

STORMWATER POLLUTION PREVENTION PLAN

SI2024-00001
880 STONE PINE RD
03/04/2024

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:

A handwritten signature in black ink that reads 'Monica Cardenas'.

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			

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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
<i>(1) Any field changes not identified for field location or field determination by the QSP must be made as an amendment by the QSD.</i>	

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 post- 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 Sites* 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		<input checked="" type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> 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	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Pacific Ocean	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Overall Receiving Water Risk			<input type="checkbox"/> Low <input checked="" type="checkbox"/> 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-1 Water 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- 10 Velocity 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 detain 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 basin is a temporary basin with a controlled release structure that is formed by excavation or construction of an embankment to detain 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 discharges 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 techniques 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 APPLICABLE 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 within 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
<i>Routine Inspections¹</i>	
BMP Inspections	Weekly ²
<i>Qualifying Precipitation Event Triggered Inspections</i>	
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, NO ₃ , BOD, COD, DOC, Sulfate, NH ₃ , 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, NO ₃ , BOD, COD, DOC, sulfate, NH ₃ , 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, NO ₃ , 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.

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	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
Picked up by Laboratory Courier	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
Shipped	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	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 <u>second, and each subsequent</u> , 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 <u>second, and each subsequent</u> , 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

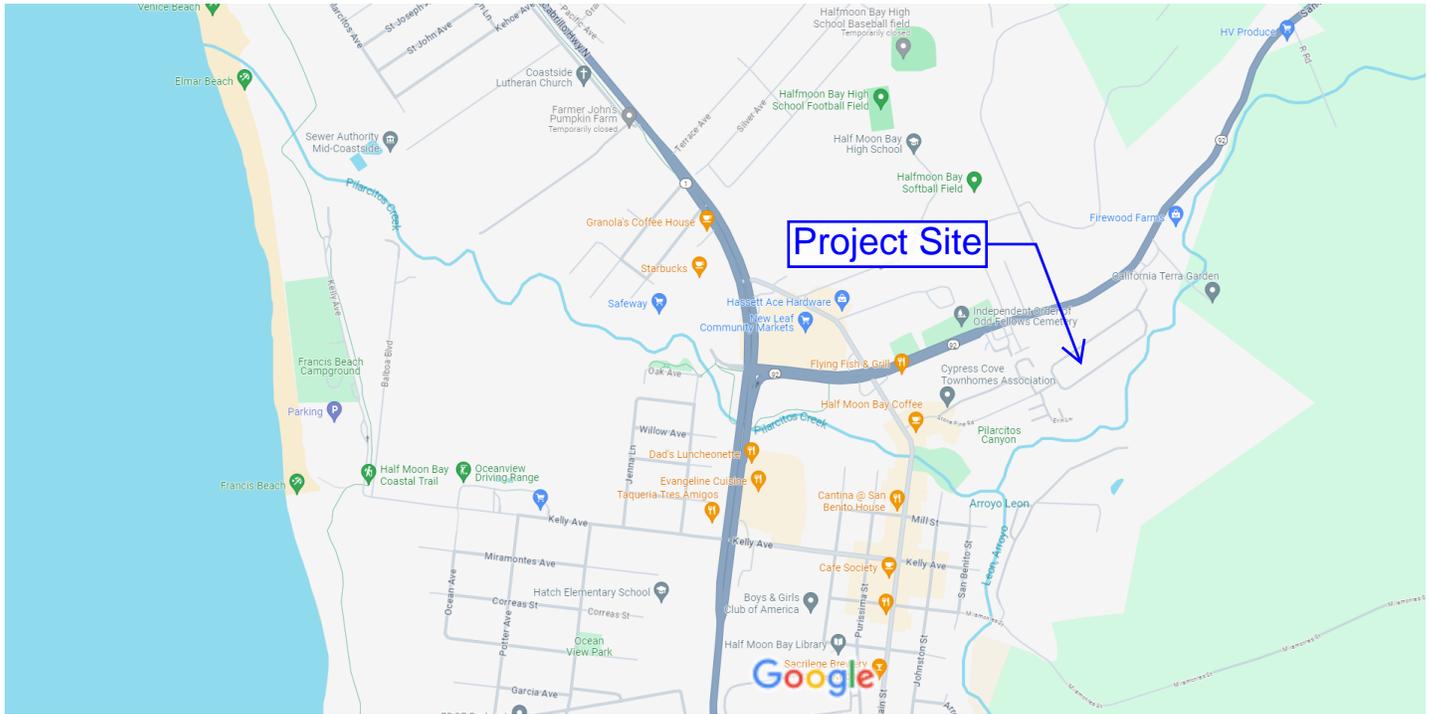
“Geotechnical Engineering Investigation, SMC-HMB Farmworker Housing Project, 880 Stone Pine Road, Half Moon Bay, San Mateo County, California”, by BAGG Engineers dated August 23, 2023.

Appendix A: Site Maps and Drawings

Exhibit 1: Stone Pine Cove Vicinity Map

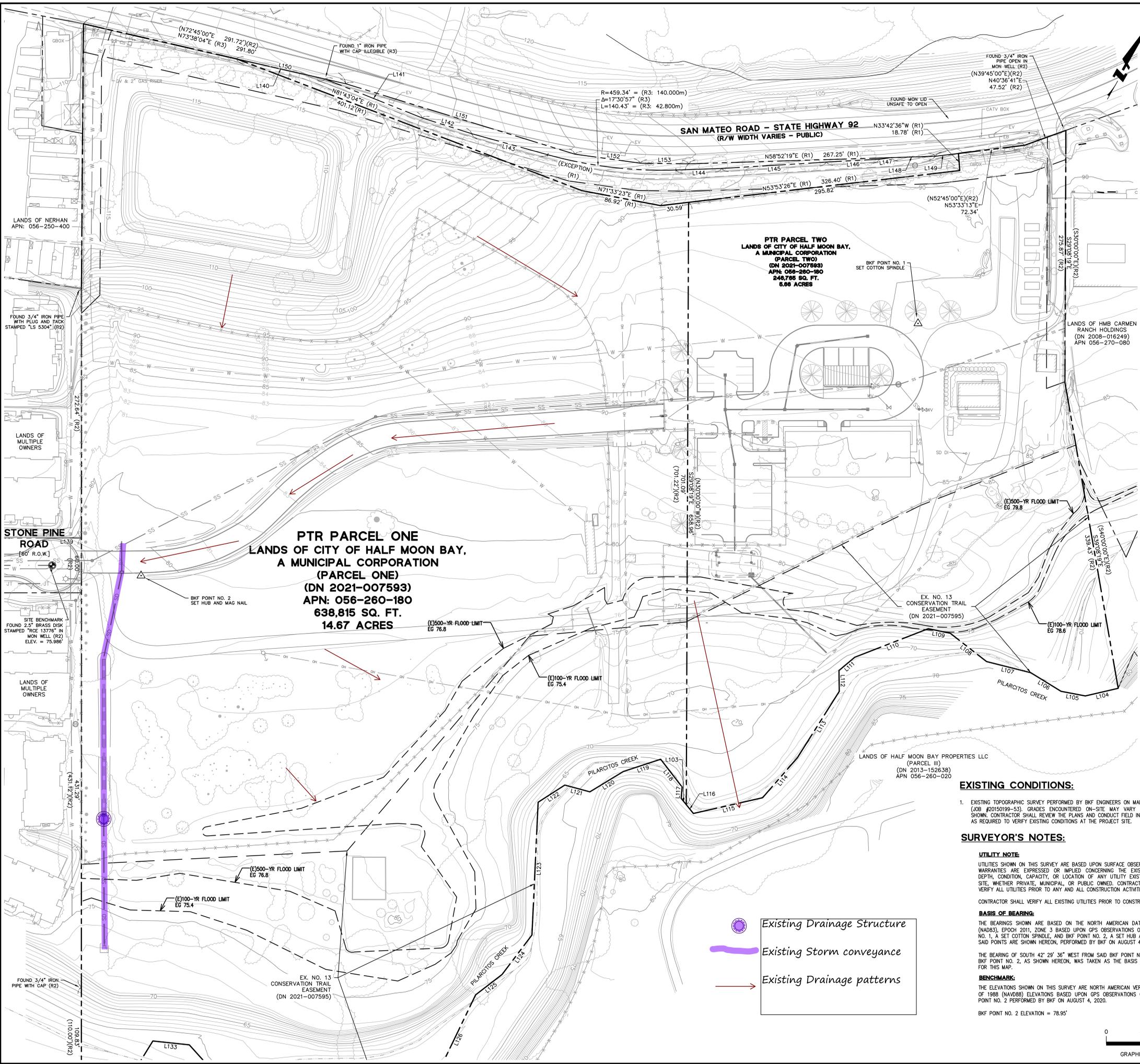
Google Maps

880 Stone Pine Cove



Map data ©2024 500 ft





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 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)
(S28°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"E)(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)	(121.88')(R1)
(N72°45'00"E)(R2)	(259.67')(R2)
(N77°00'00"E)(R2)	(260.04')(R2)
(N68°33'21"E)(R1)	(71.61')(R1)
(N67°45'00"E)(R2)	(71.25')(R2)
(N61°25'06"E)(R1)	(52.50')(R1)
(N60°30'00"E)(R2)	(52.80')(R1)

PTR PARCEL ONE
LANDS OF CITY OF HALF MOON BAY,
A MUNICIPAL CORPORATION
(PARCEL ONE)
(DN 2021-007593)
APN: 056-260-180
638,815 SQ. FT.
14.67 ACRES

PTR PARCEL TWO
LANDS OF CITY OF HALF MOON BAY,
A MUNICIPAL CORPORATION
(PARCEL TWO)
(DN 2021-007593)
APN: 056-260-180
248,795 SQ. FT.
5.66 ACRES

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:

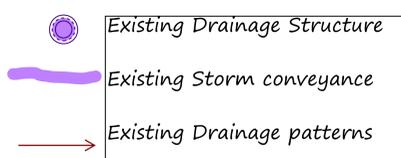
UTILITY NOTE:
UTILITIES SHOWN ON THIS SURVEY ARE BASED UPON SURFACE OBSERVATIONS. NO WARRANTIES ARE EXPRESSED OR IMPLIED CONCERNING THE EXISTENCE, SIZE, DEPTH, CONDITION, CAPACITY, OR LOCATION OF ANY UTILITY EXISTING ON THE SITE, WHETHER PRIVATE, MUNICIPAL, OR PUBLIC OWNED. CONTRACTOR(S) SHALL VERIFY 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'

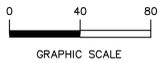


SURVEYORS STATEMENT
THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION, IN CONFORMANCE WITH THE REQUIREMENTS OF THE PROFESSIONAL LAND SURVEYORS' ACT.

DAVID JUNGSMANN, PLS 9267
08/31/2020

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 ILS MAPS AT PAGE 40, OFFICIAL RECORDS OF SAN MATEO COUNTY.
(R3) RECORD OF SURVEY NO. 2460 RECORDED OCTOBER 10, 2013 IN BOOK 38 OF ILS 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 1.000050903. AS STATED ON (R3). TO OBTAIN GROUND DISTANCES IN U.S. SURVEY FEET, MULTIPLY GROUND DISTANCES IN METERS BY THE CONVERSION FACTOR OF (39.37/1000).

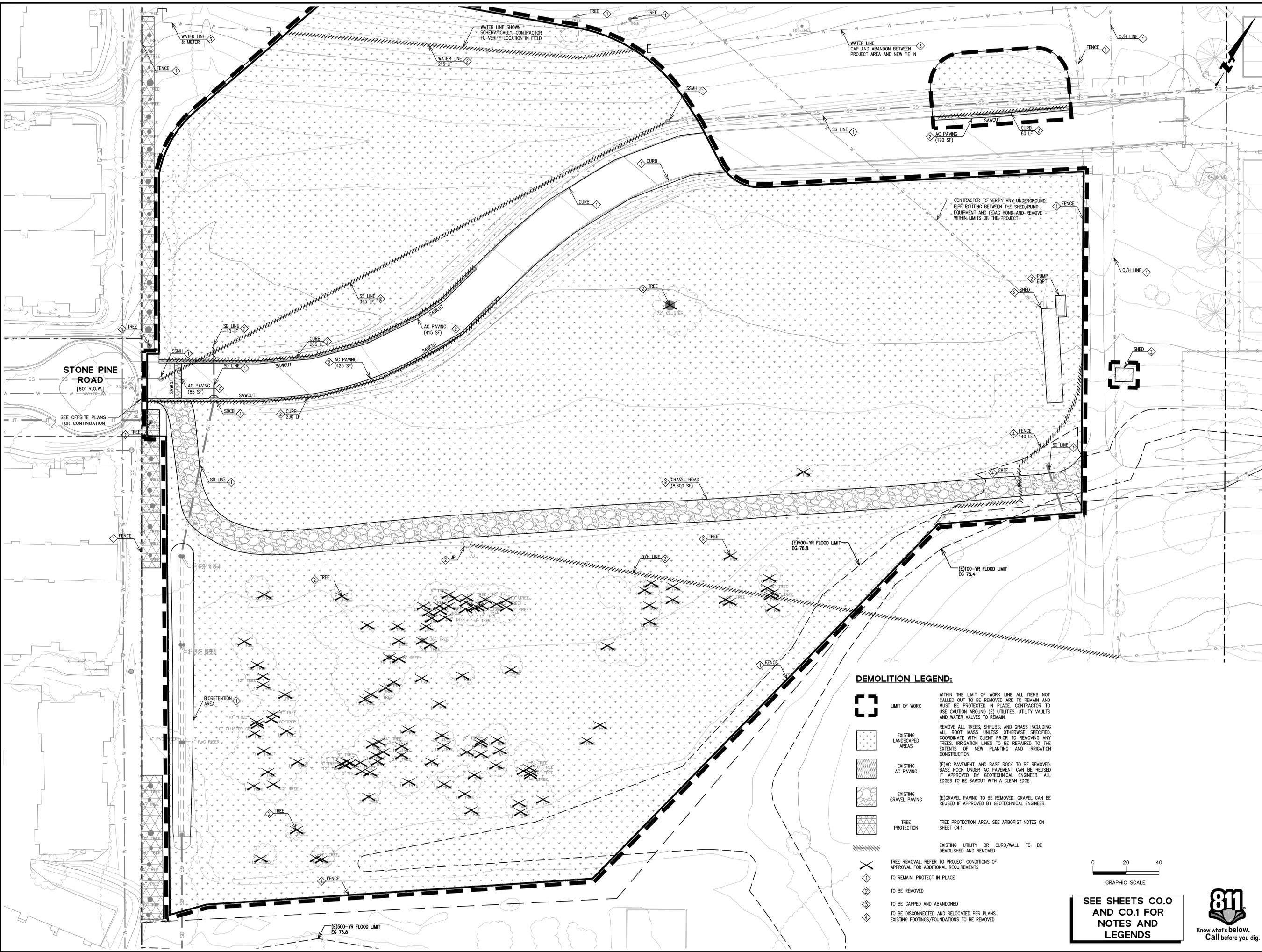


Date	By	Revisions
01/26/2024	gld	
02-08-24	gld	

Drawing Number: 15



DRAWING NAME: K:\2024\211367-15_HMB_Corridor_Housing\ENG\hmsheet.s.dwg
 PLOT DATE: 02-08-24
 PLOTTED BY: gold



DEMOLITION LEGEND:

- LIMIT OF WORK
- EXISTING LANDSCAPED AREAS
- EXISTING AC PAVING
- EXISTING GRAVEL PAVING
- TREE PROTECTION
- EXISTING UTILITY OR CURB/WALL TO BE DEMOLISHED AND REMOVED
- TREE REMOVAL, REFER TO PROJECT CONDITIONS OF APPROVAL FOR ADDITIONAL REQUIREMENTS
- TO REMAIN, PROTECT IN PLACE
- TO BE REMOVED
- TO BE CAPPED AND ABANDONED
- TO BE DISCONNECTED AND RELOCATED PER PLANS. EXISTING FOOTINGS/FOUNDATIONS TO BE REMOVED

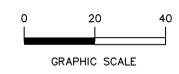
WITHIN THE LIMIT OF WORK LINE ALL ITEMS NOT CALLED OUT TO BE REMOVED ARE TO REMAIN AND MUST BE PROTECTED IN PLACE. CONTRACTOR TO USE CAUTION AROUND (E) UTILITIES, UTILITY VAULTS AND WATER VALVES TO REMAIN.

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.

(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.

(E)GRAVEL PAVING TO BE REMOVED. GRAVEL CAN BE REUSED IF APPROVED BY GEOTECHNICAL ENGINEER.

TREE PROTECTION AREA. SEE ARBORIST NOTES ON SHEET C4.1.



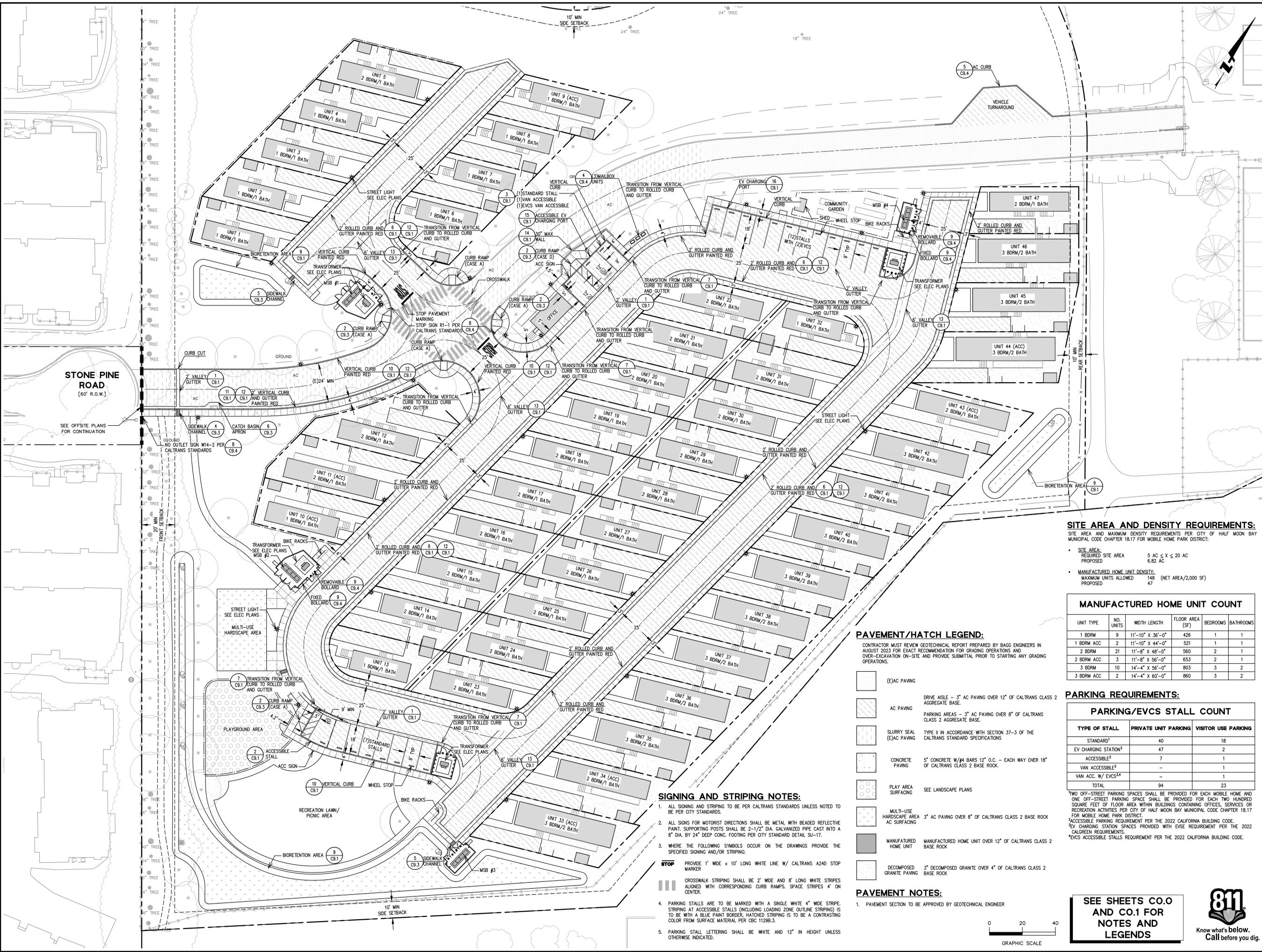
SEE SHEETS CO.0
 AND CO.1 FOR
 NOTES AND
 LEGENDS



Date	By	No.	Revisions
01/26/2024	DFP	1	Design
	DLG	2	Drawn
	DJL	3	Approved
			Lab. No. 22011397-15

Drawing Number: **C1.2**

DRAWING NAME: K:\2024\211367-15_HMB_Corridor_Housing\ENG\mbsheet.s.dwg
 PLOT DATE: 02-08-24
 PLOTTED BY: gold



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:

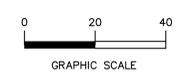
- (E)AC PAVING
- DRIVE AISLE - 3" AC PAVING OVER 12" OF CALTRANS CLASS 2 AGGREGATE BASE.
- AC PAVING
- PARKING AREAS - 3" AC PAVING OVER 8" OF CALTRANS CLASS 2 AGGREGATE BASE.
- SLURRY SEAL
- TYPE II IN ACCORDANCE WITH SECTION 37-3 OF THE CALTRANS STANDARD SPECIFICATIONS
- CONCRETE PAVING
- 5" CONCRETE 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
- MANUFACTURED 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

SIGNING AND STRIPING NOTES:

- ALL SIGNING AND STRIPING TO BE PER CALTRANS STANDARDS UNLESS NOTED TO BE PER CITY STANDARDS.
- 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.
- 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 A240 STOP MARKER
 - CROSSWALK STRIPING** SHALL BE 2' WIDE AND 8' LONG WHITE STRIPES ALIGNED WITH CORRESPONDING CURB RAMPS. SPACE STRIPES 4" ON CENTER.
- 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.
- PARKING STALL LETTERING SHALL BE WHITE AND 12" IN HEIGHT UNLESS OTHERWISE INDICATED.

