner's representative and investigate the cause of the exceedance and identify corrective actions.

Exceedances of NALs shall be electronically reported to the State Water Board by the LRP or DAR through the SMARTS within 10 days of the conclusion of the storm event.

If requested by the Regional Water Board in writing, a NAL Exceedance report will be submitted within 30 days of the request. The NAL Exceedance Report must contain the following information:

- Analytical method(s), method reporting unit(s), and Method Detection Limit(s) of each parameter;
- Date, place, time of sampling, visual observation, and/or measurements, including precipitation; and
- An assessment of the existing BMPs associated with the sample that exceeded the NAL, a description of each corrective action taken including photographs, and date of implementation.

7.7.3 Sampling and Analysis Plan for pH and Turbidity in Receiving Water

This project is not subject to Receiving Water Monitoring.

7.7.4 Sampling and Analysis Plan for Dewatering Discharges

☐ No dewatering activities are planned for this project.

☐ Dewatering activities planned for this project will be conducted and monitored according to the requirements of the following NPDES Permit:

☒ Dewatering activities planned for this project will be conducted and monitored according to the requirements of the 2022 CGP Attachment J.

This Sampling and Analysis Plan for dewatering discharges describes the sampling and analysis strategy and schedule for monitoring dewatering discharges in accordance with the requirements of the 2022 CGP.

7.7.4.1 Sample Schedule

Sampling of dewatering discharges will be conducted within the first hour of the commencement of discharge and daily each day that the discharge continues.

7.7.4.2 Sample Locations

Sampling locations are based on the planned dewatering locations. Planned dewatering sampling locations are listed in Table 7-16 and shown on the Site Maps in Appendix A.

Dewatering sampling location(s) on the project site and the contractor's yard have been identified for the collection of dewatering samples.

Table 7-16 Turbidity and pH Dewatering Sample Locations

Sample Location Identifier	**Sample Location Description**	**Sample Location Latitude and Longitude** (Decimal Degrees)

In the event that dewatering is required at a location not listed in Table 7-15, and has not been identified on the Site Maps, sampling locations will be selected by the QSP using the same rationale as that used to identify planned locations. Dewatering sampling locations shall be documented by the QSP on the *Effluent Sampling Field Log Sheet*, which are provided in Appendix O.

7.7.4.3 Monitoring Preparation

Dewatering samples will be collected by:

QSP	☒	Yes	☐	No
QSD Delegate	☒	Yes	☐	No

An adequate stock of monitoring supplies and equipment for monitoring turbidity and will be available on the project site prior to a sampling event. Monitoring supplies and equipment will be stored in a cool temperature environment that will not come into contact with rain or direct sunlight. The QSP or QSP Delegates will be available to collect samples in accordance with the sampling schedule. Supplies maintained at the project site will include, but are not limited to,

field meters, extra batteries, clean powder-free nitrile gloves, sample collection equipment, appropriate sample containers, paper towels, personal rain gear, and *Effluent Sampling Field Log Sheets* and CoC forms provided in Appendix O.

The QSP or QSP Delegates will obtain and maintain the field-testing instruments, as identified in Section 7.7.2.6, for analyzing samples in the field.

7.7.4.4 Sample Collection and Field Analysis

Dewatering samples shall be collected at the designated sampling locations listed in Table 7-15 and shown on the Site Maps in Appendix A.

Samples for field parameters shall be analyzed for the constituents indicated in Table 7-11 "Sample Collection, and Analysis for Monitoring Turbidity and pH." Turbidity and pH samples shall be analyzed immediately.

Sample collection and handling requirements are described in Section 7.7.7.

7.7.4.5 Data Evaluation and Reporting

At least 24 hours prior to the beginning of a dewatering discharge, the QSP Delegate shall notify the Regional Water Board via email of the anticipated dewatering discharge. Copy the QSP, QSP Delegate, LRP or owner's representative on the notifications.

The QSP shall within 10 days of the sample collection submit copies of the completed *Effluent Sampling Field Log Sheets* to the LRP or owner's representative.

Compliance with the NALs for pH and turbidity in dewatering discharges is based on a single sample evaluation. A NAL exceedance occurs when any sample exceeds the turbidity NAL or is outside of the pH range shown in Table 7-13.

In the event that the pH or turbidity NAL is exceeded, the QSP shall immediately notify the LRP or owner's representative and investigate the cause of the exceedance and identify corrective actions.

Dewatering discharges shall immediate cease if the NALs are exceeded. If the discharge is necessary to protect human life and health or prevent severe property damage and cannot be ceased, the dewatering operator shall notify the Regional Water Board and the Local Stormwater Agency within 24 hours.

Table 7-17 Dewatering Notification Contacts

Agency	Name	Email or phone
Regional Water Board	Region 2	(510)-622-2300
Local Stormwater Agency	City of Half Moon Bay Public Works	(650)726-7177

Exceedances of NALs shall be electronically reported to the State Water Board by the LRP or DAR through SMARTS within 10 days of receiving the results.

Following a NAL exceedance, the QSD shall revise the SWPPP to incorporate corrective actions to prevent further exceedances within 10 days of the measurement.

7.7.5 Sampling and Analysis Plan for Other Pollutants Required by the Regional Water Board

The Regional Water Board has not specified monitoring for additional pollutants.

7.7.6 Training of Sampling Personnel

QSP Delegates assigned to conduct sampling shall be trained by the QSP to collect, maintain, and ship samples in accordance with the 2022 CGP Sample Collection and Handling Instructions and supplemental information as needed. Training records of QSP and QSP Delegates assigned to sample are provided in Appendix I. Training records include Foundational Training, Site Specific Training and a list of the stormwater Sampling Training Courses & Experience.

7.7.7 Sample Collection and Handling

7.7.7.1 Sample Collection

Samples shall be collected at the designated sampling locations shown on the Site Maps and listed in the preceding sections. Samples shall be collected, maintained and shipped in accordance with the 2022 CGP Sample Collection and Handling Instructions.

Grab samples shall be collected and preserved in accordance with the methods identified in preceding sections.

To maintain sample integrity and prevent cross-contamination, sample collection personnel shall follow the protocols below.

- Collect samples (for laboratory analysis) in analytical laboratory-provided or specified sample containers;
  - Use of any other type of containers could cause sample contamination and may result in NAL or NEL exceedances.
- Wear clean, powder-free nitrile gloves when collecting samples;
- Change gloves whenever something not known to be clean has been touched;
- Change gloves between sampling locations;
- Decontaminate all equipment (e.g., bucket, tubing) prior to sample collection;
  - using a trisodium phosphate water wash, distilled water rinse, and final rinse with distilled water..
  - Dispose of wash and rinse water appropriately (i.e., do not discharge to storm drain or receiving water).
  - Do not decontaminate laboratory provided sample containers;
- Do not smoke during sampling events;
- Never sample near a running vehicle;
- Do not park vehicles in the immediate sample collection area (even non-running vehicles);
- Do not eat or drink during sample collection; and
- Do not breathe, sneeze, or cough in the direction of an open sample container.

The most important aspect of grab sampling is to collect a sample that represents the entire runoff stream. Typically, samples are collected by dipping the collection container in the runoff flow paths and streams as noted below.

i. For small streams and flow paths, simply dip the bottle facing upstream until full.
ii. For larger stream that can be safely accessed, collect a sample in the middle of the flow stream by directly dipping the mouth of the bottle. Once again making sure that the opening of the bottle is facing upstream as to avoid any contamination by the sampler.
iii. For larger streams that cannot be safely waded, pole-samplers may be needed to safely access the representative flow.
iv. Avoid collecting samples from ponded, sluggish or stagnant water.
v. Avoid collecting samples directly downstream from a bridge as the samples can be affected by the bridge structure or runoff from the road surface.

Note, that depending upon the specific analytical test, some containers may contain preservatives. These containers should **never** be dipped into the stream but filled indirectly from the collection container.

7.7.7.2 Sample Handling

Turbidity and pH measurements must be conducted immediately. Do not store turbidity or pH samples for later measurement.

Samples for laboratory analysis must be handled as follows. Immediately following sample collection:

- Cap sample containers;
- Complete sample container labels;
- Place sealed containers in a re-sealable storage bag;
- Place sample containers into an ice-chilled cooler;
- Document sample information on the *Effluent Sampling Field Log Sheet* (Appendix O); and
- Complete the CoC.

All samples for laboratory analysis must be maintained between 0-6 degrees Celsius during delivery to the laboratory. Samples must be kept on ice, or refrigerated, from sample collection through delivery to the laboratory. Place samples to be shipped inside coolers with ice. Make sure the sample bottles are well packaged to prevent breakage and secure cooler lids with packaging tape.

Ship samples that will be laboratory analyzed to the analytical laboratory right away. Hold times are measured from the time the sample is collected to the time the sample is analyzed. The 2022 CGP requires that samples be received by the analytical laboratory within 48 hours of the physical sampling (unless required sooner by the analytical laboratory to meet all hold times).

State-certified analytical laboratories can be found by using the Environmental Laboratory Accreditation Program's (ELAP) website at: http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx.

Laboratory Name:	Point of Contact:
Address:	Telephone Number:
City, State Zip:	

7.7.7.3 Sample Documentation Procedures

All original data documented on sample container identification labels, *Effluent Sampling Field Log Sheet* (Appendix O), and CoCs shall be recorded using waterproof ink. These shall be considered accountable documents. If an error is made on an accountable document, the individual shall make corrections by lining through the error and entering the correct information. The erroneous information shall not be obliterated. All corrections shall be initialed and dated.

Duplicate samples shall be identified consistent with the numbering system for other samples to prevent the laboratory from identifying duplicate samples. Duplicate samples shall be identified in the Effluent Sampling Field Log Sheet.

Sample documentation procedures include the following:

Sample Bottle Identification Labels: Sampling personnel shall attach an identification label to each sample bottle. Sample identification shall uniquely identify each sample location. (These location identifiers should be listed in the tables in the SWPPP.)

Field Log Sheets: Sampling personnel shall complete the *Effluent Sampling Field Log Sheet* and *Receiving Water Sampling Field Log Sheet* (Appendix O) for each sampling event, as appropriate.

Chain of Custody: Sampling personnel shall complete the CoC for each sampling event for which samples are collected for laboratory analysis. The sampler will sign the CoC (Appendix O) when the sample(s) is turned over to the testing laboratory or courier.

7.8 Active Treatment System Monitoring

Will an Active Treatment System (ATS) be deployed on the site?

☐ Yes ☒ **No**

This project does not require a project specific Sampling and Analysis Plan for an ATS because deployment of an ATS is not planned.

If the project deploys an ATS, then the project specific ATS Plan which includes a Monitoring and Sampling Plan shall be provided in Appendix R.

7.9 Passive Treatment Monitoring

Will passive treatment technologies be deployed on the site?

☐ Yes ☒ **No**

This project does not require a project specific Sampling and Analysis Plan for passive treatment because deployment of passive treatment is not planned.

If passive treatment is deployed on site, the project specific Passive Treatment Plan which includes a Sampling and Analysis Plan shall be provided in Appendix R.

7.10 Watershed Monitoring Option

This project is not participating in a watershed monitoring option.

7.11 Quality Assurance and Quality Control

An effective Quality Assurance and Quality Control (QA/QC) plan shall be implemented as part of the CSMP to ensure that analytical data can be used with confidence. QA/QC procedures to be initiated include the following:

- Field logs;
- Clean sampling techniques;
- CoCs;
- QA/QC Samples; and
- Data verification.

Each of these procedures is discussed in more detail in the following sections.

7.11.1 Field Logs

The purpose of field logs is to record sampling information and field observations during monitoring that may explain any uncharacteristic analytical results. Sampling information to be included in the field log include the date and time of water quality sample collection, sampling personnel, sample container identification numbers, and types of samples that were collected. Field observations should be noted in the field log for any abnormalities at the sampling location (color, odor, BMPs, etc.). Field measurements for pH and turbidity should also be recorded in the field log. A Visual Inspection Field Log, an Effluent Sampling Field Log Sheet, and a Receiving Water Sampling Field Log Sheet (when applicable) are included in Appendix O.

7.11.2 Clean Sampling Techniques

Clean sampling techniques involve the use of certified clean containers for sample collection and clean powder-free nitrile gloves during sample collection and handling. As discussed in Section 7.7.7, adoption of a clean sampling approach will minimize the chance of field contamination and questionable data results.

7.11.3 Chain of Custody

The sample CoC is an important documentation step that tracks samples from collection through analysis to ensure the validity of the sample. Sample CoC procedures include the following:

- Proper labeling of samples;
- Use of CoC forms for all samples; and
- Prompt sample delivery to the analytical laboratory.

Analytical laboratories usually provide CoC forms to be filled out for sample containers. An example CoC is included in Appendix O.

7.11.4 QA/QC Samples

QA/QC samples provide an indication of the accuracy and precision of the sample collection; sample handling; field measurements; and analytical laboratory methods. The following types of QA/QC will be conducted for this project:

☒ Field Duplicates at a frequency of 5 percent or 1 duplicate minimum per sampling event (Required for all sampling plans with field measurements or laboratory analysis)

☐ Equipment Blanks at a frequency per lab standards
(Only needed if the equipment used to collect samples could add the pollutants to sample)

☐ Field Blanks at a frequency per lab standards
(Only required if sampling method calls for field blanks)

☐ Travel Blanks at a frequency per lab standards (Required for sampling plans that include VOC laboratory analysis)

7.11.4.1 Field Duplicates

Field duplicates provide verification of laboratory or field analysis and sample collection. Duplicate samples shall be collected, handled, and analyzed using the same protocols as primary samples. The sample location where field duplicates are collected shall be randomly selected from the discharge locations. Duplicate samples shall be collected immediately after the primary sample has been collected. Duplicate samples must be collected in the same manner and as close in time as possible to the original sample. Duplicate samples shall not influence any evaluations or conclusion.

7.11.4.2 Equipment Blanks

Equipment blanks provide verification that equipment has not introduced a pollutant into the sample. Equipment blanks are typically collected when:

- New equipment is used;
- Equipment that has been cleaned after use at a contaminated site;
- Equipment that is not dedicated for surface water sampling is used; or
- Whenever a new lot of filters is used when sampling metals.

7.11.4.3 Field Blanks

Field blanks assess potential sample contamination levels that occur during field sampling activities. De-ionized water field blanks are taken to the field, transferred to the appropriate container, and treated the same as the corresponding sample type during the course of a sampling event.

7.11.4.4 Travel Blanks

Travel blanks assess the potential for cross-contamination of volatile constituents between sample containers during shipment from the field to the laboratory. De-ionized water blanks are taken along for the trip and held unopened in the same cooler with the VOC samples.

7.11.5 Data Verification

After results are received from the analytical laboratory, the QSP or QSP Delegates shall verify the data to ensure that it is complete, accurate, and the appropriate QA/QC requirements were met. Data must be verified as soon as the data reports are received. Data verification shall include:

- Check the CoC and laboratory reports.
  Make sure all requested analyses were performed and all samples are accounted for in the reports.
- Check laboratory reports to make sure hold times were met and that the reporting levels meet or are lower than the reporting levels agreed to in the contract.
- Check data for outlier values and follow up with the laboratory.
  Occasionally typographical errors, unit reporting errors, or incomplete results are reported and should be easily detected. These errors need to be identified, clarified, and corrected quickly by the laboratory. The QSP or QSP Delegates should especially

note data that is an order of magnitude or more different than similar locations or is inconsistent with previous data from the same location.

- Check laboratory QA/QC results.
  EPA establishes QA/QC checks and acceptable criteria for laboratory analyses. These data are typically reported along with the sample results. The QSP or QSP Delegates shall evaluate the reported QA/QC data to check for contamination (method, field, and equipment blanks), precision (laboratory matrix spike duplicates), and accuracy (matrix spikes and laboratory control samples). When QA/QC checks are outside acceptable ranges, the laboratory must flag the data, and usually provides an explanation of the potential impact to the sample results.
- Check the data set for outlier values and, accordingly, confirm results and re-analyze samples where appropriate.
  Sample re-analysis should only be undertaken when it appears that some part of the QA/QC resulted in a value out of the accepted range. Sample results may not be discounted unless the analytical laboratory identifies the required QA/QC criteria were not met and confirms this in writing.

Field data including inspections and observations must be verified as soon as the field logs are received, typically at the end of the sampling event. Field data verification shall include:

- Check field logs to make sure all required measurements were completed and appropriately documented;
- Check reported values that appear out of the typical range or inconsistent;
  Follow-up immediately to identify potential reporting or equipment problems, if appropriate, recalibrate equipment after sampling;
- Verify equipment calibrations;
- Review observations noted on the field logs; and
- Review notations of any errors and actions taken to correct the equipment or recording errors.

7.12 Records Retention

All records of stormwater monitoring information and copies of reports (including Annual Reports) must be retained for a period of at least three years from date of submittal or longer if required by the Regional Water Board.

Results of visual monitoring, field measurements, and laboratory analyses must be kept in the SWPPP along with CoCs, and other documentation related to the monitoring.

Records are to be kept onsite while construction is ongoing. Records to be retained include:

- The date, place, and time of inspections, sampling, visual observations, and/or measurements, including precipitation;
- The individual(s) who performed the inspections, sampling, visual observation, and/or field measurements;
- The date and approximate time of field measurements and laboratory analyses;
- The individual(s) who performed the laboratory analyses;
- A summary of all analytical results, the method detection limits and reporting limits, and the analytical techniques or methods used;
- Rain gauge readings from site inspections;
- QA/QC records and results;
- Calibration records;
- Visual observation and sample collection exception records;

- The records of any corrective actions and follow-up activities that resulted from analytical results, visual observations, or inspections;
- Dewatering notifications to the Regional Water Board when applicable;
- Dewatering exception notifications to the Regional Water Board and local stormwater agency, when applicable;
- NAL Exceedance Report, when applicable;
- NEL water quality based corrective action reports, when applicable; and
- Add specific records required by TMDLs, when applicable

Section 8 References

SWRCB (State Water Resources Control Board). (2022). Order 2022-0057-DWQ, NPDES General Permit No. CAS000002: Stormwater Discharges Associated with Construction and Land Disturbing Activities. Available online at: https://www.waterboards.ca.gov/water_issues/programs/stormwater/construction/general_permit_reissuance.html.

CASQA 2023 *Stormwater BMP Handbook: Construction*. Available online at: www.casqa.org

Local Agencies and Programs

The San Mateo Countywide Water Pollution Prevention Program available at https://www.flowstobay.org/

City of Half Moon Bay Public Works at https://www.half-moon-bay.ca.us/166/Public-Works

Reference Material available in Appendix Q

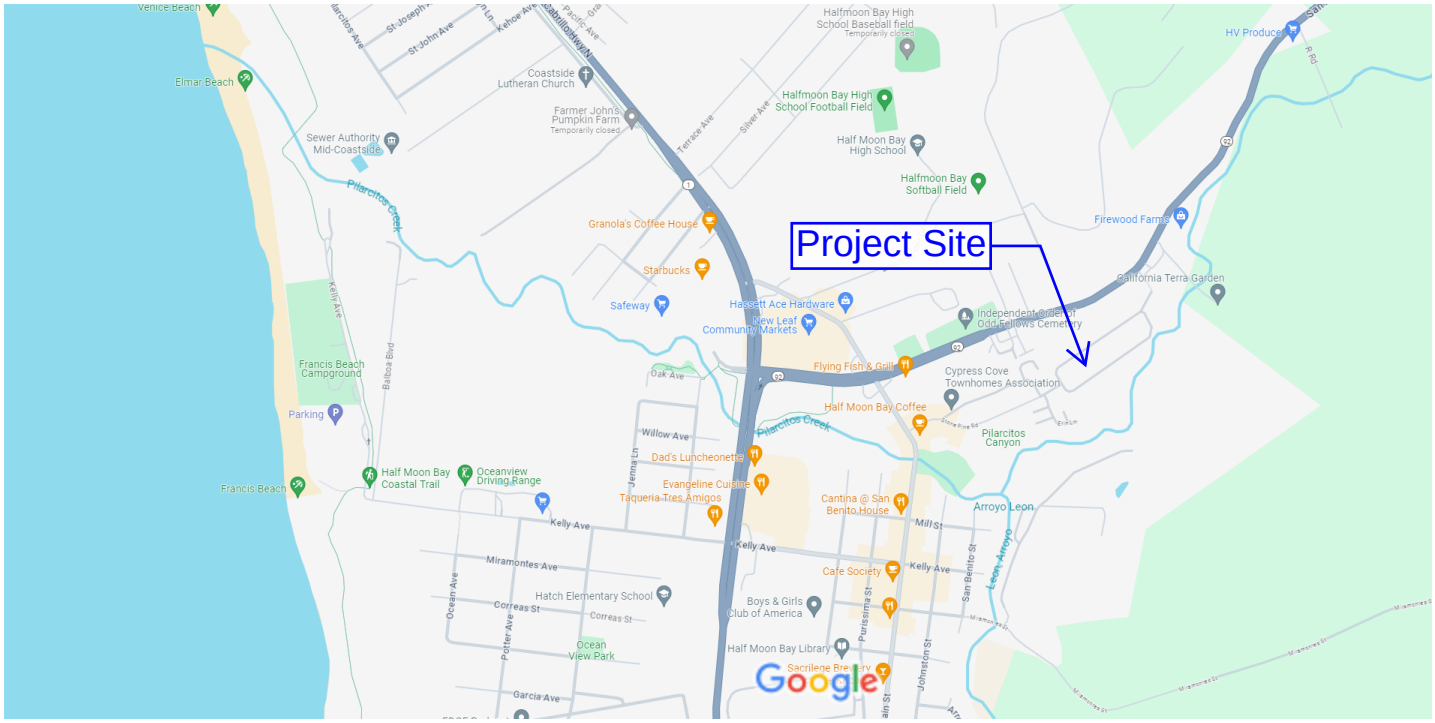
"Geotechnical Engineering Investigation, SMC-HMB Farmworker Housing Project, 880 Stone Pine Road, Half Moon Bay, San Mateo County, California", by BAGG Engineers dated August 23, 2023.

Appendix A: Site Maps and Drawings

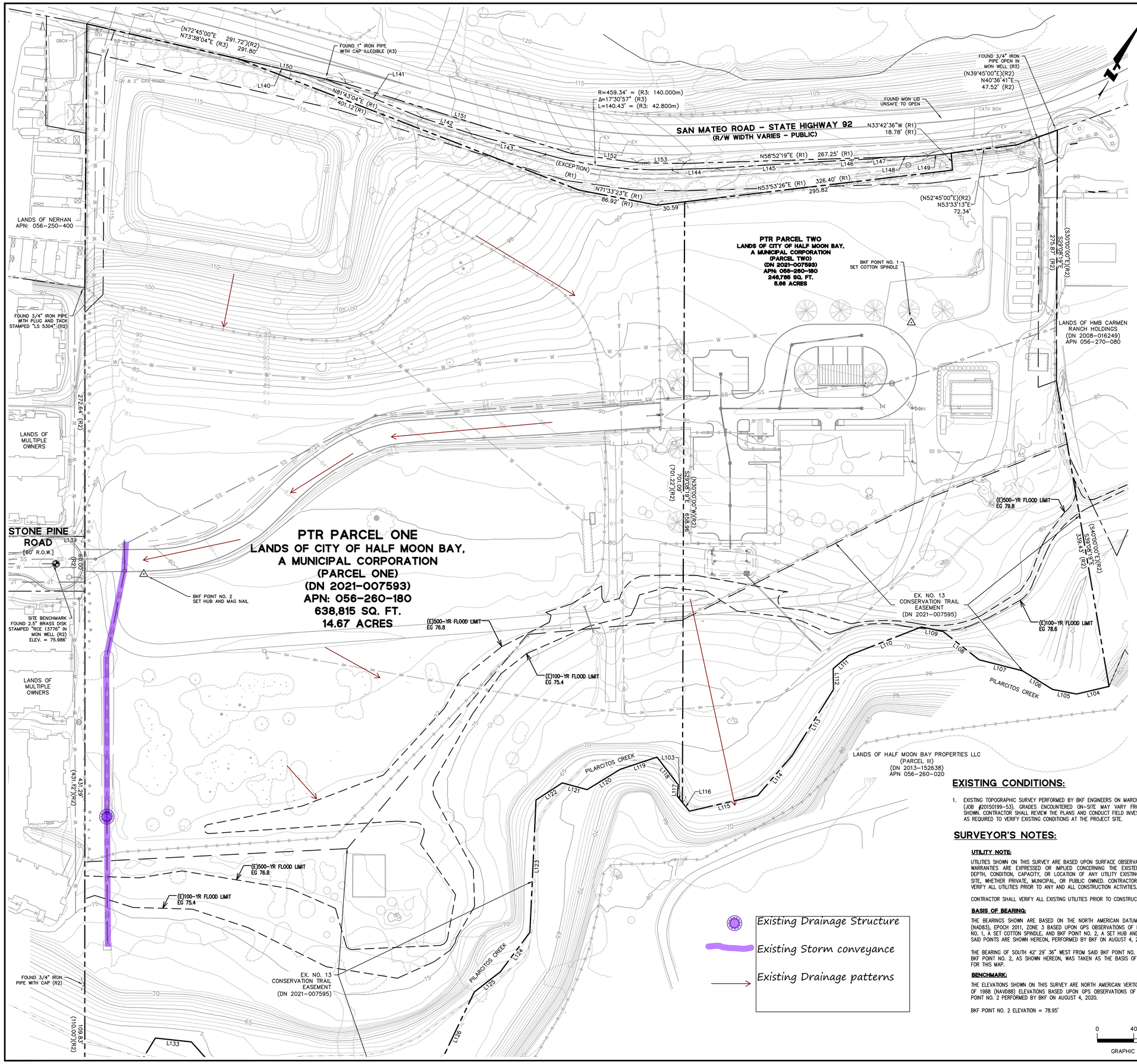
Exhibit 1: Stone Pine Cove Vicinity Map

SI2024-00001
880 STONE PINE RD
03/04/2024

Google Maps
880 Stone Pine Cove







LINE TABLE		
LINE NO.	DIRECTION	LENGTH
L103	N68°00'29"W	8.90'
L104	S47°25'02"W	36.52'
L105	S71°31'17"W	26.85'
L106	N87°28'52"W	38.62'
L107	S74°52'52"W	49.37'
L108	N81°09'28"W	50.08'
L109	S72°32'08"W	24.33'
L110	S39°14'12"W	85.57'
L111	S20°14'46"W	22.43'
L112	S30°07'13"E	22.83'
L113	S02°39'36"W	85.73'
L114	S11°24'28"W	57.62'
L115	S47°43'04"W	76.92'
L116	N68°00'29"W	12.29'
L117	N24°18'13"W	12.34'
L118	N66°42'59"W	38.40'
L119	S42°15'35"W	42.60'
L120	S29°04'36"W	42.58'
L121	S75°58'13"W	28.14'
L122	S27°39'47"W	34.46'
L123	S26°43'24"E	145.40'
L124	S07°30'40"W	54.02'
L125	S22°45'40"W	36.27'
L126	S03°51'49"E	104.20'
L127	S37°46'25"W	61.71'
L128	S19°33'41"W	107.45'
L129	S56°13'06"W	40.18'
L130	S88°49'22"W	58.28'
L131	N17°07'56"W	56.88'
L132	N71°05'20"W	72.28'
L133	S66°47'43"W	39.70'
L134	S02°07'42"W	62.88'
L135	S58°53'58"W	25.72'
L136	N57°38'51"W	11.15'
L137	S36°00'41"W	15.01'
L138	S29°20'59"E	30.00'
L139	N60°39'01"E	31.63'
L140	N73°38'04"E	98.77'
L141	N82°41'18"E	113.17'
L142	N78°26'58"E	56.56'
L143	N76°15'07"E	85.66'
L144	N58°44'09"E	49.57'
L145	N57°07'31"E	113.58'
L146	N57°32'14"E	57.76'
L147	N52°28'49"E	12.50'
L148	N58°52'19"E	47.99'
L149	N53°33'13"E	25.26'
L150	N73°38'04"E	121.87'
L151	N77°53'28"E	259.68'
L152	N68°33'21"E	71.61'
L153	N61°25'06"E	52.50'

RECORD LINE TABLE	
RECORD DIRECTION	RECORD LENGTH
(S46°33'28"W)(R2)	(36.53')(R2)
(S70°39'43"W)(R2)	(26.86')(R2)
(N88°20'26"W)(R2)	(38.63')(R2)
(S74°01'18"W)(R2)	(49.39')(R2)
(N82°01'02"W)(R2)	(50.10')(R2)
(S71°40'34"W)(R2)	(24.34')(R2)
(S38°22'38"W)(R2)	(85.60')(R2)
(S19°23'12"W)(R2)	(22.44')(R2)
(S30°58'47"E)(R2)	(22.84')(R2)
(S01°48'02"W)(R2)	(85.76')(R2)
(S10°32'54"W)(R2)	(57.64')(R2)
(S46°51'30"W)(R2)	(76.95')(R2)
(N68°52'03"W)(R2)	(12.22')(R2)
(N68°52'03"W)(R2)	(8.98')(R2)
(N25°09'47"W)(R2)	(12.34')(R2)
(N67°34'33"W)(R2)	(38.41')(R2)
(S41°24'01"W)(R2)	(42.61')(R2)
(S28°13'02"W)(R2)	(42.59')(R2)
(S75°06'39"W)(R2)	(28.15')(R2)
(S26°48'13"W)(R2)	(34.47')(R2)
(S27°34'58"E)(R2)	(145.45')(R2)
(S06°39'06"W)(R2)	(54.04')(R2)
(S21°54'06"W)(R2)	(36.28')(R2)
(S04°43'23"E)(R2)	(104.24')(R2)
(S36°54'51"W)(R2)	(61.73')(R2)
(S18°42'07"W)(R2)	(107.49')(R2)
(S55°21'32"W)(R2)	(40.19')(R2)
(S87°57'48"W)(R2)	(58.30')(R2)
(N17°59'30"W)(R2)	(56.90')(R2)
(N71°56'54"W)(R2)	(72.31')(R2)
(S65°56'09"W)(R2)	(39.71')(R2)
(S01°16'08"W)(R2)	(62.90')(R2)
(S58°02'24"W)(R2)	(25.73')(R2)
(N58°30'25"W)(R2)	(11.15')(R2)
(S35°09'07"W)(R2)	(15.02')(R2)
(S30°12'40"E)(R2)	(30.00')(R2)
(N59°47'20"E)(R2)	(31.50')(R2)
(N53°33'13"E)(R1)(R3)	(25.26')(R1)
(N58°52'19"E)(R1)(R3)	(R3: 14.628m) = 47.99'
(S52°28'49"W)(R3)	(R3: 3.811m) = 12.50'
(S57°32'14"W)(R3)	(R3: 17.604m) = 57.76'
(N57°07'31"E)(R3)	(R3: 34.616m) = 113.58'
(S58°44'09"W)(R3)	(R3: 15.108m) = 49.57'
(S76°15'07"W)(R3)	(R3: 26.108m) = 85.66'
(S78°26'58"W)(R3)	(R3: 17.237m) = 56.56'
(S82°41'18"W)(R3)	(R3: 34.491m) = 113.17'
(N73°38'04"E)(R3)	(R3: 30.104m) = 98.77'
(N73°38'04"E)(R1) (N72°45'00"E)(R2)	(121.88')(R1)
(N77°53'28"E)(R1) (N77°00'00"E)(R2)	(259.67')(R1) (260.04')(R2)
(N68°33'21"E)(R1) (N67°45'00"E)(R2)	(71.61')(R1) (71.28')(R2)
(N61°25'06"E)(R1) (N60°30'00"E)(R2)	(52.50')(R1) (52.80')(R1)

EXISTING CONDITIONS:

1. EXISTING TOPOGRAPHIC SURVEY PERFORMED BY BKF ENGINEERS ON MARCH 18, 2021 (JOB #20150199-53). GRADES ENCOUNTERED ON-SITE MAY VARY FROM THOSE SHOWN. CONTRACTOR SHALL REVIEW THE PLANS AND CONDUCT FIELD INVESTIGATIONS AS REQUIRED TO VERIFY EXISTING CONDITIONS AT THE PROJECT SITE.

SURVEYOR'S NOTES:

UTILITY NOTE:

UTILITIES SHOWN ON THIS SURVEY ARE BASED UPON SURFACE OBSERVATIONS. NO WARRANTIES ARE EXPRESSED OR IMPLIED CONCERNING THE EXISTENCE, SIZE, DEPTH, CONDITION, CAPACITY, OR LOCATION OF ANY UTILITY EXISTING ON THE SITE, WHETHER PRIVATE, MUNICIPAL, OR PUBLIC OWNED. CONTRACTOR(S) SHALL VERIFY ALL UTILITIES PRIOR TO ANY AND ALL CONSTRUCTION ACTIVITIES.

CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION

BASIS OF BEARING:

THE BEARINGS SHOWN ARE BASED ON THE NORTH AMERICAN DATUM OF 1983 (NAD83), EPOCH 2011, ZONE 3 BASED UPON GPS OBSERVATIONS OF BKF POINT NO. 1, A SET COTTON SPINDLE, AND BKF POINT NO. 2, A SET HUB AND TACK AS SAID POINTS ARE SHOWN HEREON, PERFORMED BY BKF ON AUGUST 4, 2020.

THE BEARING OF SOUTH 42° 29' 36" WEST FROM SAID BKF POINT NO. 1 TO SAID BKF POINT NO. 2, AS SHOWN HEREON, WAS TAKEN AS THE BASIS OF BEARINGS FOR THIS MAP.

BENCHMARK:

THE ELEVATIONS SHOWN ON THIS SURVEY ARE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) ELEVATIONS BASED UPON GPS OBSERVATIONS OF SAID BKF POINT NO. 2 PERFORMED BY BKF ON AUGUST 4, 2020.

BKF POINT NO. 2 ELEVATION = 78.95'

SURVEYORS STATEMENT

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION, IN CONFORMANCE WITH THE REQUIREMENTS OF THE PROFESSIONAL LAND SURVEYORS' ACT.

08/31/2020

DAVID JUNGMANN, PLS 9267

PROFESSIONAL LAND SURVEYOR DAVID C. JUNGMANN No. 9267 STATE OF CALIFORNIA

RECORD REFERENCES

(R1) GRANT DEED RECORDED OCTOBER 1, 2009 AS DOCUMENT NUMBER 2009-131257, OFFICIAL RECORDS OF SAN MATEO COUNTY.
(R2) RECORD OF SURVEY RECORDED APRIL 5, 2005 IN BOOK 27 OF LLS MAPS AT PAGE 40, OFFICIAL RECORDS OF SAN MATEO COUNTY.
(R3) RECORD OF SURVEY NO. 2460 RECORDED OCTOBER 10, 2013 IN BOOK 38 OF LLS MAPS AT PAGES 99-102OFFICIAL RECORDS OF SAN MATEO COUNTY.

SURVEYOR'S NOTE

RECORD DISTANCES PER (R3) ARE GRID DISTANCES IN METERS. (R3: #m) DENOTES DISTANCE MATCHING RECORD CONVERTED FROM GRID METERS TO GROUND U.S. SURVEY FEET. TO OBTAIN GROUND DISTANCES IN METERS, MULTIPLY (R3) GRID DISTANCES BY 1.000059093, AS STATED ON (R3). TO OBTAIN GROUND DISTANCES IN U.S. SURVEY FEET, MULTIPLY GROUND DISTANCES IN METERS BY THE CONVERSION FACTOR OF (3937/1200).

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CALIFORNIA

STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY

HALF MOON BAY

No.	Revisions	Date

Date 01/26/2024
Scale 1" = 40'
Design DJP
Drawn DLG
Approved DJL
Job No 20211367-15

Drawing Number:
Drainage Exhibit
DE

DRAWING NAME: K:\2021\211367-15_HMB_Corpyard_Housing\ENG\hmbsheets.dwg
PLOT DATE: 02-08-24 PLOTTED BY: gold

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EXISTING CONDITIONS
STONE PINE COVE
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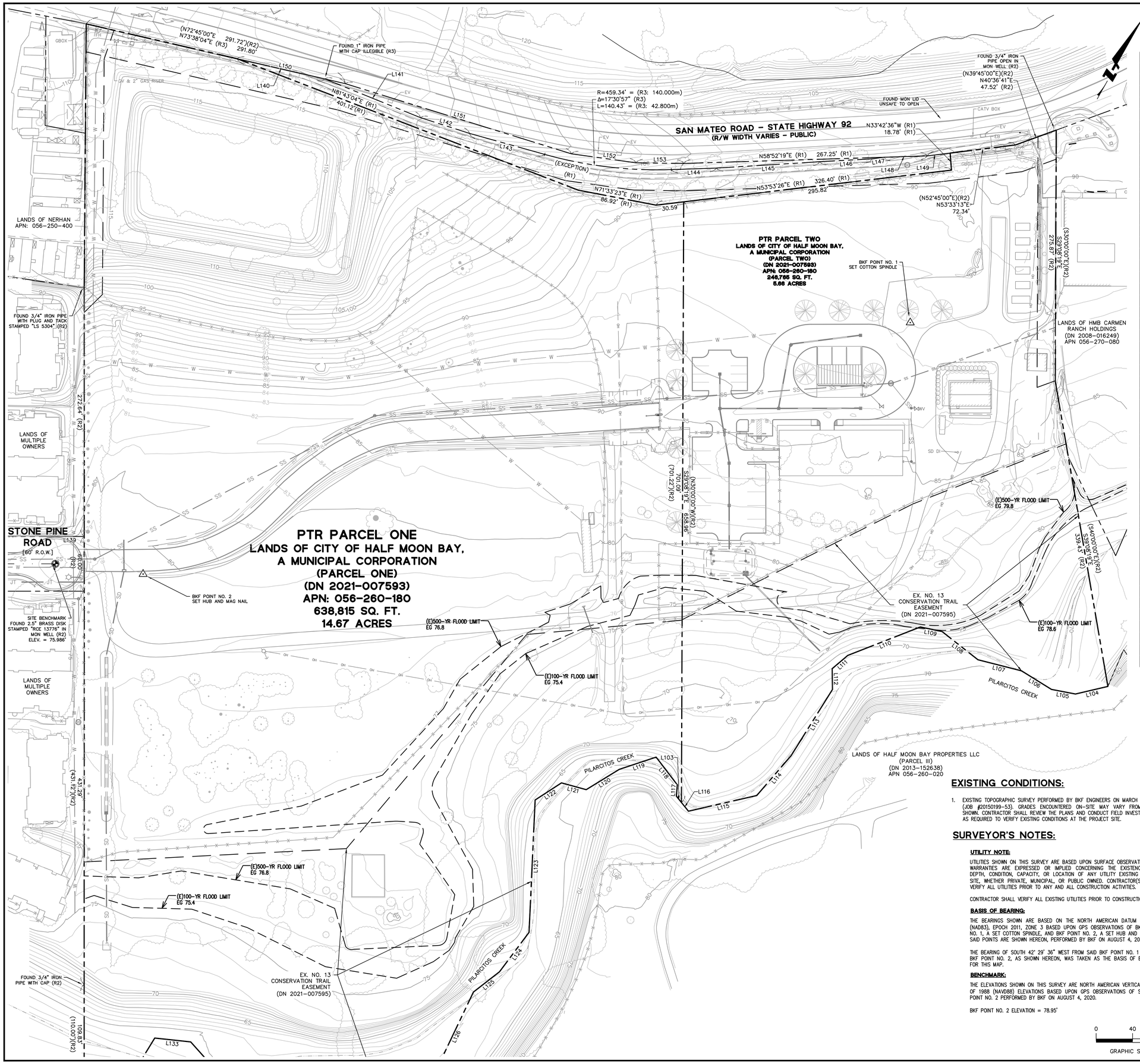
SAN MATEO COUNTY

CALIFORNIA

HALF MOON BAY



LINE TABLE		
LINE NO.	DIRECTION	LENGTH
L103	N68°00'29"W	8.90'
L104	S47°25'02"W	36.52'
L105	S71°31'17"W	26.85'
L106	N87°28'52"W	38.62'
L107	S74°52'52"W	49.37'
L108	N81°09'28"W	50.08'
L109	S72°32'08"W	24.33'
L110	S39°14'12"W	85.57'
L111	S20°14'46"W	22.43'
L112	S30°07'13"E	22.83'
L113	S02°39'36"W	85.73'
L114	S11°24'28"W	57.62'
L115	S47°43'04"W	76.92'
L116	N68°00'29"W	12.29'
L117	N24°18'13"W	12.34'
L118	N66°42'59"W	38.40'
L119	S42°15'35"W	42.60'
L120	S29°04'36"W	42.58'
L121	S75°58'13"W	28.14'
L122	S27°39'47"W	34.46'
L123	S26°43'24"E	145.40'
L124	S07°30'40"W	54.02'
L125	S22°45'40"W	36.27'
L126	S03°51'49"E	104.20'
L127	S37°46'25"W	61.71'
L128	S19°33'41"W	107.45'
L129	S56°13'06"W	40.18'
L130	S88°49'22"W	58.28'
L131	N17°07'56"W	56.88'
L132	N71°05'20"W	72.28'
L133	S66°47'43"W	39.70'
L134	S02°07'42"W	62.88'
L135	S58°53'58"W	25.72'
L136	N57°38'51"W	11.15'
L137	S36°00'41"W	15.01'
L138	S29°20'59"E	30.00'
L139	N60°39'01"E	31.63'
L140	N73°38'04"E	98.77'
L141	N82°41'18"E	113.17'
L142	N78°26'58"E	56.56'
L143	N76°15'07"E	85.66'
L144	N58°44'09"E	49.57'
L145	N57°07'31"E	113.58'
L146	N57°32'14"E	57.76'
L147	N52°28'49"E	12.50'
L148	N58°52'19"E	47.99'
L149	N53°33'13"E	25.26'
L150	N73°38'04"E	121.87'
L151	N77°53'28"E	259.68'
L152	N68°33'21"E	71.61'
L153	N61°25'06"E	52.50'

RECORD LINE TABLE	
RECORD DIRECTION	RECORD LENGTH
(S46°33'28"W)(R2)	(36.53')(R2)
(S70°39'43"W)(R2)	(26.86')(R2)
(N88°20'26"W)(R2)	(38.63')(R2)
(S74°01'18"W)(R2)	(49.39')(R2)
(N82°01'02"W)(R2)	(50.10')(R2)
(S71°40'34"W)(R2)	(24.34')(R2)
(S38°22'38"W)(R2)	(85.60')(R2)
(S19°23'12"W)(R2)	(22.44')(R2)
(S30°58'47"E)(R2)	(22.84')(R2)
(S01°48'02"W)(R2)	(85.76')(R2)
(S10°32'54"W)(R2)	(57.64')(R2)
(S46°51'30"W)(R2)	(76.95')(R2)
(N68°52'03"W)(R2)	(12.22')(R2)
(N68°52'03"W)(R2)	(8.98')(R2)
(N25°09'47"W)(R2)	(12.34')(R2)
(N67°34'33"W)(R2)	(38.41')(R2)
(S41°24'01"W)(R2)	(42.61')(R2)
(S28°13'02"W)(R2)	(42.59')(R2)
(S75°06'39"W)(R2)	(28.15')(R2)
(S26°48'13"W)(R2)	(34.47')(R2)
(S27°34'58"E)(R2)	(145.45')(R2)
(S06°39'06"W)(R2)	(54.04')(R2)
(S21°54'06"W)(R2)	(36.28')(R2)
(S04°43'23"E)(R2)	(104.24')(R2)
(S36°54'51"W)(R2)	(61.73')(R2)
(S18°42'07"W)(R2)	(107.49')(R2)
(S55°21'32"W)(R2)	(40.19')(R2)
(S87°57'48"W)(R2)	(58.30')(R2)
(N17°59'30"W)(R2)	(56.90')(R2)
(N71°56'54"W)(R2)	(72.31')(R2)
(S65°56'09"W)(R2)	(39.71')(R2)
(S01°16'08"W)(R2)	(62.90')(R2)
(S58°02'24"W)(R2)	(25.73')(R2)
(N58°30'25"W)(R2)	(11.15')(R2)
(S35°09'07"W)(R2)	(15.02')(R2)
(S30°12'40"E)(R2)	(30.00')(R2)
(N59°47'20"E)(R2)	(31.50')(R2)
(N53°33'13"E)(R1)(R3)	(25.26')(R1)
(N58°52'19"E)(R1)(R3)	(R3: 14.628m) = 47.99'
(S52°28'49"W)(R3)	(R3: 3.811m) = 12.50'
(S57°32'14"W)(R3)	(R3: 17.604m) = 57.76'
(N57°07'31"E)(R3)	(R3: 34.616m) = 113.58'
(S58°44'09"W)(R3)	(R3: 15.108m) = 49.57'
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(N73°38'04"E)(R1) (N72°45'00"E)(R2)	(121.88')(R1)
(N77°53'28"E)(R1) (N77°00'00"E)(R2)	(259.67')(R1) (260.04')(R2)
(N68°33'21"E)(R1)	(71.61')(R1)
(N67°45'00"E)(R2)	(71.28')(R2)
(N61°25'06"E)(R1) (N60°30'00"E)(R2)	(52.50')(R1) (52.80')(R1)

EXISTING CONDITIONS:

1. EXISTING TOPOGRAPHIC SURVEY PERFORMED BY BKF ENGINEERS ON MARCH 18, 2021 (JOB #20150199-53). GRADES ENCOUNTERED ON-SITE MAY VARY FROM THOSE SHOWN. CONTRACTOR SHALL REVIEW THE PLANS AND CONDUCT FIELD INVESTIGATIONS AS REQUIRED TO VERIFY EXISTING CONDITIONS AT THE PROJECT SITE.

SURVEYOR'S NOTES:

UTILITY NOTE:

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BASIS OF BEARING:

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THE BEARING OF SOUTH 42° 29' 36" WEST FROM SAID BKF POINT NO. 1 TO SAID BKF POINT NO. 2, AS SHOWN HEREON, WAS TAKEN AS THE BASIS OF BEARINGS FOR THIS MAP.

BENCHMARK:

THE ELEVATIONS SHOWN ON THIS SURVEY ARE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) ELEVATIONS BASED UPON GPS OBSERVATIONS OF SAID BKF POINT NO. 2 PERFORMED BY BKF ON AUGUST 4, 2020.

BKF POINT NO. 2 ELEVATION = 78.95'

0 40 80
GRAPHIC SCALE

SURVEYORS STATEMENT

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION, IN CONFORMANCE WITH THE REQUIREMENTS OF THE PROFESSIONAL LAND SURVEYORS' ACT.

08/31/2020
DAVID JUNGMANN, PLS 9267

PROFESSIONAL LAND SURVEYOR · DAVID C. JUNGMANN · No. 9267 · STATE OF CALIFORNIA

RECORD REFERENCES

(R1) GRANT DEED RECORDED OCTOBER 1, 2009 AS DOCUMENT NUMBER 2009-131257, OFFICIAL RECORDS OF SAN MATEO COUNTY.
(R2) RECORD OF SURVEY RECORDED APRIL 5, 2005 IN BOOK 27 OF LLS MAPS AT PAGE 40, OFFICIAL RECORDS OF SAN MATEO COUNTY.
(R3) RECORD OF SURVEY NO. 2460 RECORDED OCTOBER 10, 2013 IN BOOK 38 OF LLS MAPS AT PAGES 99-102OFFICIAL RECORDS OF SAN MATEO COUNTY.

SURVEYOR'S NOTE

RECORD DISTANCES PER (R3) ARE GRID DISTANCES IN METERS. (R3: #m) DENOTES DISTANCE MATCHING RECORD CONVERTED FROM GRID METERS TO GROUND U.S. SURVEY FEET. TO OBTAIN GROUND DISTANCES IN METERS, MULTIPLY (R3) GRID DISTANCES BY 1.000059093, AS STATED ON (R3). TO OBTAIN GROUND DISTANCES IN U.S. SURVEY FEET, MULTIPLY GROUND DISTANCES IN METERS BY THE CONVERSION FACTOR OF (3937/1200).

811 Know what's below. Call before you dig.

No.	Revisions	Date

Date 01/28/2024
Scale 1" = 40'
Design DJP
Drawn DLG
Approved DJL
Job No 20211367-15

Drawing Number:
C1.1
OF

DRAWING NAME: K:\2021\211367-15_HMB_Coryard_Housing\ENG\hmbsheets.dwg
PLOT DATE: 02-08-24 PLOTTED BY: gold

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DEMOLITION PLAN
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880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

STONE PINE ROAD
[60' R.O.W.]

SEE OFFSITE PLANS FOR CONTINUATION

WATER LINE & METER 3
FENCE 1
WATER LINE SHOWN SCHEMATICALLY, CONTRACTOR TO VERIFY LOCATION IN FIELD
WATER LINE 215 LF 2
SSMH 1
WATER LINE CAP AND ABANDON BETWEEN PROJECT AREA AND NEW TIE IN 3
O/H LINE 1
SS LINE 1
SAWCUT
CURB 80 LF 2
AC PAVING (170 SF) 2
CURB 1
CONTRACTOR TO VERIFY ANY UNDERGROUND PIPE ROUTING BETWEEN THE SHED/PUMP EQUIPMENT AND (E)AG POND-AND-REMOVE WITHIN LIMITS OF THE PROJECT
PUMP EQPT 2
SHED 2
SS LINE 345 LF 2
SD LINE ~10 LF 2
CURB 205 LF 2
AC PAVING (415 SF) 2
AC PAVING (425 SF) 2
AC PAVING (85 SF) 2
SD LINE 1
SDCB 1
CURB 230 LF 2
FENCE 140 LF 4
GATE 4
GRAVEL ROAD (8,600 SF) 2
(E)500-YR FLOOD LIMIT EG 76.8
(E)100-YR FLOOD LIMIT EG 75.4
UP 2
BIORETENTION AREA 1
4" PVC RISER
TREE 1
TREE 2
TREE 3
TREE 4
72" CLUSTER
10" CLUSTER
FENCE 1
SD LINE 1
(E)500-YR FLOOD LIMIT EG 76.8

DEMOLITION LEGEND:

LIMIT OF WORK	WITHIN THE LIMIT OF WORK LINE ALL ITEMS NOT CALLED OUT TO BE REMOVED ARE TO REMAIN AND MUST BE PROTECTED IN PLACE. CONTRACTOR TO USE CAUTION AROUND (E) UTILITIES, UTILITY VAULTS AND WATER VALVES TO REMAIN.
EXISTING LANDSCAPED AREAS	REMOVE ALL TREES, SHRUBS, AND GRASS INCLUDING ALL ROOT MASS UNLESS OTHERWISE SPECIFIED. COORDINATE WITH CLIENT PRIOR TO REMOVING ANY TREES. IRRIGATION LINES TO BE REPAIRED TO THE EXTENTS OF NEW PLANTING AND IRRIGATION CONSTRUCTION.
EXISTING AC PAVING	(E)AC PAVEMENT, AND BASE ROCK TO BE REMOVED. BASE ROCK UNDER AC PAVEMENT CAN BE REUSED IF APPROVED BY GEOTECHNICAL ENGINEER. ALL EDGES TO BE SAWCUT WITH A CLEAN EDGE.
EXISTING GRAVEL PAVING	(E)GRAVEL PAVING TO BE REMOVED. GRAVEL CAN BE REUSED IF APPROVED BY GEOTECHNICAL ENGINEER.
TREE PROTECTION	TREE PROTECTION AREA. SEE ARBORIST NOTES ON SHEET C4.1.
	EXISTING UTILITY OR CURB/WALL TO BE DEMOLISHED AND REMOVED
	TREE REMOVAL, REFER TO PROJECT CONDITIONS OF APPROVAL FOR ADDITIONAL REQUIREMENTS
1	TO REMAIN, PROTECT IN PLACE
2	TO BE REMOVED
3	TO BE CAPPED AND ABANDONED
4	TO BE DISCONNECTED AND RELOCATED PER PLANS. EXISTING FOOTINGS/FOUNDATIONS TO BE REMOVED

0 20 40
GRAPHIC SCALE

SEE SHEETS CO.0 AND CO.1 FOR NOTES AND LEGENDS

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REGISTERED PROFESSIONAL ENGINEER — CIVIL — STATE OF CALIFORNIA

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No.	Revisions	Date

Date 01/26/2024
Scale 1" = 20'
Design DJP
Drawn DLG
Approved DJL
Job No 20211367-15

Drawing Number:
C1.2
OF

DRAWING NAME: K:\2021\211367-15_HMB_Courtyard_Housing\ENG\hmbsheets.dwg
PLOT DATE: 02-08-24 PLOTTED BY: gold

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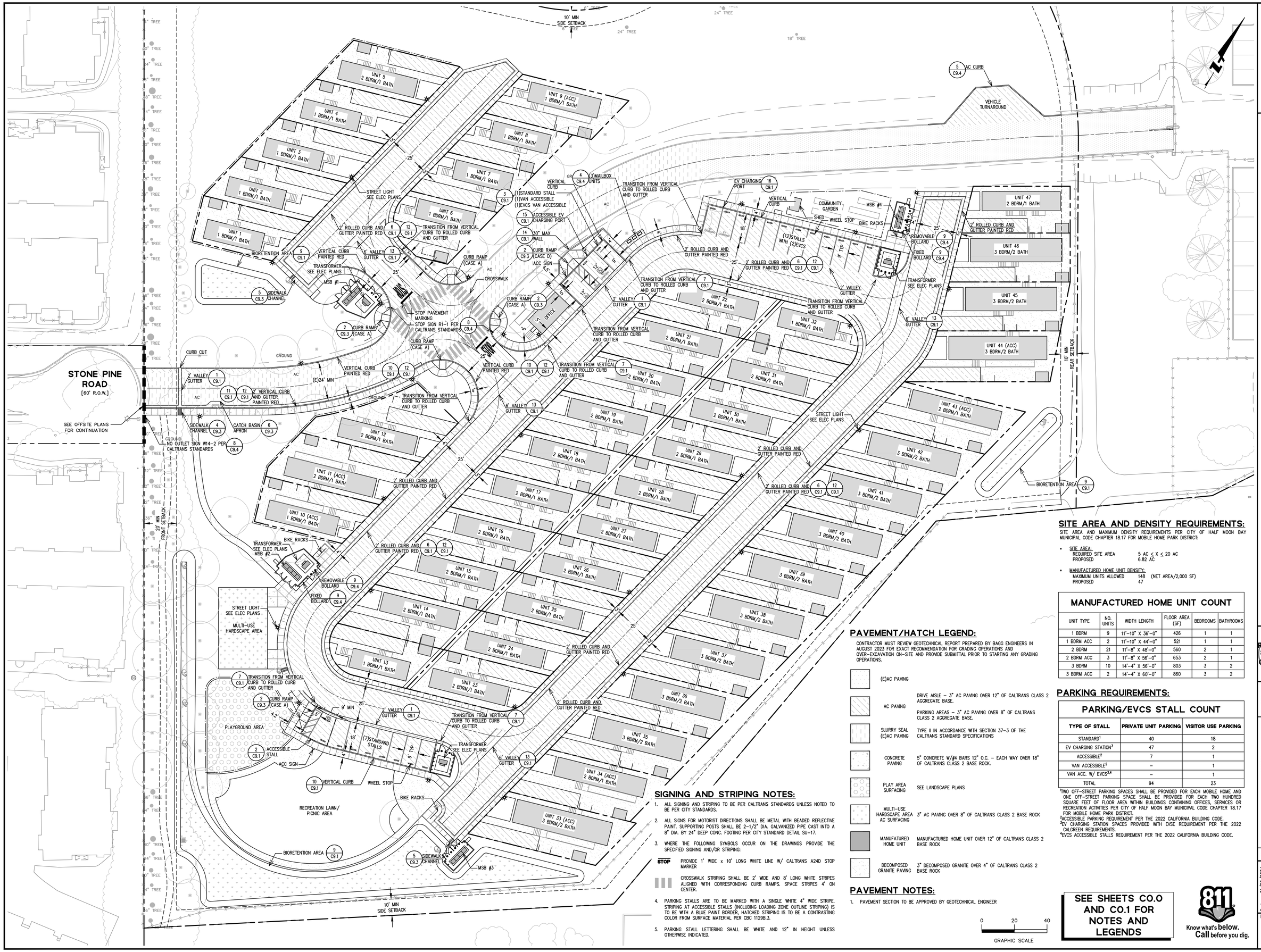

SITE AREA AND DENSITY REQUIREMENTS:

SITE AREA AND MAXIMUM DENSITY REQUIREMENTS PER CITY OF HALF MOON BAY MUNICIPAL CODE CHAPTER 18.17 FOR MOBILE HOME PARK DISTRICT:

- SITE AREA:
  - REQUIRED SITE AREA: 5 AC ≤ X ≤ 20 AC
  - PROPOSED: 6.82 AC
- MANUFACTURED HOME UNIT DENSITY:
  - MAXIMUM UNITS ALLOWED: 148 (NET AREA/2,000 SF)
  - PROPOSED: 47

MANUFACTURED HOME UNIT COUNT

UNIT TYPE	NO. UNITS	WIDTH LENGTH	FLOOR AREA (SF)	BEDROOMS	BATHROOMS
1 BDRM	9	11'-10" X 36'-0"	426	1	1
1 BDRM ACC	2	11'-10" X 44'-0"	521	1	1
2 BDRM	21	11'-8" X 48'-0"	560	2	1
2 BDRM ACC	3	11'-8" X 56'-0"	653	2	1
3 BDRM	10	14'-4" X 56'-0"	803	3	2
3 BDRM ACC	2	14'-4" X 60'-0"	860	3	2

PAVEMENT/HATCH LEGEND:

CONTRACTOR MUST REVIEW GEOTECHNICAL REPORT PREPARED BY BAGG ENGINEERS IN AUGUST 2023 FOR EXACT RECOMMENDATION FOR GRADING OPERATIONS AND OVER-EXCAVATION ON-SITE AND PROVIDE SUBMITTAL PRIOR TO STARTING ANY GRADING OPERATIONS.

(E)AC PAVING	
AC PAVING	DRIVE AISLE – 3" AC PAVING OVER 12" OF CALTRANS CLASS 2 AGGREGATE BASE. PARKING AREAS – 3" AC PAVING OVER 8" OF CALTRANS CLASS 2 AGGREGATE BASE.
SLURRY SEAL (E)AC PAVING	TYPE II IN ACCORDANCE WITH SECTION 37-3 OF THE CALTRANS STANDARD SPECIFICATIONS
CONCRETE PAVING	5" CONCRETE W/#4 BARS 12" O.C. – EACH WAY OVER 18" OF CALTRANS CLASS 2 BASE ROCK.
PLAY AREA SURFACING	SEE LANDSCAPE PLANS
MULTI-USE HARDSCAPE AREA AC SURFACING	3" AC PAVING OVER 8" OF CALTRANS CLASS 2 BASE ROCK
MANUFATURED HOME UNIT	MANUFACTURED HOME UNIT OVER 12" OF CALTRANS CLASS 2 BASE ROCK
DECOMPOSED GRANITE PAVING	3" DECOMPOSED GRANITE OVER 4" OF CALTRANS CLASS 2 BASE ROCK

PAVEMENT NOTES:

1. PAVEMENT SECTION TO BE APPROVED BY GEOTECHNICAL ENGINEER

SIGNING AND STRIPING NOTES:

1. ALL SIGNING AND STRIPING TO BE PER CALTRANS STANDARDS UNLESS NOTED TO BE PER CITY STANDARDS.
2. ALL SIGNS FOR MOTORIST DIRECTIONS SHALL BE METAL WITH BEADED REFLECTIVE PAINT. SUPPORTING POSTS SHALL BE 2-1/2" DIA. GALVANIZED PIPE CAST INTO A 8" DIA. BY 24" DEEP CONC. FOOTING PER CITY STANDARD DETAIL SU-17.
3. WHERE THE FOLLOWING SYMBOLS OCCUR ON THE DRAWINGS PROVIDE THE SPECIFIED SIGNING AND/OR STRIPING:
   - STOP — PROVIDE 1' WIDE x 10' LONG WHITE LINE W/ CALTRANS A24D STOP MARKER
   - CROSSWALK STRIPING SHALL BE 2' WIDE AND 8' LONG WHITE STRIPES ALIGNED WITH CORRESPONDING CURB RAMPS. SPACE STRIPES 4' ON CENTER.
4. PARKING STALLS ARE TO BE MARKED WITH A SINGLE WHITE 4" WIDE STRIPE. STRIPING AT ACCESSIBLE STALLS (INCLUDING LOADING ZONE OUTLINE STRIPING) IS TO BE WITH A BLUE PAINT BORDER, HATCHED STRIPING IS TO BE A CONTRASTING COLOR FROM SURFACE MATERIAL PER CBC 1129B.3.
5. PARKING STALL LETTERING SHALL BE WHITE AND 12" IN HEIGHT UNLESS OTHERWISE INDICATED.

PARKING REQUIREMENTS:

PARKING/EVCS STALL COUNT

TYPE OF STALL	PRIVATE UNIT PARKING	VISITOR USE PARKING
STANDARD[1]	40	18
EV CHARGING STATION[3]	47	2
ACCESSIBLE[2]	7	1
VAN ACCESSIBLE[2]	–	1
VAN ACC. W/ EVCS[3,4]	–	1
TOTAL	94	23

[1]TWO OFF-STREET PARKING SPACES SHALL BE PROVIDED FOR EACH MOBILE HOME AND ONE OFF-STREET PARKING SPACE SHALL BE PROVIDED FOR EACH TWO HUNDRED SQUARE FEET OF FLOOR AREA WITHIN BUILDINGS CONTAINING OFFICES, SERVICES OR RECREATION ACTIVITIES PER CITY OF HALF MOON BAY MUNICIPAL CODE CHAPTER 18.17 FOR MOBILE HOME PARK DISTRICT.
[2]ACCESSIBLE PARKING REQUIREMENT PER THE 2022 CALIFORNIA BUILDING CODE.
[3]EV CHARGING STATION SPACES PROVIDED WITH EVSE REQUIREMENT PER THE 2022 CALGREEN REQUIREMENTS.
[4]EVCS ACCESSIBLE STALLS REQUIREMENT PER THE 2022 CALIFORNIA BUILDING CODE.

SEE SHEETS C0.0 AND C0.1 FOR NOTES AND LEGENDS

0 20 40
GRAPHIC SCALE

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CIVIL SITE PLAN
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

REGISTERED PROFESSIONAL ENGINEER — JOSEPH D. PETTIT — No. 77777 — CIVIL — STATE OF CALIFORNIA

REVIEW ONLY NOT FOR CONSTRUCTION

No.	Revisions	Date
1	PER CITY COMMENTS	03/04/2024

Date 01/26/2024
Scale 1" = 20'
Design DJP
Drawn DLG
Approved DJL
Job No 20211367-15

Drawing Number:
C2.1
OF

DRAWING NAME: K:\2021\211367-15_HMB_Corpyard_Housing\ENG\hmbsheets.dwg
PLOT DATE: 02-08-24
PLOTTED BY: gald

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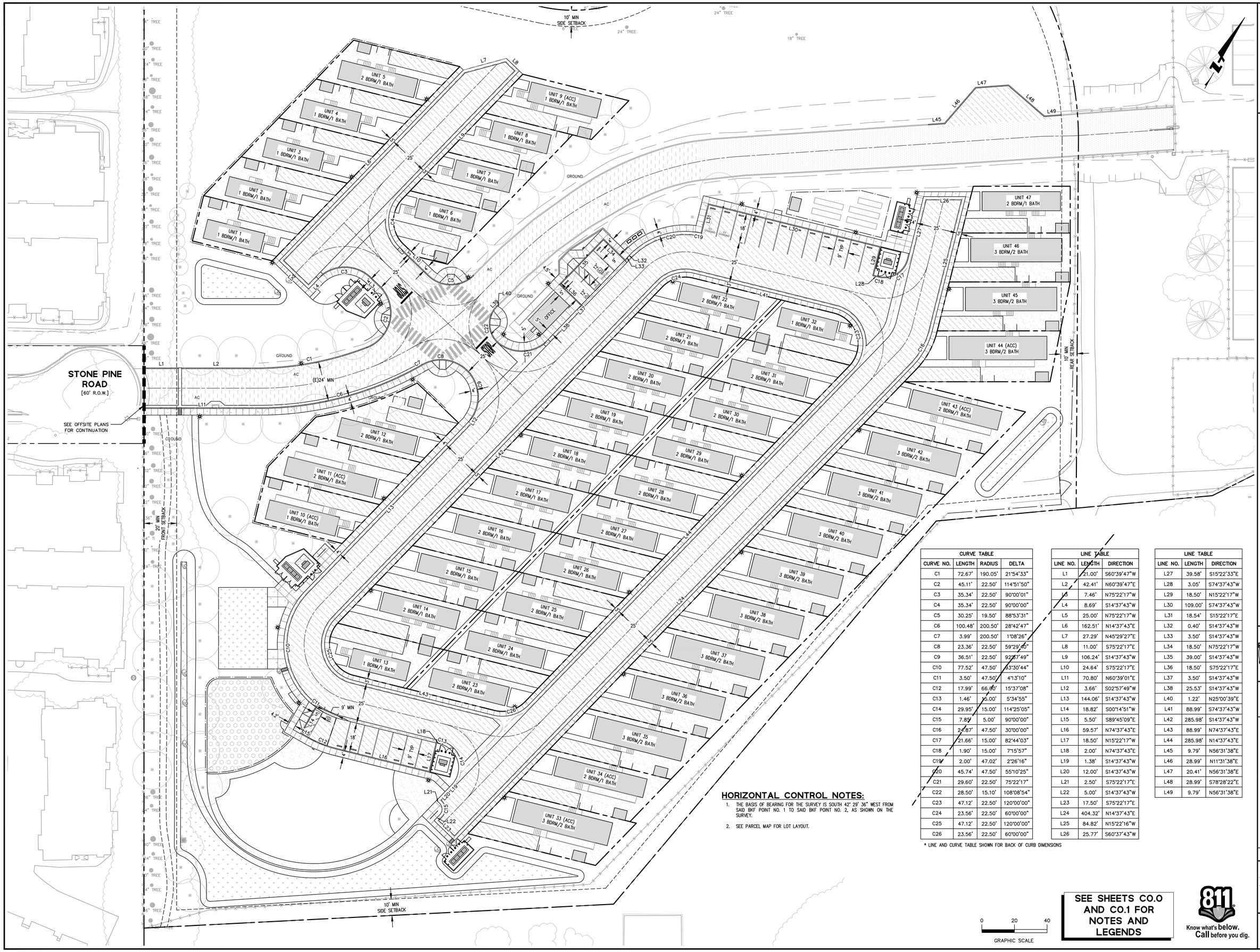

CURVE TABLE			
CURVE NO.	LENGTH	RADIUS	DELTA
C1	72.67'	190.05'	21°54'33"
C2	45.11'	22.50'	114°51'50"
C3	35.34'	22.50'	90°00'01"
C4	35.34'	22.50'	90°00'00"
C5	30.25'	19.50'	88°53'31"
C6	100.48'	200.50'	28°42'47"
C7	3.99'	200.50'	1°08'26"
C8	23.36'	22.50'	59°29'40"
C9	36.51'	22.50'	92°57'49"
C10	77.52'	47.50'	93°30'44"
C11	3.50'	47.50'	4°13'10"
C12	17.99'	66.00'	15°37'08"
C13	1.46'	15.00'	5°34'55"
C14	29.95'	15.00'	114°25'05"
C15	7.85'	5.00'	90°00'00"
C16	24.87'	47.50'	30°00'00"
C17	21.66'	15.00'	82°44'03"
C18	1.90'	15.00'	7°15'57"
C19	2.00'	47.02'	2°26'16"
C20	45.74'	47.50'	55°10'25"
C21	29.60'	22.50'	75°22'17"
C22	28.50'	15.10'	108°08'54"
C23	47.12'	22.50'	120°00'00"
C24	23.56'	22.50'	60°00'00"
C25	47.12'	22.50'	120°00'00"
C26	23.56'	22.50'	60°00'00"

LINE TABLE		
LINE NO.	LENGTH	DIRECTION
L1	21.00'	S60°39'47"W
L2	42.41'	N60°39'47"E
L3	7.46'	N75°22'17"W
L4	8.69'	S14°37'43"W
L5	25.00'	N75°22'17"W
L6	162.51'	N14°37'43"E
L7	27.29'	N45°29'27"E
L8	11.00'	S75°22'17"E
L9	106.24'	S14°37'43"W
L10	24.64'	S75°22'17"E
L11	70.80'	N60°39'01"E
L12	3.66'	S02°57'49"W
L13	144.06'	S14°37'43"W
L14	18.82'	S00°14'51"W
L15	5.50'	S89°45'09"E
L16	59.57'	N74°37'43"E
L17	18.50'	N15°22'17"W
L18	2.00'	N74°37'43"E
L19	1.38'	S14°37'43"W
L20	12.00'	S14°37'43"W
L21	2.50'	S75°22'17"E
L22	5.00'	S14°37'43"W
L23	17.50'	S75°22'17"E
L24	404.32'	N14°37'43"E
L25	84.82'	N15°22'16"W
L26	25.77'	S60°37'43"W

LINE TABLE		
LINE NO.	LENGTH	DIRECTION
L27	39.58'	S15°22'33"E
L28	3.05'	S74°37'43"W
L29	18.50'	N15°22'17"W
L30	109.00'	S74°37'43"W
L31	18.54'	S15°22'17"E
L32	0.40'	S14°37'43"W
L33	3.50'	S14°37'43"W
L34	18.50'	N75°22'17"W
L35	39.00'	S14°37'43"W
L36	18.50'	S75°22'17"E
L37	3.50'	S14°37'43"W
L38	25.53'	S14°37'43"W
L40	1.22'	N25°00'39"E
L41	88.99'	S74°37'43"W
L42	285.98'	S14°37'43"W
L43	88.99'	N74°37'43"E
L44	285.98'	N14°37'43"E
L45	9.79'	N56°31'38"E
L46	28.99'	N11°31'38"E
L47	20.41'	N56°31'38"E
L48	28.99'	S78°28'22"E
L49	9.79'	N56°31'38"E

* LINE AND CURVE TABLE SHOWN FOR BACK OF CURB DIMENSIONS

HORIZONTAL CONTROL NOTES:

1. THE BASIS OF BEARING FOR THE SURVEY IS SOUTH 42° 29' 36" WEST FROM SAID BKF POINT NO. 1 TO SAID BKF POINT NO. 2, AS SHOWN ON THE SURVEY.
2. SEE PARCEL MAP FOR LOT LAYOUT.

SEE SHEETS CO.0 AND CO.1 FOR NOTES AND LEGENDS

0 20 40
GRAPHIC SCALE

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BKF Engineers
255 SHORELINE DRIVE
SUITE 200
REDWOOD CITY, CA 94065
(650) 482-6300
www.bkf.com

HORIZONTAL CONTROL PLAN
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

REGISTERED PROFESSIONAL ENGINEER
DAVID L. GOLD
No. 72870
CIVIL
STATE OF CALIFORNIA
REVIEW ONLY NOT FOR CONSTRUCTION

No.	Revisions	Date

Date 01/26/2024
Scale 1" = 20'
Design DJP
Drawn DLG
Approved DJL
Job No 20211367-15

Drawing Number:
C2.2
OF

DRAWING NAME: K:\2021\2211367-15_HMB_Corpyard_Housing\ENG\hmbsheets.dwg
PLOT DATE: 02-08-24 PLOTTED BY: gold

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OVERALL GRADING PLAN
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

STONE PINE ROAD
[60' R.O.W.]