PAVEMENT NOTES:

- PAVEMENT SECTION TO BE APPROVED BY GEOTECHNICAL ENGINEER



PARKING REQUIREMENTS:

PARKING/EVCS STALL COUNT

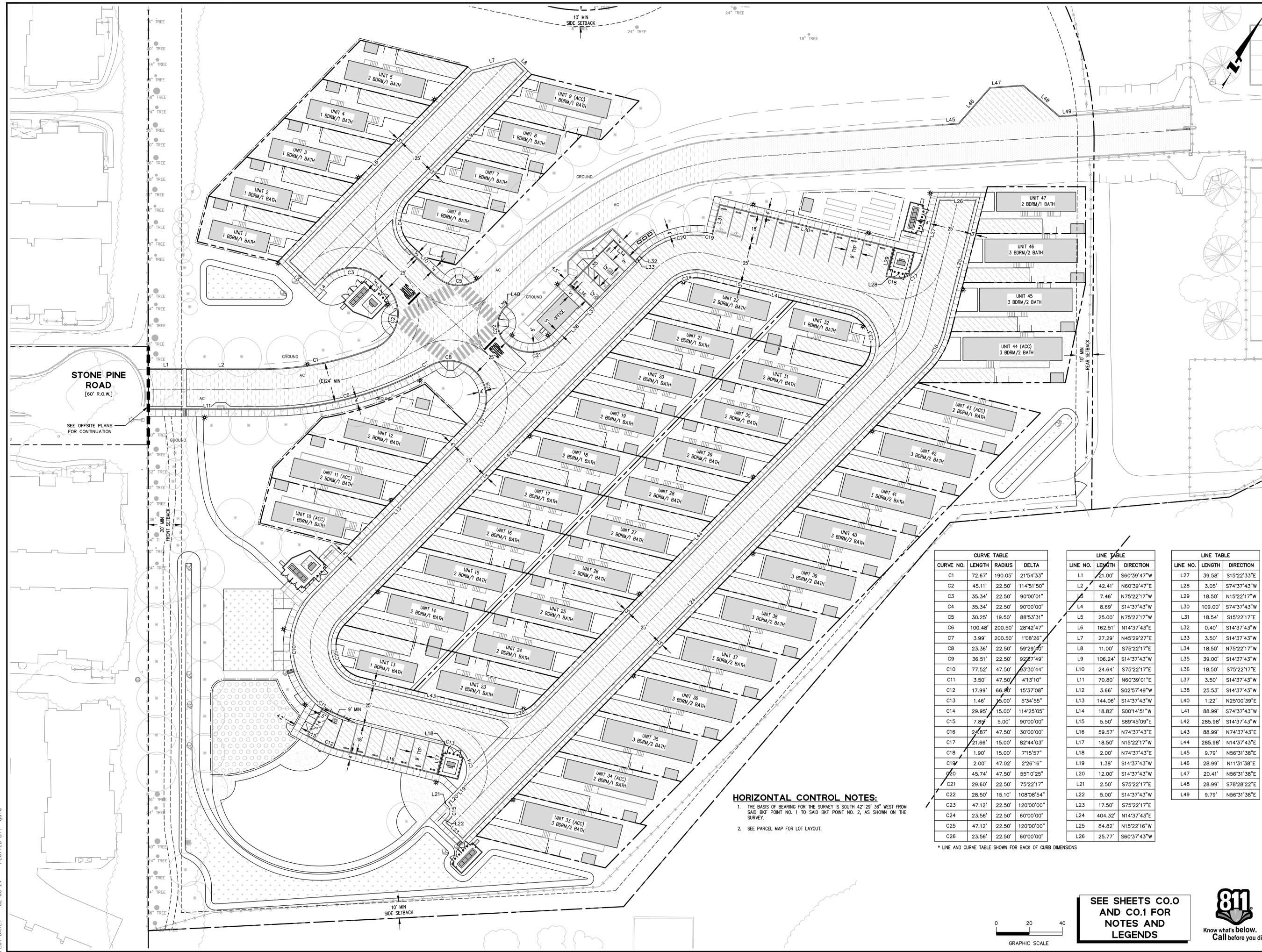
TYPE OF STALL	PRIVATE UNIT PARKING	VISITOR USE PARKING
STANDARD ¹	40	18
EV CHARGING STATION ²	47	2
ACCESSIBLE ³	7	1
VAN ACCESSIBLE ²	-	1
VAN ACC. W/ EVCS ⁴	-	1
TOTAL	94	23

¹TWO 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.
²ACCESSIBLE PARKING REQUIREMENT PER THE 2022 CALIFORNIA BUILDING CODE.
³EV CHARGING STATION SPACES PROVIDED WITH EVSE REQUIREMENT PER THE 2022 CALIFORNIA BUILDING CODE.
⁴EVCS ACCESSIBLE STALLS REQUIREMENT PER THE 2022 CALIFORNIA BUILDING CODE.

SEE SHEETS CO.0 AND CO.1 FOR NOTES AND LEGENDS



Date	By	Check	Scale	Design	Drawn	Approved	Job No.
01/26/2024			1" = 20'	DJP	DJC	DJC	20241367-15
Revisions							
Drawing Number:							C2.1



STONE PINE ROAD
 [60' R.O.W.]

SEE OFFSITE PLANS FOR CONTINUATION

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.

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°29'50"
C9	36.51'	22.50'	92°57'49"
C10	77.52'	47.50'	93°30'44"
C11	3.50'	47.50'	41°3'10"
C12	17.99'	66.00'	15°37'08"
C13	1.46'	5.00'	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 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 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"E
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



SEE SHEETS C.O.0 AND C.O.1 FOR NOTES AND LEGENDS





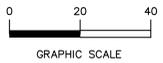
GRADING NOTES:

- 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.
- CONTRACTOR TO VERIFY ALL CONTROLLING DIMENSIONS WITH ARCHITECTURAL PLANS.
- 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.
- 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.
- IMPORT SOILS SHOULD MEET THE REQUIREMENTS OF THE SOILS REPORT AND SPECIFICATIONS.
- 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.
- DO NOT ADJUST GRADES ON THIS PLAN WITHOUT PRIOR WRITTEN APPROVAL OF THE ENGINEER/ARCHITECT.
- SITE STRIPPINGS THAT CONTAIN ONLY ORGANIC MATERIAL (NO DEBRIS TRASH, BROKEN CONG. 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.
- 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.
- 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.
- 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.
- 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.
- DISTURBED AREAS OF THE SITE SHOULD BE STABILIZED DURING THE RAINY SEASON USING STRAW MULCH (EC-6) OR WOOD MULCHING (EC-8).
- PERMANENT EROSION CONTROL SHALL BE PROVIDED BY LANDSCAPING SUCH AS SHRUBS, SOIL 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)JAC PAVING
	DRIVE AISLE - 3" AC PAVING OVER 12" OF CALTRANS CLASS 2 AGGREGATE BASE.
	AC PAVING
	PARKING AREAS - 3" AC PAVING OVER 8" OF CALTRANS CLASS 2 AGGREGATE BASE.
	SLURRY SEAL
	TYPE II IN ACCORDANCE WITH SECTION 37-3 OF THE CALTRANS STANDARD SPECIFICATIONS.
	5" CONCRETE W/#4 BARS 12" O.C. - EACH WAY OVER 18" OF CALTRANS CLASS 2 BASE ROCK.
	SEE LANDSCAPE PLANS
	3" AC PAVING OVER 8" OF CALTRANS CLASS 2 BASE ROCK
	MANUFACTURED HOME UNIT OVER 12" OF CALTRANS CLASS 2 BASE ROCK
	3" DECOMPOSED GRANITE OVER 4" OF CALTRANS CLASS 2 BASE ROCK



SEE SHEETS CO.0 AND CO.1 FOR NOTES AND LEGENDS

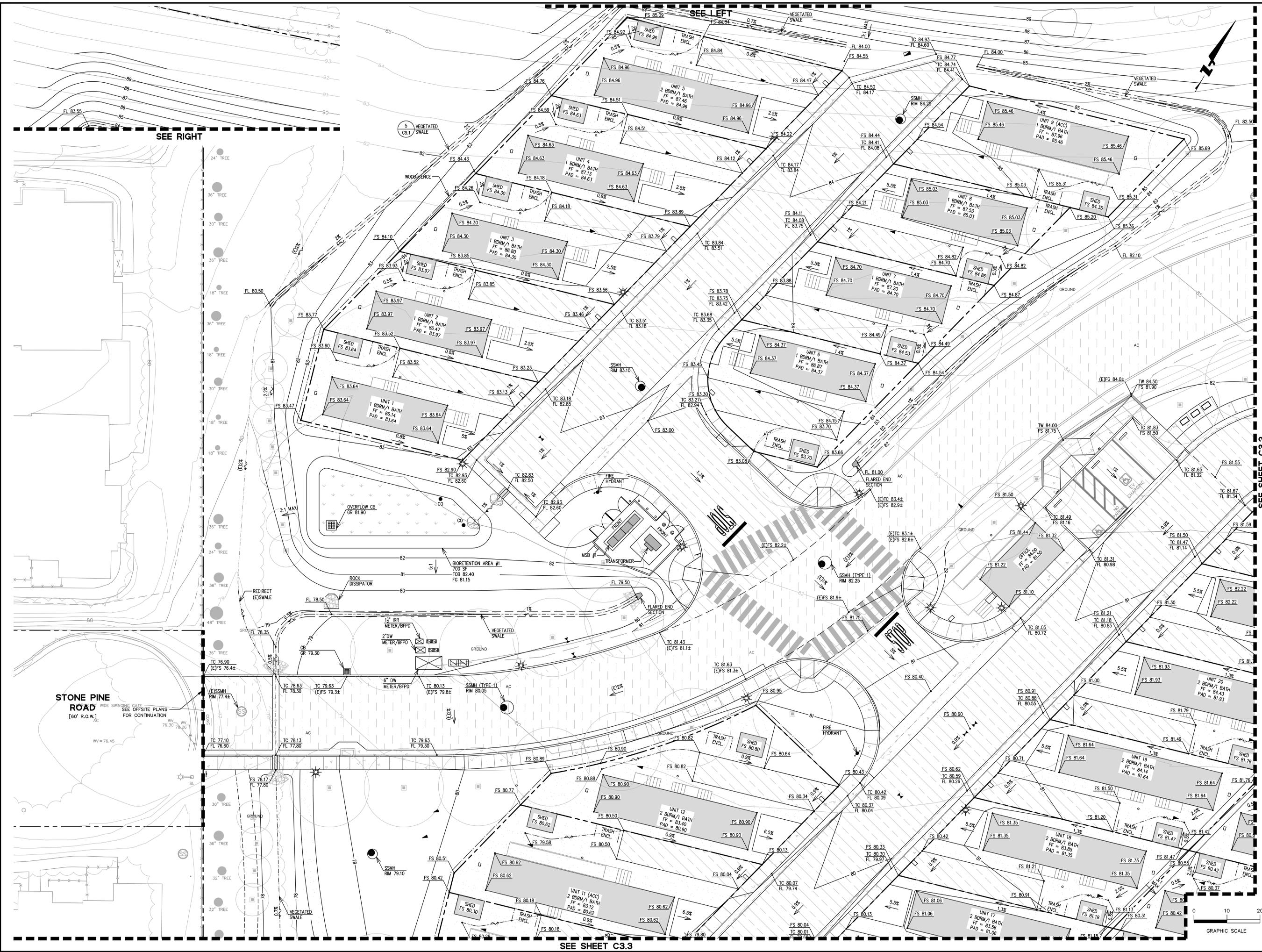


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SEE RIGHT

SEE LEFT

Date	By	Checked	Approved
01/26/2024	NS		
	Design	DJP	
	Drawn	DJG	
	Approved	DJL	
	Lab. No.	22011307-15	



SEE RIGHT

SEE LEFT

SEE SHEET C3.2

SEE SHEET C3.3

STONE PINE ROAD
 [60' R.O.W.]

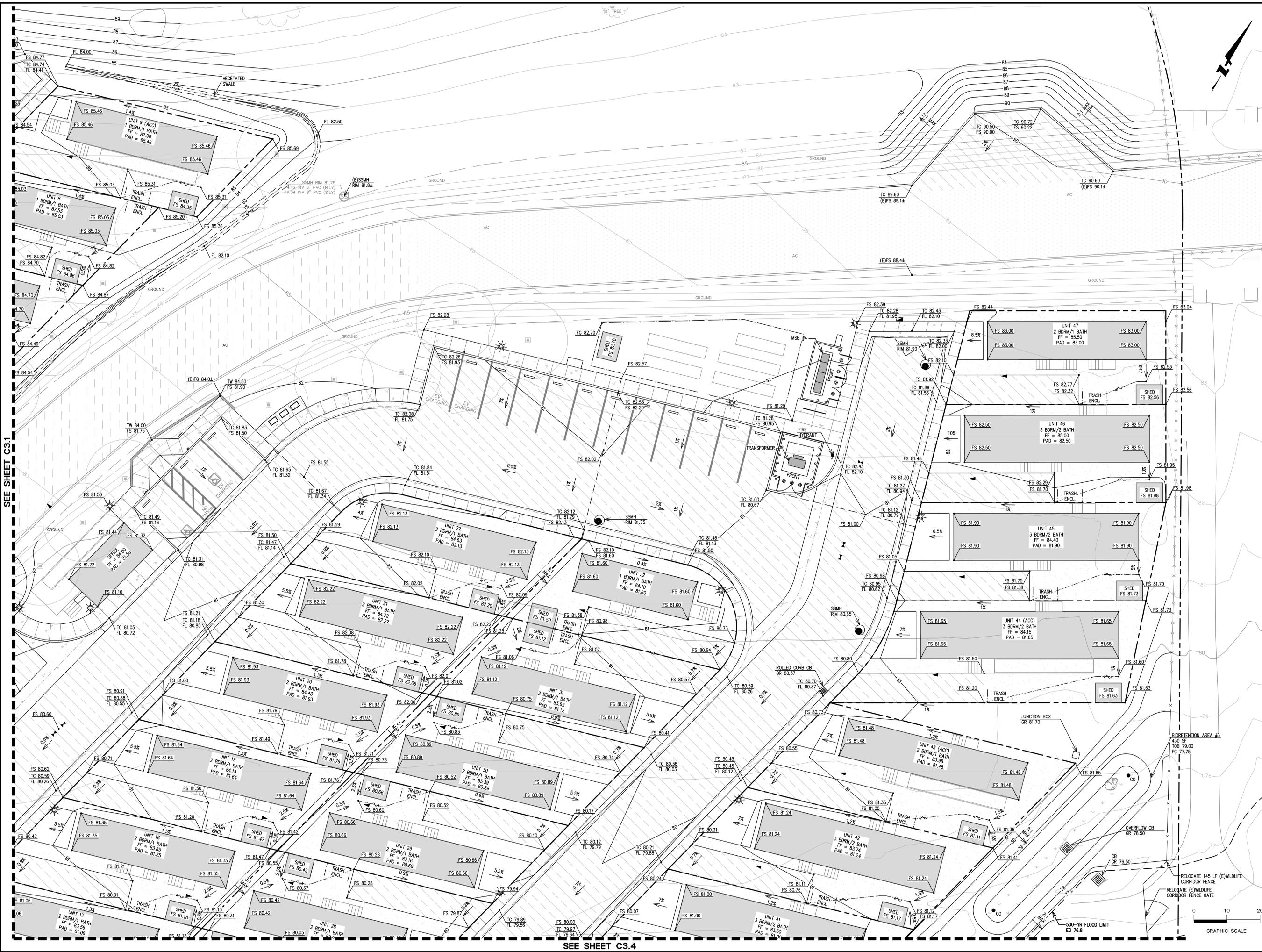
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 PLOTTED BY: gold

GRAPHIC SCALE
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Date	Revision	By	Check
01/26/2024	1	Design	Design
	2	Drawn	DWG
	3	Approved	DWG

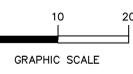
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 PLOT DATE: 02-08-24
 PLOTTED BY: gold

SEE SHEET C3.1

SEE SHEET C3.4



500-YR FLOOD LIMIT
 EG 78.8

RELOCATE 145 LF (E)WILDLIFE CORRIDOR FENCE
 RELOCATE (E)WILDLIFE CORRIDOR FENCE GATE

BIORETENTION AREA #3
 430 SF
 TOB 79.00
 FG 77.75

JUNCTION BOX
 GR 81.70

ROLLED CURB CB
 GR 80.37

TRANSFORMER

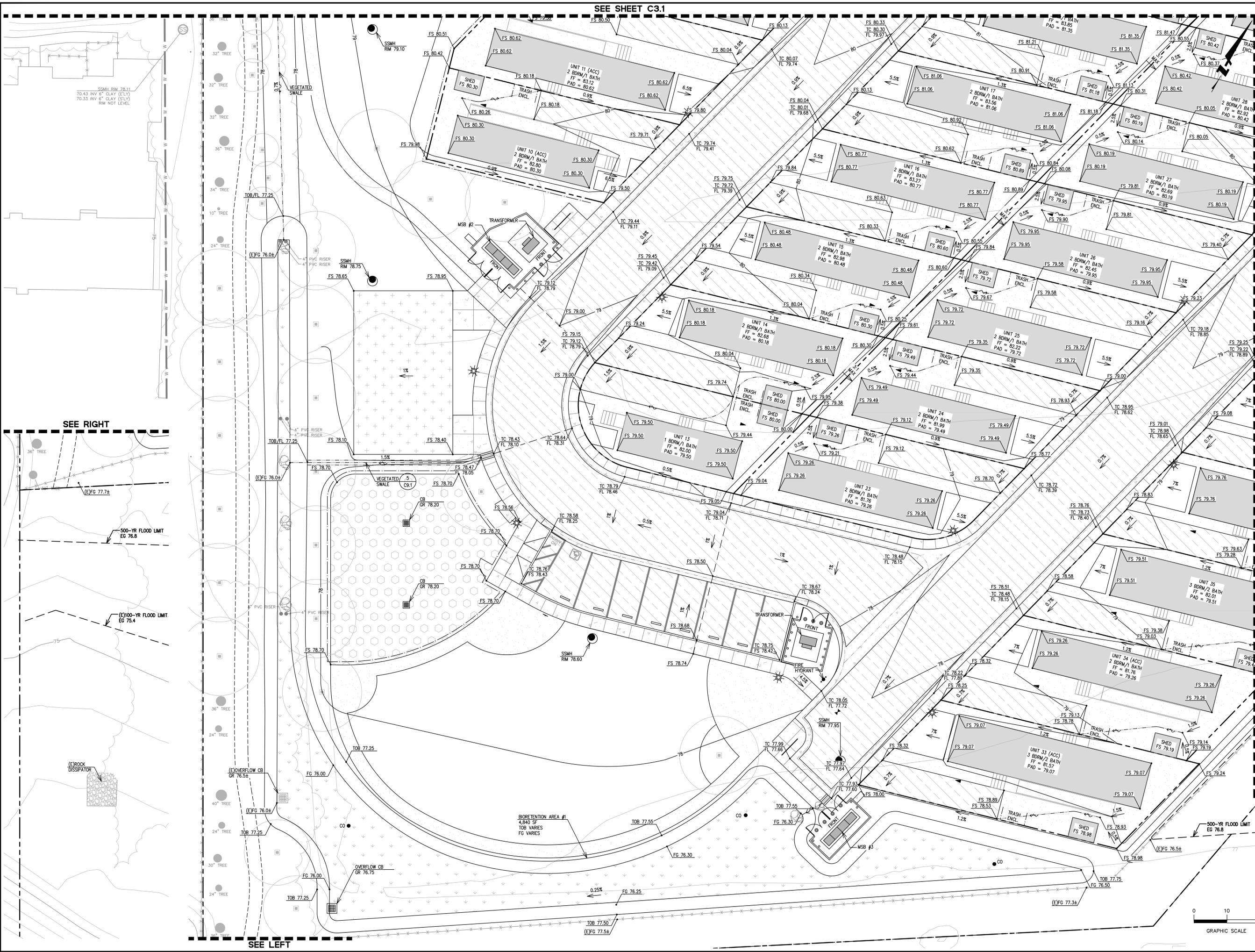
FIRE HYDRANT

SSMH RIM 81.75



Date	No.	Revisions
01/26/2024	1	Design DWP
	2	Drawn DLG
	3	Approved DJL
	4	Lab. No. 202011307-15

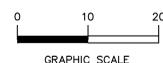
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SEE SHEET C3.1

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 PLOT DATE: 02-08-24
 PLOTTED BY: gold



STORM DRAIN NOTES:

- 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 3343-73 WITH GUEDED JOINTS. ALL DIRECTION CHANGES SHALL BE MADE WITH WYE CONNECTIONS, 22.5° ELBOWS OR LONG SWEEP ELBOWS, 90° ELBOWS AND TEE'S ARE PROHIBITED.
- 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, 22.5° ELBOWS OR LONG SWEEP ELBOWS, 90° ELBOWS AND TEE'S ARE PROHIBITED.
- ALL AREA DRAINS AND CATCH BASINS GRATES WITHIN PEDESTRIAN ACCESSIBLE AREAS SHALL MEET ADA REQUIREMENTS.
- ALL TRENCHES SHALL BE BACK FILLED PER THE SPECIFICATIONS WITH APPROPRIATE TESTS BY THE GEOTECHNICAL ENGINEER TO VERIFY COMPACTION VALUES.
- 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.
- 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.
- 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:

- ALL SEWER WORK SHALL BE IN CONFORMANCE WITH THE CITY.
- ALL SEWER LINES SHALL BE POLYVINYL CHLORIDE (PVC) SDR 26 SEWER PIPE, REFER TO SPECIFICATIONS.
- SANITARY SEWER SYSTEMS INCLUDING MAINS, MANHOLES, AND LATERALS SHALL BE TESTED PER CITY'S STANDARD DESIGN GUIDELINES FOR PUBLIC WORKS CONSTRUCTION 2016.

GENERAL NOTES:

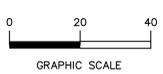
- WATER LINES ARE SHOWN SCHEMATICALLY, CONTRACTOR SHALL IDENTIFY EACH ANGLE AND/OR BEND THAT MAY BE REQUIRED TO ACCOMPLISH THE INTENDED DESIGN.
- CONTRACTOR SHALL SIZE AND INSTALL ALL NEW DESIGN BUILD DOMESTIC IRRIGATION AND FIRE WATER LINES) IN ACCORDANCE WITH THE LATEST EDITION OF THE UNIFORM/CALIFORNIA PLUMBING AND FIRE CODES.
- 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.

DOMESTIC WATER SYSTEM NOTES:

- WATER SYSTEM CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE COASTSIDE COUNTY WATER DISTRICT DOCUMENT TITLED "STANDARD SPECIFICATIONS AND STANDARD DRAWINGS, MAY 2018, LATEST REVISION."
- INSTALLATION SHALL CONFORM TO THE CWD STANDARD DRAWINGS INCLUDED IN THESE IMPROVEMENT PLANS AND OTHER CWD STANDARD DRAWINGS.
- 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, TELEPHONE, AND CABLE TV.

UTILITY LEGEND:

4" SD	STORM DRAIN LATL
4" SS	SANITARY SEWER LATL
4" DW	DOMESTIC WATER LATL
4" FW	FIRE WATER LATL
E	UNDERSGROUND ELECTRICAL SERVICE LATL
---	JOINT TRENCH



SEE SHEETS C.O.0 AND C.O.1 FOR NOTES AND LEGENDS



Date	01/26/2024
Scale	1" = 20'
Design	DJP
Drawn	DJG
Approved	DJL
Lab. No.	20231397-15
Drawing Number:	C4.0

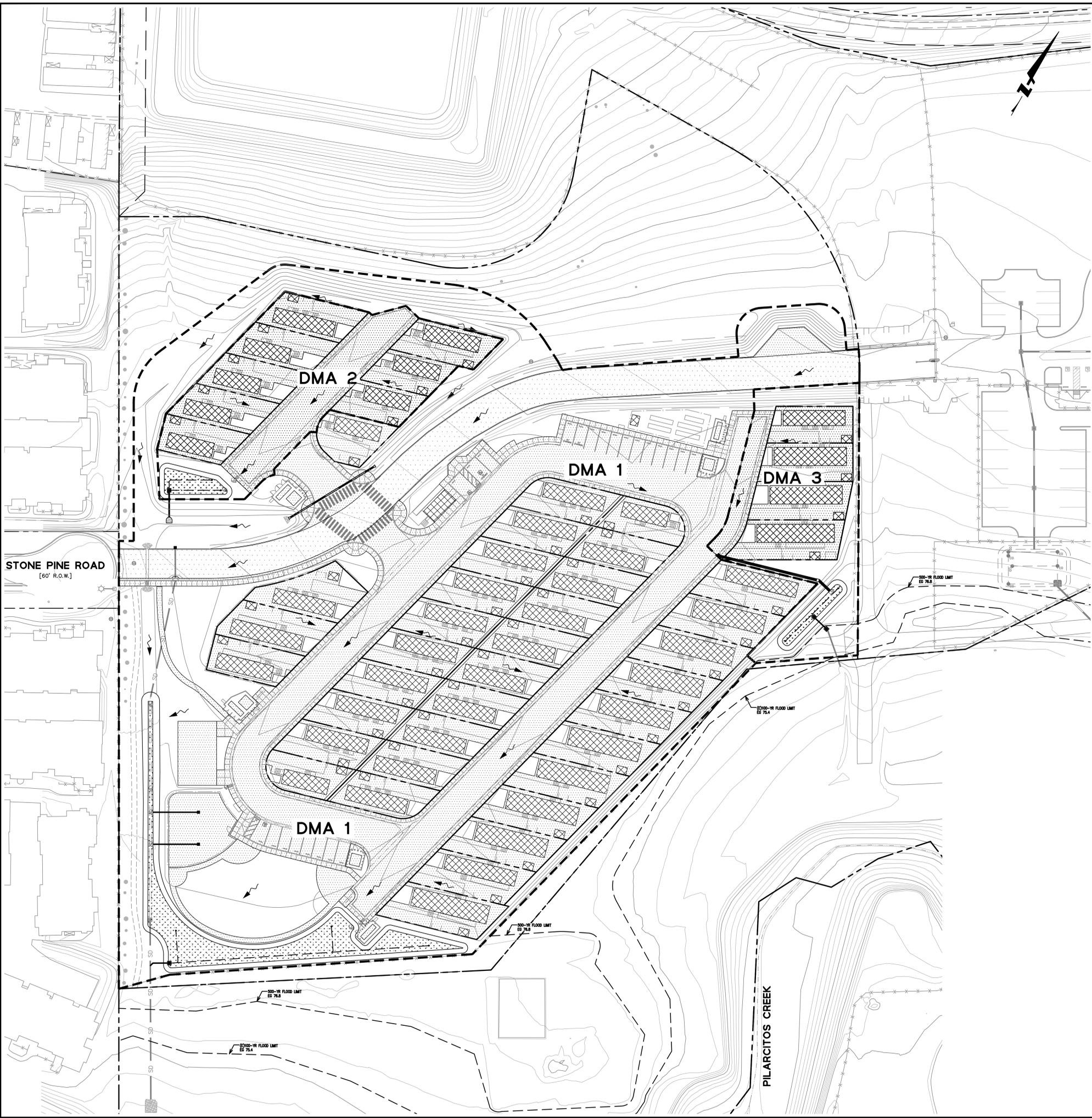
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 PLOT DATE: 02-08-24
 PLOTTED BY: gold



STORMWATER CONTROL PLAN
STONE PINE COVE
880 STONE PINE ROAD
 SAN MATEO COUNTY



Date	No.	Revisions
01/26/2024	1	Design D/P
	2	Drawn DLG
	3	Approved DJL
	4	Lab. No. 202011387-15



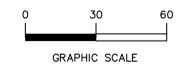
LEGEND:

- 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

- 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.
- 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.

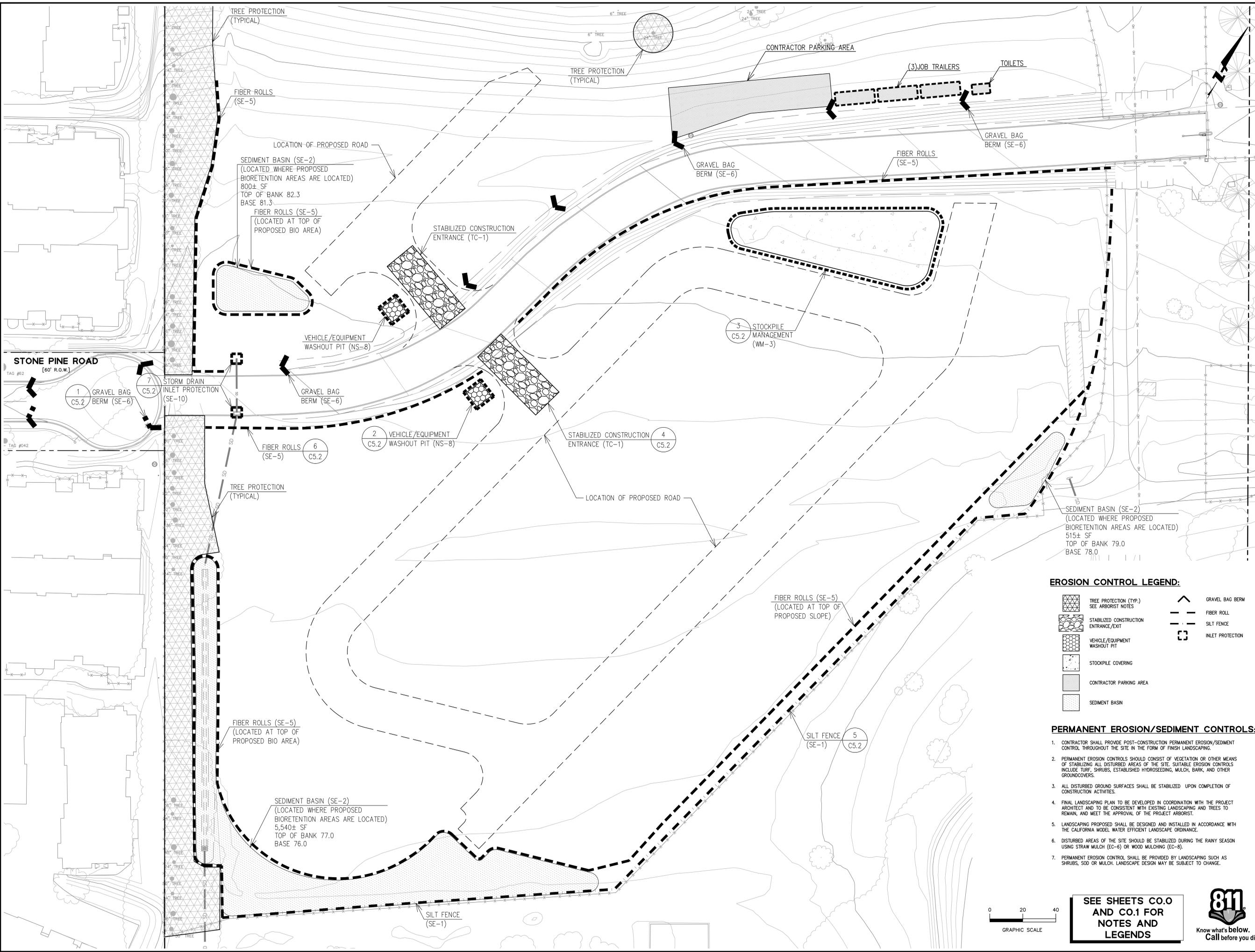


SEE SHEETS C0.0 AND C0.1 FOR NOTES AND LEGENDS



Date	No.	Revisions
01/26/2024	1	Scale 1" = 20'
		Design D/P
		Drawn DLG
		Approved DJL
		Lab. No. 22011397-15

Drawing Number: **C7.1**



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:

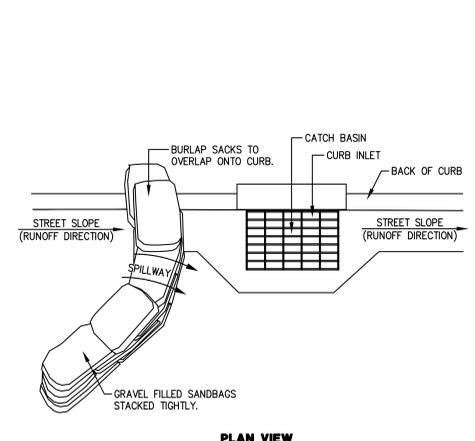
- CONTRACTOR SHALL PROVIDE POST-CONSTRUCTION PERMANENT EROSION/SEDIMENT CONTROL THROUGHOUT THE SITE IN THE FORM OF FINISH LANDSCAPING.
- PERMANENT EROSION CONTROLS SHOULD CONSIST OF VEGETATION OR OTHER MEANS OF STABILIZING ALL DISTURBED AREAS OF THE SITE. SUITABLE EROSION CONTROLS INCLUDE TURF, SHRUBS, ESTABLISHED HYDROSEEDING, MULCH, BARK, AND OTHER GROUNDCOVERS.
- ALL DISTURBED GROUND SURFACES SHALL BE STABILIZED UPON COMPLETION OF CONSTRUCTION ACTIVITIES.
- 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.
- LANDSCAPING PROPOSED SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH THE CALIFORNIA MODEL WATER EFFICIENT LANDSCAPE ORDINANCE.
- DISTURBED AREAS OF THE SITE SHOULD BE STABILIZED DURING THE RAINY SEASON USING STRAW MULCH (EC-6) OR WOOD MULCHING (EC-8).
- PERMANENT EROSION CONTROL SHALL BE PROVIDED BY LANDSCAPING SUCH AS SHRUBS, SOD OR MULCH. LANDSCAPE DESIGN MAY BE SUBJECT TO CHANGE.



SEE SHEETS C0.0 AND C0.1 FOR NOTES AND LEGENDS

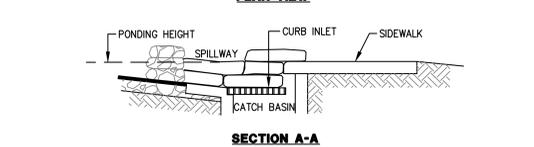
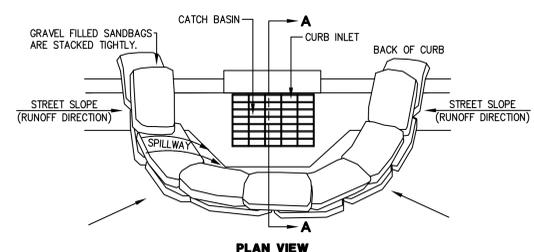


Date	No.	Revisions
01/26/2024	AS SHOWN	
	Design	DJP
	Drawn	DJG
	Approved	DJL
Lab. No. 20201397-15		



- 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.

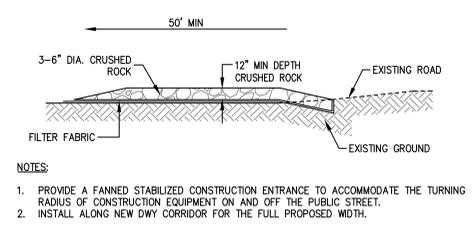
CURB INLET SEDIMENT BARRIER - CONTINUOUS GRADE



CURB INLET SEDIMENT BARRIER - SUMP

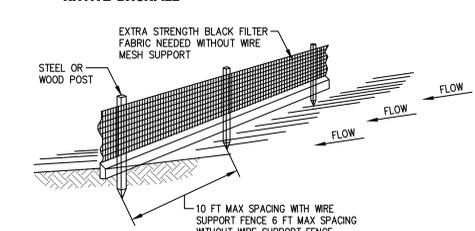
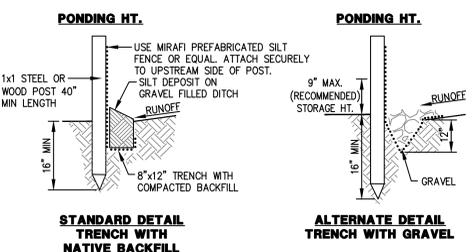
- NOTES:**
1. PLACE CURB TYPE SEDIMENT BARRIERS ON GENTLY SLOPING STREETS, WHERE WATER CAN POND AND ALLOW SEDIMENT TO SEPARATE FROM RUNOFF.
 2. SANDBAGS OF EITHER BURLAP OR WOVEN GEOTEXTILE FABRIC, ARE FILLED WITH GRAVEL, LAYERED AND PACKED TIGHTLY.
 3. LEAVE ONE SANDBAG GAP IN THE TOP ROW TO PROVIDE 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



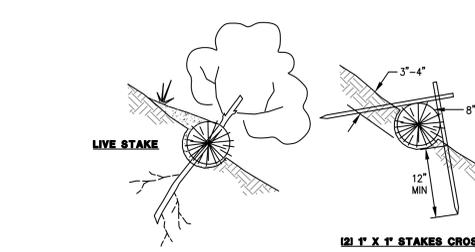
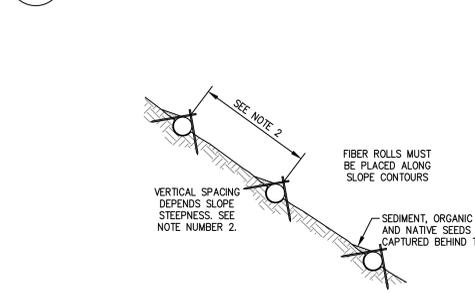
- NOTES:**
1. PROVIDE A FANNED STABILIZED CONSTRUCTION ENTRANCE TO ACCOMMODATE THE TURNING RADIUS OF CONSTRUCTION EQUIPMENT ON AND OFF THE PUBLIC STREET.
 2. INSTALL ALONG NEW DWY CORRIDOR FOR THE FULL PROPOSED WIDTH.

4 STABILIZED CONSTRUCTION ENTRANCE
 NTS

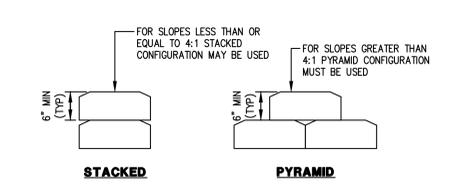


- NOTES:**
1. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.
 2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
 3. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.

5 SILT FENCE
 NTS

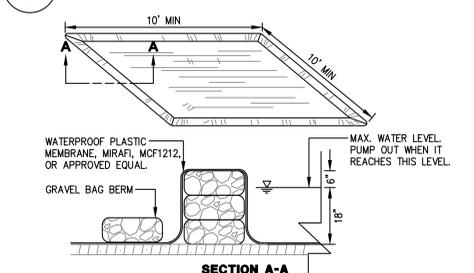


6 FIBER ROLL
 NTS

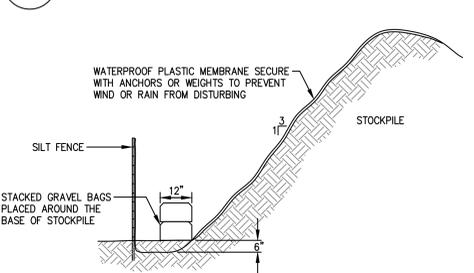


- NOTES:**
1. INSTALL AT LOCATIONS AS SHOWN ON EROSION CONTROL PLAN, AND IN ADDITION, PROTECT ALL EXISTING AND PROPOSED STORM DRAIN STRUCTURES WITH GRAVEL BAGS.

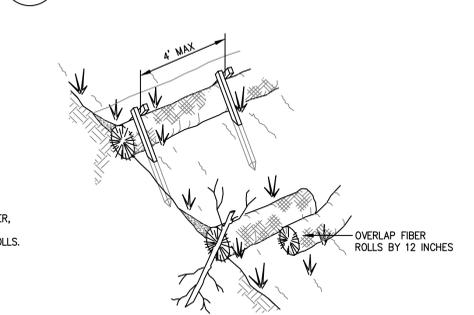
1 GRAVEL BAG BERM
 NTS



2 VEHICLE/EQUIPMENT WASHOUT PIT
 NTS



3 STOCKPILE COVERING
 NTS



- NOTES:**
1. FIBER ROLL INSTALLATION REQUIRES THE PLACEMENT AND SECURE STAKING OF THE ROLL IN A TRENCH, 3\"/>
 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.

Date	Revisions	No.
01/26/2024	Scale AS SHOWN	
	Design DFP	
	Drawn DLG	
	Approved DJL	
	Lab. No. 20211387-15	

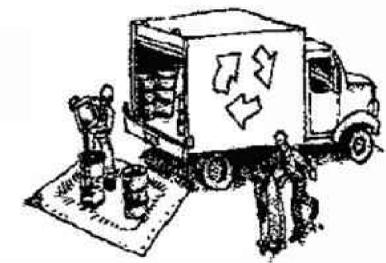


SAN MATEO COUNTYWIDE
Water Pollution Prevention Program
 Clean Water. Healthy Community.