SEE OFFSITE PLANS FOR CONTINUATION

SEE RIGHT

SEE LEFT

BIORETENTION AREA #1
700 SF
TOB 82.40
FG 81.15

BIORETENTION AREA #1
4,840 SF
TOB VARIES
FG VARIES

BIORETENTION AREA #3
430 SF
TOB 79.00
FG 77.75

OVERFLOW CB
GR 81.90

(E)ROCK DISSIPATOR

ROCK DISSIPATOR

OFFICE

MSB #1

MSB #2

MSB #3

MSB #4

TRANSFORMER

FIRE HYDRANT

AIR RELEASE VALVE

CURB INLET
GR 80.37

JUNCTION BOX
GR 81.70

CB
GR 79.30

CB
GR 78.20

CB
GR 76.50

OVERFLOW CB
GR 76.75

(E)OVERFLOW CB
GR 76.5±

OVERFLOW CB
GR 78.50

(E)SSMH
RIM 77.4±

SSMH (TYPE 1)
RIM 80.05

SSMH (TYPE 1)
RIM 82.25

SSMH
RIM 79.10

SSMH
RIM 78.75

SSMH
RIM 78.60

SSMH
RIM 77.95

SSMH
RIM 84.25

SSMH
RIM 83.10

SSMH
RIM 81.75

SSMH
RIM 80.65

SSMH
RIM 81.90

(E)SSMH
RIM 81.8±

1" IRR METER/BFPD

2" DW METER/BFPD

6" DW METER/BFPD

(E)FS 82.2±

(E)FS 81.9±

(E)FS 89.1±

(E)FS 88.4±

(E)FG 76.6±

(E)FG 75.5±

(E)FG 75.9±

(E)FG 77.3±

(E)100-YR FLOOD LIMIT
EG 75.4

500-YR FLOOD LIMIT
EG 76.8

UNIT 1 1 BDRM/1 BATH
UNIT 2 1 BDRM/1 BATH
UNIT 3 1 BDRM/1 BATH
UNIT 4 1 BDRM/1 BATH
UNIT 5 2 BDRM/1 BATH
UNIT 6 1 BDRM/1 BATH
UNIT 7 1 BDRM/1 BATH
UNIT 8 1 BDRM/1 BATH
UNIT 9 (ACC) 1 BDRM/1 BATH
UNIT 10 (ACC) 1 BDRM/1 BATH
UNIT 11 (ACC) 2 BDRM/1 BATH
UNIT 12 2 BDRM/1 BATH
UNIT 13 1 BDRM/1 BATH
UNIT 14 2 BDRM/1 BATH
UNIT 15 2 BDRM/1 BATH
UNIT 16 2 BDRM/1 BATH
UNIT 17 2 BDRM/1 BATH
UNIT 18 2 BDRM/1 BATH
UNIT 19 2 BDRM/1 BATH
UNIT 20 2 BDRM/1 BATH
UNIT 21 2 BDRM/1 BATH
UNIT 22 2 BDRM/1 BATH
UNIT 23 2 BDRM/1 BATH
UNIT 24 2 BDRM/1 BATH
UNIT 25 2 BDRM/1 BATH
UNIT 26 2 BDRM/1 BATH
UNIT 27 2 BDRM/1 BATH
UNIT 28 2 BDRM/1 BATH
UNIT 29 2 BDRM/1 BATH
UNIT 30 2 BDRM/1 BATH
UNIT 31 2 BDRM/1 BATH
UNIT 32 1 BDRM/1 BATH
UNIT 33 (ACC) 3 BDRM/2 BATH
UNIT 34 (ACC) 2 BDRM/1 BATH
UNIT 35 3 BDRM/2 BATH
UNIT 36 3 BDRM/2 BATH
UNIT 37 3 BDRM/2 BATH
UNIT 38 3 BDRM/2 BATH
UNIT 39 3 BDRM/2 BATH
UNIT 40 3 BDRM/2 BATH
UNIT 41 3 BDRM/2 BATH
UNIT 42 3 BDRM/2 BATH
UNIT 43 (ACC) 2 BDRM/1 BATH
UNIT 44 (ACC) 3 BDRM/2 BATH
UNIT 45 3 BDRM/2 BATH
UNIT 46 3 BDRM/2 BATH
UNIT 47 2 BDRM/1 BATH

GRADING NOTES:

1. PROVIDE POSITIVE SURFACE DRAINAGE AWAY FROM ALL STRUCTURES BY SLOPING THE FINISHED GROUND SURFACE AT 5% FOR A DISTANCE OF 10', WHERE POSSIBLE, UNLESS OTHERWISE NOTED ON THE PLANS. SLOPE PORCHES, LANDINGS AND TERRACES 2% (1/4" PER FOOT) AWAY FROM, STRUCTURES UNLESS OTHERWISE NOTED ON PLANS.
2. CONTRACTOR TO VERIFY ALL CONTROLLING DIMENSIONS WITH ARCHITECTURAL PLANS.
3. CONTRACTOR SHALL DETERMINE EARTHWORK QUANTITIES BASED ON THE TOPOGRAPHIC SURVEY, THE GEOTECHNICAL INVESTIGATION AND THE PROPOSED SURFACE THICKNESS AND BASE THE BID ACCORDINGLY. IT IS THE CONTRACTORS RESPONSIBILITY TO CONFIRM IF A SEPARATE DEMOLITION CONTRACT HAS BEEN ISSUED TO TAKE THE SITE FROM THE WAY IT IS AT THE TIME OF THE BID TO THE CONDITIONS DESCRIBED IN THESE DOCUMENTS. ANY DIFFERENCES BETWEEN THE STATE IN WHICH THE SITE IS DELIVERED TO THE CONTRACTOR AND THESE DOCUMENTS SHOULD BE NOTED TO THE ENGINEER/ARCHITECT.
4. ALL FILL SHALL BE COMPACTED PER THE GEOTECHNICAL REPORT AND THE CONTRACTOR SHALL COORDINATE AND COMPLY WITH THE CLIENT'S GEOTECHNICAL ENGINEER TO TAKE THE APPROPRIATE TESTS TO VERIFY COMPACTION VALUES.
5. IMPORT SOILS SHOULD MEET THE REQUIREMENTS OF THE SOILS REPORT AND SPECIFICATIONS.
6. COORDINATE THE PLACEMENT OF ALL SLEEVES FOR LANDSCAPE IRRIGATION (WATER AND CONTROL WIRING) AND SITE LIGHTING PRIOR TO THE PLACEMENT OF ANY ASPHALT, BASEROCK OR CONCRETE SURFACING. SEE LANDSCAPING AND SITE ELECTRICAL DRAWINGS.
7. DO NOT ADJUST GRADES ON THIS PLAN WITHOUT PRIOR WRITTEN APPROVAL OF THE ENGINEER/ARCHITECT.
8. SITE STRIPPINGS THAT CONTAIN ONLY ORGANIC MATERIAL (NO DEBRIS TRASH, BROKEN CONC. OR ROCKS GREATER THAN 1" IN DIAMETER) MAY BE USED IN LANDSCAPE AREAS, EXCEPT FOR AREAS IDENTIFIED AS IMPORT TOP SOIL BY THE LANDSCAPE DRAWINGS. EXCESS STRIPPINGS SHALL BE REMOVED FROM SITE.
9. ROUGH GRADING TO BE WITHIN 0.1' AND FINISH GRADES ARE TO BE WITHIN 0.05', HOWEVER CONTRACTOR SHALL NOT CONSTRUCT ANY IMPROVEMENTS THAT WILL CAUSE WATER TO POND OR NOT MEET REQUIREMENTS IN GRADING NOTE #1.
10. THE CONTRACTOR SHALL EXERCISE EXTREME CARE TO CONFORM TO THE LINES, GRADES, SECTIONS, AND DIMENSIONS AS SET FORTH ON THESE PLANS. ALL GRADED AREAS SHALL CONFORM TO THE VERTICAL ELEVATIONS SHOWN WITH A TOLERANCE OF ONE-TENTH OF A FOOT. WHERE GRADED AREAS DO NOT CONFORM TO THESE TOLERANCES, THE CONTRACTORS SHALL BE REQUIRED TO DO CORRECTIVE GRADING, AT NO EXTRA COST TO THE CLIENT.
11. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM THE GROUND ELEVATIONS AND OVERALL TOPOGRAPHY OF THE SITE PRIOR TO THE START OF CONSTRUCTION AS TO THE ACCURACY BETWEEN THE WORK SET FORTH ON THESE PLANS AND THE WORK IN THE FIELD. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND CIVIL ENGINEER IN WRITING PRIOR TO START OF CONSTRUCTION WHICH MAY REQUIRE CHANGES IN DESIGN AND/OR AFFECT THE EARTHWORK QUANTITIES.
12. TRENCHES SHALL NOT BE LEFT OPEN OVERNIGHT IN EXISTING PUBLIC STREET AREAS. CONTRACTOR SHALL BACKFILL TRENCHES, OR PLACE STEEL PLATING WITH ADEQUATE OUTBACK TO PREVENT SHIFTING OF STEEL PLATE AND/OR HOT-MIX ASPHALT REQUIRED TO PROTECT OPEN TRENCHES AT THE END OF THE WORKING DAY.
13. DISTURBED AREAS OF THE SITE SHOULD BE STABILIZED DURING THE RAINY SEASON USING STRAW MULCH (EC-6) OR WOOD MULCHING (EC-8).
14. PERMANENT EROSION CONTROL SHALL BE PROVIDED BY LANDSCAPING SUCH AS SHRUBS, SOD OR MULCH. LANDSCAPE DESIGN MAY BE SUBJECT TO CHANGE.

PAVEMENT/HATCH LEGEND:

CONTRACTOR MUST REVIEW GEOTECHNICAL REPORT PREPARED BY BAGG ENGINEERS IN AUGUST 2023 FOR EXACT RECOMMENDATION FOR GRADING OPERATIONS AND OVER-EXCAVATION ON-SITE AND PROVIDE SUBMITTAL PRIOR TO STARTING ANY GRADING OPERATIONS.

(E)AC PAVING	
AC PAVING	DRIVE AISLE – 3" AC PAVING OVER 12" OF CALTRANS CLASS 2 AGGREGATE BASE. PARKING AREAS – 3" AC PAVING OVER 8" OF CALTRANS CLASS 2 AGGREGATE BASE.
SLURRY SEAL (E)AC PAVING	TYPE II IN ACCORDANCE WITH SECTION 37-3 OF THE CALTRANS STANDARD SPECIFICATIONS
CONCRETE PAVING	5" CONCRETE W/#4 BARS 12" O.C. – EACH WAY OVER 18" OF CALTRANS CLASS 2 BASE ROCK.
PLAY AREA SURFACING	SEE LANDSCAPE PLANS
MULTI-USE HARDSCAPE AREA AC SURFACING	3" AC PAVING OVER 8" OF CALTRANS CLASS 2 BASE ROCK
MANUFATURED HOME UNIT	MANUFACTURED HOME UNIT OVER 12" OF CALTRANS CLASS 2 BASE ROCK
DECOMPOSED GRANITE PAVING	3" DECOMPOSED GRANITE OVER 4" OF CALTRANS CLASS 2 BASE ROCK

0 20 40
GRAPHIC SCALE

SEE SHEETS C0.0 AND C0.1 FOR NOTES AND LEGENDS

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REGISTERED PROFESSIONAL ENGINEER
BRUCE J. LEEF
CIVIL
STATE OF CALIFORNIA

No.	Revisions	Date

Date 01/26/2024
Scale 1" = 20'
Design DJP
Drawn DLG
Approved DJL
Job No. 20211367-15

Drawing Number:
C3.0
OF

DRAWING NAME: K:\2021\211367-15_HMB_Corpyard_Housing\ENG\vmbsheets.dwg
PLOT DATE: 02-08-24
PLOTTED BY: gold

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(650) 482-6300
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GRADING PLAN
STONE PINE COVE
880 STONE PINE ROAD

SAN MATEO COUNTY

CALIFORNIA

HALF MOON BAY

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No.	Revisions	Date

Date 01/26/2024
Scale 1" = 10'
Design DJP
Drawn DLG
Approved DJL
Job No 202136?-15

Drawing Number: C3.1
OF

GRAPHIC SCALE 0 10 20

SEE SHEET C3.2

SEE LEFT

SEE RIGHT

SEE SHEET C3.3

STONE PINE ROAD
[60' R.O.W.]

SEE OFFSITE PLANS FOR CONTINUATION

WIDE SWINGS

STOP

FIRE HYDRANT

TRANSFORMER

MSB

UNIT 1 (ACC) 2 BDRM/1 BATH FF = 83.12 PAD = 80.62

UNIT 2 1 BDRM/1 BATH FF = 86.97 PAD = 83.97

UNIT 3 1 BDRM/1 BATH FF = 86.80 PAD = 84.30

UNIT 4 1 BDRM/1 BATH FF = 86.13 PAD = 84.63

UNIT 5 2 BDRM/1 BATH FF = 87.46 PAD = 84.96

UNIT 6 1 BDRM/1 BATH FF = 86.17 PAD = 84.47

UNIT 7 BDRM/1 BATH FF = 87.20 PAD = 84.70

UNIT 8 1 BDRM/1 BATH FF = 87.53 PAD = 85.03

UNIT 9 (ACC) 1 BDRM/1 BATH FF = 86.96 PAD = 85.46

UNIT 10 2 BDRM/1 BATH FF = 83.40 PAD = 80.90

UNIT 11 (ACC) 2 BDRM/1 BATH FF = 83.12 PAD = 80.62

UNIT 12 2 BDRM/1 BATH FF = 83.40 PAD = 80.90

UNIT 17 2 BDRM/1 BATH FF = 83.96 PAD = 81.26

UNIT 18 2 BDRM/1 BATH FF = 83.85 PAD = 81.35

UNIT 19 2 BDRM/1 BATH FF = 84.14 PAD = 81.64

UNIT 20 2 BDRM/1 BATH FF = 84.43 PAD = 81.93

BIORETENTION AREA #1
TOP = 82.40
FG 81.15

OVERFLOW CB GR 81.90

ROCK DISSIPATOR

1" IRR METER/BFPD

2" DW METER/BFPD

6" DW METER/BFPD

REDIRECT (E)SWALE

VEGETATED SWALE

WOOD FENCE

TRASH ENCL

SHED

CHANGING

FLARED END SECTION

SSMH (TYPE 1) RIM 80.05

SSMH RIM 79.10

SSMH RIM 77.44

SSMH RIM 83.10

SSMH RIM 84.28

SSMH RIM 82.25

(E)SSMH RIM 77.44

(E)CB RIM 81.94

(E)TC 83.44 (E)FS 82.94

(E)TC 83.11 (E)FS 82.64

(E)FG 84.03

(E)TC 81.43 (E)FS 81.14

(E)TC 81.63 (E)FS 81.34

(E)TC 81.67 (E)FS 81.34

(E)TC 79.63 (E)FS 79.34

(E)TC 80.13 (E)FS 79.84

(E)TC 76.90 (E)FS 76.44

(E)TC 82.93 (E)FS 82.64

(E)TC 81.65 (E)FS 81.32

(E)TC 81.83 (E)FS 81.54

(E)TC 81.31 (E)FS 80.98

(E)TC 81.21 (E)FS 80.88

(E)TC 81.49 (E)FS 81.16

(E)TC 81.59 (E)FS 81.59

(E)TC 81.55 (E)FS 81.55

(E)TC 81.47 (E)FS 81.14

(E)TC 81.32 (E)FS 81.32

(E)TC 81.48 (E)FS 80.65

(E)TC 81.05 (E)FS 80.72

(E)TC 80.91 (E)FS 80.55

(E)TC 80.59 (E)FS 80.26

(E)TC 80.42 (E)FS 80.09

(E)TC 80.33 (E)FS 79.97

(E)TC 80.01 (E)FS 79.64

(E)TC 79.63 (E)FS 79.30

(E)TC 78.63 (E)FS 78.30

(E)TC 77.10 (E)FS 76.60

(E)TC 82.83 (E)FS 82.50

(E)TC 83.18 (E)FS 82.85

(E)TC 83.51 (E)FS 83.18

(E)TC 83.30 (E)FS 82.94

(E)TC 83.78 (E)FS 83.42

(E)TC 83.84 (E)FS 83.51

(E)TC 84.08 (E)FS 83.75

(E)TC 84.11 (E)FS 83.78

(E)TC 84.17 (E)FS 83.84

(E)TC 84.41 (E)FS 84.08

(E)TC 84.44 (E)FS 84.11

(E)TC 84.50 (E)FS 84.17

(E)TC 84.74 (E)FS 84.41

(E)TC 84.77 (E)FS 84.44

(E)TC 84.93 (E)FS 84.60

(E)TC 85.31 (E)FS 85.03

(E)TC 85.38 (E)FS 85.10

(E)TC 85.69 (E)FS 85.41

(E)TC 85.72 (E)FS 85.44

(E)TC 85.75 (E)FS 85.46

(E)TC 85.78 (E)FS 85.49

(E)TC 85.81 (E)FS 85.52

(E)TC 85.84 (E)FS 85.55

(E)TC 85.87 (E)FS 85.58

(E)TC 85.90 (E)FS 85.61

(E)TC 85.93 (E)FS 85.64

(E)TC 85.96 (E)FS 85.67

(E)TC 85.99 (E)FS 85.70

(E)TC 86.02 (E)FS 85.73

(E)TC

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GRADING PLAN
STONE PINE COVE
880 STONE PINE ROAD

HALF MOON BAY | SAN MATEO COUNTY | CALIFORNIA

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Date 01/26/2024
Scale 1" = 10'
Design DJP
Drawn DLG
Approved DJL
Job No 20213187-15

Drawing Number: C3.2
OF

GRAPHIC SCALE 0 10 20

SEE SHEET C3.1

SEE SHEET C3.4

DRAWING NAME: K:\2021\21187-15.JMA\Corpyard_Housing\ENG\mmsheets.dwg
PLOT DATE: 02-08-24 PLOTTED BY: gold

SEE RIGHT

SEE LEFT

SEE SHEET C3.4

SSMH RIM 78.11
70.43 INV 6" CLAY (E'LY)
70.33 INV 6" CLAY (S'LY)
RIM NOT LEVEL

SSMH RIM 79.10

VEGETATED SWALE

TOB/FL 77.25

(E)FG 76.0±

4" PVC RISER
4" PVC RISER

SSMH RIM 78.75

TRANSFORMER
MSB #2
FRONT

TC 79.12
FL 78.79

TC 79.44
FL 79.11

TC 79.74
FL 79.41

TC 80.07
FL 79.74

TC 80.01
FL 79.68

TC 79.72
FL 79.39

TC 79.42
FL 79.09

TC 78.79
FL 78.46

TC 79.04
FL 78.71

TC 78.58
FL 78.25

TC 78.76
FS 78.43

TC 78.64
FL 78.31

TC 78.43
FL 78.10

TC 78.67
FL 78.24

TC 78.75
FS 78.42

TC 78.22
FL 77.89

TC 78.05
FL 77.72

TC 77.99
FL 77.66

TC 77.93
FL 77.64

TC 77.93
FL 77.60

TC 78.46
FL 78.15

TC 78.48
FL 78.15

TC 78.72
FL 78.39

TC 78.73
FL 78.40

TC 79.18
FL 78.85

TC 78.98
FL 78.65

TC 78.95
FL 78.62

TC 79.22
FL 78.89

SSMH RIM 77.95

SSMH RIM 78.60

CB GR 78.20

OVERFLOW CB GR 76.75

(E)OVERFLOW CB GR 76.5±

(E)ROCK DISSIPATOR

(E)FG 77.7±

(E)FG 76.0±

(E)100-YR FLOOD LIMIT EG 75.4

500-YR FLOOD LIMIT EG 76.8

FIRE HYDRANT

BIORETENTION AREA #1
4,840 SF
TOB VARIES
FG VARIES

MSB #3

SHED FS 80.30
SHED FS 80.42
SHED FS 81.18
SHED FS 80.19
SHED FS 80.89
SHED FS 79.95
SHED FS 80.60
SHED FS 79.72
SHED FS 79.49
SHED FS 80.00
SHED FS 79.26
SHED FS 79.19
SHED FS 78.98

UNIT 10 (ACC)
2 BDRM/1 BATH
FF = 82.80
PAD = 80.30

UNIT 11 (ACC)
2 BDRM/1 BATH
FF = 83.12
PAD = 80.62

UNIT 13
1 BDRM/1 BATH
FF = 82.00
PAD = 79.50

UNIT 14
2 BDRM/1 BATH
FF = 82.68
PAD = 80.18

UNIT 15
2 BDRM/1 BATH
FF = 82.98
PAD = 80.48

UNIT 16
2 BDRM/1 BATH
FF = 83.27
PAD = 80.77

UNIT 17
2 BDRM/1 BATH
FF = 83.56
PAD = 81.06

UNIT 23
2 BDRM/1 BATH
FF = 81.76
PAD = 79.26

UNIT 24
2 BDRM/1 BATH
FF = 81.99
PAD = 79.49

UNIT 25
2 BDRM/1 BATH
FF = 82.22
PAD = 79.72

UNIT 26
2 BDRM/1 BATH
FF = 82.45
PAD = 79.95

UNIT 27
2 BDRM/1 BATH
FF = 82.69
PAD = 80.19

UNIT 28
2 BDRM/1 BATH
FF = 82.92
PAD = 80.42

UNIT 33 (ACC)
3 BDRM/2 BATH
FF = 81.57
PAD = 79.07

UNIT 34 (ACC)
2 BDRM/1 BATH
FF = 81.76
PAD = 79.26

UNIT 35
3 BDRM/2 BATH
FF = 82.01
PAD = 79.51

FS 80.50 FS 80.51 FS 80.42 FS 80.62 FS 80.18 FS 80.26 FS 80.30 FS 79.98 FS 79.80 FS 79.71 FS 79.50 FS 80.13 FS 80.04 FS 80.33 FS 80.30 FS 79.97 FS 81.21 FS 81.35 FS 81.47 FS 80.55 FS 80.37 FS 80.91 FS 81.06 FS 81.13 FS 80.31 FS 80.92 FS 80.62 FS 80.84 FS 80.08 FS 80.05 FS 80.14 FS 80.77 FS 80.89 FS 80.63 FS 80.33 FS 80.55 FS 79.84 FS 79.90 FS 79.75 FS 79.81 FS 80.48 FS 80.60 FS 80.34 FS 80.04 FS 80.25 FS 79.61 FS 79.67 FS 79.58 FS 79.40 FS 79.54 FS 79.45 FS 79.23 FS 79.16 FS 79.24 FS 79.15 FS 79.00 FS 79.35 FS 79.44 FS 79.38 FS 79.74 FS 79.95 FS 79.21 FS 79.04 FS 79.05 FS 78.70 FS 78.47 FS 78.05 FS 78.56 FS 78.50 FS 78.68 FS 78.74 FS 78.10 FS 78.40 FS 78.65 FS 78.95 FS 79.07 FS 79.13 FS 78.78 FS 79.14 FS 78.89 FS 78.53 FS 78.93 FS 78.98 FS 79.01 FS 79.08 FS 79.76 FS 78.83 FS 79.63 FS 79.28 FS 79.51 FS 78.58 FS 78.51 FS 78.48 FS 78.15 FS 78.76 FS 78.73 FS 78.40 FS 78.72 FS 78.39 FS 79.38 FS 79.03 FS 79.26 FS 78.32 FS 78.25 FS 79.07 FS 78.77 FS 78.70 FS 79.09 FS 79.25 FS 79.22 FS 78.89

TOB 77.25 FG 76.00
TOB 77.55 FG 76.30
TOB 77.50 FG 76.25
TOB 77.75 FG 76.50

0.25%

(E)FG 77.5±
(E)FG 77.3±
(E)FG 76.5±

CO

0 10 20
GRAPHIC SCALE

DRAWING NAME: K:\2021\21.367-15_HMB_Corpyard_Housing\ENG\hmbsheets.dwg
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CALIFORNIA

GRADING PLAN
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY

HALF MOON BAY

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No.	Revisions	Date

Date 01/26/2024
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Drawn DLG
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OF

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SEE SHEET C3.2

SEE SHEET C3.3

UNIT 17
2 BDRM/1 BATH
FF = 83.56
PAD = 81.06

UNIT 25
2 BDRM/1 BATH
FF = 82.22
PAD = 79.72

UNIT 24
2 BDRM/1 BATH
FF = 81.99
PAD = 79.49

UNIT 26
2 BDRM/1 BATH
FF = 82.45
PAD = 79.95

UNIT 27
2 BDRM/1 BATH
FF = 82.69
PAD = 80.19

UNIT 28
2 BDRM/1 BATH
FF = 82.92
PAD = 80.42

UNIT 29
2 BDRM/1 BATH
FF = 83.16
PAD = 80.66

UNIT 33 (ACC)
3 BDRM/2 BATH
FF = 81.57
PAD = 79.07

UNIT 34 (ACC)
2 BDRM/1 BATH
FF = 81.76
PAD = 79.26

UNIT 35
3 BDRM/2 BATH
FF = 82.01
PAD = 79.51

UNIT 36
3 BDRM/2 BATH
FF = 82.26
PAD = 79.76

UNIT 37
3 BDRM/2 BATH
FF = 82.52
PAD = 80.00

UNIT 38
3 BDRM/2 BATH
FF = 82.75
PAD = 80.25

UNIT 39
3 BDRM/2 BATH
FF = 83.00
PAD = 80.50

UNIT 41
3 BDRM/2 BATH
FF = 83.50
PAD = 81.00

UNIT 41
3 BDRM/2 BATH
FF = 83.25
PAD = 80.75

UNIT 41
2 BDRM/2 BATH
FF = 83.74
PAD = 81.24

SHED
TRASH ENCL.

CB
GR 76.50

CO

TOB 77.75
FG 76.50

(E)FG 77.3±

(E)FG 76.5±

(E)FG 76.6±

(E)FG 74.0±

(E)FG 75.9±

500-YR FLOOD LIMIT
EG 76.8

(E)100-YR FLOOD LIMIT
EG 75.4

RELOCATE 145 LF (E)WILDLIFE CORRIDOR FENCE

RELOCATE (E)WILDLIFE CORRIDOR FENCE GATE

PILARCITOS CREEK

0 10 20
GRAPHIC SCALE

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GRADING PLAN
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SAN MATEO COUNTY

HALF MOON BAY

REGISTERED PROFESSIONAL ENGINEER
DANIELLE J. LEIDL
No. C 87813
CIVIL
STATE OF CALIFORNIA

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OVERALL UTILITY PLAN
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY



STORM DRAIN NOTES:

1. PRIVATE STORM DRAIN LINE 4-INCH THROUGH 12-INCH WITH A MINIMUM OF TWO (2) FEET OF COVER IN NON-TRAFFIC AREAS SHALL BE POLYVINYL CHLORIDE (PVC) SDR 35 WHITE PIPE AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION D 3034-73 WITH GLUED JOINTS. ALL DIRECTION CHANGES SHALL BE MADE WITH WYE CONNECTIONS, 22.5° ELBOWS, 45° ELBOWS OR LONG SWEEP ELBOWS, 90° ELBOWS AND TEE'S ARE PROHIBITED.
2. PRIVATE STORM DRAIN LINE 6-INCH THROUGH 12-INCH WITH LESS THAN THREE (3) FEET OF COVER IN VEHICULAR TRAFFIC AREAS SHALL BE POLYVINYL CHLORIDE (PVC) C900, RATED FOR 150 PSI CLASS PIPE. PROVIDE AND INSTALL "STORM DRAIN" MARKER TAPE FOR THE ENTIRE LENGTH OF PIPE TRENCH IN ACCORDANCE WITH CITY/TOWN STANDARDS. ALL DIRECTION CHANGES SHALL BE MADE WITH WYE CONNECTIONS, OBTUSE ELBOWS OR LONG SWEEP ELBOWS, 90° ELBOWS AND TEE'S ARE PROHIBITED.
3. ALL AREA DRAINS AND CATCH BASINS GRATES WITHIN PEDESTRIAN ACCESSIBLE AREAS SHALL MEET ADA REQUIREMENTS.
4. ALL TRENCHES SHALL BE BACK FILLED PER THE SPECIFICATIONS WITH APPROPRIATE TESTS BY THE GEOTECHNICAL ENGINEER TO VERIFY COMPACTION VALUES.
5. FOR GRAVITY FLOW SYSTEMS CONTRACTOR SHALL VERIFY (POTHOLE IF NECESSARY) SIZE, MATERIAL, LOCATION AND DEPTH OF ALL SYSTEMS THAT ARE TO BE CONNECTED TO OR CROSSED PRIOR TO THE TRENCHING OR INSTALLATION OF ANY GRAVITY FLOW SYSTEM.
6. DRAINS SHOWN ON CIVIL PLANS ARE NOT INTENDED TO BE THE FINAL NUMBER AND LOCATION OF ALL DRAINS. PLACEMENT AND NUMBER OF LANDSCAPING DRAINS ARE HIGHLY DEPENDENT ON GROUND COVER TYPE AND PLANT MATERIAL. CONTRACTOR SHALL ADD ADDITIONAL AREA DRAINS AS NEEDED AND AS DIRECTED BY THE LANDSCAPE ARCHITECT OR CIVIL ENGINEER.
7. ALL DOWN SPOUTS SHALL DISCHARGE DIRECTLY ON TO ADJACENT IMPERVIOUS SURFACES OR SPLASH BLOCKS UNLESS OTHERWISE NOTED ON PLANS. SEE ARCHITECTURE PLANS FOR EXACT LOCATION OF THE DOWN SPOUTS.

SANITARY SEWER NOTES:

1. ALL SEWER WORK SHALL BE IN CONFORMANCE WITH THE CITY.
2. ALL SEWER LINES SHALL BE POLYVINYL CHLORIDE (PVC) SDR 26 SEWER PIPE, REFER TO SPECIFICATIONS.
3. SANITARY SEWER SYSTEMS INCLUDING MAINS, MANHOLES, AND LATERALS SHALL BE TESTED PER CITY'S STANDARD DESIGN GUIDELINES FOR PUBLIC WORKS CONSTRUCTION 2016.

GENERAL NOTES:

1. WATER LINES ARE SHOWN SCHEMATICALLY, CONTRACTOR SHALL IDENTIFY EACH ANGLE AND/OR BEND THAT MAY BE REQUIRED TO ACCOMPLISH THE INTENDED DESIGN.
2. CONTRACTOR SHALL SIZE AND INSTALL ALL NEW DESIGN BUILD DOMESTIC IRRIGATION AND FIRE WATER LINE(S) IN ACCORDANCE WITH THE LATEST EDITION OF THE UNIFORM/CALIFORNIA PLUMBING AND FIRE CODES.
3. ALL LANDSCAPE IRRIGATION SYSTEMS SHALL BE IN ACCORDANCE WITH THE LANDSCAPE ARCHITECTURAL PLANS AND SPECIFICATIONS AND SHALL BE CONNECTED TO THE EXISTING AND/OR NEW WATER SYSTEM AND METERED ACCORDINGLY.

UTILITY LEGEND:

- X" SD — STORM DRAIN LATL
- X" SS / SS — SANITARY SEWER LATL
- X" DW / W — DOMESTIC WATER LATL
- X" FW / FW — FIRE WATER LATL
- E — UNDERGROUND ELECTRICAL SERVICE LATL
- JOINT TRENCH

0 20 40
GRAPHIC SCALE

DOMESTIC WATER SYSTEM NOTES:

1. WATER SYSTEM CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE COASTSIDE COUNTY WATER DISTRICT DOCUMENT TITLED "STANDARD SPECIFICATIONS AND STANDARD DRAWINGS, MAY 2018, LATEST REVISION."
2. INSTALLATION SHALL CONFORM TO THE CCWD STANDARD DRAWINGS INCLUDED IN THESE IMPROVEMENT PLANS AND OTHER CCWD STANDARD DRAWINGS.
3. WATER METER BOXES SHALL NOT BE LOCATED IN DRIVEWAY AREAS OR WITHIN 3 FEET HORIZONTAL AND 1 FOOT VERTICAL OF OTHER UTILITIES INCLUDING ELECTRICAL, GAS, TELEPHONED, AND CABLE TV.

SEE SHEETS CO.0 AND CO.1 FOR NOTES AND LEGENDS

811 Know what's below. Call before you dig.

REGISTERED PROFESSIONAL ENGINEER DAVID J. LOY No. 81772 CIVIL STATE OF CALIFORNIA
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No.	Revisions	Date

Date 01/26/2024
Scale 1" = 20'
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Job No 20211367-15

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C4.0
OF

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UTILITY PLAN
STONE PINE COVE
880 STONE PINE ROAD

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GRAPHIC SCALE 0 10 20

SEE SHEET C4.2

SEE LEFT

SEE RIGHT

SEE SHEET C4.3

STONE PINE ROAD [60' R.O.W.]

SEE OFFSITE PLANS FOR CONTINUATION

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880 STONE PINE ROAD

SAN MATEO COUNTY

CALIFORNIA

HALF MOON BAY

REGISTERED PROFESSIONAL ENGINEER
JEFFREY T. LOCKHART
No. 20211
CIVIL
STATE OF CALIFORNIA

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OF

GRAPHIC SCALE
0 10 20

TIE INTO (E)12" WATER LINE TO SERVE CORPORATION YARD. CONTRACTOR TO VERIFY INVERT AND LOCATION PRIOR TO CONSTRUCTION.

TIE SS LINE INTO (E)SSMH. CONTRACTOR TO VERIFY INVERT AND LOCATION PRIOR TO CONSTRUCTION.

(E)SSMH RIM 81.82E INV 74.14

(E)SSMH RIM 81.75 INV 74.44 (E)8" PVC (S,W) INV 8" PVC (S,E)

SEE SHEET C4.1

SEE SHEET C4.4

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PLOT DATE: 02-08-24 PLOTTED By: gold

SEE SHEET C4.1

SEE RIGHT

SEE LEFT

SEE SHEET C4.4

SSMH RIM 78.11
70.43 INV 6" CLAY (E'LY)
70.33 INV 6" CLAY (S'LY)
RIM NOT LEVEL

SSMH RIM 79.10 INV 71.10 (7 C9.3)

SSMH RIM 78.75 INV 71.76

SSMH RIM 78.60 INV 72.87 (7 C9.3)

SSMH RIM 77.95 INV 73.67

CB GR 78.20 INV 76.35 (1 C9.3)

CB GR 78.20 INV 76.35

6" PVC SD~L=34' S=1%

6" PVC SD~L=34' S=1%

(E)OVERFLOW CB
GR 76.5±
4" INV IN 73.5±
6" INV OUT 73.5±

OVERFLOW CB (1 C9.3)
GR 76.75
4" INV IN 73.40
6" INV OUT 73.40

TIE INTO (E)12" SD
INV 73.3±

(E)ROCK DISSIPATOR
INV 72.9±

9 C9.1 BIORETENTION AREA #1
4,840 SF
TOB VARIES
FG VARIES

4" PVC SUB-DRAIN; S=0.25% MIN

(2)CMP SUB-DRAIN~L=170'

(E)12" SD~L=140' S=0.4%

6" SS~L=124' S=0.9%

6" SS~L=80' S=1%

4" SS~L=65' S=10.5%

4" SS~L=73' S=0.8%

4" SS~L=47' S=13.5%

4" SS~L=30' S=10.4%

4" SS~L=24' S=15.1%

4" SS~L=24' S=17%

4" SS~L=24' S=12%

4" SS~L=24' S=11.5%

4" SS~L=24' S=14.9%

4" SS~L=24' S=11.2%

4" SS~L=24' S=14.7%

4" SS~L=24' S=14.6%

4" SS~L=24' S=14.4%

4" SS~L=24' S=10.4%

4" SS~L=24' S=10.8%

4" SS~L=55' S=4.2%

4" SS~L=55' S=4.3%

4" SS~L=55' S=4.5%

4" SS~L=55' S=4.7%

6" SS~L=59' S=1%

6" DW

1" WM

1" W

JOINT TRENCH (ELEC, COMM/CATV)

EM PEDESTAL, SEP

TRANSFORMER

MSB #2

MSB #3

FRONT

TRASH ENCL.

SHED FS 80.30

SHED FS 80.42

SHED FS 81.18

SHED FS 80.19

SHED FS 80.89

SHED FS 79.95

SHED FS 80.60

SHED FS 79.72

SHED FS 80.30

SHED FS 79.49

SHED FS 80.00

SHED FS 80.00

SHED FS 79.26

SHED FS 79.19

SHED FS 78.98

SSCO RIM 80.52 INV 78.19

SSCO RIM 80.20 INV 77.87

SSCO RIM 80.38 INV 76.05

SSCO RIM 79.40 INV 77.07

SSCO RIM 80.08 INV 77.75

SSCO RIM 79.62 INV 77.25

SSCO RIM 79.39 INV 77.06

SSCO RIM 79.16 INV 76.83

SSCO RIM 80.32 INV 77.99

SSCO RIM 80.96 INV 78.66

SSCO RIM 80.09 INV 77.76

SSCO RIM 80.67 INV 78.34

SSCO RIM 79.85 INV 77.52

SSCO RIM 79.41 INV 77.08

SSCO RIM 79.16 INV 76.83

SSCO RIM 78.97 INV 76.64

SS POC

DW/FW POC

UNIT 11 (ACC) 2 BDRM/1 BATH FF = 83.12 PAD = 80.62

UNIT 10 (ACC) 2 BDRM/1 BATH FF = 82.80 PAD = 80.30

UNIT 13 1 BDRM/1 BATH FF = 82.00 PAD = 79.50

UNIT 14 2 BDRM/1 BATH FF = 82.68 PAD = 80.18

UNIT 15 2 BDRM/1 BATH FF = 82.98 PAD = 80.48

UNIT 16 2 BDRM/1 BATH FF = 83.27 PAD = 80.77

UNIT 17 2 BDRM/1 BATH FF = 83.56 PAD = 81.06

UNIT 23 2 BDRM/1 BATH FF = 81.76 PAD = 79.26

UNIT 24 2 BDRM/1 BATH FF = 81.99 PAD = 79.49

UNIT 25 2 BDRM/1 BATH FF = 82.22 PAD = 79.72

UNIT 26 2 BDRM/1 BATH FF = 82.45 PAD = 79.95

UNIT 27 2 BDRM/1 BATH FF = 82.69 PAD = 80.19

UNIT 28 2 BDRM/1 BATH FF = 82.92 PAD = 80.42

UNIT 33 (ACC) 3 BDRM/2 BATH FF = 81.57 PAD = 79.07

UNIT 34 (ACC) 2 BDRM/1 BATH FF = 81.76 PAD = 79.26

UNIT 35 3 BDRM/2 BATH FF = 82.01 PAD = 79.51

3 C9.4 SS POC

2 C9.4 DW/FW POC

7 C9.2 1" WM

8 C9.2 GV

10 C9.2 FIRE HYDRANT

36" TREE
34" TREE
32" TREE
30" TREE
24" TREE
10" TREE

500-YR FLOOD LIMIT EG 76.8

(E)100-YR FLOOD LIMIT EG 75.4

4" PVC RISER

CO

0 10 20
GRAPHIC SCALE

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HALF MOON BAY

REGISTERED PROFESSIONAL ENGINEER
BRADLEY J. LEBEL
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STATE OF CALIFORNIA

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SEE SHEET C4.3

UNIT 17 2 BDRM/1 BATH FF = 83.56 PAD = 81.06
UNIT 25 2 BDRM/1 BATH FF = 82.22 PAD = 78.72
UNIT 24 2 BDRM/1 BATH FF = 81.99 PAD = 79.49
UNIT 26 2 BDRM/1 BATH FF = 82.45 PAD = 78.95
UNIT 27 2 BDRM/1 BATH FF = 82.69 PAD = 80.19
UNIT 28 2 BDRM/1 BATH FF = 82.92 PAD = 80.42
UNIT 29 2 BDRM/1 BATH FF = 83.16 PAD = 80.66
UNIT 33 (ACC) 3 BDRM/2 BATH FF = 81.57 PAD = 79.07
UNIT 34 (ACC) 2 BDRM/1 BATH FF = 81.76 PAD = 79.26
UNIT 35 3 BDRM/2 BATH FF = 82.01 PAD = 79.51
UNIT 36 3 BDRM/2 BATH FF = 82.26 PAD = 79.76
UNIT 37 3 BDRM/2 BATH FF = 82.50 PAD = 80.00
UNIT 38 3 BDRM/2 BATH FF = 82.75 PAD = 80.25
UNIT 39 3 BDRM/2 BATH FF = 83.00 PAD = 80.50
UNIT 41 3 BDRM/2 BATH FF = 83.25 PAD = 80.75
UNIT 41 3 BDRM/2 BATH FF = 83.50 PAD = 81.00
UNIT 2 BATH PAD = 81.24
SS POC
SSCO RIM 81.25 INV 78.92
SSCO RIM 80.32 INV 77.99
SSCO RIM 80.09 INV 77.76
SSCO RIM 79.85 INV 77.52
SSCO RIM 79.62 INV 77.29
SSCO RIM 80.15 INV 77.82
SSCO RIM 79.90 INV 77.57
SSCO RIM 79.66 INV 77.33
SSCO RIM 79.41 INV 77.08
SSCO RIM 79.16 INV 76.83
SSCO RIM 78.97 INV 76.64
SSCO RIM 80.40 INV 78.07
SSCO RIM 80.65 INV 78.32
SSCO RIM 80.90 INV 78.57
SSCO RIM 81.14 INV 78.81
DW/FW POC
EM PEDESTAL, SEP
SHED FS 80.42
SHED FS 81.18
SHED FS 80.19
SHED FS 80.89
SHED FS 79.95
SHED FS 80.60
SHED FS 79.72
SHED FS 80.18
SHED FS 79.94
SHED FS 79.69
SHED FS 79.44
SHED FS 79.19
SHED FS 78.98
SHED FS 80.93
SHED FS 80.68
SHED FS 80.43
SHED FS 81.17
TRASH ENCL.
JT
W
SS
1" WM
4" SS-L=24' S=14.4%
4" SS-L=24' S=10.4%
4" SS-L=24' S=14.6%
4" SS-L=24' S=10.6%
4" SS-L=24' S=14.7%
4" SS-L=24' S=11.2%
4" SS-L=55' S=3.1%
4" SS-L=55' S=3.3%
4" SS-L=55' S=3.5%
4" SS-L=55' S=3.7%
4" SS-L=55' S=3.9%
4" SS-L=55' S=4%
4" SS-L=55' S=4.2%
4" SS-L=55' S=4.3%
4" SS-L=55' S=4.5%
4" SS-L=55' S=4.7%
6" SS-L=397' S=1%
6" SS-L=402' S=1%
JOINT TRENCH (ELEC, COMM/CATV)
CO
RIM 80.67 INV 76.34
500-YR FLOOD LIMIT EG 76.8
(E)100-YR FLOOD LIMIT EG 75.4
4" PVC SUB-DRAIN, S=1.25% MIN
6" PVC SD L=40' S=2%
CB GR 76.50 6" INV IN 75.00 (E)12" INV OUT 75.00
6" INV OUT 75.25
(E)12" SD S=0.35%
PILARCITOS CREEK
HALF MOON BAY
CALIFORNIA
0 10 20
GRAPHIC SCALE

UTILITY PLAN
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY

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CHRISTOPHER J. LEZNIK
No. C 76900
CIVIL
STATE OF CALIFORNIA

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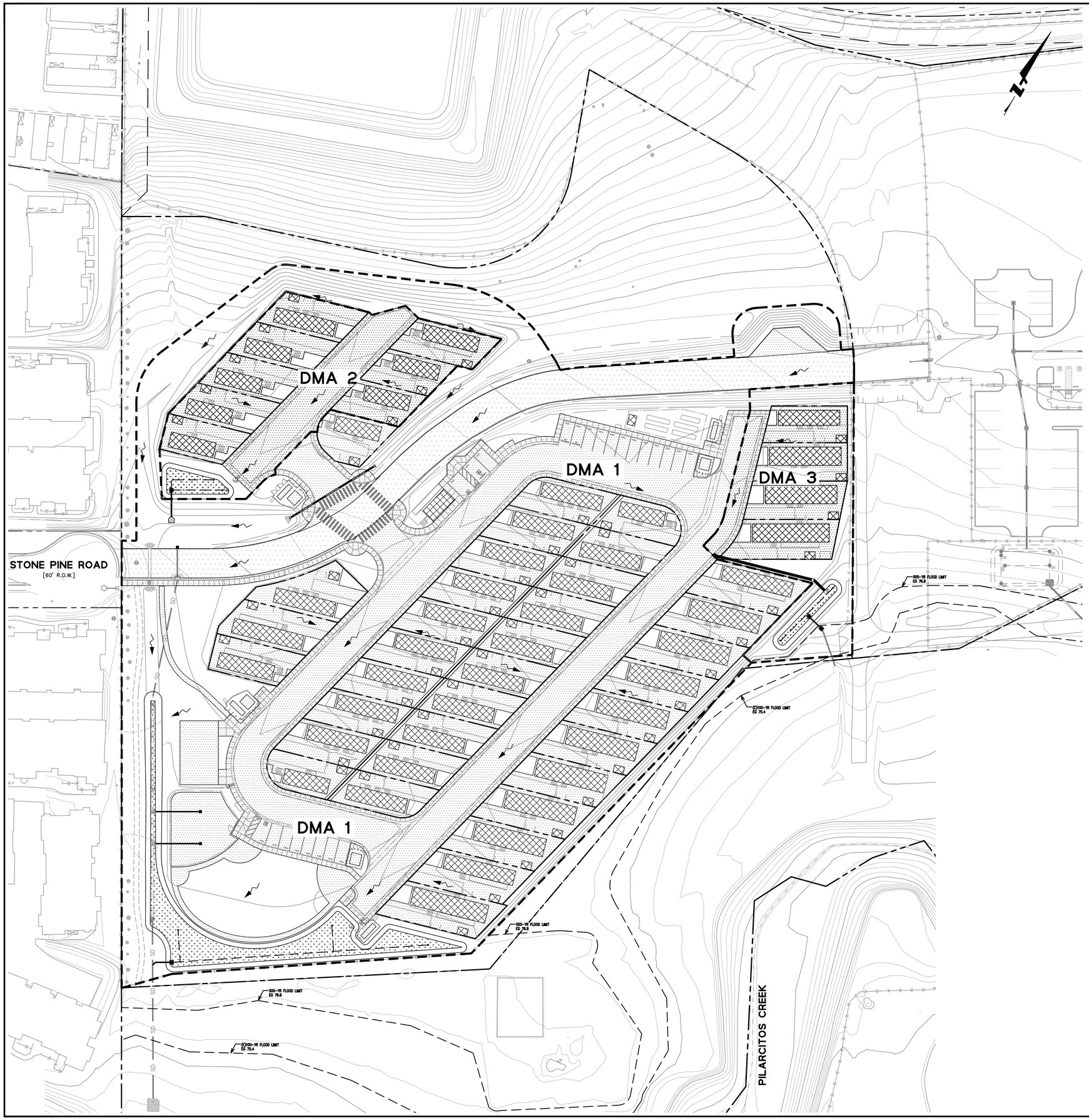

LEGEND:

- DMA BOUNDARY
- FLOW DIRECTION ARROW
- CREATED/REPLACED IMPERVIOUS HARDSCAPE
- CREATED/REPLACED IMPERVIOUS BUILDING
- EXISTING IMPERVIOUS HARDSCAPE RETAINED
- EXISTING IMPERVIOUS BUILDING RETAINED
- PROPOSED TREATMENT AREA

ONSITE TRIBUTARY AREA

DRAINAGE MANAGEMENT AREA (DMA)	IMPERVIOUS AREA	PERVIOUS AREA	EFFECTIVE IMPERVIOUS AREA	REQUIRED TREATMENT AREA	PROVIDED TREATMENT AREA
DMA 1	133,075	70,505	140,126	4,008	4,750
DMA 2	18,960	3,155	19,275	550	710
DMA 3	10,045	7,525	10,798	289	430
TOTAL	162,080	81,185	170,199	4,847	5,890

1. THE SIZE OF THE BIORETENTION AREA CALCULATED USING THE COMBINATION FLOW AND VOLUME DESIGN BASIS AS DESCRIBED IN THE SAN MATEO COUNTY C.3 REGULATED PROJECT GUIDE.
2. EFFECTIVE IMPERVIOUS AREA IS EQUAL TO THE TOTAL IMPERVIOUS ARE PLUS 0.1 TIMES THE TOTAL PERVIOUS AREA PER THE SAN MATEO COUNTY C.3 REGULATED PROJECTS GUIDE.

0 30 60
GRAPHIC SCALE

SEE SHEETS CO.0 AND CO.1 FOR NOTES AND LEGENDS

811 Know what's **below.** **Call** before you dig.

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STORMWATER CONTROL PLAN
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

REVIEW ONLY
NOT FOR CONSTRUCTION

No.	Revisions	Date

Date 01/26/2024
Scale 1" = 30'
Design DJP
Drawn DLG
Approved DJL
Job No. 20211367-15

Drawing Number:
C5.1
OF

DRAWING NAME: K:\2021\211367-15_HMB_Corpyard_Housing\ENG\vmbsheets.dwg
PLOT DATE: 02-08-24 PLOTTED BY: gold

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TREE PROTECTION (TYPICAL)

FIBER ROLLS (SE-5)

LOCATION OF PROPOSED ROAD

SEDIMENT BASIN (SE-2)
(LOCATED WHERE PROPOSED BIORETENTION AREAS ARE LOCATED)
800± SF
TOP OF BANK 82.3
BASE 81.3

FIBER ROLLS (SE-5)
(LOCATED AT TOP OF PROPOSED BIO AREA)

STABILIZED CONSTRUCTION ENTRANCE (TC-1)

VEHICLE/EQUIPMENT WASHOUT PIT (NS-8)

STONE PINE ROAD
[60' R.O.W.]

TAG #62

1 / C5.2 GRAVEL BAG BERM (SE-6)

7 / C5.2 STORM DRAIN INLET PROTECTION (SE-10)

GRAVEL BAG BERM (SE-6)

TAG #042

FIBER ROLLS (SE-5) 6 / C5.2

2 / C5.2 VEHICLE/EQUIPMENT WASHOUT PIT (NS-8)

STABILIZED CONSTRUCTION ENTRANCE (TC-1) 4 / C5.2

TREE PROTECTION (TYPICAL)

LOCATION OF PROPOSED ROAD

CONTRACTOR PARKING AREA

(3)JOB TRAILERS

TOILETS

GRAVEL BAG BERM (SE-6)

GRAVEL BAG BERM (SE-6)

FIBER ROLLS (SE-5)

3 / C5.2 STOCKPILE MANAGEMENT (WM-3)

SEDIMENT BASIN (SE-2)
(LOCATED WHERE PROPOSED BIORETENTION AREAS ARE LOCATED)
515± SF
TOP OF BANK 79.0
BASE 78.0

FIBER ROLLS (SE-5)
(LOCATED AT TOP OF PROPOSED SLOPE)

SILT FENCE (SE-1) 5 / C5.2

FIBER ROLLS (SE-5)
(LOCATED AT TOP OF PROPOSED BIO AREA)

SEDIMENT BASIN (SE-2)
(LOCATED WHERE PROPOSED BIORETENTION AREAS ARE LOCATED)
5,540± SF
TOP OF BANK 77.0
BASE 76.0

SILT FENCE (SE-1)

EROSION CONTROL LEGEND:

- TREE PROTECTION (TYP.) SEE ARBORIST NOTES
- STABILIZED CONSTRUCTION ENTRANCE/EXIT
- VEHICLE/EQUIPMENT WASHOUT PIT
- STOCKPILE COVERING
- CONTRACTOR PARKING AREA
- SEDIMENT BASIN
- GRAVEL BAG BERM
- FIBER ROLL
- SILT FENCE
- INLET PROTECTION

PERMANENT EROSION/SEDIMENT CONTROLS:

1. CONTRACTOR SHALL PROVIDE POST-CONSTRUCTION PERMANENT EROSION/SEDIMENT CONTROL THROUGHOUT THE SITE IN THE FORM OF FINISH LANDSCAPING.
2. PERMANENT EROSION CONTROLS SHOULD CONSIST OF VEGETATION OR OTHER MEANS OF STABILIZING ALL DISTURBED AREAS OF THE SITE. SUITABLE EROSION CONTROLS INCLUDE TURF, SHRUBS, ESTABLISHED HYDROSEEDING, MULCH, BARK, AND OTHER GROUNDCOVERS.
3. ALL DISTURBED GROUND SURFACES SHALL BE STABILIZED UPON COMPLETION OF CONSTRUCTION ACTIVITIES.
4. FINAL LANDSCAPING PLAN TO BE DEVELOPED IN COORDINATION WITH THE PROJECT ARCHITECT AND TO BE CONSISTENT WITH EXISTING LANDSCAPING AND TREES TO REMAIN, AND MEET THE APPROVAL OF THE PROJECT ARBORIST.
5. LANDSCAPING PROPOSED SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH THE CALIFORNIA MODEL WATER EFFICIENT LANDSCAPE ORDINANCE.
6. DISTURBED AREAS OF THE SITE SHOULD BE STABILIZED DURING THE RAINY SEASON USING STRAW MULCH (EC-6) OR WOOD MULCHING (EC-8).
7. PERMANENT EROSION CONTROL SHALL BE PROVIDED BY LANDSCAPING SUCH AS SHRUBS, SOD OR MULCH. LANDSCAPE DESIGN MAY BE SUBJECT TO CHANGE.

0 20 40
GRAPHIC SCALE

SEE SHEETS C0.0 AND C0.1 FOR NOTES AND LEGENDS

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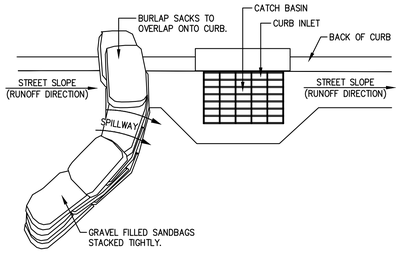
PLOT DATE: 02-08-24 PLOTTED BY: gold

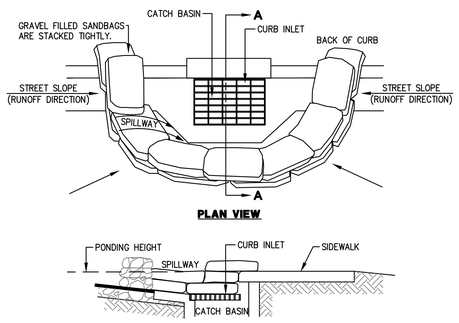


PLAN VIEW

NOTES:

1. PLACE CURB TYPE SEDIMENT BARRIERS ON GENTLY SLOPING STREETS, WHERE WATER CAN POND AND ALLOW SEDIMENT TO SEPARATE FROM RUNOFF.
2. SANDBAGS OF EITHER BURLAP OR WOVEN GEOTEXTILE FABRIC, ARE FILLED WITH GRAVEL, LAYERED AND PACKED TIGHTLY.
3. LEAVE ONE SANDBAG GAP IN THE TOP ROW TO PROVIDE A SPILLWAY OVERFLOW. TOP OF SPILLWAY SHALL BE LOWER THAN TOP OF CURB.
4. INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT, SEDIMENT AND GRAVEL MUST BE REMOVED FROM THE TRAVELED WAY IMMEDIATELY.

CURB INLET SEDIMENT BARRIER - CONTINUOUS GRADE



PLAN VIEW

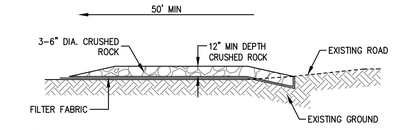
SECTION A-A

CURB INLET SEDIMENT BARRIER - SUMP

NOTES:

1. PLACE CURB TYPE SEDIMENT BARRIERS ON GENTLY SLOPING STREETS, WHERE WATER CAN POND AND ALLOW SEDIMENT TO SEPARATE FROM RUNOFF.
2. SANDBAGS OF EITHER BURLAP OR WOVEN GEOTEXTILE FABRIC, ARE FILLED WITH GRAVEL, LAYERED AND PACKED TIGHTLY.
3. LEAVE ONE SANDBAG GAP IN THE TOP ROW TO PROVIDE A SPILLWAY OVERFLOW.
4. INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT, SEDIMENT AND GRAVEL MUST BE REMOVED FROM THE TRAVELED WAY IMMEDIATELY.

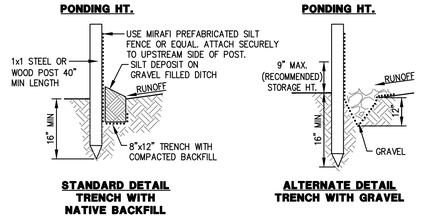
7 – INLET PROTECTION
NTS

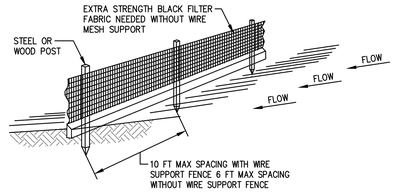


NOTES:

1. PROVIDE A FANNED STABILIZED CONSTRUCTION ENTRANCE TO ACCOMMODATE THE TURNING RADIUS OF CONSTRUCTION EQUIPMENT ON AND OFF THE PUBLIC STREET.
2. INSTALL ALONG NEW DWY CORRIDOR FOR THE FULL PROPOSED WIDTH.

4 – STABILIZED CONSTRUCTION ENTRANCE
NTS

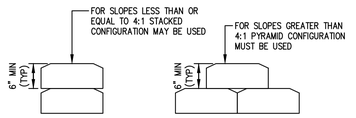




NOTES:

1. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.
2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
3. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.

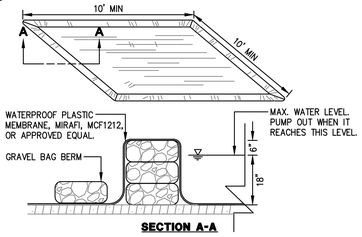
5 – SILT FENCE
NTS



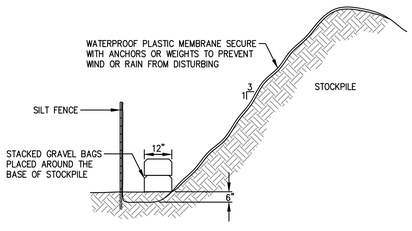
NOTES:

1. INSTALL AT LOCATIONS AS SHOWN ON EROSION CONTROL PLAN, AND IN ADDITION, PROTECT ALL EXISTING AND PROPOSED STORM DRAIN STRUCTURES WITH GRAVEL BAGS.

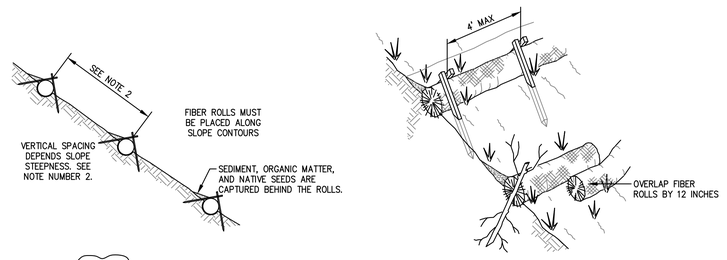
1 – GRAVEL BAG BERM
NTS

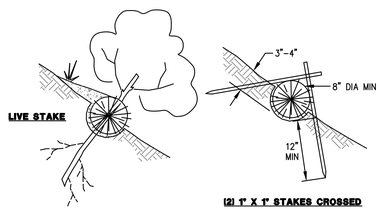


2 – VEHICLE/EQUIPMENT WASHOUT PIT
NTS



3 – STOCKPILE COVERING
NTS





NOTES:

1. FIBER ROLL INSTALLATION REQUIRES THE PLACEMENT AND SECURE STAKING OF THE ROLL IN A TRENCH, 3" TO 4" DEEP, DUG ON CONTOUR. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND ROLL.
1. VERTICAL SPACING FOR SLOPE INSTALLATIONS:
   SLOPE OF 2:1 OR GREATER = 10 FEET APART
   SLOPE BETWEEN 4:1 AND 2:1 = 15 FEET APART
   SLOPE OF 4:1 OR FLATTER = 20 FEET APART
2. INSPECT AND REPAIR FIBER ROLLS AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.
3. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.

6 – FIBER ROLL
NTS

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CALIFORNIA

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No.	Revisions	Date

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Drawn	DLG
Approved	DJL
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Drawing Number:

C7.2

OF

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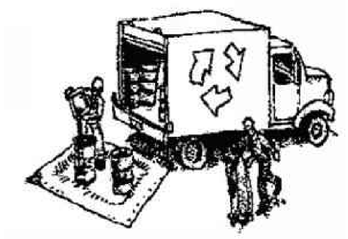
SAN MATEO COUNTYWIDE
Water Pollution Prevention Program
Clean Water. Healthy Community.

Construction Best Management Practices (BMPs)

Construction projects are required to implement the stormwater best management practices (BMP) on this page, as they apply to your project, all year long.

Materials & Waste Management



Non-Hazardous Materials

- ❑ Berm and cover stockpiles of sand, dirt or other construction material with tarps when rain is forecast or if not actively being used within 14 days.
- ❑ Use (but don't overuse) reclaimed water for dust control.

Hazardous Materials

- ❑ Label all hazardous materials and hazardous wastes (such as pesticides, paints, thinners, solvents, fuel, oil, and antifreeze) in accordance with city, county, state and federal regulations.
- ❑ Store hazardous materials and wastes in water tight containers, store in appropriate secondary containment, and cover them at the end of every work day or during wet weather or when rain is forecast.
- ❑ Follow manufacturer's application instructions for hazardous materials and be careful not to use more than necessary. Do not apply chemicals outdoors when rain is forecast within 24 hours.
- ❑ Arrange for appropriate disposal of all hazardous wastes.

Waste Management

- ❑ Cover waste disposal containers securely with tarps at the end of every work day and during wet weather.
- ❑ Check waste disposal containers frequently for leaks and to make sure they are not overfilled. Never hose down a dumpster on the construction site.
- ❑ Clean or replace portable toilets, and inspect them frequently for leaks and spills.
- ❑ Dispose of all wastes and debris properly. Recycle materials and wastes that can be recycled (such as asphalt, concrete, aggregate base materials, wood, gyp board, pipe, etc.)
- ❑ Dispose of liquid residues from paints, thinners, solvents, glues, and cleaning fluids as hazardous waste.

Construction Entrances and Perimeter

- ❑ Establish and maintain effective perimeter controls and stabilize all construction entrances and exits to sufficiently control erosion and sediment discharges from site and tracking off site.
- ❑ Sweep or vacuum any street tracking immediately and secure sediment source to prevent further tracking. Never hose down streets to clean up tracking.

Equipment Management & Spill Control



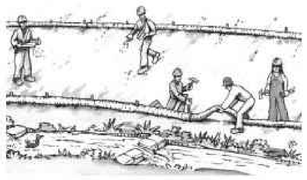
Maintenance and Parking

- ❑ Designate an area, fitted with appropriate BMPs, for vehicle and equipment parking and storage.
- ❑ Perform major maintenance, repair jobs, and vehicle and equipment washing off site.
- ❑ If refueling or vehicle maintenance must be done onsite, work in a bermed area away from storm drains and over a drip pan or drop cloths big enough to collect fluids. Recycle or dispose of fluids as hazardous waste.
- ❑ If vehicle or equipment cleaning must be done onsite, clean with water only in a bermed area that will not allow rinse water to run into gutters, streets, storm drains, or surface waters.
- ❑ Do not clean vehicle or equipment onsite using soaps, solvents, degreasers, or steam cleaning equipment.

Spill Prevention and Control

- ❑ Keep spill cleanup materials (e.g., rags, absorbents and cat litter) available at the construction site at all times.
- ❑ Inspect vehicles and equipment frequently for and repair leaks promptly. Use drip pans to catch leaks until repairs are made.
- ❑ Clean up spills or leaks immediately and dispose of cleanup materials properly.
- ❑ Do not hose down surfaces where fluids have spilled. Use dry cleanup methods (absorbent materials, cat litter, and/or rags).
- ❑ Sweep up spilled dry materials immediately. Do not try to wash them away with water, or bury them.
- ❑ Clean up spills on dirt areas by digging up and properly disposing of contaminated soil.
- ❑ Report significant spills immediately. You are required by law to report all significant releases of hazardous materials, including oil. To report a spill: 1) Dial 911 or your local emergency response number, 2) Call the Governor's Office of Emergency Services Warning Center, (800) 852-7550 (24 hours).

Earthmoving



- ❑ Schedule grading and excavation work during dry weather.
- ❑ Stabilize all denuded areas, install and maintain temporary erosion controls (such as erosion control fabric or bonded fiber matrix) until vegetation is established.
- ❑ Remove existing vegetation only when absolutely necessary, and seed or plant vegetation for erosion control on slopes or where construction is not immediately planned.
- ❑ Prevent sediment from migrating offsite and protect storm drain inlets, gutters, ditches, and drainage courses by installing and maintaining appropriate BMPs, such as fiber rolls, silt fences, sediment basins, gravel bags, berms, etc.
- ❑ Keep excavated soil on site and transfer it to dump trucks on site, not in the streets.

Contaminated Soils

- ❑ If any of the following conditions are observed, test for contamination and contact the Regional Water Quality Control Board:
  - Unusual soil conditions, discoloration, or odor.
  - Abandoned underground tanks.
  - Abandoned wells
  - Buried barrels, debris, or trash.

Paving/Asphalt Work



- ❑ Avoid paving and seal coating in wet weather or when rain is forecast, to prevent materials that have not cured from contacting stormwater runoff.
- ❑ Cover storm drain inlets and manholes when applying seal coat, tack coat, slurry seal, fog seal, etc.
- ❑ Collect and recycle or appropriately dispose of excess abrasive gravel or sand. Do NOT sweep or wash it into gutters.
- ❑ Do not use water to wash down fresh asphalt concrete pavement.

Sawcutting & Asphalt/Concrete Removal

- ❑ Protect nearby storm drain inlets when saw cutting. Use filter fabric, catch basin inlet filters, or gravel bags to keep slurry out of the storm drain system.
- ❑ Shovel, abosorb, or vacuum saw-cut slurry and dispose of all waste as soon as you are finished in one location or at the end of each work day (whichever is sooner!).
- ❑ If sawcut slurry enters a catch basin, clean it up immediately.

Concrete, Grout & Mortar Application



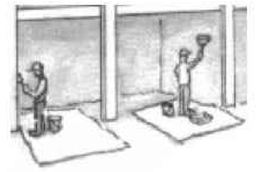
- ❑ Store concrete, grout, and mortar away from storm drains or waterways, and on pallets under cover to protect them from rain, runoff, and wind.
- ❑ Wash out concrete equipment/trucks offsite or in a designated washout area, where the water will flow into a temporary waste pit, and in a manner that will prevent leaching into the underlying soil or onto surrounding areas. Let concrete harden and dispose of as garbage.
- ❑ When washing exposed aggregate, prevent washwater from entering storm drains. Block any inlets and vacuum gutters, hose washwater onto dirt areas, or drain onto a bermed surface to be pumped and disposed of properly.

Landscaping



- ❑ Protect stockpiled landscaping materials from wind and rain by storing them under tarps all year-round.
- ❑ Stack bagged material on pallets and under cover.
- ❑ Discontinue application of any erodible landscape material within 2 days before a forecast rain event or during wet weather.

Painting & Paint Removal



Painting Cleanup and Removal

- ❑ Never clean brushes or rinse paint containers into a street, gutter, storm drain, or stream.
- ❑ For water-based paints, paint out brushes to the extent possible, and rinse into a drain that goes to the sanitary sewer. Never pour paint down a storm drain.
- ❑ For oil-based paints, paint out brushes to the extent possible and clean with thinner or solvent in a proper container. Filter and reuse thinners and solvents. Dispose of excess liquids as hazardous waste.
- ❑ Paint chips and dust from non-hazardous dry stripping and sand blasting may be swept up or collected in plastic drop cloths and disposed of as trash.
- ❑ Chemical paint stripping residue and chips and dust from marine paints or paints containing lead, mercury, or tributyltin must be disposed of as hazardous waste. Lead based paint removal requires a state-certified contractor.

Dewatering



- ❑ Discharges of groundwater or captured runoff from dewatering operations must be properly managed and disposed. When possible send dewatering discharge to landscaped area or sanitary sewer. If discharging to the sanitary sewer call your local wastewater treatment plant.
- ❑ Divert run-on water from offsite away from all disturbed areas.
- ❑ When dewatering, notify and obtain approval from the local municipality before discharging water to a street gutter or storm drain. Filtration or diversion through a basin, tank, or sediment trap may be required.
- ❑ In areas of known or suspected contamination, call your local agency to determine whether the ground water must be tested. Pumped groundwater may need to be collected and hauled off-site for treatment and proper disposal.

Storm drain polluters may be liable for fines of up to $10,000 per day!

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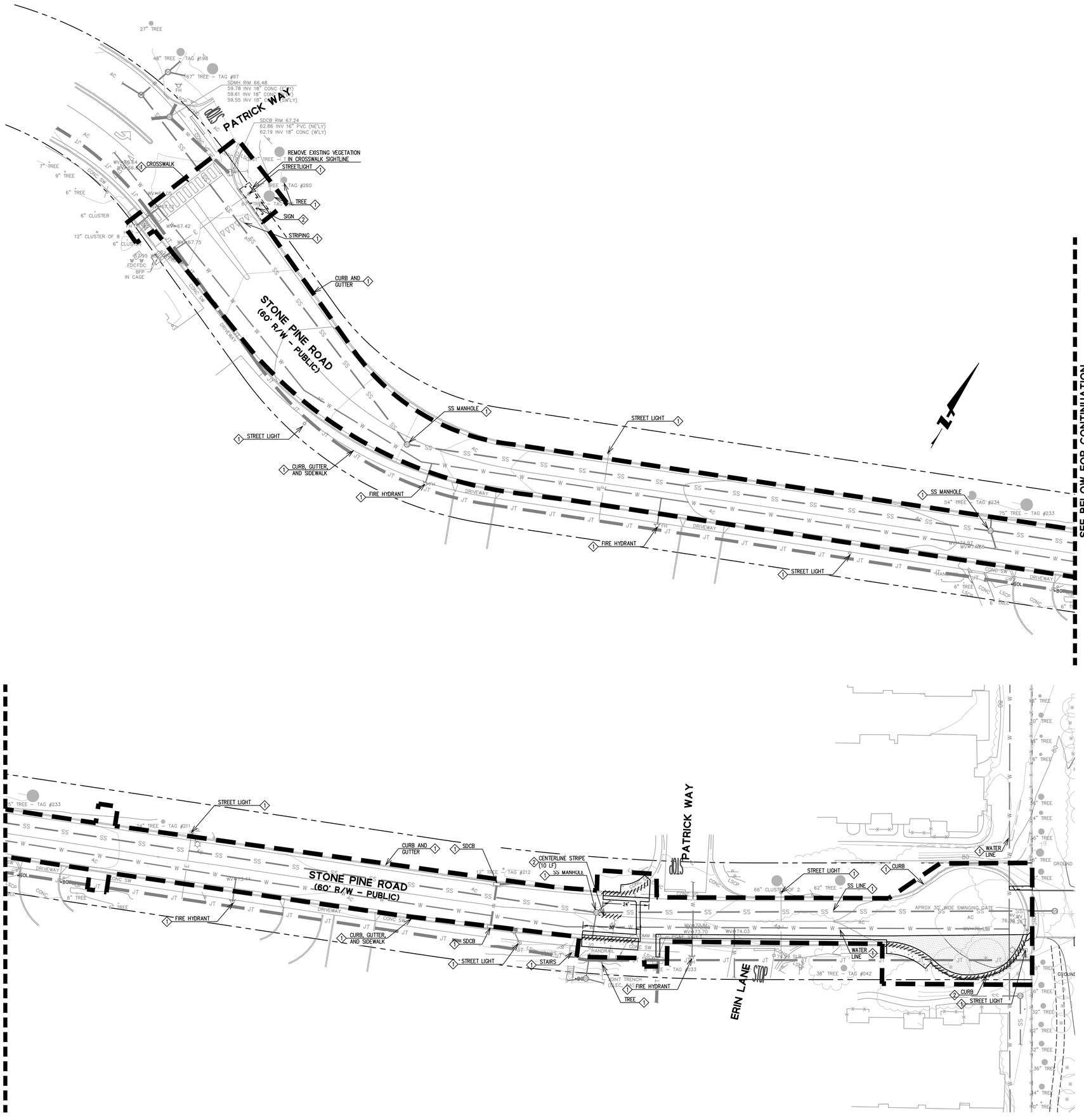

EXISTING CONDITIONS:

1. EXISTING TOPOGRAPHIC SURVEY PERFORMED BY BKF ENGINEERS ON MARCH 18, 2021 (JOB #20150199-53). GRADES ENCOUNTERED ON-SITE MAY VARY FROM THOSE SHOWN. CONTRACTOR SHALL REVIEW THE PLANS AND CONDUCT FIELD INVESTIGATIONS AS REQUIRED TO VERIFY EXISTING CONDITIONS AT THE PROJECT SITE.

SURVEYOR'S NOTES:

UTILITY NOTE:

UTILITIES SHOWN ON THIS SURVEY ARE BASED UPON SURFACE OBSERVATIONS. NO WARRANTIES ARE EXPRESSED OR IMPLIED CONCERNING THE EXISTENCE, SIZE, DEPTH, CONDITION, CAPACITY, OR LOCATION OF ANY UTILITY EXISTING ON THE SITE, WHETHER PRIVATE, MUNICIPAL, OR PUBLIC OWNED. CONTRACTOR(S) SHALL VERIFY ALL UTILITIES PRIOR TO ANY AND ALL CONSTRUCTION ACTIVITIES.

CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION

BASIS OF BEARING:

THE BEARINGS SHOWN ARE BASED ON THE NORTH AMERICAN DATUM OF 1983 (NAD83), EPOCH 2011, ZONE 3 BASED UPON GPS OBSERVATIONS OF BKF POINT NO. 1, A SET COTTON SPINDLE, AND BKF POINT NO. 2, A SET HUB AND TACK AS SAID POINTS ARE SHOWN HEREON, PERFORMED BY BKF ON AUGUST 4, 2020.

THE BEARING OF SOUTH 42° 29' 36" WEST FROM SAID BKF POINT NO. 1 TO SAID BKF POINT NO. 2, AS SHOWN HEREON, WAS TAKEN AS THE BASIS OF BEARINGS FOR THIS MAP.

THE ELEVATIONS SHOWN ON THIS SURVEY ARE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) ELEVATIONS BASED UPON GPS OBSERVATIONS OF SAID BKF POINT NO. 2 PERFORMED BY BKF ON AUGUST 4, 2020.

BENCHMARK:

BKF POINT NO. 2 ELEVATION = 78.95'

RECORD REFERENCES

(R1) GRANT DEED RECORDED OCTOBER 1, 2009 AS DOCUMENT NUMBER 2009-131257, OFFICIAL RECORDS OF SAN MATEO COUNTY.
(R2) RECORD OF SURVEY RECORDED APRIL 5, 2005 IN BOOK 27 OF LLS MAPS AT PAGE 40, OFFICIAL RECORDS OF SAN MATEO COUNTY.
(R3) RECORD OF SURVEY NO. 2460 RECORDED OCTOBER 10, 2013 IN BOOK 38 OF LLS MAPS AT PAGES 99-102OFFICIAL RECORDS OF SAN MATEO COUNTY.

SURVEYOR'S NOTE

RECORD DISTANCES PER (R3) ARE GRID DISTANCES IN METERS. (R3: (#m) DENOTES DISTANCE MATCHING RECORD CONVERTED FROM GRID METERS TO GROUND U.S. SURVEY FEET. TO OBTAIN GROUND DISTANCES IN METERS, MULTIPLY (R3) GRID DISTANCES BY 1.000059093, AS STATED ON (R3). TO OBTAIN GROUND DISTANCES IN U.S. SURVEY FEET, MULTIPLY GROUND DISTANCES IN METERS BY THE CONVERSION FACTOR OF (3937/1200).

DEMOLITION NOTES:

1. CONTRACTOR IS TO COMPLY WITH ALL GENERAL AND STATE REQUIREMENTS INVOLVING THE REMOVAL AND DISPOSAL OF HAZARDOUS MATERIAL(S).
2. THE CONTRACTOR SHALL LOCATE AND CLEARLY MARK (AND THEN PRESERVE THESE MARKERS) FOR THE DURATION OF CONSTRUCTION OF ALL TELEPHONE, DATA, STREET LIGHT, SIGNAL LIGHT AND POWER FACILITIES THAT ARE IN OR NEAR THE AREA OF CONSTRUCTION.
3. CONTRACTOR'S BID IS TO INCLUDE ALL VISIBLE SURFACE AND ALL SUBSURFACE FEATURES IDENTIFIED TO BE REMOVED OR ABANDONED IN THESE DOCUMENTS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR A SITE INSPECTION TO FULLY ACKNOWLEDGE THE EXTENT OF THE DEMOLITION WORK.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY AND ALL PERMITS NECESSARY FOR ENCROACHMENT, GRADING, DEMOLITION, AND DISPOSAL OF SAID MATERIALS AS REQUIRED BY PRIVATE, LOCAL AND STATE JURISDICTIONS. THE CONTRACTOR SHALL PAY ALL FEES ASSOCIATED WITH THE DEMOLITION WORK.
6. CONTRACTOR SHALL PAY DISPOSAL FEES.
7. BACKFILL ALL DEPRESSIONS AND TRENCHES FROM DEMOLITION TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER.
8. WITHIN LIMITS OF WORK, REMOVE CURBS, GUTTERS, LANDSCAPING, SIGNAGE, TREES, SHRUBS, ASPHALT, UNDERGROUND PIPES, ETC. AS INDICATED ON THE DRAWINGS.
9. REMOVAL OF LANDSCAPING SHALL INCLUDE ROOTS AND ORGANIC MATERIALS TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER.
10. PRIOR TO BEGINNING DEMOLITION WORK ACTIVITIES, CONTRACTOR SHALL INSTALL EROSION CONTROL MEASURES OUTLINED IN THE EROSION CONTROL PLAN & DETAILS.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSING ALL DEMOLITION MATERIALS, OR STORING SELECTED ITEM BY OWNER AT DESIGNATED LOCATIONS.
12. THE CONTRACTOR SHALL MAINTAIN ALL SAFETY DEVICES, AND SHALL BE RESPONSIBLE FOR CONFORMANCE TO ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS LAWS AND REGULATIONS.
13. THE CONTRACTOR SHALL PROTECT FROM DAMAGE ALL EXISTING IMPROVEMENTS FACILITIES AND STRUCTURES WHICH ARE TO REMAIN. ANY ITEMS DAMAGED BY THE CONTRACTOR OR HIS AGENTS OR ANY ITEMS REMOVED FOR HIS USE SHALL BE REPLACED IN EQUAL OR BETTER CONDITION AS APPROVED BY THE ARCHITECT OR OWNER'S REPRESENTATIVE.
14. COORDINATE WITH ELECTRICAL, MECHANICAL, LANDSCAPING AND ARCHITECTURAL DRAWINGS FOR UTILITY SHUT-DOWN/DISCONNECT LOCATIONS. CONTRACTOR IS TO SHUT OFF ALL UTILITIES AS NECESSARY PRIOR TO DEMOLITION. CONTRACTOR IS TO COORDINATE SERVICE INTERRUPTIONS WITH THE OWNER. DO NOT INTERRUPT SERVICES TO ADJACENT OFF-SITE OWNERS. ALSO SEE ARCHITECTURAL PLANS FOR ADDITIONAL DEMOLITION SCOPE OF WORK.
15. DEMOLITION INCLUDES REMOVAL OF ALL ITEMS ASSOCIATED WITH THE UTILITY, RETAINING WALL, FENCE, TREE OR BUILDING, INCLUDING BUT NOT LIMITED TO FOOTINGS, VALVES, ROOTS, BACKFILL, ETC, AND SHALL INCLUDE PREPARING THE SITE FOR NEW UTILITIES, BUILDINGS, RETAINING WALLS, ETC.
16. ALL MATERIALS TO BE DEMOLISHED AND REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE LAWFULLY DISPOSED OF OFF-SITE.
17. THIS PLAN IS NOT INTENDED TO BE A COMPLETE CATALOGUE OF ALL EXISTING STRUCTURES AND UTILITIES. THIS PLAN INTENDS TO DISCLOSE GENERAL INFORMATION KNOWN BY THE ENGINEER AND TO SHOW THE LIMITS OF THE AREA WHERE WORK WILL BE PERFORMED. THIS PLAN SHOWS THE EXISTING FEATURES TAKEN FROM A FIELD SURVEY, FIELD INVESTIGATIONS AND AVAILABLE INFORMATION. THIS PLAN MAY OR MAY NOT ACCURATELY REFLECT THE TYPE OR EXTENT OF THE ITEMS TO BE ENCOUNTERED AS THEY ACTUALLY EXIST. WHERE EXISTING FEATURES ARE NOT SHOWN, IT IS NOT IMPLIED THAT THEY ARE NOT TO BE DEMOLISHED OR REMOVED. THE CONTRACTOR SHALL PERFORM A THOROUGH FIELD INVESTIGATION AND REVIEW OF THE SITE WITHIN THE LIMIT OF WORK SHOWN IN THIS PLAN SET TO DETERMINE THE TYPE, QUANTITY AND EXTENT OF ANY AND ALL ITEMS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR DETERMINING THE EXTENT OF EXISTING STRUCTURES AND UTILITIES AND QUANTITY OF WORK INVOLVED IN REMOVING THESE ITEMS FROM THE SITE.