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



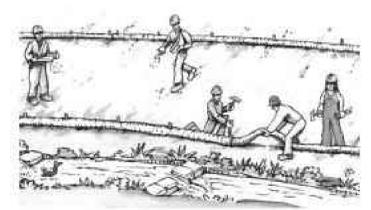
- Non-Hazardous Materials**
- ❑ Berm and cover stockpiles of sand, dirt or other construction material with tarps when rain is forecast or if not actively being used within 14 days.
 - ❑ Use (but don't overuse) reclaimed water for dust control.
- Hazardous Materials**
- ❑ Label all hazardous materials 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, absorb, 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



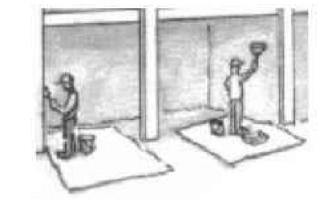
- ❑ Store concrete, grout, and mortar away from storm drains or waterways, and on pallets under cover to protect them from rain, runoff, and wind.
- ❑ Wash out concrete equipment/trucks offsite or in a designated washout area, where the water will flow into a temporary waste pit, and in a manner that 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



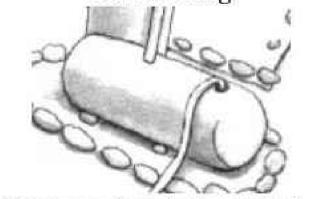
- ❑ Protect stockpiled landscaping materials from wind and rain by storing them under tarps all year-round.
- ❑ Stack bagged material on pallets and under cover.
- ❑ Discontinue application of any erodible landscape material within 2 days before a forecast rain event or during wet weather.

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!

Date	Revisions	No.	Description
01/26/2024 <td></td> <td>1</td> <td>Scale 1" = 40'</td>		1	Scale 1" = 40'
		2	Design D/P
		3	Drawn DLG
		4	Approved DJL
		5	Lab. No. 20211397-15

Drawing Number: **OC1.0**

EXISTING CONDITIONS:

1. EXISTING TOPOGRAPHIC SURVEY PERFORMED BY BKF ENGINEERS ON MARCH 18, 2021 (JOB #20150190-53). 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:

UTILITIES SHOWN ON THIS SURVEY ARE BASED UPON SURFACE OBSERVATIONS. NO WARRANTIES ARE EXPRESSED OR IMPLIED CONCERNING THE EXISTENCE, SIZE, DEPTH, LOCATION, PROPERTY, 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 2009-13157, 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

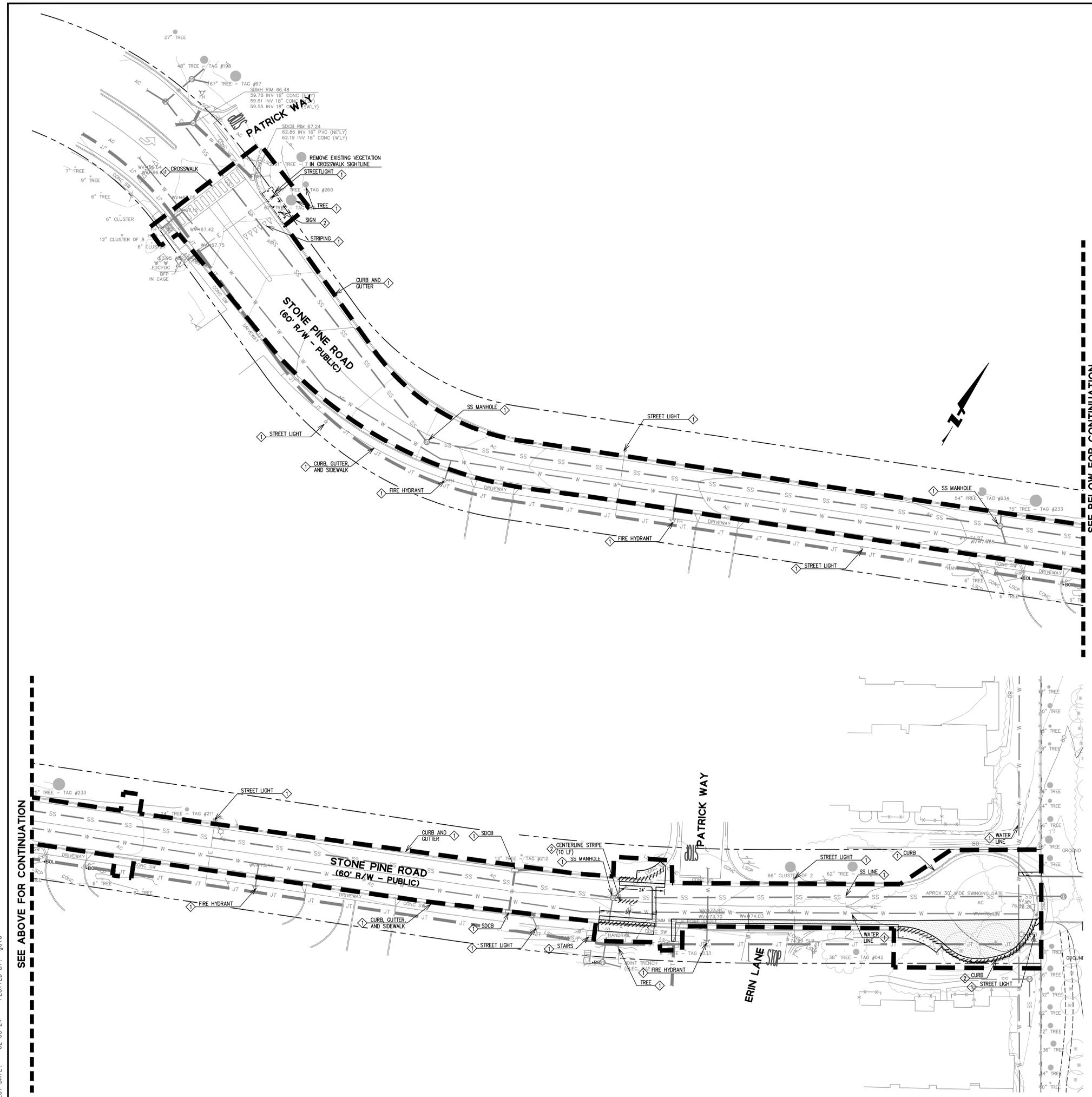
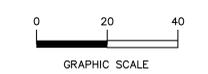
RECORD DISTANCES PER (R3) ARE GRID DISTANCES IN METERS. (R3 #n) DENOTES DISTANCE MATCHING RECORD CONVERTED FROM GRID METERS TO GROUND U.S. SURVEY FEET. TO OBTAIN GROUND DISTANCES IN METERS, MULTIPLY (R3) GRID DISTANCES BY 1.00005903, AS STATED ON (R3). TO OBTAIN GROUND DISTANCES IN U.S. SURVEY FEET, MULTIPLY GROUND DISTANCES IN METERS BY THE CONVERSION FACTOR OF (39.37/1200).

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 EROSION CONTROL, 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
 - EXISTING LANDSCAPED AREAS
 - EXISTING AC PAVING
 - EXISTING UTILITY OR CURB/WALL TO BE DEMOLISHED AND REMOVED
 - TO REMAIN, PROTECT IN PLACE
 - TO BE REMOVED
- 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.
- 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.
- (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 SAW CUT WITH A CLEAN EDGE.



SEE BELOW FOR CONTINUATION

SEE ABOVE FOR CONTINUATION

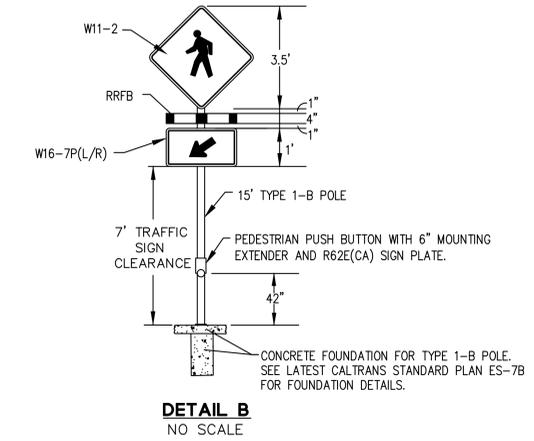
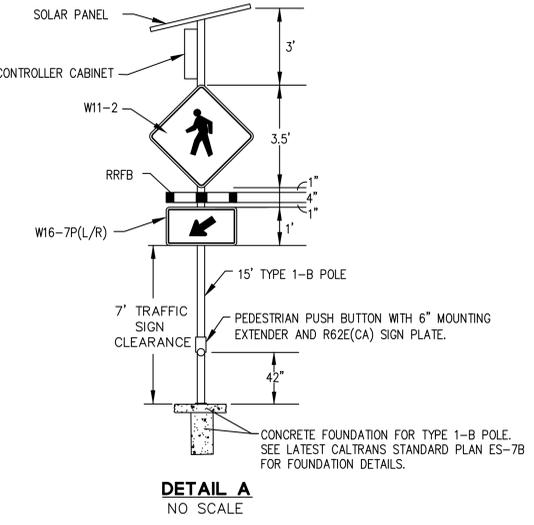
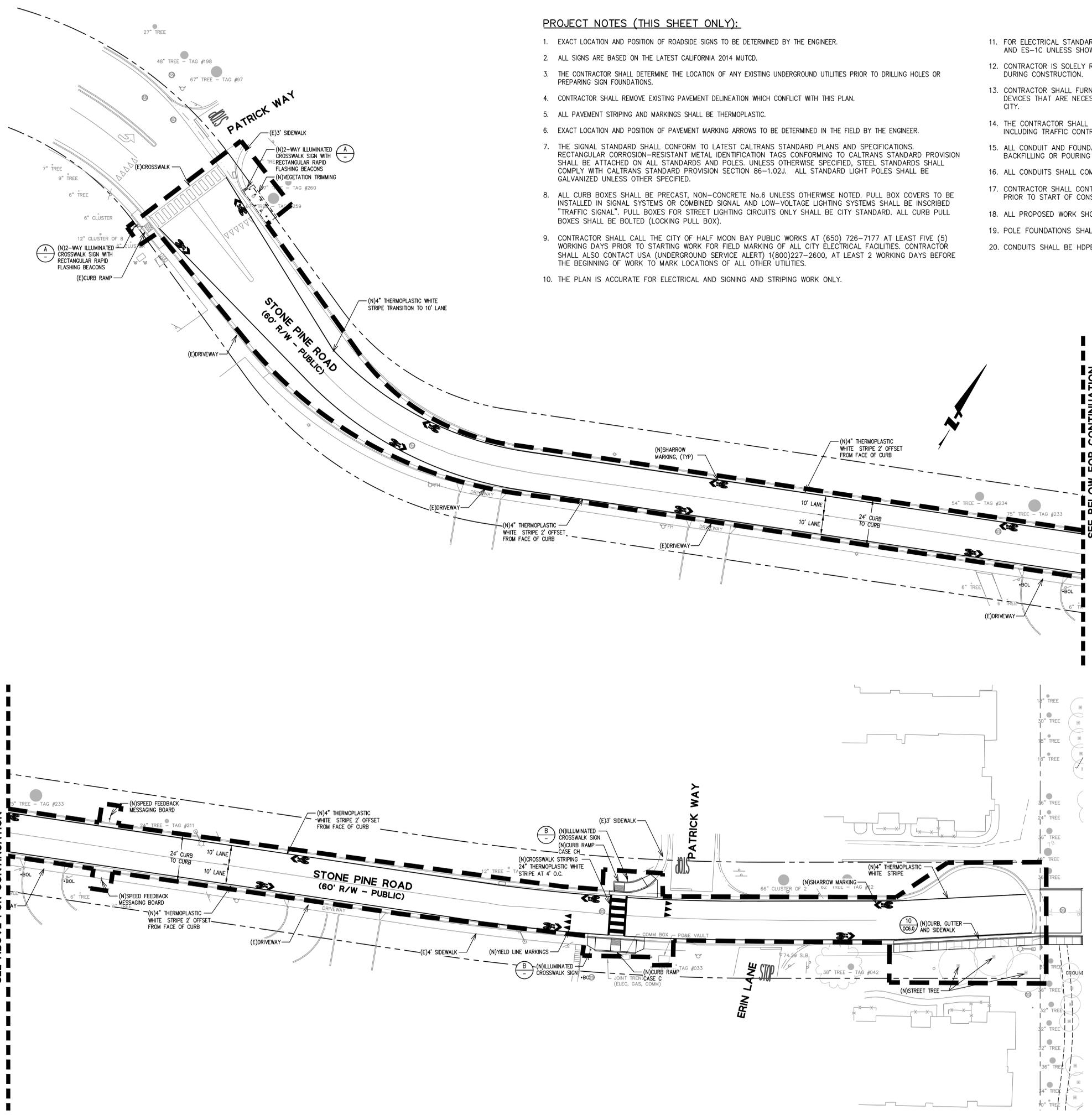
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 PLOTTED BY: gold

Date	No.	Revisions
01/26/2024	1	Scale 1" = 20'
		Design D/P
		Drawn DLG
		Approved DJL
		Lab. No. 22011387-15

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.



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 PLOT DATE: 02-08-24
 PLOTTED BY: gold





Date	No.	Revisions
01/26/2024	1	Scale 1" = 20'
02-08-24	2	Design D&P
	3	Drawn DLG
	4	Approved DJL
	5	Lab. No. 20211387-15

GRADING NOTES:

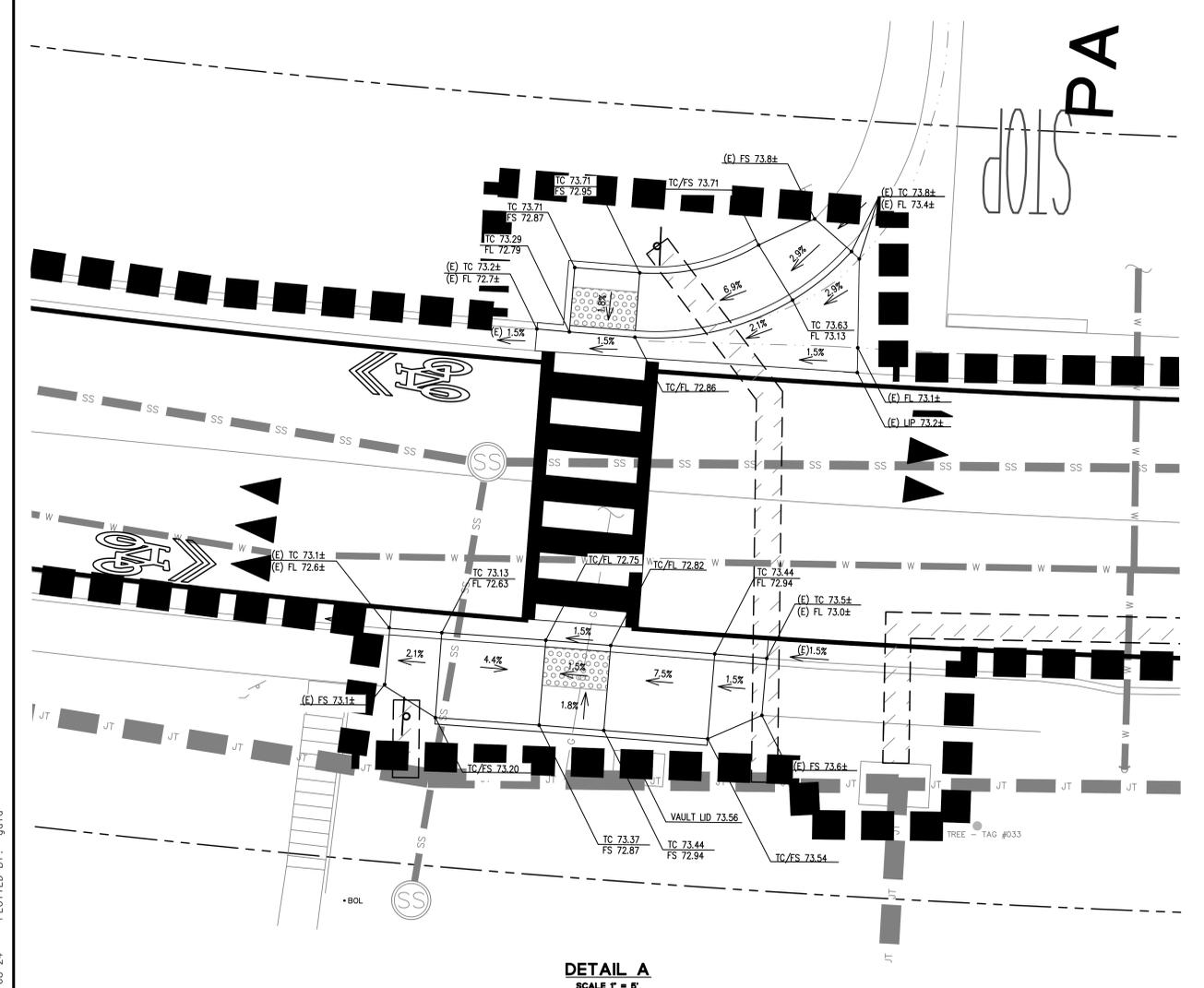
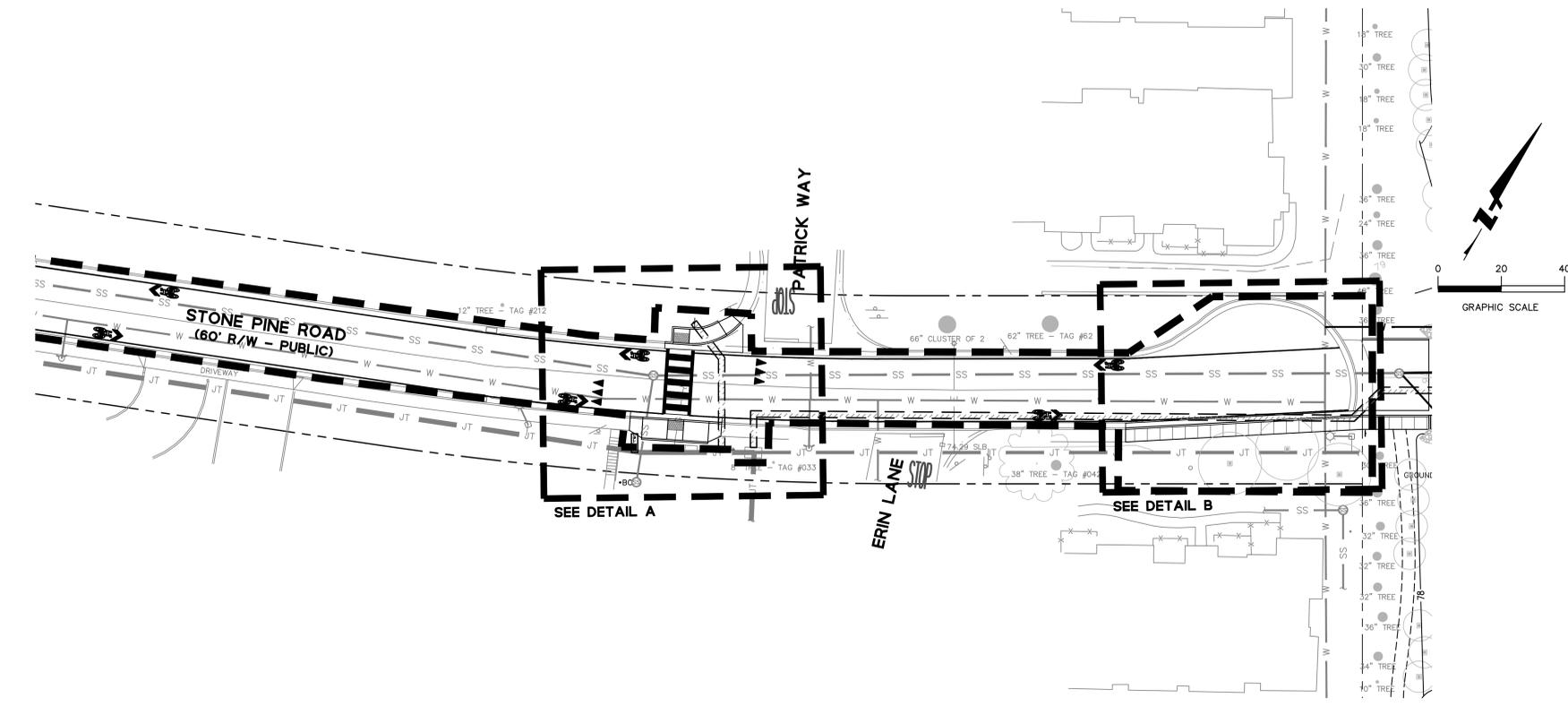
- PROVIDE POSITIVE SURFACE DRAINAGE AWAY FROM ALL STRUCTURES BY SLOPING THE FINISHED GROUND SURFACE AT 5% FOR A DISTANCE OF 10', WHERE POSSIBLE, UNLESS OTHERWISE NOTED ON THE PLANS.
- CONTRACTOR TO VERIFY ALL CONTROLLING DIMENSIONS PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL DETERMINE EARTHWORK QUANTITIES 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.
- 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.
- IMPORT SOILS SHOULD MEET THE REQUIREMENTS OF THE SOILS REPORT AND SPECIFICATIONS.
- COORDINATE THE PLACEMENT OF ALL SLEEVES FOR LANDSCAPE IRRIGATION (WATER AND CONTROL WIRING) AND SITE LIGHTING PRIOR TO THE PLACEMENT OF ANY ASPHALT, BASECOURSE OR CONCRETE SURFACING. SEE LANDSCAPING AND SITE ELECTRICAL DRAWINGS.
- DO NOT ADJUST GRADES ON THIS PLAN WITHOUT PRIOR WRITTEN APPROVAL OF THE ENGINEER/ARCHITECT.
- 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.
- 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.
- 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.
- 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.
- 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.
- DISTURBED AREAS OF THE SITE SHOULD BE STABILIZED DURING THE RAINY SEASON USING STRAW MULCH (EC-6) OR WOOD MULCHING (EC-8).
- PERMANENT EROSION CONTROL SHALL BE PROVIDED BY LANDSCAPING SUCH AS SHRUBS, SOD OR MULCH. LANDSCAPE DESIGN MAY BE SUBJECT TO CHANGE.

PAVEMENT/HATCH LEGEND:

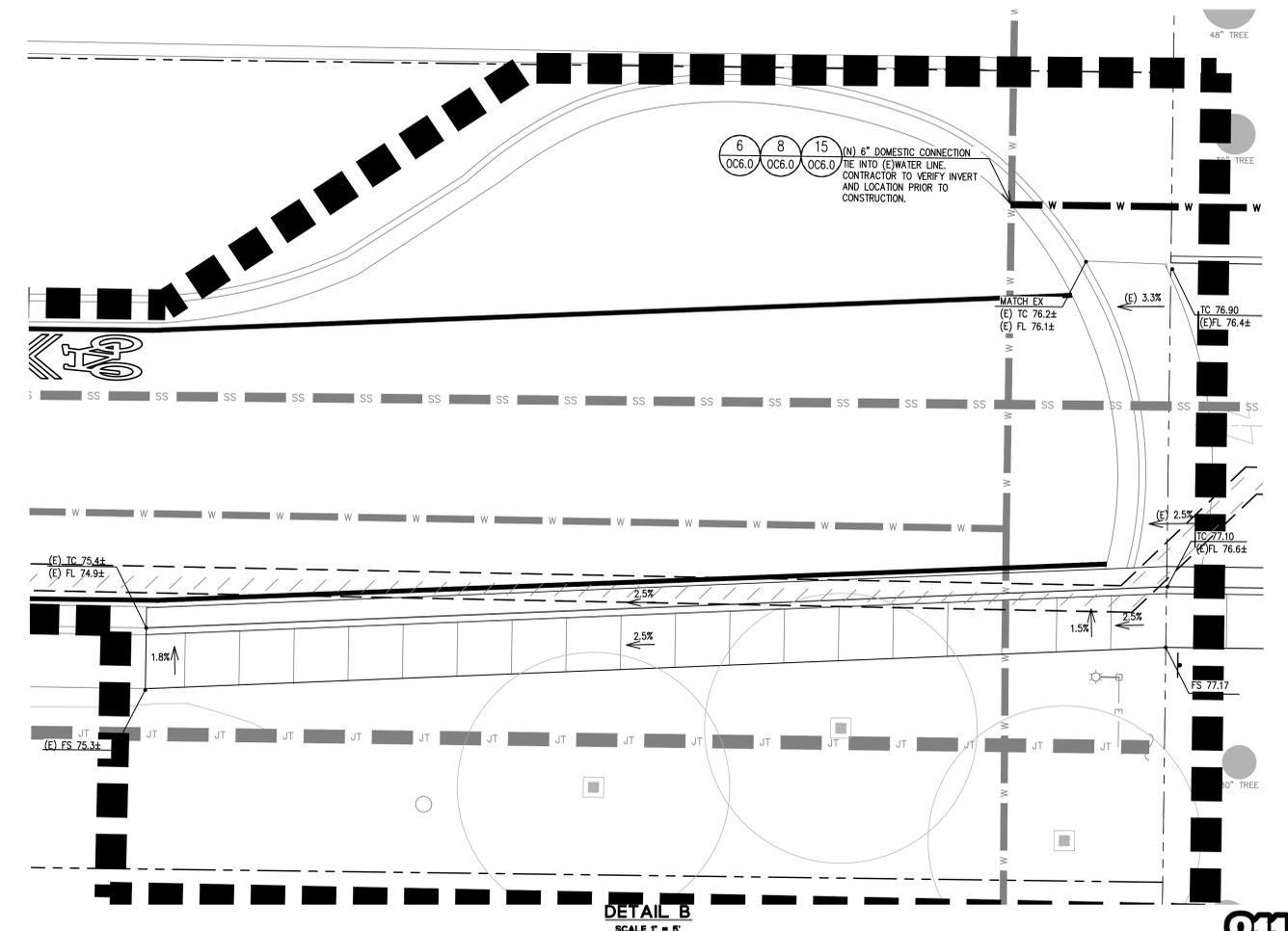
- SEE GEOTECHNICAL REPORT FOR EXACT RECOMMENDATION FOR GRADING OPERATIONS AND OVEREXCAVATION ON-SITE.
- (E) AC PAVING 3" AC PAVING OVER 8" OF CALTRANS CLASS 2 AGGREGATE BASE.
 - AC PAVING DRIVE AISLE - 3" AC PAVING OVER 12" OF CALTRANS CLASS 2 AGGREGATE BASE.
 - CONCRETE PAVING PARKING AREAS - 3" AC 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:

- PAVEMENT SECTION TO BE PER CITY OF HALF MOON BAY STANDARD DETAILS.
- COLOR AND FINISH OF CONCRETE TO BE PER CITY OF HALF MOON BAY STANDARD DETAILS.



DETAIL A
SCALE 1" = 5'



DETAIL B
SCALE 1" = 5'

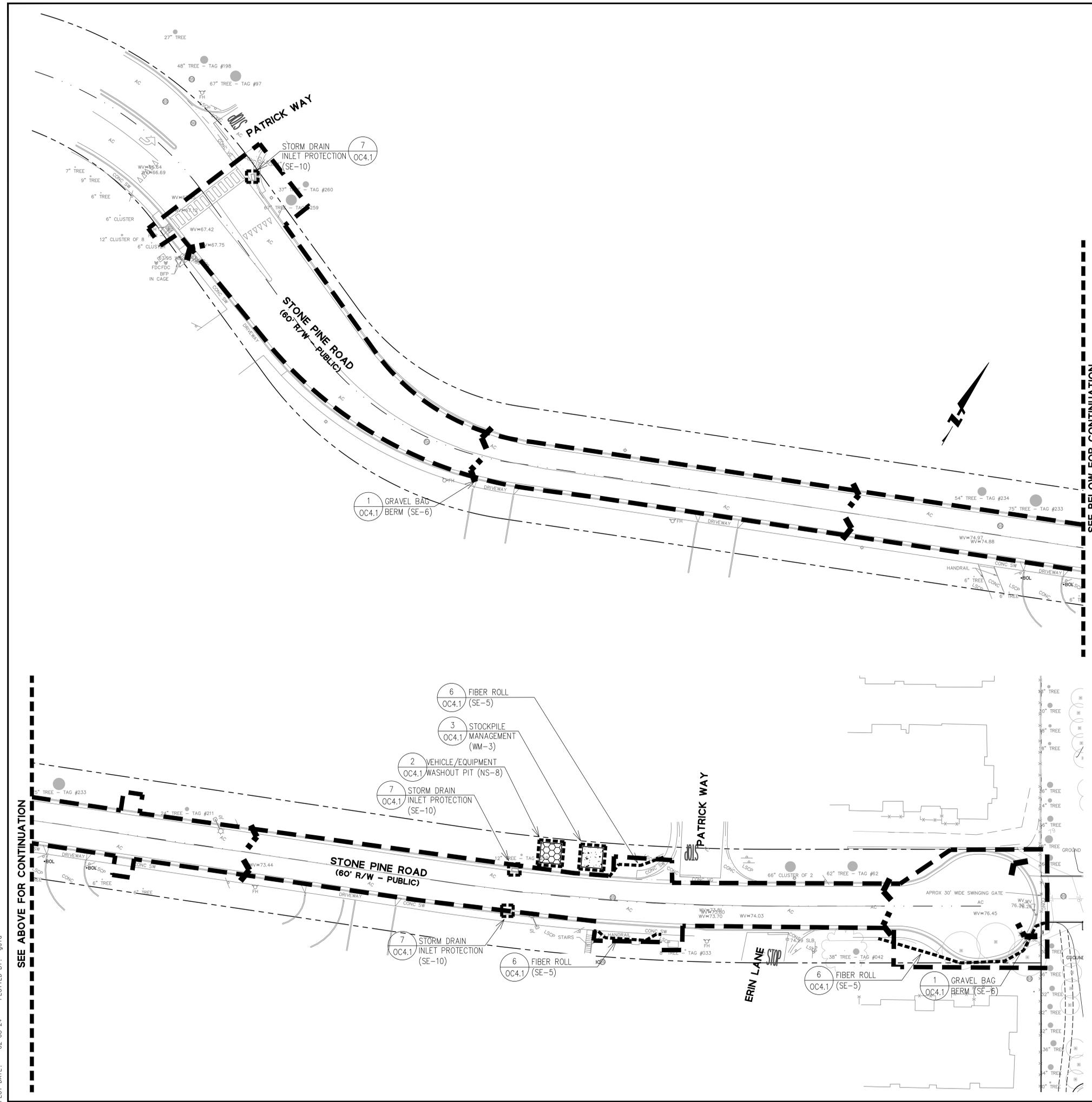
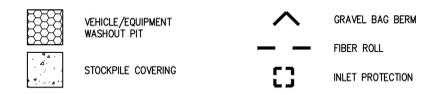
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 PLOT DATE: 02-08-24
 PLOTTED BY: gold

Date	No.	Revisions
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		Design D/P
		Drawn DLG
		Approved DJL
		Lab. No. 20211397-15
Drawing Number: OC4.0		

PERMANENT EROSION/SEDIMENT CONTROLS:

- CONTRACTOR SHALL PROVIDE POST-CONSTRUCTION PERMANENT EROSION/SEDIMENT CONTROL THROUGHOUT THE SITE IN THE FORM OF FINISH LANDSCAPING.
- 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.
- ALL DISTURBED GROUND SURFACES SHALL BE STABILIZED UPON COMPLETION OF CONSTRUCTION ACTIVITIES.
- 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.
- LANDSCAPING PROPOSED SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH THE CALIFORNIA MODEL WATER EFFICIENT LANDSCAPE ORDINANCE.
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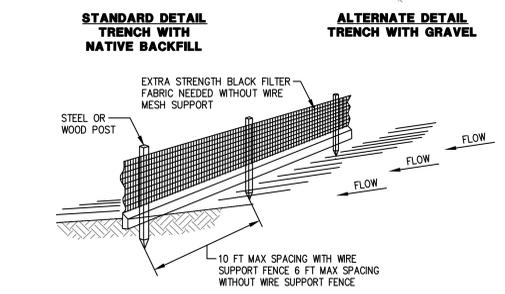
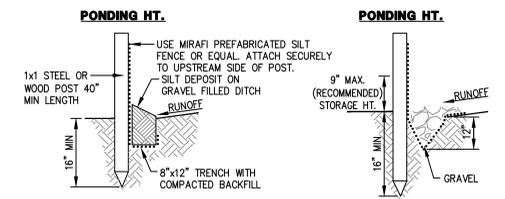
EROSION CONTROL LEGEND:



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PLOT DATE: 02-08-24
PLOTTED BY: gold

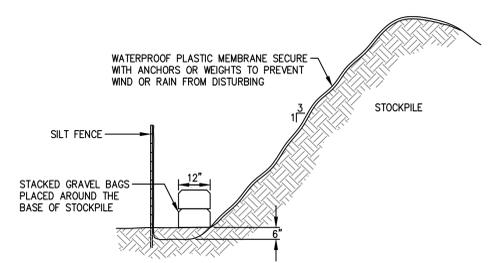


No.	Date	Revisions

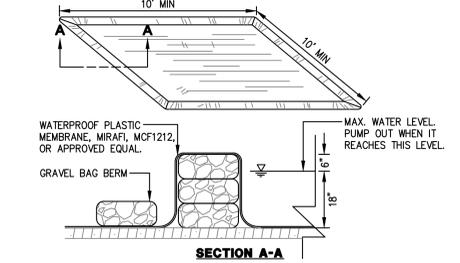


NOTES:
 1. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.
 2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
 3. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.

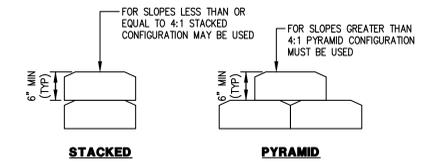
5 SILT FENCE
 NTS



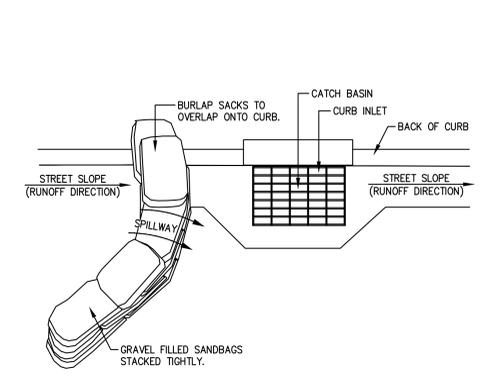
3 STOCKPILE COVERING
 NTS



2 VEHICLE/EQUIPMENT WASHOUT PIT
 NTS

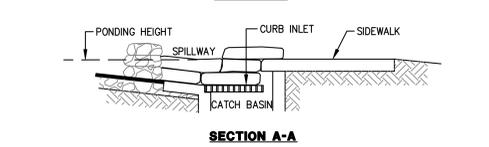
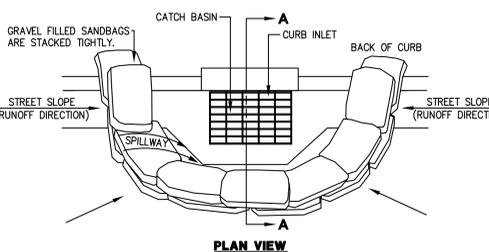


1 GRAVEL BAG BERM
 NTS



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.

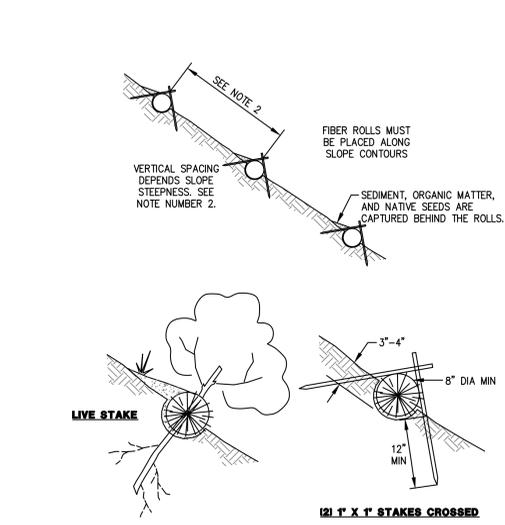
CURB INLET SEDIMENT BARRIER - CONTINUOUS GRADE



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

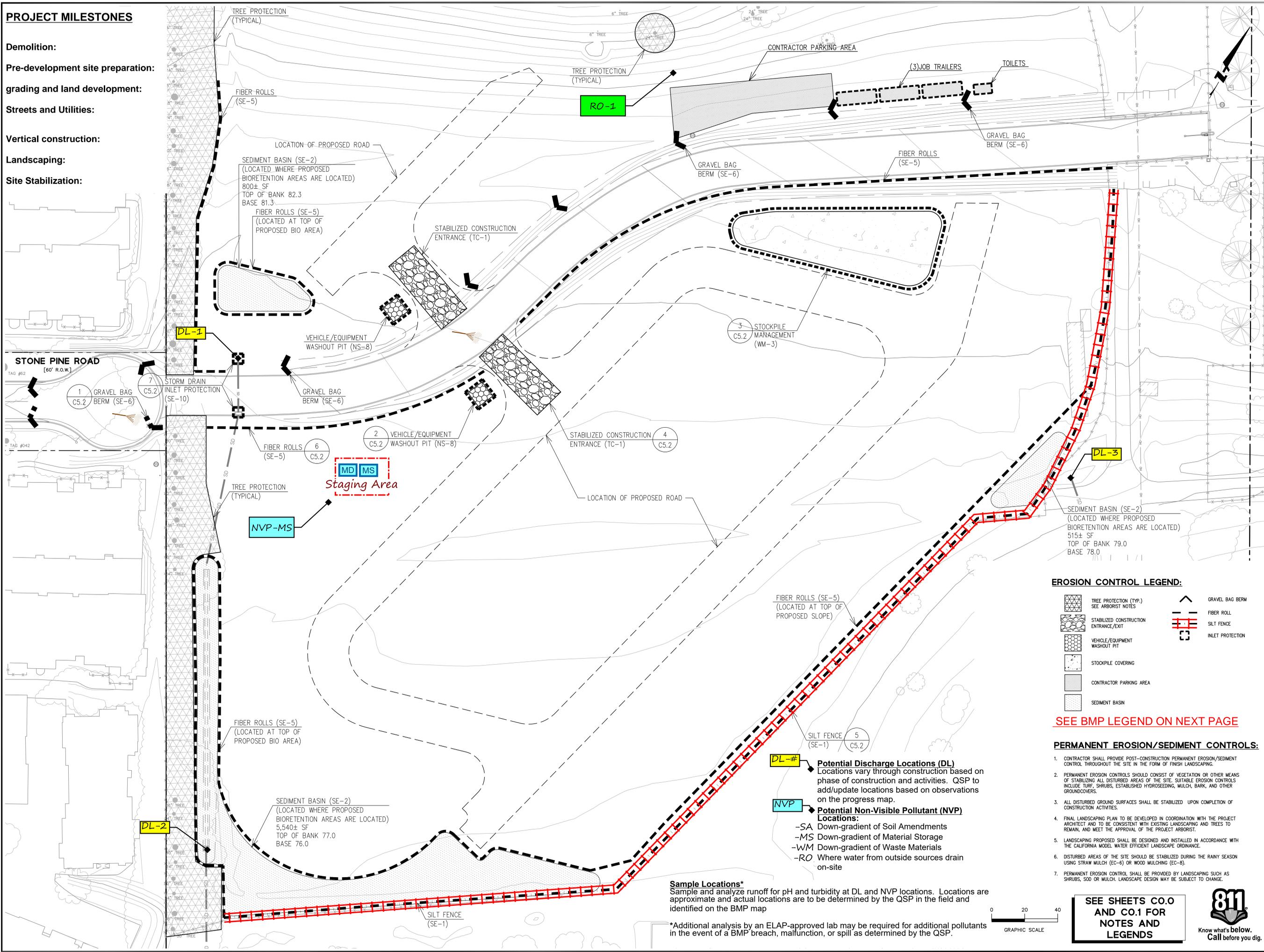


6 FIBER ROLL
 NTS

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.
 2. 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
 3. INSPECT AND REPAIR FIBER ROLLS AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.
 4. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.

PROJECT MILESTONES

- Demolition:**
- Pre-development site preparation:**
- grading and land development:**
- Streets and Utilities:**
- Vertical construction:**
- Landscaping:**
- Site Stabilization:**



EROSION CONTROL LEGEND:

	TREE PROTECTION (TYP.) SEE ARBORIST NOTES		GRAVEL BAG BERM
	STABILIZED CONSTRUCTION ENTRANCE/EXIT		FIBER ROLL
	VEHICLE/EQUIPMENT WASHOUT PIT		SILT FENCE
	STOCKPILE COVERING		INLET PROTECTION
	CONTRACTOR PARKING AREA		
	SEDIMENT BASIN		

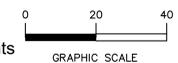
SEE BMP LEGEND ON NEXT PAGE

PERMANENT EROSION/SEDIMENT CONTROLS:

- CONTRACTOR SHALL PROVIDE POST-CONSTRUCTION PERMANENT EROSION/SEDIMENT CONTROL THROUGHOUT THE SITE IN THE FORM OF FINISH LANDSCAPING.
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- PERMANENT EROSION CONTROL SHALL BE PROVIDED BY LANDSCAPING SUCH AS SHRUBS, SOO OR MULCH. LANDSCAPE DESIGN MAY BE SUBJECT TO CHANGE.

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.