DEMOLITION LEGEND:

LIMIT OF WORK	WITHIN THE LIMIT OF WORK LINE ALL ITEMS NOT CALLED OUT TO BE REMOVED ARE TO REMAIN AND MUST BE PROTECTED IN PLACE. CONTRACTOR TO USE CAUTION AROUND (E) UTILITIES, UTILITY VAULTS AND WATER VALVES TO REMAIN.
EXISTING LANDSCAPED AREAS	REMOVE ALL TREES, SHRUBS, AND GRASS INCLUDING ALL ROOT MASS UNLESS OTHERWISE SPECIFIED. COORDINATE WITH CLIENT PRIOR TO REMOVING ANY TREES. IRRIGATION LINES TO BE REPAIRED TO THE EXTENTS OF NEW PLANTING AND IRRIGATION CONSTRUCTION.
EXISTING AC PAVING	(E)AC PAVEMENT, AND BASE ROCK TO BE REMOVED. BASE ROCK UNDER AC PAVEMENT CAN BE REUSED IF APPROVED BY GEOTECHNICAL ENGINEER. ALL EDGES TO BE SAWCUT WITH A CLEAN EDGE.
	EXISTING UTILITY OR CURB/WALL TO BE DEMOLISHED AND REMOVED
1	TO REMAIN, PROTECT IN PLACE
2	TO BE REMOVED

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No.	Revisions	Date

Date 01/26/2024
Scale 1" = 40'
Design DJP
Drawn DLG
Approved DJL
Job No 20211367-15

Drawing Number:
OC1.0
OF

DRAWING NAME: K:\2021\211367-15_HMB_Corpyard_Housing\ENG\mbasheets-offsite.dwg
PLOT DATE: 02-08-24 PLOTTED BY: gold

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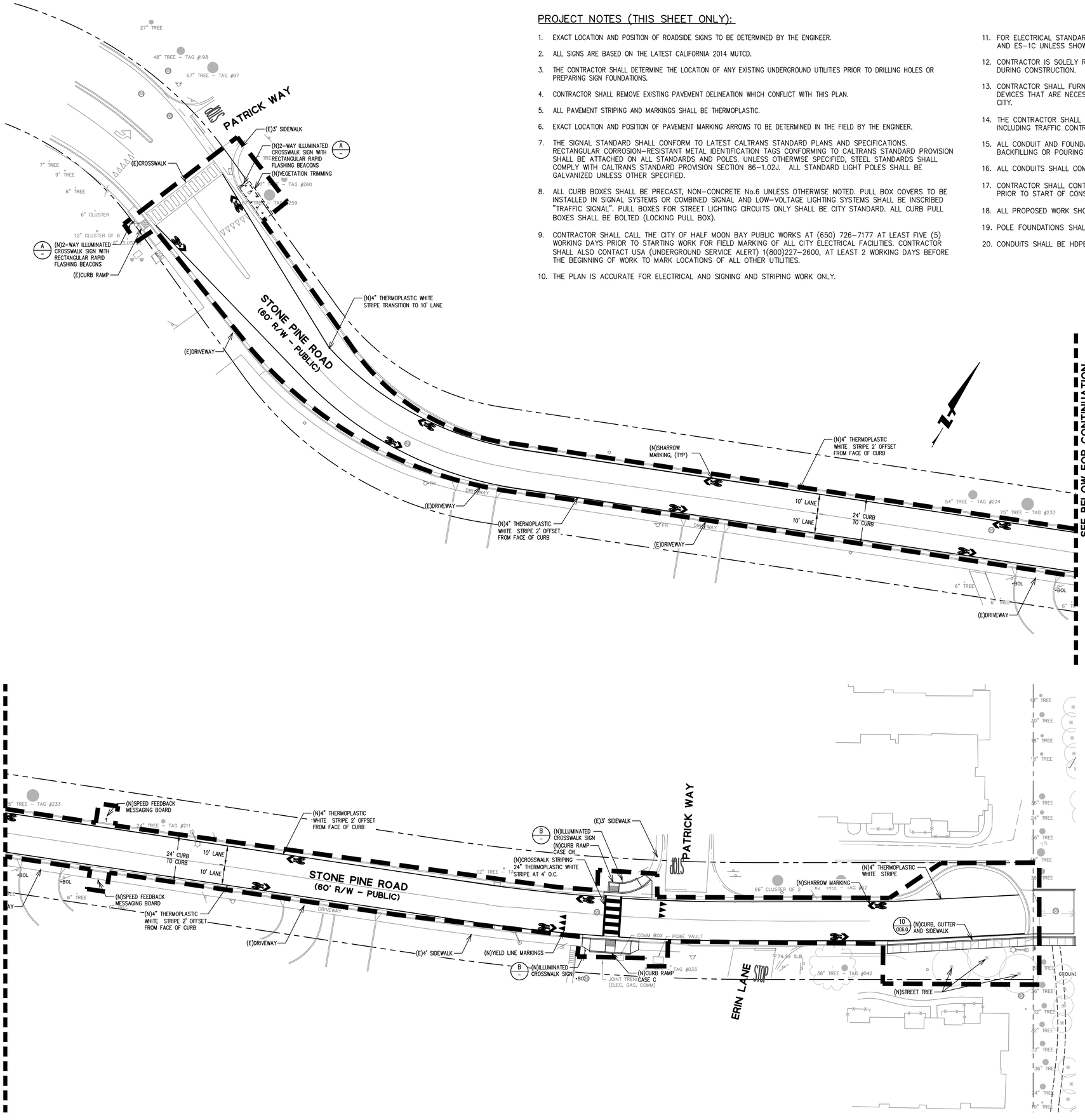
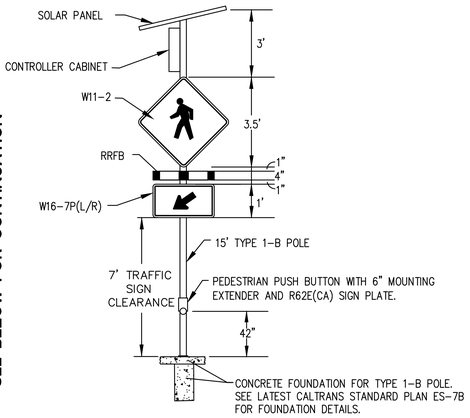
PROJECT NOTES (THIS SHEET ONLY):

1. EXACT LOCATION AND POSITION OF ROADSIDE SIGNS TO BE DETERMINED BY THE ENGINEER.
2. ALL SIGNS ARE BASED ON THE LATEST CALIFORNIA 2014 MUTCD.
3. THE CONTRACTOR SHALL DETERMINE THE LOCATION OF ANY EXISTING UNDERGROUND UTILITIES PRIOR TO DRILLING HOLES OR PREPARING SIGN FOUNDATIONS.
4. CONTRACTOR SHALL REMOVE EXISTING PAVEMENT DELINEATION WHICH CONFLICT WITH THIS PLAN.
5. ALL PAVEMENT STRIPING AND MARKINGS SHALL BE THERMOPLASTIC.
6. EXACT LOCATION AND POSITION OF PAVEMENT MARKING ARROWS TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
7. THE SIGNAL STANDARD SHALL CONFORM TO LATEST CALTRANS STANDARD PLANS AND SPECIFICATIONS. RECTANGULAR CORROSION-RESISTANT METAL IDENTIFICATION TAGS CONFORMING TO CALTRANS STANDARD PROVISION SHALL BE ATTACHED ON ALL STANDARDS AND POLES. UNLESS OTHERWISE SPECIFIED, STEEL STANDARDS SHALL COMPLY WITH CALTRANS STANDARD PROVISION SECTION 86-1.02J. ALL STANDARD LIGHT POLES SHALL BE GALVANIZED UNLESS OTHER SPECIFIED.
8. ALL CURB BOXES SHALL BE PRECAST, NON-CONCRETE No.6 UNLESS OTHERWISE NOTED. PULL BOX COVERS TO BE INSTALLED IN SIGNAL SYSTEMS OR COMBINED SIGNAL AND LOW-VOLTAGE LIGHTING SYSTEMS SHALL BE INSCRIBED "TRAFFIC SIGNAL". PULL BOXES FOR STREET LIGHTING CIRCUITS ONLY SHALL BE CITY STANDARD. ALL CURB PULL BOXES SHALL BE BOLTED (LOCKING PULL BOX).
9. CONTRACTOR SHALL CALL THE CITY OF HALF MOON BAY PUBLIC WORKS AT (650) 726-7177 AT LEAST FIVE (5) WORKING DAYS PRIOR TO STARTING WORK FOR FIELD MARKING OF ALL CITY ELECTRICAL FACILITIES. CONTRACTOR SHALL ALSO CONTACT USA (UNDERGROUND SERVICE ALERT) 1(800)227-2600, AT LEAST 2 WORKING DAYS BEFORE THE BEGINNING OF WORK TO MARK LOCATIONS OF ALL OTHER UTILITIES.
10. THE PLAN IS ACCURATE FOR ELECTRICAL AND SIGNING AND STRIPING WORK ONLY.
11. FOR ELECTRICAL STANDARD SYMBOLS AND ABBREVIATIONS, SEE LATEST CALTRANS STANDARD PLANS ES-1A, ES-1B, AND ES-1C UNLESS SHOWN IN LEGEND ON THIS SHEET.
12. CONTRACTOR IS SOLELY RESPONSIBLE FOR THE COST AND REPAIR OF ANY DAMAGE TO CITY ELECTRICAL FACILITIES DURING CONSTRUCTION.
13. CONTRACTOR SHALL FURNISH, ELECT, AND MAINTAIN AT ALL TIMES FENCES, BARRICADES, LIGHTS, SIGNS AND OTHER DEVICES THAT ARE NECESSARY TO PREVENT ACCIDENTS, DAMAGES, OR INJURIES TO THE PUBLIC WITHOUT COST TO CITY.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL THE WORK DONE BY HIS/HER SUBCONTRACTORS, INCLUDING TRAFFIC CONTROL WORK, CONCRETE CONSTRUCTION WORK, AND OTHERS.
15. ALL CONDUIT AND FOUNDATION WORKS SHALL BE INSPECTED AND APPROVED BY THE ENGINEER BEFORE BACKFILLING OR POURING CONCRETE.
16. ALL CONDUITS SHALL COMPLY WITH NOTE 6 AND CITY STANDARDS.
17. CONTRACTOR SHALL CONTACT CITY OF HALF MOON BAY PUBLIC WORKS AT (650) 726-7177 AT LEAST TWO WEEKS PRIOR TO START OF CONSTRUCTION AT EACH TRAFFIC SIGNAL.
18. ALL PROPOSED WORK SHOULD COMPLY WITH CURRENT STANDARDS AND CITY'S REQUIREMENTS.
19. POLE FOUNDATIONS SHALL CONFORM TO LATEST CALTRANS STANDARD DETAILS
20. CONDUITS SHALL BE HDPE SCHEDULE 80.





DETAIL A
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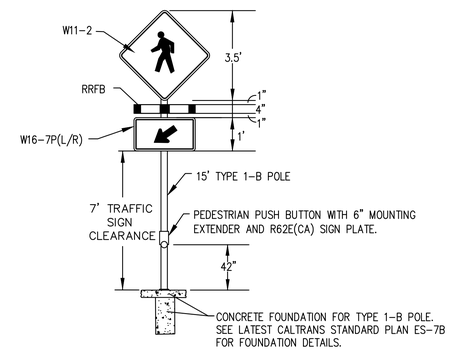

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Scale 1" = 20'
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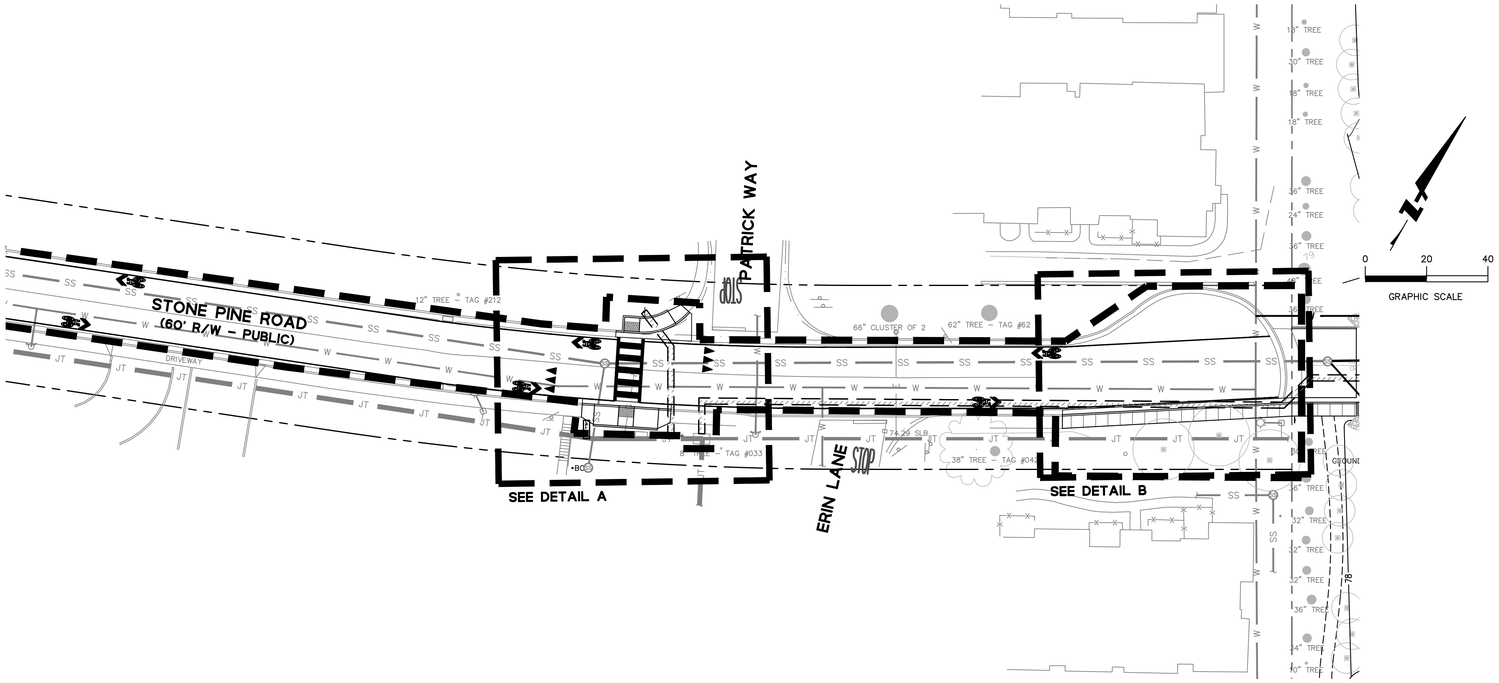


GRADING NOTES:

1. PROVIDE POSITIVE SURFACE DRAINAGE AWAY FROM ALL STRUCTURES BY SLOPING THE FINISHED GROUND SURFACE AT 5% FOR A DISTANCE OF 10', WHERE POSSIBLE, UNLESS OTHERWISE NOTED ON THE PLANS.
2. CONTRACTOR TO VERIFY ALL CONTROLLING DIMENSIONS PRIOR TO CONSTRUCTION.
3. CONTRACTOR SHALL DETERMINE EARTHWORK QUANTITIES BASED ON THE TOPOGRAPHIC SURVEY, THE GEOTECHNICAL INVESTIGATION AND THE PROPOSED SURFACE THICKNESS AND BASE THE BID ACCORDINGLY. IT IS THE CONTRACTORS RESPONSIBILITY TO CONFIRM IF A SEPARATE DEMOLITION CONTRACT HAS BEEN ISSUED TO TAKE THE SITE FROM THE WAY IT IS AT THE TIME OF THE BID TO THE CONDITIONS DESCRIBED IN THESE DOCUMENTS. ANY DIFFERENCES BETWEEN THE STATE IN WHICH THE SITE IS DELIVERED TO THE CONTRACTOR AND THESE DOCUMENTS SHOULD BE NOTED TO THE ENGINEER/ARCHITECT.
4. ALL FILL SHALL BE COMPACTED PER THE GEOTECHNICAL REPORT AND THE CONTRACTOR SHALL COORDINATE AND COMPLY WITH THE CITY INSPECTOR TO TAKE THE APPROPRIATE TESTS TO VERIFY COMPACTION VALUES.
5. IMPORT SOILS SHOULD MEET THE REQUIREMENTS OF THE SOILS REPORT AND SPECIFICATIONS.
6. COORDINATE THE PLACEMENT OF ALL SLEEVES FOR LANDSCAPE IRRIGATION (WATER AND CONTROL WRING) AND SITE LIGHTING PRIOR TO THE PLACEMENT OF ANY ASPHALT, BASEROCK OR CONCRETE SURFACING. SEE LANDSCAPING AND SITE ELECTRICAL DRAWINGS.
7. DO NOT ADJUST GRADES ON THIS PLAN WITHOUT PRIOR WRITTEN APPROVAL OF THE ENGINEER/ARCHITECT.
8. SITE STRIPPINGS THAT CONTAIN ONLY ORGANIC MATERIAL (NO DEBRIS TRASH, BROKEN CONC. OR ROCKS GREATER THAN 1" IN DIAMETER) MAY BE USED IN LANDSCAPE AREAS, EXCEPT FOR AREAS IDENTIFIED AS IMPORT TOP SOIL BY THE LANDSCAPE DRAWINGS. EXCESS STRIPPINGS SHALL BE REMOVED FROM SITE.
9. ROUGH GRADING TO BE WITHIN 0.1' AND FINISH GRADES ARE TO BE WITHIN 0.05', HOWEVER CONTRACTOR SHALL NOT CONSTRUCT ANY IMPROVEMENTS THAT WILL CAUSE WATER TO POND OR NOT MEET REQUIREMENTS IN GRADING NOTE #1.
10. THE CONTRACTOR SHALL EXERCISE EXTREME CARE TO CONFORM TO THE LINES, GRADES, SECTIONS, AND DIMENSIONS AS SET FORTH ON THESE PLANS. ALL GRADED AREAS SHALL CONFORM TO THE VERTICAL ELEVATIONS SHOWN WITH A TOLERANCE OF ONE-TENTH OF A FOOT. WHERE GRADED AREAS DO NOT CONFORM TO THESE TOLERANCES, THE CONTRACTORS SHALL BE REQUIRED TO DO CORRECTIVE GRADING, AT NO EXTRA COST TO THE CLIENT.
11. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM THE GROUND ELEVATIONS AND OVERALL TOPOGRAPHY OF THE SITE PRIOR TO THE START OF CONSTRUCTION AS TO THE ACCURACY BETWEEN THE WORK SET FORTH ON THESE PLANS AND THE WORK IN THE FIELD. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND CIVIL ENGINEER IN WRITING PRIOR TO START OF CONSTRUCTION WHICH MAY REQUIRE CHANGES IN DESIGN AND/OR AFFECT THE EARTHWORK QUANTITIES.
12. TRENCHES SHALL NOT BE LEFT OPEN OVERNIGHT IN EXISTING PUBLIC STREET AREAS. CONTRACTOR SHALL BACKFILL TRENCHES, OR PLACE STEEL PLATING WITH ADEQUATE CUTBACK TO PREVENT SHIFTING OF STEEL PLATE AND/OR HOT-MIX ASPHALT REQUIRED TO PROTECT OPEN TRENCHES AT THE END OF THE WORKING DAY.
13. DISTURBED AREAS OF THE SITE SHOULD BE STABILIZED DURING THE RAINY SEASON USING STRAW MULCH (EC-6) OR WOOD MULCHING (EC-8).
14. PERMANENT EROSION CONTROL SHALL BE PROVIDED BY LANDSCAPING SUCH AS SHRUBS, SOD OR MULCH. LANDSCAPE DESIGN MAY BE SUBJECT TO CHANGE.

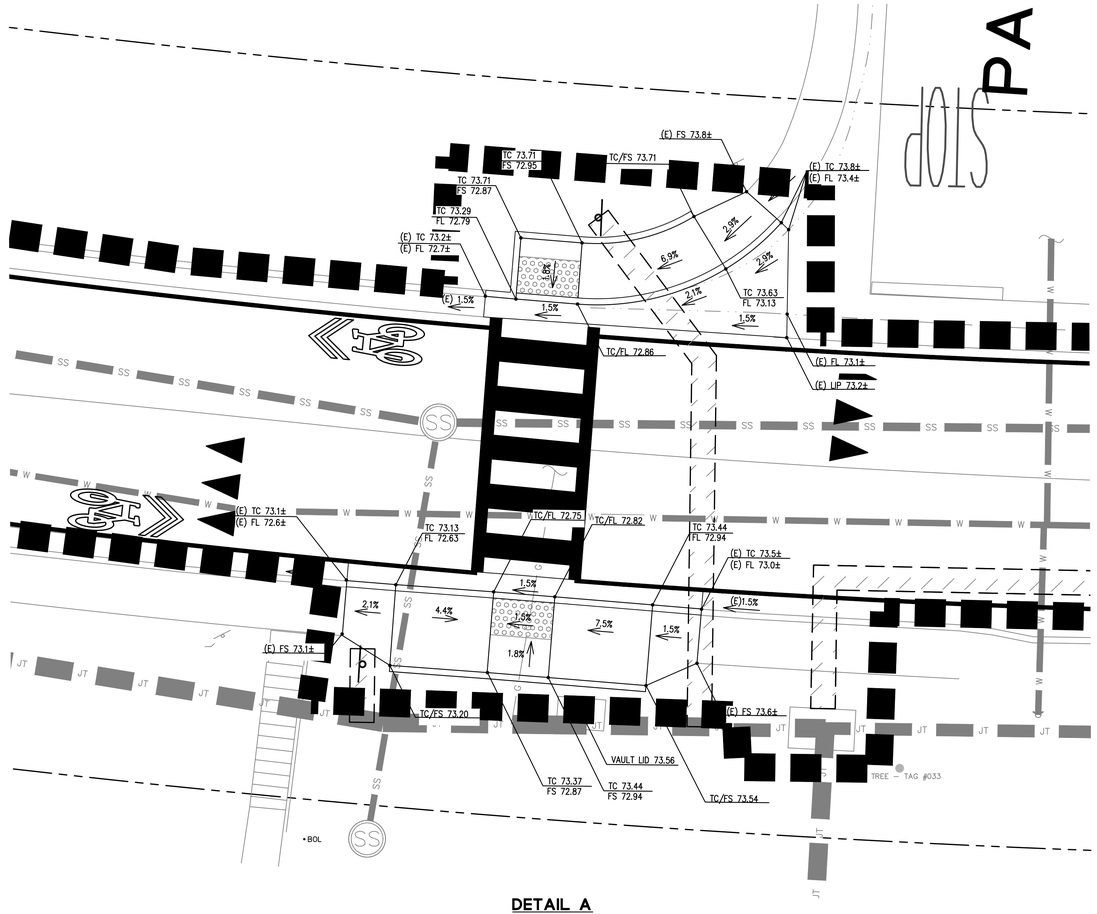
PAVEMENT/HATCH LEGEND:

SEE GEOTECHNICAL REPORT FOR EXACT RECOMMENDATION FOR GRADING OPERATIONS AND OVEREXCAVATION ON-SITE.

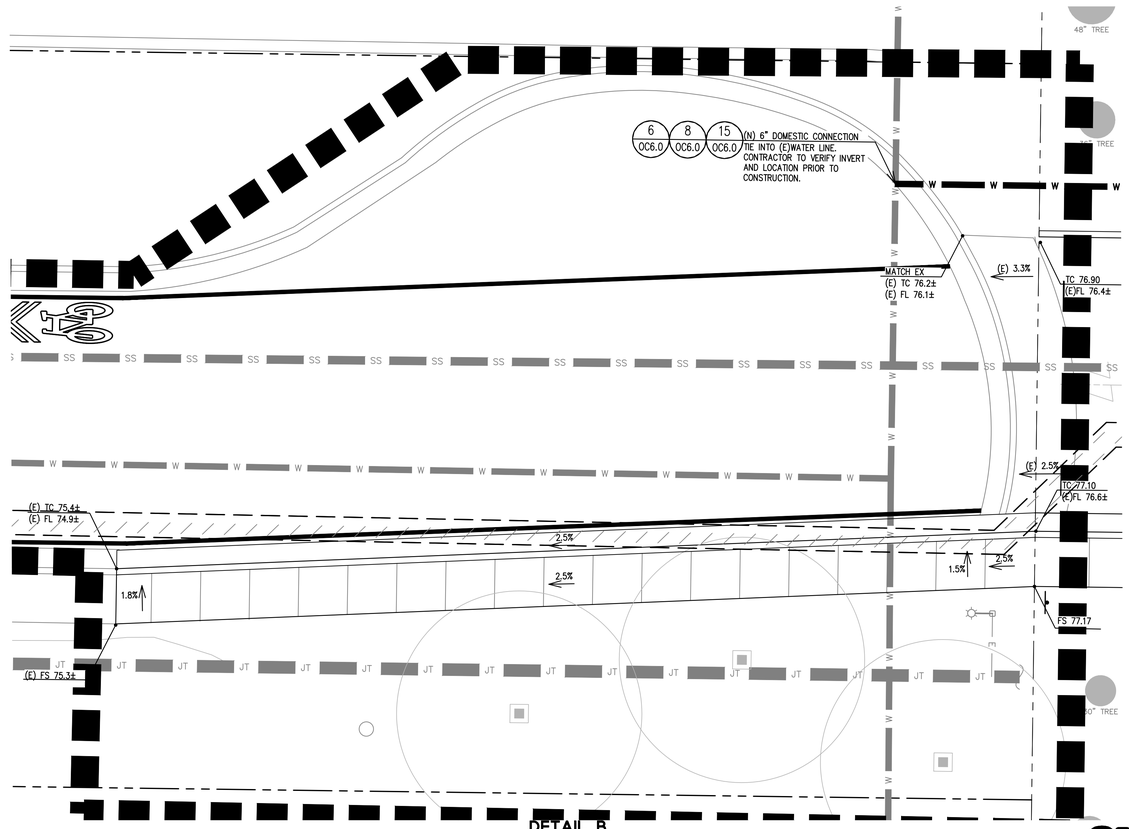
(E)AC PAVING	3" AC PAVING OVER 8" OF CALTRANS CLASS 2 AGGREGATE BASE.
AC PAVING	DRIVE AISLE – 3" AC PAVING OVER 12" OF CALTRANS CLASS 2 AGGREGATE BASE. PARKING AREAS – 3" AC PAVING OVER 8" OF CALTRANS CLASS 2 AGGREGATE BASE.
CONCRETE PAVING	4" CONCRETE OVER 6" OF CALTRANS CLASS 2 AGGREGATE BASE. SEE LANDSCAPE PLANS FOR SCORE JOINTS.

PAVEMENT NOTES:

1. PAVEMENT SECTION TO BE PER CITY OF HALF MOON BAY STANDARD DETAILS
2. COLOR AND FINISH OF CONCRETE TO BE PER CITY OF HALF MOON BAY STANDARD DETAILS.



DETAIL A
SCALE 1" = 5'



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SCALE 1" = 5'

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DAVID J. LAU
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Date	01/28/2024
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Drawn	DLG
Approved	DJL
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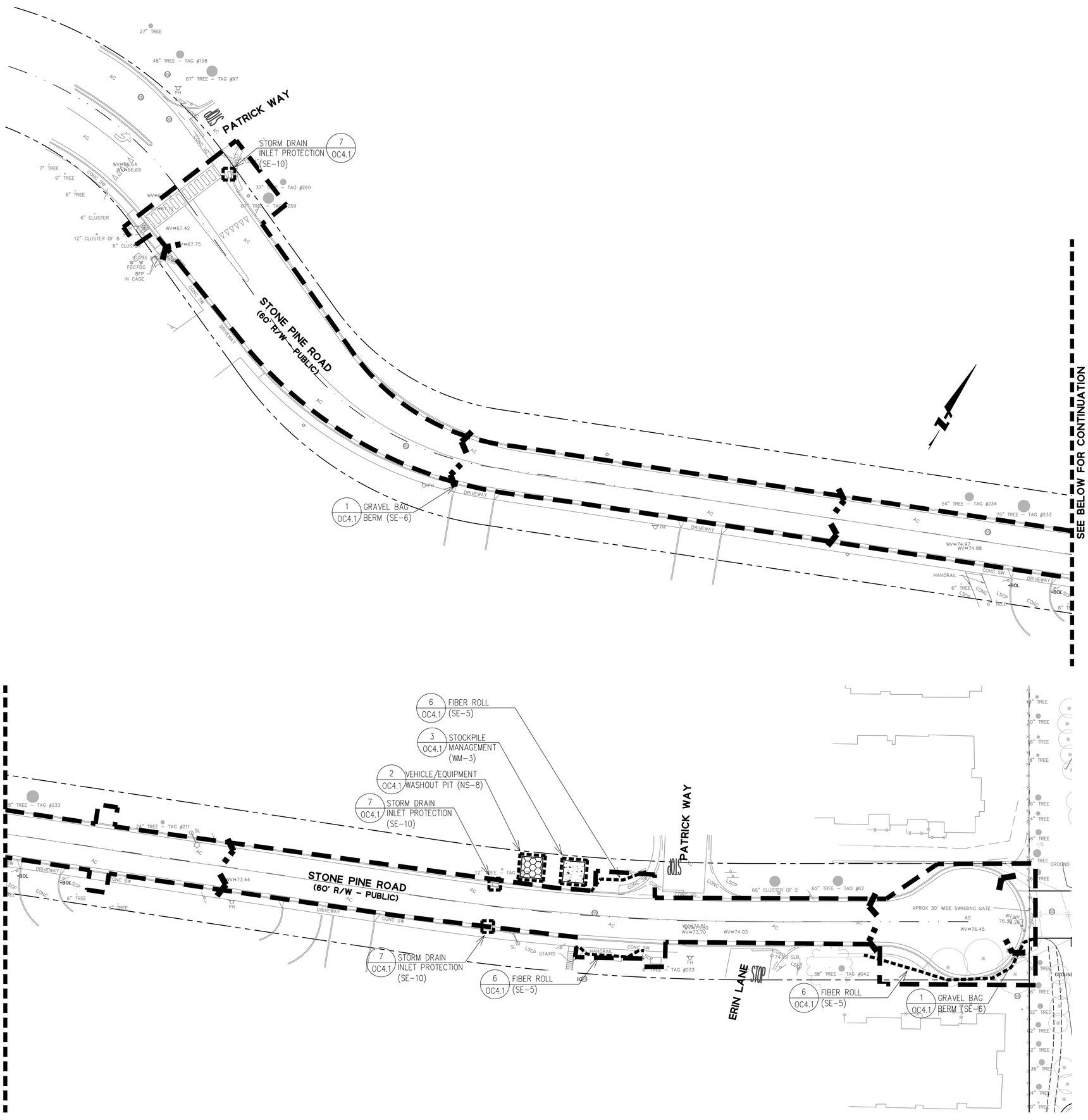

PERMANENT EROSION/SEDIMENT CONTROLS:

1. CONTRACTOR SHALL PROVIDE POST-CONSTRUCTION PERMANENT EROSION/SEDIMENT CONTROL THROUGHOUT THE SITE IN THE FORM OF FINISH LANDSCAPING.
2. PERMANENT EROSION CONTROLS SHOULD CONSIST OF VEGETATION OR OTHER MEANS OF STABILIZING ALL DISTURBED AREAS OF THE SITE. SUITABLE EROSION CONTROLS INCLUDE TURF, SHRUBS, ESTABLISHED HYDROSEEDING, MULCH, BARK, AND OTHER GROUNDCOVERS.
3. ALL DISTURBED GROUND SURFACES SHALL BE STABILIZED UPON COMPLETION OF CONSTRUCTION ACTIVITIES.
4. FINAL LANDSCAPING PLAN TO BE DEVELOPED IN COORDINATION WITH THE PROJECT ARCHITECT AND TO BE CONSISTENT WITH EXISTING LANDSCAPING AND TREES TO REMAIN, AND MEET THE APPROVAL OF THE PROJECT ARBORIST.
5. LANDSCAPING PROPOSED SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH THE CALIFORNIA MODEL WATER EFFICIENT LANDSCAPE ORDINANCE.
6. DISTURBED AREAS OF THE SITE SHOULD BE STABILIZED DURING THE RAINY SEASON USING STRAW MULCH (EC-6) OR WOOD MULCHING (EC-8).
7. PERMANENT EROSION CONTROL SHALL BE PROVIDED BY LANDSCAPING SUCH AS SHRUBS, SOD OR MULCH. LANDSCAPE DESIGN MAY BE SUBJECT TO CHANGE.

EROSION CONTROL LEGEND:

- VEHICLE/EQUIPMENT WASHOUT PIT
- STOCKPILE COVERING
- GRAVEL BAG BERM
- FIBER ROLL
- INLET PROTECTION

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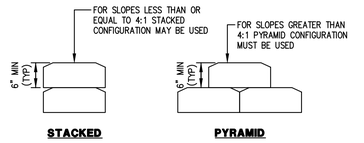
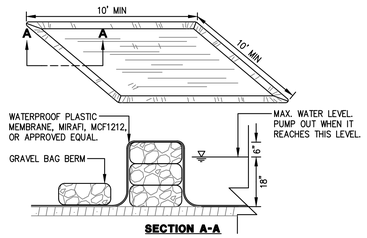


NOTES:

1. INSTALL AT LOCATIONS AS SHOWN ON EROSION CONTROL PLAN, AND IN ADDITION, PROTECT ALL EXISTING AND PROPOSED STORM DRAIN STRUCTURES WITH GRAVEL BAGS.

1 — GRAVEL BAG BERM
NTS



2 — VEHICLE/EQUIPMENT WASHOUT PIT
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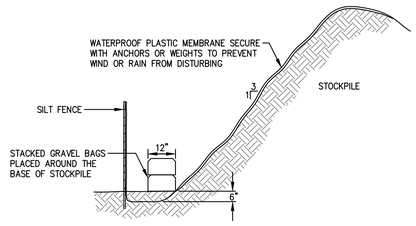

3 — STOCKPILE COVERING
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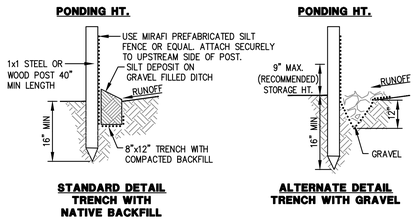
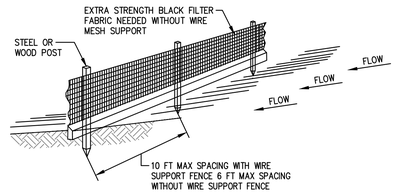
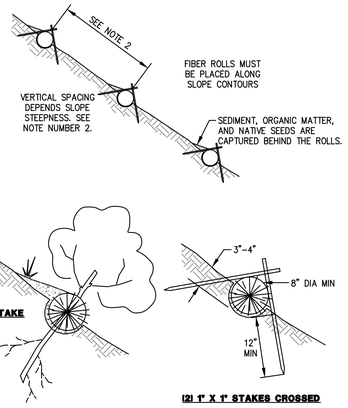


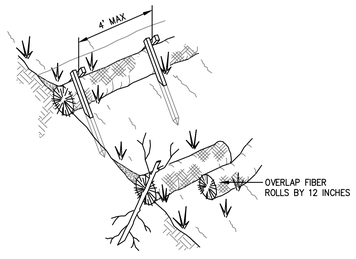


NOTES:

1. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.
2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
3. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.

5 — SILT FENCE
NTS

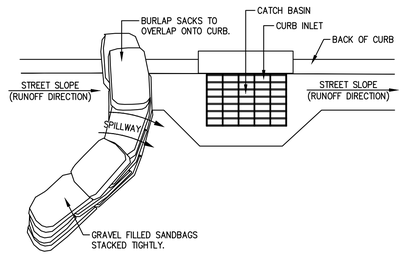




NOTES:

1. FIBER ROLL INSTALLATION REQUIRES THE PLACEMENT AND SECURE STAKING OF THE ROLL IN A TRENCH, 3" TO 4" DEEP, DUG ON CONTOUR. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND ROLL.
1. VERTICAL SPACING FOR SLOPE INSTALLATIONS:
   SLOPE OF 2:1 OR GREATER = 10 FEET APART
   SLOPE BETWEEN 4:1 AND 2:1 = 15 FEET APART
   SLOPE OF 4:1 OR FLATTER = 20 FEET APART
2. INSPECT AND REPAIR FIBER ROLLS AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.
3. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.

6 — FIBER ROLL
NTS

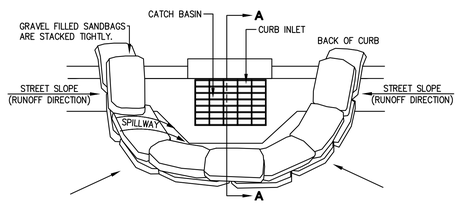


PLAN VIEW

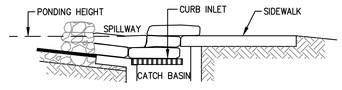
NOTES:

1. PLACE CURB TYPE SEDIMENT BARRIERS ON GENTLY SLOPING STREETS, WHERE WATER CAN POND AND ALLOW SEDIMENT TO SEPARATE FROM RUNOFF.
2. SANDBAGS OF EITHER BURLAP OR WOVEN GEOTEXTILE FABRIC, ARE FILLED WITH GRAVEL, LAYERED AND PACKED TIGHTLY.
3. LEAVE ONE SANDBAG GAP IN THE TOP ROW TO PROVIDE A SPILLWAY OVERFLOW. TOP OF SPILLWAY SHALL BE LOWER THAN TOP OF CURB.
4. INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT, SEDIMENT AND GRAVEL MUST BE REMOVED FROM THE TRAVELED WAY IMMEDIATELY.

CURB INLET SEDIMENT BARRIER - CONTINUOUS GRADE



PLAN VIEW



SECTION A-A

CURB INLET SEDIMENT BARRIER - SUMP

NOTES:

1. PLACE CURB TYPE SEDIMENT BARRIERS ON GENTLY SLOPING STREETS, WHERE WATER CAN POND AND ALLOW SEDIMENT TO SEPARATE FROM RUNOFF.
2. SANDBAGS OF EITHER BURLAP OR WOVEN GEOTEXTILE FABRIC, ARE FILLED WITH GRAVEL, LAYERED AND PACKED TIGHTLY.
3. LEAVE ONE SANDBAG GAP IN THE TOP ROW TO PROVIDE A SPILLWAY OVERFLOW.
4. INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT, SEDIMENT AND GRAVEL MUST BE REMOVED FROM THE TRAVELED WAY IMMEDIATELY.

7 — INLET PROTECTION
NTS

BKF Engineers
255 SHORELINE DRIVE
SUITE 200
REDWOOD CITY, CA 94065
(650) 482-6300
www.bkf.com

CALIFORNIA

EROSION CONTROL DETAILS
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY

HALF MOON BAY

REGISTERED PROFESSIONAL ENGINEER — DAVID J. POWERS — CIVIL — STATE OF CALIFORNIA

REVIEW ONLY
NOT FOR CONSTRUCTION

No.	Revisions	Date

Date 01/26/2024
Scale 1" = 20'
Design DJP
Drawn DLG
Approved DJL
Job No 20211367-15

Drawing Number:
OC4.1
OF

811 Know what's below. Call before you dig.

DRAWING NAME: K:\2021\211367-15_HMB_Coryard_Housing\ENG\hmbsheets-offsite.dwg
PLOT DATE: 02-08-24 PLOTTED BY: gold

© BKF Engineers

PROJECT MILESTONES

Demolition:

Pre-development site preparation:

grading and land development:

Streets and Utilities:

Vertical construction:

Landscaping:

Site Stabilization:

TREE PROTECTION (TYPICAL)

FIBER ROLLS (SE-5)

LOCATION OF PROPOSED ROAD

SEDIMENT BASIN (SE-2)
(LOCATED WHERE PROPOSED BIORETENTION AREAS ARE LOCATED)
800± SF
TOP OF BANK 82.3
BASE 81.3

FIBER ROLLS (SE-5)
(LOCATED AT TOP OF PROPOSED BIO AREA)

STABILIZED CONSTRUCTION ENTRANCE (TC-1)

VEHICLE/EQUIPMENT WASHOUT PIT (NS-8)

DL-1

STONE PINE ROAD
[60' R.O.W.]

TAG #62

TAG #042

1 / C5.2 GRAVEL BAG BERM (SE-6)

7 / C5.2 STORM DRAIN INLET PROTECTION (SE-10)

GRAVEL BAG BERM (SE-6)

FIBER ROLLS (SE-5) 6 / C5.2

2 / C5.2 VEHICLE/EQUIPMENT WASHOUT PIT (NS-8)

MD MS Staging Area

TREE PROTECTION (TYPICAL)

NVP-MS

RO-1

CONTRACTOR PARKING AREA

(3)JOB TRAILERS

TOILETS

GRAVEL BAG BERM (SE-6)

GRAVEL BAG BERM (SE-6)

FIBER ROLLS (SE-5)

3 / C5.2 STOCKPILE MANAGEMENT (WM-3)

STABILIZED CONSTRUCTION ENTRANCE (TC-1) 4 / C5.2

LOCATION OF PROPOSED ROAD

DL-3

SEDIMENT BASIN (SE-2)
(LOCATED WHERE PROPOSED BIORETENTION AREAS ARE LOCATED)
515± SF
TOP OF BANK 79.0
BASE 78.0

FIBER ROLLS (SE-5)
(LOCATED AT TOP OF PROPOSED SLOPE)

FIBER ROLLS (SE-5)
(LOCATED AT TOP OF PROPOSED BIO AREA)

SEDIMENT BASIN (SE-2)
(LOCATED WHERE PROPOSED BIORETENTION AREAS ARE LOCATED)
5,540± SF
TOP OF BANK 77.0
BASE 76.0

DL-2

SILT FENCE (SE-1)

SILT FENCE 5 / C5.2 (SE-1)

EROSION CONTROL LEGEND:

- TREE PROTECTION (TYP.) SEE ARBORIST NOTES
- STABILIZED CONSTRUCTION ENTRANCE/EXIT
- VEHICLE/EQUIPMENT WASHOUT PIT
- STOCKPILE COVERING
- CONTRACTOR PARKING AREA
- SEDIMENT BASIN
- GRAVEL BAG BERM
- FIBER ROLL
- SILT FENCE
- INLET PROTECTION

SEE BMP LEGEND ON NEXT PAGE

PERMANENT EROSION/SEDIMENT CONTROLS:

1. CONTRACTOR SHALL PROVIDE POST-CONSTRUCTION PERMANENT EROSION/SEDIMENT CONTROL THROUGHOUT THE SITE IN THE FORM OF FINISH LANDSCAPING.
2. PERMANENT EROSION CONTROLS SHOULD CONSIST OF VEGETATION OR OTHER MEANS OF STABILIZING ALL DISTURBED AREAS OF THE SITE. SUITABLE EROSION CONTROLS INCLUDE TURF, SHRUBS, ESTABLISHED HYDROSEEDING, MULCH, BARK, AND OTHER GROUNDCOVERS.
3. ALL DISTURBED GROUND SURFACES SHALL BE STABILIZED UPON COMPLETION OF CONSTRUCTION ACTIVITIES.
4. FINAL LANDSCAPING PLAN TO BE DEVELOPED IN COORDINATION WITH THE PROJECT ARCHITECT AND TO BE CONSISTENT WITH EXISTING LANDSCAPING AND TREES TO REMAIN, AND MEET THE APPROVAL OF THE PROJECT ARBORIST.
5. LANDSCAPING PROPOSED SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH THE CALIFORNIA MODEL WATER EFFICIENT LANDSCAPE ORDINANCE.
6. DISTURBED AREAS OF THE SITE SHOULD BE STABILIZED DURING THE RAINY SEASON USING STRAW MULCH (EC-6) OR WOOD MULCHING (EC-8).
7. PERMANENT EROSION CONTROL SHALL BE PROVIDED BY LANDSCAPING SUCH AS SHRUBS, SOD OR MULCH. LANDSCAPE DESIGN MAY BE SUBJECT TO CHANGE.

DL-# **Potential Discharge Locations (DL)**
Locations vary through construction based on phase of construction and activities. QSP to add/update locations based on observations on the progress map.

NVP **Potential Non-Visible Pollutant (NVP) Locations:**
- -SA Down-gradient of Soil Amendments
- -MS Down-gradient of Material Storage
- -WM Down-gradient of Waste Materials
- -RO Where water from outside sources drain on-site

Sample Locations*
Sample and analyze runoff for pH and turbidity at DL and NVP locations. Locations are approximate and actual locations are to be determined by the QSP in the field and identified on the BMP map

*Additional analysis by an ELAP-approved lab may be required for additional pollutants in the event of a BMP breach, malfunction, or spill as determined by the QSP.

0 20 40
GRAPHIC SCALE

SEE SHEETS C0.0 AND C0.1 FOR NOTES AND LEGENDS

811 Know what's below. Call before you dig.

BKF
255 SHORELINE DRIVE
SUITE 200
REDWOOD CITY, CA 94065
(650) 482-6300
www.bkf.com

CALIFORNIA

Contractor Activities and BMP Map

STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
HALF MOON BAY

Date	No.	Revisions

Date
Scale 1" = 20'
Design
Drawn
Approved
Job No. 20211367-15

DRAWING NAME: K:\2021\211367-15_HMB_Coryard_Housing\ENG\vmbsheets.dwg
PLOT DATE: 02-08-24
PLOTTED BY: gold

Erosion Control


EC-1 Scheduling


EC-2 Preservation of (E) vegetation


EC-3 Hydraulic mulch


EC-4 Hydroseeding


EC-5 Soil binders

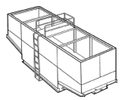

EC-6 Straw mulching

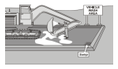

EC-7 Geotextiles and mats

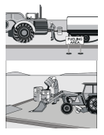

EC-8 Wood mulching

Non-Stormwater Management


NS-1 Water conservation practices


NS-2 Dewatering operations


NS-8 Vehicle and equipment washing


NS-9 Vehicle equipment fueling

NS-10 Vehicle equipment maintenance

Waste Management

MD MS WM-1 Material delivery and storage

WM-3 Stockpile management

SP WM-4 Spill prevention

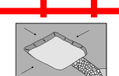
SW WM-5 Solid waste management

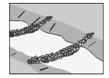
CW WM-8 Concrete waste management

T WM-9 Sanitary and septic waste management

Sediment Control

SE-1 Silt fences


SE-3 Sediment Trap


SE-4 Check dams

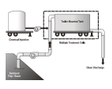
SE-5 Fiber rolls

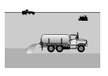
OOOOOOOOOOOOOOO SE-6 Gravel bag berm

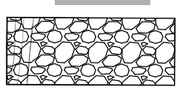

SE-7 Street Sweeping and Vacuuming

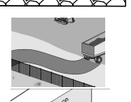

SE-8 A sandbag barrier

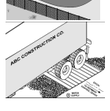

SE-10 Storm drain inlet protection


SE-11 Active Treatment Systems (ATS)


WE-1 Wind erosion or dust control


TC-1 Stabilized construction entrance/exit


TC-2 Stabilized construction roads


TC-3 A tire wash

Appendix B: Permit Registration Documents

Permit Registration Documents included in this Appendix:

Location in SWPPP	**Permit Registration Document** (in addition to a copy of the SWPPP)
App B	Notice of Intent
App L	Risk Level Determination
SMARTS	Certification
App B	Post-Construction Requirements, if applicable
N/A	Post-Construction Water Balance Calculator, if applicable
SMARTS	Copy of Annual Fee Receipt
N/A	ATS Design Documents, if applicable
N/A	Passive Treatment Design Documents, if applicable
App A	Site Maps and Drawings, see Appendix A

Post-Construction Compliance

San Mateo County C.3 Checklist and Stormwater Management Plan

SAN MATEO COUNTYWIDE
Water Pollution Prevention Program
Clean Water. Healthy Community.

SI2024-00001
880 STONE PINE RD
03/04/2024

City/County	COUNTY OF SAN MATEO
Department	Planning & Building Department
Address	455 County Center, 2nd Floor, Redwood City, CA 94063
Phone	BLD: 650-599-7311/PLN: 650-363-1825
Website	http://planning.smcgov.org

C.3 and C.6 Development Review Checklist

Municipal Regional Stormwater Permit (MRP 3.0)
Stormwater Controls for Development Projects

Project Information (Enter information only into blue-highlighted cells - other cells are locked.)

I.A Enter Project Data (For "C.3 Regulated Projects," data will be reported in the municipality's stormwater Annual Report.)

Project Name:	Stone Pine Cove	Case Number:	
Project Address:	880 Stone Pine Rd, Half Moon Bay, CA 94019	Cross Street:	Erin Ln
Project APN:	056-260-180	Project Watershed:	Pilarcitos Creek Watershed
Applicant Name:	Capital Program Management	Project Phase No.	
Applicant Phone:	(916) 553-4400	Applicant Email Address:	stevenm@capitalpm.com

Development Type: (check all that apply)

- ☐ Small Single-Family Home Project (<10,000 sq. ft. of created and/or replaced impervious surface[1])
- ☐ Large Single-Family Home Project (≥10,000 sq. ft. of created and/or replaced impervious surface[1])
- ☐ Subdivision - Residential: Two or more lot development[2] — # of units:
- ☑ Multi-Family Residential — # of units: 47
- ☐ Commercial
- ☐ Industrial, Manufacturing
- ☐ Mixed-Use — # of units:
- ☐ New, widened or reconstructed roads related to parcel-based projects[3]
- ☐ Stand-alone pavement maintenance or construction work, or similar work related to parcel-based projects[3]
- ☐ Other redevelopment project as defined by MRP: creating, adding and/or replacing exterior existing impervious surface on a site where past development has occurred.
- ☐ Institutional: schools, libraries, jails, etc.
- ☑ Parks and trails, camp grounds, other recreational
- ☐ Kennels, Ranches
- ☐ Other, Please specify

Project Description (Don't include past or future phases)[4]: The proposed project includes 47 manufactured home units, a management office unit, a sports court, a play structure, a community garden, and a recreation picnic area. New private streets will serve the manufactured homes and amenities. Offsite improvements include construction of new curb, gutter and sidewalk along the south side of Stone Pine Road adjacent to the project site.

I.A.1 Total Project Area: 244,560 square feet (on and off-site)
I.A.2 Total Area on-site: 240,200 square feet (on the private property)
I.A.3 Total Area off-site: 4,360 square feet (frontage or area in Public Right of Way being improved)
I.A.4 Total Area of land disturbed during construction: 244,560 square feet
(Include all project on-site and off-site areas of clearing, grading, excavating and stockpiling)
I.A.5 Site slope: 3 %

I.A.6 Certification:

I certify that the information provided on this form is correct and acknowledge that, should the project exceed the amount of new and/or replaced impervious surface provided in this form, the as-built project may be subject to additional improvements.

☑ Preliminary Calculations Attached ☐ Final Calculations Attached ☑ Stormwater Control Plan Attached

Name of person completing the form:	Darren Gallagher	Title:	Design Engineer
Signature:	Darren Gallagher	Date:	10/25/2023
Phone Number:	(650) 482-6488	E-mail:	dgallagher@bkf.com

[1] Small and Large Detached Single-Family Homes that are not part of a common plan of development[2].

[2] Common Plans of Development (subdivisions or contiguous, commonly owned lots, for the construction of two or more homes developed within 1 year of each other), and/or constructed with shared utilities, are not considered single family home projects by the MRP.

[3] Stand-alone roadway or pavement projects, or pavement work that is part of a project, creating or replacing 5,000 sq. ft. or more of impervious surface may be subject to C.3 requirements - both in public and private areas. See the Roads Factsheet at: www.flowstobay.org/newdevelopment

[4] Project description examples: 5-story office building, industrial warehouse, residential with five 4-story buildings for 200 condominiums, etc.

SI2024-00001
880 STONE PINE RD
03/04/2024

I.B Is the project a "C.3 Regulated Project" per MRP Provision C.3.b? (Use table below to make determination.)

I.B.1 Enter the amount of Impervious surface Retained, Replaced or Created[5] by the project (use DMA Table in Worksheet D):

Table I.B.1 Impervious[6] and Pervious[6] Surfaces (Match DMA Summary Table in Worksheet D, if applicable)

	Pre-Project	Post-Project			
	I.B.1.a	**I.B.1.b**	**I.B.1.c**	**I.B.1.d**	**I.B.1.e**
Impervious Surfaces (IS) (e.g., sidewalks, driveways, parking areas, patios, roads, rooftops, pools, pathways, etc.)	Existing (Pre-Project) Impervious Surface (sq.ft.)	Existing Impervious Surface to be Retained[5] (sq.ft.)	Existing Impervious Surface to be Replaced[5] (sq.ft.)	New Impervious Surface to be Created[5] (sq.ft.)	Post-Project Impervious Surface (sq.ft.) (=b+c+d)
On-site area (within the parcel/private site boundaries)	24,600	15,890	5,000	136,550	157,440
Off-site area (e.g., frontage/other area in Public Right of Way)	3,450	2,550	425	25	3,000
Subtotal:	28,050	18,440	5,425	136,575	160,440
Total Impervious Surface Replaced and Created: ***(sum of totals for columns I.B.1.c and I.B.1.d):***		**I.B.1.f**	**142,000**	**sq. ft.**	
Pervious Surfaces (PS) (e.g., landscaping, pervious pavement, bioretention areas, parking strips, street trees, etc. - both on-site and off-site)	Existing (Pre-Project) Pervious Surface (sq.ft.)				Post-project Pervious Surface (sq.ft.)
All pervious off-site area (e.g., frontage/Public Right of Way)[6]	910				1,360
Landscaping area on-site	215,600				82,760
Pervious Pavement area on-site	-			**I.B.1.g**	-
Green Roof area on-site	-				-
Subtotal:	216,510	**50% Rule Calculation**			84,120
Total Project Area (should be equal to **I.A.1**)	244,560	**I.B.1.h**	**20** %		244,560

I.B.2 Please review and attach additional worksheets as required below using the Total Impervious Surface (IS) Replaced or Created in cell **I.B.1.f** from Table **I.B.1** above and other factors:

	Review Steps	Check One Yes	Check One No	Attach Worksheet
I.B.2.a	Does this project involve any earthwork and/or stockpiling of soil, aggregates etc? If YES, then Check Yes, and Complete Worksheet A. If NO, then Check No, and go to I.B.2.b	☑	☐	A
I.B.2.b	Is **I.B.1.f** greater than or equal to 2,500 sq.ft? If YES, then the Project is subject to Provision C.3.i. - complete Worksheets B, C and go to I.B.2.c. If NO, go to I.B.2.i - or ask municipal staff for Small Project Checklist.	☑	☐	B, C
I.B.2.c	Does the 50% rule apply to the project? Is **I.B.1.h** 50% or more? If YES, site design, source control and treatment requirements apply to the entire on-site area. Continue to I.B.2.d If NO, these requirements apply only to the impervious surface created and/or replaced. Continue to I.B.2.d	☐	☑	
I.B.2.d	Is this project a Roadway Project and is **I.B.1.f** greater than or equal to 5,000 sq.ft? If YES, project may be C.3 Regulated Project. See the Roadways Fact Sheet at: www.flowstobay.org/newdevelopment If NO, go to I.B.2.e	☐	☑	
I.B.2.e	Is **I.B.1.f** greater than or equal to 5,000 sq.ft? (Or 10,000 sq.ft. for a Large Single-Family Home?) If YES, project is a C.3 Regulated Project - complete Worksheet D. Then continue to I.B.2.f. If NO, then skip to I.B.2.g. - or ask municipal staff for Small Project Checklist.	☑	☐	D
I.B.2.f	Is **I.B.1.f** greater than or equal to 43,560 sq.ft, (i.e., one acre)? If YES, project may be subject to Hydromodification Management requirements - complete Worksheet E then go to I.B.2.g. If NO, then go to I.B.2.g.	☑	☐	E
I.B.2.g	Is **I.A.4** greater than or equal to 43,560 sq.ft., (i.e., one acre)? If YES, check box, obtain coverage under CA Construction General Permit & submit Notice of Intent to municipality- go to I.B.2.h. If NO, then go to I.B.2.h. For more information see: www.swrcb.ca.gov/water_issues/programs/stormwater/construction.shtml	☑	☐	
I.B.2.h	Is this a Special Project or does it have the potential to be a Special Project? If YES, complete Worksheet F - then continue to I.B.2.i. If NO, go to I.B.2.i.	☐	☑	F
I.B.2.i	Is this project a High Priority Site? (Determined by the Municipality. High Priority Sites can include those located within 100 ft. of a sensitive habitat, an Area of Special Biological Significance, a body of water, or on sites disturbing >=5,000 sq.ft. with slopes >=15% **(see I.A.5)** [or per municipal criteria/map.] Subject to monthly inspections from Oct 1 to April 30.) If YES, complete section G-2 on Worksheet G - then continue to I.B.2.j. and complete the Certification in Section **I.A.6** If NO, then go to I.B.2.j and complete the Certification in Section **I.A.6**	☐	☑	G
I.B.2.j	**For Municipal Staff Use Only**: Are you using Alternative Certification for the project review? If YES, then fill out section G-1 on Worksheet G. Fill out other sections of Worksheet G as appropriate. See cell **I.B.1.g** above - Is the project installing 3,000 square feet or more of pervious pavement? If YES, then fill out section G-3 on Worksheet G. Add to Municipal Inspection Lists (C.3 and C.3.h)	☐ ☐	☐ ☐	G

[5] "Retained" means to leave existing impervious surfaces in place; "Replaced" means to install new impervious surface where existing impervious surface is removed anywhere on the same site; and "Created" means the amount of new impervious surface being proposed which exceeds the total amount of existing impervious surface at the site.

[6] Per the MRP, pavement that meets the following definition of pervious pavement is NOT an impervious surface. Pervious pavement is defined as pavement that stores and infiltrates rainfall at a rate equal to immediately surrounding unpaved, landscaped areas, or that stores and infiltrates the rainfall runoff volume described in Provision C.3. Gravel pavement is not pervious unless it is constructed using pervious pavement system designs or runoff flows to adjacent landscaping. Pervious off-site areas include landscaped areas such as parking strips and street trees; off-site pervious pavement includes pervious concrete gutters and interlocking permeable concrete paver sidewalks, etc. 7/1/23

C.6 – Construction Stormwater BMPs

Identify Plan sheet showing the appropriate construction Best Management Practices (BMPs) used on this project:
(Applies to all projects with earthwork)

Yes	Plan Sheet	Best Management Practice (BMP)
☑	C5.1, C5.2, C5.3	Control and prevent the discharge of all potential pollutants, including pavement cutting wastes, paints, concrete, petroleum products, chemicals, wash water or sediments, rinse water from architectural copper, and non-stormwater discharges to storm drains and watercourses.
☑	C5.1, C5.2, C5.3	Store, handle, and dispose of construction materials/wastes properly to prevent contact with stormwater.
☑	C5.1, C5.2, C5.3	Do not clean, fuel, or maintain vehicles on-site, except in a designated area where wash water is contained and treated.
☑	C5.1, C5.2, C5.3	Train and provide instruction to all employees/subcontractors re: construction BMPs.
☑	C5.1, C5.2, C5.3	Protect all storm drain inlets in vicinity of site using sediment controls such as berms, fiber rolls, or filters.
☑	C5.1, C5.2, C5.3	Limit construction access routes and stabilize designated access points.
☑	C5.1, C5.2, C5.3	Attach the San Mateo Countywide Water Pollution Prevention Program's construction BMP plan sheet to project plans and require contractor to implement the applicable BMPs on the plan sheet.
☑	C5.1, C5.2, C5.3	Use temporary erosion controls to stabilize all denuded areas until permanent erosion controls are established.
☑	C5.1, C5.2, C5.3	Delineate with field markers clearing limits, easements, setbacks, sensitive or critical areas, buffer zones, trees, and drainage courses.
☑	C5.1, C5.2, C5.3	Provide notes, specifications, or attachments describing the following: ■ Construction, operation and maintenance of erosion and sediment controls, include inspection frequency; ■ Methods and schedule for grading, excavation, filling, clearing of vegetation, and storage and disposal of excavated or cleared material; ■ Specifications for vegetative cover & mulch, include methods and schedules for planting and fertilization; ■ Provisions for temporary and/or permanent irrigation.
☑	C5.1, C5.2, C5.3	Perform clearing and earth moving activities only during dry weather.
☑	C5.1, C5.2, C5.3	Use sediment controls or filtration to remove sediment when dewatering and obtain all necessary permits.
☑	C5.1, C5.2, C5.3	Trap sediment on-site, using BMPs such as sediment basins or traps, earthen dikes or berms, silt fences, check dams, soil blankets or mats, covers for soil stock piles, etc.
☑	C5.1, C5.2, C5.3	Divert on-site runoff around exposed areas; divert off-site runoff around the site (e.g., swales and dikes).
☑	C5.1, C5.2, C5.3	Protect adjacent properties and undisturbed areas from construction impacts using vegetative buffer strips, sediment barriers or filters, dikes, mulching, or other measures as appropriate.

Worksheet B

C.3 – Source Controls

Select appropriate source controls and identify the detail/plan sheet where these elements are shown.

Yes	Detail/Plan Sheet No.	Features that require source control	Source Control Measures (Refer to Local Source Control List for detailed requirements)
☑	C1.2	Storm Drain	Mark on-site inlets with the words "No Dumping! Flows to Bay" or equivalent.
☐		Floor Drains	Plumb interior floor drains to sanitary sewer [or prohibit].
☐		Parking garage	Plumb interior parking garage floor drains to sanitary sewer.[8]
☑	L2.0, L2.1	Landscaping	■ Retain existing vegetation as practicable. ■ Follow ReScape (www.rescapeca.org) principles. Select diverse species appropriate to the site. Include plants that are pest- and/or disease-resistant, drought-tolerant, and/or attract beneficial insects. ■ Minimize use of pesticides and quick-release fertilizers. ■ Use efficient irrigation system; design to minimize runoff.
☐		Pool/Spa/Fountain	Provide connection to the sanitary sewer to facilitate draining.[8]
☐		Food Service Equipment (non-residential)	Provide sink or other area for equipment cleaning, which is: ■ Connected to a grease interceptor prior to sanitary sewer discharge.[8] ■ Large enough for the largest mat or piece of equipment to be cleaned. ■ Indoors or in an outdoor roofed area designed to prevent stormwater run-on and run-off, and signed to require equipment washing in this area.
☐		Refuse Areas	■ Provide a roofed and enclosed area for dumpsters, recycling containers, etc., designed to prevent stormwater run-on and runoff. ■ Connect any drains in or beneath dumpsters, compactors, and tallow bin areas serving food service facilities to the sanitary sewer.[8] ■ For more information, see the New Development Projects Litter Reduction Fact Sheet at: https://www.flowstobay.org/wp-content/uploads/2021/06/New-Dev-Litter-Reduction-Fact-Sheet-060421.pdf
☐		Outdoor Process Activities[9]	Perform process activities either indoors or in roofed outdoor area, designed to prevent stormwater run-on and runoff, and to drain to the sanitary sewer.[8]
☐		Outdoor Equipment/ Materials Storage	■ Cover the area or design to avoid pollutant contact with stormwater runoff. ■ Locate area only on paved and contained areas. ■ Roof storage areas that will contain non-hazardous liquids, drain to sanitary sewer[8], and contain by berms or similar.
☐		Vehicle/ Equipment Cleaning	■ Roofed, pave and berm wash area to prevent stormwater run-on and runoff, plumb to the sanitary sewer[8], and sign as a designated wash area. ■ Commercial car wash facilities shall discharge to the sanitary sewer.[8]
☐		Vehicle/ Equipment Repair and Maintenance	■ Designate repair/maintenance area indoors, or an outdoors area designed to prevent stormwater run-on and runoff and provide secondary containment. Do not install drains in the secondary containment areas. ■ No floor drains unless pretreated prior to discharge to the sanitary sewer.[8] ■ Connect containers or sinks used for parts cleaning to the sanitary sewer.[8]
☐		Fuel Dispensing Areas	■ Fueling areas shall have impermeable surface that is a) minimally graded to prevent ponding and b) separated from the rest of the site by a grade break. ■ Canopy shall extend at least 10 ft. in each direction from each pump and drain away from fueling area.
☐		Loading Docks	■ Cover and/or grade to minimize run-on to and runoff from the loading area. ■ Position downspouts to direct stormwater away from the loading area. ■ Drain water from loading dock areas to the sanitary sewer.[8] ■ Install door skirts between the trailers and the building.
☐		Fire Sprinklers	Design for discharge of fire sprinkler test water to landscape or sanitary sewer.[8]
☐		Miscellaneous Drain or Wash Water	■ Drain condensate of air conditioning units to landscaping. Large air conditioning units may connect to the sanitary sewer.[8] ■ Roof drains from equipment drain to landscaped area where practicable. ■ Drain boiler drain lines, roof top equipment, all wash water to sanitary sewer.[8]
☐		Architectural Copper Rinse Water	■ Drain rinse water to landscaping, discharge to sanitary sewer[8], or collect and dispose properly offsite. See flyer "Requirements for Architectural Copper."[10]

8 Any connection to the sanitary sewer system is subject to sanitary district approval.
9 Businesses that may have outdoor process activities/equipment include machine shops, auto repair, industries with pretreatment facilities.
10 See the Flowstobay website: https://flowstobay.org/wp-content/uploads/2020/04/ArchitecturalcopperBMPs.pdf

Worksheet C

Low Impact Development – Site Design Measures

Select Appropriate Site Design Measures (Required for C.3 Regulated Projects; all other projects are encouraged to implement site design measures, which may be required at municipality discretion.) Projects that create and/or replace between 2,500 and 5,000 sq.ft. of impervious surface, and detached single family homes that create/replace between 2,500 and 10,000 sq.ft. of impervious surface, must include ***one of Site Design Measures a through f*** (Provision C.3.i requirements).[10] Larger (>=5,000 sq.ft) projects must also include applicable Site Design Measures g through i. Consult with municipal staff about requirements for your project.

Select appropriate site design measures and Identify the Plan Sheet where these elements are shown.

Yes	Plan Sheet No.	Site Design Measures
☐		a. Direct roof runoff into cisterns or rain barrels and use rainwater for irrigation or other non-potable use.
☑	C3.1	b. Direct roof runoff onto vegetated areas.
☑	C3.1	c. Direct runoff from sidewalks, walkways, and/or patios onto vegetated areas.
☐		d. Direct runoff from driveways and/or uncovered parking lots onto vegetated areas.
☐		e. Construct sidewalks, walkways, and/or patios with pervious or permeable surfaces. Use the specifications in the C.3 Regulated Projects Guide downloadable at www.flowstobay.org/newdevelopment
☐		f. Construct bike lanes, driveways, and/or uncovered parking lots with pervious surfaces. Use the specifications in the C.3 Regulated Projects Guide downloadable at www.flowstobay.org/newdevelopment
☐		g. Limit disturbance of natural water bodies and drainage systems; minimize compaction of highly permeable soils; protect slopes and channels; and minimize impacts from stormwater and urban runoff on the biological integrity of natural drainage systems and water bodies;
☑	C3.1	h. Conserve natural areas, including existing trees, other vegetation and soils.
☑	C3.1	i. Minimize impervious surfaces.

Regulated Projects can also consider the following site design measures to reduce treatment system sizing:

Yes	Plan Sheet No.	Site Design Measures
☐		j. Self-treating area (see Section 4.2 of the C.3 Regulated Projects Guide)
☐		k. Self-retaining area (see Section 4.3 of the C.3 Regulated Projects Guide)

[10] See MRP Provision C.3.a.i.(6) for non-C.3 Regulated Projects, C.3.c.i.(2)(a) for Regulated Projects, C.3.i for projects that create/replace between 2,500 and 5,000 sq.ft. of impervious surface and detached single family homes that create/replace between 2,500 and 10,000 sq.ft. of impervious surface.

Worksheet D

SI2024-00001
880 STONE PINE RD
03/04/2024

C.3 Regulated Projects and Non-Regulated GI Projects

Stormwater Treatment Measures and Site Design Measures by Drainage Management Area (DMA)

Check all applicable boxes, answer questions and fill in cells related to the site design and treatment measure(s) included in the project.

Drainage Management Area Summary Table

Complete the information below at the Entitlement, Building Permit and Certificate of Occupancy stages for Regulated C.3 Projects and Non-Regulated Green Infrastructure Projects. (The first four cells are automatically filled in from the Project Info sheet.)

Project Name:	Stone Pine Cove		
Project Address:	880 Stone Pine Rd, Half Moon Bay, CA 94019		
Cross Streets:	Erin Ln		
APN:	056-260-180		
Special Project[11]?	No		**of C.3.d amount of runoff treated by Non-LID Systems on the Special Project site.**
C.3 Regulated?	Yes		
Public or Private Project?	Private	Public projects are those on public property or ROW; private projects are on privately-owned property but can include improvements in the public ROW required as part of the project.	

DMA Identification Number	Impervious Area[12] (ft^2)	Pervious Area[13] (ft^2)	Type of Site Design Measure or Treatment Measure[14]	Sizing Criteria Used[15]	Size Required[16]	Size Provided
Example DMA 1	5,000	2,000	Bioretention unlined with underdrain	2c: Flow	208 ft2	220 ft2
Example DMA 2	1,000	1,000	Self-retaining area	Other	< 2:1 ratio	1:1 ratio
Example DMA 3	1,000	-	Infiltration trench	1b: Volume	1,000 ft3	1,100 ft3
1	130,770	72,790	Bioretention lined with underdrain	2c: Flow	5,522	5,540
2	17,220	3,535	Bioretention lined with underdrain	2c: Flow	703	800
3	9,450	6,435	Bioretention lined with underdrain	2c: Flow	404	515
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
add rows, if needed						
TOTALS	157,440	82,760	N/A	N/A	N/A	N/A
Totals from Project Info Sheet Cells	160,440	84,120				

Is the project harvesting and using rainwater? Yes ☐

Rainwater Harvesting/Use Measures:

- ☐ Rainwater Harvesting for indoor non-potable water use
- ☐ Rainwater Harvesting for landscape irrigation use

A long term Operations and Maintenance (O&M) Agreement and Plan for this project will be required. Please contact the municipality for an agreement template and/or consult the C.3 Regulated Projects Guide and table of contents at www.flowstobay.org/newdevelopment for maintenance plan templates for specific facility types.

11 Special Projects are smart growth, high density, transit-oriented or affordable housing developments with the criteria defined in Provision C.3.e.ii.(2), (3) or (4) (see Worksheet F).
12 The sq.ft. of impervious area within the Drainage Management Area
13 The sq.ft. of pervious area within the Drainage Management Area
14 "Lined" refers to an impermeable liner placed on the bottom of a bioretention area, such that no infiltration into native soil occurs.
15 Select from the menu which of the following Provision C.3.d.i hydraulic sizing methods was used, if any. Volume based approaches: 1(a) Urban Runoff Quality Management approach, or 1(b) 80% capture approach (recommended volume-based approach). Flow-based approaches: 2(a) 10% of 50-year peak flow approach, 2(b) 2 times the 85th percentile rainfall intensity approach, 2(c) 0.2-Inch-per-hour intensity approach (recommended flow-based approach - also known as the 4% rule for bioretention), or 3 Combination flow and volume-based approach. "Other" is used for Site Design Measures such as Self-Retaining or Self-Treating Areas.
16 Each DMA should drain to one treatment area (unless it is self-treating or self-retaining). If multiple DMAs are draining to one treatment area, they should be combined into one DMA. If one DMA drains to multiple treatment areas, that DMA should be split up so there is one DMA per treatment area (which allows the treatment area to be properly sized). 7/1/23

Worksheet E
Hydromodification Management

E-1 Is the project a Hydromodification[17] Management (HM) Project?

E-1.1 Is the total impervious area increased over the pre-project condition?

- ☑ Yes. Continue to E-1.2
- ☐ No. Go to Item E-1.3 and check “No.”

E-1.2 Is the site located in an HM Control Area per the HM Control Areas map (Appendix H of the C.3 Regulated Projects Guide)?

- ☑ Yes. Go to E-1.3 and Check "Yes".
- ☐ No. Attach map, indicating project location. Go to Item E-1.3 and check “No.”

E-1.3 Is the project a Hydromodification Management Project?

- ☑ Yes. The project is subject to HM requirements in Provision C.3.g of the Municipal Regional Stormwater Permit.
- ☐ No. The project is EXEMPT from HM requirements.

► If the project is subject to the HM requirements, incorporate in the project flow duration control measures designed such that post-project discharge rates and durations match pre-project discharge rates and durations.

► The Bay Area Hydrology Model (BAHM) has been developed to help size flow duration controls. See www.clearcreeksolutions.info/downloads. Guidance is provided in Chapter 7 of the C.3 Regulated Projects Guide.

E-2 Incorporate HM Controls (if required)

Are the applicable items provided with the Plans?

Yes	No	NA	
☑	☐	☐	Site plans with pre- and post-project impervious surface areas, surface flow directions of entire site, locations of flow duration controls and site design measures per HM site design requirement
☑	☐	☐	Soils report or other site-specific document showing soil type(s) on site
☑	☐	☐	If project uses the Bay Area Hydrology Model (BAHM), a list of model inputs and outputs.
☐	☐	☑	If project uses custom modeling, a summary of the modeling calculations with corresponding graph showing curve matching (existing, post-project, and post-project with HM controls curves), goodness of fit, and (allowable) low flow rate.
☐	☐	☑	If project uses the Impracticability Provision, a listing of all applicable costs and a brief description of the alternative HM project (name, location, date of start up, entity responsible for maintenance).
☐	☐	☑	If the project uses alternatives to the default BAHM approach or settings, a written description and rationale.

17 Hydromodification is the change in a site’s runoff hydrograph, including increases in flows and durations that results when land is developed (made more impervious). The effects of hydromodification include, but are not limited to, increased bed and bank erosion of receiving streams, loss of habitat, increased sediment transport and/or deposition, and increased flooding. Hydromodification control measures are designed to reduce these effects.

Worksheet F
Special Projects

SI2024-00001
880 STONE PINE RD
03/04/2024

Complete this worksheet for projects that appear to meet the definition of fiSpecial Projectfl, per Provision C.3.e.ii of the Municipal Regional Stormwater Permit (MRP). The form assists in determining whether a project meets Special Project criteria, and the percentage of low impact development (LID) treatment reduction credit. Special Projects that implement less than 100% LID treatment must provide a narrative discussion of the feasibility or infeasibility of 100% LID treatment. See Appendix J of the C.3 Regulated Projects Guide (download at www.flowstobay.org/newdevelopment) for more information.

F-1

"Special Project" Determination (Check the boxes to determine if the project meets any of the following categories.)

Special Project Category "A"

Does the project have ALL of the following characteristics?

- ☐ Located in a municipality's designated central business district, downtown core area or downtown core zoning district, neighborhood business district or comparable pedestrian-oriented commercial district, or historic preservation site and/or district;
- ☐ Creates and/or replaces 0.5 acres or less of impervious surface - enter answer in F-2 table;
- ☐ Includes no surface parking, except for incidental parking for emergency vehicle access, ADA access, and passenger or freight loading zones;
- ☐ Has at least 85% coverage of the entire site by permanent structures. The remaining 15% portion of the site may be used for safety access, parking structure entrances, trash and recycling service, utility access, pedestrian connections, public uses, landscaping and stormwater treatment - enter answer in F-2 Table

☐ No (continue)

☐ Yes – Complete Section F-2 below

Special Project Category "B"

Does the project have ALL of the following characteristics?

- ☐ Located in a municipality's designated central business district, downtown core area or downtown core zoning district, neighborhood business district or comparable pedestrian-oriented commercial district, or historic preservation site and/or district[15];
- ☐ Creates and/or replaces more than 0.5 acres of impervious area and less than 2.0 acres - enter answer in F-2 Table;
- ☐ Includes no surface parking, except for incidental parking for emergency access, ADA access, and passenger or freight loading zones;
- ☐ Has at least 85% coverage of the entire site by permanent structures. The remaining 15% portion of the site may be used for safety access, parking structure entrances, trash and recycling service, utility access, pedestrian connections, public uses, landscaping and stormwater treatment - enter answer in F-2 Table;
- ☐ Minimum gross density of either 50 dwelling units per acre (for residential projects) or a Floor Area Ratio (FAR) of 2:1 (for commercial projects) - mixed use projects may use either criterion[16] - enter answer in F-2 Table;

☐ No (continue)

☐ Yes – Complete Section F-2 below

Special Project Category "C"

Complete the Special Project Category C - Affordable Housing Credit Calculator (AHCC) Worksheet.

Does the project meet ALL of the required characteristics for Category C?

☐ No

☐ Yes – Complete Section F-2 below

[15] And built as part of a municipality's stated objective to preserve/enhance a pedestrian-oriented type of urban design.

[16] The MRP establishes definitions for "Gross Density"(GD) & FAR. GD is defined as, "the total number of residential units divided by the acreage of the entire site area, including land occupied by public right-of-ways, recreational, civic, commercial and other non-residential uses." FAR is defined as," the Ratio of the total floor area on all floors of all buildings at a project site (except structures, floors, or floor areas dedicated to parking) to the total project site area.

F-2 LID Treatment Reduction Credit Calculation

If more than one category applies, choose only one of the applicable categories and fill out the table for that category. Fill in all cells with blue highlighting that pertain to the chosen Special Project Category.

Category	Impervious Area Created/Replaced (sq. ft.)	Site Coverage (%)	Project Density[16] or FAR[16]	Density/Criteria	Allowable Credit (%)	Applied Credit (%)
A			N.A.	See above in F-1	100%	
B				Res ≥ 50 DU/ac or FAR ≥ 2:1	50%	
				Res ≥ 75 DU/ac or FAR ≥ 3:1	75%	
				Res ≥ 100 DU/ac or FAR ≥ 4:1	100%	
C	Affordable Housing Credit - from AHCC Worksheet):					
					TOTAL CREDIT =	0%

F-3 Narrative Discussion of the Feasibility/Infeasibility of 100% LID Treatment:

If project will implement less than 100% LID, prepare a discussion of the feasibility or infeasibility of 100% LID treatment, as described in Appendix J of the C.3 Regulated Projects Guide.

F-4 Select Certified Non-LID Treatment Measures:

If the project will include non-LID treatment measures, select a treatment measure certified for "Basic" General Use Level Designation (GULD) by the Washington State Department of Ecology's Technical Assessment Protocol – Ecology (TAPE[17]). See guidance in Appendix J of the C.3 Regulated Projects Guide (www.flowstobay.org/newdevelopment).

[17] TAPE certification is used in order to satisfy Special Project's reporting requirements in the MRP.

Worksheet G
(For municipal staff use only)

SI2024-00001
880 STONE PINE RD
03/04/2024

G-1 **Alternative Certification:** Were the treatment and/or HM control sizing and design reviewed by a qualified third-party professional that is not a member of the project team or agency staff?

☐ Yes ☐ No Name of Reviewer: _____

G-2 **High Priority Site:** High Priority Sites can include those located in or within 100 feet of a sensitive habitat, an Area of Special Biological Significance (ASBS), a body of water, or on "hillside projects" disturbing >=5,000 sq.ft. of land and with steep slopes (of >=15% - see cell **I.A.5** - or as identified by municipal criteria or map). These sites are subject to monthly inspections from Oct 1 to April 30. See MRP Provision C.6.e.ii.(2)(b) and C.6.e.ii.(2)(c).

☑ Yes ☐ No If yes, then add site to Staff's Monthly Rainy Season Construction Site Inspection List

G-3

Inspections of Sites with Pervious Pavement: Regulated projects that are installing 3,000 sq.ft. or more of pervious pavement (see cell **I.B.1.g**) (excluding private-use patios in single family homes, townhomes, or condominiums) must have the pavement system inspected by the jurisdiction upon completion of the installation and the site must be added to the jurisdiction's list of sites needing inspections at least once every five years – see provision C.3.h. Pervious pavement systems include pervious concrete, pervious asphalt, pervious pavers and grid pavers etc. and are described in the C3 Regulated Projects Guide downloadable at: www.flowstobay.org/newdevelopment.

☐ Yes ☐ No If yes, then add site to Staff's Lists for Construction and O&M inspections (C.3 and C.3.h)

Operations and Maintenance (O&M) Submittals

G-4 Stormwater Treatment Measure and/HM Control Owner or Operator's Information:

Name: _____

Address: _____

Phone: _____ Email: _____

► Applicant must call for inspection and receive inspection at completion of installation of treatment measures and/or hydromodification management controls including any pervious pavement areas of 3,000 sq.ft. or more.

The following questions apply to C.3 Regulated Projects and Hydromodification Management Projects.

		Yes	No	N/A
G-4.1	Was maintenance plan submitted?	☐	☐	☐
G-4.2	Was maintenance plan approved?	☐	☐	☐
G-4.3	Was maintenance agreement submitted? (Date executed: _____)	☐	☐	☐

► Attach the executed maintenance agreement as an appendix to this checklist.

G-5 **Annual Operations and Maintenance (O&M) Submittals (for municipal staff use only):**

For C.3 Regulated Projects and Hydromodification Management Projects, indicate the dates on which the Applicant submitted annual reports for project O&M:

_____

G-6 **Comments (for municipal staff use only):**

G-7 **NOTES (for municipal staff use only):**

Project Info Notes: _____

Worksheet A Notes: _____

Worksheet B Notes: _____

Worksheet C Notes: _____

Worksheet D Notes: _____

Worksheet E Notes: _____

Worksheet F Notes: _____

G-8 Project Close-Out (for municipal staff use only):

		Yes	No	N/A
8.1	Were final Conditions of Approval met?	☐	☐	
8.2	Was initial inspection of the completed treatment/HM measure(s) conducted? (Date of inspection: _____)	☐	☐	☐
8.3	Was maintenance plan submitted? (Date executed: _____)	☐	☐	☐
8.4	Was project information provided to staff responsible for O&M verification inspections? (Date provided to inspection staff: _____)	☐	☐	☐

G-9 Project Close-Out (Continued -- for municipal staff use only):

Name of staff confirming project is closed out: _____

Signature: _____ Date: _____

Name of O&M staff receiving information: _____

Signature: _____ Date: _____

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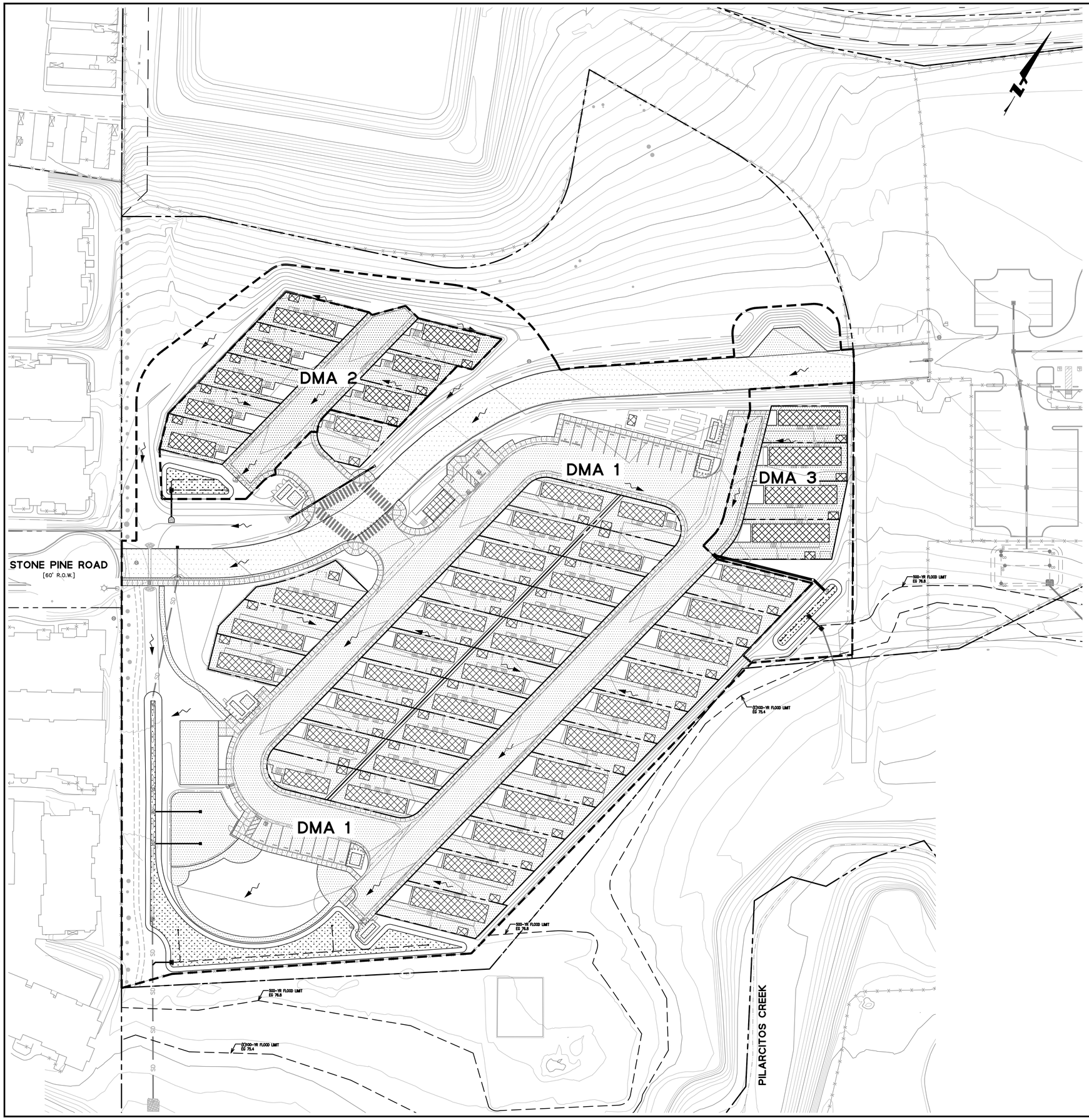

LEGEND:

- DMA BOUNDARY
- FLOW DIRECTION ARROW
- CREATED/REPLACED IMPERVIOUS HARDSCAPE
- CREATED/REPLACED IMPERVIOUS BUILDING
- EXISTING IMPERVIOUS HARDSCAPE RETAINED
- EXISTING IMPERVIOUS BUILDING RETAINED
- PROPOSED TREATMENT AREA

ONSITE TRIBUTARY AREA

DRAINAGE MANAGEMENT AREA (DMA)	IMPERVIOUS AREA	PERVIOUS AREA	EFFECTIVE IMPERVIOUS AREA	REQUIRED TREATMENT AREA	PROVIDED TREATMENT AREA
DMA 1	133,075	70,505	140,126	4,008	4,750
DMA 2	18,960	3,155	19,275	550	710
DMA 3	10,045	7,525	10,798	289	430
TOTAL	162,080	81,185	170,199	4,847	5,890

1. THE SIZE OF THE BIORETENTION AREA CALCULATED USING THE COMBINATION FLOW AND VOLUME DESIGN BASIS AS DESCRIBED IN THE SAN MATEO COUNTY C.3 REGULATED PROJECT GUIDE.
2. EFFECTIVE IMPERVIOUS AREA IS EQUAL TO THE TOTAL IMPERVIOUS ARE PLUS 0.1 TIMES THE TOTAL PERVIOUS AREA PER THE SAN MATEO COUNTY C.3 REGULATED PROJECTS GUIDE.

0 30 60
GRAPHIC SCALE

SEE SHEETS CO.0 AND CO.1 FOR NOTES AND LEGENDS

811 Know what's **below.** **Call** before you dig.

BKF Engineers
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STORMWATER CONTROL PLAN
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

REVIEW ONLY
NOT FOR CONSTRUCTION

No.	Revisions	Date

Date 01/26/2024
Scale 1" = 30'
Design DJP
Drawn DLG
Approved DJL
Job No. 20211367-15

Drawing Number:
C5.1
OF

DRAWING NAME: K:\2021\211367-15_HMB_Corpyard_Housing\ENG\vmbsheets.dwg
PLOT DATE: 02-08-24 PLOTTED BY: gold

Post-Construction Compliance

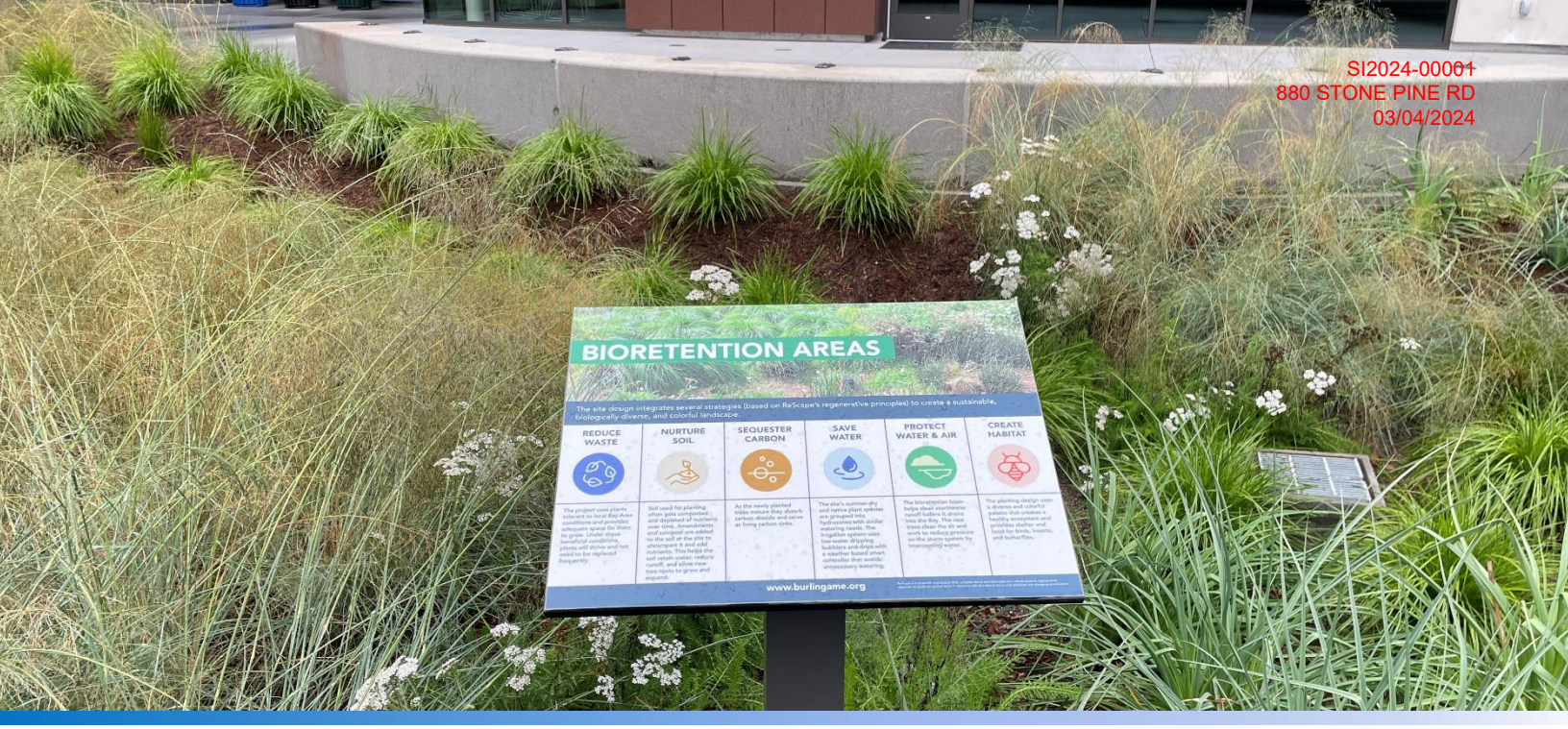
San Mateo Countywide Water Pollution Prevention Program Requirements are available @

https://www.smcgov.org/planning/stormwater-treatment-requirements

SMCWPPP C.3 Guide available @:

https://www.flowstobay.org/preventing-stormwater-pollution/with-new-redevelopment/c-3-regulated-projects/

SMCWPPP C.3 Guide
(Titlesheet only Included)



SI2024-00001
880 STONE PINE RD
03/04/2024

C.3 Regulated Projects Guide

For use by developers, builders and project applicants to design and build low impact development projects

Version 2.0 | September 2023

SAN MATEO COUNTYWIDE
Water Pollution Prevention Program
Clean Water. Healthy Community.

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Appendix C: SWPPP Amendment QSD Certifications

SWPPP Amendment No. _____

Project Name: Stone Pine Cove

Project Number: BKF Job#20211367 / WDID#

Qualified SWPPP Developer's Certification of the Stormwater Pollution Prevention Plan Amendment

"This Stormwater Pollution Prevention Plan and its appendices were prepared under my direction to meet the requirements of the 2022 CGP (SWRCB Order No. 2022-0057-DWQ). I certify that I am a Qualified SWPPP Developer in good standing as of the date signed below."

QSD's Signature	Date
Monica A. Cardenas	28484
QSD Name	QSD Certificate Number
Senior Project Engineer	408-467-9168
Title and Affiliation	Telephone
255 Shoreline Drive, Suite 200 Redwood City, CA 94065	mcardenas@bkf.com
Address	Email

Appendix D: Submitted Changes of Information

Log of Updated PRDs

The 2022 CGP allows for the reduction or increase of the total acreage when a portion of the project is complete and/or conditions for termination of coverage have been met; when ownership of a portion of the project is purchased by a different entity; or when new acreage is added to the project.

A Change of Information (COI) shall be filed electronically within the timeframe shown in the table below. The SWPPP shall be modified appropriately, with revisions and amendments recorded in the SWPPP Amendment Log at the front of the SWPPP. COIs submitted electronically via SMARTS can be found in this Appendix.

Reason for Filing COI	**Timeline for Filing COI**
Reduction or increase in total disturbed area	Within 30 days of the reduction or increase
Updating site specific BMPs	Within 14 days of design change
Change construction start or end date	At least 14 days prior to the date to be changed
Post-construction plans updated or approved by the municipal stormwater permittee	Within 14 days of approval

---

This appendix includes all of the following updated PRDs (check all that apply):

☐ Change of Information;

☐ Revised Site Map;

☐ Revised Risk Assessment;

☐ New landowner's information (name, address, phone number, email address); and

☐ New signed certification statement.

Legally Responsible Person or Duly Authorized Representative	Date
Legally Responsible Person or Duly Authorized Representative	Telephone Number

Appendix E: Construction Schedule

00800
SPECIAL PROVISIONS

1.1 CONSTRUCTION MILESTONE SCHEDULE

The time for completion of all Work is within **304 calendar days** of the date of the Notice to Proceed, which shall be in accordance with the General Conditions. Included in this duration are all weather-related delays. As indicated in Section 00700 - Scope of Work, Contractor is responsible to provide all necessary dewatering, additional shoring, tarping, tents, as necessary to implement this project.

Time for completion of milestones is as set forth in the below Construction Milestone Schedule. Any extensions of time for completion of milestones are governed by the same terms and restrictions as applicable to extensions of the Contract Time referenced in the General Conditions..

Schedule of Work to accommodate the following milestone requirements:

Bid Date	March 13, 2024
Anticipated BOS Approval of Construction Agreement	April 9, 2024
Anticipated Notice to Proceed (NTP) #1 for Grading Work	April 10, 2024
Project Kickoff Meeting (no later than)	Week of April 15, 2024
Mobilization and Start of Grading Work (no later than)	Week of April 15, 2024
Complete Site Grading Work	July 5, 2024
Grading Work Punchlist and Corrective Work	July 8 to July 11, 2024
Grading Work Substantial Completion	July 12, 2024
Anticipated Notice to Proceed #2 for Site Improvement Work	July 8, 2024
Complete roadway/drives, utilities infrastructure/ stub-outs, and building pads for start of delivery and setting of Manufactured Housing units	November 22, 2024
Complete Site Improvement Installation	January 31, 2025
Punchlist, Corrective work, and Final Cleaning	February 3 to February 6, 2025
Contract Completion Date	February 7, 2025
Ready for Occupancy	February 10, 2025

1.2 COUNTY ALLOWANCE

County allowance listed on the bid form is to be used only for approved change orders. County allowance shall be a line item in the Schedule of Values. Any unused allowance shall be returned to the County.

1.3 MAINTENANCE TRAINING

Contractor to provide on-site maintenance training for County personnel. Time and date of the training will be coordinated prior to completion of the project.

Appendix F: Construction Activities, Materials Used, and Associated Pollutants

Table F.1 Pollutant Source Assessment Form

Phase	Activity	Associated Materials or Pollutants	Pollutant Category (1)
Demolition and Pre-Development Site Preparation Phase	Removal of existing structures	Asphalt, concrete, masonry, framing, roofing, and metal structures debris	Metals, Oil and Grease, Synthetic Organics
	Vehicle and equipment use	Equipment operation, maintenance, washing & fueling	Oil and Grease
	Planting / Vegetation	Vegetation removal	Nutrients, Metals, Synthetic Organics
	Solid Waste	Litter, trash and debris, and vegetation	Gross Pollutants
	Sanitary Waste	Portable toilets, disturbance of existing sewer lines	Nutrients
	Liquid Waste	Wash waters	Metals, Synthetic Organics
Grading and Land Development	Planting / Vegetation	Vegetation removal	Nutrients, Metals, Synthetic Organics
	Grading	Sediment	Sediment
	Vehicle and equipment use	Equipment operation, maintenance, washing & fueling	Oil and Grease
	Solid Waste	Litter, trash and debris, and vegetation	Gross Pollutants
	Sanitary Waste	Portable toilets, disturbance of existing sewer lines	Nutrient
	Liquid Waste	Wash waters	Metals, Synthetic Organics
	Soil Preparation /Amendments	Use of soil additives/ amendments	Nutrients
Streets and Utilities Phase	Asphalt paving	Hot and cold mix asphalt, sawcut slurries	Oil and Grease
	Removal of existing structures	Demolition of asphalt, concrete, masonry, sawcutting	Oil and Grease
	Planting / Vegetation	Vegetation removal	Nutrients, Metals, Synthetic Organics
	Concrete / Masonry	Cement and brick dust, colored chalks, concrete curing compounds, glazing compounds, surfaces cleaners, saw cut slurries, and tile cutting	Metals, Synthetic Organics
	Liquid waste	Wash waters and irrigation line testing/flushing	Metals, Synthetic Organics
	Plumbing	Solder (lead, tin), flux (zinc chloride), pipe fitting; Galvanized metal in nails, fences and electric wiring	Metals, Synthetic Organics
	Solid Waste	Litter, trash and debris, and vegetation	Gross Pollutants
	Sanitary Waste	Portable toilets, disturbance of existing sewer lines	Nutrients
	Soil Prep/Amendments	Use of Soil Amendments	Nutrients
	Vehicle and equipment use	Equipment operation, maintenance, washing & fueling	Oil and Grease
	Utility line testing and flushing	Hydrostatic test water and pipe flushing	Synthetic Organics

Vertical Construction Phase	Concrete / Masonry	Cement and brick dust, colored chalks, concrete curing compounds, glazing compounds, surfaces cleaners, saw cut slurries, and tile cutting	Metals, Synthetic Organics
	Adhesives	Adhesives, glues, resins, epoxy synthetics, PVC cement, caulks, sealers, putty, sealing agents, and coal tars (naphtha pitch)	Oil and Grease, Synthetic Organics
	Construction of Insulation	Construction involving insulation and venting systems	Metals, Synthetic Organics
	Cleaners	Polishes (metal, ceramic, tile) etching agents, cleaners, ammonia, lye, caustic soda	Metals, Synthetic Organics
	Construction of Heating, Ventilation and Air Conditioning Systems	Ducts, electrical wire, installation	Metals, Synthetic Organics
	Drywall	Saw-cutting drywall	Metals
	Roofing	Flashing, saw cut slurries (tile cutting), shingle scrap and debris	Metals, Oil and Grease, Synthetic Organics
	Framing/Carpentry		Metals, Synthetic Organics
	Liquid waste	Wash waters and irrigation line testing/flushing	Metals, Synthetic Organics
	Hydrostatic test water and pipe flushing	Synthetic Organics	Utility line testing and flushing
	Equipment operation, maintenance, washing, & fueling	Oil and Grease	Vehicle and equipment use
	Painting	Paint thinners, acetone, methyl ethyl ketone, stripper paints, lacquers, varnish, enamels, turpentine, gum spirit, solvents, dyes, stripping pigments and sanding	Metals, Synthetic Organics
	Plumbing	Solder (lead, tin), flux (zinc chloride), pipe fitting; Galvanized metal in nails, fences and electric wiring	Metals, Synthetic Organics
	Solid Waste	Litter and trash and debris	Gross pollutants
	Sanitary Waste	Portable toilets, disturbance of existing sewer lines	Nutrients
Final Landscaping and Site Stabilization Phase	Planting / Vegetation	Vegetation control (pesticides/herbicides), planting and plant maintenance	Nutrients, Metals, Synthetic Organics
	Vehicle and equipment use	Equipment operation, maintenance, washing, & fueling	Oil and Grease
	Solid Waste	Litter and trash and debris	Gross Pollutants
	Liquid waste	Wash waters and irrigation line testing/flushing	Metals, Synthetic Organics

	Plumbing	Solder (lead, tin), flux (zinc chloride), pipe fitting, and galvanized metal in nails, fences, and electric wiring	Metals, Synthetic Organics
	Soil preparation/amendments	Use of soil additives/amendments	Nutrients

(1) Categories per CASQA BMP Handbook (i.e., Sediment, Nutrients, Bacteria and Viruses, Oil and Grease, Metals, Synthetic Organics, Pesticides, Gross Pollutants, and Vector Production)

Appendix G: CASQA Stormwater BMP Handbook: Construction Fact Sheets

Appendix H: BMP Inspection Form

BMP INSPECTION REPORT

Date and Time of Inspection:			Date Report Written:		
Inspection Type: (Circle one)	Weekly *Complete Parts I,II,III and VII*	Pre-Qualifying Precipitation Event (QPE) *Complete Parts I,II,III,IV and VII*	During QPE *Complete Parts I, II, III, V, and VII*	Post-QPE *Complete Parts I,II,III,VI and VII*	*Inactive Project Complete Parts I,II,III and VII*

Part I. General Information

Site Information

Construction Site Name:			
Construction stage and completed activities:			Approximate area of site that is exposed:
Photos Taken: (Circle one)	Yes	No	Photo Reference IDs:

Weather

Estimate storm beginning: (date and time)	Estimate storm duration: (hours)
Estimate time since last storm: (days or hours)	Rain gauge reading and location: (in)

Is a "Qualifying Precipitation Event" predicted or did one occur (i.e., any weather pattern with a 50% chance of 0.5" or more within a 24-hr period when 0.5" has been forecast and continues on subsequent 24-hour periods when 0.25" of precipitation or more is forecast)? (Y/N)
If yes, summarize forecast:

Exception Documentation (explanation required if inspection could not be conducted). Visual inspections are not required outside of business hours or during dangerous weather conditions such as electrical storms, flooding, and high winds above 40 miles per hour.

Inspector Information

Inspector Name:	Inspector Title:
Inspector Certification:	Date:

Part II. BMP Observations. Describe deficiencies in Part III.

Minimum BMPs for Risk Level _____ Sites	Adequately designed, implemented and effective (yes, no, N/A)	Action Required (yes/no)	Action Implemented (Date)
Good Housekeeping for Construction Materials			
Inventory of products (excluding materials designed to be outdoors)			
Stockpiled construction materials not actively in use are covered and bermed			
All chemicals are stored in watertight containers with appropriate secondary containment, or in a completely enclosed storage shed			
Construction materials are minimally exposed to precipitation			
BMPs preventing the off-site tracking of materials are implemented and properly effective			
Good Housekeeping for Waste Management			
Wash/rinse water and materials are prevented from being disposed into the storm drain system			
Portable toilets are contained to prevent discharges of waste			
Sanitation facilities are clean and with no apparent for leaks and spills			
Equipment is in place to cover waste disposal containers at the end of business day and during rain events			
Discharges from waste disposal containers are prevented from discharging to the storm drain system / receiving water			
Stockpiled waste material is securely protected from wind and rain if not actively in use			
Procedures are in place for addressing hazardous and non-hazardous spills			
Appropriate spill response personnel are assigned and trained			
Equipment and materials for cleanup of spills is available onsite			
Washout areas (e.g., concrete) are contained appropriately to prevent discharge or infiltration into the underlying soil			
Good Housekeeping for Vehicle Storage and Maintenance			
Measures are in place to prevent oil, grease, or fuel from leaking into the ground, storm drains, or surface waters			
All equipment or vehicles are fueled, maintained, and stored in a designated area with appropriate BMPs			
Vehicle and equipment leaks are cleaned immediately and disposed of properly			

Part II. BMP Observations Continued. Describe deficiencies in Part III.			
Minimum BMPs for Risk Level _____ Sites	Adequately designed, implemented and effective	Action Required (yes/no)	Action Implemented (Date)

	(yes, no, N/A)		
Good Housekeeping for Landscape Materials			
Stockpiled landscape materials such as mulches and topsoil are contained and covered when not actively in use			
Erodible landscape material has not been applied 2 days before a forecasted rain event or during an event			
Erodible landscape materials are applied at quantities and rates in accordance with manufacturer recommendations			
Bagged erodible landscape materials are stored on pallets and covered			
Good Housekeeping for Air Deposition of Site Materials			
Good housekeeping measures are implemented onsite to control the air deposition of site materials and from site operations			
Non-Stormwater Management			
Non-Stormwater discharges are properly controlled			
Vehicles are washed in a manner to prevent non-stormwater discharges to surface waters or drainage systems			
Streets are cleaned in a manner to prevent unauthorized non-stormwater discharges to surface waters or drainage systems.			
Erosion Controls			
Wind erosion controls are effectively implemented			
Effective soil cover is provided for disturbed areas inactive (i.e., not scheduled to be disturbed for 14 days) as well as finished slopes, open space, utility backfill, and completed lots			
The use of plastic materials is limited in cases when a more sustainable, environmentally friendly alternative exists.			
Sediment Controls			
Perimeter controls are established and effective at controlling erosion and sediment discharges from the site			
Entrances and exits are stabilized to control erosion and sediment discharges from the site			
Sediment basins are properly maintained			
Inspect immediate access roads prior to forecasted precipitation			
Linear sediment control along toe of slope, face of slope an at grade breaks (Risk Level 2 & 3 Only)			
Limit construction activity to and from site to entrances and exits that employ effective controls to prevent offsite tracking (Risk Level 2 & 3 Only)			
Ensure all storm, drain inlets and perimeter controls, runoff control BMPs and pollutants controls at entrances and exits are maintained and protected from activities the reduce their effectiveness (Risk Level 2 & 3 Only)			
Run-On and Run-Off Controls			
Run-on to the site is effectively managed and directed away from all disturbed areas.			

Other			
Are the project SWPPP and BMP plan up to date, available onsite and being properly implemented?			
Is the posting of the project's unique WDID number, waiver identification number, and site and project contact information publicly accessible?			

Part III. Descriptions of BMP Deficiencies

Deficiency	Repairs Implemented: Note - Repairs must begin within 72 hours of identification and, complete repairs as soon as possible.	
	Start Date	Action
1.		
2.		
3.		
4.		

Part IV. Additional Pre-QPE Observations. Note the presence or absence of floating and suspended materials, sheen, discoloration, turbidity, odors, and source(s) of pollutants(s).

	Yes, No, N/A
Do stormwater storage and containment areas have adequate freeboard? If no, complete Part III.	
Are drainage areas free of spills, leaks, or uncontrolled pollutant sources? If no, complete Part VII and describe below.	
Notes:	
Are stormwater storage and containment areas free of leaks? If no, complete Parts III and/or VII and describe below.	
Notes:	

Part V. Additional During-QPE Observations. If BMPs cannot be inspected during inclement weather, list the results of visual inspections at all relevant outfalls, discharge points, and downstream locations. Note odors or visible sheen on the surface of discharges. Complete Part VII (Corrective Actions) as needed.

Outfall, Discharge Point, or Other Downstream Location	
Location	Description

Location	Description
Location	Description
Location	Description

Part VI. Additional Post-QPE Observations. Visually observe (inspect) stormwater discharges at all discharge locations within 96 hours after each qualifying precipitation event, and observe (inspect) the discharge of stored or contained stormwater that is derived from and discharged subsequent to a qualifying precipitation event producing precipitation of ½ inch or more at the time of discharge. Complete Part VII (Corrective Actions) as needed.	
Discharge Location, Storage or Containment Area	**Visual Observation**

Part VII. Additional Corrective Actions Required. Identify additional corrective actions not included with BMP Deficiencies (Part III) above. Note if SWPPP change is required.	
Required Actions	**Implementation Date**

Appendix I: Training Forms

Contractor Personnel Training Log

Stormwater Management Training Log and Documentation

Project Name: Stone Pine Cove

WDID #: _____

Stormwater Management Topic: (check as appropriate)

☐ Good Housekeeping BMPs ☐ Erosion Control BMPs

☐ Sediment Control BMPs ☐ Tracking Control

☐ Non-Stormwater Management BMPs ☐ Waste Management & Pollution Control BMPs

☐ BMP Implementation Activities ☐ Advanced BMPs

☐ Identification of QSPs and QSP Delegates

Training Objective: _____

Date: _____ Instructor:_____

Training Length (hours): _____

Attendee Roster (Attach additional forms if necessary)

Name	Company	Phone

Field Meters on site: ☐ Rain Gauge ☐ pH Meter ☐ Turbidity Meter

Initials:_____

QSP Delegate Training Log

Stormwater Management Training Log and Documentation

Project Name: Stone Pine Cove

WDID #: _____

QSP Delegate Name: _____

Delegated Responsibilities:

☐ Stormwater Visual Inspections

☐ Sampling

☐ BMP Inspections

☐ BMP Maintenance and Repair

Foundational Training

Topic	Date Completed	QSP Trainer
☐ Roles and Responsibilities		
☐ Forecast Information		
☐ Documentation and Reporting Procedures		

Site-Specific Training

Topic	Date Completed	QSP Trainer
☐ Visual Inspections		
☐ Sample Collection Procedures		
☐ Sample Reporting Procedures		
☐ BMP Implementation		

As needed, attach proof of external training (e.g., course completion certificates, credentials for the QSP Delegate).

Appendix J: Responsible Parties

Identification of QSP and QSP Delegates

Project Name: Stone Pine Cove

WDID #: _____

The following are QSPs and QSP Delegates associated with this project

Name of Personnel(1)	QSP Number, or state "Delegate"	Company	Date

(1) If additional QSPs or QSP Delegates are required on the job site add additional lines

Appendix K: Contractors and Subcontractors

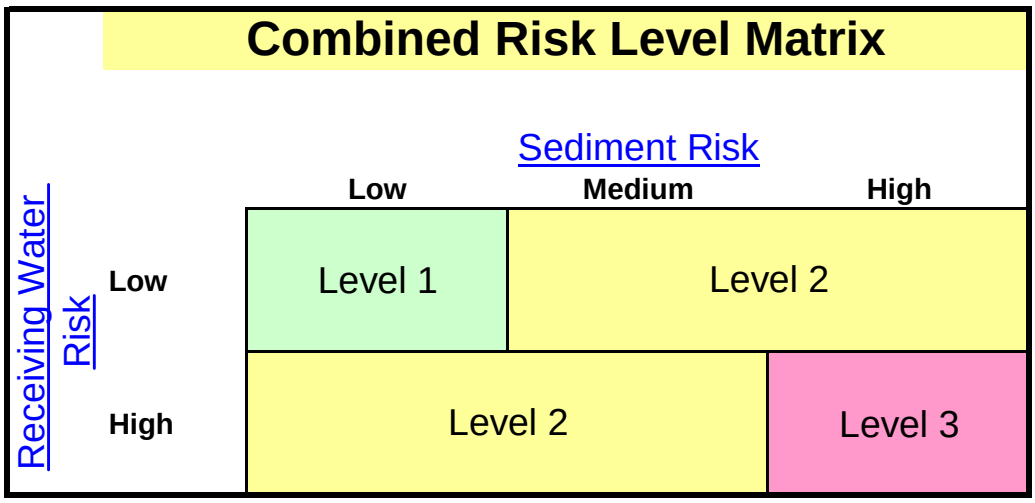
Contractor Name:	TBD
Title:	TBD
Contractor Company:	TBD
Address	TBD
Phone Number:	TBD
Phone Number (24/7)	TBD

Appendix L: Calculations (Risk Analysis)

	A	B	C
1	**Sediment Risk Factor Worksheet**		**Entry**
2	**A) R Factor**		
3	Analyses of data indicated that when factors other than rainfall are held constant, soil loss is directly proportional to a rainfall factor composed of total storm kinetic energy (E) times the maximum 30-min intensity (I30) (Wischmeier and Smith, 1958). The numerical value of R is the average annual sum of EI30 for storm events during a rainfall record of at least 22 years. "Isoerodent" maps were developed based on R values calculated for more than 1000 locations in the Western U.S. Refer to the link below to determine the R factor for the project site.		
4	http://water.epa.gov/polwaste/npdes/stormwater/LEW-Results.cfm		
5	**R Factor Value**		50.24
6	**B) K Factor (weighted average, by area, for all site soils)**		
7	The soil-erodibility factor K represents: (1) susceptibility of soil or surface material to erosion, (2) transportability of the sediment, and (3) the amount and rate of runoff given a particular rainfall input, as measured under a standard condition. Fine-textured soils that are high in clay have low K values (about 0.05 to 0.15) because the particles are resistant to detachment. Coarse-textured soils, such as sandy soils, also have low K values (about 0.05 to 0.2) because of high infiltration resulting in low runoff even though these particles are easily detached. Medium-textured soils, such as a silt loam, have moderate K values (about 0.25 to 0.45) because they are moderately susceptible to particle detachment and they produce runoff at moderate rates. Soils having a high silt content are especially susceptible to erosion and have high K values, which can exceed 0.45 and can be as large as 0.65. Silt-size particles are easily detached and tend to crust, producing high rates and large volumes of runoff. Use Site-specific data must be submitted.		
8	Site-specific K factor guidance		
9	**K Factor Value**		0.32
10	**C) LS Factor (weighted average, by area, for all slopes)**		
11	The effect of topography on erosion is accounted for by the LS factor, which combines the effects of a hillslope-length factor, L, and a hillslope-gradient factor, S. Generally speaking, as hillslope length and/or hillslope gradient increase, soil loss increases. As hillslope length increases, total soil loss and soil loss per unit area increase due to the progressive accumulation of runoff in the downslope direction. As the hillslope gradient increases, the velocity and erosivity of runoff increases. Use the LS table located in separate tab of this spreadsheet to determine LS factors. Estimate the weighted LS for the site prior to construction.		
12	LS Table		
13	**LS Factor Value**		0.65
14			
15	**Watershed Erosion Estimate (=RxKxLS) in tons/acre**		10.44992
16	**Site Sediment Risk Factor**		**Low**
17	Low Sediment Risk: < 15 tons/acre		
18	Medium Sediment Risk: >=15 and <75 tons/acre		
19	High Sediment Risk: >= 75 tons/acre		
20			

Receiving Water (RW) Risk Factor Worksheet	Entry	Score
A. Watershed Characteristics	**yes/no**	
A.1. Does the disturbed area discharge (either directly or indirectly) to a **303(d)-listed waterbody impaired by sediment?** **OR** A.2. Does the disturbed area discharge to a waterbody with designated beneficial uses of SPAWN, COLD **and** MIGRATORY? (For help please review the appropriate Regional Board Basin Plan) http://www.waterboards.ca.gov/waterboards_map.shtml	**Yes**	**High**
Region 1 Basin Plan Region 2 Basin Plan Region 3 Basin Plan Region 4 Basin Plan Region 5 Basin Plan Region 6 Basin Plan Region 7 Basin Plan Region 8 Basin Plan Region 9 Basin Plan		

Combined Risk Level Matrix



Project Sediment Risk: Low

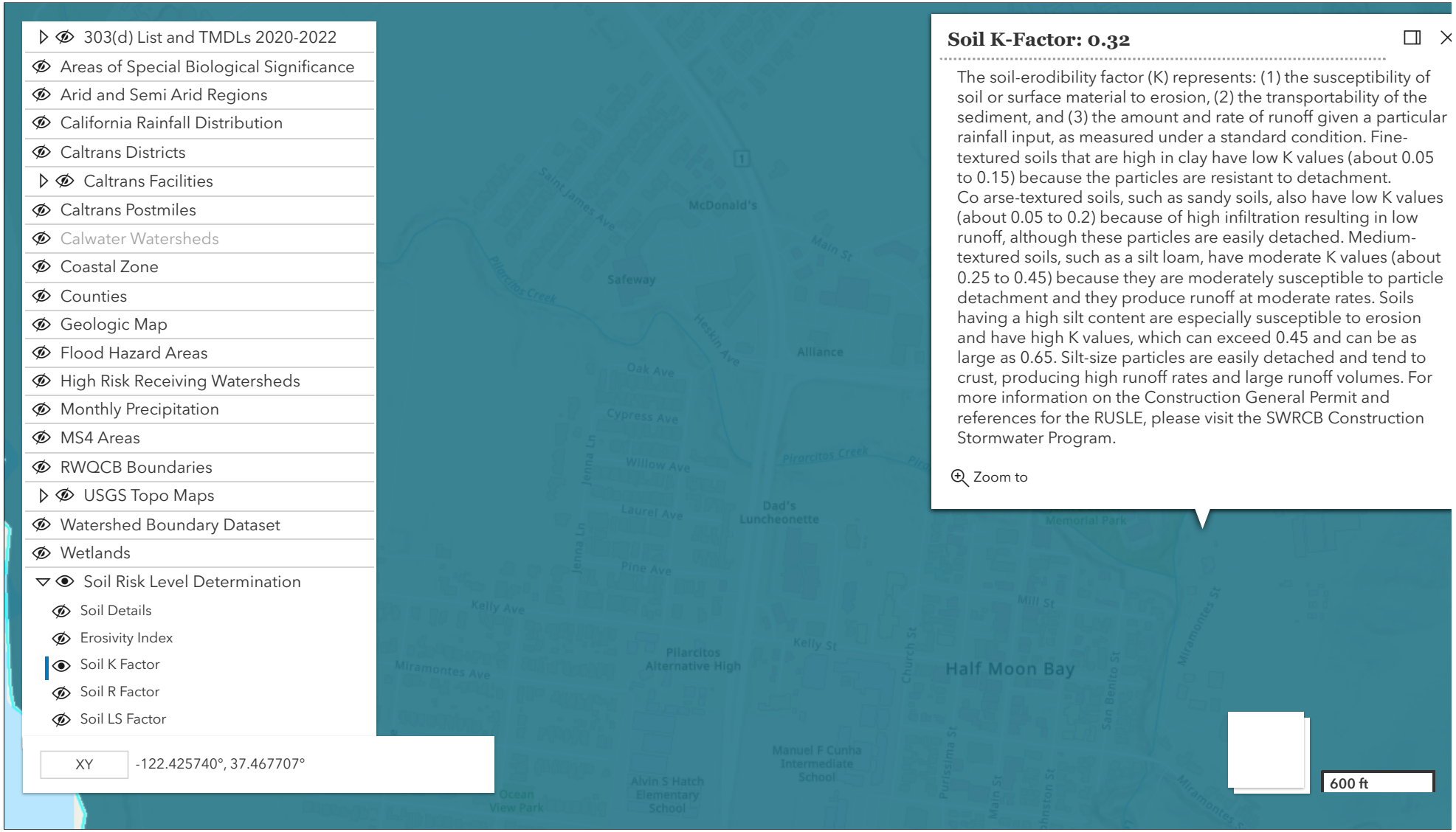
Project RW Risk: High

Project Combined Risk: Level 2

SI2024-00001
880 STONE PINE RD
03/04/2024

Caltrans Water Quality Planning Tool

The Water Quality Planning Tool was created to help planners and designers comply with environmental permits. It uses a map interface to find information based on a project's location. **This application is being updated for digital accessibility and will continue to function while updates are in progress.**



Caltrans Postmiles

Area 1:
Average Slope, S1=5%
Area, A1 = 47,833 SF
Sheet Flow Length, L1 = 220

Area 2:
Average Slope, S2=29%
Area, A2 = 3,568 SF
Sheet Flow Length, L2 = 24'

Area 3:
Average Slope, S3=2.4%
Area, A3 = 9,672 SF
Sheet Flow Length, L3 = 381'

Area 4:
Average Slope, S4=1.2% Slope
Area, A4 = 171,638 SF
Sheet Flow Length, L4 = 492'

Area 5:
Average Slope, S5 = 9% Slope
Area, A5 = 257 SF
Sheet Flow Length, L5 = 11'

Calculation:

Average Watershed Slope = (S1*A1+S2*A2+S3*A3+S4*A4+S5*A5)/(A1+A2+A3+A4+A5) = 2.5%

Average Sheet Flow Length = (L1*A1+L2*A2+S3*A3+S4*A4+S5*A5)/(A1+A2+A3+A4+A5)= 424

DEMOLITION LEGEND:

LIMIT OF WORK	WITHIN THE LIMIT OF WORK LINE ALL ITEMS NOT CALLED OUT TO BE REMOVED ARE TO REMAIN AND MUST BE PROTECTED IN PLACE. CONTRACTOR TO USE CAUTION AROUND (E) UTILITIES, UTILITY VAULTS AND WATER VALVES TO REMAIN.
EXISTING LANDSCAPED AREAS	REMOVE ALL TREES, SHRUBS, AND GRASS INCLUDING ALL ROOT MASS UNLESS OTHERWISE SPECIFIED. COORDINATE WITH CLIENT PRIOR TO REMOVING ANY TREES. IRRIGATION LINES TO BE REPAIRED TO THE EXTENTS OF NEW PLANTING AND IRRIGATION CONSTRUCTION.
EXISTING AC PAVING	(E)AC PAVEMENT, AND BASE ROCK TO BE REMOVED. BASE ROCK UNDER AC PAVEMENT CAN BE REUSED IF APPROVED BY GEOTECHNICAL ENGINEER. ALL EDGES TO BE SAWCUT WITH A CLEAN EDGE.
EXISTING GRAVEL PAVING	(E)GRAVEL PAVING TO BE REMOVED. GRAVEL CAN BE REUSED IF APPROVED BY GEOTECHNICAL ENGINEER.
TREE PROTECTION	TREE PROTECTION AREA. SEE ARBORIST NOTES ON SHEET C4.1.
	EXISTING UTILITY OR CURB/WALL TO BE DEMOLISHED AND REMOVED
	TREE REMOVAL, REFER TO PROJECT CONDITIONS OF APPROVAL FOR ADDITIONAL REQUIREMENTS
1	TO REMAIN, PROTECT IN PLACE
2	TO BE REMOVED
3	TO BE CAPPED AND ABANDONED
4	TO BE DISCONNECTED AND RELOCATED PER PLANS. EXISTING FOOTINGS/FOUNDATIONS TO BE REMOVED

0 20 40
GRAPHIC SCALE

SEE SHEETS CO.0 AND CO.1 FOR NOTES AND LEGENDS

811 Know what's below. Call before you dig.

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HALF MOON BAY

REVIEW ONLY
NOT FOR CONSTRUCTION
REGISTERED PROFESSIONAL ENGINEER
CIVIL
STATE OF CALIFORNIA

No.	Revisions	Date

Date 01/26/2024
Scale 1" = 20'
Design DJP
Drawn DLG
Approved DJL
Job No 20211367-15

Drawing Number:

DRAWING NAME: K:\2021\21367-15_HMB_Corpyard_Housing\ENG\hmbsheets.dwg
PLOT DATE: 02-08-24
PLOTTED BY: gold

Average Watershed Slope (%)

Sheet Flow Length (ft)	0.2	0.5	1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	14.0	16.0	20.0	25.0	30.0	40.0	50.0	60.0
<3	0.05	0.07	0.09	0.13	0.17	0.20	0.23	0.26	0.32	0.35	0.36	0.38	0.39	0.41	0.45	0.48	0.53	0.58	0.63
6	0.05	0.07	0.09	0.13	0.17	0.20	0.23	0.26	0.32	0.37	0.41	0.45	0.49	0.56	0.64	0.72	0.85	0.97	1.07
9	0.05	0.07	0.09	0.13	0.17	0.20	0.23	0.26	0.32	0.38	0.45	0.51	0.56	0.67	0.80	0.91	1.13	1.31	1.47
12	0.05	0.07	0.09	0.13	0.17	0.20	0.23	0.26	0.32	0.39	0.47	0.55	0.62	0.76	0.93	1.08	1.37	1.62	1.84
15	0.05	0.07	0.09	0.13	0.17	0.20	0.23	0.26	0.32	0.40	0.49	0.58	0.67	0.84	1.04	1.24	1.59	1.91	2.19
25	0.05	0.07	0.10	0.16	0.21	0.26	0.31	0.36	0.45	0.57	0.71	0.85	0.98	1.24	1.56	1.86	2.41	2.91	3.36
50	0.05	0.08	0.13	0.21	0.30	0.38	0.46	0.54	0.70	0.91	1.15	1.40	1.64	2.10	2.67	3.22	4.24	5.16	5.97
75	0.05	0.08	0.14	0.25	0.36	0.47	0.58	0.69	0.91	1.20	1.54	1.87	2.21	2.86	3.67	4.44	5.89	7.20	8.37
100	0.05	0.09	0.15	0.28	0.41	0.55	0.68	0.82	1.10	1.46	1.88	2.31	2.73	3.57	4.59	5.58	7.44	9.13	10.63
150	0.05	0.09	0.17	0.33	0.50	0.68	0.86	1.05	1.43	1.92	2.51	3.09	3.68	4.85	6.30	7.70	10.35	12.75	14.89
200	0.06	0.10	0.18	0.37	0.57	0.79	1.02	1.25	1.72	2.34	3.07	3.81	4.56	6.04	7.88	9.67	13.07	16.16	18.92
250	0.06	0.10	0.19	0.40	0.64	0.89	1.16	1.43	1.99	2.72	3.60	4.48	5.37	7.16	9.38	11.55	15.67	19.42	22.78
300	0.06	0.10	0.20	0.43	0.69	0.98	1.28	1.60	2.24	3.09	4.09	5.11	6.15	8.23	10.81	13.35	18.17	22.57	26.51
400	0.06	0.11	0.22	0.48	0.80	1.14	1.51	1.90	2.70	3.75	5.01	6.30	7.60	10.24	13.53	16.77	22.95	28.60	33.67
600	0.06	0.12	0.24	0.56	0.96	1.42	1.91	2.43	3.52	4.95	6.67	8.45	10.26	13.94	18.57	23.14	31.89	39.95	47.18
800	0.06	0.12	0.26	0.63	1.10	1.65	2.25	2.89	4.24	6.03	8.17	10.40	12.69	17.35	23.24	29.07	40.29	50.63	59.93
1000	0.06	0.13	0.27	0.69	1.23	1.86	2.55	3.30	4.91	7.02	9.57	12.23	14.96	20.57	27.66	34.71	48.29	60.84	72.15

Prorated LS factor
the site is 0.65

LS Factors for Construction Sites. *Table from Renard e*

LS Factor for 3023 Summit Street

Description	Length (FT)	Area (FT^2)	Slope (%)	LS Factor
Length 1	150	24903	1.5	0.25
Length 2	155	18740	1.3	0.22
Length 3	200	15990	2.5	0.47
Total		**59633**		
Weighted Average			**1.7**	**0.30**

Facility Information

Start Date: 04/15/2024	**Latitude:** 37.4695
End Date: 01/31/2025	**Longitude:** -122.4222

Calculation Results

Rainfall erosivity factor (R Factor) = 50.24

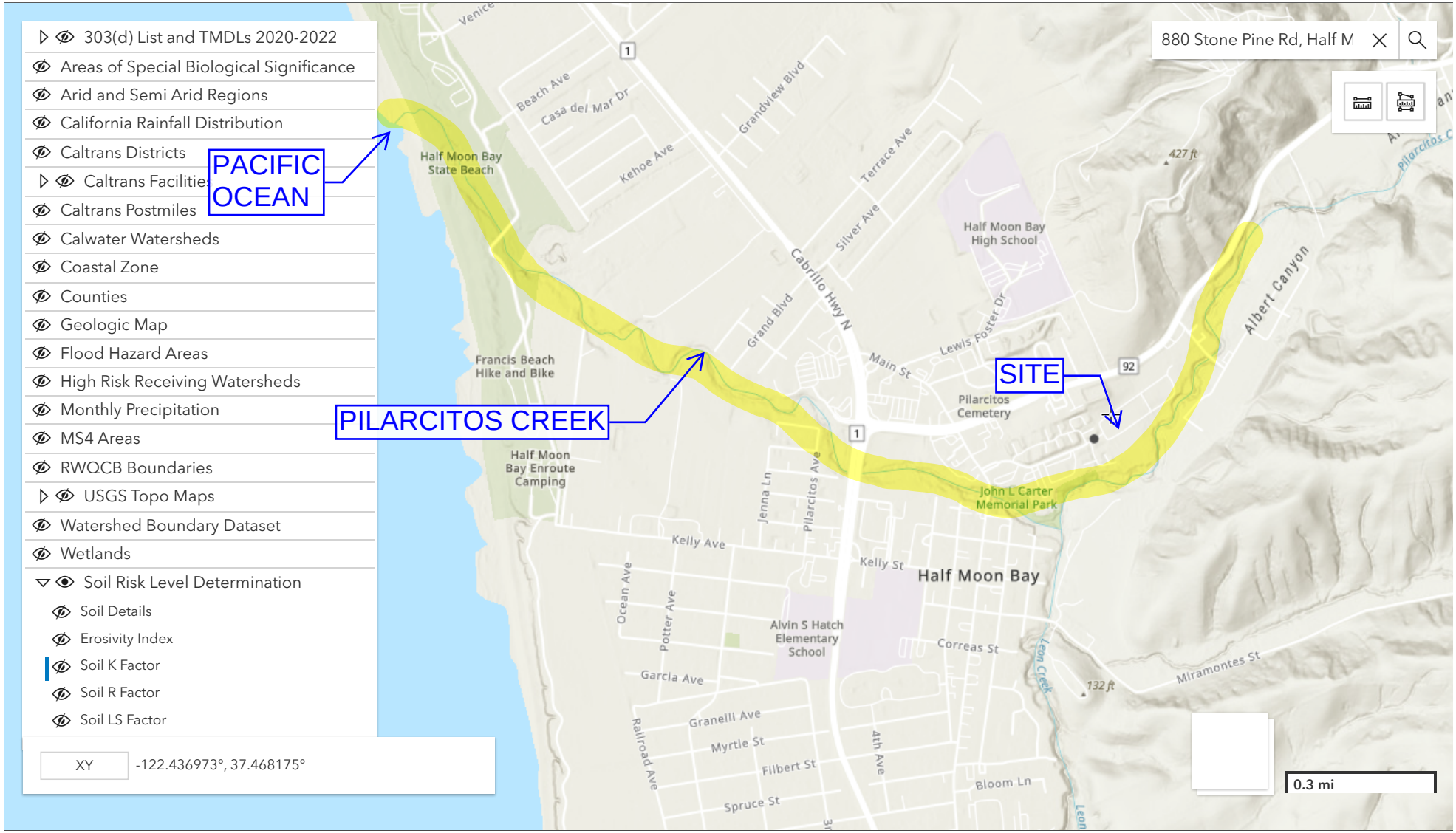
A rainfall erosivity factor of 5.0 or greater has been calculated for your site's period of construction.

You do NOT qualify for a waiver from NPDES permitting requirements and must seek Construction General Permit (CGP) coverage. If you are located in an area where EPA is the permitting authority (pdf), you must submit a Notice of Intent (NOI) through the NPDES eReporting Tool (NeT).Otherwise, you must seek coverage under your state's CGP.

SI2024-00001
880 STONE PINE RD
03/04/2024

Caltrans Water Quality Planning Tool

The Water Quality Planning Tool was created to help planners and designers comply with environmental permits. It uses a map interface to find information based on a project's location. **This application is being updated for digital accessibility and will continue to function while updates are in progress.**



Caltrans Postmiles

SI2024-00001
880 STONE PINE RD
03/04/2024

Key: Water body on 303(d) list Water body with a TMDL

No sediment

Name	Pollutant	Size	Sources	Status
Pacific Ocean at Venice Beach	Indicator Bacteria	0.69 miles	A Source Unknown	TMDL required
Pilarcitos Lake	Mercury	97.22 acres	A Source Unknown	TMDL required

Water Quality Objectives

The following waterbodies are in or near HSA 202.22. Click on the waterbody to get information on water quality objectives and beneficial uses

Waterbody Name	Beneficial Uses	Sediment-Sensitive Waterbody
Alameda Creek Quarry Ponds	COLD, GWR, REC1, REC2, WARM	False
Arroyo Del Valle	COLD, GWR, MIGR, MUN, REC1, REC2, SPWN, WILD	True
Calaveras Reservoir	COLD, MUN, REC1, REC2, SPWN, WARM, WILD	False
Crystal Springs Lower	COLD, MUN, RARE, REC2, SPWN, WARM, WILD	False
Crystal Springs Upper	COLD, MUN, RARE, REC2, SPWN, WARM, WILD	False
Cull Canyon Reservoir	COLD, REC1, REC2, SPWN, WARM, WILD	False
Del Valle Reservoir	COLD, MUN, REC1, REC2, SPWN, WARM, WILD	False
Denniston Creek	AGR, COLD, MIGR, MUN, RARE, REC1, REC2, SPWN, WARM	True
Don Castro Reservoir	COLD, REC1, REC2, SPWN, WARM, WILD	False
El Corte de Madera Creek	COLD, MIGR, RARE, REC1, REC2, SPWN, WARM, WILD	True
Frenchmans Creek	AGR, COLD, MIGR, RARE, REC1, REC2, SPWN, WARM, WILD	True
Lake Chabot (Alameda)	COLD, MUN, REC1, REC2, SPWN, WARM, WILD	False
Lake Merced	COLD, MUN, REC1, REC2, SPWN, WARM	False
Lake Merritt	REC1, REC2, SPWN, WILD	False
Laurel Creek	COLD, FRSH, MIGR, REC1, REC2, SPWN, WARM, WILD	True
Lobitos Cr	AGR, COLD, MIGR, RARE, REC1, REC2, SPWN, WILD	True
Lower San Leandro Creek	FRSH, MIGR, REC1, REC2, SPWN, WARM, WILD	False
Pacific Ocean	COMM, IND, MAR, MIGR, NAV, RARE, REC1, REC2, SHELL, SPWN, WILD	False
Pacific Ocean	COMM, IND, MAR, MIGR, NAV, RARE, REC1, REC2, SHELL, SPWN, WILD	False
Pacific Ocean	COMM, IND, MAR, MIGR, NAV, RARE, REC1, REC2, SHELL, SPWN, WILD	False
Pilarcitos Cr	AGR, COLD, MIGR, MUN, RARE, REC1, REC2, SPWN, WARM, WILD	True
Pilarcitos Cr	AGR, COLD, MIGR, MUN, RARE, REC1, REC2, SPWN, WARM, WILD	True
Pilarcitos Cr	AGR, COLD, MIGR, MUN, RARE, REC1, REC2, SPWN, WARM, WILD	True
Pilarcitos Cr	AGR, COLD, MIGR, MUN, RARE, REC1, REC2, SPWN, WARM, WILD	True
Pilarcitos Lake	COLD, MUN, RARE, REC1, REC2, SPWN, WARM, WILD	False
San Andreas Lake	COLD, MUN, RARE, REC1, REC2, SPWN, WARM, WILD	False
San Antonio Reservoir	COLD, MUN, REC1, REC2, SPWN, WARM, WILD	False
San Mateo Creek	COLD, FRSH, RARE, REC1, REC2, SPWN, WILD	False
San Pedro Creek	COLD, MIGR, MUN, REC2, SPWN, WARM	True
San Vincente Creek	AGR, COLD, MIGR, MUN, RARE, REC1, REC2, SPWN	True
Shadow Cliffs Reservoir	COLD, REC1, REC2, SPWN, WARM, WILD	False
Tunitas Creek	AGR, COLD, MIGR, RARE, REC1, REC2, SPWN, WARM, WILD	True

Caltrans Facilities

MAINTENANCE STATIONS

Name Address

FREEWAYS AND HIGHWAYS

Route	Length (miles)
1	1.6
35	2.5
92	5.1

PARK & RIDE LOTS

Name District County Route Post Mile

REST AREAS

Name District County Route Post Mile

Additional Information

Help for the Water Quality Planning Tool

Precipitation Frequency data from NOAA ATLAS 14

TMDL information from the SWRCB

Construction General Permit information from the SWRCB

Groundwater Depth information from the California Department of Water Resouces

SAN MATEO COASTAL BASIN

	← Human Consumptive Uses →						← Aquatic Life Uses →									→ Wildlife Use	→ Recreational Uses		
COUNTY Waterbody	AGR	MUN	FRSH	GWR	IND	PROC	COMM	SHELL	COLD	EST	MAR	MIGR	RARE	SPWN	WARM	WILD	REC-1	REC-2	NAV
SAN FRANCISCO COUNTY																			
Pacific Ocean (San Mateo, San Francisco Counties)					E		E	E			E	E	E	E		E	E[1]	E	E
Lake Merced		P					E		E					E	E	E	E	E	
SAN MATEO COUNTY																			
Milagra Creek												E	E		E	E	E	E	
Calera Creek (San Mateo)													E		E	E	E	E	
San Pedro Creek		E							E			E	E	E	E	E	E	E	
San Vicente Creek	E	E							E			E	E	E	E	E	E	E	
Denniston Creek	E	E							E			E	E	E	E	E	E	E	
Arroyo de en Medio									E						E	E	E	E	
Frenchmans Creek	E								E			E	E	E	E	E	E	E	
Pilarcitos Creek	E	E							E			E	E	E	E	E	E	E	
Arroyo Leon Creek									E						E	E	E	E	
Mills Creek (San Mateo)									E				E		E	E	E	E	
Apanolio Creek									E				E	E	E	E	E	E	
Corinda Los Trancos Creek									E				E		E	E	E	E	
Pilarcitos Reservoir		E							E				E	E	E	E	E*	E	
Purisima Creek	E								E			E	E	E		E	E	E	
Lobitos Creek	E								E			E	E	E		E	E	E	
Tunitas Creek	E	E							E			E	E	E	E	E	E	E	
San Gregorio Creek	E								E			E	E	E	E	E	E	E	
Clear Creek									E						E	E	E	E	
El Corte de Madera Creek									E			P	E	P	E	E	E	E	
Bogess Creek									E			E	E	E	E	E	E	E	
Harrington Creek									E			E	E	E	E	E	E	E	
La Honda Creek									E			E	E	E	E	E	E	E	

[1] REC-1 applies within a zone bounded by the shoreline and a distance of 1000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline. This distance is consistent with the applicability of water-contact standards in the Water Quality Plan for the Ocean Waters of California.

E: Existing beneficial use E*: Water quality objectives apply; water contact recreation is prohibited or limited to protect public health P: Potential beneficial use

Appendix M: Weather Reports

The discharger must obtain the precipitation forecast information from the National Weather Service Forecast Office (http://forecast.weather.gov). A printed copy with the date and time of printing should be retained in this Appendix.

Appendix N: Monitoring Records

Place completed BMP Inspection Forms, photographic documentation, Effluent Sampling, Receiving Water, and Dewatering Field Logs, Monitoring Exceptions, NAL Exceedance Reports, and Receiving Water Monitoring Trigger Exceptions in this appendix.

Appendix O: Example Storm Event Monitoring Forms

Rain Gauge Log Sheet				
Construction Site Name:				
WDID #:				
Date (mm/dd/yy)	Time (24-hr)	Initials	Rainfall Depth (Inches)	Notes:

Risk Level 1, 2, 3 ***Visual Inspection Field Log Sheet***					
Date and Time of Inspection:				Report Date:	
Inspection Type:	☐ Weekly	☐ Pre Qualifying Precipitation Event (QPE)	☐ During QPE	☐ Post QPE	☐ Dewatering Discharge

Site Information	
Construction Site Name:	
Construction stage and completed activities:	Approximate area of exposed site:

Weather and Observations			
Date Rain Predicted to Occur:		Predicted % chance of precipitation (PoP): Predicted quantity of precipitation (QPF):	
Estimate storm beginning: _____ (date and time)	Estimate storm duration:_____ (hours)	Estimate time since last storm: _____ (days or hours)	Rain gauge reading:_____ (inches)

Observations: If yes identify location		
Odors	Yes ☐	No ☐
Floating material	Yes ☐	No ☐
Suspended Material	Yes ☐	No ☐
Sheen	Yes ☐	No ☐
Discolorations	Yes ☐	No ☐
Turbidity	Yes ☐	No ☐

Site Inspections	
Outfalls or BMPs Evaluated	**Deficiencies Noted**
(add additional sheets or attached detailed BMP Inspection Checklists)	

Photos Taken:	Yes ☐	No ☐	Photo Reference IDs:

Corrective Actions Identified (note if SWPPP/REAP change is needed)

Inspector Information		
Inspector Name:	Inspector Title:	
Signature:		Date:

Risk Level 1, 2, 3 ***Effluent Sampling Field Log Sheets***			
Construction Site Name:		Date:	Time Start:
Sampler:			
Sampling Event Type:	☐ Stormwater	☐ Dewatering Discharge	☐ Non-visible pollutant

Field Meter Calibration	
pH Meter ID No./Desc.: Calibration Date/Time:	Turbidity Meter ID No./Desc.: Calibration Date/Time:

Field pH and Turbidity Measurements

Discharge Location Description	pH	Turbidity	Time

Grab Samples Collected

Discharge Location Description	Sample Type	Time

Additional Sampling Notes:

Time End:

Risk Level 3 ***Receiving Water Sampling Field Log Sheets***		
Construction Site Name:	Date:	Time Start:
Sampler:		
Receiving Water Description and Observations		
Receiving Water Name/ID:		
Observations:		
Odors	Yes ☐	No ☐
Floating material	Yes ☐	No ☐
Suspended Material	Yes ☐	No ☐
Sheen	Yes ☐	No ☐
Discolorations	Yes ☐	No ☐
Turbidity	Yes ☐	No ☐
Field Meter Calibration		
pH Meter ID No./Desc.: Calibration Date/Time:	Turbidity Meter ID No./Desc.: Calibration Date/Time:	

Field pH and Turbidity Measurements			
Upstream Location			
Type	Result	Time	Notes
pH			
Turbidity			
Downstream Location			
Type	Result	Time	Notes
pH			
Turbidity			
Additional Sampling Notes:			
Time End:			

NAL Exceedance Evaluation Summary Report	**Page __ of __**
Project Name	
Project WDID	
Project Location	
Date of Exceedance	
Type of Exceedance	**NAL ☐ pH ☐ Turbidity** **☐ Other (specify) _____**
Measurement or Analytical Method	**☐ Field meter** **(Sensitivity: _____)** **☐ Lab method (specify) _____** **(Minimum Level: _____)** **(MDL: _____)**
Calculated Daily Average	**☐ pH _____ pH units** **☐ Turbidity _____ NTU**
Rain Gauge Measurement	**_____ inches**
Visual Observations on Day of Exceedance	

NAL Exceedance Evaluation Summary Report	Page __ of __
Description of BMPs in Place at Time of Event	
Initial Assessment of Cause	
Corrective Actions Taken (deployed after exceedance)	
Additional Corrective Actions Proposed	
Report Completed By	_____ **(Print Name, Title)**
Signature	_____

SI2024-00001
880 STONE PINE RD
03/04/2024

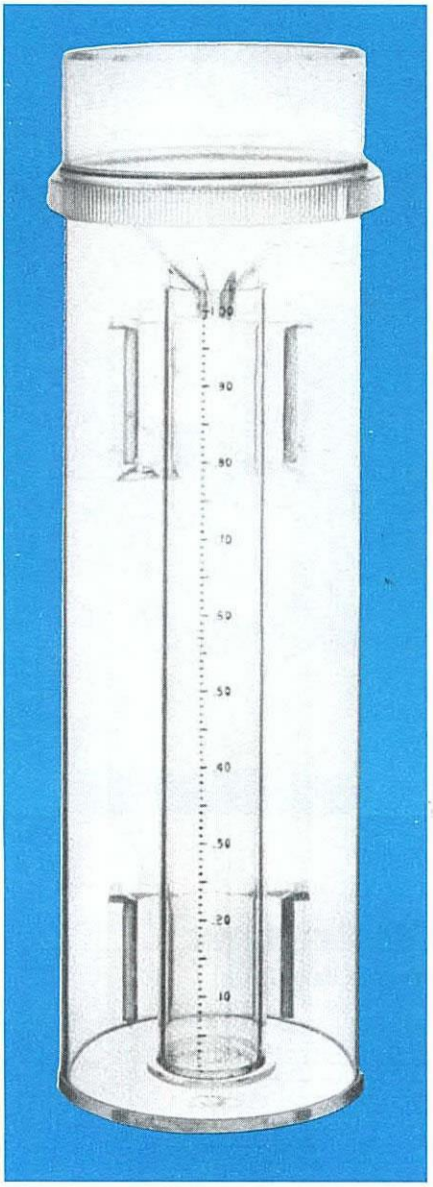
CHAIN-OF-CUSTODY **DATE:** **Lab ID:**

DESTINATION LAB:							REQUESTED ANALYSIS				Notes:	
ATTN:												
ADDRESS:												
Office Phone:												
Cell Phone:												
SAMPLED BY:												
Contact:												
Project Name												
Client Sample ID	**Sample Date**	**Sample Time**	**Sample Matrix**	**Container #**	**Container Type**	**Container Pres.**						

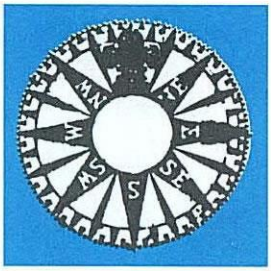
SENDER COMMENTS:	**RELINQUISHED BY**	
	Signature:	
	Print:	
	Company:	
	Date:	TIME:
LABORATORY COMMENTS:	**RECEIVED BY**	
	Signature:	
	Print:	
	Company:	
	Date:	TIME:

Appendix P: Field Meter Instructions

Productive Alternatives



All Weather Rain Gauge



The All-Weather Gauge is a precision weather instrument. With minimal care it should provide years of satisfactory service. Guard against extremely rough usage. Wash periodically with mild soap or detergent and warm water, using a household bottle brush. Do not use solvents or abrasives to clean the gauge and do not wash the gauge in your dishwasher. Do not allow accumulated water to freeze in the gauge.

Installation: Mount the gauge on a post that you walk past each day so you will be reminded to read and empty the gauge daily. Ideally, the post should be a 4" x 4" or 2-2" x 4" nailed together. Where possible do not mount near buildings or trees that would prevent rainfall from reaching the gauge. The gauge should be mounted so that the top of the gauge is level and is 6" higher than the top of the post.

Operation: The top funnel catches the rain and delivers it to the measuring tube. The measuring tube has a capacity of 1.00 inch. Rainfalls of less than one inch can be read directly from the measuring tube. Stand the measuring tube on a level surface. Read the amount to the nearest 100th of an inch. Record the rainfall in your log and discard the rain water.

If rainfall exceeds one inch, the excess flows into the outer cylinder. To measure, empty the measuring tube containing the first 1.00 inch, place the funnel into the measuring tube, then carefully pour in the excess rain water until the outer cylinder is empty. Record the amount measured in your log. Be sure to count the first inch of rain water that was in the measuring tube. In fact, it is a good idea to measure precipitation from heavy rains twice to insure accuracy. Just use an empty can or pan to receive the measured rain water, and measure again.

In colder weather, use only the outer cylinder to catch hail, sleet or snow. Melt the snow indoors. Then, using the measuring tube, measure the moisture content of the snow. You may also use the outer cylinder to get a measure of moisture of accumulated snow by pressing the cylinder into a level area of snow then melting the captured snow. Also - you may add a known amount of hot water to speed up the melting process. Measure the resultant water and subtract the amount of water you added to secure the moisture content of the snow.

Daily log: Whenever possible, take your readings at the same time each day. Record your readings on the daily log. Use the date on which you take the reading even though much or all of the rain may have fallen the preceding day - after you took your daily reading. Enter your reading in hundredths of an inch (.01, .31, 1.01, 3.01). If rainfall is less than .01 inch, enter "T" for trace in your daily precipitation log.

Two-point calibration

Proceed with steps 1 through 3 under single-point calibration using pH 7.01 buffer first. Then follow steps below:

- The "pH 4.01 USE" message is then displayed.
- Place the electrode in the second calibration buffer (pH 4.01 or 10.01). When the second buffer is accepted, the LCD will display "Stor" for 1 second and the meter will return to the normal measurement mode.
- The "CAL" tag will be displayed in measurement mode with the calibrated buffers.
- If the buffer is not recognized or the slope is out of accepted range "---- Err" is displayed. Change the buffer, clean the electrode or press any key to exit calibration.

It is always recommended to carry out a two-point calibration for better accuracy.

Clear calibration

Press CAL button. Meter enters in calibration mode.

Press ON/OFF button and CLR is displayed. The meter will now be at default calibration.

The "CAL" tag will be cleared in measurement mode, indicating the missing calibration, until a new calibration will be performed.

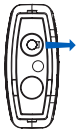
Error messages

- During user calibration, if the reading is out of the accepted range, the meter will displayed "---- Err".
- pH 14.0 or 0.0 blinking means the limit of the measured value is out of range. Verify that the electrode is in solution.
- If the measured temperature is higher than 50.0 °C or lower than 0.0 °C, the 50.0 °C or 0.0 °C message is displayed blinking.
- If the buffer is not recognised "----Err" is displayed. Check the buffer, clean the electrode or press CAL button to exit calibration.