SEE SHEETS CO.0 AND CO.1 FOR NOTES AND LEGENDS



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PLOT DATE: 02-08-24 PLOTTED BY: gold

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SUITE 200
SAN MATEO CITY, CA 94065
(650) 482-4500
www.bkf.com

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CALIFORNIA

Contractor Activities and BMP Map
STONE PINE COVE
880 STONE PINE ROAD
SAN MATEO COUNTY

HALF MOON BAY

Date	Scale	Design	Drawn	Approved	Lab. No.
	1" = 20'				20211367-15



Erosion Control

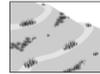
EC-1 Scheduling



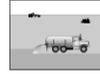
EC-2 Preservation of (E) vegetation



EC-3 Hydraulic mulch



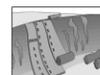
EC-4 Hydroseeding



EC-5 Soil binders



EC-6 Straw mulching



EC-7 Geotextiles and mats



EC-8 Wood mulching



Non-Stormwater Management

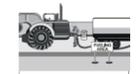
NS-1 Water conservation practices



NS-2 Dewatering operations



NS-8 Vehicle and equipment washing



NS-9 Vehicle equipment fueling

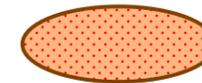


NS-10 Vehicle equipment maintenance

Waste Management



WM-1 Material delivery and storage



WM-3 Stockpile management



WM-4 Spill prevention



WM-5 Solid waste management



WM-8 Concrete waste management



WM-9 Sanitary and septic waste management

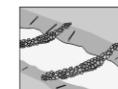
Sediment Control



SE-1 Silt fences



SE-3 Sediment Trap



SE-4 Check dams



SE-5 Fiber rolls



SE-6 Gravel bag berm



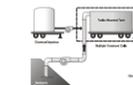
SE-7 Street Sweeping and Vacuuming



SE-8 A sandbag barrier



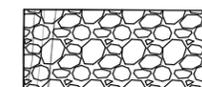
SE-10 Storm drain inlet protection



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

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)

<input type="checkbox"/> Small Single-Family Home Project (<10,000 sq. ft. of created and/or replaced impervious surface ¹)	# of units:	
<input type="checkbox"/> Large Single-Family Home Project (≥10,000 sq. ft. of created and/or replaced impervious surface ¹)	# of units:	
<input type="checkbox"/> Subdivision - Residential: Two or more lot development ²	# of units:	
<input checked="" type="checkbox"/> Multi-Family Residential	# of units:	47
<input type="checkbox"/> Commercial	# of units:	
<input type="checkbox"/> Industrial, Manufacturing	# of units:	
<input type="checkbox"/> Mixed-Use	# of units:	
<input type="checkbox"/> New, widened or reconstructed roads related to parcel-based projects ³	# of units:	
<input type="checkbox"/> Stand-alone pavement maintenance or construction work, or similar work related to parcel-based projects ³	# of units:	
<input type="checkbox"/> Other redevelopment project as defined by MRP: creating, adding and/or replacing exterior existing impervious surface on a site where past development has occurred.	# of units:	
<input type="checkbox"/> Institutional: schools, libraries, jails, etc.	# of units:	
<input checked="" type="checkbox"/> Parks and trails, camp grounds, other recreational	# of units:	
<input type="checkbox"/> Kennels, Ranches	# of units:	
<input type="checkbox"/> Other, Please specify	# of units:	

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)

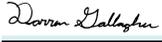
I.A.4 Total Area of land disturbed during construction: 244,560 square feet
 (Include all project on-site and off-site areas of clearing, grading, excavating and stockpiling)

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:		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 development².

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. 7/1/23

I.B Is the project a “C.3 Regulated Project” per MRP Provision C.3.b? (Use table below to make determination.) SI2024-00001
880 STONE PINE RD
03/04/2024

I.B.1 Enter the amount of Impervious surface Retained, Replaced or Created⁵ by the project (use DMA Table in Worksheet D)

Table I.B.1 Impervious⁶ and Pervious⁶ Surfaces (Match DMA Summary Table in Worksheet D, if applicable)

Impervious Surfaces (IS) (e.g., sidewalks, driveways, parking areas, patios, roads, rooftops, pools, pathways, etc.)	Pre-Project	Post-Project			
	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)	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				84,120
Total Project Area (should be equal to I.A.1)	244,560	50% Rule Calculation			244,560
		I.B.1.h	20%		

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		Attach Worksheet
		Yes	No	
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	<input checked="" type="checkbox"/>	<input type="checkbox"/>	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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	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	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
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	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	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	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	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	<input type="checkbox"/>	<input checked="" type="checkbox"/>	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)	<input type="checkbox"/>	<input type="checkbox"/>	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

Worksheet A

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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)	
<input checked="" type="checkbox"/>	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.	
<input checked="" type="checkbox"/>	C5.1, C5.2, C5.3	Store, handle, and dispose of construction materials/wastes properly to prevent contact with stormwater.	
<input checked="" type="checkbox"/>	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.	
<input checked="" type="checkbox"/>	C5.1, C5.2, C5.3	Train and provide instruction to all employees/subcontractors re: construction BMPs.	
<input checked="" type="checkbox"/>	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.	
<input checked="" type="checkbox"/>	C5.1, C5.2, C5.3	Limit construction access routes and stabilize designated access points.	
<input checked="" type="checkbox"/>	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.	
<input checked="" type="checkbox"/>	C5.1, C5.2, C5.3	Use temporary erosion controls to stabilize all denuded areas until permanent erosion controls are established.	
<input checked="" type="checkbox"/>	C5.1, C5.2, C5.3	Delineate with field markers clearing limits, easements, setbacks, sensitive or critical areas, buffer zones, trees, and drainage courses.	
<input checked="" type="checkbox"/>	C5.1, C5.2, C5.3	Provide notes, specifications, or attachments describing the following: <ul style="list-style-type: none"> ■ 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. 	
<input checked="" type="checkbox"/>	C5.1, C5.2, C5.3	Perform clearing and earth moving activities only during dry weather.	
<input checked="" type="checkbox"/>	C5.1, C5.2, C5.3	Use sediment controls or filtration to remove sediment when dewatering and obtain all necessary permits.	
<input checked="" type="checkbox"/>	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.	
<input checked="" type="checkbox"/>	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).	
<input checked="" type="checkbox"/>	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

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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)
<input checked="" type="checkbox"/>	C1.2	Storm Drain	Mark on-site inlets with the words “No Dumping! Flows to Bay” or equivalent.
<input type="checkbox"/>		Floor Drains	Plumb interior floor drains to sanitary sewer [or prohibit].
<input type="checkbox"/>		Parking garage	Plumb interior parking garage floor drains to sanitary sewer. ⁸
<input checked="" type="checkbox"/>	L2.0, L2.1	Landscaping	<ul style="list-style-type: none"> ■ Retain existing vegetation as practicable. ■ Follow ReScope (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.
<input type="checkbox"/>		Pool/Spa/Fountain	Provide connection to the sanitary sewer to facilitate draining. ⁸
<input type="checkbox"/>		Food Service Equipment (non-residential)	Provide sink or other area for equipment cleaning, which is: <ul style="list-style-type: none"> ■ 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.
<input type="checkbox"/>		Refuse Areas	<ul style="list-style-type: none"> ■ 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
<input type="checkbox"/>		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
<input type="checkbox"/>		Outdoor Equipment/Materials Storage	<ul style="list-style-type: none"> ■ 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 sewer⁸, and contain by berms or similar.
<input type="checkbox"/>		Vehicle/ Equipment Cleaning	<ul style="list-style-type: none"> ■ Roofed, pave and berm wash area to prevent stormwater run-on and runoff, plumb to the sanitary sewer⁸, and sign as a designated wash area. ■ Commercial car wash facilities shall discharge to the sanitary sewer.⁸
<input type="checkbox"/>		Vehicle/ Equipment Repair and Maintenance	<ul style="list-style-type: none"> ■ 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
<input type="checkbox"/>		Fuel Dispensing Areas	<ul style="list-style-type: none"> ■ 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.
<input type="checkbox"/>		Loading Docks	<ul style="list-style-type: none"> ■ 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.
<input type="checkbox"/>		Fire Sprinklers	Design for discharge of fire sprinkler test water to landscape or sanitary sewer. ⁸
<input type="checkbox"/>		Miscellaneous Drain or Wash Water	<ul style="list-style-type: none"> ■ 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
<input type="checkbox"/>		Architectural Copper Rinse Water	<ul style="list-style-type: none"> ■ Drain rinse water to landscaping, discharge to sanitary sewer⁸, 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
<input type="checkbox"/>		a. Direct roof runoff into cisterns or rain barrels and use rainwater for irrigation or other non-potable use.
<input checked="" type="checkbox"/>	C3.1	b. Direct roof runoff onto vegetated areas.
<input checked="" type="checkbox"/>	C3.1	c. Direct runoff from sidewalks, walkways, and/or patios onto vegetated areas.
<input type="checkbox"/>		d. Direct runoff from driveways and/or uncovered parking lots onto vegetated areas.
<input type="checkbox"/>		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
<input type="checkbox"/>		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
<input type="checkbox"/>		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;
<input checked="" type="checkbox"/>	C3.1	h. Conserve natural areas, including existing trees, other vegetation and soils.
<input checked="" type="checkbox"/>	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
<input type="checkbox"/>		j. Self-treating area (see Section 4.2 of the C.3 Regulated Projects Guide)
<input type="checkbox"/>		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

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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 Project¹¹?	No		of C.3.d amount of runoff treated by Non-LID Systems on the Special Project site.
--------------------------------------	----	--	--

C.3 Regulated?	Yes	
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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 <input type="checkbox"/>	<u>Rainwater Harvesting/Use Measures:</u>
	<input type="checkbox"/> Rainwater Harvesting for indoor non-potable water use
	<input type="checkbox"/> 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

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E-1 Is the project a Hydromodification¹⁷ 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	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	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
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Soils report or other site-specific document showing soil type(s) on site
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If project uses the Bay Area Hydrology Model (BAHM), a list of model inputs and outputs.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	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.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	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).
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	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

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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 district¹⁵;
 - 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 criterion¹⁶ - 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

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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 (TAPE¹⁷). 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 $\geq 5,000$ sq.ft. of land and with steep slopes (of $\geq 15\%$ - 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G-4.2	Was maintenance plan approved?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G-4.3	Was maintenance agreement submitted? (Date executed: _____)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

▶ 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?	<input type="checkbox"/>	<input type="checkbox"/>	
8.2 Was initial inspection of the completed treatment/HM measure(s) conducted? (Date of inspection: _____)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.3 Was maintenance plan submitted? (Date executed: _____)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.4 Was project information provided to staff responsible for O&M verification inspections? (Date provided to inspection staff: _____)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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: _____

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)



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



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

Monica A. Cardenas

QSD Name

Senior Project Engineer

Title and Affiliation

255 Shoreline Drive, Suite 200
Redwood City, CA 94065

Address

Date

28484

QSD Certificate Number

408-467-9168

Telephone

mcardenas@bkf.com

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 chinks, 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)	<i>Weekly Complete Parts I,II,III and VII</i>	Pre-Qualifying Precipitation Event (QPE) <i>Complete Parts I,II,III,IV and VII</i>	During QPE <i>Complete Parts I, II, III, V, and VII</i>	Post-QPE <i>Complete Parts I,II,III,VI and VII</i>	<i>Inactive Project Complete Parts I,II,III and VII</i>
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 and 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 that 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
- Sediment Control BMPs
- Non-Stormwater Management BMPs
- BMP Implementation Activities
- Identification of QSPs and QSP Delegates
- Erosion Control BMPs
- Tracking Control
- Waste Management & Pollution Control BMPs
- Advanced BMPs

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
<input type="checkbox"/> Roles and Responsibilities		
<input type="checkbox"/> Forecast Information		
<input type="checkbox"/> Documentation and Reporting Procedures		

Site-Specific Training

Topic	Date Completed	QSP Trainer
<input type="checkbox"/> Visual Inspections		
<input type="checkbox"/> Sample Collection Procedures		
<input type="checkbox"/> Sample Reporting Procedures		
<input type="checkbox"/> 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 ?		Yes	High
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 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		
		<u>Sediment Risk</u>		
<u>Receiving Water Risk</u>		Low	Medium	High
		Low	Level 1	Level 2
High	Level 2		Level 3	

Project Sediment Risk: **Low**
Project RW Risk: **High**
Project Combined Risk: **Level 2**



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.**

- ▶ 303(d) List and TMDLs 2020-2022
- Areas of Special Biological Significance
- Arid and Semi Arid Regions
- California Rainfall Distribution
- Caltrans Districts
- ▶ Caltrans Facilities
- Caltrans Postmiles
- Calwater Watersheds
- Coastal Zone
- Counties
- Geologic Map
- Flood Hazard Areas
- High Risk Receiving Watersheds
- Monthly Precipitation
- MS4 Areas
- RWQCB Boundaries
- ▶ USGS Topo Maps
- Watershed Boundary Dataset
- Wetlands
- ▼ Soil Risk Level Determination
 - Soil Details
 - Erosivity Index
 - Soil K Factor**
 - Soil R Factor
 - Soil LS Factor

Soil K-Factor: 0.32 □ ×

The soil-erodibility factor (K) represents: (1) the susceptibility of soil or surface material to erosion, (2) the 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, although 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 runoff rates and large runoff volumes. For more information on the Construction General Permit and references for the RUSLE, please visit the SWRCB Construction Stormwater Program.

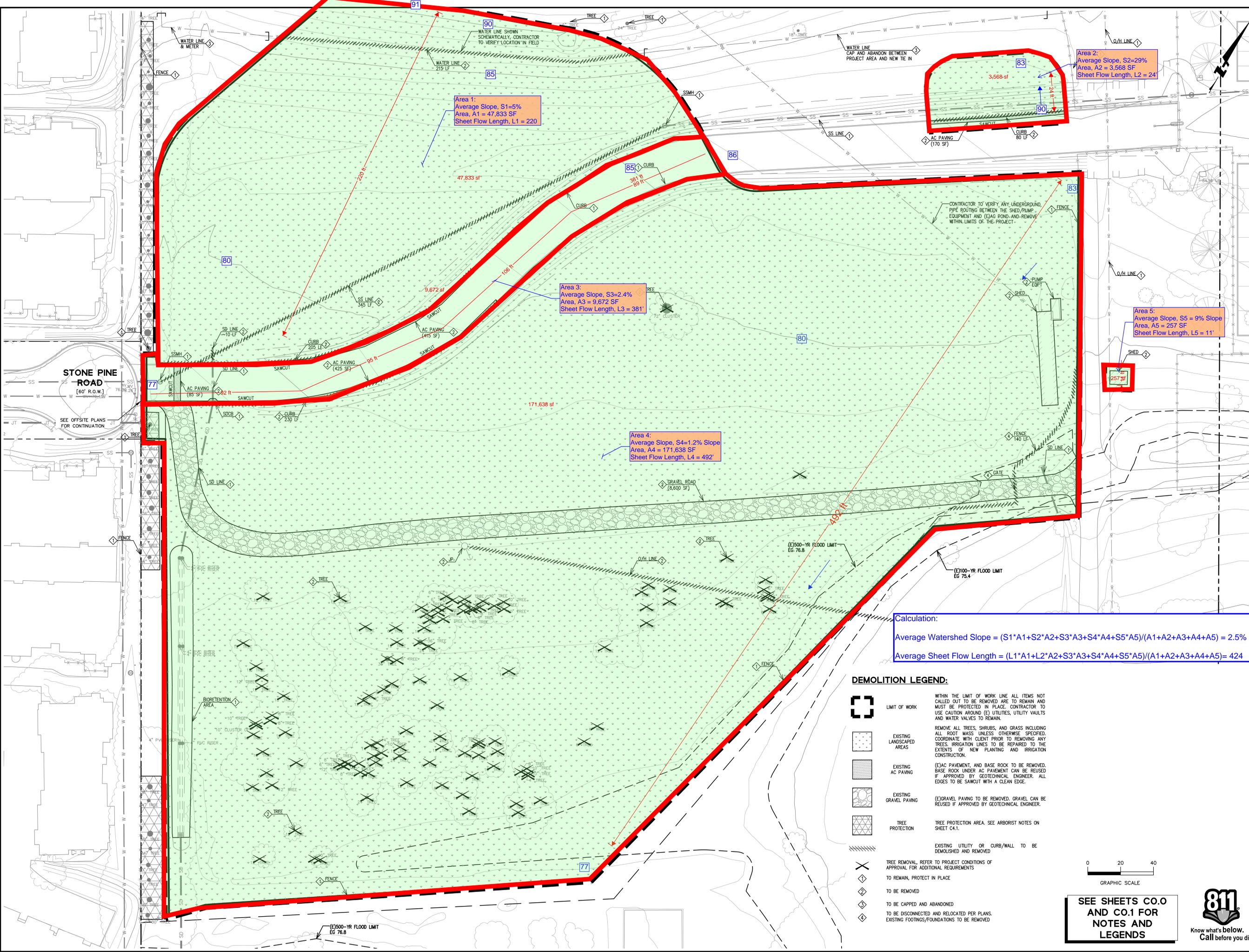
Zoom to

600 ft

Caltrans Postmiles

Date	No.	Revisions
01/26/2024	1	Design D/P
	2	Drawn DLG
	3	Approved DJL
	4	Lab. No. 20211397-15

DRAWING NAME: K:\2021\211367-15_HMB_Corridor_Housing\ENG\lmsheet.s.dwg
 PLOTTED BY: gold



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'

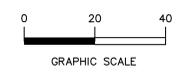
Area 5:
 Average Slope, S5 = 9% Slope
 Area, A5 = 257 SF
 Sheet Flow Length, L5 = 11'

Calculation:
 Average Watershed Slope = $(S1 \cdot A1 + S2 \cdot A2 + S3 \cdot A3 + S4 \cdot A4 + S5 \cdot A5) / (A1 + A2 + A3 + A4 + A5) = 2.5\%$
 Average Sheet Flow Length = $(L1 \cdot A1 + L2 \cdot A2 + L3 \cdot A3 + L4 \cdot A4 + L5 \cdot A5) / (A1 + A2 + A3 + A4 + A5) = 424'$

DEMOLITION LEGEND:

- LIMIT OF WORK
- EXISTING LANDSCAPED AREAS
- EXISTING AC PAVING
- EXISTING GRAVEL PAVING
- TREE PROTECTION
- EXISTING UTILITY OR CURB/WALL TO BE DEMOLISHED AND REMOVED
- TREE REMOVAL, REFER TO PROJECT CONDITIONS OF APPROVAL FOR ADDITIONAL REQUIREMENTS
- TO REMAIN, PROTECT IN PLACE
- TO BE REMOVED
- TO BE CAPPED AND ABANDONED
- TO BE DISCONNECTED AND RELOCATED PER PLANS. EXISTING FOOTINGS/FOUNDATIONS TO BE REMOVED

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.
 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.
 (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.
 (E)GRAVEL PAVING TO BE REMOVED. GRAVEL CAN BE REUSED IF APPROVED BY GEOTECHNICAL ENGINEER.
 TREE PROTECTION AREA. SEE ARBORIST NOTES ON SHEET C4.1.
 EXISTING UTILITY OR CURB/WALL TO BE DEMOLISHED AND REMOVED



SEE SHEETS C.O.0
 AND C.O.1 FOR
 NOTES AND
 LEGENDS



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 et al.

LS Factor for 3023 Summit Street

Descriptor	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.