Care and Maintenance

To obtain the highest accuracy for measurements it is important to follow these tips:

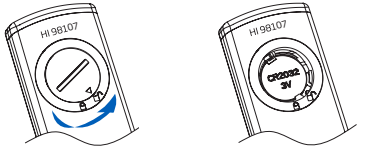
- Calibration is only as good as the buffers being used. The pH buffers value change over time once the sachets are opened. Fresh buffer should be used for each calibration.
- The electrode should be rinsed with purified water each time before placing in buffer or sample to be tested.
- When the meter is not in use it is important to add several drops of storage solution to a sponge in the protective cap to keep the electrode hydrated. If storage solution is not available, then pH 4.01 or pH 7.01 buffer can be used.
- For improved accuracy it is recommended to calibrate in two buffers. It is important to use buffers that bracket the expected value of the sample to be tested. For example, if the expected value is pH 8, the meter should be calibrated using pH 7.01 and pH 10.01 buffers.
- In case of erroneous readings even after an accurate conditioning and calibration, the reference junction might be contaminated or clogged. Pull out 2 mm (1/8") of the cloth junction to renew the electrode reference (it is recommended to cut the cloth leaving always at least 2 mm - (1/8") over the reference compartment) and recalibrate the meter. The cloth junction can be pulled out approximately 20 times. After that, the electrode will have to be replaced.



- If the electrode or junction is dirty soak the tip in HI7061 cleaning solution for 30 minutes, rinse thoroughly in distilled water and then follow cleaning procedure.
- Removal of films, dirt or deposits on the membrane/junction:
  - General: Soak in Hanna Instruments HI7061 General Cleaning Solution for approximately 1 hour.
  - Protein: Soak in Hanna Instruments HI7073 Protein Cleaning Solution for 15 minutes.
  - Inorganic: Soak in Hanna Instruments HI7074 Inorganic Cleaning Solution for 15 minutes.
  - Oil and grease: Rinse with Hanna Instruments HI7077 Oil and grease Cleaning Solution

IMPORTANT: After performing any of the cleaning procedures rinse the electrode thoroughly with distilled water, and soak the electrode in HI70300 Storage Solution for at least 1 hour before taking measurements.

Battery Replacement



The meter features a low battery indicator. When the battery is running low (under 10%), the battery indicator will blink on the LCD. When the battery is discharged "**dEAd bAtt**" will be displayed on the LCD for 2 seconds and the meter will turn off.

To change the CR2032 Li-ion battery, turn the battery cover located on the back of the meter counterclockwise to unlock. Remove cover and replace with new battery + side facing up.

Note: Batteries should only be replaced in a safe area using the battery type specified in this instruction manual. Old batteries should be disposed in accordance with local regulations.

Accessories

pH Buffer Solution

Code	Description
HI70004P	pH 4.01 buffer solution, 20 mL sachets (25 pcs.)
HI70007P	pH 7.01 buffer solution, 20 mL sachets (25 pcs.)
HI70010P	pH 10.01 buffer solution, 20 mL sachets (25 pcs.)
HI77400P	pH 4.01 & 7.01 buffer solution, 20 mL sachets (10 pcs., 5 ea.)
HI770710P	pH 10.01 & 7.01 buffer solution, 20 mL sachets (10 pcs., 5 ea.)

Electrode Cleaning Solution

Code	Description
HI7061M	General purpose cleaning solution, 230 mL bottle

Electrode Storage Solution

Code	Description
HI70300M	Electrode storage solution, 230 mL bottle

Warranty

This meter is warranted for a period of one year against defects in workmanship and materials when used for their intended purpose and maintained according to instructions. The electrode is warranted for a period of six months. This warranty is limited to repair or replacement free of charge. Damage due to accidents, misuse, tampering or lack of prescribed maintenance is not covered. If service is required, contact your local Hanna Instruments Office. If under warranty, report the model number, date of purchase, serial number and the nature of the problem.
If the repair is not covered by the warranty, you will be notified of the charges incurred.
If the instrument is to be returned to Hanna Instruments, first obtain a Returned Goods Authorization (RGA) number from the Technical Service department and then send it with shipping costs prepaid. When shipping any instrument, make sure it is properly packaged for complete protection.

IST98107N 01/17

INSTRUCTION MANUAL

SI2024-00001
880 STONE PINE RD
03/04/2024

pHep

HI98107

Pocket-sized pH Meter



HANNA® instruments

Thank You

Thank you for choosing a Hanna Instruments product. Please read this instruction manual carefully before using the instrument.

For more information about Hanna Instruments and our products, visit www.hannainst.com or e-mail us at sales@hannainst.com.

For technical support, contact your local Hanna Instruments Office or e-mail us at tech@hannainst.com

Find your local Hanna Instruments Office on www.hannainst.com

Preliminary Examination

Remove the meter from the packing material and examine it carefully to make sure that no damage has occurred during shipment. If noticeable damage is evident, contact your local Hanna Instruments Office.
Each meter is supplied with:

- CR2032 battery
- Storage / Protection sleeve
- Instruction manual
- Quality Certificate
- Electrode cleaning solution sachet
- pH 4.01 buffer solution sachet
- pH 7.01 buffer solution sachet (2 pcs.)

Note: Save all packing material until you are sure that the instrument functions correctly. All defective items must be returned in the original packaging with the supplied accessories.

Preparation

The pH electrode is shipped dry. Before using the pH electrode, remove the protective cap and condition the electrode by soaking the tip (bottom 3 cm (1.18")) in HI70300 storage solution or in pH 7.01 buffer solution for several hours. Then follow the calibration procedure:

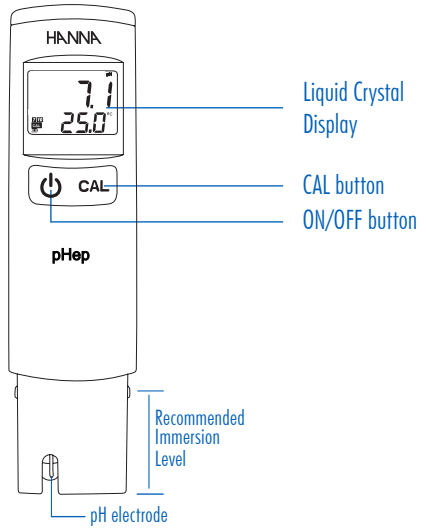
- Do not be alarmed if white crystals appear around the cap. This is normal with pH electrodes and they dissolve when rinsed with water.
- Turn the pH electrode on by pressing ON/OFF button.
- Remove the protective cap and immerse the tip of the electrode in the sample to be tested.
- Stir gently and wait for the stability tag to disappear.
- For best results, recalibrate periodically.
- After use, rinse the electrode with water and store it with a few drops of HI70300 storage solution or pH 4.01 or pH 7.01 buffer solution in the protective cap.
- Always put back the protective cap after each use.

DO NOT USE DISTILLED OR DEIONIZED WATER FOR STORAGE PURPOSES.

- Large differences in pH readings (±1.0 pH) could result from lack of calibration or dry electrode.

Note: The electrode tip should be rinsed with purified water (reverse osmosis, distilled, or deionized) before and after placing in any solution (buffer, storage or sample).

Operation



Specifications

Range	0.0 to 14.0 pH 0.0 to 50.0 °C (32.0 to 122.0 °F)
Resolution	0.1 pH / 0.1 °C / 0.1 °F
Accuracy (@25 °C/77 °F)	±0.1 pH / ±0.5 °C / ±1.0 °F
Calibration	automatic, one or two-points (pH 4.01, 7.01, 10.01)
Temperature Compensation	automatic, 0 to 50 °C
Battery Type	CR2032 3V Li-ion (1 pc.)
Battery Life	approximately 800 hours of continuous use
Environment	0 to 50 °C (32 to 122 °F); RH 100% max
Dimensions	160 x 40 x 17 mm (6.3 x 1.6 x 0.7")
Weight (without battery)	65 g (2.3 oz.)

Operational guide

To turn the meter ON

Press the ON/OFF button to turn the meter on. At start-up, all the LCD segments are displayed for 1 second, then the percent indication of the remaining battery life is displayed for another second. The meter then enters the normal measuring mode.

Note: Keeping the ON/OFF button pressed while turning the meter on will display all LCD segments as long as the button is pressed.

To enter calibration mode

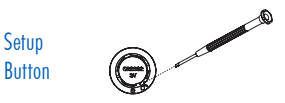
Press the CAL button. "CAL" message is displayed.

To enter setup mode

While in measurement mode, remove the battery cover and press the button inside the battery compartment.

Meter Setup

While in measurement mode, remove the battery cover. Press the Setup button located on the side of the battery in the battery compartment. The meter will enter in setup mode. Press the ON/OFF button to move through setup parameters. Press the CAL button to change the settings.



The default settings are: "Set t" measure unit - °C, "AOFF" - 8 min. After the last setting, it will exit Setup.

To select the temperature unit (°C/°F)

To select the measurement unit when "Set t" is displayed press the CAL button to change between °C or °F.

To select the Auto-Off time

To select AOFF TIME unit when "AOFF" is displayed press the CAL button to change between 8 min, 60 min or --- (disabled).

To return to measurement mode

Press ON/OFF button to exit the menu.

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Recommendations for Users

S12024-0001
880 STONE PINE RD
03/04/2024

Before using Hanna Instruments products, make sure that they are entirely suitable for your specific application and for the environment in which they are used. Operation of these instruments may cause unacceptable interferences to other electronic equipment. Take all necessary steps to correct such interferences. Avoid touching the electrode area. Any variation introduced by the user to the supplied equipment may degrade the instrument's EMC performance. Do not put the instrument in a microwave oven. Do not use or store the instrument in hazardous environments.

pH Measurement and Calibration

- Make sure the meter has been calibrated before use.
- If the electrode is dry, soak it in HI70300 storage solution for 30 minutes to reactivate it.
- Submerge the electrode in the sample to be tested while stirring it gently. Wait until the Stability Indicator on the LCD disappears.
- The LCD displays the pH value (automatically compensated for temperature) on the primary LCD, while the secondary LCD displays the sample temperature.
- If measurements are taken in different samples successively, rinse the electrode tip thoroughly to eliminate cross-contamination. After cleaning, rinse the electrode tip with some deionized water and some of the sample to be measured.

pH calibration

- Enter calibration mode while in pH measurement mode.
- Place the electrode into the first calibration buffer. If performing a two-point calibration, use pH 7.01 buffer first.
- The meter will enter the calibration mode, displaying "pH 7.01 USE".

Single-point calibration

- Place the electrode in buffer pH 7.01, 4.01 or 10.01 buffer. The meter will automatically recognize the buffer value.
- If the buffer is recognized "REC" is displayed until the reading is stable and the calibration is accepted.
- If the buffer is not recognized, the pH electrode is not immersed in solution, or the reading is out of the accepted range "---- Err" is displayed.
- If using pH 7.01, after acceptance of the buffer press CAL button to exit. "Stor" message is displayed and meter returns to pH measurement mode.
- If using pH 4.01 or pH 10.01 buffer the "Stor" message is displayed and meter returns to pH measurement mode.
- The "CAL" tag will be shown in measurement mode with the calibrated buffer tag next to it.

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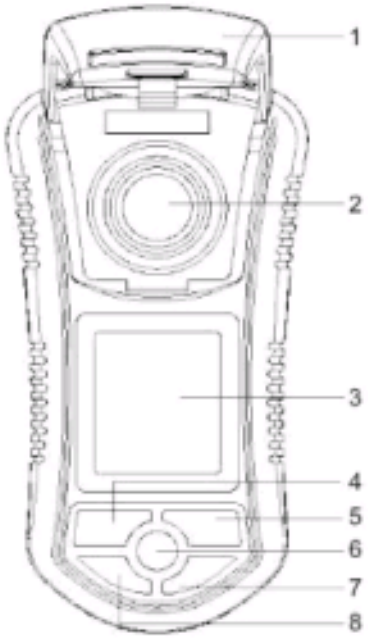
Turbidity Meter

860040
Instruction Manual

SPER SCIENTIFIC
Environmental Measurement Instruments

FRONT PANEL DESCRIPTION



1. Chamber Lid/protective cover
2. Testing chamber
3. LCD screen
4. Data Hold Button
5. Test / Calibration Button
6. Power Button
7. Zero Button
8. Min/Max Button

SET UP

Battery Installation

This meter uses six AAA batteries. To install the batteries before first use:

1. Unscrew the two screws on the back of the meter. These screws secure the battery cover.
2. Remove the battery cover.
3. Insert six new AAA batteries, ensuring correct polarity.
4. Replace the battery cover and reinstall the screws.

Replace the batteries when the low-battery icon blinks on the LCD.

Note…
Before replacing the batteries, turn the meter off.

Meter On and Off

1. Press **POWER** to turn the meter on/off
2. The meter will automatically turn off after ten minutes of inactivity.

CALIBRATION

Before beginning the calibration procedure, locate the two calibration solutions and keep them close to the meter. If the calibration is not performed quickly, the meter will return to test mode and the calibration will not hold. While this does not damage the meter, the calibration will have to be performed again.

1. Remove the 0NTU and 100NTU bottles from their protective cases. Tighten both caps and shake the bottles gently to ensure they are properly mixed.
2. Clean the outside of both bottles to ensure there are no fingerprints on the glass. Fingerprints or dirt on the glass will alter the readings, so it is critical to handle the bottles by the cap from this point on.
3. Turn the meter on.
4. Press and hold the **TEST/CAL** button until CAL appears on the screen.
5. Let go of the TEST/CAL button. The screen will display 0.0, prompting for the 0NTU standard solution. You will have 20 seconds to perform the next step or the meter will exit calibration mode and return to test mode.

6. Place the 0NTU bottle into the test chamber, lining the vertical white line of the bottle with the white dot on the meter. Close the lid and press the **TEST/CAL** button once. The meter will flash the word CAL on the screen for up to ten seconds.

Note…
If the word Test appears on the screen, you did not perform step 6 fast enough and will need to repeat the process.

7. If the zero point calibration was successful, the meter will stop blinking and display the number 100, prompting for the 100NTU standard solution. Again, you will have 20 seconds to perform this step or the meter will exit calibration mode.
8. Place the 100NTU bottle into the test chamber, lining the vertical white line of the bottle with the white dot on the meter. Close the lid and press the **TEST/CAL** button once. The meter will flash CAL on the screen for up to ten seconds.

Note…
If TEST appears on the screen, you did not perform the 100NTU point fast enough and will need to repeat the process.

9. If the calibration was successful, the screen will stop blinking and display 0.0, indicating that it is ready to test samples.

MEASUREMENT PROCEDURES

SI2024-00001
880 STONE PINE RD
03/04/2024

For Single Point Readings

1. Pour test sample into one of the two included sample vials.
2. Gently shake the bottle to ensure the sample is properly mixed. If there is sediment in the sample that sinks to the bottle of the vial, the meter will not detect it.
3. Tighten the cap and clean the outside of the sample bottle with a lint free cloth. Be careful not to touch the glass as fingerprints can affect the readings. Handle the sample vial by the cap.
4. Place the sample vial in the test chamber, lining up the white line on the bottle with the white dot on the meter.
5. Press the **TEST/CAL** button once.

For Multi Point Readings

Multi-point mode produces the minimum and maximum values of a set of samples. This is especially useful in the case where there are slight changes in the turbidity of many samples or there is heavy sediment in a single sample. In the case of sediment, you can use this function to get a minimum and maximum reading based on how well the sample is mixed.

Note…
This mode will only provide the minimum and maximum of the samples tested and will not internally store or recall the individual readings within that sample set.

1. Press the **MIN/MAX** button to enter multi-point mode. REC will appear in the upper right hand corner of the meter.
2. Prepare the test sample in the included sample vials and ensure they are clean, dry and free of fingerprints.
3. Place the test sample in the chamber and close the lid.
4. Press the **TEST/CAL** button once. The meter will display the turbidity value of the sample in NTU.

3. Place the sample in the test chamber lining up the two white lines and close the lid.
4. Press and hold the **ZERO** button until ZERO appears on the LCD and release the button.
5. The screen will display 0.0 NTU.
6. All readings will be offset by the zero value until the meter is recalibrated or zeroed with the 0NTU standard.

Data Hold

The Minimum/Maximum functions on the meter are disabled during data hold. Also, new readings cannot be taken.

1. Press **HOLD** to freeze the reading on the display. "Hold" appears at the top of the LCD and the reading remains on the display until hold is disabled.
2. Press **HOLD** to return to Normal Mode.

CARE AND MAINTENANCE

- Never wash sample bottles with tap water. The residue left behind can alter readings. Use the included distilled water to clean the sample vials.
- Store the meter with the lid closed to prevent debris from entering the test chamber.
- Periodically wipe the meter with a dry, lint-free antistatic cloth.
- Do not use abrasives, solvents or cleaning agents containing carbon, alcohol or benzenes on the meter.
- Repairs or services not covered in this manual should be performed by qualified personnel only. Please contact Sper Scientific to speak with a technician.
- Periodically wipe the test chamber with a lint free cloth to ensure the internal lens is clean.

SPECIFICATIONS

	Range	Resolution	Accuracy
Turbidity	0 – 49.99 NTU	0.01 NTU	±5% RDG or 0.5 NTU, whichever is greater
	50 – 1000 NTU	1 NTU	±5% RDG or 5 NTU, whichever is greater
Operating Temperature and Humidity	0 - 50°C And less than 85% Relative Humidity		
Power Supply	AAA, 1.5V battery x 6		
Battery Life	250 hours		

Appendix Q: Supplemental Information

SI2024-00001
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03/04/2024

REPORT
GEOTECHNICAL ENGINEERING INVESTIGATION
SMC-HMB FARMWORKER HOUSING PROJECT
880 STONE PINE ROAD
HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA



for
County of San Mateo

August 2023

BAGG Engineers

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BAGG ENGINEERS

▶Geotechnical ▶Geoenvironmental ▶Special Inspection

August 23, 2023
BAGG Job No. COUSM-23-03

County of San Mateo
Department of Public Works
555 County Center, 5th Floor
Redwood City, CA 94063

c/o: Steven McGuckin, AIA
Capital Program Management, Inc

REPORT
Geotechnical Engineering Investigation
SMC-HMB Farmworker Housing Project
880 Stone Pine Road
Half Moon Bay, San Mateo County, California

Dear Mr. McGuckin:

Transmitted herewith is our geotechnical engineering investigation report for the captioned project in the City of Half Moon Bay, County of San Mateo, California. This report presents a description of our investigative procedures and the encountered subsurface conditions, potential geologic and seismic hazards that could impact development on the site, the results of our laboratory testing, and our findings, conclusions and recommendations for the proposed site improvements. As a part of these services, we performed three (3) Cone Penetration Tests and advanced four (4) borings at the site, and collected disturbed bulk and relatively undisturbed ring samples of the site materials for visual examination and laboratory testing, as discussed later in this report.

Our investigation has indicated that the site could be subjected to lateral spreading during a major earthquake. Our best estimate indicates the lateral spreading could be on the order of 6 inches near the center of the project, and increasing to about 1½ feet adjacent to the creek.

Thank you for the opportunity to be of service on this project. Please do not hesitate to contact us should you have any questions or comments.

Very truly yours,

BAGG Engineers

Jingqi Liu
Project Engineer

Jason Van Zwol
VP/Chief Engineer

REGISTERED PROFESSIONAL ENGINEER
JASON VAN ZWOL
No. 854
Exp 6/30/24
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REPORT
GEOTECHNICAL ENGINEERING INVESTIGATION
SMC-HMB FARMWORKER HOUSING PROJECT
880 STONE PINE ROAD
HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA

TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 SITE AND PROJECT DESCRIPTION 1

3.0 PURPOSE AND SCOPE OF SERVICES 2

4.0 GEOLOGY AND SEISMICITY 4
4.1 Site and Area Geology 4
4.2 Faulting and Seismicity 4

5.0 FIELD EXPLORATION AND LABORATORY TESTING 5

6.0 SITE CONDITIONS 7
6.1 Subsurface Conditions 7
6.2 Groundwater 8

7.0 GEO-HAZARD ANALYSIS 9
7.1 Liquefaction Potential 9
7.2 Lateral Spreading 11
7.3 Ground Shaking 12

8.0 DISCUSSION AND RECOMMENDATIONS 13
8.1 General 13
8.2 Site Grading 14
8.3 Foundations 15
8.3.1 Foundations on Ground Surface with Tie-Downs 15
8.3.2 Spread/Strip Footings 16
8.4 Settlement 17
8.5 Retaining Walls and Temporary Shoring 17
8.6 Exterior Flatwork 18
8.7 Pavement Design 18
8.7.1 Flexible Pavements 18
8.7.2 Rigid Pavements 20
8.8 Utility Trench Backfill 20
8.9 Drainage 21
8.10 Corrosion Potential 21
8.11 Plan Review 22
8.12 Observation and Testing 23

TABLE OF CONTENTS CONTINUED

9.0 CLOSURE 23

10.0 REFERENCES 24

Attached Plates and Appendix:

Plate 1	Vicinity Map
Plate 2	Site Plan
Plate 3	Area Geologic Map
Plate 4	Regional Fault Map
Plate 5	Cross Section A-A’
Plate 6	Unified Soil Classification System
Plate 7	Soil Terminology
Plate 8	Boring Log Notes
Plate 9	Key to Symbols
Plates 10-A through 13-B	Boring Logs
Plate 14	Plasticity Data
Plate 15	Gradation Test Data
Plate 16	R-Value Test Report
Plate 17	Corrosivity Tests Summary
Appendix A	Cone Penetration Test (CPT) Results (CPT-3 through CPT-5)
Appendix B	2021 Boring & CPT Logs (B-1 through B-5; CPT-1 & CPT-2)

ASFE document titled “Important Information about This Geotechnical Engineering Report”

APPENDICES ARE AVAILABLE UPON REQUEST

REPORT

GEOTECHNICAL ENGINEERING INVESTIGATION
SMC-HMB FARMWORKER HOUSING PROJECT
880 STONE PINE ROAD
HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA

1.0 INTRODUCTION

This report presents the results of our geotechnical engineering investigation performed to characterize the subsurface conditions at the site and assess the potential for geologic and geotechnical issues potentially affecting the design and construction of the proposed improvements. The attached Plate 1, Vicinity Map, shows the general location of the subject site, while Plate 2, Site Plan, depicts the site layout, the location of the proposed improvements, the approximate locations of the exploratory borings and Cone Penetration Tests (CPTs) advanced for the corporation yard in 2021, as well as the approximate locations of the borings (B-6 through B-9) and CPTs (CPT-3 through CPT-5) advanced for this investigation. Our services were provided in accordance with the scope outlined in our Proposal No. 23-494 dated June 30, 2023.

The following sections of this report present the result of our reviews, research, findings, and geotechnical evaluations following a site-specific subsurface exploration.

2.0 SITE AND PROJECT DESCRIPTION

The subject site is located on the east end of Stone Pine Road, approximately 2,500 feet east of the State Route 1 and 1¼ miles east of the Pacific shoreline in the City of Half Moon Bay, San Mateo County, California. It is bounded by San Mateo Road (Highway 92) on the northwest, a commercial parcel on the northeast, Pilarcitos Creek on the east and southeast, and residential parcels on the west. The site consists of an irregular-shaped, approximately 20-acre parcel that generally slopes gently to the southeast. The northeastern portion of the site is under construction for a corporation yard with a long, elevated driveway from Stone Pine Road to the new corporation yard site for the City of Half Moon Bay. An existing earth-lined agricultural pond is present on the western corner of the site at an elevation about 50 feet higher than in the project area. The remaining site area is undeveloped.

SI2024-00001
6851 TARWATER RD
03/04/2024

It is our understanding that the project will consist of the construction of 47 modular houses in the western vacant portion of the parcel on both sides of the new driveway. The houses are anticipated to be constructed on graded building pads and supported on 18-inch-tall, load-bearing piers supported on either 24"x24" pressure treated plywood pad, or 24"x24" pre-cast concrete pads set on compacted base rock surface with tie-downs for seismic resistance. Home Pride earth anchors are anticipated to be used as tie-downs. Other site improvements will include paved driveway and parking lots, a sports court, and landscape areas. We note that this investigation does not address the subsurface conditions and any potential hazards associated with the existing pond.

3.0 PURPOSE AND SCOPE OF SERVICES

The purpose of our services was to conduct a subsurface investigation at the subject site to obtain information required to address the geotechnical engineering aspects of the proposed project. To this end, this report addresses the following:

- Geologic site conditions and seismicity of the project site, including a review of available published geologic maps and reports pertinent to the site area, a discussion of the site geology and seismicity with distance to the active faults in the region, as well as the probability of a major earthquake on each fault;
- Seismic design parameters for the proposed site improvements per the 2022 California Building Code and ASCE 7-16[1];
- Specific subsurface conditions discovered by the borings and CPTs, such as expansive, loose, saturated, collapsible, or soft surface and subsurface soils that may require special mitigation measures or impose restrictions on the project, including the thickness and consistency of the existing fill soils and groundwater levels, as encountered;
- Assessment of liquefaction potential, any adverse impacts it may impose on the project, and remedial measures, as deemed appropriate;
- Criteria for site grading, earthwork, preparation of subgrades and building pads, placement of fills and backfills, and trench backfill requirements, including the suitability of the excavated soils from the site for use as fill and backfill material;

[1] This report assumes the project site can be properly classified as a Site Class D (Stiff Soil) site (discussed later in this report), and that the Exception of the Supplement 3 to Section 11.4.8 of ASCE 7-16 will apply to the proposed structures. Thus, a site-specific ground response analysis in accordance with ASCE 7-16 Section 21.1, and a ground motion hazard analysis in accordance with ASCE 7-16 Section 21.2 are not included in our scope of services.

SI2024-00001
6851 TARWINE RD
03/04/2024

- Estimates of the allowable bearing values for the 24”x24” plywood/concrete pad, and the resistance to pull-out loads for the anticipated anchor type (Home Pride earth anchors);

- Estimate of the lateral resistance for the proposed foundation system, including the applicable coefficient of friction between the supporting surface (gravel) and plywood/concrete pads;

- Estimate of earth pressures acting on site retaining walls, including vertical and lateral support requirements;

- Estimates of the post-construction total and differential settlements for the new structures supported on the recommended foundation system;

- Criteria for support of exterior concrete flatwork;

- Criteria for the design of rigid and flexible pavements;

- General provisions for the control of surface and subsurface drainage; and

- Preliminary screening for soil corrosivity and its impact on the buried foundation elements and underground utilities.

To fulfill the above purpose, the scope of our investigation consisted of the following specific tasks:

- Reviewed pertinent geotechnical and geological reports, as well as hazard maps and reports relevant to the site and vicinity.

- Marked the planned boring and CPT locations in the field, coordinated the field exploration with the client representatives, retained a utility locating firm to help clear the boring and CPT locations, and notified Underground Service Alert (USA) at least 72 hours in advance.

- Obtained permits for borings and CPTs from the County of San Mateo Department of Environmental Health.

- Drilled, logged, and sampled four borings to approximate depths of 20 to 30 feet using a truck-mounted drilling rig. The borings were advanced under the supervision of one of our engineers who also obtained disturbed bulk and relatively undisturbed ring samples of the subsurface materials at 3- to 5-foot-intervals for visual examination and laboratory testing. The borings were backfilled with cement grout per the permit requirements. The drilling spoils were left at the site.

- Advanced three CPTs to an approximate depth of 50 feet. The CPTs were backfilled with cement grout per the permit requirements.

- Performed a laboratory testing program on the collected soil samples to evaluate the geotechnical engineering characteristics of the subsurface soils. Tests included direct shear

SI2024-00001
6851 TUNITAS CREEK RD
03/04/2024

tests, Atterberg Limits, grain-size analyses, moisture-density measurements, R-value, and soil corrosivity testing, as judged appropriate.

- Conducted engineering analyses based on the results obtained from the above tasks and oriented towards the above-stated purpose of the investigation; and

- Prepared this report presenting the results of our investigation, summarizing our findings and recommendations for the subject project, and including a vicinity map, a site plan showing the approximate boring and CPT locations, an area geologic map, a regional fault map, the boring and CPT logs, subsurface profile(s) and the laboratory test results.

4.0 GEOLOGY AND SEISMICITY

4.1 Site and Area Geology

A review of the *Geology of the Onshore Part of San Mateo County, California: Derived from the Digital Database Open-File 98-137*, prepared by Brabb et al. (1998), indicates that the northwestern portion of the site is underlain by Pleistocene age marine terrace deposits (Qmt) described as "poorly consolidated and poorly indurated well- to poorly sorted sand and gravel." The southeastern portion of the lot along Pilarcitos Creek is mapped as Holocene alluvial fan deposits (Qyf, Qyfo) generally consisting of unconsolidated sand, silt, clayey silt, and gravel.

A portion of the geologic map that includes the site area is presented on Plate 3, Area Geologic Map.

4.2 Faulting and Seismicity

No earthquake faults have been mapped crossing the site area. The distances from the site to the major faults in the area and their estimated probability of generating a major earthquake ($M_w \geq 6.7$) are listed in the Table 1 on the following page. The major active faults with respect to the subject site are also shown on the attached Plate 4, Regional Fault Map.

According to the California Geological Survey (CGS) map of *Earthquake Zones of Required Investigation, Half Moon Bay Quadrangle* (2021), the site is not situated within an Alquist-Priolo Earthquake Fault Zone (AP Zone). However, the site is situated within an area designated as an earthquake-induced liquefaction hazard zone. Evaluation of the potential of the site materials for seismically-induced liquefaction requires the upper 50 feet of soils must be explored and characterized as a minimum (per Special Publication 117A adopted by the State of California).

SI2024-00001
6851 PESCADERO RD
03/04/2024

Table 1
Significant Earthquake Scenarios

Fault	Approximate Distance to Site (kilometers)[1]	Location with Respect to Site (Driving Range Tee)	Probability of $M_W \geq 6.7$ within 30 Years[2]
San Gregorio	4	SW	5%
Pilarcitos	5	NE	0.5%
San Andreas (Entire)	8	NE	33%
San Andreas (Peninsula)	8	NE	9%
Monte Vista – Shannon	21	SE	1%
Hayward-Rodgers Creek	37	NE	32%
Calaveras	50	NE	25%

[1] USGS Fault Files from Google Earth, and CGS Fault Activity Map of California
2 Working Group on California Earthquake Probabilities, 2014

5.0 FIELD EXPLORATION AND LABORATORY TESTING

Conditions of the subsurface materials within the project area were explored by drilling four borings to approximate depths of 20 to 30 feet below the existing ground surface (bgs) using a truck-mounted drilling rig equipped with 6-inch diameter continuous flight augers. In order to better address the liquefaction hazards, three 50-foot-deep Cone Penetration Tests (CPTs) were advanced with a truck-mounted CPT rig. The approximate boring and CPT locations are shown on the attached Plate 2, Site Plan. Plate 5, Cross Section A-A', presents our interpretation of the subsurface conditions extrapolated from the information obtained during our site investigation.

A continuous log of the subsurface materials encountered in the boreholes was maintained by our engineer on site. Disturbed bulk and relatively undisturbed ring samples of the site materials were obtained. The subsurface materials were visually classified in the field; the classifications were then checked by visual examination, grain size analysis, and Atterberg Limits testing performed in the laboratory. In addition to sample classification, the boring logs contain interpretation of where stratum changes or gradational changes occur between samples and where subtle changes become significant enough to log. The boring logs depict BAGG's interpretations of subsurface conditions only at the locations indicated on Plate 2, Site Plan, and only on the date noted on the logs.

Cone penetrometer tests (CPT) consist of hydraulically advancing a probe into the soil strata with a truck-mounted CPT rig. The probe is fitted with transducers that read resistance at the tip of the probe, or cone,

friction acting between the sides of the sleeve immediately behind the cone and the surrounding soil, and pore pressure. The resulting data is then correlated to establish soil behavior types, consistencies, and shear strength data. The location of the CPTs are also shown on the attached Plate 2, Site Plan, and the CPT logs are presented in Appendix A.

The boring logs and the CPT data are intended for use only in conjunction with this report, and only for the purpose outlined by this report. The graphical representation of the materials encountered in the borings, and the results of laboratory tests, as well as explanatory/illustrative data are attached, as follows:

- Plate 6, Unified Soil Classification System; illustrates the general features of the soil classification system used on the boring logs;
- Plate 7, Soil Terminology; lists and describes the soil engineering terms used on the boring logs;
- Plate 8, Boring Log Notes; describes general and specific conditions that apply to the boring logs;
- Plate 9, Key to Symbols; describes various symbols used on the boring logs;
- Plates 10-A through 13-B, Boring Logs; describe the subsurface materials encountered, show the depths and blow counts for the samples, and summarize the results of the strength tests, Atterberg Limits, sieve analyses, and moisture-density data;
- Plate 14, Plasticity Data; presents the results of Atterberg Limits tests performed on selected samples of the site materials;
- Plate 15, Gradation Test Data; presents the result of two gradation tests performed on selected samples of the site materials;
- Plate 16, R-Value Test Report; presents the results of an R-value test performed on a sample of the near-surface soil from Boring B-9 near the proposed asphalt driveway; and
- Plate 17, Corrosivity Test Summary; presents the results of corrosivity testing performed by an outside laboratory on two selected soil samples.

Direct shear strength tests were performed on collected soil samples to evaluate the strength parameters of the site earth materials. The direct shear tests were performed at both natural (field) and artificially increased moisture contents, while under various surcharge pressures. The moisture content and dry density of several undisturbed samples were measured to aid in correlating their engineering properties. In addition, Atterberg Limits tests were performed on selected samples to aid in classification as well as obtain

SI2024-00001
6851 TARAVINE RD
03/04/2024

an indication of the samples' expansion potential. Gradation and wash over the No. 200 sieve tests were also performed on selected samples of the site materials to classify the samples. Additionally, an R-value test was conducted on a bulk sample of the near-surface soil to aid in the pavement section design. Furthermore, corrosivity testing was carried out by Cooper Testing Labs on two selected soil samples. The results of the noted tests are shown on the boring logs and on the plates described above.

6.0 SITE CONDITIONS

6.1 Subsurface Conditions

Borings B-4 through B-9 encountered a 1- to 2-foot-thick layer of artificial fill consisting predominantly of stiff sandy lean clay and/or medium dense clayey sand with varying gravel content; however, relatively dry and loose/soft surficial materials were observed at Boring B-6 and B-9 locations. Atterberg Limits testing on a fill soil sample obtained at a depth of about 1 foot below the ground surface (bgs) in Boring B-9 yielded a liquid limit of 40 and a plasticity index of 17, indicating the existing fill material is moderately expansive in nature.

Native soils encountered in the borings consisted predominantly of interlayered lean clay, clayey sand, silty sand, and/or well-graded sand with silt. The upper clay deposits were generally stiff to very stiff and become medium stiff as depth increases. The sandy deposits were mostly medium dense in consistency with a few loose sand layers in the upper about 15 feet of the profile in Boring B-6. In addition, thin, less than 6-inch-thick fat clay layers were observed in the deep borings below about 27 feet bgs. Atterberg Limits testing on native clay and/or clayey sand samples in the upper about 5 feet of the boring profiles yielded liquid limits in the range of 39 to 49 and plasticity indices between 15 and 25, indicating the near-surface native materials are moderately to highly expansive in nature.

CPT-3 through CPT-5 advanced as part of this investigation also revealed interlayered clayey, silty, and/or sandy deposits within the maximum explored depth of 50 feet. The encountered fine-grained soils were medium stiff to very stiff while the granular deposits, consisting predominantly of silty sand to sandy silt and/or clean sand to silty sand, were generally medium dense to dense in consistency. However, the CPT profiles showed large variation in the depth to the first sand layer and the total thickness of the granular deposits. Excluding the surficial ½ foot of topsoil, CPT-3 first encountered sandy deposits at the approximate depth of 8½ feet bgs. CPT-4, however, revealed sandy soils down to the depth of about 12½ feet bgs. At

location of CPT-5, the upper approximately 2½ feet of the profile also consisted of sandy materials; however, below 2½ bgs, CPT-5 revealed mostly clayey deposits with scattered, 2-inch- to 2½-foot-thick, sandy lenses. The total thickness of the medium dense sandy deposits in CPT-5 was about 7 feet, while CPT-3 and CPT-4 encountered approximately 17 feet and 24 feet of medium dense sand, respectively.

BAGG advanced five borings (Borings B-1 through B-5) and two CPTs (CPT-1 and CPT-2) as part of the previous investigation on the northeastern half of the site for the City of Half Moon Bay Corporation Yard project in 2021. The previous Borings B-1 through B-5 revealed predominantly clayey deposits within their maximum explored depths of 5 to 25 feet bgs, except that Boring B-1 encountered medium dense clayey sand below 13 feet to its bottom at 15 feet, and Boring B-2 encountered medium dense to dense clayey sand below 15½ feet to its bottom at 20 feet. The two sand layers may, however, extend further in depth. CPT-1 and CPT-2 revealed interbedded clayey and sandy deposits within the maximum explored depth of 50 feet.

Our boring and CPT profiles indicated the site is generally underlain by interlayered clayey and sandy soils; however, the depths of the sand layers, the thickness and consistency of each sandy layer, as well as the total amount of the sandy deposits with the explored depths, are non-uniform and vary from one location to another. For more information regarding our interpretation of the subsurface materials, we refer you to Plates 10-A through 13-B, Boring Logs. The CPT data is presented in Appendix A attached to this report. The previous Boring B-1 through B-5 logs, as well as CPT-1 and CPT-2 data, are presented in the attached Appendix B.

6.2 Groundwater

Groundwater was first encountered in Borings B-6, B-7, and B-8 at the approximate depth of 17½, 19, and 15 feet bgs, respectively, and was measured upon completion of drilling and sampling at the depths of about 18 feet in B-6 and B-7 and about 9 feet bgs in Boring B-8. Groundwater was not encountered in Boring B-9 within its maximum explored depth of 20 feet. The CPTs estimated groundwater depths of about 15 feet in CPT-3 and about 12½ feet in CPT-5.

Groundwater was not encountered in the previous Borings B-1 through B-5, which were extended to the maximum depth of 25 feet bgs. CPT-1 and CPT-2 estimated groundwater depths of about 10½ and 18 feet bgs, respectively.

Groundwater levels typically fluctuate due to seasonal changes such as variations in rainfall and temperature, hydrogeological variations such as groundwater pumping or recharging, and/or other factors not evident at the time of exploration. Plate 1.3 of the California Geological Survey (CGS, 2021) Seismic Hazard Zone Report 132 (SHZR 132), *Seismic Hazard Zone Report for the Half Moon Bay 7.5-Minute Quadrangle, San Mateo County, California,* indicates the depth to historically high groundwater level in the general site area is less than 10 feet.

7.0 GEO-HAZARD ANALYSIS

7.1 Liquefaction Potential

According to the regulatory Seismic Hazard Zone Official Map prepared by the CGS (2021), the subject site is situated within a Seismic Hazard Zone associated with liquefaction. These zones are defined as "areas where historical occurrence of liquefaction, or local geological, geotechnical and groundwater conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required."

Soil liquefaction is a condition where saturated granular soils near the ground surface undergo a substantial loss of strength due to increased pore water pressure resulting from cyclic stress applications induced by earthquakes or other vibrations. In the process, the soil acquires mobility sufficient to permit both vertical and horizontal movements, if not confined. Soils most susceptible to liquefaction are loose, uniformly graded, fine-grained, sands, and loose silts with very low cohesion. In general, liquefaction hazards are most severe in the upper 50 feet of the soil profile. In deeper deposits, the greater overburden soils tend to isolate the ground surface from the impact of any liquefaction in deeper soils, and the overburden pressures tend to limit shear strains that occur during liquefaction.

Our boring and CPT data indicated the site is generally underlain by non-uniform, interlayered clayey and sandy deposits. Liquefaction analysis was performed using the CPT soundings and the boring data (within the maximum depths explored) following the procedures recommended by Boulanger and Idriss (2014). For

SI2024-00001
6851 STAGE PINE RD
03/04/2024

the purpose of this analysis, we used a groundwater level of 9 feet which was the highest groundwater level measured in our borings. Our analysis used an earthquake magnitude of 7.7 as obtained from the USGS Unified Hazard Tool (https://earthquake.usgs.gov/hazards/interactive/index.php), and a Peak Ground Acceleration of 0.89g obtained from the U.S. Seismic Design Maps by California's Office of Statewide Health Planning and Development (OSHPD, https://seismicmaps.org/).

Our analysis indicates that the loose to dense sand layers presented beneath the site are potentially liquefiable. The estimated liquefaction settlements are highly associated with the total amount of the potentially liquefiable sands at each of the exploration locations. Our analysis estimated liquefaction settlements of approximately 1½ inches in CPT-3, 2 inches in CPT-4, and ¼ inch in CPT-5. The estimated liquefaction settlements within the maximum explored depth of the borings were about 3 inches in Boring B-6 (30-foot-deep), 1⅓ inches in B-7 (21½-foot-deep), 2½ inches in B-8 (28½-foot-deep), and ⅓ inch in B-9 (20-foot-deep). Potentially liquefiable soils are also likely present beneath the explored depths in the borings.

Our analysis also estimated that the seismic compaction within the sandy deposits above the assumed groundwater level (9 feet) in Borings B-6 through B-9 ranged from less than ¼ inch to about ⅔ inch. The estimated seismic compaction in CPT-3 and CPT-5 was negligible; however, we estimated about 1⅓ inches of seismic compaction in the upper sandy deposits in CPT-4.

With a groundwater level of 9 feet (instead of 11 feet used in our 2021 analysis), we estimated liquefaction settlements of about 1 inch in the previous CPT-1 and ⅔ inch in CPT-2. The estimated seismic compaction was about ⅓ inch in CPT-1 but was negligible in CPT-2. Estimated seismic settlement was negligible in the previous Borings B-1 through B-5 as they were relatively shallow and the encountered sandy materials were either too clayey or too dense to be considered liquefiable.

We note that the empirical calculation methods, such as the one used here, for estimating expected settlements due to liquefaction are known to be conservative, especially when the soils in question contain in excess of 30 percent fines. Also, our analysis used a relatively conservative groundwater depth of 9 feet which was the groundwater depth measured in Boring B-8 near the creek, while other borings/CPTs measured/estimated groundwater depths in the range of 11 feet (2021) to more than 20 feet bgs. We

SI2024-00001
6851 TARWINE RD
03/04/2024

therefore anticipate the total seismic settlements in the project area would generally be in the range of ¼ to 1½ inches but could be as much as 3 inches or so in some localized areas such as the CPT-4 location.

Based on the estimated seismic settlements and the relative distance between the exploration points, we estimate the differential settlements due to seismic compaction and liquefaction of the granular soils would be approximately 1 inch in 50 feet across the site.

7.2 Lateral Spreading

Lateral spreading is a potential hazard commonly associated with liquefaction where extensional ground cracking and settlement occur as a response to lateral migration of subsurface liquefiable material. Lateral movement can range from a few inches to several feet and can cause significant structural damage. Lateral spreading generally arises where sloping terrain and/or a free-face condition occurs in conjunction with the presence of loose, saturated soils at shallow depths, particularly along riverbanks and shorelines.

Calculations to evaluate the potential for lateral spread toward the adjacent Pilarcitos Creek using the method suggested by Boulanger and Idriss (2014) indicates a possible 1 foot of lateral movement at CPT-3 and 1¼ feet at CPT-4, but estimated no lateral movement at CPT-5. Borings B-6 through B-9 using the method suggested by Youd, et al (2002) estimated lateral movements ranging from negligible amount to as much as 12 feet. It should be noted that the above estimates of lateral spreading assume all the liquefiable layers encountered in each boring are continuous toward the creek. As shown on Plate 5, Cross Section A-A', the sandy deposits potentially subject to lateral movement are generally non-uniform and discontinuous, with the exception of a potentially continuous sand layer between the approximate elevations of 50 to 60 feet above the mean sea level, which is about 5 feet below the bottom of Pilarcitos Creek. Assuming this layer is continuous toward the creek, for a design earthquake of Magnitude 7.7 at a distance of about 6 kilometers, we have estimated lateral spreading on the order of 6 inches in the vicinity of Boring B-7 and CPT-4, increasing to about 1½ feet at the creek bank. Because the source of the deformations in this scenario would be at some depth, we anticipate that much of the movement would consist of relatively large soil masses moving toward the creek; however, it is impossible to predict where fractures would occur at the surface.

SI2024-00001
6851 TARAVINE RD
03/04/2024

7.3 Ground Shaking

The site could experience very strong ground shaking from future earthquakes during the anticipated lifetime of the project. The intensity of the ground shaking will depend on the magnitude of the earthquake, distance to the epicenter, and the response characteristics of the on-site soils. While it is not possible to totally preclude damage to structures during major earthquakes, strict adherence to good engineering design and construction practices will help reduce the risk of damage. The 2022 California Building Code defines the minimum standards of good engineering practice.

As discussed above, our investigation indicated the presence of potentially liquefiable soils beneath the site. If the fundamental period of vibration of the planned structures is less than 0.5 seconds, which is likely the case for this project, the site class can be calculated with shear wave velocities, blow counts and/or soil strengths in accordance with Section 20.4 of ASCE 7-16. Based on our boring and CPT data, it is our opinion that a Site Class D may be assumed for design purposes.

Class “D” is defined as a “stiff soil profile” with an average shear wave velocity between 600 and 1,200 feet per second, and/or average undrained shear strength between 1,000 and 2,000 psf in the top 100 feet of the site.

Using the site coordinates of 37.4679° North Latitude and 122.4239° West Longitude, and the OSHPD Seismic Design Maps, earthquake ground motion parameters were computed in accordance with the 2022 California Building Code and the ASCE 7-16, and are listed in the following table. As S_1 is greater than 0.2g, Table 2 below assumes the Exception in Supplement No.3 to Section 11.4.8 of ASCE 7-16 applies. If the Exception does not apply to the design of this project, the seismic design will require a site-specific ground motion hazard analysis in accordance with Section 21.2 of ASCE 7-16. Such analysis is beyond our present scope of services.

SI2024-00001
6851 HUBBLE RD
03/04/2024

Table 2
Parameters for Seismic Design

2022 CBC Site Parameter	Value
Site Latitude	37.4679° N
Site Longitude	122.4239° W
Site Class	Class D, Stiff Soil
Risk Category	III
Mapped Spectral Acceleration for Short Periods S_s	1.93
Mapped Spectral Acceleration for 1-second Period S_1	0.73
Site Coefficient F_a	1.0
Site Coefficient F_v	1.7**
Site-Modified Spectral Acceleration for short Periods S_{Ms}	1.93
Site-Modified Spectral Acceleration for 1-second Period S_{M1}	1.24*
Design Spectral Acceleration for short Periods S_{Ds}	1.29
Design Spectral Acceleration for 1-second Periods S_{D1}	0.83*

* This value has not been increased by 50% per Exception of Supplement No.3 of Section 11.4.8.
** See Table 11.4.2 - This value to be used only for calculation of T_S, for determination of Seismic Design Category and when taking the exception under Item 1 of Section 11.4.8.

8.0 DISCUSSION AND RECOMMENDATIONS

8.1 General

Based on our review of the published geologic and geotechnical documents, research of the existing soils information, and the subsurface exploration conducted at the subject site, as well as the results obtained from our laboratory testing program, we have developed the following geotechnical recommendations and design criteria for the subject project. When the final project plans become available, they should be reviewed by this office to confirm that they have been prepared in accordance with this report, as well as confirm that our recommendations properly address the proposed project in its final form.

Analysis of the boring profiles and the CPT soundings indicates the impact of liquefaction and seismic compaction from a design level earthquake on the site could be seismic settlements on the order of ¼ to 1½ inches with some localized areas potentially having as much as 3 inches of seismic settlement. Our investigation also indicated that the site could be subjected to lateral spreading during a major earthquake. Our best estimate indicates the lateral spreading could be on the order of 6 inches near the center of the project, and increasing to about 1½ feet adjacent to the creek. Despite the liquefaction and lateral spreading potential, our boring data and laboratory test results indicate the subgrade soils generally are capable of supporting the proposed modular structures and the associated improvements.

SI2024-00001
6851 PESCADERO RD
03/04/2024

8.2 Site Grading

Site grading is anticipated to consist of the removal of existing vegetation and debris from the construction areas, preparation of building pads and pavement subgrades, and installation of underground utilities. Site grading may also consist of foundation excavation if concrete footings are required to support site retaining walls, fence posts, etc.

As used in this report, the term 'compact' and its derivatives mean that all engineered fill material, whether imported or on-site material, should be compacted to at least 90% of maximum dry density as determined by ASTM Test Method D1557. The term also implies that immediately prior to being compacted, the fill material should be thoroughly moisture conditioned to a moisture content that is slightly above optimum for imported non-expansive fill material, and at least 2% over optimum for onsite clayey soils. The properly moisture-conditioned fill should be spread evenly in lifts not exceeding 8 inches in loose thickness, and each lift should be thoroughly moisture conditioned and compacted before subsequent lifts are placed. Class II Aggregate Base, and the upper 12 inches of subgrades within pavement and modular building areas, should be compacted to a minimum of 95% of the maximum dry density at the moisture content specified above.

The following grading procedures should be followed in building pad, pavement, and flatwork areas:

- Remove existing bushes, vegetation roots, and other debris from the proposed construction areas. Remove all organically-contaminated soils from the site and do not re-use as site fill except for use in landscaping areas only. Where trees are removed, the removal should include all major root systems down to 1 inch in size or less.

- Excavate to the proposed subgrade elevations. Scarify the exposed surfaces to a depth of 6 to 8 inches. Thoroughly moisture condition the scarified surfaces to a moisture content that is at least 2% over optimum and re-compact as specified above. Further over-excavate as necessary in any areas still containing weak, yielding, or pumping soils, as determined in the field by this office.

- Place fill on the over-excavated surfaces and in the holes/depressions created by the above actions in uniformly moisture conditioned and compacted lifts not exceeding 8 inches in loose thickness. Rocks or cobbles larger than 4 inches in maximum dimensions should not be allowed to remain within the basement area, unless they can be crushed in-place by the construction equipment.

The existing sandy fill soil and the upper native clay are generally suitable for use as structural fill, provided they are free of organic matters and rocks larger than 4 inches in size, and are approved by BAGG's field

SI2024-00001
6851 PESCADERO RD
03/04/2024

representative. Imported fill soil, if any, should be predominantly granular in nature and should be free of organics, debris, or rocks over 4 inches in size, and should be approved by the Geotechnical Engineer before importing to the site. As a general guide to acceptance, imported soils should have a Plasticity Index less than 15, and R-value of at least 20, and fines content between 15 and 60 percent.

It must be the Contractor's responsibility to select equipment and procedures that will accomplish the grading as described above. The Contractor must also organize his work in such a manner that BAGG Engineers can observe and test the grading operations, including excavation, placement of fill and backfill, and compaction of subgrades.

8.3 Foundations

Based on the results of our subsurface exploration and laboratory testing, it is our opinion the proposed modular houses can be supported on surface foundations set on compacted base rock with tie-downs, as proposed. Conventional concrete spread/strip footings can be used to support structures such as retaining walls, seating, fence posts, etc., as necessary. Recommendations for each of the foundation type are presented in the following paragraphs.

8.3.1 Foundations on Ground Surface with Tie-Downs

It is our understanding that the proposed modular house foundations will consist of 18-inch-tall, load bearing piers supported on either 24"x24" pressure treated plywood pad or 24"x24" pre-cast concrete pads. Home Pride earth anchors are anticipated to be installed for seismic resistance. We also understand the housing pads will not be paved with asphaltic concrete but will be covered with compacted base rock.

We recommend the proposed 24"x24" plywood/concrete pads should be placed on minimum 12 inches of Class II aggregate base. The aggregate baserock and the top 12 inches of subgrade should be compacted to a minimum of 95 percent relative compaction while at the moisture content specified under Site Grading.

For 24-inch-wide plywood or concrete pads supported on 12 inches of compacted Class II aggregate base, we estimate the allowable bearing pressures can be taken as 2,500 pounds per square foot (psf) for dead loads and 4,000 psf for total design loads including seismic.

SI2024-00001
6851 PESCADERO RD
03/04/2024

Helical augur tie-downs are frequently a design-build item that are installed to a specified minimum torque. Based on the soils information, we recommend the anchors should be a minimum 30 inches deep. On a preliminary basis, a 30-inch anchor with ¾-inch shaft and two 4-inch discs (Home Pride HP3) installed vertically (with stabilizer) through 12 inches of compacted Class II aggregate base, will be able to resist a pull out load on the order of 3,600 pounds.

Lateral loads may also be resisted by the friction between the bottom of the wood/concrete footings and the aggregate base surface. The friction coefficient between the plywood pad and the supporting aggregate base is estimated to be 0.50. The friction coefficient between the concrete pad and the supporting aggregate base is estimated to be 0.40.

8.3.2 Spread/Strip Footings

Spread/strip footings, if required, should be properly established a minimum of 24 inches below the lowest adjacent grade. The minimum required width for the isolated and continuous shallow footings is 24 inches and 12 inches, respectively. At this depth, the allowable bearing value should be taken as 2,500 psf for dead loads and 3,750 psf for total design loads for all footings. The latter value may be increased by one-third, when resisting transient and seismic loads.

For concrete footings, lateral loads may be resisted by passive soil pressures against the sides of the footings in conjunction with the friction between concrete footing bottom and the soil below. The allowable passive resistance to wind or seismic loads can be taken as an equivalent fluid pressure of 350 pounds per cubic foot (pcf) in compacted fill and undisturbed native materials. The top 12 inches of the passive resistance should be ignored, unless the foundation is protected by a pavement or a concrete slab. A coefficient of friction of 0.3 between compacted fill/undisturbed soil and the bottom of concrete footings may be used in conjunction with the passive pressure.

Concrete foundations must be appropriately reinforced as deemed appropriate by the project structural engineers. The bottom of the footing excavations should be relatively clean, firm, and free of any loose or yielding soils before reinforcing steel and concrete are placed. It is critical that foundation excavations are not allowed to dry out and crack before concrete is poured and that the exposed soils are at the recommended moisture content when concrete is poured. Any dried and cracked soils should be entirely removed as directed by this office, and replaced with properly compacted fill or lean concrete.

SI2024-00001
6851 TARWINE RD
03/04/2024

8.4 Settlement

Total static settlements for foundations constructed as recommended are anticipated to be less than ½-inch with differential settlement of approximately half this value. The seismically induced liquefaction settlement discussed in Section 7.1, Liquefaction Potential, should be considered additional to the estimated static settlements.

8.5 Retaining Walls and Temporary Shoring

Retaining walls, if any, should be designed to resist lateral earth pressures from the adjoining soil and surcharge loads from adjacent structures. Walls that are restrained from movement at the top should be designed to resist an equivalent fluid pressure of 70 pcf for level backfill. Free standing walls should be designed to resist active lateral earth pressures taken as an equivalent fluid pressure of 50 pounds per cubic foot (pcf) for level backfill. For sloping backfill, the above pressures should be increased by 3 pcf for every 5-degree increase in the backfill slope angle up to a maximum gradient of 2H:1V (Horizontal to Vertical). Surcharge loads should be added to the above pressures at a rate of 33% and 50% of the applied surcharge load for cantilever and restrained walls, respectively.

Seismic pressures on the retaining walls may be simulated by a rectangular pressure distribution against the wall equal to 10H, where H is the height of the wall.

The above lateral pressures do not include any hydrostatic pressures resulting from groundwater, seepage water, or infiltration of natural rainfall and/or irrigation water behind the walls. Therefore, all walls over 2 feet in height should be provided with a drainage blanket behind the wall. The drainage blanket should consist of a pre-manufactured drainage panel, or a one-foot-thick blanket of Caltrans Class 2 Permeable material, or a one-foot-thick blanket of free-draining gravel encapsulated by a suitable filter fabric. A 12-inch cap of relatively impermeable soil should be placed at the top of the drainage blanket to minimize infiltration of surface water. The cap material should be compacted to a minimum of 90 percent relative compaction at a moisture content of at least 2 percent over optimum. In addition, a 4-inch diameter perforated PVC pipe should be installed holes facing down at the base of the drainage layer to facilitate removal of water collected behind the wall. The perforated pipe should drain via gravity flow to an approved discharge point.

SI2024-00001
6851 PESCADERO RD
03/04/2024

General backfill behind the walls, excluding drainage materials, should conform to the fill requirements included under the "Site Grading" section of this report. Retaining walls should be supported on concrete footings as recommended under Foundations.

Vertical site excavations measuring 5 feet or more in height should be properly shored as per the Cal-OSHA guidelines. Temporary shoring may consist of approved soldier-pile and wood lagging walls, soil-nail or tie-back walls with shotcrete, or other approved alternative. The temporary shoring should be designed to withstand an active earth pressure of 45 pcf. Construction equipment should not be allowed at the top of the excavation closer than a distance equal to the height of the excavation. Where a temporary sloped excavation is desired, the side slope gradient of 1H:1V should be utilized if the excavation exposes clayey soils and a gradient of 1½H:1V should be utilized if the excavation exposes silty and/or sandy soils.

8.6 Exterior Flatwork

All concrete slabs should be constructed on a well compacted and moisture conditioned soil subgrade as recommended in the "Site Grading" section of this report. Once the subgrade has been prepared, it should be maintained above optimum moisture content until the concrete slab is placed. The subgrade should be approved by the Geotechnical Engineer immediately before the slab is poured. The slab should be reinforced as per the project Structural Engineer's recommendations.

Where new exterior slabs will be constructed adjacent to irrigated landscape areas, or where natural runoff will drain toward the subgrade area, below-grade concrete curbs should be constructed at the edges of planters and landscaping areas. The intent is to minimize moisture seeping from landscaping areas into the pavement subgrade through the aggregate base. The curbs should extend 2 to 3 inches below the bottom of the aggregate base. Where trees will be located adjacent to pavement areas, a suitable root barrier will also help limit migration of irrigation water into the aggregate base.

8.7 Pavement Design

8.7.1 Flexible Pavements

An R-value test was performed on a sample of the near-surface clayey soil obtained from Boring B-9 near the proposed driveway area. The test results indicated an R-value of 9, as shown on the attached Plate 16,

SI2024-00001
6851 PESCADERO RD
03/04/2024

R-Value Test Report. The two R-value tests carried out as part of our previous investigation for the corporation yard project estimated R-values of 19 and 13.

Considering the variability of the soils cross the project area, for purpose of this investigation, we used an R-value of 9 to calculate the pavement sections for Traffic Indices of 5.0, 6.0, and 7.0. Generally, a Traffic Index (TI) of 5.0 is appropriate for automobile parking stalls, whereas a Traffic Index of 6.0 would be appropriate for heavily-used automobile driveways with only occasional use by heavy trucks (such as once a week or so by garbage trucks), and Traffic Indices of 7.0 or higher are used where the pavement would be subject to more frequent truck traffic such as daily use by delivery trucks. The estimated pavement sections with aggregate base and subbase are tabulated below.

Table 3
Summary of Asphaltic Concrete Pavement Sections
(Subgrade R-value=9)

Pavement Component	TI=5.0		TI=6.0		TI=7.0	
Asphaltic Concrete (AC) in Inches	3	3	3½	3½	4	4
Class II Aggregate Base (R_{Min}=78)	9	4	12	4	14½	5
Class II Aggregate Subbase or Recycled AB (R_{Min}=50)	--	5½	--	8½	--	10½
Total Thickness in Inches	12	12½	15½	16	18½	19½

The pavement sections presented in the above table have been calculated using the design method described in the Caltrans Highway Design Manual (Topic 633, May 2012) with the added safety factors. The method characterizes the subgrade soil conditions with R-values, and characterizes the traffic loading conditions with a Traffic Index. All materials and construction procedures, including placement and compaction of pavement components, should be performed in conformance with the latest edition of the Caltrans Standard Specifications, except that compaction should be performed in accordance with ASTM Test Method D1557.

All pavement components should be compacted to at least 95 percent of the maximum dry density at moisture contents specified under the Site Grading section of this report. All over-sized rocks and cobbles larger than 4 inches should be completely removed, unless they can be crushed in place with the construction equipment.

SI2024-00001
6851 PESCADERO RD
03/04/2024

8.7.2 Rigid Pavements

Where Portland Cement Concrete (rigid) Pavements are to be used, they should be supported on a subgrade that has been prepared as recommended under "Site Grading". Concrete pavements exposed to regular automobiles and weekly use by a garbage truck (if applicable), should consist of 6 inches of concrete with a minimum compressive strength of 3,700 psi (MR=550 psi) supported on at least 6 inches of Class II Aggregate Base material compacted to a minimum of 95 percent relative compaction.

As a minimum, concrete pavements should be reinforced with deformed bars in both directions to control cracking, and joints should be provided in both directions within the pavement designed to prevent formation of irregular cracks.

Where traffic can drive over the edge of the concrete pavement, such as at transition to AC paving, the Portland Cement Association suggests the thickened edge should be increased by 20 percent, and tapered back to normal slab thickness over a distance of 10 times the slab thickness.

8.8 Utility Trench Backfill

Utility trenches may be backfilled with on-site soils that are free of debris, roots and other organic matter, and rocks or lumps exceeding 2 inches in greatest dimension. The fill should also be uniformly moisture conditioned to the proper moisture content and compacted as per the recommendations included above.

The utility lines should be properly bedded and shaded with granular material, such as, sand or pea gravel. As a general rule, the bedding layer should be 2 to 4 inches thick and the utility lines should be shaded with the granular materials to a minimum of 4 inches above the utility line. The bedding and shading layers should be compacted using a vibratory compactor before subsequent backfill is placed. The contractor should use extreme caution with the vibratory compactor on the shading layer, as excessive vibrations and/or imbalanced shading materials could result in dislodging the pipe and loosening the joints.

BAGG Engineers should be allowed an opportunity to observe the trench backfill operations and perform field compaction tests to evaluate the moisture content and relative compaction of the fill materials.

SI2024-00001
6851 MARINE RD
03/04/2024

Alternatively, the utility trenches may be backfilled with flowable fill (a cementitious slurry consisting of a mixture of fine aggregate or filler, water, and cementitious material(s) capable of filling all voids in irregular excavations and hard to reach places). The flowable fill is self-leveling material that hardens in a matter of a few hours without the need for compaction in layers. Flowable fill is sometimes referred to as controlled density fill (CDF), controlled low strength material (CLSM), and lean concrete slurry. A 1- to 2-sack flowable fill material is usually considered to be acceptable for the subject project.

8.9 Drainage

It is recommended that a minimum 5-percent slope away from the structures for a horizontal distance of at least 5 feet be established in adjacent planter areas and a minimum 1-percent slope away from the structures for a horizontal distance of at least 5 feet be established in areas containing hardscape. Drainage should not be allowed to pond on the site or adjacent to any foundation, and should be directed towards appropriate discharge points. Surface waters should not be permitted to drain over slopes. Any area where surface run-off becomes concentrated should be provided with a catch basin that discharges the collected runoff in a manner that will not cause erosion. Surface and subsurface drainage facilities and catchment areas should be checked frequently and cleaned or maintained throughout the project life, as necessary.

8.10 Corrosion Potential

Two near-surface soil samples obtained from Borings B-6 and B-8 were submitted to Cooper Testing Laboratories for corrosivity testing. The results of chemical analyses, pH, ORP, and resistivity are tabulated in the following table, and attached on Plate 17, Corrosivity Tests Summary. The following table also presents the results of our preliminary screening of the corrosivity of the samples tested.

SI2024-00001
6851 PINE RD
03/04/2024

Table 4
Corrosion Test Results

Analysis/Test	Boring B-6 @ 2' – 5'	Boring B-8 @ 1.5' – 4'	Corrosivity Classification
Resistivity @ 100% Saturation [Ohm-Cm]	7,471	3,851	Mildly Corrosive[1]
pH	7.4	7.5	Neutral[2]
ORP (Redox) [mV]	486	492	Non-Corrosive[2]
Chloride [mg/Kg]	<2	4	Negligible[3]
Sulfate [mg/Kg]	8	3	Negligible[4]
Sulfide (Qualitative by Lead)	Negative	Negative	Not Present
Moisture Content (%)	15.0	17.7	N.A.

[1]National Association of Corrosion Engineers (NACE) Corrosion Basics, page 191.
[2]Standard Method 2580B.
[3]For metals encased in concrete, extrapolated from CTM 372.
[4]For metals encased in concrete, ACI-318, Building Code Requirements for Reinforced Concrete.

The results for pH, ORP (redox), chloride, and sulfate content as well as sulfide were essentially reported as negligible amounts in terms of corrosion. With respect to resistivity, the samples were classified as "mildly corrosive". Corrosive effects to concrete and masonry materials will be moderate, while the effects may be noticeable with metals in direct contact with the soil subgrade.

To minimize the corrosive degradation of any steel, ductile iron, or copper pipes over time, we recommend that these types of pipes be coated or polyethylene sleeved, or cathodic protection should be designed and implemented for the protection of such pipes. The soils can severely degrade copper pipes over a short period of time, as such, copper pipes should not be in contact with soil.

Subsurface conditions are not the only factors that may cause corrosion; design and construction practice may also be primary causes for failure. A review of plans and specifications for underground structures may be conducted by a qualified corrosion engineer prior to installation, if desired.

8.11 Plan Review

It is recommended that the Geotechnical Engineer (BAGG Engineers) be retained to review the final project plans. This review is intended to assess general suitability of our recommendations for the project in its final form, and to verify the appropriate implementation of our recommendations into the project plans and specifications.

SI2024-00001
6851 PESCADERO RD
03/04/2024

8.12 Observation and Testing

It is recommended that the Geotechnical Engineer (BAGG Engineers) be retained to provide observation and testing services during site grading, foundation construction, utility trench excavation and backfill, and subgrade preparation phases of the work. This is intended to verify that the work in the field is performed as recommended and in accordance with the approved plans and specifications, as well as verify that subsurface conditions encountered during construction are similar to those anticipated during the design phase. Unanticipated soil conditions may warrant revised recommendations. For this reason, we cannot accept responsibility for the recommendations contained in this report if we are not given the opportunity to observe and test the construction activities.

9.0 CLOSURE

This report has been prepared in accordance with generally accepted engineering practices for the strict use of County of San Mateo and other professionals associated with the specific project described in this report. The recommendations presented in this report are based on our understanding of the subject site improvement as described herein, and upon the subsurface conditions encountered in the exploratory borings and the CPTs advanced for this project.

It is not uncommon for unanticipated conditions to be encountered during site grading and/or foundation installation and it is not possible for all such variations to be found by a field exploration program appropriate for this type of project. The recommendations contained in this report are therefore contingent upon the review of the final improvement plans by this office, and upon geotechnical observation and testing by BAGG Engineers of all pertinent aspects of the project, including grading, excavation and backfilling, subgrade preparation, and installation of foundations.

Subsurface conditions and standards of practice change with time. Therefore, we should be consulted to update this report, if the construction does not commence within 18 months from the date this report is submitted. Additionally, the recommendations of this report are only valid for the proposed development as described herein. If the proposed project is modified, our recommendations should be reviewed and either approved or modified by this office in writing.

SI2024-00001
6851 TUNITAS CREEK RD
03/04/2024

The following plates and appendices are attached and complete this report:

Plate 1	Vicinity Map
Plate 2	Site Plan
Plate 3	Area Geologic Map
Plate 4	Regional Fault Map
Plate 5	Cross Section A-A'
Plate 6	Unified Soil Classification System
Plate 7	Soil Terminology
Plate 8	Boring Log Notes
Plate 9	Key to Symbols
Plates 10-A through 13-B	Boring Logs
Plate 14	Plasticity Data
Plate 15	Gradation Test Data
Plate 16	R-Value Test Report
Plate 17	Corrosivity Tests Summary
Appendix A	Cone Penetration Test (CPT) Results (CPT-3 through CPT-5)
Appendix B	2021 Boring & CPT Logs (B-1 through B-5; CPT-1 & CPT-2)

ASFE document titled "Important Information about This Geotechnical Engineering Report"

10.0 REFERENCES

ACI Committee 318, 2008, *ACI 318-08, Building Code Requirements for Structural Concrete and Commentary,* American Concrete Institute.

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SI2024-00001
6851 TARWATER RD
03/04/2024

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SI2024-00001
880 STONE PINE RD
03/04/2024



Source: Google Maps, accessed on 9/17/2021.



Source: Google Earth Imagery, dated 9/27/2021.

GEOTECHNICAL ENGINEERING INVESTIGATION
SMC-HMB FARMWORKER HOUSING PROJECT
880 STONE PINE ROAD
HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA

VICINITY MAP

DATE:	JOB NUMBER:	PLATE
August 2023	COUSM-23-03	1

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880 STONE PINE RD
03/04/2024

(E) POND

100' - 0"
WETLAND SETBACK

50' - 0"
CORRIDOR

10' - 0"

15' - 0"

LANDS OF HMB CAR
(SPANI
IDN 20(
APN 0(

LANDS OF
MLTIPLE OWNERS

LANDS OF
MULTIPLE OWNERS

A

A'

B-1

B-2

B-3

B-4

B-5

B-6

B-7

B-8

B-9

CPT-1

CPT-2

CPT-3

CPT-4

CPT-5

Stone Pine Rd

1 Bedroom 14 Units
2 Bedroom 20 Units
3 Bedroom 13 Units
TOTAL = 47 Units

PILARCITOS CREEK

100' - 0" WIDE

LEGEND

- Boring Locations, Approx. BAGG, July 2023
- CPT Locations, Approx. BAGG, July 2023
- Previous Borings, Approx. BAGG, September 2021
- Previous CPTs, Approx. BAGG, October 2021
- Cross Section Line

100' 50' 0' 100'
APPROXIMATE SCALE

Base Map:
Conceptual site plan with BKF markups, unsigned, undated.

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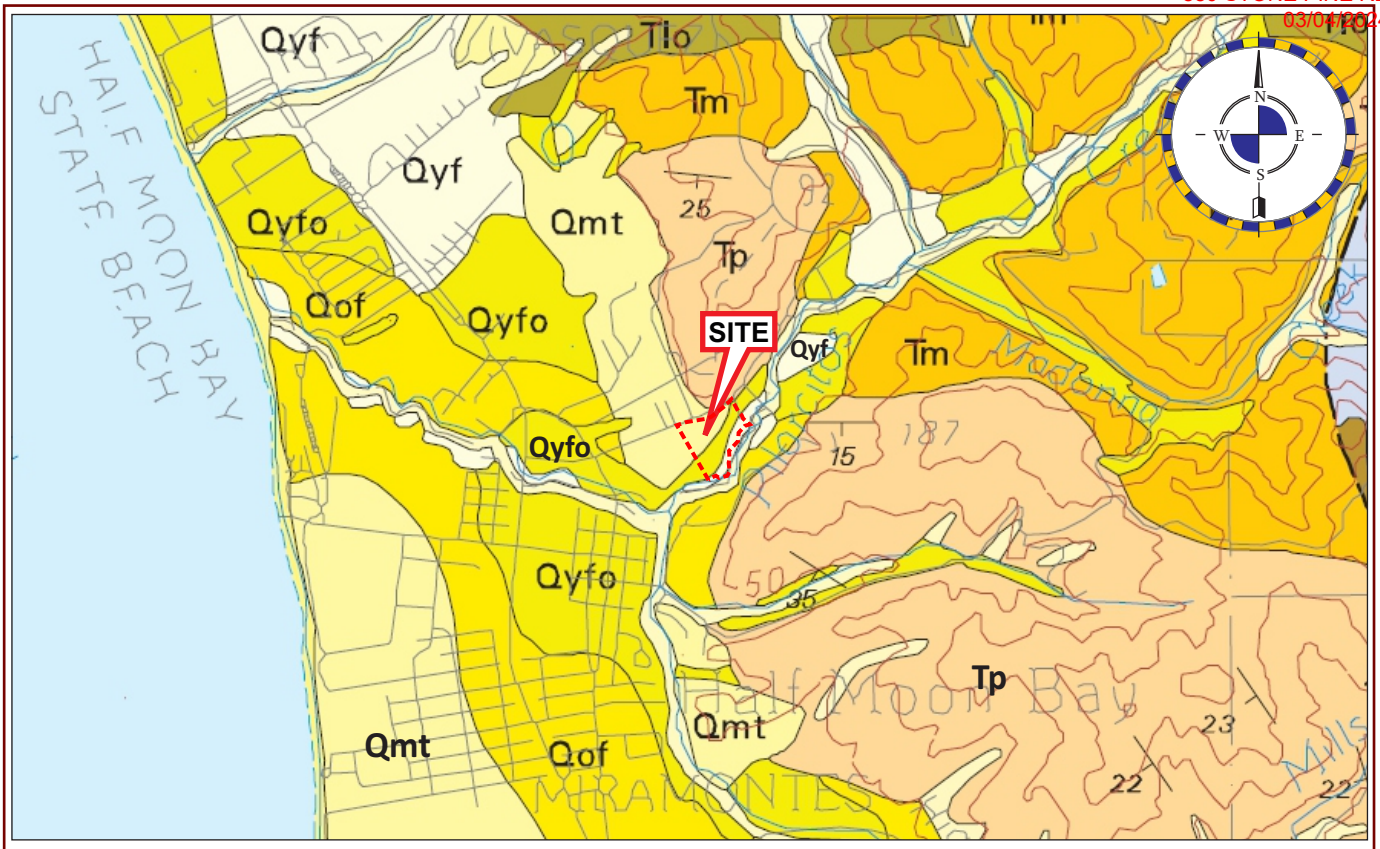
SMC-HMB FARMWORKER HOUSING PROJECT
880 STONE PINE ROAD
HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA

BAGG ENGINEERS

SITE PLAN

PROJECT NO.:	SCALE:	DATE	PLATE
COUSM-23-03	1" ≈ 100'	August 2023	2



LEGEND

Qyf — **Younger (inner) alluvial fan deposits (Holocene) –** Unconsolidated fine- to coarse-grained sand, silt, and gravel.

Qyfo — **Younger (outer) alluvial fan deposits (Holocene) –** Unconsolidated fine sand, silt, and clayey silt.

Qof — **Coarse-grained older alluvial fan and stream terrace deposits (Pleistocene) –** Poorly consolidated gravel, sand, and silt.

Qmt — **Marine terrace deposits (Pleistocene) –** Poorly consolidated and poorly indurated well- to poorly-sorted sand and gravel.

Tp — **Purisima Formation (Pliocene and upper Miocene) –** Predominantly gray and greenish-gray to buff fine-grained sandstone, siltstone, and mudstone, but also includes some porcelaneous shale and mudstone, chert, silty mudstone, and volcanic ash.

Tm — **Monterey Formation (middle Miocene) –** Grayish-brown and brownish-black to very pale orange and white, porcelaneous shale with chert, porcelaneous mudstone, impure diatomite, calcareous claystone, and with small amounts of siltstone and sandstone near base.

Tlo — **Lompico Sandstone (middle Miocene) –** Very pale orange, fine to coarse-grained, mostly well-cemented and hard arkosic sandstone.

Reference: *Geology of the Onshore Part of San Mateo County: Derived From the Digital Database Open-File 98-137,* by Brabb et al., 1998.

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880 STONE PINE ROAD
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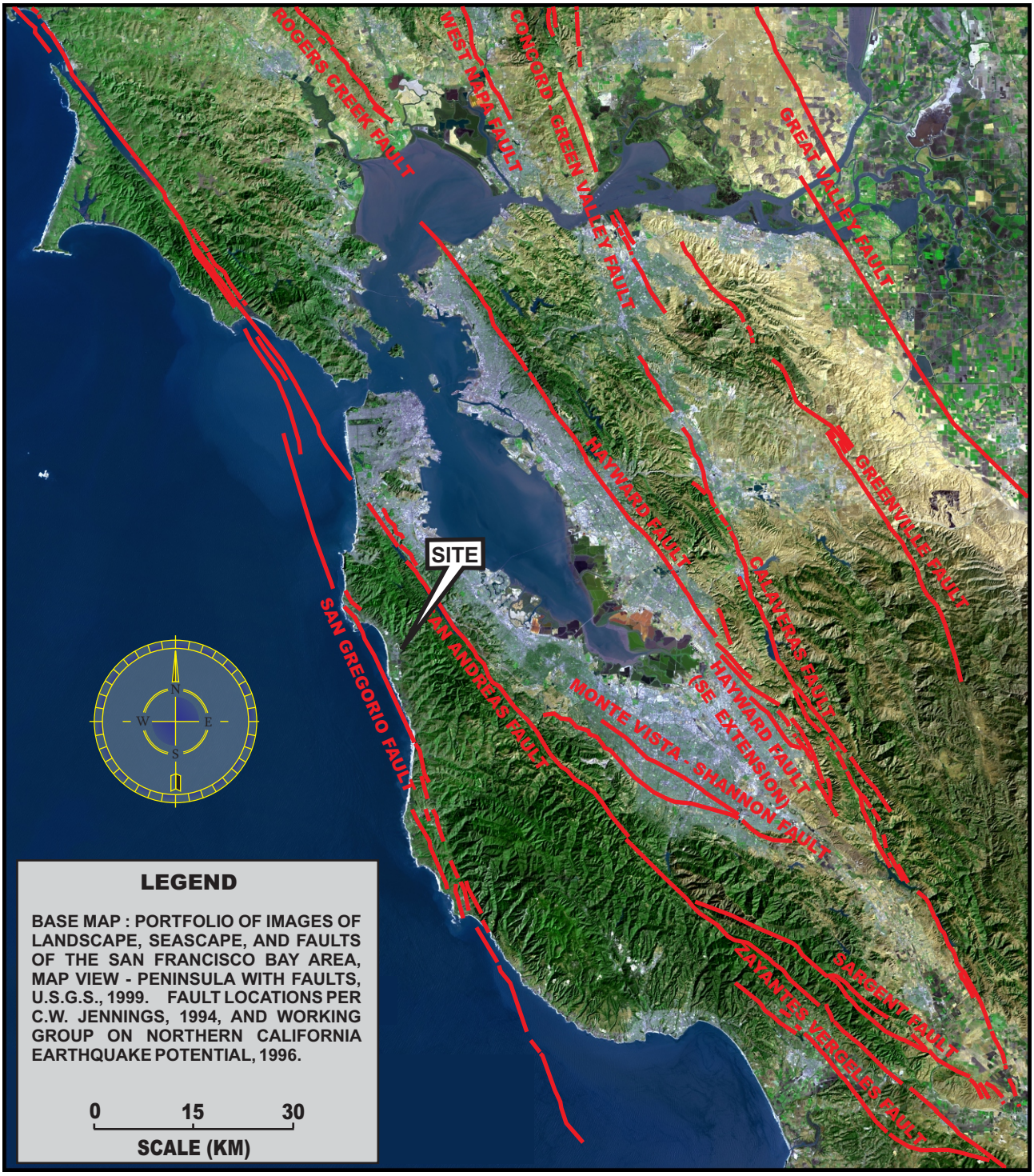
AREA GEOLOGIC MAP

DATE:	JOB NUMBER:	PLATE:
August 2023	COUSM-23-03	3

BvGG ENGINEERS



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SMC-HMB FARMWORKER HOUSING PROJECT
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REGIONAL FAULT MAP

DATE:	JOB NUMBER:	PLATE
August 2023	COUSM-23-03	4

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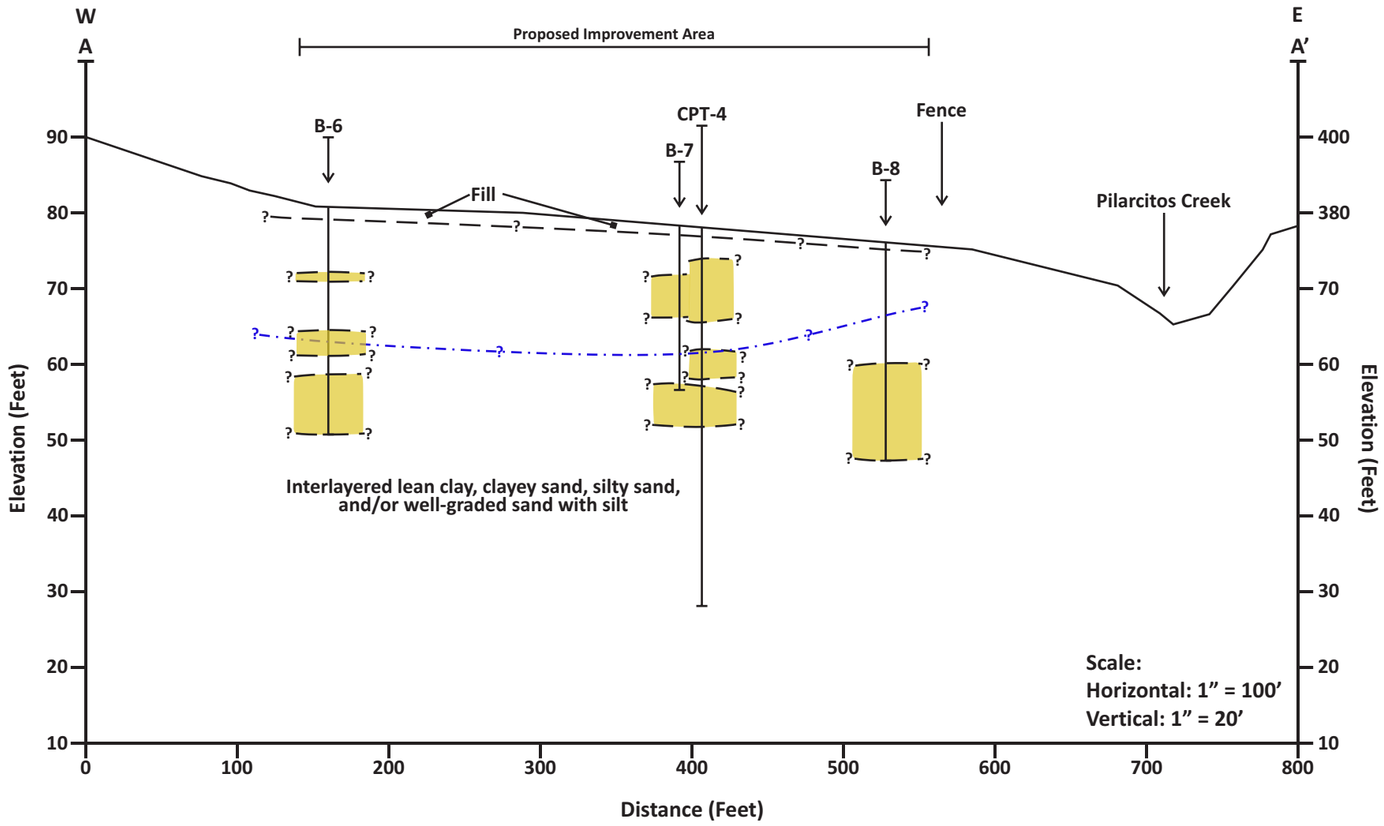
03/04/2024



Legend

- Approximate Existing Ground Surface
- Approximate Geologic Contact
- Approximate Measured Groundwater Depth
- Potentially Liquefiable Soil
- B-4 — Approximate Boring/CPT Location

Note:
Elevations based on Conceptual site plan with BKF markups, unsigned, undated.

GEOTECHNICAL ENGINEERING INVESTIGATION
SMC-HMB FARMWORKER HOUSING PROJECT
880 STONE PINE ROAD
HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA

BAGG ENGINEERS

CROSS SECTION A-A'

JOB NUMBER:	SCALE:	DATE:	PLATE:
COUSM-23-03	1"=100' & 1"=20'	August 2023	5

COARSE-GRAINED SOILS

LESS THAN 50% FINES*

GROUP SYMBOLS	ILLUSTRATIVE GROUP NAMES	MAJOR DIVISIONS
GW	Well graded gravel Well graded gravel with sand	GRAVELS More than half of coarse fraction is larger than No. 4 sieve size
GP	Poorly graded gravel Poorly graded gravel with sand	
GM	Silty gravel Silty gravel with sand	
GC	Clayey gravel Clayey gravel with sand	
SW	Well graded sand Well graded sand with gravel	SANDS More than half of coarse fraction is smaller than No. 4 sieve size
SP	Poorly graded sand Poorly graded sand with gravel	
SM	Silty sand Silty sand with gravel	
SC	Clayey sand Clayey sand with gravel	

NOTE: Coarse-grained soils receive dual symbols if:
(1) their fines are CL-ML (e.g. SC-SM or GC-GM) or
(2) they contain 5-12% fines (e.g. SW-SM, GP-GC, etc.)

FINE-GRAINED SOILS

MORE THAN 50% FINES*

GROUP SYMBOLS	ILLUSTRATIVE GROUP NAMES	MAJOR DIVISIONS
CL	Lean clay Sandy lean clay with gravel	SILTS AND CLAYS liquid limit less than 50
ML	Silt Sandy silt with gravel	
OL	Organic clay Sandy organic clay with gravel	
CH	Fat clay Sandy fat clay with gravel	SILTS AND CLAYS liquid limit more than 50
MH	Elastic silt Sandy elastic silt with gravel	
OH	Organic clay Sandy organic clay with gravel	
PT	Peat Highly organic silt	HIGHLY ORGANIC SOIL

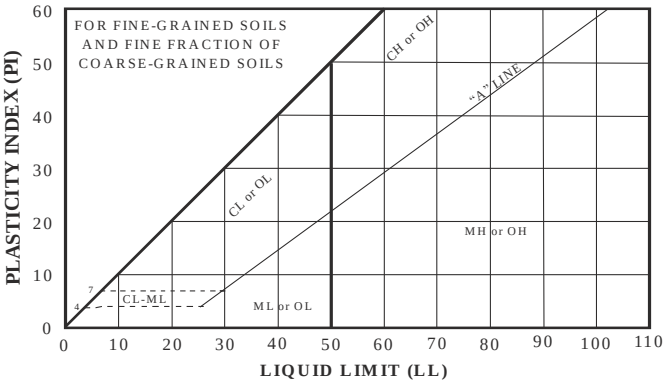
NOTE: Fine-grained soils receive dual symbols if their limits in the hatched zone on the Plasticity Chart(L-M)

SOIL SIZES

COMPONENT	SIZE RANGE
BOULDERS	ABOVE 12 in.
COBBLES	3 in. to 12 in.
GRAVEL	No. 4 to 3 in.
Coarse	¾ in to 3 in.
Fine	No. 4 to ¾ in.
SAND	No. 200 to No.4
Coarse	No. 10 to No. 4
Medium	No. 40 to No. 10
Fine	No. 200 to No. 40
*FINES:	BELOW No. 200

NOTE: Classification is based on the portion of a sample that passes the 3-inch sieve.

PLASTICITY CHART



Reference: ASTM D 2487-06, Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).

GENERAL NOTES: The tables list 30 out of a possible 110 Group Names, all of which are assigned to unique proportions of constituent soils. Flow charts in ASTM D 2487-06 aid assignment of the Group Names. Some general rules for fine grained soils are: less than 15% sand or gravel is not mentioned; 15% to 25% sand or gravel is termed "with sand" or "with gravel", and 30% to 49% sand or gravel is termed "sandy" or "gravelly". Some general rules for coarse-grained soils are: uniformly-graded or gap-graded soils are "Poorly" graded (SP or GP); 15% or more sand or gravel is termed "with sand" or "with gravel", 15% to 25% clay and silt is termed clayey and silty and any cobbles or boulders are termed "with cobbles" or "with boulders".

UNIFIED SOIL CLASSIFICATION SYSTEM

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SI2024-00001
880 STONE PINE RD
03/04/2024

SOIL TYPES (Ref 1)

Boulders: particles of rock that will not pass a 12-inch screen.
Cobbles: particles of rock that will pass a 12-inch screen, but not a 3-inch sieve.
Gravel: particles of rock that will pass a 3-inch sieve, but not a #4 sieve.
Sand: particles of rock that will pass a #4 sieve, but not a #200 sieve.
Silt: soil that will pass a #200 sieve, that is non-plastic or very slightly plastic, and that exhibits little or no strength when dry.
Clay: soil that will pass a #200 sieve, that can be made to exhibit plasticity (putty-like properties) within a range of water contents, and that exhibits considerable strength when dry.

MOISTURE AND DENSITY

Moisture Condition: an observational term; dry, moist, wet, or saturated.
Moisture Content: the weight of water in a sample divided by the weight of dry soil in the soil sample, expressed as a percentage.
Dry Density: the pounds of dry soil in a cubic foot of soil.

DESCRIPTORS OF CONSISTENCY (Ref 3)

Liquid Limit: the water content at which a soil that will pass a #40 sieve is on the boundary between exhibiting liquid and plastic characteristics. The consistency feels like soft butter.
Plastic Limit: the water content at which a soil that will pass a #40 sieve is on the boundary between exhibiting plastic and semi-solid characteristics. The consistency feels like stiff putty.
Plasticity Index: the difference between the liquid limit and the plastic limit, i.e. the range in water contents over which the soil is in a plastic state.

MEASURES OF CONSISTENCY OF COHESIVE SOILS (CLAYS) (Ref's 2 & 3)

Very Soft	N=0-1*	C=0-250 psf	Squeezes between fingers
Soft	N=2-4	C=250-500 psf	Easily molded by finger pressure
Medium Stiff	N=5-8	C=500-1000 psf	Molded by strong finger pressure
Stiff	N=9-15	C=1000-2000 psf	Dented by strong finger pressure
Very stiff	N=16-30	C=2000-4000 psf	Dented slightly by finger pressure
Hard	N>30	C>4000 psf	Dented slightly by a pencil point

*__N__=blows per foot in the Standard Penetration Test. In cohesive soils, with the 3-inch-diameter ring sampler, 140-pound weight, divide the blow count by 1.2 to get N (Ref 4).

MEASURES OF RELATIVE DENSITY OF GRANULAR SOILS (GRAVELS, SANDS, AND SILTS) (Ref's 2 & 3)

Very Loose	N=0-4**	RD=0-30	Easily push a ½-inch reinforcing rod by hand
Loose	N=5-10	RD=30-50	Push a ½-inch reinforcing rod by hand
Medium Dense	N=11-30	RD=50-70	Easily drive a ½-inch reinforcing rod
Dense	N=31-50	RD=70-90	Drive a ½-inch reinforcing rod 1 foot
Very Dense	N>50	RD=90-100	Drive a ½-inch reinforcing rod a few inches

**__N__=Blows per foot in the Standard Penetration Test. In granular soils, with the 3-inch-diameter ring sampler, 140-pound weight, divide the blow count by 2 to get N (Ref 4).

xxxx

GENERAL NOTES FOR BORING LOGS:

The boring logs are intended for use only in conjunction with the text, and for only the purposes the text outlines for our services. The Plate "Soil Terminology" defines common terms used on the boring logs.

The plate "Unified Soil Classification System," illustrates the method used to classify the soils. The soils were visually classified in the field; the classifications were modified by visual examination of samples in the laboratory, supported, where indicated on the logs, by tests of Liquid Limit, Plasticity Index, and/or gradation. In addition to the interpretations for sample classification, there are interpretations of where stratum changes occur between samples, where gradational changes substantively occur, and where minor changes within a stratum are significant enough to log.

There may be variations in subsurface conditions between borings. Soil characteristics change with variations in moisture content, with exchange of ions, with loosening and densifying, and for other reasons. Groundwater levels change with seasons, with pumping, from leaks, and for other reasons. Thus boring logs depict interpretations of subsurface conditions only at the locations indicated, and only on the date(s) noted.

SPECIAL FIELD NOTES FOR THIS REPORT:

1. The borings were advanced on July 24, 2023, using a truck-mounted drilling rig equipped with 6-inch diameter continuous flight augers. The Cone Penetration Tests (CPTs) were advanced on July 26, 2023, with a truck-mounted CPT rig. The boreholes and the CPTs were backfilled with cement grout.

2. The boring/CPT locations were approximately located using existing site features such as trees, poles, etc.

3. The soils' Group Names [e.g. LEAN CLAY] and Group Symbols [e.g. (CL)] were determined or estimated per ASTM D 2487, Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System, see Plate 6). Other engineering terms used on the boring logs are defined on Plate 7, Soil Terminology.

4. Groundwater was encountered in Borings B-6 through B-8 on the date and at the depths noted on the boring logs; however, groundwater was not encountered in Boring B-9 advanced to about 20 feet below the ground surface. The pore pressure dissipation tests performed in CPT-3 and CPT-5 estimated groundwater depths of approximately 15 and 12½ feet, respectively.

5. The soil samples were obtained using the sampler type noted on the boring logs and described on Plate 9, Key to Symbols.

6. The "Blow Count" Column on the boring logs indicates the number of blows required to drive the Modified California and/or Standard Penetration Test sampler below the bottom of the boring, with the blow counts given for each 6 inches of sampler penetration.

7. The tabulated strength values on the boring logs are peak strength values.

KEY TO SYMBOLS

Symbol	Description
Strata symbols	
	Sandy lean clay
	Clayey sand
	Well-graded sand with silt
	Lean Clay
	Silty sand
	Lean clay with sand
	Clayey sand with gravel
Misc. Symbols	
	Water first encountered during drilling
	Water level at completion of boring
	Boring continues
Soil Samplers	
	Modified California Sampler: 18" long, 2.375" ID by 3" OD, split-barrel sampler driven w/ 140-pound hammer falling 30 inches (ASTM D3550)

Symbol	Description
	Standard Penetration Test: 18" long, 1.375" ID by 2" OD, split-spoon sampler driven w/ 140-pound hammer falling 30 inches (ASTM D 1586-11)
Line Types	
_____	Denotes a sudden, or well identified strata change
_ _ _	Denotes a gradual, or poorly identified strata change
Laboratory Data	
DS	Direct shear test performed on a sample at natural or field moisture content (ASTM D3080).
DSX	Direct shear test performed after the sample was submerged in water until volume changes ceased (ASTM D3080).
LL	Liquid Limit established per ASTM D4318 Test Method
PI	Plasticity Index established per ASTM D4318 Test Method
Gravel (%)	Percent soil particles finer than a 3" sieve and coarser than a No. 4 sieve (ASTM C136/C117)
Sand (%)	Percent soil particles finer than a No. 4 sieve and coarser than a No. 200 sieve (ASTM C136/C117)
Fines (%)	Percent soil particles finer than a No. 200 sieve (ASTM C117)
Swell (%)	Percent expansion of a submerged sample under a given surcharge pressure
Nat.	Natural or field water content
bgs	Below the ground surface

BORING LOG

Boring No. B-6
Page 1 of 2

JOB NAME: SMC-HMB Farmworker Housing Project
CLIENT: County of San Mateo
LOCATION: 880 Stone Pine Road, Half Moon Bay, CA
DRILLER: Cenozoic Exploration
DRILL METHOD: Truck-Mounted Drilling Rig - 6" Diam. Continuous Flight Augers

JOB NO.: COUSM-23-03
DATE DRILLED: 7/24/2023
ELEVATION: 83± feet
LOGGED BY: JL

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
				8.6		0	4 12 20	CL	SANDY LEAN CLAY: dark brown, soft on the surface, stiff below, dry to moist, fine to medium sand, trace coarse sand, trace fine gravel, little organics	Fill 1% Gravel 41% Sand 58% Fines Native 0.5% Swell
DSX	320	20.3	630	13.1	105			CL		
DS	400	Nat.	660	13.9	102	3	4 4 4	SC	SANDY LEAN CLAY: dark gray, very stiff, dry to moist, fine to medium sand, few coarse sand, trace fine gravel	29% Fines LL=39, PI=15
						6			CLAYEY SAND: dark gray, medium dense, moist, mostly medium sand, few fine sand, few coarse sand ... color change to brown	
DS	1200	Nat.	760	11.0	99	9	6 6 5	SW-SM	WELL-GRADED SAND with SILT: brown and gray, loose, wet, well-graded sand	5% Fines
DS	2500	Nat.	1730	11.6	95			CL	LEAN CLAY: gray-brown with orange-brown mottling, medium stiff, moist, trace fine sand	
						12		SC	CLAYEY SAND: brown to orange-brown, loose, wet, fine to medium sand	
				25.1			5 7 9			40% Fines
DS	1800	Nat.	890	22.9	102	15			... approximately 6" of stiff, moist, lean clay ... medium dense clayey sand	LL=32, PI=11
						18	5	SM	SILTY SAND: brown, medium dense, wet, fine sand, contains 1" to 2" thick lean clay layers	48% Fines

BYGG ENGINEERS

BORING LOG

Boring No. B-6
Page 2 of 2

JOB NAME: SMC-HMB Farmworker Housing Project *JOB NO.:* COUSM-23-03

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
DS	2300	Nat.	1530	30.0	91		6 7	CL	... gray-brown, medium dense, wet	Non-Plastic
						21			SANDY LEAN CLAY: dark gray to dark blue-gray, medium stiff, moist, fine sand	
								SM	SILTY SAND: gray-brown, medium dense, wet, fine sand	
				27.1			6			23% Fines
DS	2600	Nat.	1630	25.8	98	24	8 9			Non-Plastic
						27			... dark gray to dark blue-gray, medium dense, saturated, fine to medium sand	
				22.4			3			30% Fines
				27.2			4			Non-Plastic
						30	8		... about 5" bluish gray fat clay	
									The boring was terminated at approximately 30 feet bgs. Groundwater was encountered at about 17½ feet bgs and was measured at about 18 feet bgs upon completion of the boring. The borehole was backfilled with cement grout.	
						33				
						36				
						39				

BORING LOG

Boring No. B-7
Page 1 of 2

JOB NAME: SMC-HMB Farmworker Housing Project
CLIENT: County of San Mateo
LOCATION: 880 Stone Pine Road, Half Moon Bay, CA
DRILLER: Cenozoic Exploration
DRILL METHOD: Truck-Mounted Drilling Rig - 6" Diam. Continuous Flight Augers

JOB NO.: COUSM-23-03
DATE DRILLED: 7/24/2023
ELEVATION: 80± feet
LOGGED BY: JL

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
						0		SC	CLAYEY SAND: dark gray, medium dense, dry to moist, well-graded sand	Fill?
DS	320	Nat.	2380	21.1	97		8 13 13	CL	SANDY LEAN CLAY: dark gray, very stiff, moist, fine to medium sand, trace organics	Native LL=46, PI=20
						3		SC	CLAYEY SAND: dark brown to brown, medium dense, moist, fine to medium sand	
DSX	700	26.3	610	25.8	97		4 5 7	CL SM	SANDY LEAN CLAY: brown, medium stiff, moist, fine to medium sand	
						6			SILTY SAND: brown to dark brown, medium dense, moist, fine to medium sand	
						9				
				23.2					... dark brown, loose, wet, fine to medium sand	30% Fines Non-Plastic
DS	1400	Nat.	1110	17.9	105		4 5 9			
DS	3000	Nat.	2150	18.3	108					
						12		SW-SM SC	WELL-GRADED SAND with SILT: orange-brown and gray, medium dense, wet, well-graded sand, trace fine gravel	
									CLAYEY SAND: brown to orange-brown, medium dense, wet, fine to medium sand	
						15			... about 6" of sandy lean clay	
DS	2000	Nat.	1580	23.0	99		7 9 7		... medium dense clayey fine sand	
						18				

BORING LOG

Boring No. B-7
Page 2 of 2

JOB NAME: SMC-HMB Farmworker Housing Project *JOB NO.:* COUSM-23-03

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
								CL	LEAN CLAY with SAND: dark gray, stiff, moist, little fine sand	
DS	2400	Nat.	1370	24.3	103	21	7 14 22	SM	SILTY SAND: brown to orange-brown, medium dense, moist, fine sand	
						24			The boring was terminated at approximately 21½ feet bgs. Groundwater was encountered at about 19 feet bgs and was measured at about 18 feet bgs upon completion of the boring. The borehole was backfilled with cement grout.	
						27				
						30				
						33				
						36				
						39				

BORING LOG

Boring No. B-8
Page 1 of 2

JOB NAME: SMC-HMB Farmworker Housing Project
CLIENT: County of San Mateo
LOCATION: 880 Stone Pine Road, Half Moon Bay, CA
DRILLER: Cenozoic Exploration
DRILL METHOD: Truck-Mounted Drilling Rig - 6" Diam. Continuous Flight Augers

JOB NO.: COUSM-23-03
DATE DRILLED: 7/24/2023
ELEVATION: 77± feet
LOGGED BY: JL

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
						0		SC	CLAYEY SAND: dark brown, medium dense, moist, well-graded sand, trace fine gravel, few organics	Fill
DSX	320	18.7	1110	15.6	113		8 9 10	SC		Native
DSX	1500	17.0	2410	14.5	115	3		CL	CLAYEY SAND: brown to orange-brown, medium dense, moist, well-graded sand, trace fine gravel	0.9% Swell
DS	500	Nat.	1970	29.9	92		6 11 15		LEAN CLAY: dark brown with red-brown stains, very stiff, moist, few well-graded sand	92% Fines LL=49, PI=25
						6				
DS	1000	Nat.	1030	17.7	110	9	6 7 8	SC	CLAYEY SAND: dark brown, medium dense, moist, medium to coarse sand	
								CL	LEAN CLAY: brown to gray-brown with orange-brown stains, stiff, moist, few fine sand	
						12		CL	SANDY LEAN CLAY: brown to orange-brown, stiff, moist to wet, well-graded sand	
DS	1400	Nat.	1030	28.8	95		6 7 10			66% Fines
						15		SC	CLAYEY SAND: brown, medium dense, wet, well-graded sand	
						18	12	SW-SM	WELL-GRADED SAND with SILT: brown, medium dense, saturated, well-graded sand, few	

BORING LOG

Boring No. B-8
Page 2 of 2

JOB NAME: SMC-HMB Farmworker Housing Project *JOB NO.:* COUSM-23-03

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
DS	1700	Nat.	1890	14.8	114		17 21		fine gravel	6% Gravel 84% Sand 10% Fines
						21				... caving
				15.3		24	8 9 10		... medium dense, saturated, mostly medium-grained sand	10% Fines
						27		SM	SILTY SAND: dark bluish gray, medium dense, saturated, fine sand, contains thin layers of dark blue-gray fat clay	... borehole collapsing, unable to sample
						30			The boring was terminated at approximately 28½ feet bgs. Groundwater was encountered at about 15 feet bgs and was measured at about 9 feet bgs upon completion of the boring. The borehole was backfilled with cement grout.	
						33				
						36				
						39				

BORING LOG

Boring No. B-9
Page 1 of 2

JOB NAME: SMC-HMB Farmworker Housing Project
CLIENT: County of San Mateo
LOCATION: 880 Stone Pine Road, Half Moon Bay, CA
DRILLER: Cenozoic Exploration
DRILL METHOD: Truck-Mounted Drilling Rig - 6" Diam. Continuous Flight Augers

JOB NO.: COUSM-23-03
DATE DRILLED: 7/24/2023
ELEVATION: 78± feet
LOGGED BY: JL

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
						0		SC	CLAYEY SAND with GRAVEL: brown, loose and dry on surface, medium dense and moist below, well-graded sand, little fine gravel	Fill
DS	320	Nat.	340	12.0	97		8			LL=40, PI=17
DS	1500	Nat.	1710	6.5	108		11	CL		Native R-Value=9
							10			
						3			LEAN CLAY with SAND: dark gray, stiff, moist, little fine to medium sand, trace organics	
				22.4			6			75% Fines
DSX	500	21.6	710	20.7	104		8		... brown at about 2½ feet, well-graded sand, trace fine gravel	
							9			
						6			... orange-brown, stiff, moist	
								SC	CLAYEY SAND: orange-brown, medium dense, moist, well-graded sand, trace fine gravel	
							5			
				19.3		9	9			31% Fines
DS	1200	Nat.	1400	16.4	113		13			
						12		CL	LEAN CLAY: orange-brown with dark gray stains, medium stiff, moist to wet, few fine sand	
							5			
							5			
DS	1800	Nat.	920	39.2	84		7			
						15		SC	CLAYEY SAND: orange-brown, medium dense, moist, well-graded sand	
								CL	LEAN CLAY with SAND: orange-brown o brown, medium stiff, moist to wet, few to little fine sand	
						18	6			

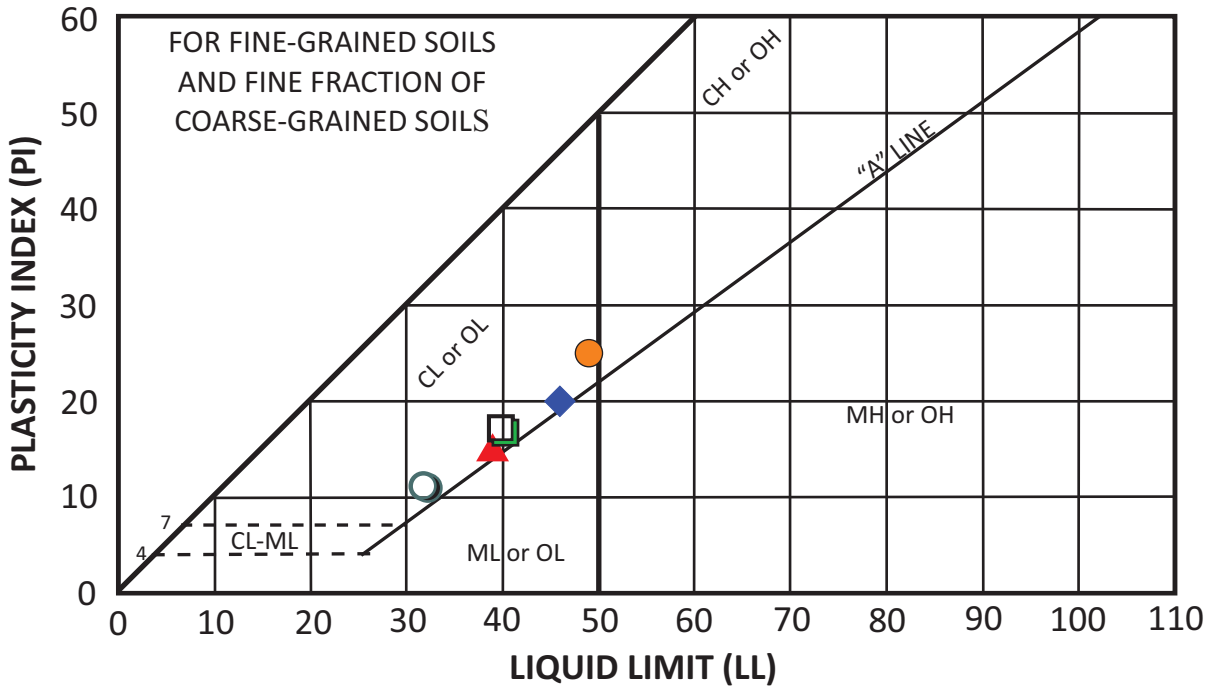
BORING LOG

Boring No. B-9
Page 2 of 2

JOB NAME: SMC-HMB Farmworker Housing Project *JOB NO.:* COUSM-23-03

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
				22.9	104		9 15		... about 2" of medium-grained sand lense ... increased sand content at 20' bgs	
						21			The boring was terminated at approximately 20 feet bgs. Groundwater was not encountered in the boring. The borehole was backfilled with cement grout.	
						24				
						27				
						30				
						33				
						36				
						39				

PLASTICITY CHART



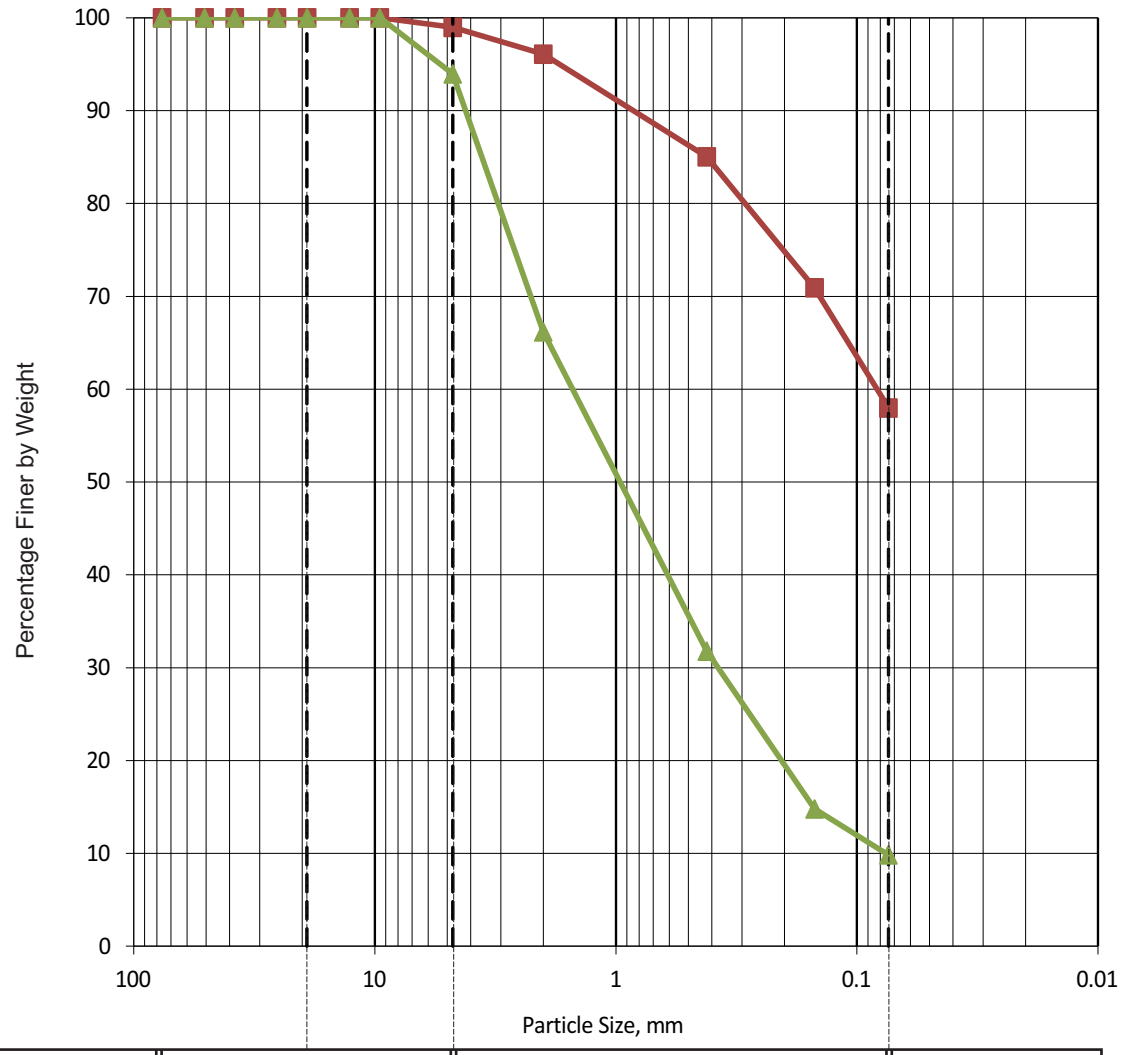
SYMBOL	SAMPLE SOURCE	DEPTH (FEET)	NATURAL WATER CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	SOIL DESCRIPTION
▲	Boring B-6	3.5	13.9	39	24	15	Dark Gray Clayey Sand (SC)
○	Boring B-6	14	25.1	32	21	11	Brown Clayey Sand (SC)
-	Boring B-6	19	30.0		Non-Plastic		Gray-Brown Silty Sand (SM)
-	Boring B-6	23.5	27.1		Non-Plastic		Gray-Brown Silty Sand (SM)
-	Boring B-6	28.5	22.4		Non-Plastic		Dark Blue-Gray Silty Sand (SM)
◆	Boring B-7	1.5	21.1	46	26	20	Dark Gray Sandy Lean Clay (CL)
-	Boring B-7	10.5	23.2		Non-Plastic		Dark Brown Silty Sand (SM)
●	Boring B-8	4	29.9	49	24	25	Dark Brown Lean Clay (CL)
□	Boring B-9	1.5	12.0	40	23	17	Brown Clayey Sand w/ Gravel (SC)

GEOTECHNICAL ENGINEERING INVESTIGATION
SMC-HMB FARMWORKER HOUSING PROJECT
880 STONE PINE ROAD
HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA

PLASTICITY DATA

DATE:	JOB NUMBER:	PLATE
August 2023	COUSM-23-03	14

BAGG ENGINEERS



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

LEGEND				
BORING NUMBER	B-6	B-8		
DEPTH (FEET)	1	18.5		
SOIL DESCRIPTION	Sandy Lean Clay (CL)	Well-Graded Sand with Silt (SW-SM)		

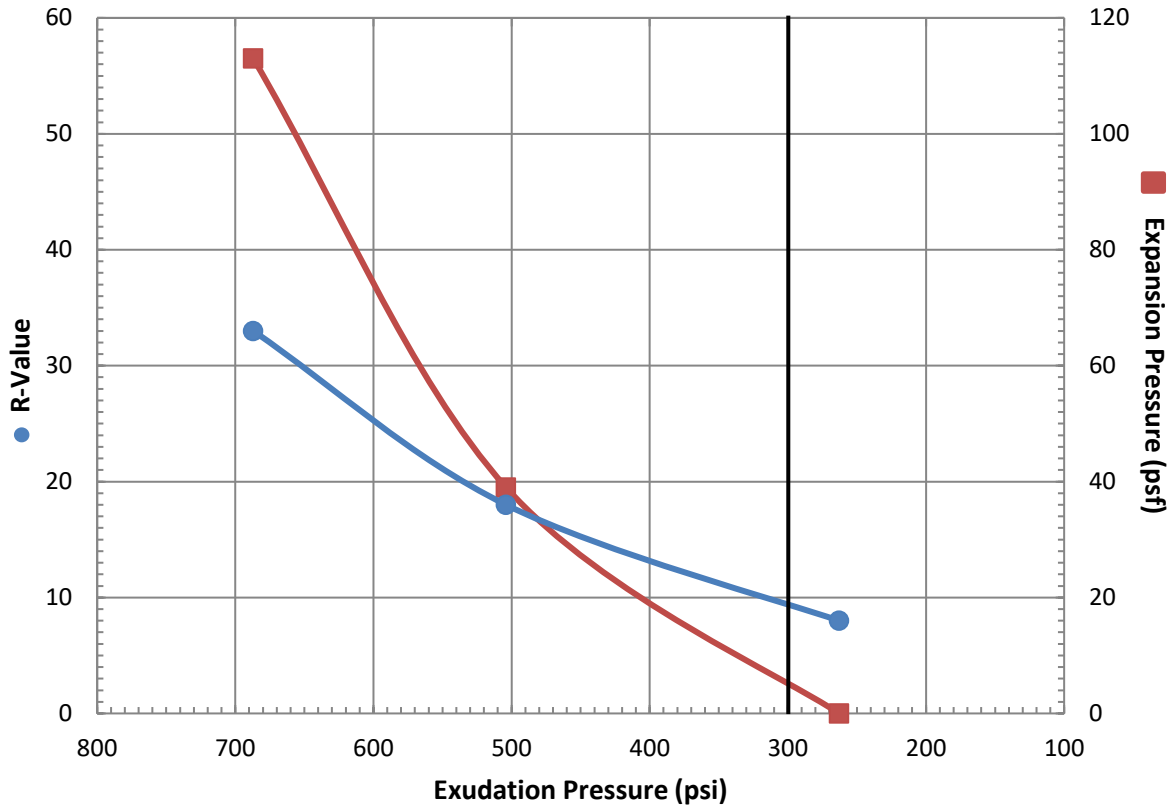
GEOTECHNICAL ENGINEERING INVESTIGATION
SMC-HMB FARMWORKER HOUSING PROJECT
880 STONE PINE ROAD
HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA

GRADATION TEST DATA

DATE:	JOB NUMBER:	PLATE:
August 2023	COUSM-23-03	15

BAGG ENGINEERS

B-9 Bulk Sample at Depth 1.5-3.5 FT



Resistance R-Value and Expansion Pressure - Cal Test 301

No.	Compact. Pressure psi	Density pcf	Moist. %	Expansion Pressure psf	Horizontal Press. Psi @ 160 psi	Sample Height in.	Exud. Pressure psi	R Value	R Value Corr.
1	320	113.3	15.1	113	98	2.54	687	33	33
2	250	110.5	15.9	39	123	2.59	504	18	19
3	140	106.4	18.1	0	139	2.64	263	8	9

R-value at 300 psi exudation pressure = 9
Exp. Pressure at 300 psi exudation pressure = 6 psf

GEOTECHNICAL ENGINEERING INVESTIGATION SMC-HMB FARMWORKER HOUSING PROJECT 880 STONE PINE ROAD HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA	R-VALUE TEST REPORT		
	DATE: August 2023	JOB NUMBER: COUSM-23-03	PLATE 16

BvGG ENGINEERS

Job No. COUSM-23-03

Plate 17

Corrosivity Tests Summary

CTL # 011-948 **Date:** 7/28/2023 **Tested By:** PJ **Checked:** PJ
Client: BAGG Engineers **Project:** Farmworkers Housing Project **Proj. No:** C00SM-23-03
Remarks:

Sample Location or ID			Resistivity @ 15.5 °C (Ohm-cm)			Chloride	Sulfate		pH	ORP (Redox)		Sulfide	Moisture	Soil Visual Description
			As Rec.	Min	Sat.	mg/kg	mg/kg	%		E_H (mv)	At Test	Qualitative by Lead	At Test %	
						Dry Wt.	Dry Wt.	Dry Wt.						
Boring	Sample, No.	Depth, ft.	ASTM G57	Cal 643	ASTM G57	ASTM D4327	ASTM D4327	ASTM D4327	ASTM G51	ASTM G200	Temp °C	Acetate Paper	ASTM D2216	
B-6	-	2-5	-	-	7,471	<2	8	0.0008	7.4	486	23	Negative	15.0	Black Sandy CLAY
B-8	-	1.5-4	-	-	3,851	4	3	0.0003	7.5	492	23	Negative	17.7	Dark Yellowish Brown CLAY w/ Sand, trace Gravel

Appendix R: Active Treatment System and Passive Treatment Plans

Appendix S: Construction General Permit

Copies of the Construction Stormwater General Permit may be downloaded from the State Water Board website at:

http://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.shtml.

Appendix T: Dewatering Requirements

ATTACHMENT J

DEWATERING REQUIREMENTS

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED
WITH CONSTRUCTION AND LAND DISTURBANCE ACTIVITIES
(GENERAL PERMIT)

A. AUTHORIZED CONSTRUCTION DEWATERING DISCHARGES

A.1. Dischargers with dewatering activities subject to a separate NPDES permit for dewatering activities are not subject to the provisions in this Attachment, and shall obtain separate NPDES coverage as required by the State or Regional Water Board. Dischargers shall include in its Stormwater Pollution Prevention Plan (SWPPP), the separate NPDES permit coverage it holds for dewatering discharges.

A.2. Dewatering discharges authorized by this General Permit include mechanical pumping or syphoning of non-potable water from sources including, but not limited to: excavations, trenches, foundations, vaults, groundwater removal specifically related to the construction activities, and/or water collected in impoundments (e.g., ponds, puddles, low points on the active site, or other similar accumulation points).

A.3. This General Permit does not limit the State or Regional Water Boards' authority to modify dewatering discharge requirements upon providing written notice to the discharger, including but not limited to the following:

a. Adding constituents to be monitored;

b. Adding or modifying frequency of monitoring;

c. Adding or modifying sampling locations;

d. Requiring all or part of the discharge to be treated by an active treatment system (in accordance with Attachment F) prior to discharge; and/or

e. Revoking authorization of dewatering dischargers under this General Permit and requiring the discharger to obtain different NPDES permit coverage for dewatering discharges to waters of the United States.

B. GENERAL DEWATERING DISCHARGE REQUIREMENTS

B.1. Dischargers shall comply with the following dewatering discharge requirements:

a. The discharge complies with receiving water limitations in Section IV.D of this General Permit's Order;

b. The discharge is absent of pollutants in quantities that threaten to cause pollution or a nuisance[1];

c. The dewatering activity takes place in an area without known (including, but not limited to information from: Geotracker, local permitting authorities, Water Boards, etc.) soil and/or groundwater contamination where that contamination could cause an exceedance of receiving water limitations;

d. The discharger shall utilize outlet structures that withdraw water from the surface when conducing dewatering activity from sediment basins or similar impoundments, unless infeasible; and

e. The discharger shall cease discharge if necessary, as follows:

i. Through an automated sampling device capable of ceasing the discharge if a single sample concentration/level exceeds the numeric action level(s); or

ii. By a Qualified SWPPP Practitioner (QSP) or trained delegate who is present during the operation of the mechanical pumping and/or syphoning of the dewatering activity and is able to halt dewatering if a numeric action level is exceeded for a single sample.

C. DEWATERING DISCHARGE MONITORING REQUIREMENTS

C.1. The discharge shall be analyzed for pH and turbidity at the discharge location within the first hour of discharge and daily for continuous dewatering discharges. Each sample must instantaneously comply with the numerical action levels for pH (within 6.5 – 8.5 standard pH units) and turbidity (250 nephelometric turbidity units);

C.2. Dewatering discharge(s) exceeding the numeric action levels for pH and turbidity shall immediately cease until the dewatering discharge complies with the requirements in Sections B.1.a through e and D.5 and 6.

D. DEWATERING DISCHARGE REPORTING REQUIREMENTS

D.1. At least 24 hours prior to the beginning of a dewatering discharge, the discharger shall notify the applicable Regional Water Board stormwater staff via email[2] of the anticipated dewatering discharge.

D.2. The discharger shall notify the corresponding Regional Water Board and the applicable municipal separate storm sewer system within 24 hours of a discharge occurring if an exception to the requirement to cease discharge, as outlined in Section B.1.e, is necessary to protect human life and health or prevent severe property damage.

---

1 40 Code of Federal Regulations section 131.12, and State Water Board Resolution No. 68-16.

2 Regional Water Board stormwater staff contacts listed in Attachment C of this General Permit.

D.3. The Qualified SWPPP Developer (QSD) shall update the site-specific SWPPP on-site at least 24 hours prior to the beginning of a dewatering discharge and upload the amended SWPPP to SMARTS within 14 days with current information required in Section D.4 below, if necessary. The revised SWPPP shall be uploaded as part of a Change of Information through SMARTS.

D.4. The QSD shall include the following site-specific SWPPP updates to address dewatering discharges:

a. On-site BMPs that are selected and implemented:

i. To prevent the dewatering discharge from contacting construction materials or equipment;

ii. That do not use waters of the United States as part of the treatment area, at all areas or points where dewatering is discharged; and

iii. To decelerate the velocity of dewatering discharge (e.g., check dams, sediment traps, riprap, and grouted riprap at outlets);

b. Cleaning and maintenance plan for all dewatering devices and filter media when the pressure equals or exceeds the manufacturer's specifications (if applicable);

c. Site-specific dewatering sampling protocols used to comply with requirements in Section B.1; and

d. A site map depicting the dewatering activity discharge area location(s).

D.5. The discharger shall enter results of all numeric action level (e.g., turbidity and pH) exceedances through SMARTS within 10 days of the field measurements demonstrating the exceedance.

D.6. The QSD shall revise the SWPPP to incorporate immediate corrective actions to prevent further exceedances of the numeric action levels for pH and turbidity, within 10 days of the exceedance.

APPENDIX G

Stone Pine Cove Transportation Impact Analysis



STONE PINE COVE TRANSPORTATION IMPACT ANALYSIS

NOVEMBER 2023

PREPARED FOR:

CITY OF HALF MOON BAY

DKS

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Christine Bairan

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Erin Vaca

TABLE OF CONTENTS

INTRODUCTION **1**

PROJECT SETTING AND STUDY INTERSECTIONS **1**

STUDY INTERSECTIONS 4
STUDY ROADWAYS 4
STUDY TIME PERIOD 4
DATA COLLECTION 5

EXISTING CONDITIONS **5**

EXISTING INTERSECTION OPERATIONS 5

EXISTING CONDITIONS ANALYSIS **7**

EXISTING ACTIVE TRANSPORTATION AND TRANSIT 9
SPEED ANALYSIS AND TRAFFIC CALMING ON STONE PINE ROAD 11

PROJECT TRAVEL CHARACTERISTICS **13**

PROJECT TRIP GENERATION 13
TRIP DISTRIBUTION 14

EXISTING PLUS PROJECT CONDITIONS **14**

SIGNAL WARRANT ANALYSIS **20**

SITE CIRCULATION AND ACCESS **20**

POTENTIAL DIRECT ACCESS TO SR-92 20

VEHICLE MILES TRAVELED **22**

POTENTIAL TRAFFIC CALMING IMPROVEMENTS **22**

SUMMARY OF FINDINGS **23**

APPENDIX **24**

LIST OF FIGURES

FIGURE 1: PROJECT SITE AND STUDY AREA 2
FIGURE 2: PROJECT SITE PLAN 3
FIGURE 3: INTERSECTION GEOMETRY AND EXISTING WEEKDAY/WEEKEND VOLUMES 8
FIGURE 4: EXISTING PEDESTRIAN, BICYCLE, AND TRANSIT FACILITIES 11
FIGURE 5: TRAFFIC VOLUME PATTERNS ON STONE PINE ROAD WEST OF PATRICK WAY 13
FIGURE 6: SPEED STUDY LOCATIONS 12
FIGURE 7: PROJECT A.M. TRIP DISTRIBUTION 15
FIGURE 8: PROJECT P.M. TRIP DISTRIBUTION 16
FIGURE 9: PROJECT SITE TRIP VOLUMES 17
FIGURE 10: EXISTING PLUS PROJECT TRAFFIC VOLUMES 18

LIST OF TABLES

TABLE 1: INTERSECTION LEVEL-OF-SERVICE AND AVERAGE DELAY 6

TABLE 2: EXISTING INTERSECTION DELAY AND LEVEL OF SERVICE 8

TABLE 3: EXISTING INTERSECTION 95TH PERCENTILE QUEUE LENGTHS 9

TABLE 4: SPEED DATA (MAY 17, 2023 AND JUNE 1, 2023) 12

TABLE 5: INTERSECTION OPERATING CONDITIONS WITH PROJECT 19

TABLE 6: INTERSECTION OPERATING CONDITIONS WITH PROJECT - 95TH PERCENTILE QUEUE LENGTHS 19

INTRODUCTION

The City of Half Moon Bay is seeking to address the housing needs of its agricultural workforce and to replace substandard housing that has been lost due to recent events. The project proposed to meet these needs would consist of up to 50 mobile home units to be located on the City property at the eastern end of Stone Pine Road. The City's corporation yard facilities are co-located on the eastern half of the site.

This report presents an analysis of the potential traffic impacts that would be associated with the proposed project. The traffic study was completed in accordance with the criteria established by the City of Half Moon Bay and City/County Association of Governments of San Mateo County. This report documents analysis of the potential local transportation-related effects of the proposed project as well as consideration of potential VMT impacts. In addition to examining the operations at two study intersections, this study also addresses site access as well as bicycle and pedestrian access and safety.

PROJECT SETTING AND STUDY INTERSECTIONS

The proposed project consists of the construction of 50 mobile homes on an undeveloped parcel of land, to be co-located with the City's corporation yard. The project is located with State Route 92/San Mateo Road (SR-92) to the north, a residential neighborhood to the west, Pilarcitos Creek to the south, and commercial and agricultural uses to the east. Access to the residential project and the City's corporation yard would be provided via Stone Pine Road. Currently, there is no direct access to San Mateo Road/State Route 92 (SR-92) but there is an easement along the eastern edge of the property through which emergency vehicular access will be provided.

The project is located near downtown Half Moon Bay and would be within walking distance of many key destinations including Stone Pine Shopping Center, New Leaf Community Market, Half Moon Bay Pharmacy, Rite Aid, CVS, Safeway, and numerous restaurants.

The project site and study area boundary are illustrated in **Figure 1**, a project site plan is provided in **Figure 2**.



FIGURE 1: PROJECT SITE AND STUDY AREA

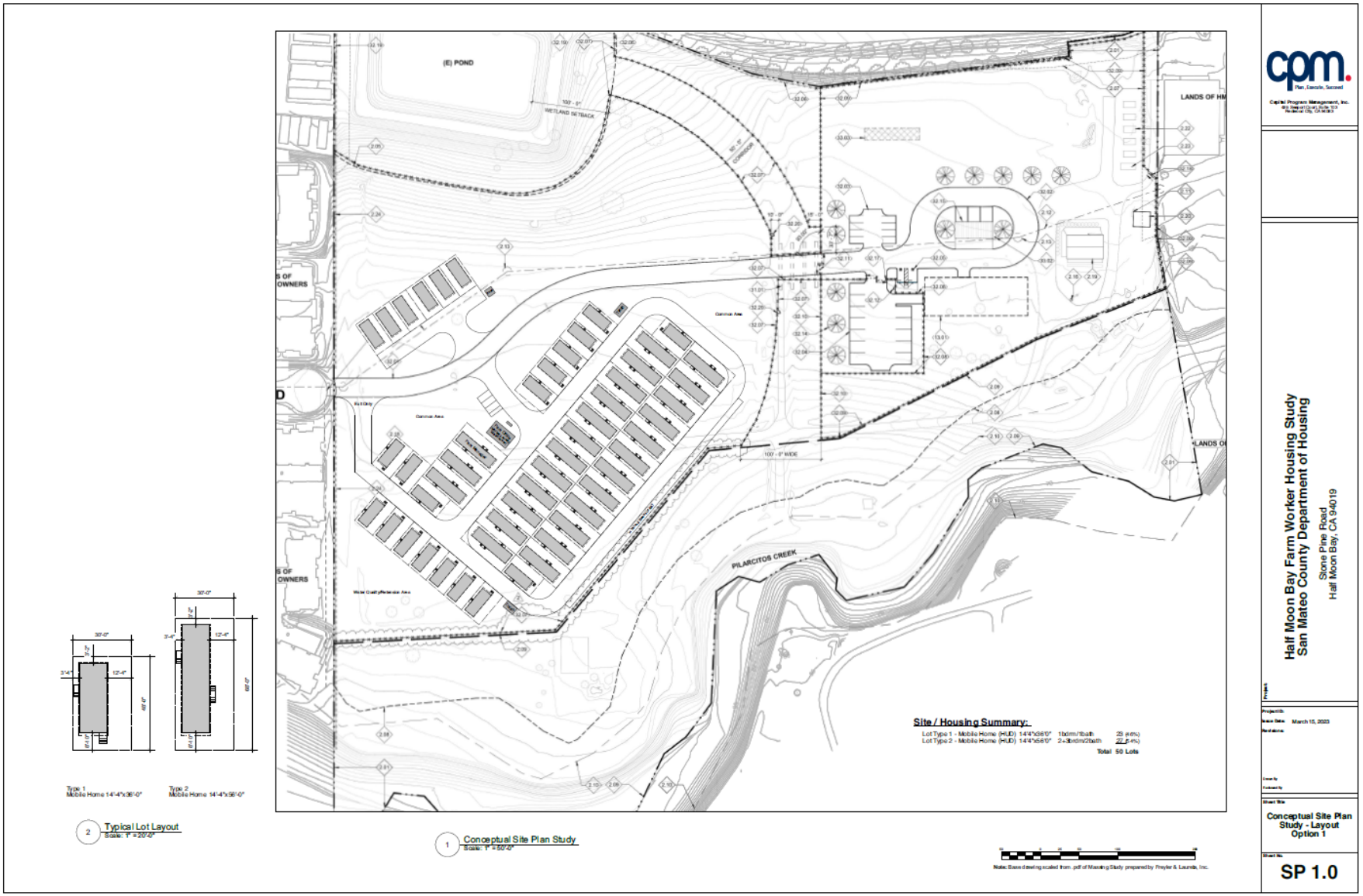

FIGURE 2: PROJECT SITE PLAN

STUDY INTERSECTIONS

The roadway network and study intersections are shown in **Figure 1**. This analysis will examine the project's potential effects on peak hour operations at two study intersections:

1. **SR-92 and Main Street** is a signalized, four-legged intersection with protected left-turn phasing on all approaches. Marked crosswalks and pedestrian signals are provided across every approach. This intersection is part of the County of San Mateo Congestion Management Program and is operated by Caltrans.

2. **Main Street and Stone Pine Road** is an all-way stop-controlled (AWSC), four-legged intersection. There are high-visibility crosswalks across the east and south approaches.

Crosswalks and sidewalks are generally provided within the study intersections and the study area. Bus stops are also located along SR-92 in both directions. A detailed description of the existing pedestrian and transit facilities is provided within the Existing Conditions Analysis.

STUDY ROADWAYS

SR-92 is a major east-west state highway that serves regional traffic between Highway 1, Interstate 280, the San Mateo Bridge and the City of Hayward. East of the study intersection, there is a raised median with one or two through lanes in each direction. Adjacent to the project site, the cross-section tapers to an undivided two-lane cross section with shoulders.

Main Street is a north-south arterial roadway that serves local circulation. This street has one travel lane in each direction with on street parking in some locations. Adjacent land uses include agricultural and local businesses, public facilities, commercial and residential. South of the Study Area, Main Street traverses the historic shopping district of Half Moon Bay, and the posted speed limit is 25 mph.

Stone Pine Road is a local east-west street that primarily provides access to residential properties as well as the Stone Pine Shopping Center. The street has one travel lane in each direction and a posted speed limit of 25 mph.

STUDY TIME PERIOD

Operating conditions during the weekday morning (7:00 a.m. to 9:00 a.m.) and afternoon (4:00 p.m. to 6:00 p.m.) as well as the Saturday midday (12:00 p.m. to 2:00 p.m.) peak periods were evaluated to capture the highest potential impacts for the proposed project as well as the highest volumes on the study road network. Turning movement intersection counts are provided in the **Appendix, Section 1**. Conditions during the weekday and Saturday midday peak hours were evaluated for the following scenarios:

- **Existing Conditions**: Existing peak hour volume, lane geometry, and traffic control
- **Existing plus Project Conditions**: Existing peak hour volumes plus net-new project-generated trips estimated for the proposed development.

DATA COLLECTION

Traffic volume data representative of a typical weekday was collected on Wednesday, May 17, 2023, while local schools were in session.

For the weekend analysis, counts collected in 2019 for another traffic study were used at the SR-92 and Main Street intersection[1]. Weekday volumes collected at this intersection in 2019 and 2023 were compared to assess if there was an increase in volume. Based on the weekday count comparison, using the 2019 weekend counts without adjustment was deemed to be the more conservative approach.

Weekend midday volumes entering and exiting Stone Pine Road and Main Street were estimated based on the tube counts collected for the speed study. The inbound and outbound trip distributions among these intersections were based on existing traffic patterns.

Vehicle speed data was collected along Stone Pine Road, east and west of Patrick Way. Twenty-four-hour tube counts were conducted on Wednesday, May 17, 2023, and Thursday, June 1, 2023, for weekday analysis, and on Saturday, June 3, 2023, for the weekend analysis. The vehicle speed data from May 17 was collected east of Patrick Way while the vehicle speed data from June 1 and June 3, 2023, was collected west of Patrick Way near the crosswalk east of Main Street.

EXISTING CONDITIONS

EXISTING INTERSECTION OPERATIONS

Intersection analyses were conducted using methodology outlined in the *Highway Capacity Manual 6th Edition* (HCM 6) and implemented in the Synchro 11 software package. This procedure calculates an average control delay per vehicle at an intersection and assigns a level of service designation based upon the delay. **Table 1** presents the level of service criteria for intersections in accordance with the HCM 6 methodology.

OPERATION ANALYSIS THRESHOLDS

The City of Half Moon Bay has established criteria to determine the level of significance of traffic impacts based on standards set by the City's *General Plan Circulation Element* (2013), and the *San Mateo County Congestion Management Program (CMP), Appendix L: Traffic Impact Analysis Policy*.

As the SR-92 and Main Street study intersection is within the CMP network, a project is considered to have an adverse impact on this intersection if it causes one or more of the following:

[1] Half Moon Bay Hyatt Place Project (2022).

TABLE 1: INTERSECTION LEVEL-OF-SERVICE AND AVERAGE DELAY

LEVEL OF SERVICE (LOS)	DELAY PER VEHICLE (SECONDS)	
	SIGNALIZED	UNSIGNALIZED
A	< 10	< 10
B	> 10 and < 20	> 10 and < 15
C	> 20 and < 35	> 15 and < 25
D	> 35 and < 55	> 25 and < 35
E	> 55 and < 80	> 35 and < 50
F	> 80	> 50

Source: Highway Capacity Manual 6th Edition, Transportation Research Board.

- For a CMP intersection currently in compliance with the adopted LOS standard:
    - A project will be considered to have an adverse impact if the project will cause the CMP intersection to operate at a level of service that violates the standard adopted in the current Congestion Management Program (CMP).
    - A project will be considered to have an adverse impact if the cumulative analysis indicates that the combination of the proposed project and future cumulative traffic demand will result in the CMP intersection operating at a level of service that violates the standard adopted in the current CMP AND the proposed project increases the average control delay at the intersection by four seconds or more.
- For a CMP intersection currently not in compliance with the adopted LOS standard, a project is considered to have an adverse impact if the project will add any additional traffic to the CMP intersection that is currently not in compliance with its adopted level of service standard as established in the CMP.

The City's policy has established that LOS C is the desired level of service at study intersections on SR-92, except during the peak two-hour commuting period and the peak recreational hour when LOS E is considered the minimum acceptable standard.

The City of Half Moon Bay does not have a formally adopted minimum threshold for unsignalized intersections. For this analysis, traffic effects are considered to be adverse if the addition of project-generated traffic causes operation of an unsignalized intersection to deteriorate from an acceptable LOS to LOS F, or queue lengths exceed storage lengths or spillback to impact nearby intersections.

EXISTING CONDITIONS ANALYSIS

The existing conditions scenario provides an evaluation of current operation based on existing traffic volumes during the weekday morning and afternoon peak hours as well as the weekend midday peak hour.

Existing traffic operations have been calculated based on the lane configurations and traffic volumes shown in **Figure 3**. The results of the traffic operations and queuing analysis are summarized in **Table 2** and **Table 3**, respectively. Both study intersections currently operate acceptably during the weekday morning and afternoon as well as the weekend midday peak hours based on established performance standards. Detailed existing condition intersection analysis results may be found in the **Appendix, Section 2**. The signal timing worksheets used in the Synchro analysis are shown in the **Appendix, Section 3**.

Under existing conditions, queues at the SR-92 and Main Street intersection exceed available storage for the following movements:

- The eastbound left turn movement currently exceeds the available storage length during the weekday a.m. peak hour by 6 feet or less than one vehicle. Vehicles waiting to make an eastbound left turn movement may block one of the eastbound travel lanes.
- The westbound right turn movement currently exceeds the available storage length by 145 feet (approximately 6 vehicles) during the weekday afternoon peak hour and by 67 feet (approximately 3 vehicles) during the weekend midday peak hour. Vehicles making a westbound right turn at this intersection may block one of the westbound travel lanes.
- The northbound left turn movement currently exceeds the available storage length by 62 feet (approximately 3 vehicles) during the weekday afternoon peak hour and by 46 feet (approximately 2 vehicles) during the weekend midday peak hour. If the northbound left turn queue exceeds the available storage length, vehicles may be forced to stay in the two-way-center turn lane.
- The southbound left turn movement currently exceeds the available storage length by 77 feet (approximately 3 vehicles) during the weekday morning peak hour and by 48 feet (approximately 2 vehicles) during the weekend midday peak hour. Similarly, if the southbound left turn queue exceeds the available storage length, vehicles may be forced to wait in the two-way center turn lane.

Under existing conditions, queues do not exceed available storage at the Main Street and Stone Pine Road intersection.

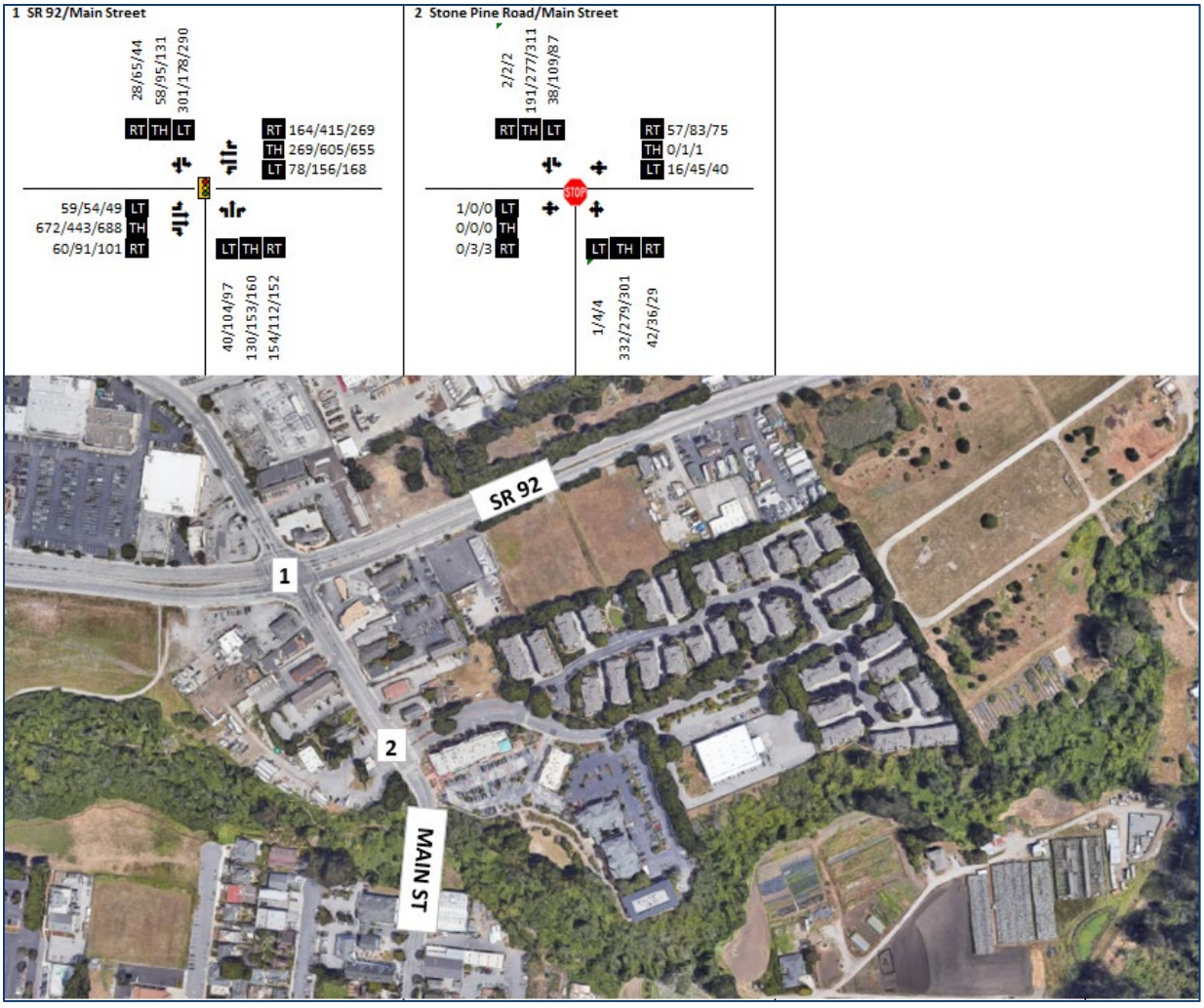

FIGURE 3: INTERSECTION GEOMETRY AND EXISTING WEEKDAY/WEEKEND VOLUMES

TABLE 2: EXISTING INTERSECTION DELAY AND LEVEL OF SERVICE

INTERSECTION	AM PEAK HOUR		PM PEAK HOUR		WEEKEND PEAK HOUR	
	DELAY	LOS	DELAY	LOS	DELAY	LOS
SR-92 & MAIN STREET	44.6	D	38.3	D	42.6	D
MAIN STREET & STONE PINE ROAD	10.8	B	11.6	B	11.5	B

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service

Source: DKS Associates, 2023.

TABLE 3: EXISTING INTERSECTION 95TH PERCENTILE QUEUE LENGTHS

INTERSECTION/ MOVEMENT	TURN BAY LENGTH (FT)	AM PEAK HOUR	PM PEAK HOUR	WEEKEND PEAK HOUR
		QUEUE (FT)	QUEUE (FT)	QUEUE (FT)
SR-92 & MAIN STREET				
EBL	110	**116**	103	96
EBR		24	42	46
WBL	430	140	230	245
WBR	100	49	**245**	**167**
NBL	100	74	**162**	**146**
NBR		62	59	64
SBL	340	**417**	238	**388**
SBT/R		111	197	222
MAIN STREET & STONE PINE ROAD				
NBL/T/R		73	65	63
EBL/T/R		0	0	0
SBL	100	5	18	13
SBT/R		30	58	63
WBL/T/R		10	20	15

Note: Lengths shown in **bold** exceed storage.

Source: DKS Associates, 2023.

EXISTING ACTIVE TRANSPORTATION AND TRANSIT

PEDESTRIAN FACILITIES

Pedestrian facilities in the study area include sidewalks, crosswalks, pedestrian signal phases, curb ramps, and various streetscape amenities such as lighting and benches. A network of sidewalks, crosswalks, pedestrian signals and curb ramps provides access for pedestrians in the project vicinity, primarily along Main Street.

State Route 92 (SR-92). A continuous sidewalk is provided along the north side of SR-92 between Main Street and SR-1, and along the south side of SR-92 approximately 330 ft west of Main Street. Crosswalks are provided at nearby signalized intersections.

Main Street. Sidewalks are provided along both sides of Main Street with curb ramps and overhead lighting at intersections between SR-92 and Half Moon Bay's downtown. Crosswalks are also provided at the Main Street intersections with SR-92 and Stone Pine Road.

Stone Pine Road. Sidewalks are provided along the southern side of Stone Pine Road between Main Street and the western edge of the property. Crosswalks are provided at Main Street and Patrick Way. The ramp on the north side of crosswalk at Stone Pine Road and Patrick Way is not built to current design standards.

BICYCLE FACILITIES

Within the vicinity of the project area, there are on-street bike lanes (Class II facilities) on Main Street north of the SR-92 intersection, but no facilities south of the intersection. There are no bike facilities on Stone Pine Road or SR-92. The proposed project does not provide direct access to the bicycle network, but is within 0.5 mile of the Naomi Partridge Trail, a Class I shared use path which travels north-south adjacent to Highway 1 within Half Moon Bay. This path could be accessed by travelling north via Main Street. The existing bicycle network is illustrated in **Figure 4** and the complete bicycle map may be found in **Appendix, Section 4**.

TRANSIT FACILITIES

SamTrans provides multiple fixed-route bus services in the City of Half Moon Bay. Routes 117 and 294 operate daily and Route 18 operates only on school days. All three routes have stops in Half Moon Bay primarily along SR-1, Main Street, and SR-92.

Route 117 (Linda Mar Park & Ride - Moonridge Apartments) operates daily between Linda Mar Park-and-Ride in Pacifica and Miramontes Point Road along SR-1 in Half Moon Bay, with limited service to the town of Pescadero. Service is provided from 5 a.m. to 9 p.m. on weekdays and 5 a.m. and 8 p.m. on weekends. Headways are approximately 1 hour on both weekends and weekdays.

Route 18 operates on school days only and provides service between the town of Montara and the Moonridge Apartments in Half Moon Bay via SR-1 and Main Street. During the mornings, the northbound service departs from the Moonridge Apartments at 7:27 a.m. and 8:06 a.m. while the southbound service departs from Montara at 7:28 a.m., 7:29 a.m. In the afternoons, the northbound service departs at 3:03 p.m., 4:03 p.m. and 4:34 p.m. while the southbound service departs at 2:37 p.m., 3:37 p.m. and 4:18 p.m.

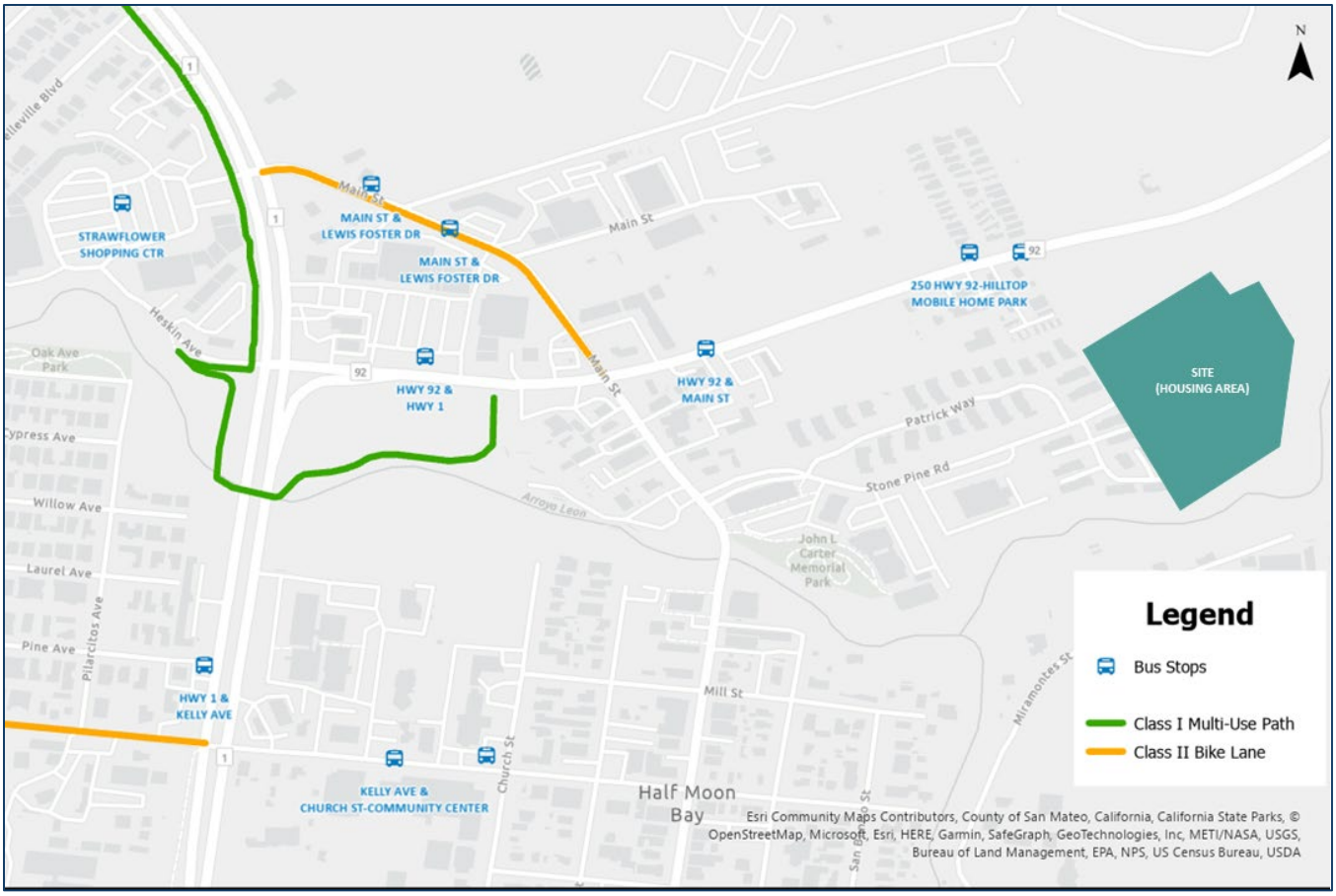

FIGURE 4: EXISTING BICYCLE, AND TRANSIT FACILITIES

Route 294 operates daily from approximately 5:00 a.m. to 9:00 p.m., with headways ranging from one to two hours. Route 294 connects Half Moon Bay with the San Mateo Medical Center with stops along Main Street and SR-92. The existing bus stops near the study site are illustrated in **Figure 4**.