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

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 Vicente 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

FREEWAYS AND HIGHWAYS

MAINTENANCE STATIONS

Route Length (miles)

Name Address

1	1.6
35	2.5
92	5.1

PARK & RIDE LOTS

REST AREAS

Name District County Route Post Mile Name District County Route Post Mile

Additional Information

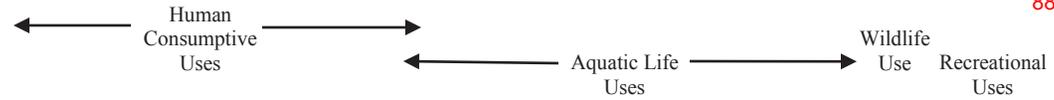
[Help](#) for the Water Quality Planning Tool

[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 Resources



SAN MATEO COASTAL BASIN

COUNTY Waterbody	AGR	MUN	FRSH	GWR	IND	PROC	COMM	SHELL	COLD	EST	MAR	MIGR	RARE	SPWN	WARM	WILD	REC-1	REC-2	NAV
<i>SAN FRANCISCO COUNTY</i>																			
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	
<i>SAN MATEO COUNTY</i>																			
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

Risk Level 1, 2, 3 Visual Inspection Field Log Sheet					
Date and Time of Inspection:			Report Date:		
Inspection Type:	<input type="checkbox"/> Weekly	<input type="checkbox"/> Pre Qualifying Precipitation Event (QPE)	<input type="checkbox"/> During QPE	<input type="checkbox"/> Post QPE	<input type="checkbox"/> 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: _____	Estimate storm duration: _____ (hours)	Estimate time since last storm: _____ (days or hours)	Rain gauge reading: _____ (inches)		
(date and time)					
Observations: If yes identify location					
Odors	Yes <input type="checkbox"/>	No <input type="checkbox"/>			
Floating material	Yes <input type="checkbox"/>	No <input type="checkbox"/>			
Suspended Material	Yes <input type="checkbox"/>	No <input type="checkbox"/>			
Sheen	Yes <input type="checkbox"/>	No <input type="checkbox"/>			
Discolorations	Yes <input type="checkbox"/>	No <input type="checkbox"/>			
Turbidity	Yes <input type="checkbox"/>	No <input type="checkbox"/>			
Site Inspections					
Outfalls or BMPs Evaluated			Deficiencies Noted		
(add additional sheets or attached detailed BMP Inspection Checklists)					
Photos Taken:	Yes <input type="checkbox"/>	No <input type="checkbox"/>	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:	<input type="checkbox"/> Stormwater	<input type="checkbox"/> Dewatering Discharge	<input type="checkbox"/> Non-visible pollutant
Field Meter Calibration			
pH Meter ID No./Desc.:		Turbidity Meter ID No./Desc.:	
Calibration Date/Time:		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 <input type="checkbox"/>	No <input type="checkbox"/>	
Floating material	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Suspended Material	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Sheen	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Discolorations	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Turbidity	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Field Meter Calibration			
pH Meter ID No./Desc.:		Turbidity Meter ID No./Desc.:	
Calibration Date/Time:		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 <input type="checkbox"/> pH <input type="checkbox"/> Turbidity <input type="checkbox"/> Other (specify) _____	
Measurement or Analytical Method	<input type="checkbox"/> Field meter (Sensitivity: _____) <input type="checkbox"/> Lab method (specify) _____ (Minimum Level: _____) (MDL: _____)	
Calculated Daily Average	<input type="checkbox"/> pH _____ pH units <input type="checkbox"/> 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	<hr/> (Print Name, Title)	
Signature	<hr/>	

CHAIN-OF-CUSTODY

DATE:

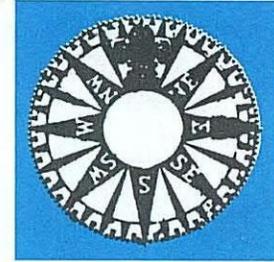
Lab ID:

DESTINATION LAB: ATTN: ADDRESS: Office Phone: Cell Phone: SAMPLED BY: Contact: Project Name						REQUESTED ANALYSIS				Notes:	
Client Sample ID	Sample Date	Sample Time	Sample Matrix	Container							
				#	Type	Pres.					
SENDER COMMENTS:						RELINQUISHED BY					
						Signature:					
						Print:					
						Company:					
						Date:					TIME:
LABORATORY COMMENTS:						RECEIVED BY					
						Signature:					
						Print:					
						Company:					
						Date:					TIME:

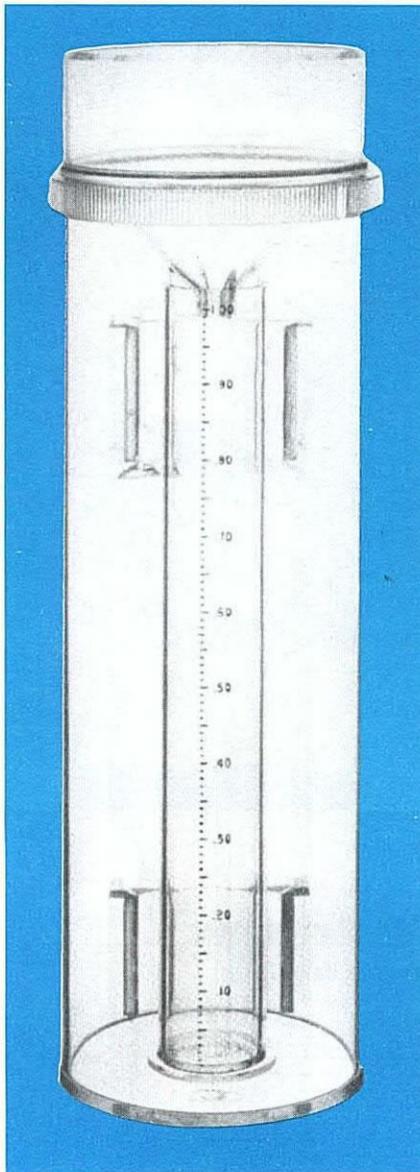
Appendix P: Field Meter Instructions



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.

pHep HI98107 Pocket-sized pH Meter



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.

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

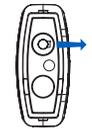
- During user calibration, if the reading is out of the accepted range, the meter will display “---- Err”.
- pH 14.0 or 0.0 blinking means the limit of the measured value is out of range. Verify that the electrode is in solution.
- If the measured temperature is higher than 50.0 °C or lower than 0.0 °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.

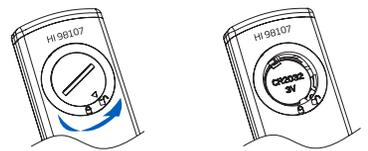
- In case of erroneous readings even after an accurate conditioning and calibration, the reference junction might be contaminated or clogged. Pull out 2 mm (1/8”) of the cloth junction to renew the electrode reference (it is recommended to cut the cloth leaving always at least 2 mm - (1/8”) over the 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.

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:

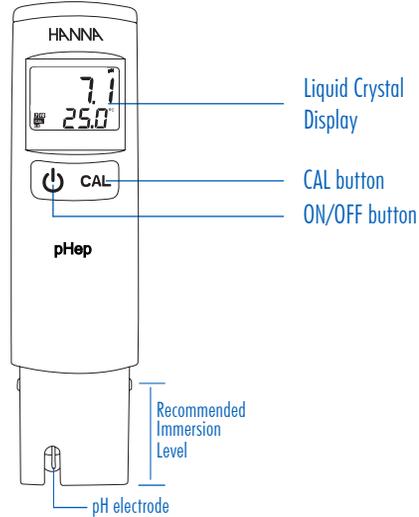
- Do not be alarmed if white crystals appear around the cap. This is normal with pH electrodes and they dissolve when rinsed with water.
- Turn the pH electrode on by pressing ON/OFF button.
- Remove the protective cap and immerse the tip of the electrode in the sample to be tested.
- Stir gently and 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.

Setup
Button



The default settings are: "Set 1" 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 1" 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

Before using Hanna Instruments products, make sure 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

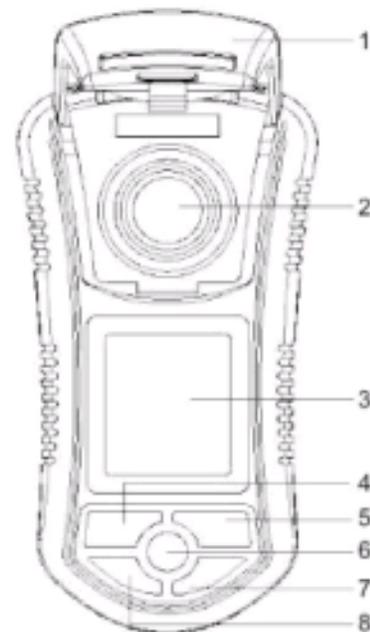
- Place the electrode in buffer pH 7.01, 4.01 or 10.01 buffer. The meter will automatically recognize the buffer value.
- If the buffer is recognized "REC" is displayed until the reading is stable and the calibration is accepted.
- If the buffer is not recognized, the pH electrode is not immersed in 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.

Hanna Instruments reserves the right to modify the design, construction, or appearance of its products without advance notice.

Turbidity Meter

860040

Instruction Manual



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

4

SPER
SCIENTIFIC

Environmental Measurement Instruments

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.

- 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.

- 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.
- 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.

- If the calibration was successful, the screen will stop blinking and display 0.0, indicating that it is ready to test samples.

- Place the sample in the test chamber lining up the two white lines and close the lid.
- Press and hold the **ZERO** button until **ZERO** appears on the LCD and release the button.
- The screen will display 0.0 NTU.
- 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.

- 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.
- Press **HOLD** to return to Normal Mode.

MEASUREMENT PROCEDURES

For Single Point Readings

- Pour test sample into one of the two included sample vials.
- Gently shake the bottle to ensure the sample is properly mixed. If there is sediment in the sample that sinks to the bottom of the vial, the meter will not detect it.
- 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.
- Place the sample vial in the test chamber, lining up the white line on the bottle with the white dot on the meter.
- 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.

- Press the **MIN/MAX** button to enter multi-point mode. **REC** will appear in the upper right hand corner of the meter.
- Prepare the test sample in the included sample vials and ensure they are clean, dry and free of fingerprints.
- Place the test sample in the chamber and close the lid.
- Press the **TEST/CAL** button once. The meter will display the turbidity value of the sample in NTU.

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

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, © 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

REPORT
GEOTECHNICAL ENGINEERING INVESTIGATION
SMC-HMB FARMWORKER HOUSING PROJECT
880 STONE PINE ROAD
HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA

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Plate 4	Regional Fault Map
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Plate 8	Boring Log Notes
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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.

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 7-16¹;
- 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≥6.7 within 30 Years²
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), 1½ inches in B-7 (21½-foot-deep), 2½ inches in B-8 (28½-foot-deep), and ½ 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 ⅓ inch. The estimated seismic compaction in CPT-3 and CPT-5 was negligible; however, we estimated about 1½ 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 ⅓ inch in CPT-2. The estimated seismic compaction was about ½ 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 $\frac{1}{4}$ to $1\frac{1}{2}$ 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 $1\frac{1}{4}$ 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 $1\frac{1}{2}$ 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 $\frac{3}{4}$ -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.

¹National Association of Corrosion Engineers (NACE) Corrosion Basics, page 191.

²Standard Method 2580B.

³For metals encased in concrete, extrapolated from CTM 372.

⁴For 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.
- Boulanger and Idriss, 2014, *CPT and SPT Based Liquefaction Triggering Procedures*, UC Davis, Center for Geotechnical Modeling, Report No. UCD/CGM-14/01.
- Brabb, E.E., Graymer, R.W., and Jones, D.L., 1998, *Geology of the Onshore Part of the San Mateo County, California: a Digital Database*, U.S. Geological Survey Open-File Report 98-137.
- California Code of Regulations, January 2023, *2022 California Building Code (CBC)*, Title 24, Part 2, Volume 2 of 2, California Building Standards Commission, Based on 2021 International Building Code.
- 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*.
- California Geological Survey, 2021, *Earthquake Zones of Required Investigation, Half Moon Bay Quadrangle*.
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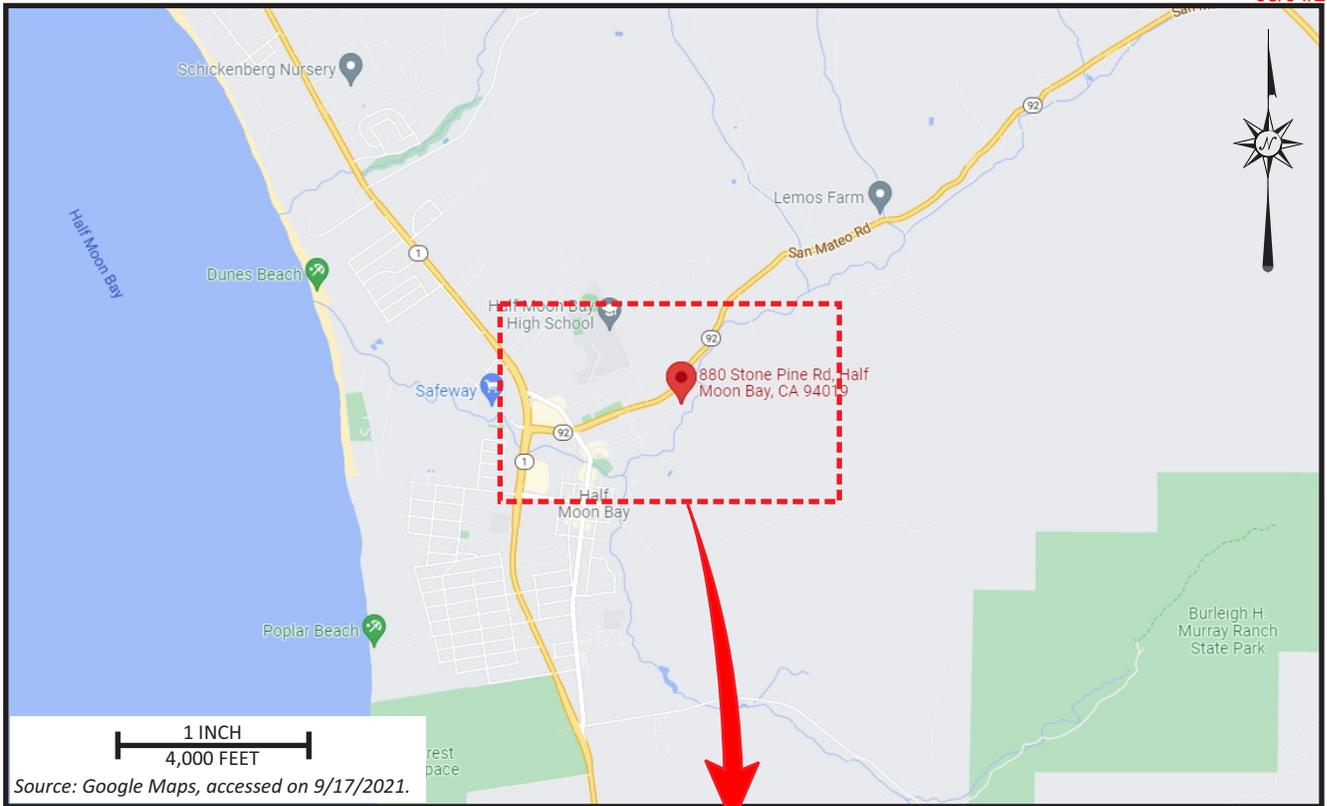
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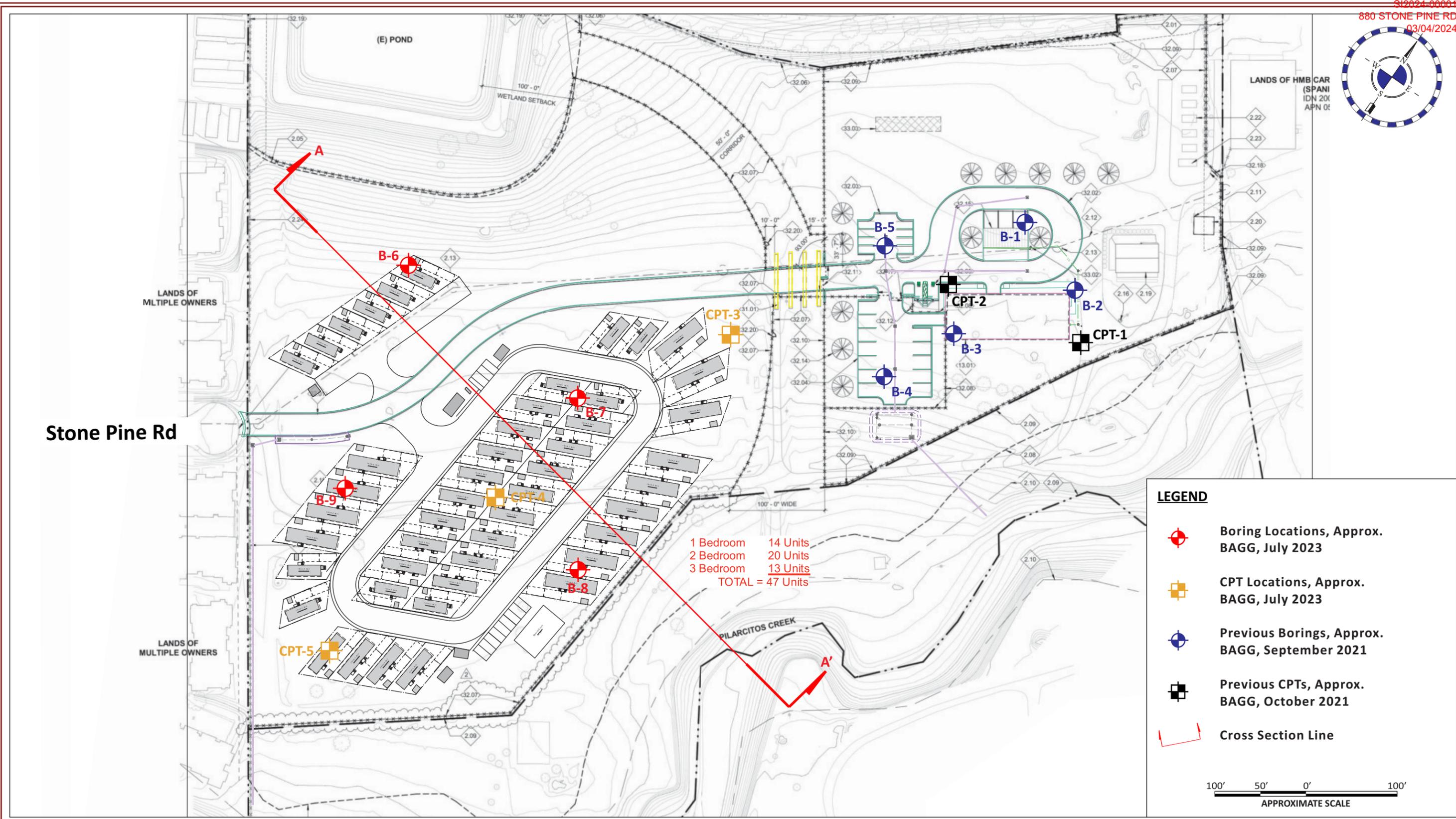
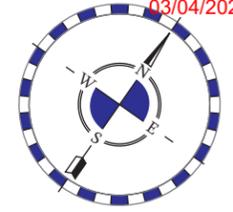
**GEOTECHNICAL ENGINEERING INVESTIGATION
 SMC-HMB FARMWORKER HOUSING PROJECT
 880 STONE PINE ROAD
 HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA**

VICINITY MAP

DATE:
 August 2023

JOB NUMBER:
 COUSM-23-03

PLATE
 1



1 Bedroom 14 Units
2 Bedroom 20 Units
3 Bedroom 13 Units
TOTAL = 47 Units

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

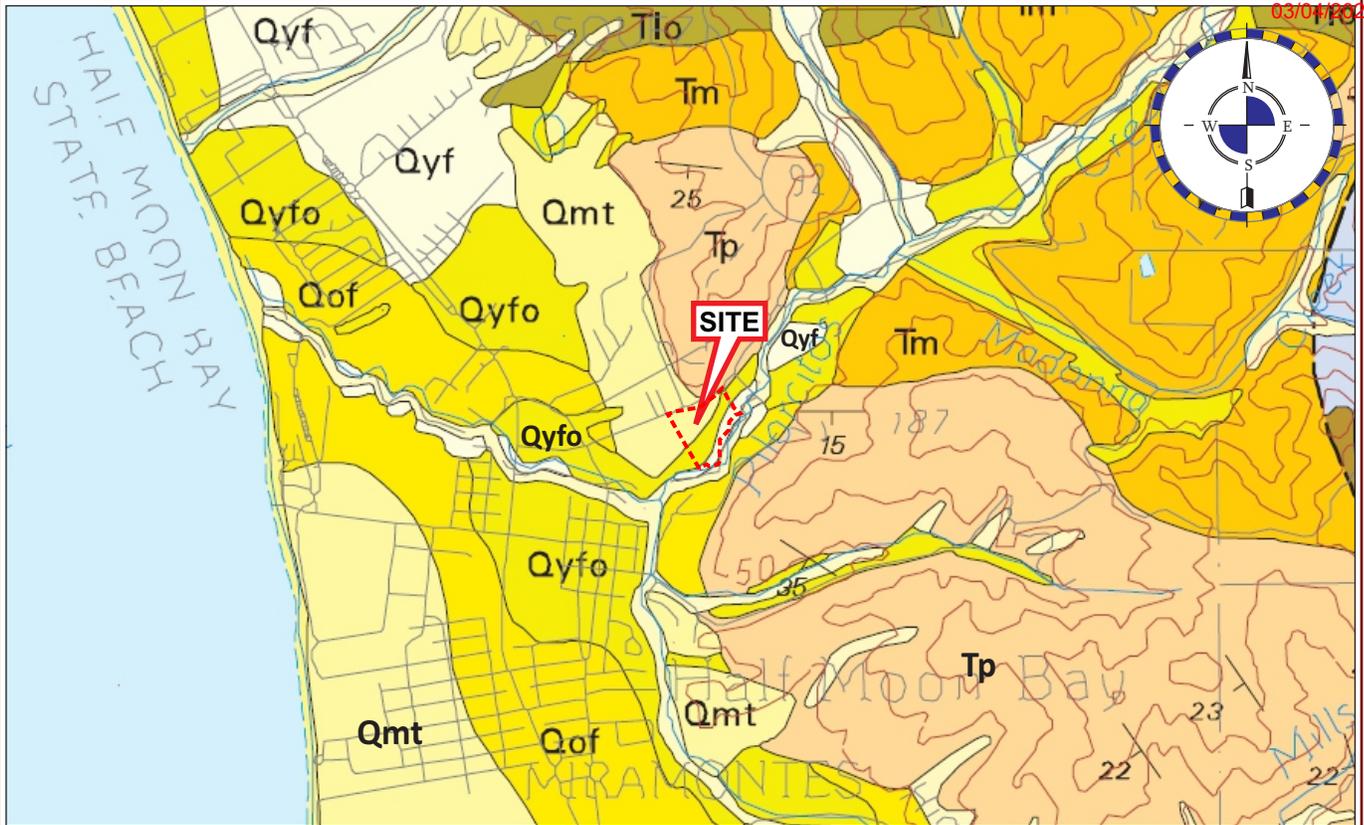
100' 50' 0' 100'
APPROXIMATE SCALE

Base Map:
Conceptual site plan with BKF markups, unsigned, undated.