SPEED ANALYSIS AND TRAFFIC CALMING ON STONE PINE ROAD

Vehicle speed data was collected along Stone Pine Road, east and west of Patrick Way. Twenty-four-hour tube counts were conducted on two midweek days (Wednesday and Thursday) as well as the weekend (Saturday) at the locations illustrated in **Figure 5**. As previously mentioned, the vehicle speed data observed on May 17, 2023, was collected east of Patrick Way while the vehicle speed data observed on June 1 and June 3, 2023, was collected west of Patrick Way near the crosswalk east of Main Street. See the **Appendix, Section 5** for a full summary of the collected speed data.

The midweek twenty-four-hour tube counts recorded 3,700 vehicles west of Patrick Way on Stone Pine Road, and 1,400 vehicles east of Patrick Way. Peak hour volumes west of Patrick Way were 350 vehicles at 1:00 p.m., and 167 vehicles at 3:00 p.m. east of Patrick Way. The weekend twenty-four hour tube counts recorded 2,900 vehicles west of Patrick Way on Stone Pine Road,

with the peak hour volume of 305 vehicles recorded at 11:00 a.m. Traffic volume hourly trends on Stone Pine Road west of Patrick Way on collected on weekday and weekday dates are illustrated in **Figure 6**. The count data sheets are provided in the **Appendix, Section 5**.



FIGURE 5: SPEED STUDY LOCATIONS

Results of the vehicle speed data study are summarized in **Table 4**. Comparing the average and 85th percentile observed speeds to the posted speed limit of 25 mph, excessive speeding was not common on either data collection date on Stone Pine Road.

TABLE 4: SPEED DATA (MAY 17, 2023 AND JUNE 1, 2023)

LOCATION	SPEED DATA (MPH)				
	COLLECTION DATE	DAY OF WEEK	POSTED SPEED	AVERAGE SPEED	85TH PERCENTILE SPEED
1. STONE PINE ROAD EAST OF PATRICK WAY	May 17, 2023	Wednesday	25	19	23
2. STONE PINE ROAD WEST OF PATRICK WAY	June 1, 2023	Thursday	25	19	24

Source: DKS Associates, 2023

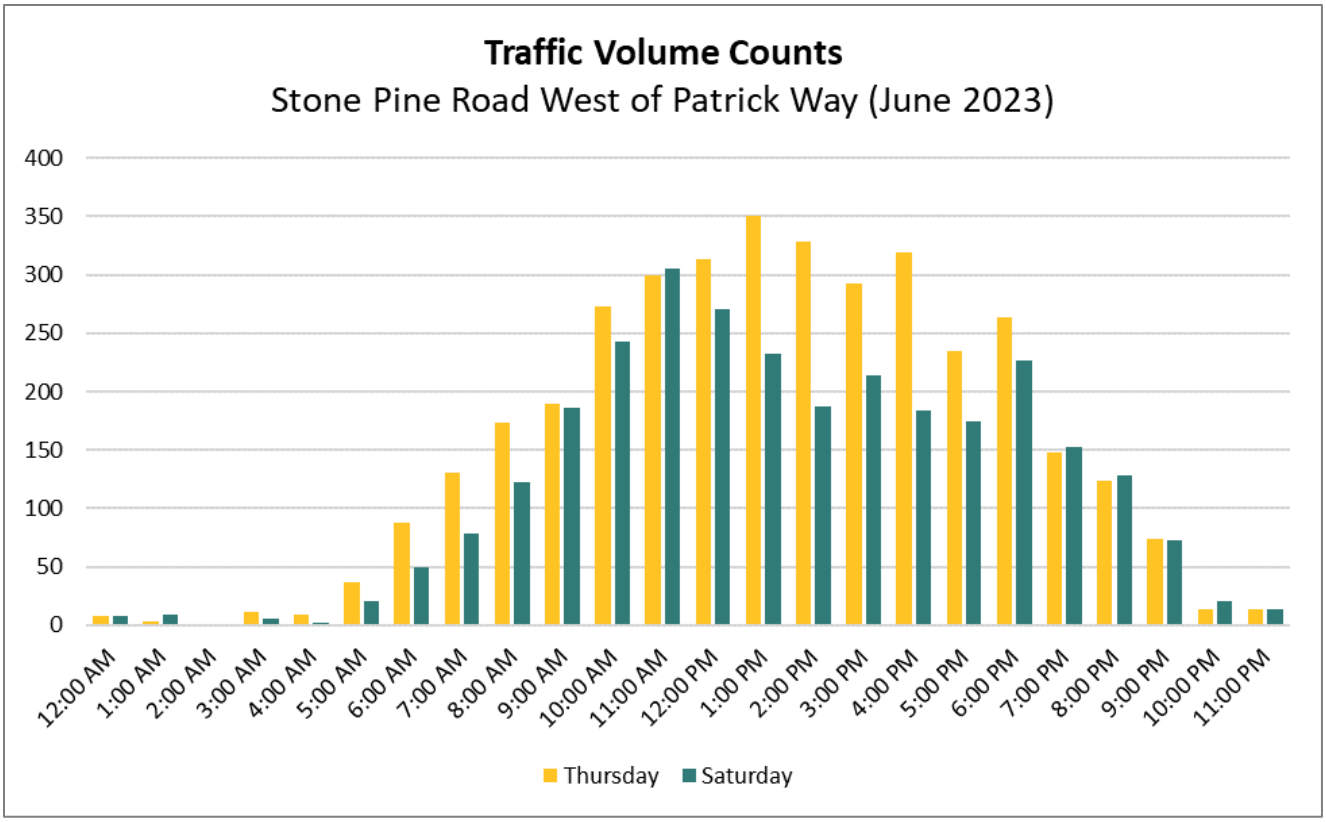

FIGURE 6: TRAFFIC VOLUME PATTERNS ON STONE PINE ROAD WEST OF PATRICK WAY

PROJECT TRAVEL CHARACTERISTICS

PROJECT TRIP GENERATION

Anticipated trip generation for the proposed project was estimated using the average rate published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual, 11th Edition for* "Mobile Home Park" (ITE LU #240).

The resulting expected trip generation potential for the proposed project is indicated in **Table 5**. The project is expected to generate an average of 356 trips per day, including 26 trips during the weekday morning peak hour, 43 trips during the weekday afternoon peak hour and 32 trips on the weekend midday peak hour.

The trip generation analysis accounted for the trips associated with the corporation yard that is currently under construction. Based on discussions with City staff, there are seven employees who typically arrive at the project site before the morning peak hour and depart in city-owned vehicles during the morning peak hour. Then, employees typically return during the afternoon peak hour to retrieve their personal vehicles. These trips have been added to the project-generated traffic by adding seven outbound trips to the morning peak hour, and seven inbound and outbound (14 total) during the afternoon peak hour.

TABLE 5: VEHICLE TRIP GENERATION
ITE CODE 240, MOBILE HOME PARK

TRIP TYPE AND RATE PER DWELLING UNIT	TRIPS ENTERING	TRIPS EXITING	TOTAL TRIPS
DAILY TRIPS (RATE)	178	178	356 [a]
AM PEAK HOUR (RATE)	4	22	26
PM PEAK HOUR (RATE)	25	18	43
WEEKEND PEAK HOUR (RATE)	17	15	32

Source: Institute of Transportation Engineers Trip Generation, 11th edition (itetripgen.org)

TRIP DISTRIBUTION

Project trip distribution for peak hours was based on existing travel patterns identified through the turning movement counts. Weekday peak hour distribution is illustrated in **Figure 7** and **Figure 8**.

EXISTING PLUS PROJECT CONDITIONS

Existing plus project condition intersection analysis results are summarized in this section with analysis details in the **Appendix, Section 6**. Project trips, as shown in **Figure 9**, were developed from the site trip generation and the trip distribution described in the previous section. Existing plus project traffic volumes are shown in **Figure 10**. Traffic operations under the existing plus project condition are summarized in **Table 5**. Consistent with the existing conditions, both study intersections will continue to operate acceptably during the weekday and weekend peak hours.

The queuing analysis summarized in **Table 6**, is also generally consistent with the existing conditions. The only movement where an increase in queue length was seen was the northbound left turn movement at SR-92 and Main Street, which increases by about three feet in both the weekday afternoon and the weekend midday peak hours.

With the development of the project, there is no change in the number of vehicles that would exceed available storage lengths compared to existing conditions for all peak hours. Therefore, the queuing impact of the proposed development is expected to be minimal.

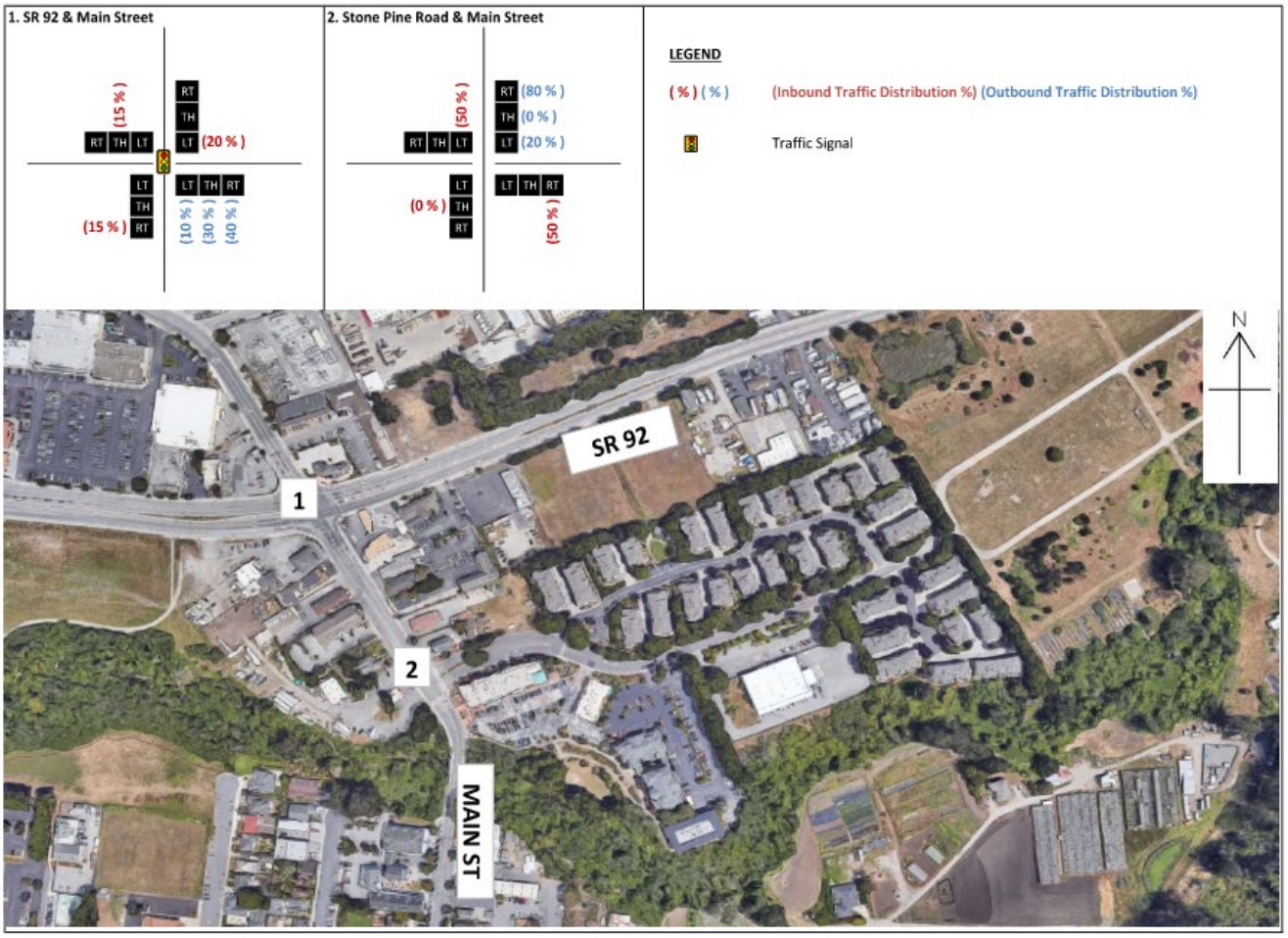

FIGURE 7: PROJECT A.M. TRIP DISTRIBUTION

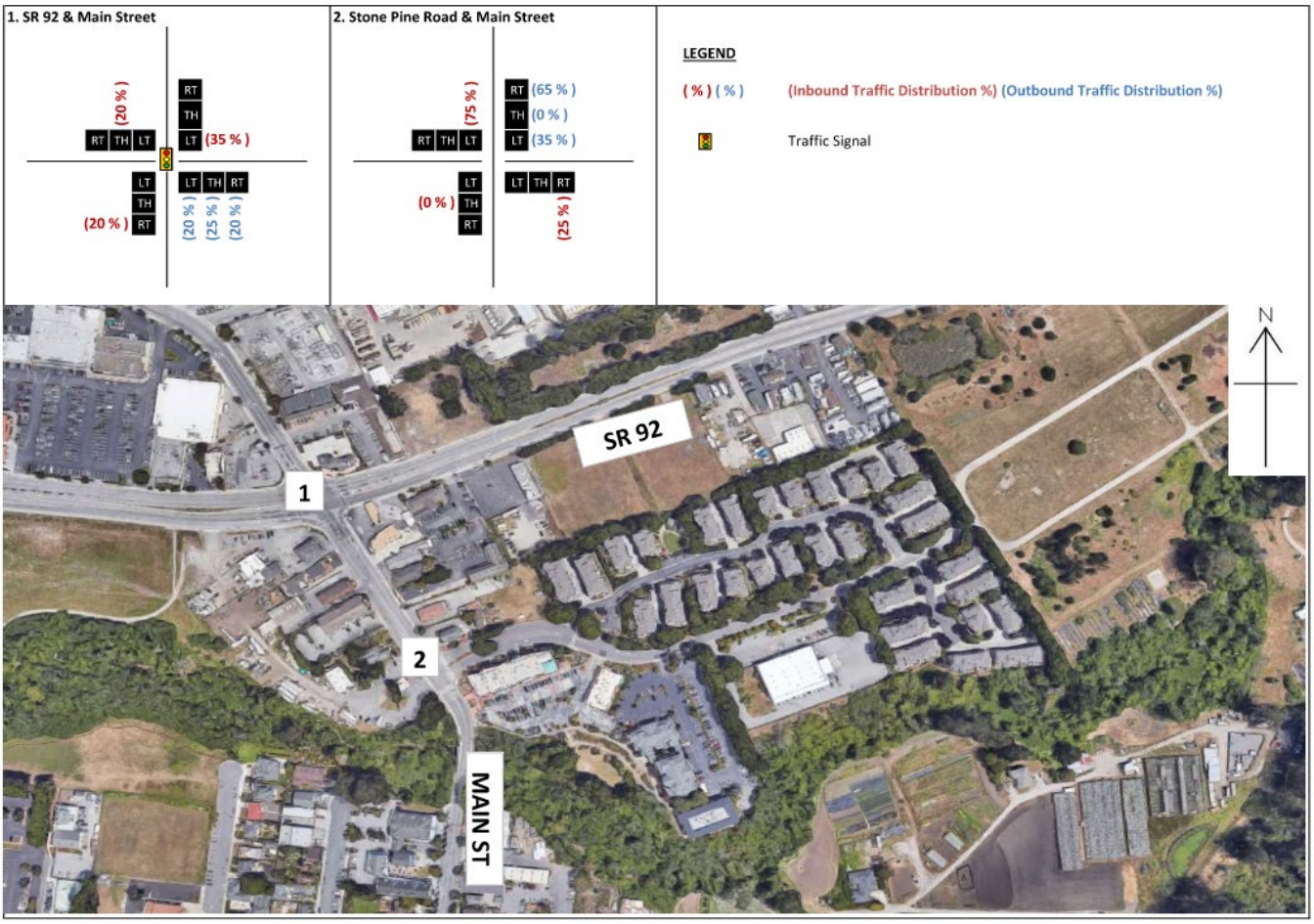

FIGURE 8: PROJECT P.M. TRIP DISTRIBUTION



FIGURE 9: PROJECT SITE TRIP VOLUMES

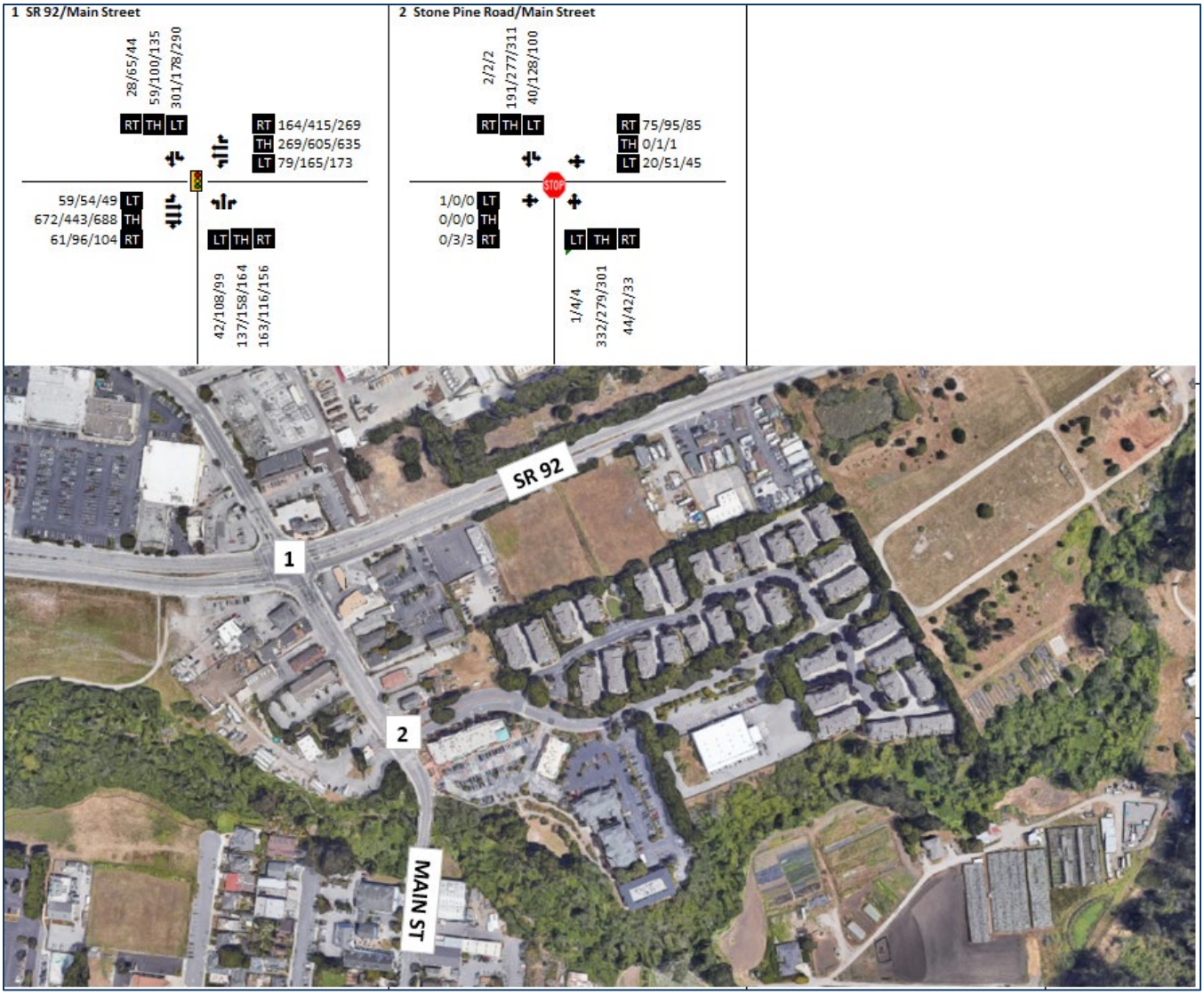

FIGURE 10: EXISTING PLUS PROJECT TRAFFIC VOLUMES

TABLE 5: INTERSECTION OPERATING CONDITIONS WITH PROJECT

INTERSECTION	AM PEAK HOUR		PM PEAK HOUR		WEEKEND PEAK HOUR	
	DELAY (SECONDS)	LOS	DELAY (SECONDS)	LOS	DELAY (SECONDS)	LOS
1. SR-92 & MAIN STREET	45.1	D	38.9	D	42.9	D
2. MAIN STREET & STONE PINE ROAD	11.0	B	11.8	B	11.7	B

Source: DKS Associates, 2023

TABLE 6: INTERSECTION OPERATING CONDITIONS WITH PROJECT - 95TH PERCENTILE QUEUE LENGTHS

INTERSECTION/ MOVEMENT	TURN BAY LENGTH (FT)	AM PEAK HOUR	PM PEAK HOUR	WEEKEND PEAK HOUR
		QUEUE (FT)	QUEUE (FT)	QUEUE (FT)
SR-92 & MAIN STREET				
EBL	110	**116**	103	96
EBR		25	44	47
WBL	430	140	241	251
WBR	100	49	**246**	**167**
NBL	100	78	**167**	**149**
NBR		64	59	64
SBL	340	**417**	238	**388**
SBT/R		113	204	228
MAIN STREET & STONE PINE ROAD				
NBL/T/R		75	70	65
EBL/T/R		0	0	0
SBL	100	5	23	15
SBT/R		30	60	63
WBL/T/R		13	25	20

Note: Lengths shown in **bold** exceed storage.

Source: DKS Associates, 2023.

SIGNAL WARRANT ANALYSIS

A preliminary traffic signal warrant analysis was performed to determine if the Main Street and Stone Pine Road intersection would meet the thresholds to warrant a traffic signal with the existing plus project traffic conditions. For this preliminary signal warrant study, data were available to examine Warrants 2, and 3 (Four-Hour Vehicular Volume, and Peak Hour) from the 2014 California Manual of Uniform Traffic Devices (CA MUTCD). Neither Warrant 2 nor Warrant 3 are met under existing plus project traffic conditions. Full details of the preliminary signal warrant study can be found in **Appendix, Section 7**.

SITE CIRCULATION AND ACCESS

As shown in the site plan, access to the proposed project would be located along the western edge of the property via Stone Pine Road. There are three driveways that serve as access points for residential housing. It is noted that the driveway closest to the direct access point on Stone Pine Road serves as an exit-only driveway.

Within the vicinity of the proposed project, sidewalks are only provided on the south side of Stone Pine Road between the western edge of the property and Main Street, providing access to the Stone Pine shopping plaza. The commercial plaza, which includes a pharmacy, a coffee shop, and restaurants, is less than a quarter mile away from the proposed project along Stone Pine Road.

Due to the low volumes entering and exiting Stone Pine Road along Main Street, the crosswalks across Stone Pine Road at Main Street and Patrick Way are adequate, as motorists are expected to come to a full-stop at the all-way stop-controlled intersection. Additionally, the average and 85th percentile speed along Stone Pine Road does not exceed the posted speed limit. There is, however, community concern regarding the crosswalk across Stone Pine Road at west Patrick Way. This crosswalk is used by most of the existing neighborhood residents to reach the shopping center and points beyond on foot. The 880 Stone Pine Road project presents an opportunity to consider traffic calming and pedestrian infrastructure improvements in the neighborhood (see Potential Traffic Calming Improvements, below).

POTENTIAL DIRECT ACCESS TO SR-92

The project site includes emergency access to SR-92 through an easement along the eastern edge of the property. The possibility of adding another driveway access point from SR-92 that directly serves the residential complex was also examined, including the option for an SR-92 driveway to replace vehicular access from Stone Pine Road. Provision of a regular access point from SR-92 would be subject to several constraints, pertaining to constructability, cost, safety, environmental considerations, and operational feasibility, all of which would negatively affect the feasibility of such an access point.

- Environmental constraints, topography, and access spacing related to adjacent site access limit the potential locations for providing an access point to the site via SR-92. The grade differential between SR-92 and the project site presents a challenge in finding a suitable location for a

driveway that would not require significant grading, which restricts possible driveway locations. The slope or grade of a driveway has a direct impact on maneuverability, as driveways with steep slopes can cause vehicles to scrape their undercarriages, necessitating a slow speed transition. The maximum recommended slope for a driveway on a major arterial is 6 percent[2]. Potential driveway locations are constrained by on-site environmental conditions, such as the pond located on the western edge of the project site, as well as the existing Frog Corridor. The Frog Corridor, in the context of the California Environmental Quality Act (CEQA), refers to a designated area or habitat crucial for the conservation and protection of frogs and other amphibians. The potential impact of a driveway on these corridors would need careful evaluation and mitigation, which limits how far west along the project frontage an additional driveway can be located.

- The existing driveways located adjacent to the eastern project frontage also impose a constraint on potential driveway locations. Appropriate distances between driveways along SR-92 should be maintained for the safety of both the mainline and drivers entering and exiting the access points. Sufficient access spacing is necessary to ensure proper separation between crossing, stopping, and turning movements, avoiding overlaps that could create conflict points, and the addition of new driveways without adequate spacing increases the potential for conflicts and collisions.
- A full-movement unsignalized site access on SR-92 is not advisable due to the number of additional conflicts points it would create on a state highway facility. Conflict points refer to locations where the travel paths of different vehicles may legally cross.
- If full-movement access on SR-92 were to be provided, signalization would be the preferred control measure from a safety perspective. However, it would not be preferable from an operational standpoint. A full signal with proper geometric upgrades including right-turn tapers and left-turn pockets would require additional right-of-way acquisition and earthwork in addition to geometric upgrades and signal installation due to the terrain adjacent to SR-92. While a signalized access with proper left-turn storage lanes and suitable pedestrian-cycling crossing treatments could offer a safer option for full-movement site access, the associated costs and operational considerations make signalization prohibitive for the project.
- In addition to the geometric upgrades that would be required, signalization of a full movement access on SR-92 is generally not supported from an operations standpoint as it would negatively impact traffic flow and operations due to increased congestion and delays caused by the introduction of signal cycles, as well as its spacing from other existing signals. Signalization would resolve issues for this development; however, it would cause impacts to the rest of the travelling public on SR-92.
- A restricted movement access, such as right-in, right-out only, would be a safer alternative to an unsignalized full-movement access as this would reduce the complexity of driving conditions and minimize conflicts between through vehicles and turning vehicles. However, this would not efficiently serve the needs of the project traffic.
- The implementation of any additional signalization on SR-92 would require multijurisdictional coordination involving local, regional, and state agencies. Caltrans, which is responsible for enhancing and maintaining the State Highway System, aims to minimize the number of

[2] Transportation Research Board Access Management Manual, 2nd Edition

connection points on freeways and expressways to protect access control rights. Introducing a new driveway on SR-92 does not align with the general objectives of access management and would necessitate coordination among various agencies. This coordination process would lead to delays and complications for the project.

VEHICLE MILES TRAVELED

The California Environmental Quality Act (CEQA) Guidelines Section 15064.3 states that a project's potential effects on VMT must be examined. The proposed project is intended to allow agricultural workers of modest income to live relatively near to their workplaces rather than potentially commuting into Half Moon Bay from greater distances. The proposed project is located within the City's Town Center area and within walking distance of retail and service opportunities, which will also tend to reduce VMT.

In addition, this agricultural worker housing project was analyzed as part of the City's currently ongoing Housing Element update. In aggregate, the planned additional housing units, including those in this project, result in a Year 2040 citywide VMT per capita that is lower than 85% of the baseline VMT per capita in the Coastside region. Although a threshold of significance has not been formally adopted, the Housing Element analysis supports the proposition that the project will have less than significant VMT impacts.

POTENTIAL TRAFFIC CALMING IMPROVEMENTS

Although speeds are not typically high on Stone Pine Road, there is community concern, especially around the Patrick Way crosswalk. The addition of the 880 Stone Pine Road project is an opportunity to implement traffic calming options for the neighborhood such as rectangular rapid flashing beacons (RRFB), raised crosswalks, speed cushions, and chicanes. The project civil engineer, BKF Engineers, along with DKS and city staff have jointly prepared a recommended program of traffic calming and active transportation infrastructure improvements that can be considered for implementation in concert with the proposed project. This program of improvements will help manage the additional vehicle traffic associated with the project while providing improved pedestrian access in the neighborhood.

A wide variety of potential improvements were reviewed by the project team. The package of improvements recommended for immediate implementation alongside the project includes those improvements that are both feasible and will have the greatest impact. Additional improvements may be considered in the future if traffic conditions remain a neighborhood concern and as funding becomes available.

The recommended improvements include:

- Addition of a crosswalk sign with a Rectangular Rapid Flashing Beacon (RRFB) at the west Patrick Way crosswalk.

- Edge line striping and sharrows (bicycle route pavement markers) on Stone Pine Road between the project driveway and the west Patrick Way crosswalk.
- Vegetation trimming at the west Patrick Way crosswalk to improve sight lines.
- Speed feedback messaging signs on Stone Pine Road midway between the east and west Patrick Way intersections (one in eastbound and one in westbound direction); and
- A crosswalk, new ADA-compliant ramps, and landings at the east Patrick Way intersection with Stone Pine Road.

This program of improvements is estimated to cost $225,000. Planning level cost estimates and a conceptual diagram may be found in the **Appendix, Section 8**.

SUMMARY OF FINDINGS

This transportation impact assessment assessed the potential traffic and circulation effects associated with the proposed project. Key findings are summarized below.

- Under existing conditions both study intersections operate acceptably during the weekday morning, weekday afternoon and weekend midday peak hours based on established performance thresholds.
- Under existing conditions, all intersections are operating at LOS D or better during both weekday and weekend peak hours. The SR-92 and Main Street intersection is operating at LOS D in the weekday morning peak hour, and LOS D in the weekday afternoon peak hour.
- The project site is served by adequate pedestrian, cycling and transit facilities. Sidewalks connect the project site to key destinations in the area such as the Stone Pine shopping center and bus stops, and pedestrian crossing treatments are provided at both study intersections.
- Vehicle speed data collected on Stone Pine Road did not indicate that high vehicle travel speeds are common at the locations surveyed.
- With the addition of site-generated traffic, both study intersections are expected to continue to operate at acceptable levels of service. Significant increases in queuing are not expected at the study intersections with the addition of site-generated traffic.
- A preliminary traffic signal warrant analysis did not indicate that a traffic signal was warranted at the Main Street and Stone Pine Road intersection.
- While the proposed site already includes emergency access to SR-92 through an easement along the eastern edge of the property, the possibility of adding another driveway access point that directly serves the residential complex was also examined. This option is not recommended due to significant challenges related to constructability, cost, safety, environmental considerations, and operational feasibility.
- The project is expected to have less than significant VMT impacts.
- Although high vehicles travel speeds are not common on Stone Pine Road, traffic calming measures and pedestrian improvements are recommended to address neighborhood concerns about increased vehicular traffic and to improve the pedestrian experience.

APPENDIX

DKS

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CONTENTS

SECTION 1. INTERSECTION TURNING MOVEMENT COUNT DATA SHEETS

SECTION 2. EXISTING CONDITIONS OPERATIONAL ANALYSIS REPORTS

SECTION 3. SIGNAL TIMING SHEETS

SECTION 4. BICYCLE NETWORK

SECTION 5. DAILY TRAFFIC AND SPEED DATA COLLECTION ON STONE PINE ROAD

SECTION 6: EXISTING + PROJECT OPERATIONAL ANALYSIS RESULTS

SECTION 7. SIGNAL WARRANT RESULTS

SECTION 8. TRAFFIC CALMING AND PEDESTRIAN INFRASTRUCTURE IMPROVEMENTS

SECTION 1. INTERSECTION TURNING MOVEMENT COUNT DATA SHEETS

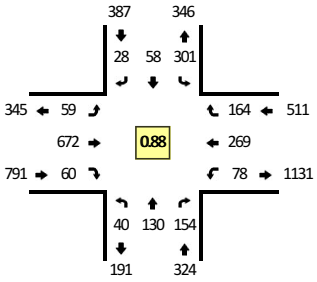
Type of peak hour being reported: Intersection Peak

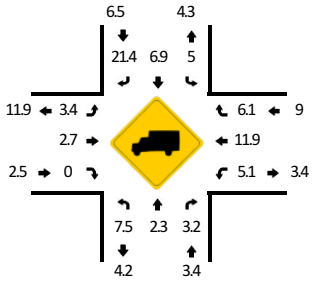
Method for determining peak hour: Total Entering Volume

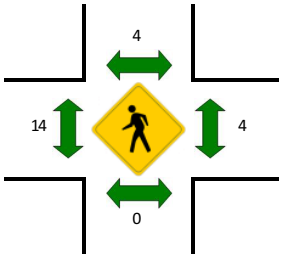
LOCATION: Main St -- San Mateo Rd
CITY/STATE: Half Moon Bay, CA

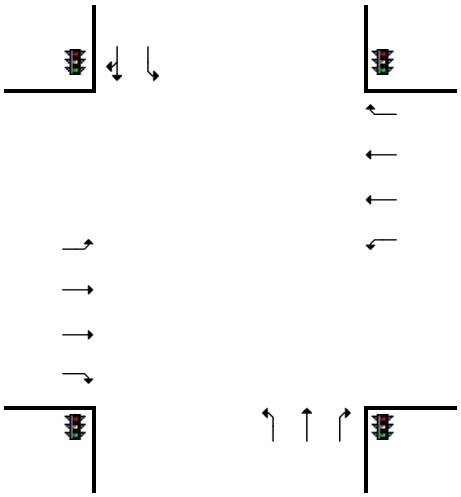
QC JOB #: 16189901
DATE: Wed, May 17 2023

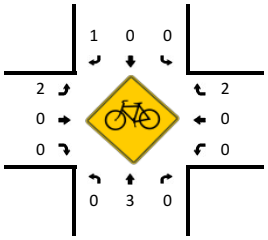
Peak-Hour: 7:20 AM -- 8:20 AM
Peak 15-Min: 7:25 AM -- 7:40 AM

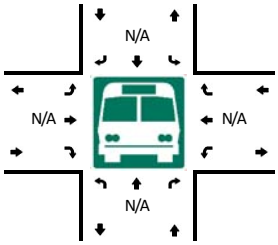


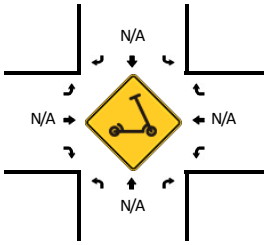












5-Min Count Period Beginning At	Main St (Northbound)				Main St (Southbound)				San Mateo Rd (Eastbound)				San Mateo Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	3	8	0	35	3	0	0	0	40	7	1	1	16	16	0	132	
7:05 AM	3	4	7	0	34	12	2	0	1	67	3	2	1	9	10	0	155	
7:10 AM	4	4	9	0	34	6	2	0	0	41	4	1	3	15	10	0	133	
7:15 AM	2	3	12	0	40	2	4	0	3	42	3	0	7	18	18	2	156	
7:20 AM	4	4	8	0	31	5	1	0	0	57	8	1	2	24	11	0	156	
7:25 AM	3	6	13	0	40	6	3	0	0	75	5	1	4	23	12	0	191	
7:30 AM	3	2	16	0	33	4	1	0	0	81	3	1	12	23	16	1	196	
7:35 AM	1	7	7	0	43	6	1	0	1	73	5	0	10	17	16	1	188	
7:40 AM	2	8	17	0	31	4	2	0	2	41	4	0	1	27	19	1	159	
7:45 AM	2	8	6	0	21	6	2	0	3	46	7	0	7	21	10	0	139	
7:50 AM	8	11	11	0	21	8	2	0	4	51	6	3	7	35	25	0	192	
7:55 AM	5	14	11	0	25	4	3	0	4	41	4	0	6	12	12	0	141	1938
8:00 AM	2	12	13	0	16	5	3	0	9	39	6	2	9	41	11	0	168	1974
8:05 AM	3	21	14	0	13	5	1	0	7	48	5	0	4	19	10	0	150	1969
8:10 AM	3	23	26	0	15	4	3	0	15	46	1	0	10	9	13	1	169	2005
8:15 AM	4	14	12	0	11	1	6	1	6	74	6	0	1	18	9	1	164	2013
8:20 AM	3	24	6	0	16	4	8	1	5	52	5	0	3	12	13	0	152	2009
8:25 AM	9	10	11	0	14	5	6	0	2	54	8	1	6	22	11	0	159	1977
8:30 AM	8	14	8	0	17	14	3	0	4	20	7	0	11	24	21	0	151	1932
8:35 AM	1	11	10	0	11	14	5	0	9	49	6	0	6	17	9	0	148	1892
8:40 AM	2	9	9	0	15	4	5	0	4	15	12	0	11	9	7	0	102	1835
8:45 AM	8	20	11	0	15	12	3	0	3	38	10	1	9	13	13	0	156	1852
8:50 AM	3	9	10	0	6	10	4	0	5	28	17	0	6	15	5	0	118	1778
8:55 AM	2	9	3	0	7	11	1	0	3	21	13	3	1	14	14	0	102	1739

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	28	60	144	0	464	64	20	0	4	916	52	8	104	252	176	8	2300
Heavy Trucks	0	4	12		16	16	0		0	16	0		4	44	12		124
Buses																	
Pedestrians		0				8				12				8			28
Bicycles	0	4	0		0	0	0		0	0	0		0	0	0		4
Scooters																	

Comments:

Report generated on 5/25/2023 3:47 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

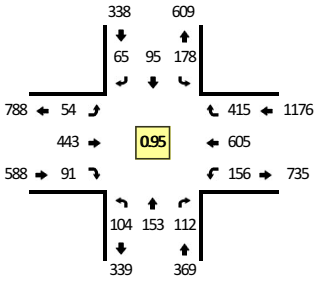
Type of peak hour being reported: Intersection Peak

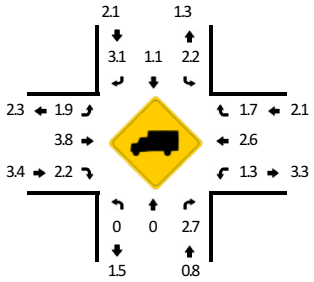
Method for determining peak hour: Total Entering Volume

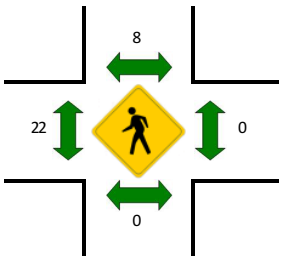
LOCATION: Main St -- San Mateo Rd
CITY/STATE: Half Moon Bay, CA

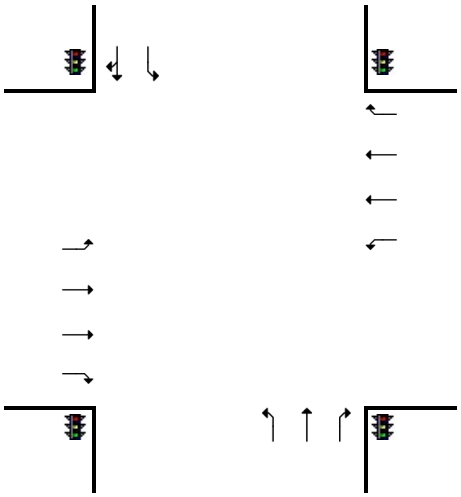
QC JOB #: 16189902
DATE: Wed, May 17 2023

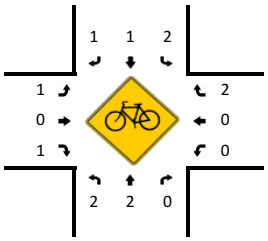
Peak-Hour: 4:10 PM -- 5:10 PM
Peak 15-Min: 4:10 PM -- 4:25 PM

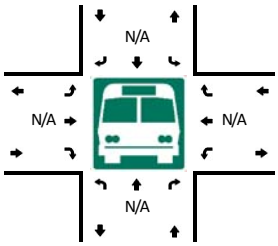


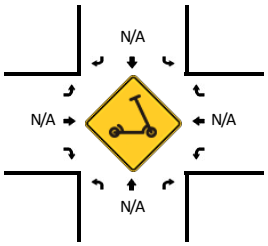












5-Min Count Period Beginning At	Main St (Northbound)				Main St (Southbound)				San Mateo Rd (Eastbound)				San Mateo Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	11	12	10	0	17	8	6	0	3	58	7	2	16	51	28	0	229	
4:05 PM	16	14	8	0	18	12	11	0	0	35	2	2	12	42	29	2	203	
4:10 PM	8	14	9	0	18	6	6	0	4	46	14	2	12	44	20	0	203	
4:15 PM	7	10	10	0	9	7	10	1	2	57	8	4	12	49	44	0	230	
4:20 PM	6	9	10	0	19	11	7	1	2	33	15	1	15	57	30	0	216	
4:25 PM	9	13	6	0	11	9	3	0	2	32	7	0	9	40	21	0	162	
4:30 PM	12	17	7	0	16	8	7	0	6	30	6	0	10	54	37	0	210	
4:35 PM	6	16	13	0	22	10	8	0	5	25	4	2	9	57	35	1	213	
4:40 PM	3	11	13	0	6	5	2	0	1	41	6	0	20	55	38	1	202	
4:45 PM	10	16	10	0	16	7	4	0	4	33	6	1	16	44	25	0	192	
4:50 PM	9	11	10	0	14	4	3	0	4	37	3	2	8	46	48	1	200	
4:55 PM	10	12	3	0	18	9	2	0	3	32	7	2	9	48	44	1	200	2460
5:00 PM	11	10	11	0	15	13	5	0	4	29	10	1	22	51	42	0	224	2455
5:05 PM	12	14	10	1	12	6	8	0	2	48	5	0	10	60	31	0	219	2471
5:10 PM	5	20	8	0	24	12	4	0	2	37	4	0	10	42	33	0	201	2469
5:15 PM	9	15	13	0	12	14	5	0	0	26	11	1	9	57	21	1	194	2433
5:20 PM	8	6	14	0	19	14	7	0	3	39	11	0	22	66	36	0	245	2462
5:25 PM	6	10	8	0	17	6	8	0	4	28	9	3	11	27	29	0	166	2466
5:30 PM	10	20	8	0	12	5	1	0	3	31	1	0	12	48	32	3	186	2442
5:35 PM	6	11	8	0	12	12	2	0	1	30	1	1	12	43	44	0	183	2412
5:40 PM	12	18	8	0	12	7	5	0	3	27	4	2	11	62	33	0	204	2414
5:45 PM	5	21	9	0	11	2	4	0	7	26	7	1	10	36	36	0	175	2397
5:50 PM	7	17	11	0	10	6	1	0	9	34	9	0	14	54	29	1	202	2399
5:55 PM	7	16	7	0	9	2	6	0	6	32	6	0	10	37	31	0	169	2368

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	84	132	116	0	184	96	92	8	32	544	148	28	156	600	376	0	2596
Heavy Trucks	0	0	0		4	0	8		0	20	0		4	24	16		76
Buses																	
Pedestrians		0				16				16				0			32
Bicycles	0	4	0		4	0	0		0	0	4		0	0	4		16
Scooters																	

Comments:

Report generated on 5/25/2023 3:47 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

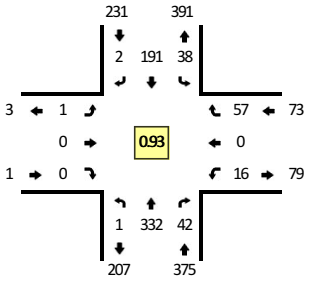
Type of peak hour being reported: Intersection Peak

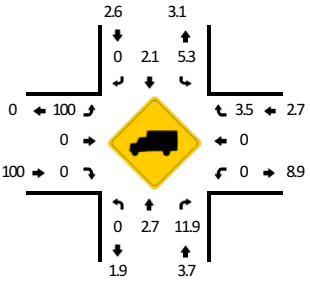
Method for determining peak hour: Total Entering Volume

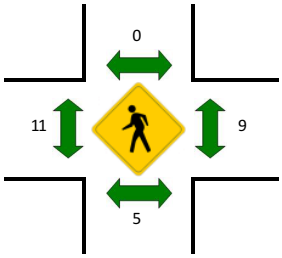
LOCATION: Main St -- Produce Shop Dwy/Stone Pine Rd
CITY/STATE: Half Moon Bay, CA

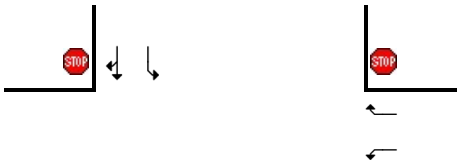
QC JOB #: 16189904
DATE: Wed, May 17 2023

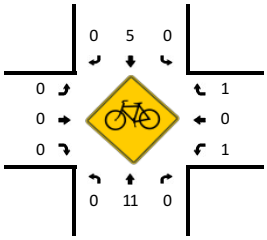
Peak-Hour: 7:50 AM -- 8:50 AM
Peak 15-Min: 8:00 AM -- 8:15 AM

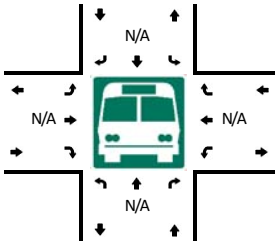




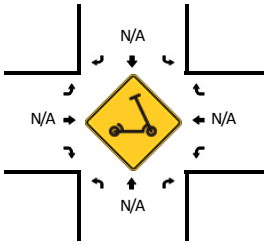












5-Min Count Period Beginning At	Main St (Northbound)				Main St (Southbound)				Produce Shop Dwy/Stone Pine Rd (Eastbound)				Produce Shop Dwy/Stone Pine Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	8	3	0	7	3	0	0	0	0	0	0	3	0	7	0	31	
7:05 AM	0	11	1	0	5	8	0	1	0	0	0	0	1	0	2	0	29	
7:10 AM	0	13	0	0	4	9	0	0	0	0	0	0	0	0	6	0	32	
7:15 AM	0	12	1	0	4	7	0	0	0	0	0	0	2	0	5	0	31	
7:20 AM	0	15	1	0	4	5	0	0	0	0	0	0	1	0	1	0	27	
7:25 AM	0	15	1	0	5	12	0	0	0	0	0	0	3	0	6	0	42	
7:30 AM	0	16	1	0	6	14	0	0	0	0	0	0	2	0	3	0	42	
7:35 AM	0	14	1	0	2	17	0	0	0	0	0	0	3	0	5	0	42	
7:40 AM	0	18	3	0	1	8	1	0	0	0	1	0	1	0	5	0	38	
7:45 AM	0	18	2	0	4	14	0	0	0	0	0	0	2	0	1	0	41	
7:50 AM	0	26	3	0	0	19	0	0	0	0	0	0	2	0	6	0	56	
7:55 AM	0	20	6	0	1	15	0	0	0	0	0	0	1	0	6	0	49	460
8:00 AM	0	25	1	0	6	18	0	0	0	0	0	0	0	0	5	0	55	484
8:05 AM	0	36	2	0	2	13	0	0	0	0	0	0	1	0	2	0	56	511
8:10 AM	0	54	2	0	1	9	1	0	0	0	0	0	3	0	2	0	72	551
8:15 AM	0	29	7	0	5	9	0	0	0	0	0	0	0	0	5	0	55	575
8:20 AM	0	34	3	0	1	4	0	0	0	0	0	0	1	0	5	0	48	596
8:25 AM	1	20	3	0	3	16	0	0	0	0	0	0	1	0	2	0	46	600
8:30 AM	0	28	4	0	0	26	1	0	0	0	0	0	1	0	5	0	65	623
8:35 AM	0	14	3	0	3	18	0	0	0	0	0	0	2	0	5	0	45	626
8:40 AM	0	27	5	0	8	21	0	0	1	0	0	0	1	0	5	0	68	656
8:45 AM	0	19	3	0	7	23	0	1	0	0	0	0	3	0	9	0	65	680
8:50 AM	0	14	1	0	5	23	0	1	0	0	0	0	3	0	3	0	50	674
8:55 AM	0	10	3	0	6	9	0	0	0	0	0	0	2	0	6	0	36	661

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	460	20	0	36	160	4	0	0	0	0	0	16	0	36	0	732
Heavy Trucks	0	8	0		0	4	0		0	0	0		0	0	0		12
Buses																	
Pedestrians		0				0				16				12			28
Bicycles	0	16	0		0	4	0		0	0	0		4	0	0		24
Scooters																	

Comments:

Report generated on 5/25/2023 3:47 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

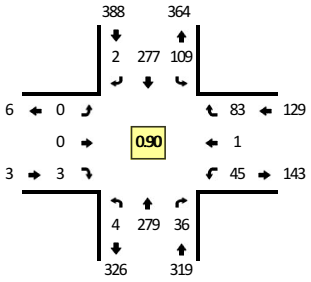
Type of peak hour being reported: Intersection Peak

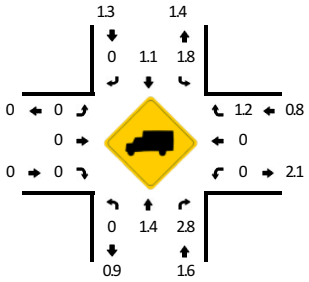
Method for determining peak hour: Total Entering Volume

LOCATION: Main St -- Produce Shop Dwy/Stone Pine Rd
CITY/STATE: Half Moon Bay, CA

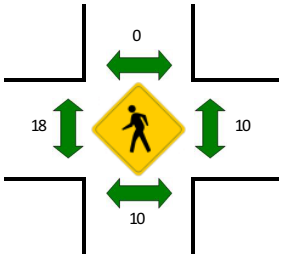
QC JOB #: 16189905
DATE: Wed, May 17 2023

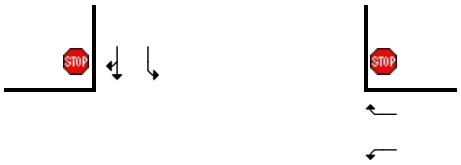
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

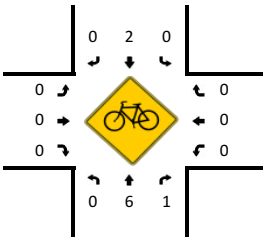


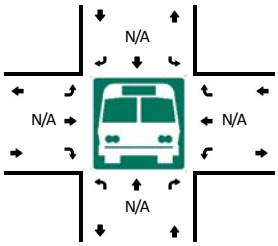


Quality Counts
DATA THAT DRIVES COMMUNITIES

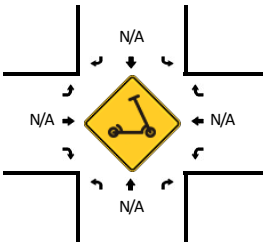












5-Min Count Period Beginning At	Main St (Northbound)				Main St (Southbound)				Produce Shop Dwy/Stone Pine Rd (Eastbound)				Produce Shop Dwy/Stone Pine Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	21	6	0	6	25	1	0	0	0	1	0	4	0	11	0	75	
4:05 PM	1	19	5	0	7	24	1	0	0	0	1	0	5	0	16	0	79	
4:10 PM	0	21	3	0	11	20	0	0	0	0	1	0	1	0	5	0	62	
4:15 PM	0	17	3	0	7	26	0	0	0	0	0	0	2	0	9	0	64	
4:20 PM	0	22	2	0	10	33	0	0	0	0	0	0	5	0	6	0	78	
4:25 PM	0	19	4	0	6	21	0	1	0	0	0	0	2	0	8	0	61	
4:30 PM	0	23	3	0	8	24	0	0	0	0	0	0	4	0	10	0	72	
4:35 PM	0	28	4	0	4	18	0	0	0	0	0	0	3	0	6	0	63	
4:40 PM	0	23	4	0	12	25	1	0	0	0	0	0	4	0	7	0	76	
4:45 PM	2	26	4	0	12	21	1	0	0	0	1	0	3	0	5	0	75	
4:50 PM	0	13	3	0	3	15	0	1	0	0	0	0	4	0	7	0	46	
4:55 PM	0	13	2	0	10	22	0	0	0	0	0	0	4	0	6	0	57	808
5:00 PM	0	26	4	0	11	26	0	0	0	0	0	0	3	0	9	0	79	812
5:05 PM	1	30	1	0	13	23	0	0	0	0	1	0	4	0	6	0	79	812
5:10 PM	0	30	3	0	6	25	0	0	0	0	0	0	5	1	4	0	74	824
5:15 PM	0	28	2	0	8	21	0	1	0	0	0	0	5	0	8	0	73	833
5:20 PM	0	20	2	1	11	33	0	0	0	0	1	0	4	0	5	0	77	832
5:25 PM	0	19	4	0	9	24	0	0	0	0	0	0	2	0	10	0	68	839
5:30 PM	0	19	7	0	5	12	0	0	0	0	0	0	5	0	9	0	57	824
5:35 PM	0	23	1	0	8	24	0	0	0	0	0	0	2	0	6	0	64	825
5:40 PM	0	22	2	0	10	18	0	1	0	0	0	0	1	0	12	0	66	815
5:45 PM	0	22	3	0	8	14	0	0	0	0	0	0	4	0	7	0	58	798
5:50 PM	0	32	5	0	7	22	0	0	0	0	0	0	3	0	7	0	76	828
5:55 PM	0	19	1	0	8	17	0	0	0	0	0	0	2	0	7	0	54	825

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	344	32	0	120	296	0	0	0	0	4	0	48	4	76	0	928
Heavy Trucks	0	12	0		4	4	0		0	0	0		0	0	0		20
Buses																	
Pedestrians		20				0				12				16			48
Bicycles	0	12	0		0	0	0		0	0	0		0	0	0		12
Scooters																	

Comments:

Report generated on 5/25/2023 3:47 PM

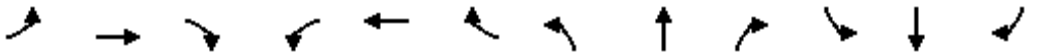
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

SECTION 2. EXISTING CONDITIONS OPERATIONAL ANALYSIS REPORTS



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	67	764	68	89	306	186	45	148	175	342	98
v/c Ratio	0.61	0.47	0.09	0.65	0.19	0.23	0.23	0.70	0.53	0.90	0.25
Control Delay	91.3	32.1	4.5	87.1	24.9	4.7	60.2	80.6	13.3	81.8	39.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	91.3	32.1	4.5	87.1	24.9	4.7	60.2	80.6	13.3	81.8	39.8
Queue Length 50th (ft)	65	266	0	86	88	0	41	143	0	325	65
Queue Length 95th (ft)	116	411	24	140	148	49	74	197	62	417	111
Internal Link Dist (ft)		800			1072			451			782
Turn Bay Length (ft)	110			430		100	100			340	
Base Capacity (vph)	130	1646	781	157	1642	804	330	348	431	439	447
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.46	0.09	0.57	0.19	0.23	0.14	0.43	0.41	0.78	0.22

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	672	60	78	269	164	40	130	154	301	58	28
Future Volume (vph)	59	672	60	78	269	164	40	130	154	301	58	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.1	5.1	3.0	5.1	5.1	4.7	4.7	4.7	4.7	4.7	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.98	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1752	3505	1568	1656	3312	1434	1752	1845	1530	1703	1688	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1752	3505	1568	1656	3312	1434	1752	1845	1530	1703	1688	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	67	764	68	89	306	186	45	148	175	342	66	32
RTOR Reduction (vph)	0	0	37	0	0	95	0	0	155	0	12	0
Lane Group Flow (vph)	67	764	31	89	306	91	45	148	20	342	86	0
Confl. Peds. (#/hr)	4					4	14		4	4		14
Confl. Bikes (#/hr)									3			
Heavy Vehicles (%)	3%	3%	3%	9%	9%	9%	3%	3%	3%	6%	6%	6%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases			6			2			4			
Actuated Green, G (s)	8.3	68.6	68.6	13.1	73.4	73.4	17.1	17.1	17.1	33.7	33.7	
Effective Green, g (s)	8.3	68.6	68.6	13.1	73.4	73.4	17.1	17.1	17.1	33.7	33.7	
Actuated g/C Ratio	0.06	0.46	0.46	0.09	0.49	0.49	0.11	0.11	0.11	0.22	0.22	
Clearance Time (s)	3.0	5.1	5.1	3.0	5.1	5.1	4.7	4.7	4.7	4.7	4.7	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.5	1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)	96	1602	717	144	1620	701	199	210	174	382	379	
v/s Ratio Prot	c0.04	c0.22		c0.05	0.09		0.03	c0.08		c0.20	0.05	
v/s Ratio Perm			0.02			0.06			0.01			
v/c Ratio	0.70	0.48	0.04	0.62	0.19	0.13	0.23	0.70	0.11	0.90	0.23	
Uniform Delay, d1	69.6	28.2	22.5	66.0	21.6	20.9	60.4	64.0	59.7	56.4	47.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	16.3	1.0	0.1	5.5	0.3	0.4	0.2	8.5	0.1	22.0	0.1	
Delay (s)	85.9	29.3	22.6	71.5	21.8	21.3	60.6	72.5	59.8	78.5	47.6	
Level of Service	F	C	C	E	C	C	E	E	E	E	D	
Approach Delay (s)		33.0			29.2			65.0			71.6	
Approach LOS		C			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	44.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	10.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	0	16	0	57	1	332	42	38	191	2
Future Vol, veh/h	1	0	0	16	0	57	1	332	42	38	191	2
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	3	3	3	3	3	3	4	4	4	3	3	3
Mvmt Flow	1	0	0	17	0	61	1	357	45	41	205	2
Number of Lanes	0	1	0	0	1	0	0	1	0	1	1	0

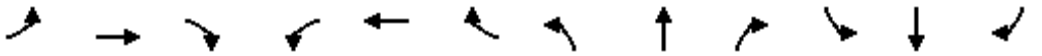
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	8.8	8.7	12	9.6
HCM LOS	A	A	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	0%	100%	22%	100%	0%
Vol Thru, %	89%	0%	0%	0%	99%
Vol Right, %	11%	0%	78%	0%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	375	1	73	38	193
LT Vol	1	1	16	38	0
Through Vol	332	0	0	0	191
RT Vol	42	0	57	0	2
Lane Flow Rate	403	1	78	41	208
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.502	0.002	0.109	0.063	0.291
Departure Headway (Hd)	4.485	5.755	4.99	5.552	5.042
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	802	619	716	645	712
Service Time	2.513	3.817	3.037	3.284	2.774
HCM Lane V/C Ratio	0.502	0.002	0.109	0.064	0.292
HCM Control Delay	12	8.8	8.7	8.7	9.8
HCM Lane LOS	B	A	A	A	A
HCM 95th-tile Q	2.9	0	0.4	0.2	1.2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	57	466	96	164	637	437	109	161	118	187	168
v/c Ratio	0.53	0.28	0.12	0.76	0.33	0.47	0.55	0.77	0.42	0.59	0.52
Control Delay	84.8	28.5	6.4	85.1	23.3	12.5	72.4	87.2	13.8	62.6	52.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.8	28.5	6.4	85.1	23.3	12.5	72.4	87.2	13.8	62.6	52.3
Queue Length 50th (ft)	55	160	0	158	206	114	103	155	0	158	122
Queue Length 95th (ft)	103	237	42	230	291	245	162	228	59	238	197
Internal Link Dist (ft)		800			1072			451			782
Turn Bay Length (ft)	110			430		100	100			340	
Base Capacity (vph)	133	1648	788	330	1916	936	337	354	393	416	420
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.28	0.12	0.50	0.33	0.47	0.32	0.45	0.30	0.45	0.40

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	443	91	156	605	415	104	153	112	178	95	65
Future Volume (vph)	54	443	91	156	605	415	104	153	112	178	95	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.1	5.1	3.0	5.1	5.1	4.7	4.7	4.7	4.7	4.7	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.96	1.00	1.00	0.98	1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1752	3505	1568	1770	3539	1513	1787	1881	1573	1770	1721	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1752	3505	1568	1770	3539	1513	1787	1881	1573	1770	1721	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	57	466	96	164	637	437	109	161	118	187	100	68
RTOR Reduction (vph)	0	0	51	0	0	118	0	0	105	0	17	0
Lane Group Flow (vph)	57	466	45	164	637	319	109	161	13	187	151	0
Confl. Peds. (#/hr)	8					8	22					22
Confl. Bikes (#/hr)									2			1
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	1%	1%	1%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases			6			2			4			
Actuated Green, G (s)	8.2	69.9	69.9	18.9	80.6	80.6	16.8	16.8	16.8	26.9	26.9	
Effective Green, g (s)	8.2	69.9	69.9	18.9	80.6	80.6	16.8	16.8	16.8	26.9	26.9	
Actuated g/C Ratio	0.05	0.47	0.47	0.13	0.54	0.54	0.11	0.11	0.11	0.18	0.18	
Clearance Time (s)	3.0	5.1	5.1	3.0	5.1	5.1	4.7	4.7	4.7	4.7	4.7	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.5	1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)	95	1633	730	223	1901	812	200	210	176	317	308	
v/s Ratio Prot	c0.03	0.13		c0.09	0.18		0.06	c0.09		c0.11	0.09	
v/s Ratio Perm			0.03			c0.21			0.01			
v/c Ratio	0.60	0.29	0.06	0.74	0.34	0.39	0.55	0.77	0.08	0.59	0.49	
Uniform Delay, d1	69.3	24.7	22.0	63.1	19.6	20.4	63.0	64.7	59.6	56.5	55.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	6.6	0.4	0.2	10.3	0.5	1.4	1.6	13.9	0.1	1.8	0.4	
Delay (s)	75.9	25.1	22.2	73.5	20.1	21.8	64.6	78.6	59.7	58.3	55.8	
Level of Service	E	C	C	E	C	C	E	E	E	E	E	
Approach Delay (s)		29.3			27.7			68.9			57.1	
Approach LOS		C			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	38.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	11.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	3	45	1	83	4	279	36	109	277	2
Future Vol, veh/h	0	0	3	45	1	83	4	279	36	109	277	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	0	0	1	1	1	2	2	2	1	1	1
Mvmt Flow	0	0	3	50	1	92	4	310	40	121	308	2
Number of Lanes	0	1	0	0	1	0	0	1	0	1	1	0

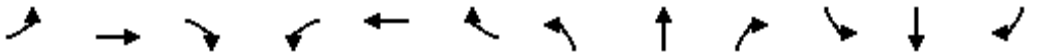
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	8.5	9.9	12.3	11.6
HCM LOS	A	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	1%	0%	35%	100%	0%
Vol Thru, %	87%	0%	1%	0%	99%
Vol Right, %	11%	100%	64%	0%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	319	3	129	109	279
LT Vol	4	0	45	109	0
Through Vol	279	0	1	0	277
RT Vol	36	3	83	0	2
Lane Flow Rate	354	3	143	121	310
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.477	0.005	0.213	0.192	0.448
Departure Headway (Hd)	4.84	5.444	5.346	5.712	5.203
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	737	661	665	624	688
Service Time	2.908	3.444	3.429	3.484	2.974
HCM Lane V/C Ratio	0.48	0.005	0.215	0.194	0.451
HCM Control Delay	12.3	8.5	9.9	9.9	12.2
HCM Lane LOS	B	A	A	A	B
HCM 95th-tile Q	2.6	0	0.8	0.7	2.3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	51	717	105	175	682	280	101	167	158	302	182
v/c Ratio	0.51	0.49	0.15	0.74	0.38	0.33	0.43	0.68	0.46	0.85	0.49
Control Delay	85.7	37.0	7.0	80.1	26.9	13.6	63.8	75.0	11.8	78.2	53.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.7	37.0	7.0	80.1	26.9	13.6	63.8	75.0	11.8	78.2	53.5
Queue Length 50th (ft)	49	278	0	166	224	71	94	161	0	276	144
Queue Length 95th (ft)	96	402	46	245	326	167	146	226	64	388	222
Internal Link Dist (ft)		800			1072			451			782
Turn Bay Length (ft)	110			430		100	100			340	
Base Capacity (vph)	130	1529	744	245	1782	846	333	351	420	416	427
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.47	0.14	0.71	0.38	0.33	0.30	0.48	0.38	0.73	0.43

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	688	101	168	655	269	97	160	152	290	131	44
Future Volume (vph)	49	688	101	168	655	269	97	160	152	290	131	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.1	5.1	3.0	5.1	5.1	4.7	4.7	4.7	4.7	4.7	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.98	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1532	1770	1863	1546	1770	1779	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1532	1770	1863	1546	1770	1779	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	51	717	105	175	682	280	101	167	158	302	136	46
RTOR Reduction (vph)	0	0	62	0	0	76	0	0	137	0	9	0
Lane Group Flow (vph)	51	717	43	175	682	204	101	167	21	302	173	0
Confl. Peds. (#/hr)	4					4	14		4	4		14
Confl. Bikes (#/hr)									3			
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases			6			2			4			
Actuated Green, G (s)	7.5	61.6	61.6	20.8	74.9	74.9	19.8	19.8	19.8	30.3	30.3	
Effective Green, g (s)	7.5	61.6	61.6	20.8	74.9	74.9	19.8	19.8	19.8	30.3	30.3	
Actuated g/C Ratio	0.05	0.41	0.41	0.14	0.50	0.50	0.13	0.13	0.13	0.20	0.20	
Clearance Time (s)	3.0	5.1	5.1	3.0	5.1	5.1	4.7	4.7	4.7	4.7	4.7	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.5	1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)	88	1453	650	245	1767	764	233	245	204	357	359	
v/s Ratio Prot	c0.03	c0.20		c0.10	0.19		0.06	c0.09		c0.17	0.10	
v/s Ratio Perm			0.03			0.13			0.01			
v/c Ratio	0.58	0.49	0.07	0.71	0.39	0.27	0.43	0.68	0.10	0.85	0.48	
Uniform Delay, d1	69.7	32.7	26.8	61.8	23.3	21.7	59.9	62.1	57.3	57.6	52.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.6	1.2	0.2	8.0	0.6	0.9	0.5	6.1	0.1	16.0	0.4	
Delay (s)	75.3	33.9	27.0	69.7	23.9	22.5	60.4	68.2	57.4	73.6	53.3	
Level of Service	E	C	C	E	C	C	E	E	E	E	D	
Approach Delay (s)		35.5			30.6			62.3			66.0	
Approach LOS		D			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	42.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	11.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	3	40	1	75	4	301	29	87	311	2
Future Vol, veh/h	0	0	3	40	1	75	4	301	29	87	311	2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	3	42	1	78	4	314	30	91	324	2
Number of Lanes	0	1	0	0	1	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	8.4	9.6	11.9	11.7
HCM LOS	A	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	1%	0%	34%	100%	0%
Vol Thru, %	90%	0%	1%	0%	99%
Vol Right, %	9%	100%	65%	0%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	334	3	116	87	313
LT Vol	4	0	40	87	0
Through Vol	301	0	1	0	311
RT Vol	29	3	75	0	2
Lane Flow Rate	348	3	121	91	326
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.462	0.005	0.179	0.142	0.466
Departure Headway (Hd)	4.78	5.379	5.324	5.652	5.144
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	748	669	668	632	698
Service Time	2.837	3.379	3.4	3.412	2.903
HCM Lane V/C Ratio	0.465	0.004	0.181	0.144	0.467
HCM Control Delay	11.9	8.4	9.6	9.4	12.4
HCM Lane LOS	B	A	A	A	B
HCM 95th-tile Q	2.5	0	0.6	0.5	2.5

SECTION 3. SIGNAL TIMING SHEETS

Location: N. MAIN STREET & RTE 92 | **Designed By:**

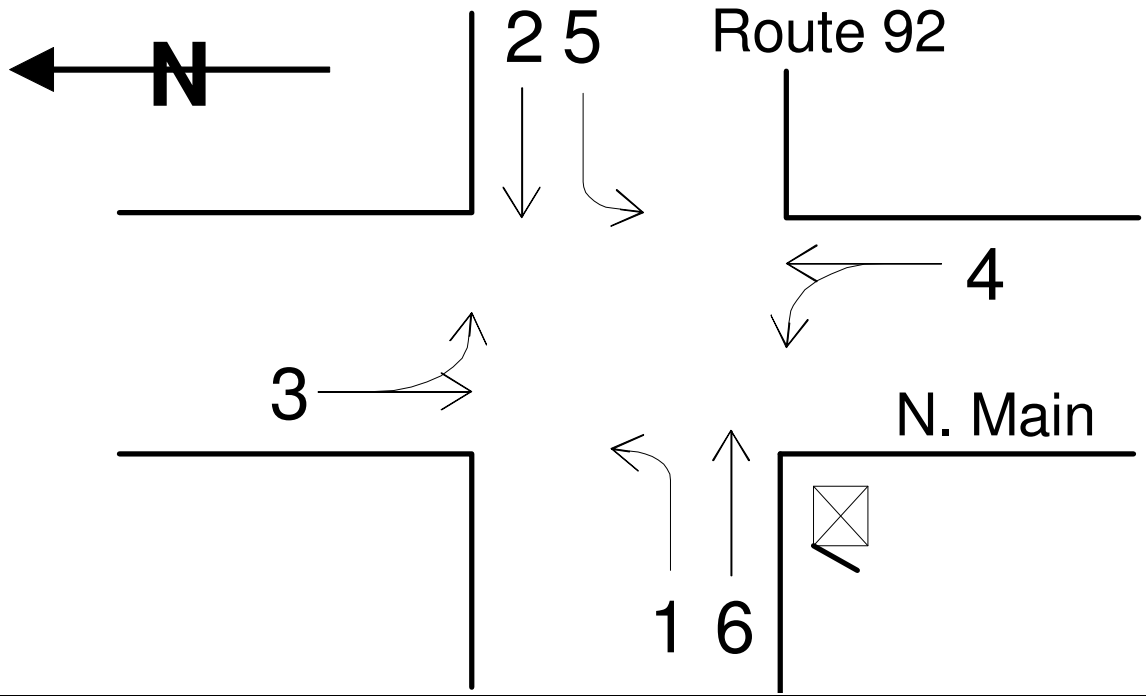
System: | **District:** 04 | **Installed By:**

Master At: | **I/C:** | **Service Info:**

Timing Change: | **Date Start:** | **Date End:** | **Designed:** | **Installed:**

		FLASH
PHASE	1)	[R]
	2)	[R]
	3)	[R]
	4)	[R]
	5)	[R]
	6)	[R]
	7)	[ ]
	8)	[ ]
OVERLAP	A)	[ ]
	B)	[ ]
	C)	[ ]
	D)	[ ]
	E)	[ ]
	F)	[ ]

Intersection Layou



Comments and Notes:
TSCP 2.20 BUILD 120 - 08/04/2016

RAM Checksum

Page 2: 3C6F	Page 8: 46AD
Page 3: DCF1	Page 9: D2FD
Page 4: 9B9D	Page 10: DC9A
Page 5: 191A	Page 11: CC23
Page 6: 191A	Page 12: EF20
Page 7: 2645	Page 13: 86F7

CONFIGURATION PHASE FLAGS

Phases (2-1-1-1)	
Permitted	1 2 3 4 5 6 . .
Restricted	. . . . .

Phase Recalls (2-1-1-2)	
Vehicle Min	. 2 . . . 6 . .
Vehicle Max	. . . . .
Pedestrian	. . . . .
Bicycle	. . . . .

Phase Locks (2-1-1-3)	
Red	. . . . .
Yellow	. . . . .
Force/Max	. . . . .

Phase Features (2-1-1-4)	
Double Entry	. . . . .
Rest In Walk	. . . . .
Rest In Red	. . . . .
Walk 2	. . . . .
Max Green 2	. . . . .
Max Green 3	. . . . .

Startup (2-1-1-5)	
First Green Phases	. 2 . . . 6 . .
Yellow Start Phases	. . . . .
Vehicle Calls	1 2 3 4 5 6 . .
Pedestrian Calls	. 2 3 4 . 6 . .
Yellow Start Overlaps	. . . . .
Startup All-Red	5.0

Call To Phase (2-1-2-1)		Omit On Green	
1	. . . . .	1	. . . . .
2	. . . . .	2	. . . . .
3	. . . . .	3	. . . . .
4	. . . . .	4	. . . . .
5	. . . . .	5	. . . . .
6	. . . . .	6	. . . . .
7	. . . . .	7	. . . . .
8	. . . . .	8	. . . . .

Flashing Colors (2-1-2-2)	
Yellow Flash Phases	. . . . .
Yellow Flash Overlap	. . . . .
Flash In Red Phases	. . . . .
Flash In Red Overlap	. . . . .

Special Operation (2-1-2-3)	
Single Exit Phase	. . . . .
Driveway Signal Phases	. . . . .
Driveway Signal Overlaps	. . . . .
Leading Ped Phases	. . . . .

Protected Permissive (2-1-2-4)	
Protected Permissive	. . . . .

Pedestrian (2-1-3)	
P1	. . . . .
P2	. 2 . . . . .
P3	. . . . .
P4	. . . 4 . . . .
P5	. . . . .
P6	. . . . . 6 . .
P7	. . . . .
P8	. . 3 . . . . .

Overlap (2-1-4)				
Overlap	Parent	Omit	No Start	Not
A	. . . . .	. . . . .	. . . . .	. . . . .
B	. . . . .	. . . . .	. . . . .	. . . . .
C	. . . . .	. . . . .	. . . . .	. . . . .
D	. . . . .	. . . . .	. . . . .	. . . . .
E	. . . . .	. . . . .	. . . . .	. . . . .
F	. . . . .	. . . . .	. . . . .	. . . . .

PHASE TIMING

Phase (2-2)	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
--- Walk 1 ---	0	5	5	5	0	5	0	10
Flash Don't Walk	0	18	30	23	0	18	0	10
Minimum Green	4	10	4	4	4	10	2	2
Det Limit	0	30	0	0	0	30	10	10
Max Initial	0	25	0	0	0	25	10	10
Max Green 1	11	55	28	22	21	55	2	2
Max Green 2	50	50	50	50	50	50	50	50
Max Green 3	50	50	50	50	50	50	50	50
Extension	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Maximum Gap	2.0	2.0	1.5	1.5	2.0	2.0	2.0	2.0
Minimum Gap	1.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0
Add Per Vehicle	0.0	2.0	0.0	0.0	0.0	2.0	1.0	1.0
Reduce Gap By	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0
Reduce Every	1.0	1.2	1.0	1.0	1.0	1.2	1.0	1.0
Yellow	3.0	4.1	3.7	3.7	3.0	4.1	3.0	3.0
All-Red	0.0	1.0	1.0	1.0	0.0	1.0	0.0	0.0
Ped/Bike (2-3)	**-1-**	**-2-**	**-3-**	**-4-**	**-5-**	**-6-**	**-7-**	**-8-**
--- Walk 2 ---	0	0	0	0	0	0	0	0
Delay/Early Walk	0	0	0	0	0	0	0	0
Solid Don't Walk	0	0	0	0	0	0	0	0
Bike Green	0	0	0	0	0	0	0	0
Bike All-Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

OVERLAP TIMING

Overlap (2-4)	A	B	C	D	E	F
Green	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	5.0	5.0	5.0	5.0	5.0	5.0
Red	0.0	0.0	0.0	0.0	0.0	0.0

Red Revert

Red Revert (2-5)	
Time	2.0
All-Red Sec/Min (2-6)	
All-Red Sec/Min:	SEC

Max 2 Extension

Max/Gap Out (2-7)	
Max Cnt	0
Gap Cnt	0

Local Plan 1...9 (7-1) TIMING DATA

COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 1	Green Factor	150		1	74			11	54	38	28	13	47		
Plan 2	Green Factor	136		1	105			10	44	35	28	13	36		
Plan 3	Green Factor	150		1	96			11	57	35	28	25	38		
Plan 4	Green Factor	150		1	17			11	57	35	28	17	46		
Plan 5	Green Factor														
Plan 6	Green Factor														
Plan 7	Green Factor														
Plan 8	Green Factor														
Plan 9	Green Factor														

Master Timer Sync (7-A)	
Enable in Plans	
1-9	. . . . .
11-19	. . . . .
21-29	. . . . .

Master Sub Master	
Input	
Output	

FREE PLAN PHASE FLAGS

(7-E) Free	
Lag	Omit
. 2 . 4 . 6 . 8	. . . . .
Veh Min	Veh Max
. 2 . . . 6 . .	. . . . .
Ped	Bike
. . . . .	. . . . .
Cond	Cond Grn
. . . . .	10

Local Plan 1...9 (7-1) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 1	. 2 3 . 5 . . 8	. 2 . . . 6 . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 2	. 2 3 . 5 . . 8	. 2 . . . 6 . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 3	. 2 3 . 5 . . 8	. 2 . . . 6 . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 4	. 2 . 4 5 . . 8	. 2 . . . 6 . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 5	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 6	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 7	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 8	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 9	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .

MANUAL COMMANDS

Manual Plan (4-1)	
Plan	OffSet
	A

Plan: 1-9
15 or 254 = Flash
14 or 255 = Free
Offset A, B, or C

Special Function Override (4-2)			
#	Control	#	Control
1	NORMAL	3	NORMAL
2	NORMAL	4	NORMAL

Detector Reset	(4-3)
Local Manual (4-4)	OFF

Local Plan 11...19 (7-2) TIMING DATA

COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 11	Green Factor														
Plan 12	Green Factor														
Plan 13	Green Factor														
Plan 14	Green Factor														
Plan 15	Green Factor														
Plan 16	Green Factor														
Plan 17	Green Factor														
Plan 18	Green Factor														
Plan 19	Green Factor														

Local Plan 11...19 (7-2) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 11	.....	.....	.....	.....	.....	.....	.....	.....
Plan 12	.....	.....	.....	.....	.....	.....	.....	.....
Plan 13	.....	.....	.....	.....	.....	.....	.....	.....
Plan 14	.....	.....	.....	.....	.....	.....	.....	.....
Plan 15	.....	.....	.....	.....	.....	.....	.....	.....
Plan 16	.....	.....	.....	.....	.....	.....	.....	.....
Plan 17	.....	.....	.....	.....	.....	.....	.....	.....
Plan 18	.....	.....	.....	.....	.....	.....	.....	.....
Plan 19	.....	.....	.....	.....	.....	.....	.....	.....

Local Plan 21...29 (7-3) TIMING DATA

COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Lag Gap	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 21	Green Factor														
Plan 22	Green Factor														
Plan 23	Green Factor														
Plan 24	Green Factor														
Plan 25	Green Factor														
Plan 26	Green Factor														
Plan 27	Green Factor														
Plan 28	Green Factor														
Plan 29	Green Factor														

Local Plan 21...29 (7-3) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 21	.....	.....	.....	.....	.....	.....	.....	.....
Plan 22	.....	.....	.....	.....	.....	.....	.....	.....
Plan 23	.....	.....	.....	.....	.....	.....	.....	.....
Plan 24	.....	.....	.....	.....	.....	.....	.....	.....
Plan 25	.....	.....	.....	.....	.....	.....	.....	.....
Plan 26	.....	.....	.....	.....	.....	.....	.....	.....
Plan 27	.....	.....	.....	.....	.....	.....	.....	.....
Plan 28	.....	.....	.....	.....	.....	.....	.....	.....
Plan 29	.....	.....	.....	.....	.....	.....	.....	.....

DETECTORS

Detector Attributes (5-1)				Slot	Detector Configuration (5-2)				
Det	Type	Phases	Lock		Det	Delay	Extend	Recall	Port
1	COUNT+CALL+EXTEND	1	NO	I1U	1			10	3.2
2	COUNT+CALL+EXTEND	1	NO	I1L	2			10	7.2
3	COUNT+CALL+EXTEND	. 2	NO	I2U	3		2.0	10	1.1
4	COUNT+CALL+EXTEND	. 2	NO	I2L	4		2.0	10	1.5
5	LIMITED	. 2	NO	I3U	5			10	4.5
6	CALL+EXTEND	. 2	NO	I3L	6			10	6.2
7	LIMITED	. 2	NO	I4U	7		1.0	10	2.1
8	COUNT+CALL+EXTEND	. 2	NO	I4L	8			10	7.4
9	COUNT+CALL+EXTEND	. . 3	NO	I5U	9			10	3.4
10	COUNT+CALL+EXTEND	. . 3	NO	I5L	10			10	7.6
11	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I6U	11			10	1.3
12	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I6L	12			10	1.7
13	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I7U	13	10		10	4.7
14	CALL+EXTEND	. . . 4 . . .	NO	I7L	14	15		10	6.4
15	CALL+EXTEND	. . . 4 . . .	NO	I8U	15			10	2.3
16	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I8L	16			10	7.8
17	COUNT+CALL+EXTEND	1	NO	I9U	17			10	3.6
18	COUNT+CALL+EXTEND	. . 3	NO	I9L	18			10	3.8
19	COUNT+CALL+EXTEND	. 2	NO	I10U	19			10	4.1
20	COUNT+CALL+EXTEND	. . . 4 . . .	NO	I10L	20			10	4.2
21	COUNT+CALL+EXTEND	. . . . 5 . . .	NO	J1U	21			10	3.1
22	COUNT+CALL+EXTEND	. . . . 5 . . .	NO	J1L	22			10	7.1
23	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J2U	23		2.0	10	1.2
24	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J2L	24		2.0	10	1.6
25	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J3U	25		2.0	10	4.6
26	LIMITED	. . . . . 6 . .	NO	J3L	26			10	6.3
27	LIMITED	. . . . . 6 . .	NO	J4U	27		1.0	10	2.2
28	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J4L	28			10	7.3
29	COUNT+CALL+EXTEND	. . . . . 7 .	NO	J5U	29			10	3.3
30	COUNT+CALL+EXTEND	. . . . . 7 .	NO	J5L	30			10	7.5
31	COUNT+CALL+EXTEND	. . 3	NO	J6U	31			10	1.4
32	COUNT+CALL+EXTEND	. . 3	NO	J6L	32			10	1.8
33	COUNT+CALL+EXTEND	. . 3	NO	J7U	33			10	4.8
34	CALL+EXTEND	. . 3	NO	J7L	34			10	6.5
35	LIMITED	 8	NO	J8U	35			10	2.4
36	COUNT+CALL+EXTEND	 8	NO	J8L	36			10	7.7
37	COUNT+CALL+EXTEND	. . . . 5 . . .	NO	J9U	37			10	3.5
38	COUNT+CALL+EXTEND	. . . . . 7 .	NO	J9L	38			10	3.7
39	COUNT+CALL+EXTEND	. . . . . 6 . .	NO	J10U	39			10	4.3
40	COUNT+CALL+EXTEND	 8	NO	J10L	40			10	4.4
41	PEDESTRIAN	. 2	NO	I12U	41			10	5.1
42	PEDESTRIAN	. . . 4 . . .	NO	I12L	42			10	5.3
43	PEDESTRIAN	. . . . . 6 . .	NO	I13U	43			10	5.2
44	PEDESTRIAN	. . 3	NO	I13L	44			10	5.4

Failure Times(5-3)	Minutes
Maximum On Time	
Fail Reset Time	

Failure Override (5-4)	
Detectors 1-8	. . . . .
Detectors 9-16	. . . . .
Detectors17-24	. . . . .
Detectors 25-32	. . . . .
Detectors 33-40	. . . . .
Detectors 41-44	. . . . .

System Detector Assignment (5-5)

Sys Det	1	2	3	4	5	6	7	8
Det Nu								
Sys Det	9	10	11	12	13	14	15	16
Det Nu								

CIC Operation (5-6-1)	
Enable in Plans	. . . . .

CIC Values (5-6-2)	Volume	Occupancy	Demand
Smoothing	0.66	0.66	0.66
Multiplier	4.0	0.33	
Exponent	0.50	1.00	

Detector-to-Phase Assignment (5-6-3)

Sys Det	1	2	3	4	5	6	7	8
Phase								
Sys Det	9	10	11	12	13	14	15	16
Phase								

Input File Port-Bit Assignments

332 Cabinet - For Reference Only

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
I-	3.2	1.1	4.5	2.1	3.4	1.3	4.7	2.3	3.6	4.1	6.6	5.1	5.2	6.7
	7.2	1.5	6.2	7.4	7.6	1.7	6.4	7.8	3.8	4.2	2.7	5.3	5.4	6.8
J-	3.1	1.2	4.6	2.2	3.3	1.4	4.8	2.4	3.5	4.3	2.8	5.5	5.6	2.5
	7.1	1.6	6.3	7.3	7.5	1.8	6.5	7.7	3.7	4.4	6.1	5.7	5.8	2.6

TOD SCHEDULE

Table 1 (8-2-1)		
Time	Plan	OS
0645	1	A
1100	2	A
1430	3	A
2000	255	A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 2 (8-2-2)		
Time	Plan	OS
1000	4	A
1500	255	A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 3 (8-2-3)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 4 (8-2-4)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 5 (8-2-5)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 6 (8-2-6)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

WEEKDAY ASSIGNMENT

Weekday Table Assignments (8-2-7)						
Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	1	1	1	1	2	2

HOLIDAY TABLES

Floating Holiday Table (8-2-8)

#	Mnth	Week	DOW	Table
1			.....	
2			.....	
3			.....	
4			.....	
5			.....	
6			.....	
7			.....	
8			.....	
9			.....	
10			.....	
11			.....	
12			.....	
13			.....	
14			.....	
15			.....	
16			.....	

Fixed Holiday Table (8-2-9)

#	Mnth	Day	DOW	Table
1			.....	
2			.....	
3			.....	
4			.....	
5			.....	
6			.....	
7			.....	
8			.....	
9			.....	
10			.....	
11			.....	
12			.....	
13			.....	
14			.....	
15			.....	
16			.....	

Solar Clock Data (8-4)

North Latitude	34
West Longitude	118
Local Time Zone	8

Sabbatical Clock (8-5)

Hebrew	Ped Recall
Sabbath	.....
Holiday	.....

Daylight Saving (8-6)

Enabled	YES

TOD FUNCTIONS

TOD Functions (8-3)

#	Start	End	DOW	Action	Phases
1			.....		.....
2			.....		.....
3			.....		.....
4			.....		.....
5			.....		.....
6			.....		.....
7			.....		.....
8			.....		.....
9			.....		.....
10			.....		.....
11			.....		.....
12			.....		.....
13			.....		.....
14			.....		.....
15			.....		.....
16			.....		.....

Action Codes:

0. None
1. Permitted
2. Restricted
4. Veh Min Recall
5. Veh Max Recall
6. Ped Recall
7. Bike Recall
8. Red Lock
9. Yellow Lock
10. Force/Max Lock
11. Double Entry
12. Y-Coord C
13. Y-Coord D
14. Free
15. Flashing
16. Walk 2
17. Max Green 2
18. Max Green 3
19. Rest in Walk
20. Rest in Red
21. Free Lag Phases
22. Special Functions
23. Truck Preempt
24. Conditional Service
25. Conditional Service
26. Leading Ped
27. Traffic Actuated Max 2
41. Protected Permissive
42. Protected Permissive

Action Code = Phases added to normal setting

100+Action Code = Phases removed

200+Action Code = Phases replaced

COMMUNICATIONS

C2 (6-1-1)	
Address	3
Protocol	AB3418
Limit Access	0
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C20 (6-1-2)	
Address	
Protocol	AB3418
Limit Access	0
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C21 (6-1-3)	
Address	
Protocol	AB3418
Limit Access	0
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

Limit Access:
0-None
1-Status Only
2-Status, Set Pattern, Time
3-Status, Set Pattern, Time, Manual Plan

SOFT LOGIC

Soft Logic (6-2)

#	Data	OP	Data	OP	Data	OP	Data
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

*Refer to User's Manual for Data and OP Codes

CALLBACK NUMBERS

Callback Numbers (6-3...3)	
Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

NETWORK

Network (6-4)	
Address	
Protocol	AB3418
Port	27000
IP Mode	STATIC

IP Address	0 . 0 . 0 . 0
Netmask	255 . 255 . 255 . 0
Broadcast	0 . 0 . 0 . 254
Gateway	0 . 0 . 0 . 1

RAILROAD PREEMPTION

RR 1

(3-1-1)	Timing	Phase Flags (3-1-2)			Pedestrian Flags (3-1-3)			Overlap Flags (3-1-4)		
Delay		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
Clear 1	10	. 2 . . 5 . . .	. . . . .	. . . . .	. . . . .	. . . . .	. 2 . 4 . 6 . 8	. . . . .	. . . . .	. . . . .
Clear 2		. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Clear 3		. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Hold		. . . . .	. . . . .	1 2 3 4 5 6 7 8	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	A B C D E F
Exit										
Min Grn										
Ped Clr										

Exit Parameters (3-1-5)			
Phase Green	Overlap Green	Vehicle Call	Ped Call
. . . . .	. . . . .	1 2 3 4 5 6 7 8	. 2 . 4 . 6 . 8

Configuration (3-1-6)			
Port	Gate Port	Latching	Power-Up
2.5	0.0	YES	FLASHING

RR 2

(3-2-1)	Timing	Phase Flags (3-2-2)			Pedestrian Flags (3-2-3)			Overlap Flags (3-2-4)		
Delay		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
Clear 1	10	. . . 4 . . 7 .	. . . . .	. . . . .	. . . . .	. . . . .	. 2 . 4 . 6 . 8	. . . . .	. . . . .	. . . . .
Clear 2		. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Clear 3		. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Hold		1 2 3 . . 6 . .	. . . . .	. . . . .	. 2 . . . 6 . .	. . . . .	. . . 4 . . . 8	. . . . .	. . . . .	. . . . .
Exit										
Min Grn										
Ped Clr										

Exit Parameters (3-2-5)			
Phase Green	Overlap Green	Vehicle Call	Ped Call
. . . . .	. . . . .	. . . 4 . . 7 .	. . . . .

Configuration (3-2-6)			
Port	Gate Port	Latching	Power-up
2.6	0.0	YES	DARK

EMERGENCY VEHICLE PREEMPTION

EVA (3-A)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	5	40	. 2 . . 5 . . .	. . . . .

Port	Latching	Phase Termination
5.5	NO	ADVANCE

EVB (3-B)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	5	40	. . . 4 . . 7 .	. . . . .

Port	Latching	Phase Termination
5.6	NO	ADVANCE

EVC (3-C)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	5	40	1 . . . . 6 . .	. . . . .

Port	Latching	Phase Termination
5.7	NO	ADVANCE

EVD (3-D)

Preempt Timers			Phase Green	Overlap Green
Delay	Clear	Max		
	5	40	. . 3 8	. . . . .

Port	Latching	Phase Termination
5.8	NO	ADVANCE

INPUTS

		7 Wire I/C (2-1-5-1)			
		Input	Port	Input	Port
Enable	NO	R1	3.8	Free	3.6
Max ON		R2	3.5	D2	2.8
Max OFF		R3	3.7	D3	6.1

Manual Control (2-1-5-2)	
Input	Port
Manual Advance	6.6
Advance Enable	6.6

Cabinet Status (2-1-5-3)	
Input	Port
Flash Bus	
Door Ajar	
Flash Sense	6.7
Stop Time	6.8

Special Function (2-1-5-4)	
Input	Port
1	
2	
3	
4	

Battery Backup (2-1-5-5)	
Port	Operation
2.7	FLASHING

Y-Coordination (2-1-5-6)	
Port C	Port D
6.1	2.8

OUTPUTS

Loadswitch Assignments (2-1-6)							+
A	1	2	22	3	4	24	9
B	5	6	26	7	8	28	10
X	13	14	0	11	12	0	0

Loadswitch Codes:

0 Unused (no output)
1-8 Vehicle 1-8
9-14 Overlap A-F
21-28 Ped 1-8
41-47 Special Functions
41 Protected Permissive Flashing Phase 1
43 Protected Permissive Flashing Phase 3
45 Protected Permissive Flashing Phase 5
47 Protected Permissive Flashing Phase 7
51-57 Special Functions
71-72 Seven Wire I/C

\+ middle output of loadswitches 3 and 6 Channel 9 and 10

TRANSIT PRIORITY

Local Plans (3-E) 1...9 11...19		Early Green	Green Extend	Inhibit Cycles	Phase 1 Minimum	Phase 2 Minimum	Phase 3 Minimum	Phase 4 Minimum	Phase 5 Minimum	Phase 6 Minimum	Phase 7 Minimum	Phase 8 Minimum
Plan 1	Green Factor											
Plan 2	Green Factor											
Plan 3	Green Factor											
Plan 4	Green Factor											
Plan 5	Green Factor											
Plan 6	Green Factor											
Plan 7	Green Factor											
Plan 8	Green Factor											
Plan 9	Green Factor											
Plan 11	Green Factor											
Plan 12	Green Factor											
Plan 13	Green Factor											
Plan 14	Green Factor											
Plan 15	Green Factor											
Plan 16	Green Factor											
Plan 17	Green Factor											
Plan 18	Green Factor											
Plan 19	Green Factor											

Transit Priority Configuration (3-E-A)				Indicator Output	
Enable in Plans		Input	Type	Stop	Go
Plan 1-9	. . . . .	0.0	OPT	0	0
Plan 11-19	. . . . .	0.0	OPT	0	0

Queue Jump (3-E-B)	
Grn Hold	Hold Phase
	. . . . .
	. . . . .

Free Plans (3-E-E)	
Max Grn Hold	Hold Phase
	. . . . .

Access Utilities (9-5)	
Password	***
Timeout	30

YELLOW YIELD COORDINATION

					Force-Offs											
Y-Coord Plans (7-C,D)	Long Grn	No Grn	Offset	Perm	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-	Coord	Lag	Min Recall	Restricted
Plan C													. 2 . . . 6 . .	. 2 . 4 . 6 . 8	. . . . .	. . . . .
Plan D													. 2 . . . 6 . .	. 2 . 4 . 6 . 8	. . . . .	. . . . .

TRUCK PRIORITY

Truck Priority (3-F)	Passage	CarryOver	Clearance	Next Priority	Phase Green	Det 2 Port	Det 3 Port	Det 4 Port	Sign Output	Slave Input	Slave Output
					. . . . .	0.0	0.0	0.0	0	0.0	0

SECTION 4. BICYCLE NETWORK

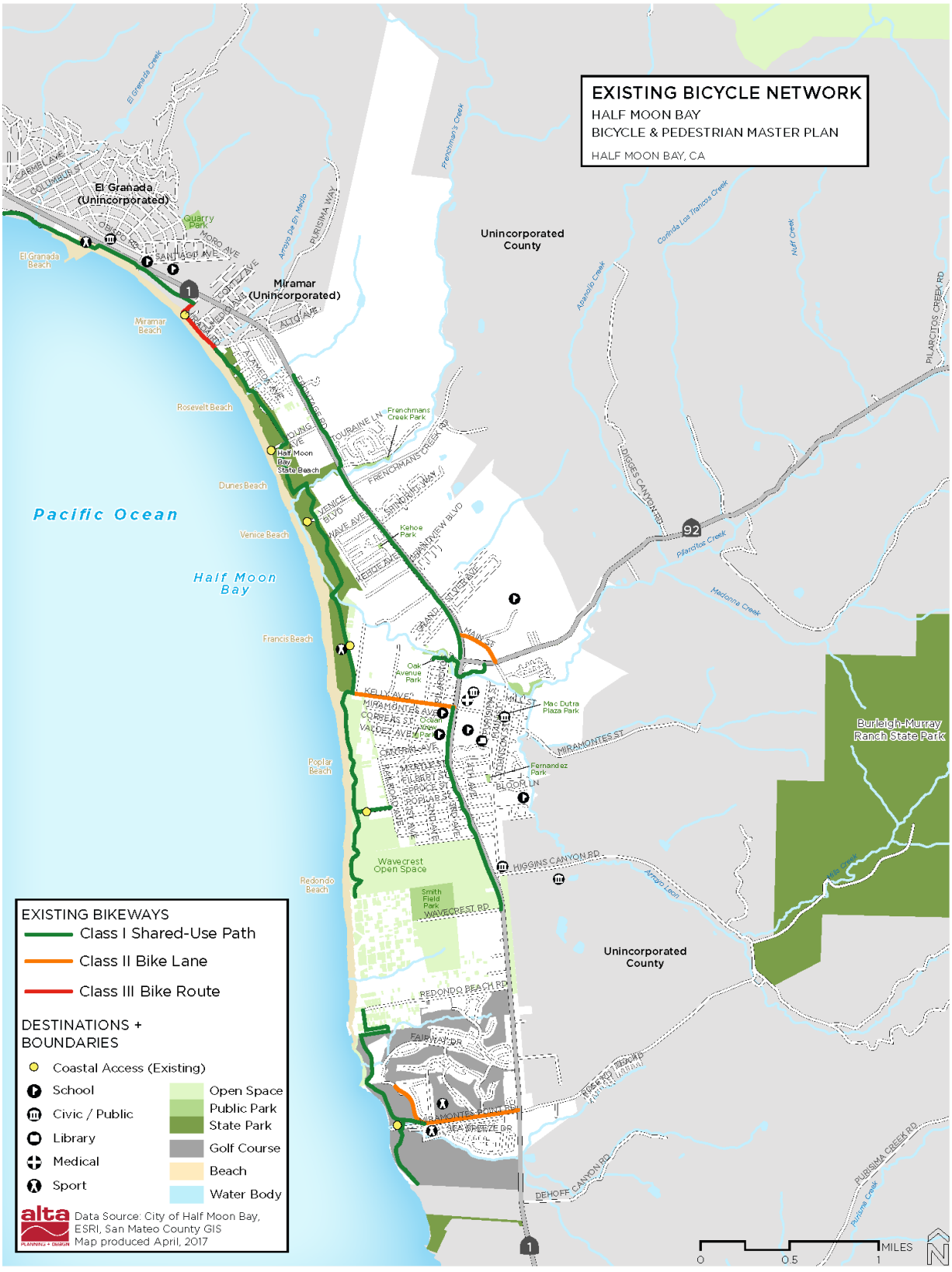


Figure 2-1: Existing Bicycle Network

SECTION 5. DAILY TRAFFIC AND SPEED DATA COLLECTION ON STONE PINE ROAD

Type of report: Tube Count - Speed Data

LOCATION: Stone Pine Rd West of Patrick Way (Midweek) **QC JOB #:** 16225701
SPECIFIC LOCATION: **DIRECTION:** EB, WB
CITY/STATE: Half Moon Bay, CA **DATE:** Jun 1 2023

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
12:00 AM	0	1	6	1	0	0	0	0	0	0	0	0	0	0	8	16-25	7
01:00 AM	0	1	1	1	0	0	0	0	0	0	0	0	0	0	3	16-25	2
02:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	16-25	1
03:00 AM	2	1	6	1	1	0	0	0	0	0	0	0	0	0	11	16-25	7
04:00 AM	1	3	3	2	0	0	0	0	0	0	0	0	0	0	9	16-25	6
05:00 AM	2	10	15	10	0	0	0	0	0	0	0	0	0	0	37	16-25	25
06:00 AM	8	43	32	3	2	0	0	0	0	0	0	0	0	0	88	16-25	75
07:00 AM	9	46	57	16	2	0	0	0	0	0	0	0	0	0	130	16-25	103
08:00 AM	11	69	75	18	0	0	0	0	0	0	0	0	0	0	173	16-25	144
09:00 AM	18	56	97	18	0	0	0	0	0	0	0	0	0	0	189	16-25	153
10:00 AM	**26**	122	103	**19**	**3**	0	0	0	0	0	0	0	0	0	273	16-25	225
11:00 AM	26	**149**	**105**	19	1	0	0	0	0	0	0	0	0	0	**300**	16-25	254
12:00 PM	**34**	**150**	112	15	2	0	0	0	0	0	0	0	0	0	313	16-25	262
01:00 PM	17	148	**157**	25	**3**	0	0	0	0	0	0	0	0	0	**350**	16-25	305
02:00 PM	32	136	139	18	3	0	0	0	0	0	0	0	0	0	328	16-25	275
03:00 PM	23	117	126	25	2	0	0	0	0	0	0	0	0	0	293	16-25	243
04:00 PM	22	112	150	**34**	1	0	0	0	0	0	0	0	0	0	319	16-25	262
05:00 PM	22	100	98	14	1	0	0	0	0	0	0	0	0	0	235	16-25	198
06:00 PM	15	120	110	19	0	0	0	0	0	0	0	0	0	0	264	16-25	230
07:00 PM	10	77	48	10	3	0	0	0	0	0	0	0	0	0	148	16-25	125
08:00 PM	12	54	53	5	0	0	0	0	0	0	0	0	0	0	124	16-25	107
09:00 PM	8	25	30	10	1	0	0	0	0	0	0	0	0	0	74	16-25	55
10:00 PM	1	7	4	1	0	0	0	0	0	0	0	0	0	0	13	16-25	11
11:00 PM	0	3	7	3	0	0	0	0	0	0	0	0	0	0	13	16-25	10
Day Total	299	1550	1535	287	25	0	0	0	0	0	0	0	0	0	3696	16-25	3085
Percent	8.1%	41.9%	41.5%	7.8%	0.7%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
AM Peak	10:00 AM	11:00 AM	11:00 AM	10:00 AM	10:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	11:00 AM		
Volume	26	149	105	19	3	0	0	0	0	0	0	0	0	0	300		
PM Peak	12:00 PM	12:00 PM	1:00 PM	4:00 PM	1:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	1:00 PM		
Volume	34	150	157	34	3	0	0	0	0	0	0	0	0	0	350		



Comments:

Report generated on 6/7/2023 12:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Speed Data

SUMMARY - Tube Count - Speed Data

LOCATION: Stone Pine Rd West of Patrick Way (Midweek)
SPECIFIC LOCATION:
CITY/STATE: Half Moon Bay, CA

QC JOB #: 16225701
DIRECTION: EB, WB
DATE: Jun 1 2023

Speed Range	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
Grand Total	299	1550	1535	287	25	0	0	0	0	0	0	0	0	0	3696	16-25	3085
Percent	8.1%	41.9%	41.5%	7.8%	0.7%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
Cumulative Percent	8.1%	50%	91.6%	99.3%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			

ADT
3696



85th Percentile: 24 MPH
Mean Speed(Average): 19 MPH
Median: 19 MPH
Mode: 18 MPH

Comments:

Report generated on 6/7/2023 12:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Quality Counts
DATA THAT DRIVES COMMUNITIES

Type of report: Tube Count - Volume Data

LOCATION: Stone Pine Rd West of Patrick Way (Midweek) **QC JOB #:** 16225701

SPECIFIC LOCATION: **DIRECTION:** EB, WB

CITY/STATE: Half Moon Bay, CA **DATE:** Jun 1 2023 - Jun 1 2023

Start Time	Mon	Tue	Wed	Thu 1 Jun 23	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM				8		8			8	
01:00 AM				3		3			3	
02:00 AM				1		1			1	
03:00 AM				11		11			11	
04:00 AM				9		9			9	
05:00 AM				37		37			37	
06:00 AM				88		88			88	
07:00 AM				130		130			130	
08:00 AM				173		173			173	
09:00 AM				189		189			189	
10:00 AM				273		273			273	
11:00 AM				**300**		**300**			**300**	
12:00 PM				313		313			313	
01:00 PM				**350**		**350**			**350**	
02:00 PM				328		328			328	
03:00 PM				293		293			293	
04:00 PM				319		319			319	
05:00 PM				235		235			235	
06:00 PM				264		264			264	
07:00 PM				148		148			148	
08:00 PM				124		124			124	
09:00 PM				74		74			74	
10:00 PM				13		13			13	
11:00 PM				13		13			13	
Day Total				3696		3696			3696	
% Weekday Average				100%						
% Week Average				100%		100%				
AM Peak Volume				11:00 AM 300		11:00 AM 300			11:00 AM 300	
PM Peak Volume				1:00 PM 350		1:00 PM 350			1:00 PM 350	

Comments:

Report generated on 6/7/2023 12:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Quality Counts
DATA THAT DRIVES COMMUNITIES

Type of report: Tube Count - Speed Data

LOCATION: Stone Pine Rd West of Patrick Way (Saturday) **QC JOB #:** 16225703
SPECIFIC LOCATION: **DIRECTION:** EB, WB
CITY/STATE: Half Moon Bay, CA **DATE:** Jun 3 2023

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
12:00 AM	1	3	4	0	0	0	0	0	0	0	0	0	0	0	8	16-25	7
01:00 AM	0	1	5	2	1	0	0	0	0	0	0	0	0	0	9	21-30	7
02:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	11-20	1
03:00 AM	2	2	2	0	0	0	0	0	0	0	0	0	0	0	6	16-25	4
04:00 AM	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2	16-25	1
05:00 AM	2	9	7	3	0	0	0	0	0	0	0	0	0	0	21	16-25	16
06:00 AM	4	18	22	6	0	0	0	0	0	0	0	0	0	0	50	16-25	40
07:00 AM	4	31	35	8	0	0	0	0	0	0	0	0	0	0	78	16-25	66
08:00 AM	12	41	54	13	**2**	0	0	0	0	0	0	0	0	0	122	16-25	95
09:00 AM	15	81	77	13	0	0	0	0	0	0	0	0	0	0	186	16-25	158
10:00 AM	17	106	104	**15**	1	0	0	0	0	0	0	0	0	0	243	16-25	210
11:00 AM	**26**	**156**	**113**	10	0	0	0	0	0	0	0	0	0	0	**305**	16-25	269
12:00 PM	21	**136**	**98**	**16**	0	0	0	0	0	0	0	0	0	0	**271**	16-25	234
01:00 PM	**31**	110	82	9	0	0	0	0	0	0	0	0	0	0	232	16-25	192
02:00 PM	25	101	52	8	**1**	0	0	0	0	0	0	0	0	0	187	16-25	153
03:00 PM	25	97	84	8	0	0	0	0	0	0	0	0	0	0	214	16-25	181
04:00 PM	17	61	93	13	0	0	0	0	0	0	0	0	0	0	184	16-25	154
05:00 PM	14	70	80	11	0	0	0	0	0	0	0	0	0	0	175	16-25	150
06:00 PM	19	113	80	15	0	0	0	0	0	0	0	0	0	0	227	16-25	193
07:00 PM	14	79	53	7	0	0	0	0	0	0	0	0	0	0	153	16-25	132
08:00 PM	13	56	51	8	0	0	0	0	0	0	0	0	0	0	128	16-25	107
09:00 PM	12	38	20	3	0	0	0	0	0	0	0	0	0	0	73	16-25	58
10:00 PM	0	4	12	5	0	0	0	0	0	0	0	0	0	0	21	21-30	17
11:00 PM	0	6	5	2	0	0	0	0	0	0	0	0	0	0	13	16-25	11
Day Total	275	1320	1134	175	5	0	0	0	0	0	0	0	0	0	2909	16-25	2454
Percent	9.5%	45.4%	39%	6%	0.2%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
AM Peak	11:00 AM	11:00 AM	11:00 AM	10:00 AM	8:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	11:00 AM		
Volume	26	156	113	15	2	0	0	0	0	0	0	0	0	0	305		
PM Peak	1:00 PM	12:00 PM	12:00 PM	12:00 PM	2:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM		
Volume	31	136	98	16	1	0	0	0	0	0	0	0	0	0	271		



Comments:

Report generated on 6/7/2023 12:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Speed Data

SUMMARY - Tube Count - Speed Data

LOCATION: Stone Pine Rd West of Patrick Way (Saturday)
QC JOB #: 16225703
SPECIFIC LOCATION:
DIRECTION: EB, WB
CITY/STATE: Half Moon Bay, CA
DATE: Jun 3 2023

Speed Range	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
Grand Total	275	1320	1134	175	5	0	0	0	0	0	0	0	0	0	2909	16-25	2454
Percent	9.5%	45.4%	39%	6%	0.2%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
Cumulative Percent	9.5%	54.8%	93.8%	99.8%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			

ADT
2909



85th Percentile: 23 MPH
Mean Speed(Average): 19 MPH
Median: 19 MPH
Mode: 18 MPH

Comments:

Report generated on 6/7/2023 12:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Quality Counts
DATA THAT DRIVES COMMUNITIES

Type of report: Tube Count - Volume Data

LOCATION: Stone Pine Rd West of Patrick Way (Saturday) **QC JOB #:** 16225703

SPECIFIC LOCATION: **DIRECTION:** EB, WB

CITY/STATE: Half Moon Bay, CA **DATE:** Jun 3 2023 - Jun 3 2023

Start Time	Mon	Tue	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat 3 Jun 23	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM							8		8	
01:00 AM							9		9	
02:00 AM							1		1	
03:00 AM							6		6	
04:00 AM							2		2	
05:00 AM							21		21	
06:00 AM							50		50	
07:00 AM							78		78	
08:00 AM							122		122	
09:00 AM							186		186	
10:00 AM							243		243	
11:00 AM							**305**		305	
12:00 PM							**271**		271	
01:00 PM							232		232	
02:00 PM							187		187	
03:00 PM							214		214	
04:00 PM							184		184	
05:00 PM							175		175	
06:00 PM							227		227	
07:00 PM							153		153	
08:00 PM							128		128	
09:00 PM							73		73	
10:00 PM							21		21	
11:00 PM							13		13	
Day Total							2909		2909	
% Weekday Average										
% Week Average						0%	100%			
AM Peak Volume							11:00 AM 305		11:00 AM 305	
PM Peak Volume							12:00 PM 271		12:00 PM 271	

Comments:

Report generated on 6/7/2023 12:40 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Quality Counts DATA THAT DRIVES COMMUNITIES

Type of report: Tube Count - Speed Data

LOCATION: Stone Pine Road East of Patrick Way
QC JOB #: 16189903
SPECIFIC LOCATION:
DIRECTION: EB, WB
CITY/STATE: Half Moon Bay, CA
DATE: May 17 2023

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
12:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	21-30	1
01:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	11-20	2
02:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	16-25	1
03:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	16-25	1
04:00 AM	2	2	0	0	0	0	0	0	0	0	0	0	0	0	4	11-20	3
05:00 AM	0	5	5	3	0	0	0	0	0	0	0	0	0	0	13	16-25	10
06:00 AM	3	9	13	3	0	0	0	0	0	0	0	0	0	0	28	16-25	22
07:00 AM	5	22	**44**	**9**	0	0	0	0	0	0	0	0	0	0	80	16-25	66
08:00 AM	7	28	23	4	0	0	0	0	0	0	0	0	0	0	62	16-25	51
09:00 AM	12	43	37	3	0	0	0	0	0	0	0	0	0	0	95	16-25	80
10:00 AM	**21**	56	40	6	0	0	0	0	0	0	0	0	0	0	**123**	16-25	96
11:00 AM	15	**59**	40	2	0	0	0	0	0	0	0	0	0	0	116	16-25	99
12:00 PM	25	63	47	2	0	0	0	0	0	0	0	0	0	0	137	16-25	110
01:00 PM	12	44	36	7	**1**	0	0	0	0	0	0	0	0	0	100	16-25	80
02:00 PM	13	56	**55**	8	0	0	0	0	0	0	0	0	0	0	132	16-25	111
03:00 PM	26	**77**	52	**12**	0	0	0	0	0	0	0	0	0	0	**167**	16-25	129
04:00 PM	**29**	60	42	9	0	0	0	0	0	0	0	0	0	0	140	16-25	102
05:00 PM	14	33	30	5	0	0	0	0	0	0	0	0	0	0	82	16-25	63
06:00 PM	11	18	14	0	0	0	0	0	0	0	0	0	0	0	43	16-25	32
07:00 PM	6	19	13	1	0	0	0	0	0	0	0	0	0	0	39	16-25	32
08:00 PM	0	9	5	2	0	0	0	0	0	0	0	0	0	0	16	16-25	14
09:00 PM	5	4	1	1	0	0	0	0	0	0	0	0	0	0	11	11-20	6
10:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	16-25	1
11:00 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3	16-25	3
Day Total	206	609	503	78	1	0	0	0	0	0	0	0	0	0	1397	16-25	1112
Percent	14.7%	43.6%	36%	5.6%	0.1%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
AM Peak	10:00 AM	11:00 AM	7:00 AM	7:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	12:00 AM	10:00 AM		
Volume	21	59	44	9	0	0	0	0	0	0	0	0	0	0	123		
PM Peak	4:00 PM	3:00 PM	2:00 PM	3:00 PM	1:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	12:00 PM	3:00 PM		
Volume	29	77	55	12	1	0	0	0	0	0	0	0	0	0	167		



Comments:

Report generated on 5/23/2023 8:36 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Type of report: Tube Count - Speed Data

SUMMARY - Tube Count - Speed Data

LOCATION: Stone Pine Road East of Patrick Way
SPECIFIC LOCATION:
CITY/STATE: Half Moon Bay, CA

QC JOB #: 16189903
DIRECTION: EB, WB
DATE: May 17 2023

Speed Range	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	Pace Speed	Number in Pace
Grand Total	206	609	503	78	1	0	0	0	0	0	0	0	0	0	1397	16-25	1112
Percent	14.7%	43.6%	36%	5.6%	0.1%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
Cumulative Percent	14.7%	58.3%	94.3%	99.9%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			

ADT
1397



85th Percentile: 23 MPH
Mean Speed(Average): 19 MPH
Median: 19 MPH
Mode: 18 MPH

Comments:

Report generated on 5/23/2023 8:36 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Quality Counts
DATA THAT DRIVES COMMUNITIES

Type of report: Tube Count - Volume Data

LOCATION: Stone Pine Road East of Patrick Way | **QC JOB #:** 16189903

SPECIFIC LOCATION: | **DIRECTION:** EB, WB

CITY/STATE: Half Moon Bay, CA | **DATE:** May 17 2023 - May 17 2023

Start Time	Mon	Tue	Wed 17 May 23	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM			1			1			1	
01:00 AM			2			2			2	
02:00 AM			1			1			1	
03:00 AM			1			1			1	
04:00 AM			4			4			4	
05:00 AM			13			13			13	
06:00 AM			28			28			28	
07:00 AM			80			80			80	
08:00 AM			62			62			62	
09:00 AM			95			95			95	
10:00 AM			**123**			**123**			**123**	
11:00 AM			116			116			116	
12:00 PM			137			137			137	
01:00 PM			100			100			100	
02:00 PM			132			132			132	
03:00 PM			**167**			**167**			**167**	
04:00 PM			140			140			140	
05:00 PM			82			82			82	
06:00 PM			43			43			43	
07:00 PM			39			39			39	
08:00 PM			16			16			16	
09:00 PM			11			11			11	
10:00 PM			1			1			1	
11:00 PM			3			3			3	
Day Total			1397			1397			1397	
% Weekday Average			100%							
% Week Average			100%			100%				
AM Peak Volume			10:00 AM 123			10:00 AM 123			10:00 AM 123	
PM Peak Volume			3:00 PM 167			3:00 PM 167			3:00 PM 167	

Comments:

Report generated on 5/23/2023 8:36 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

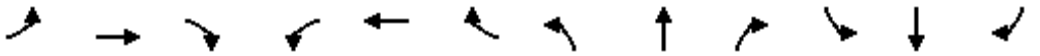
Quality Counts
DATA THAT DRIVES COMMUNITIES

SECTION 6: EXISTING + PROJECT OPERATIONAL ANALYSIS RESULTS



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	67	764	69	90	306	186	48	156	185	342	99
v/c Ratio	0.61	0.48	0.09	0.65	0.19	0.23	0.23	0.72	0.54	0.90	0.25
Control Delay	91.3	32.5	4.6	86.8	25.1	4.8	60.1	81.3	13.1	82.0	40.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	91.3	32.5	4.6	86.8	25.1	4.8	60.1	81.3	13.1	82.0	40.4
Queue Length 50th (ft)	65	269	0	87	90	0	44	151	0	325	67
Queue Length 95th (ft)	116	411	25	140	147	49	78	208	64	417	113
Internal Link Dist (ft)		800			1072			451			782
Turn Bay Length (ft)	110			430		100	100			340	
Base Capacity (vph)	130	1632	775	158	1631	800	330	348	439	439	447
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.47	0.09	0.57	0.19	0.23	0.15	0.45	0.42	0.78	0.22

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	672	61	79	269	164	42	137	163	301	59	28
Future Volume (vph)	59	672	61	79	269	164	42	137	163	301	59	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.1	5.1	3.0	5.1	5.1	4.7	4.7	4.7	4.7	4.7	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.98	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1752	3505	1568	1656	3312	1434	1752	1845	1530	1703	1689	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1752	3505	1568	1656	3312	1434	1752	1845	1530	1703	1689	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	67	764	69	90	306	186	48	156	185	342	67	32
RTOR Reduction (vph)	0	0	38	0	0	96	0	0	163	0	12	0
Lane Group Flow (vph)	67	764	31	90	306	90	48	156	22	342	87	0
Confl. Peds. (#/hr)	4					4	14		4	4		14
Confl. Bikes (#/hr)									3			
Heavy Vehicles (%)	3%	3%	3%	9%	9%	9%	3%	3%	3%	6%	6%	6%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases			6			2			4			
Actuated Green, G (s)	8.3	67.9	67.9	13.3	72.9	72.9	17.6	17.6	17.6	33.7	33.7	
Effective Green, g (s)	8.3	67.9	67.9	13.3	72.9	72.9	17.6	17.6	17.6	33.7	33.7	
Actuated g/C Ratio	0.06	0.45	0.45	0.09	0.49	0.49	0.12	0.12	0.12	0.22	0.22	
Clearance Time (s)	3.0	5.1	5.1	3.0	5.1	5.1	4.7	4.7	4.7	4.7	4.7	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.5	1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)	96	1586	709	146	1609	696	205	216	179	382	379	
v/s Ratio Prot	c0.04	c0.22		c0.05	0.09		0.03	c0.08		c0.20	0.05	
v/s Ratio Perm			0.02			0.06			0.01			
v/c Ratio	0.70	0.48	0.04	0.62	0.19	0.13	0.23	0.72	0.12	0.90	0.23	
Uniform Delay, d1	69.6	28.7	22.9	65.9	21.8	21.1	60.1	63.8	59.3	56.4	47.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	16.3	1.1	0.1	5.3	0.3	0.4	0.2	9.7	0.1	22.0	0.1	
Delay (s)	85.9	29.8	23.0	71.2	22.1	21.5	60.3	73.5	59.4	78.5	47.7	
Level of Service	F	C	C	E	C	C	E	E	E	E	D	
Approach Delay (s)		33.4			29.5			65.2			71.5	
Approach LOS		C			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	45.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	64.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	11
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	0	20	0	75	1	332	44	40	191	2
Future Vol, veh/h	1	0	0	20	0	75	1	332	44	40	191	2
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	3	3	3	3	3	3	4	4	4	3	3	3
Mvmt Flow	1	0	0	22	0	81	1	357	47	43	205	2
Number of Lanes	0	1	0	0	1	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	8.9	8.9	12.3	9.8
HCM LOS	A	A	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	0%	100%	21%	100%	0%
Vol Thru, %	88%	0%	0%	0%	99%
Vol Right, %	12%	0%	79%	0%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	377	1	95	40	193
LT Vol	1	1	20	40	0
Through Vol	332	0	0	0	191
RT Vol	44	0	75	0	2
Lane Flow Rate	405	1	102	43	208
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.512	0.002	0.142	0.067	0.295
Departure Headway (Hd)	4.551	5.82	5.006	5.627	5.117
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	790	611	713	636	701
Service Time	2.586	3.892	3.058	3.369	2.858
HCM Lane V/C Ratio	0.513	0.002	0.143	0.068	0.297
HCM Control Delay	12.3	8.9	8.9	8.8	10
HCM Lane LOS	B	A	A	A	A
HCM 95th-tile Q	3	0	0.5	0.2	1.2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	57	466	101	174	637	437	114	166	122	187	173
v/c Ratio	0.53	0.29	0.13	0.78	0.33	0.47	0.56	0.77	0.42	0.59	0.53
Control Delay	84.8	29.4	6.4	85.3	23.6	12.7	72.5	87.1	13.5	62.6	53.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.8	29.4	6.4	85.3	23.6	12.7	72.5	87.1	13.5	62.6	53.4
Queue Length 50th (ft)	55	162	0	167	207	115	107	160	0	158	128
Queue Length 95th (ft)	103	242	44	241	292	246	167	233	59	238	204
Internal Link Dist (ft)		800			1072			451			782
Turn Bay Length (ft)	110			430		100	100			340	
Base Capacity (vph)	133	1621	779	330	1907	933	337	354	396	416	421
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.29	0.13	0.53	0.33	0.47	0.34	0.47	0.31	0.45	0.41

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	443	96	165	605	415	108	158	116	178	100	65
Future Volume (vph)	54	443	96	165	605	415	108	158	116	178	100	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.1	5.1	3.0	5.1	5.1	4.7	4.7	4.7	4.7	4.7	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.96	1.00	1.00	0.98	1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1752	3505	1568	1770	3539	1513	1787	1881	1574	1770	1725	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1752	3505	1568	1770	3539	1513	1787	1881	1574	1770	1725	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	57	466	101	174	637	437	114	166	122	187	105	68
RTOR Reduction (vph)	0	0	55	0	0	119	0	0	108	0	16	0
Lane Group Flow (vph)	57	466	46	174	637	318	114	166	14	187	157	0
Confl. Peds. (#/hr)	8					8	22					22
Confl. Bikes (#/hr)									2			1
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	1%	1%	1%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases			6			2			4			
Actuated Green, G (s)	8.2	68.8	68.8	19.6	80.2	80.2	17.2	17.2	17.2	26.9	26.9	
Effective Green, g (s)	8.2	68.8	68.8	19.6	80.2	80.2	17.2	17.2	17.2	26.9	26.9	
Actuated g/C Ratio	0.05	0.46	0.46	0.13	0.53	0.53	0.11	0.11	0.11	0.18	0.18	
Clearance Time (s)	3.0	5.1	5.1	3.0	5.1	5.1	4.7	4.7	4.7	4.7	4.7	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.5	1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)	95	1607	719	231	1892	808	204	215	180	317	309	
v/s Ratio Prot	c0.03	0.13		c0.10	0.18		0.06	c0.09		c0.11	0.09	
v/s Ratio Perm			0.03			c0.21			0.01			
v/c Ratio	0.60	0.29	0.06	0.75	0.34	0.39	0.56	0.77	0.08	0.59	0.51	
Uniform Delay, d1	69.3	25.3	22.6	62.9	19.8	20.6	62.8	64.5	59.3	56.5	55.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	6.6	0.5	0.2	11.6	0.5	1.4	1.9	14.4	0.1	1.8	0.5	
Delay (s)	75.9	25.8	22.8	74.5	20.3	22.0	64.7	78.9	59.4	58.3	56.0	
Level of Service	E	C	C	E	C	C	E	E	E	E	E	
Approach Delay (s)		29.9			28.5			69.0			57.2	
Approach LOS		C			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	38.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	11.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	3	51	1	95	4	279	42	128	277	2
Future Vol, veh/h	0	0	3	51	1	95	4	279	42	128	277	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	0	0	1	1	1	2	2	2	1	1	1
Mvmt Flow	0	0	3	57	1	106	4	310	47	142	308	2
Number of Lanes	0	1	0	0	1	0	0	1	0	1	1	0

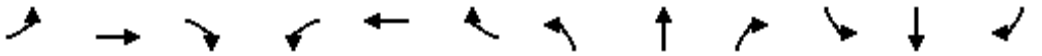
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	8.6	10.3	12.7	11.7
HCM LOS	A	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	1%	0%	35%	100%	0%
Vol Thru, %	86%	0%	1%	0%	99%
Vol Right, %	13%	100%	65%	0%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	325	3	147	128	279
LT Vol	4	0	51	128	0
Through Vol	279	0	1	0	277
RT Vol	42	3	95	0	2
Lane Flow Rate	361	3	163	142	310
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.493	0.005	0.245	0.229	0.454
Departure Headway (Hd)	4.913	5.568	5.4	5.785	5.276
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	726	647	658	616	676
Service Time	2.992	3.568	3.493	3.57	3.06
HCM Lane V/C Ratio	0.497	0.005	0.248	0.231	0.459
HCM Control Delay	12.7	8.6	10.3	10.3	12.4
HCM Lane LOS	B	A	B	B	B
HCM 95th-tile Q	2.8	0	1	0.9	2.4



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	51	717	108	180	682	280	103	171	163	302	187
v/c Ratio	0.51	0.50	0.15	0.73	0.38	0.33	0.44	0.69	0.47	0.85	0.51
Control Delay	85.7	37.6	7.0	78.8	27.0	13.7	63.8	75.5	11.7	78.2	54.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.7	37.6	7.0	78.8	27.0	13.7	63.8	75.5	11.7	78.2	54.3
Queue Length 50th (ft)	49	282	0	170	225	72	96	165	0	276	149
Queue Length 95th (ft)	96	402	47	251	326	167	149	231	64	388	228
Internal Link Dist (ft)		800			1072			451			782
Turn Bay Length (ft)	110			430		100	100			340	
Base Capacity (vph)	130	1512	738	251	1778	845	333	351	424	416	426
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.47	0.15	0.72	0.38	0.33	0.31	0.49	0.38	0.73	0.44

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	688	104	173	655	269	99	164	156	290	135	44
Future Volume (vph)	49	688	104	173	655	269	99	164	156	290	135	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.1	5.1	3.0	5.1	5.1	4.7	4.7	4.7	4.7	4.7	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.98	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1532	1770	1863	1547	1770	1781	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1532	1770	1863	1547	1770	1781	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	51	717	108	180	682	280	103	171	162	302	141	46
RTOR Reduction (vph)	0	0	64	0	0	76	0	0	141	0	8	0
Lane Group Flow (vph)	51	717	44	180	682	204	103	171	22	302	179	0
Confl. Peds. (#/hr)	4					4	14		4	4		14
Confl. Bikes (#/hr)									3			
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases			6			2			4			
Actuated Green, G (s)	7.5	60.6	60.6	21.6	74.7	74.7	20.0	20.0	20.0	30.3	30.3	
Effective Green, g (s)	7.5	60.6	60.6	21.6	74.7	74.7	20.0	20.0	20.0	30.3	30.3	
Actuated g/C Ratio	0.05	0.40	0.40	0.14	0.50	0.50	0.13	0.13	0.13	0.20	0.20	
Clearance Time (s)	3.0	5.1	5.1	3.0	5.1	5.1	4.7	4.7	4.7	4.7	4.7	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.5	1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)	88	1429	639	254	1762	762	236	248	206	357	359	
v/s Ratio Prot	c0.03	c0.20		c0.10	0.19		0.06	c0.09		c0.17	0.10	
v/s Ratio Perm			0.03			0.13			0.01			
v/c Ratio	0.58	0.50	0.07	0.71	0.39	0.27	0.44	0.69	0.11	0.85	0.50	
Uniform Delay, d1	69.7	33.4	27.4	61.2	23.4	21.8	59.8	62.0	57.1	57.6	53.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.6	1.3	0.2	7.2	0.6	0.9	0.5	6.2	0.1	16.0	0.4	
Delay (s)	75.3	34.7	27.6	68.4	24.1	22.7	60.3	68.3	57.2	73.6	53.5	
Level of Service	E	C	C	E	C	C	E	E	E	E	D	
Approach Delay (s)		36.2			30.7			62.3			65.9	
Approach LOS		D			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	42.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	11.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	3	45	1	85	4	301	33	100	311	2
Future Vol, veh/h	0	0	3	45	1	85	4	301	33	100	311	2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	3	47	1	89	4	314	34	104	324	2
Number of Lanes	0	1	0	0	1	0	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	8.5	9.8	12.2	11.9
HCM LOS	A	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	1%	0%	34%	100%	0%
Vol Thru, %	89%	0%	1%	0%	99%
Vol Right, %	10%	100%	65%	0%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	338	3	131	100	313
LT Vol	4	0	45	100	0
Through Vol	301	0	1	0	311
RT Vol	33	3	85	0	2
Lane Flow Rate	352	3	136	104	326
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.473	0.005	0.203	0.165	0.471
Departure Headway (Hd)	4.833	5.464	5.359	5.706	5.197
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	739	659	663	625	688
Service Time	2.899	3.464	3.443	3.475	2.966
HCM Lane V/C Ratio	0.476	0.005	0.205	0.166	0.474
HCM Control Delay	12.2	8.5	9.8	9.6	12.6
HCM Lane LOS	B	A	A	A	B
HCM 95th-tile Q	2.6	0	0.8	0.6	2.5

SECTION 7. SIGNAL WARRANT RESULTS

Traffic Signal Warrant Analysis Workbook

6/23/2023

STUDY AND ANALYSIS INFORMATION

Municipality:	Half Moon Bay	**Analysis Date:**	6/15/2023
County:	San Mateo	**Conducted By:**	Christine Bairan
		Agency/Company Name:	DKS Associates

Analysis Information

Data Collection Date:	5/17/2023
Day of the Week:	Wednesday

Is the intersection in a built-up area of an isolated community of <10,000 population? No

Major Street Information

Major Street Name and Route Number:	Main Street
Major Street Approach #1 Direction:	N-Bound
Major Street Approach #2 Direction:	S-Bound

Number of Lanes for Moving Traffic on Each Major Street Approach:	1	**LANE(S)**
Speed Limit or 85th Percentile Speed on the Major Street:	25	**MPH**

Minor Street Information

Minor Street Name and Route Number:	Stone Pine Road
Minor Street Approach #1 Direction:	W-Bound
Minor Street Approach #2 Direction:	E-Bound

Number of Lanes for Moving Traffic on Each Minor Street Approach:	1	**LANE(S)**

TRAFFIC SIGNAL WARRANT ANALYSIS FINDINGS

	Applicable?	Warrant Met?
Warrant 1, Eight-Hour Vehicular Volume	**No**	**N/A**
Warrant 2, Four-Hour Vehicular Volume	**Yes**	**No**
Warrant 3, Peak Hour	**Yes**	**No**
Warrant 4, Pedestrian Volume	**No**	**N/A**
Warrant 5, School Crossing	**No**	**N/A**
Warrant 6, Coordinated Signal System	**No**	**N/A**
Warrant 7, Crash Experience	**No**	**N/A**
Warrant 8, Roadway Network	**No**	**N/A**
Warrant 9, Intersection Near a Grade Crossing	**No**	**N/A**
Bicycle Signal Warrant (CA)	**No**	**N/A**

MUTCD WARRANT 2, FOUR-HOUR VEHICULAR VOLUME

Number of Lanes for Moving Traffic on Each Approach	
Major Street:	1 Lane
Minor Street:	1 Lane

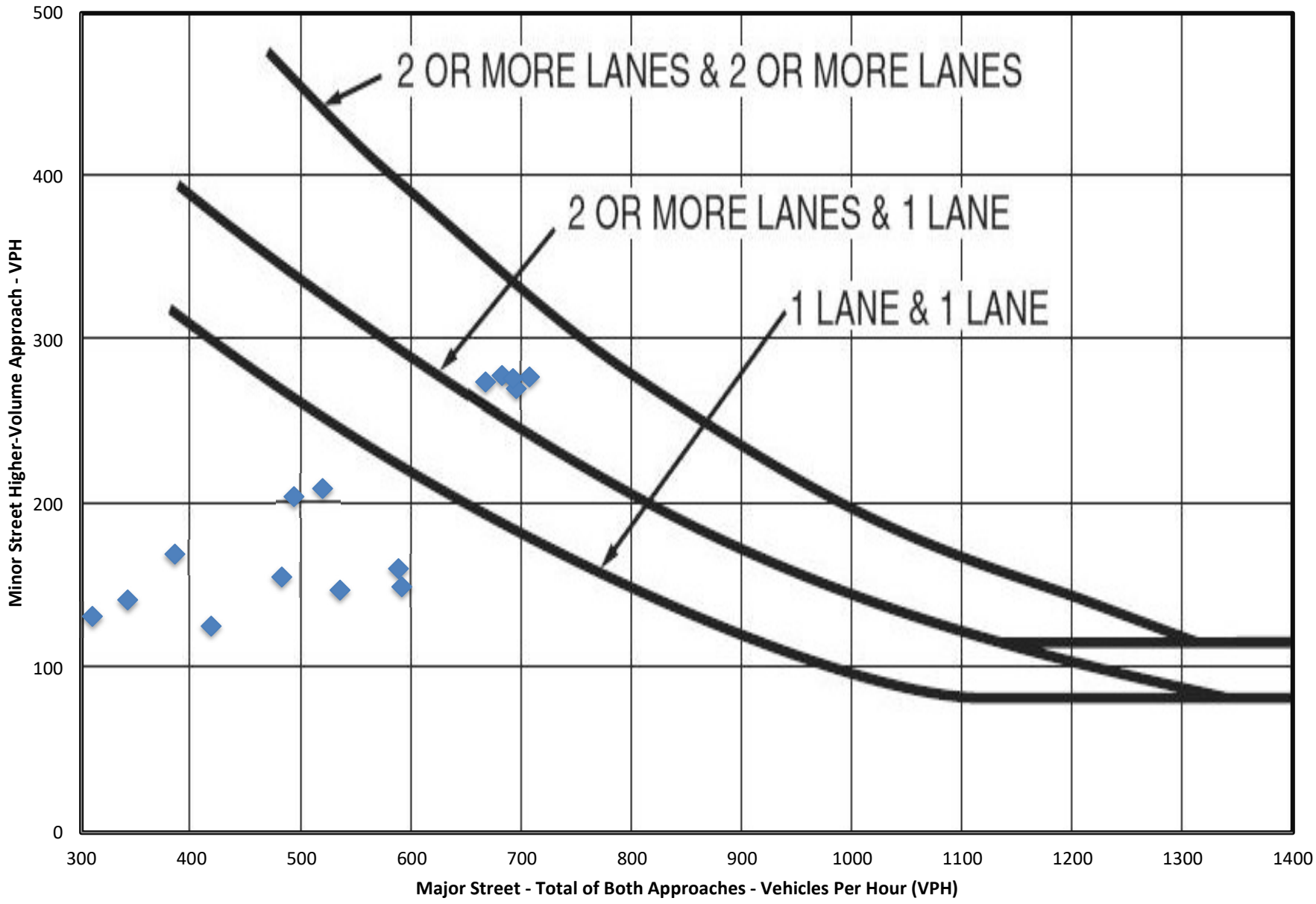
Total Number of Unique Hours Met On Figure 4C-1
2

Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH on Major Street?	No

Hourly Vehicular Volume			
Hour Interval Beginning At	Major Street Combined Vehicles Per Hour (VPH)	Highest Minor Street Approach Vehicles Per Hour (VPH)	Hour Met?
12:00 AM	0	0	
12:15 AM	0	0	
12:30 AM	0	0	
12:45 AM	0	0	
1:00 AM	0	0	
1:15 AM	0	0	
1:30 AM	0	0	
1:45 AM	0	0	
2:00 AM	0	0	
2:15 AM	0	0	
2:30 AM	0	0	
2:45 AM	0	0	
3:00 AM	0	0	
3:15 AM	0	0	
3:30 AM	0	0	
3:45 AM	0	0	
4:00 AM	0	0	
4:15 AM	0	0	
4:30 AM	0	0	
4:45 AM	0	0	
5:00 AM	0	0	
5:15 AM	0	0	
5:30 AM	0	0	
5:45 AM	0	0	
6:00 AM	0	0	
6:15 AM	73	49	
6:30 AM	155	93	
6:45 AM	257	134	
7:00 AM	385	170	
7:15 AM	482	156	
7:30 AM	535	148	
7:45 AM	591	150	
8:00 AM	588	161	
8:15 AM	418	126	
8:30 AM	283	90	
8:45 AM	125	47	
9:00 AM	0	0	
9:15 AM	0	0	
9:30 AM	0	0	
9:45 AM	0	0	
10:00 AM	0	0	
10:15 AM	0	0	
10:30 AM	0	0	
10:45 AM	0	0	
11:00 AM	0	0	
11:15 AM	0	0	
11:30 AM	0	0	
11:45 AM	0	0	

Hourly Vehicular Volume			
Hour Interval Beginning At	Major Street Combined Vehicles Per Hour (VPH)	Highest Minor Street Approach Vehicles Per Hour (VPH)	Hour Met?
12:00 PM	0	0	
12:15 PM	0	0	
12:30 PM	0	0	
12:45 PM	0	0	
1:00 PM	0	0	
1:15 PM	0	0	
1:30 PM	0	0	
1:45 PM	0	0	
2:00 PM	0	0	
2:15 PM	0	0	
2:30 PM	0	0	
2:45 PM	0	0	
3:00 PM	0	0	
3:15 PM	171	76	
3:30 PM	342	142	
3:45 PM	519	210	
4:00 PM	667	275	Met
4:15 PM	695	271	Met
4:30 PM	707	278	Met
4:45 PM	682	279	Met
5:00 PM	692	277	Met
5:15 PM	493	205	
5:30 PM	310	132	
5:45 PM	158	63	
6:00 PM	0	0	
6:15 PM	0	0	
6:30 PM	0	0	
6:45 PM	0	0	
7:00 PM	0	0	
7:15 PM	0	0	
7:30 PM	0	0	
7:45 PM	0	0	
8:00 PM	0	0	
8:15 PM	0	0	
8:30 PM	0	0	
8:45 PM	0	0	
9:00 PM	0	0	
9:15 PM	0	0	
9:30 PM	0	0	
9:45 PM	0	0	
10:00 PM	0	0	
10:15 PM	0	0	
10:30 PM	0	0	
10:45 PM	0	0	
11:00 PM	0	0	

MUTCD Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



MUTCD WARRANT 3, PEAK HOUR

Number of Lanes for Moving Traffic on Each Approach	
Major Street:	1 Lane
Minor Street:	1 Lane

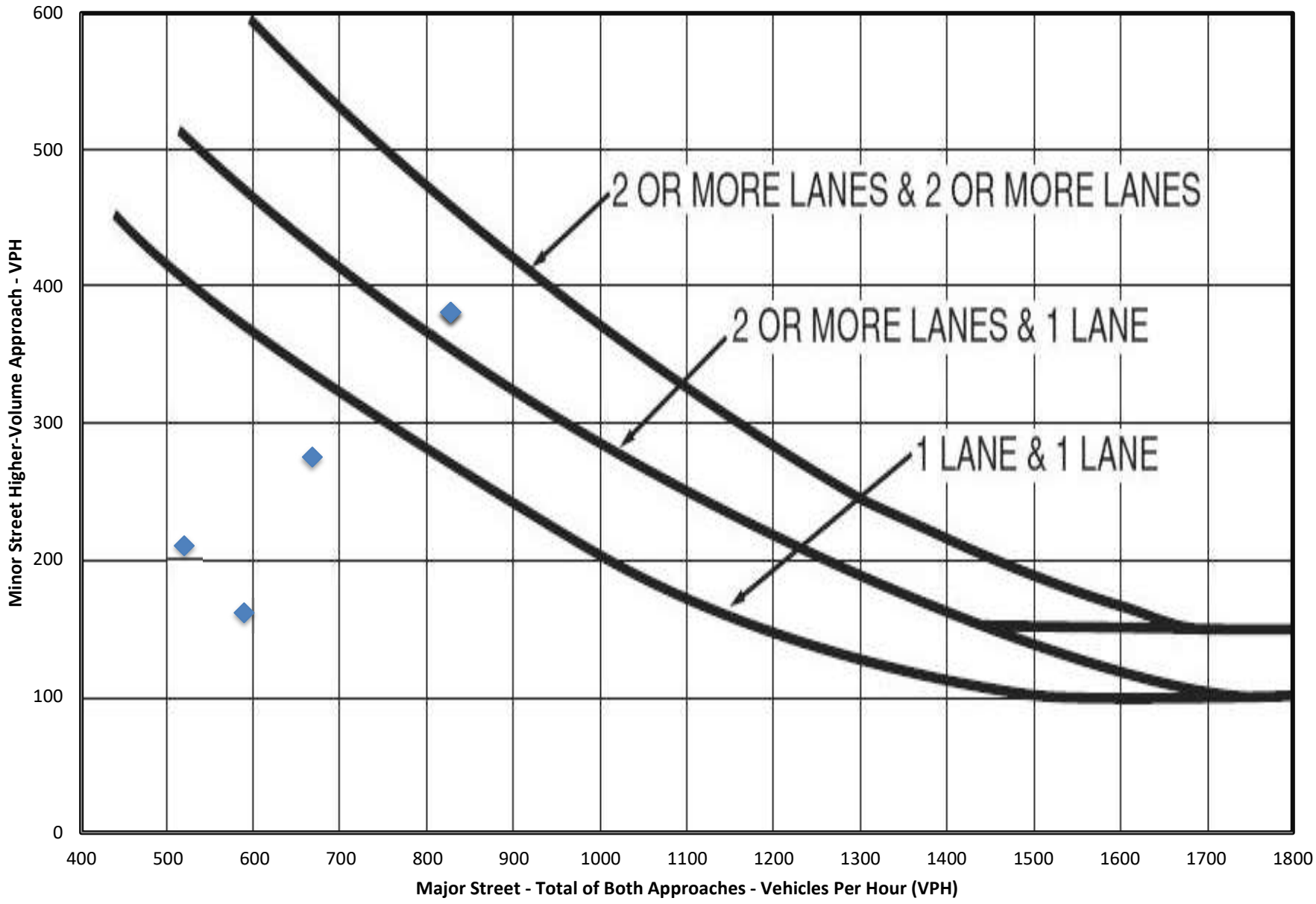
Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH on Major Street?	No
Is this signal warrant being applied for an unusual case, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time?	No

Indicate whether all three of the following conditions for the same 1 hour (any four consecutive 15-minute periods) of an average day are present*	
Does the total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equal or exceed 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach?	No
Does the volume on the same minor-street approach (one direction only) equal or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes?	No
Does the total entering volume serviced during the hour equal or exceed 650 vehicles per hour for intersection with three approaches or 800 vehicles per hour for intersections with four or more approaches?	No
**If applicable, attach all supporting calculations and documentation.*	

Total Number of Unique Hours Met On Figure 4C-3
1

Hourly Vehicular Volume			
Hour Interval Beginning At	**Major Street Combined Vehicles Per Hour (VPH)**	**Highest Minor Street Approach Vehicles Per Hour (VPH)**	**Hour Met?**
8:00 AM	588	161	
8:15 AM	827	381	Met
8:30 AM	827	381	Met
8:45 AM	827	381	Met
9:00 AM	0	0	
9:15 AM	0	0	
1:30 PM	0	0	
1:45 PM	0	0	
2:00 PM	0	0	
2:15 PM	0	0	
2:30 PM	0	0	
2:45 PM	0	0	
3:00 PM	0	0	
3:15 PM	171	76	
3:30 PM	342	142	
3:45 PM	519	210	
4:00 PM	667	275	

MUTCD Figure 4C-3. Warrant 3, Peak Hour



SECTION 8. TRAFFIC CALMING AND PEDESTRIAN INFRASTRUCTURE IMPROVEMENTS

© BKF Engineers

TRAFFIC CALMING/CROSSWALK IMPROVEMENTS

HWY 92

CROSSWALK, RAMPS AND LANDINGS @ EAST PATRICK WAY
SEE ATTACHMENT 1 FOR DETAILS

PATRICK WAY

STONE PINE RD

SPEED FEEDBACK MESSAGING BOARD

VEGETATION TRIMMING

STONE PINE RD

ERIN LN

STONE PINE RD

MAIN ST

CROSSWALK SIGN WITH
RECT. RAPID FLASHING BEACON

TWO WHITE STRIPES AND SHARROWS

PILARCITOS CREEK

0 40 80
GRAPHIC SCALE

BKF
255 SHORELINE DRIVE
SUITE 200
REDWOOD CITY, CA 94065
(650) 482-6300
www.bkf.com

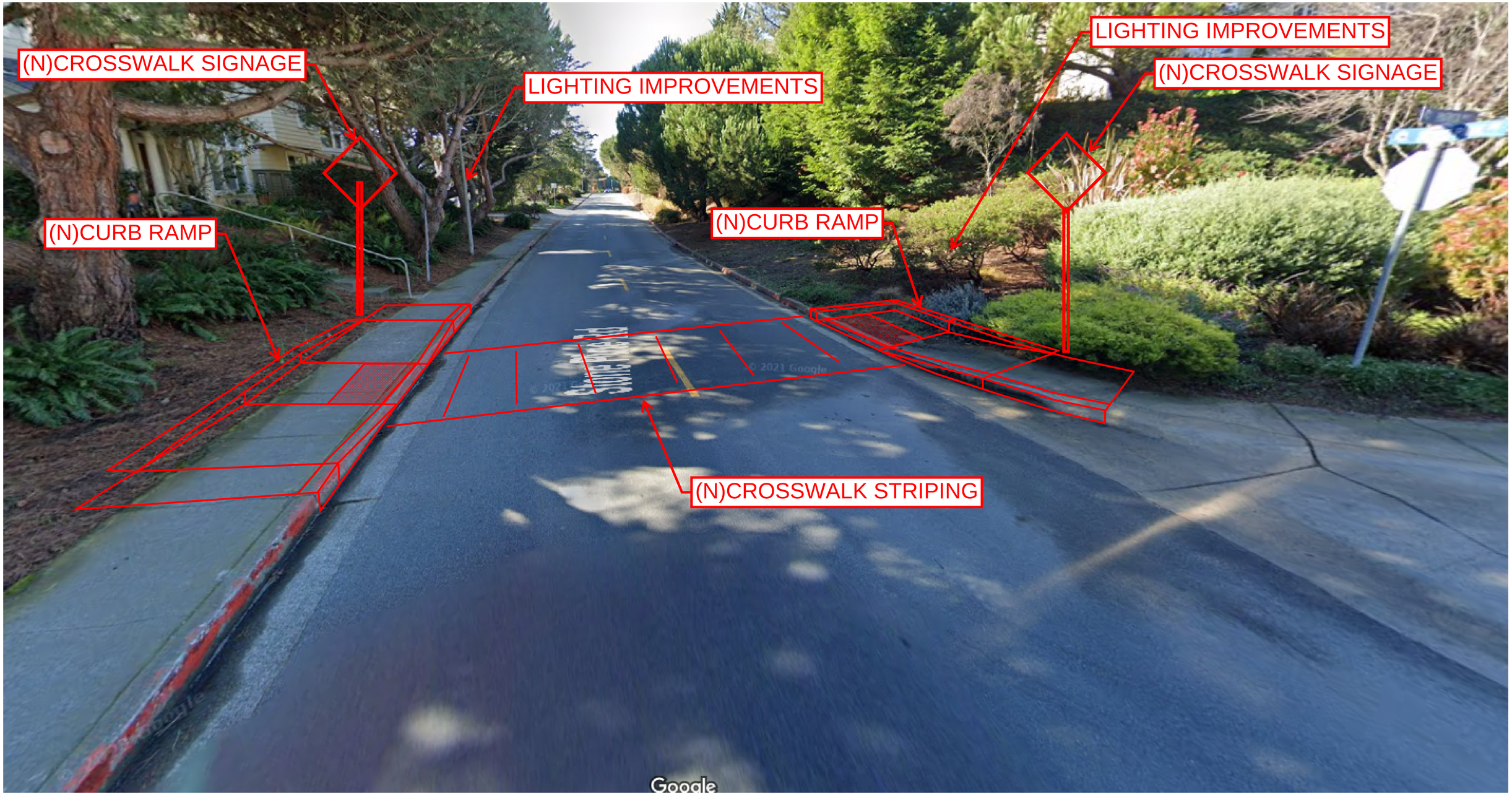
STONE PINE ROAD
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY
CALIFORNIA
HALF MOON BAY

No.	Revisions	Date

Date 10/10/2023
Scale 1" = 40'
Design DJP
Drawn DLG
Approved DJL
Job No 2021367-15

Drawing Number:
X-1
OF

DRAWING NAME: K:\2021\2111367-15_HMB_Corpyard_Housing\ENG\EXHIBITS\2023-08-30_STONE_PINE_AERIAL\hmbsheets.dwg
PLOT DATE: 08-30-23 PLOTTED BY: gold



ATTACHMENT 1:
STONE PINE RD & PATRICK WAY
EAST INTERSECTION

255 Shoreline Drive, Suite 200
Redwood City, CA 94065
Tel 650.482.6300

Stone Pine Road Traffic Calming and Crosswalk Improvements

Engineer's Opinion of Probable Construction Cost for Site Improvements[1]

Item No.	Item	Total Quantity	Unit	Unit Cost[2]	Total Cost
Mobilization and Traffic Control					
1	Mobilization	1	LS	$4,000	$4,000
2	Traffic Control[4]	1	LS	$15,000	$15,000
3	Tree Protection/Erosion Control	1	LS	$5,000	$5,000
Mobilization and Traffic Control Subtotal					$24,000
Rect. Rapid Flashing Beacons - West Patrick Wy Crosswalk					
1	Pedestrian Crosswalk Sign	2	EA	$1,000	$2,000
2	RRFB System (4 RRFB)	1	LS	$50,000	$50,000
3	Extension of Electrical System	1	LS	$5,000	$5,000
Rect. Rapid Flashing Beacons Subtotal					$57,000
Vegetation Trimming - West Patrick Wy Crosswalk (North Side)					
1	Vegetation Trimming Services	1	LS	$5,000	$5,000
Vegetation Trimming Subtotal					$5,000
Crosswalk, Ramps and Landings - East Patrick Wy					
1	Remove Existing Concrete Curb, Gutter and Sidewalk	400	SF	$3	$1,200
2	Remove Existing AC Paving	200	SF	$1	$200
3	New Accessible Curb Ramp (North)	1	EA	$15,000	$15,000
4	New Accessible Curb Ramp (South)	1	EA	$8,000	$8,000
5	New AC Paving	200	SF	$10	$2,000
6	Pedestrian Crosswalk Sign	2	EA	$1,000	$2,000
7	Thermoplastic Crosswalk Striping	200	SF	$5	$1,000
8	Lighting Improvements	1	LS	$10,000	$10,000
Crosswalk, Ramps and Landings Subtotal					$39,400
Speed Feedback Messaging Board - Stone Pine Rd					
1	Speed Feedback Sign	2	EA	$5,000	$10,000
2	Extension of Electrical System	1	LS	$5,000	$5,000
Speed Feedback Messaging Board Subtotal					$15,000
Re-striping and Lane Narrowing - Stone Pine Rd					
1	Two White Thermoplastic Edge Striping (Stone Pine Rd~1000 LF)	2,000	LF	$3	$6,000
2	Thermoplastic Sharrows	10	EA	$300	$3,000
Re-striping and Lane Narrowing Subtotal					$9,000

Subtotal	$149,400
50% Contingency[3]	$74,700
GRAND TOTAL	$225,000

NOTES

1. This Opinion of Probable Construction Quality & Costs Estimate for Site Improvements is based upon observation of current onsite conditions and the 2022 San Mateo County GIS Aerial Imagery. This estimate of Site Improvement Quantities and Order of Magnitude Costs has been prepared as a guide as to the opinion of the probable conceptual construction costs quantities anticipated for this project. BKF Engineers makes no warranty, either expressed or implied that the actual quantities and/or costs will not vary from the
2. Unit prices are generally based on Caltrans Region 4 construction cost data and comparison to other recent bids or estimates.
3. 50% contingency accounts for variation in design, design fees and other soft costs.
4. Traffic control does not include temporary pedestrian path of travel for any closures of the Stone Pine Road sidewalk due to improvements.