**GEOTECHNICAL ENGINEERING INVESTIGATION
SMC-HMB FARMWORKER HOUSING PROJECT
880 STONE PINE ROAD
HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA**



SITE PLAN			
PROJECT NO.: COUSM-23-03	SCALE: 1" ≈ 100'	DATE August 2023	PLATE 2

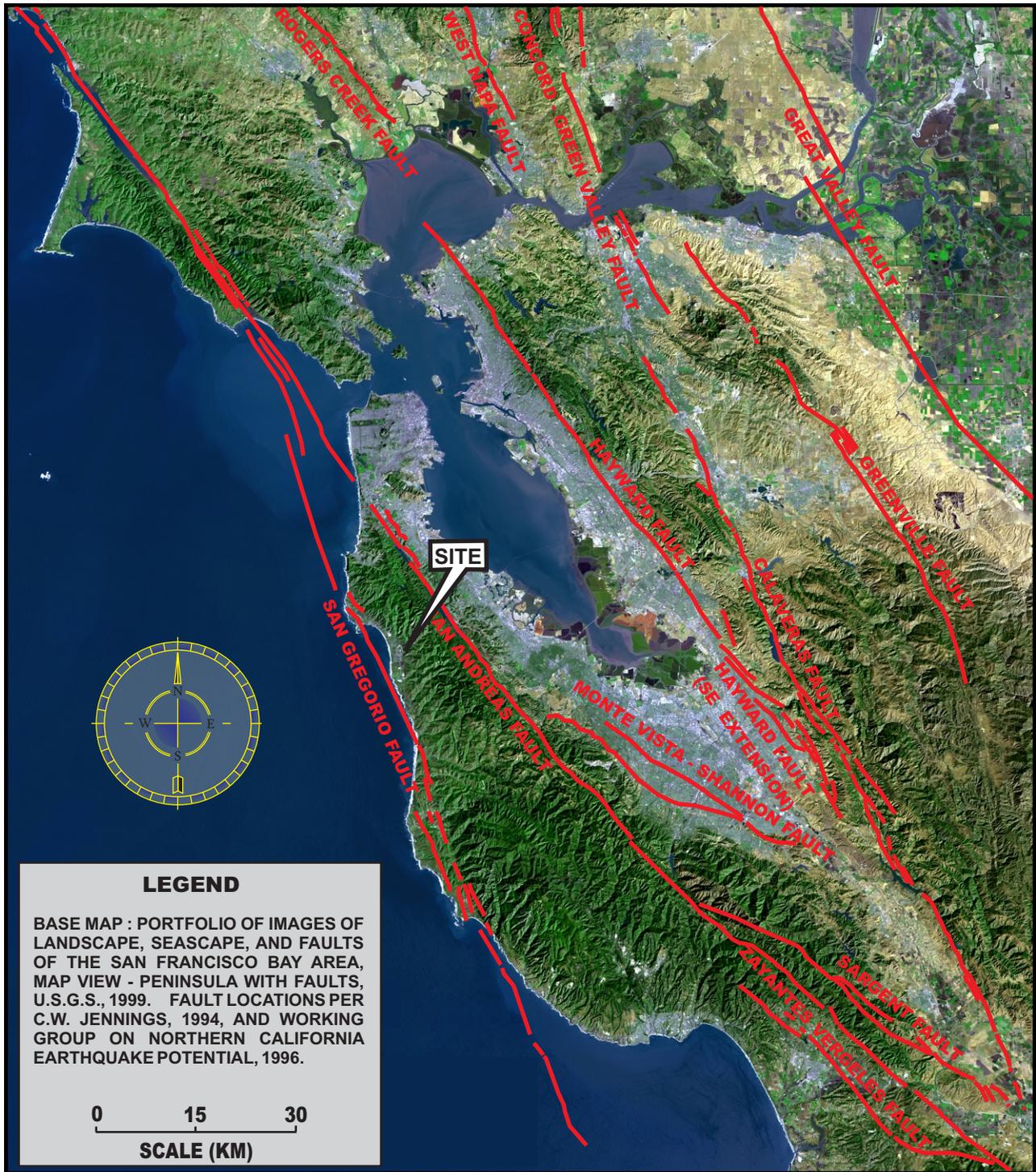


LEGEND

- 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.

GEOTECHNICAL ENGINEERING INVESTIGATION SMC-HMB FARMWORKER HOUSING PROJECT 880 STONE PINE ROAD HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA	AREA GEOLOGIC MAP		
	DATE: August 2023	JOB NUMBER: COUSM-23-03	PLATE: 3



LEGEND

BASE MAP : PORTFOLIO OF IMAGES OF LANDSCAPE, SEASCAPE, AND FAULTS OF THE SAN FRANCISCO BAY AREA, MAP VIEW - PENINSULA WITH FAULTS, U.S.G.S., 1999. FAULT LOCATIONS PER C.W. JENNINGS, 1994, AND WORKING GROUP ON NORTHERN CALIFORNIA EARTHQUAKE POTENTIAL, 1996.

0 15 30
 SCALE (KM)

**GEOTECHNICAL ENGINEERING INVESTIGATION
 SMC-HMB FARMWORKER HOUSING PROJECT
 880 STONE PINE ROAD
 HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA**

REGIONAL FAULT MAP

DATE:
 August 2023

JOB NUMBER:
 COUSM-23-03

PLATE
 4

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

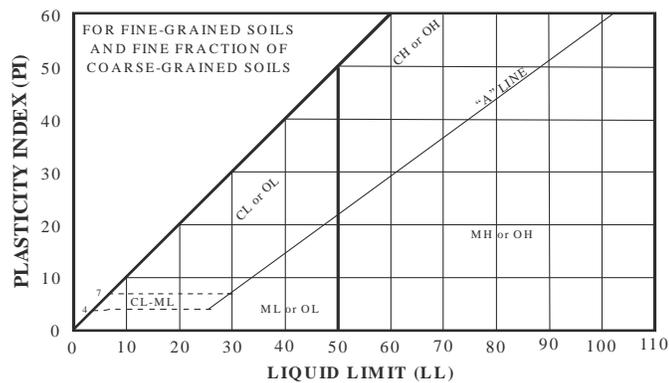
NOTE: Fine-grained soils receive dual symbols if their limits in the hatched zone on the Plasticity Chart(L-M)

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

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
DSX	320	20.3	630	8.6 13.1	105	0		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
DS	400	Nat.	660	13.9	102	3		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
DS	1200	Nat.	760	11.0	99	9		SW-SM	WELL-GRADED SAND with SILT: brown and gray, loose, wet, well-graded sand	5% Fines
DS	2500	Nat.	1730	11.6	95	12		CL	LEAN CLAY: gray-brown with orange-brown mottling, medium stiff, moist, trace fine sand	
DS	1800	Nat.	890	25.1 22.9	102	15		SC	CLAYEY SAND: brown to orange-brown, loose, wet, fine to medium sand	
						18		SM	SILTY SAND: brown, medium dense, wet, fine sand, contains 1" to 2" thick lean clay layers	40% Fines LL=32, PI=11
						18		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	21		CL	... gray-brown, medium dense, wet SANDY LEAN CLAY: dark gray to dark blue-gray, medium stiff, moist, fine sand	Non-Plastic
DS	2600	Nat.	1630	27.1 25.8	98	24		SM	SILTY SAND: gray-brown, medium dense, wet, fine sand ... dark gray to dark blue-gray, medium dense, saturated, fine to medium sand ... about 5" bluish gray fat clay	23% Fines Non-Plastic
				22.4 27.2		30			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.	30% Fines Non-Plastic
						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
DS	320	Nat.	2380	21.1	97	0		SC	CLAYEY SAND: dark gray, medium dense, dry to moist, well-graded sand	Fill?
						CL		SANDY LEAN CLAY: dark gray, very stiff, moist, fine to medium sand, trace organics	Native LL=46, PI=20	
DSX	700	26.3	610	25.8	97	3		SC	CLAYEY SAND: dark brown to brown, medium dense, moist, fine to medium sand	
						CL		SANDY LEAN CLAY: brown, medium stiff, moist, fine to medium sand		
DS	1400	Nat.	1110	17.9	105	6		SM	SILTY SAND: brown to dark brown, medium dense, moist, fine to medium sand	
						DS			3000	Nat.
DS	2000	Nat.	1580	23.0	99	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 ... about 6" of sandy lean clay ... 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
DS	2400	Nat.	1370	24.3	103	21		CL	LEAN CLAY with SAND: dark gray, stiff, moist, little fine sand	
								SM	SILTY SAND: brown to orange-brown, medium dense, moist, fine sand	
									<p>The boring was terminated at approximately 21½ feet bgs.</p> <p>Groundwater was encountered at about 19 feet bgs and was measured at about 18 feet bgs upon completion of the boring.</p> <p>The borehole was backfilled with cement grout.</p>	
						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		SC		Native 0.9% Swell
DSX	1500	17.0	2410	14.5	115	9		SC		
						10			CLAYEY SAND: brown to orange-brown, medium dense, moist, well-graded sand, trace fine gravel	
DS	500	Nat.	1970	29.9	92	6		CL	LEAN CLAY: dark brown with red-brown stains, very stiff, moist, few well-graded sand	92% Fines LL=49, PI=25
						11				
						15				
DS	1000	Nat.	1030	17.7	110	6		SC	CLAYEY SAND: dark brown, medium dense, moist, medium to coarse sand	
						7		CL	LEAN CLAY: brown to gray-brown with orange-brown stains, stiff, moist, few fine sand	
						8				
DS	1400	Nat.	1030	28.8	95	6		CL	SANDY LEAN CLAY: brown to orange-brown, stiff, moist to wet, well-graded sand	66% Fines
						7		SC	CLAYEY SAND: brown, medium dense, wet, well-graded sand	
						10				
						12		SW-SM	WELL-GRADED SAND with SILT: brown, medium dense, saturated, well-graded sand, few	
						15				
						18				
						12				



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			fine gravel	6% Gravel 84% Sand 10% Fines
						21				... caving
				15.3		24			... 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.	
						33			Groundwater was encountered at about 15 feet bgs and was measured at about 9 feet bgs upon completion of the boring.	
						36			The borehole was backfilled with cement grout.	
						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
DS	320	Nat.	340	12.0	97	0		SC	CLAYEY SAND with GRAVEL: brown, loose and dry on surface, medium dense and moist below, well-graded sand, little fine gravel	Fill LL=40, PI=17
DS	1500	Nat.	1710	6.5	108	11		CL	LEAN CLAY with SAND: dark gray, stiff, moist, little fine to medium sand, trace organics ... brown at about 2½ feet, well-graded sand, trace fine gravel	Native R-Value=9
DSX	500	21.6	710	22.4 20.7	104	3			... orange-brown, stiff, moist	75% Fines
DS	1200	Nat.	1400	19.3 16.4	113	9		SC	CLAYEY SAND: orange-brown, medium dense, moist, well-graded sand, trace fine gravel	31% Fines
DS	1800	Nat.	920	39.2	84	12		CL	LEAN CLAY: orange-brown with dark gray stains, medium stiff, moist to wet, few fine sand	
						15		SC	CLAYEY SAND: orange-brown, medium dense, moist, well-graded sand	
						18	CL	LEAN CLAY with SAND: orange-brown o brown, medium stiff, moist to wet, few to little fine sand		

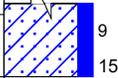


BORING LOG

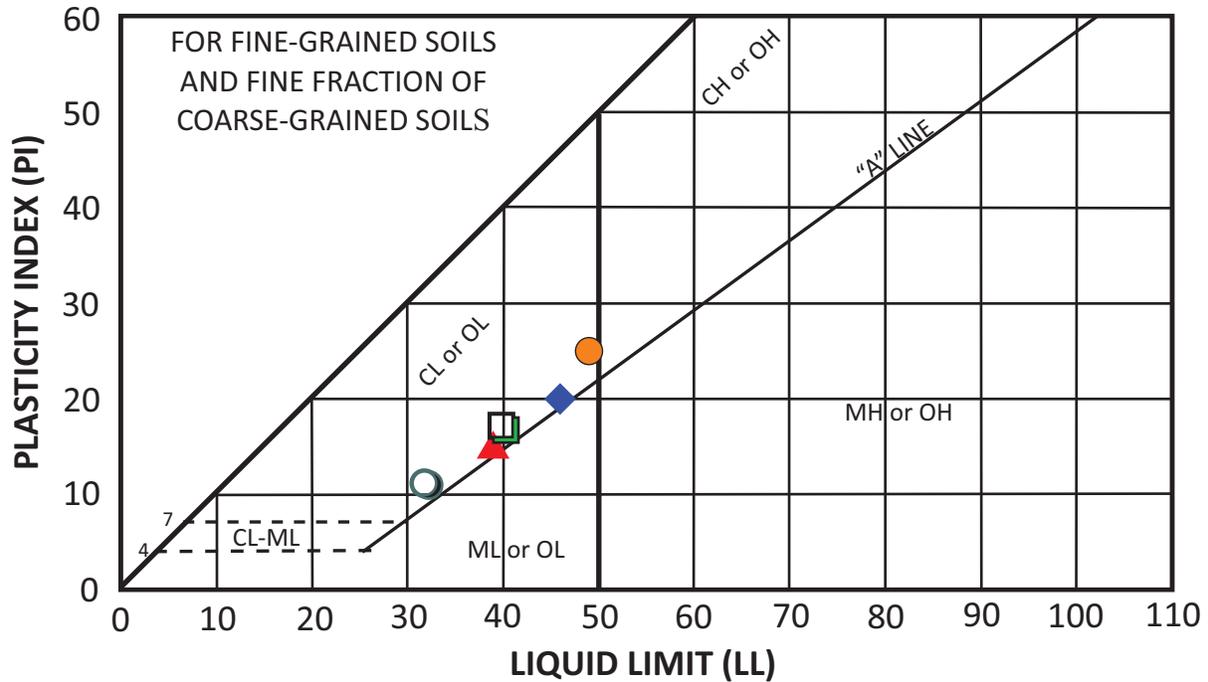
Boring No. B-9
 Page 2 of 2

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	21			<p>... about 2" of medium-grained sand lense ... increased sand content at 20' bgs</p>	
						24			The boring was terminated at approximately 20 feet bgs.	
						27			Groundwater was not encountered in the boring.	
						30			The borehole was backfilled with cement grout.	
						33				
						36				
						39				

PLASTICITY CHART

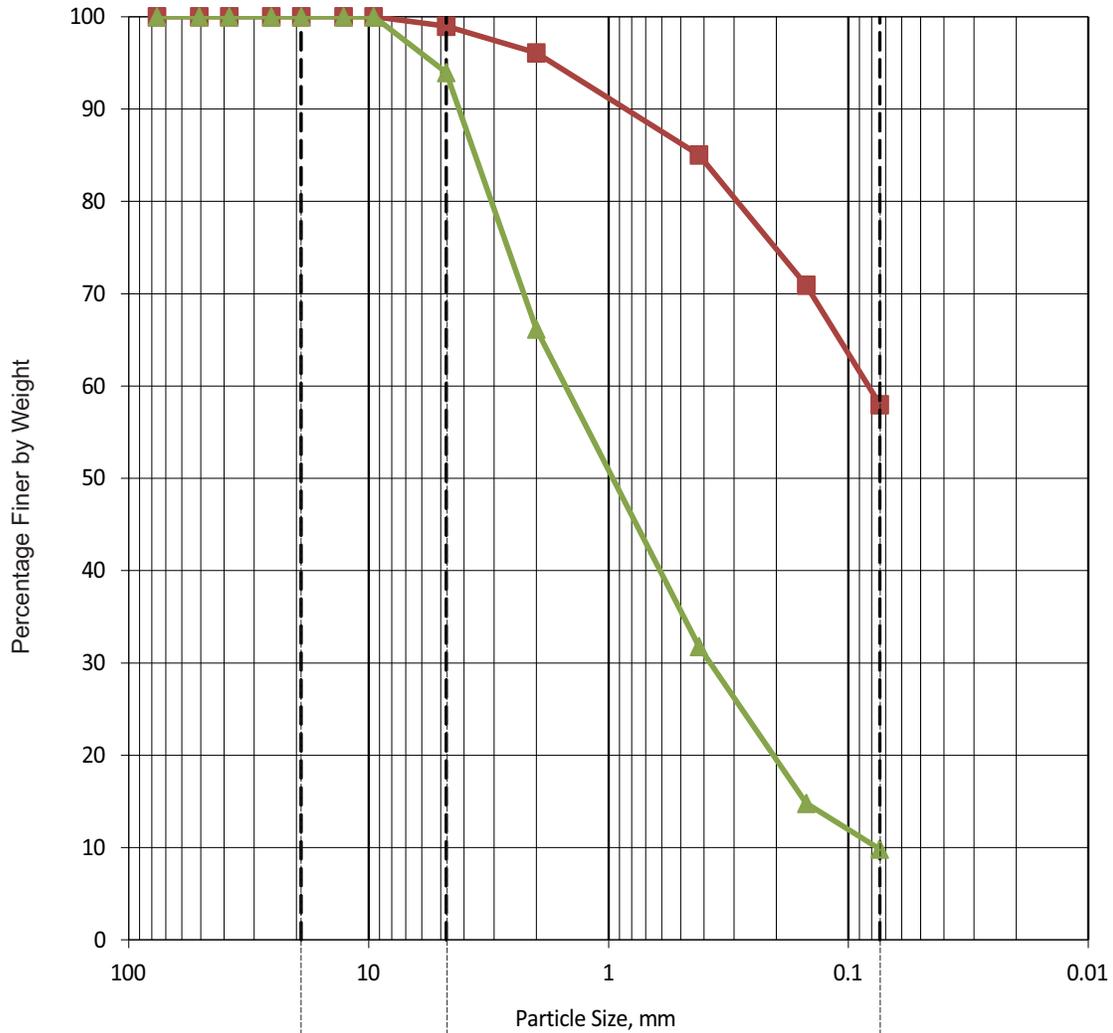


SYMBOL	SAMPLE SOURCE	DEPTH (FEET)	NATURAL WATER CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	SOIL DESCRIPTION
▲	Boring B-6	3.5	13.9	39	24	15	Dark Gray Clayey Sand (SC)
○	Boring B-6	14	25.1	32	21	11	Brown Clayey Sand (SC)
-	Boring B-6	19	30.0		Non-Plastic		Gray-Brown Silty Sand (SM)
-	Boring 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: August 2023	JOB NUMBER: COUSM-23-03	PLATE 14
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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

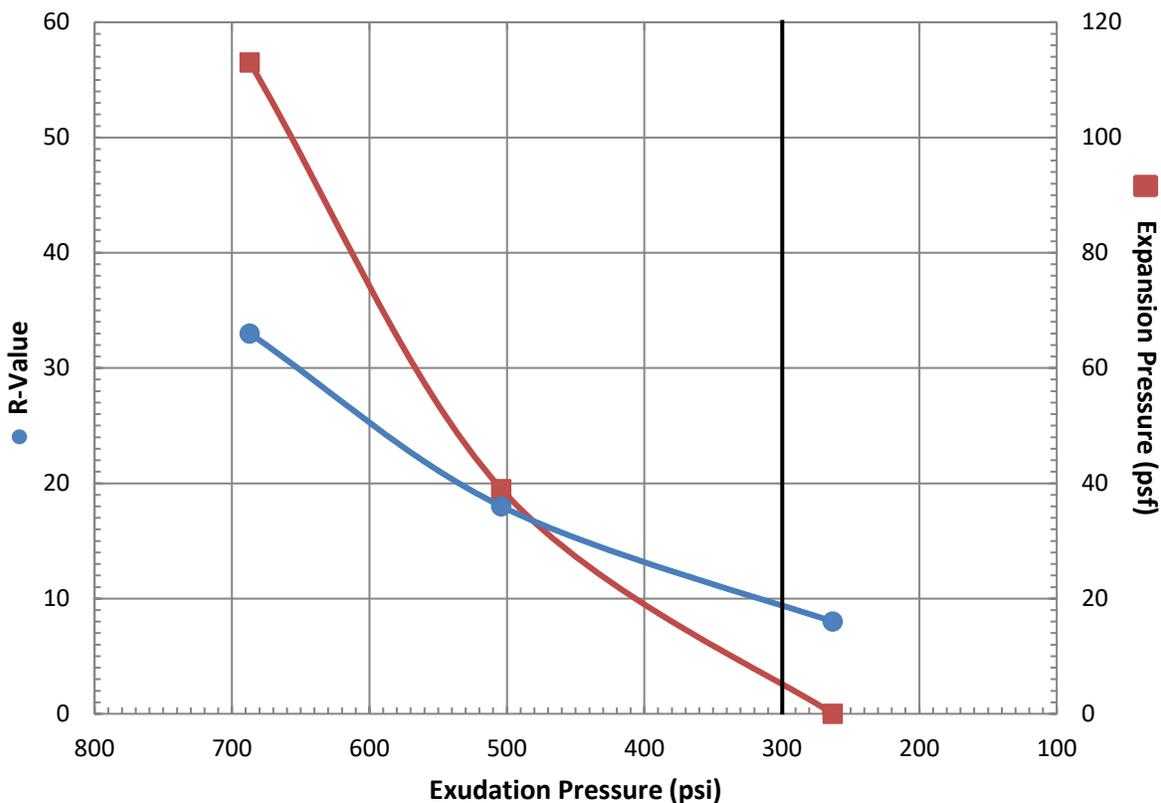
GRADATION TEST DATA

DATE:
August 2023

JOB NUMBER:
COUSM-23-03

PLATE:
15

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
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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 nuisance¹;
- 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 conducting 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 email² 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.