QUESTIONS:

0. SOIL VARIABILITY- REPORT SAYS OVEREXCAVATE TO SUBGRADE - WHAT ABOUT IN AREAS OF FILL? HOW DEEP SHOULD WE BE GOING DOWN TO SCARIFY AND RECOMPACT BEFORE WE START ADDING FILL?
1. ROUGH GRADING OVER THE WINTER MONTHS - HOW TO PROTECT SITE?
2. CONCRETE CURBS TO CUTOFF SUBDRAIN FLOW - PROVIDE MORE CLARITY?
3. BLDG PADS - HOW FAR BEYOND FOOTPRINT?
4. LATERAL SPREADING - ANY MITIGATION NEEDED?
5. SS MAIN IN SLOPE - CONCERNS?
6. PULLOUT ANCHOR SPACING/PROXIMITY TO SLOPE/SS

880 STONE PINE ROAD

HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA

for

County of San Mateo

August 2023

BAGG Engineers

August 23, 2023
BAGG Job No. COUSM-23-03

County of San Mateo
Department of Public Works
555 County Center, 5th Floor
Redwood City, CA 94063

c/o: Steven McGuckin, AIA
Capital Program Management, Inc

REPORT
Geotechnical Engineering Investigation
SMC-HMB Farmworker Housing Project
880 Stone Pine Road
Half Moon Bay, San Mateo County, California

Dear Mr. McGuckin:

Transmitted herewith is our geotechnical engineering investigation report for the captioned project in the City of Half Moon Bay, County of San Mateo, California. This report presents a description of our investigative procedures and the encountered subsurface conditions, potential geologic and seismic hazards that could impact development on the site, the results of our laboratory testing, and our findings, conclusions and recommendations for the proposed site improvements. As a part of these services, we performed three (3) Cone Penetration Tests and advanced four (4) borings at the site, and collected disturbed bulk and relatively undisturbed ring samples of the site materials for visual examination and laboratory testing, as discussed later in this report.

Our investigation has indicated that the site could be subjected to lateral spreading during a major earthquake. Our best estimate indicates the lateral spreading could be on the order of 6 inches near the center of the project, and increasing to about 1½ feet adjacent to the creek.

Thank you for the opportunity to be of service on this project. Please do not hesitate to contact us should you have any questions or comments.

Very truly yours,

BAGG Engineers

Jingqi Liu
Project Engineer

Jason Van Zwol
VP/Chief Engineer

REGISTERED PROFESSIONAL ENGINEER
JASON VAN ZWOL
No. 854
Exp 6/30/24
GEOTECHNICAL
STATE OF CALIFORNIA

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

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BvGG ENGINEERS

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

1.0 INTRODUCTION

This report presents the results of our geotechnical engineering investigation performed to characterize the subsurface conditions at the site and assess the potential for geologic and geotechnical issues potentially affecting the design and construction of the proposed improvements. The attached Plate 1, Vicinity Map, shows the general location of the subject site, while Plate 2, Site Plan, depicts the site layout, the location of the proposed improvements, the approximate locations of the exploratory borings and Cone Penetration Tests (CPTs) advanced for the corporation yard in 2021, as well as the approximate locations of the borings (B-6 through B-9) and CPTs (CPT-3 through CPT-5) advanced for this investigation. Our services were provided in accordance with the scope outlined in our Proposal No. 23-494 dated June 30, 2023.

The following sections of this report present the result of our reviews, research, findings, and geotechnical evaluations following a site-specific subsurface exploration.

2.0 SITE AND PROJECT DESCRIPTION

The subject site is located on the east end of Stone Pine Road, approximately 2,500 feet east of the State Route 1 and 1¼ miles east of the Pacific shoreline in the City of Half Moon Bay, San Mateo County, California. It is bounded by San Mateo Road (Highway 92) on the northwest, a commercial parcel on the northeast, Pilarcitos Creek on the east and southeast, and residential parcels on the west. The site consists of an irregular-shaped, approximately 20-acre parcel that generally slopes gently to the southeast. The northeastern portion of the site is under construction for a corporation yard with a long, elevated driveway from Stone Pine Road to the new corporation yard site for the City of Half Moon Bay. An existing earth-lined agricultural pond is present on the western corner of the site at an elevation about 50 feet higher than in the project area. The remaining site area is undeveloped.

It is our understanding that the project will consist of the construction of 47 modular houses in the western vacant portion of the parcel on both sides of the new driveway. The houses are anticipated to be constructed on graded building pads and supported on 18-inch-tall, load-bearing piers supported on either 24"x24" pressure treated plywood pad, or 24"x24" pre-cast concrete pads set on compacted base rock surface with tie-downs for seismic resistance. Home Pride earth anchors are anticipated to be used as tie-downs. Other site improvements will include paved driveway and parking lots, a sports court, and landscape areas. We note that this investigation does not address the subsurface conditions and any potential hazards associated with the existing pond.

3.0 PURPOSE AND SCOPE OF SERVICES

The purpose of our services was to conduct a subsurface investigation at the subject site to obtain information required to address the geotechnical engineering aspects of the proposed project. To this end, this report addresses the following:

- Geologic site conditions and seismicity of the project site, including a review of available published geologic maps and reports pertinent to the site area, a discussion of the site geology and seismicity with distance to the active faults in the region, as well as the probability of a major earthquake on each fault;
- Seismic design parameters for the proposed site improvements per the 2022 California Building Code and ASCE 7-16[1];
- Specific subsurface conditions discovered by the borings and CPTs, such as expansive, loose, saturated, collapsible, or soft surface and subsurface soils that may require special mitigation measures or impose restrictions on the project, including the thickness and consistency of the existing fill soils and groundwater levels, as encountered;
- Assessment of liquefaction potential, any adverse impacts it may impose on the project, and remedial measures, as deemed appropriate;
- Criteria for site grading, earthwork, preparation of subgrades and building pads, placement of fills and backfills, and trench backfill requirements, including the suitability of the excavated soils from the site for use as fill and backfill material;

[1] This report assumes the project site can be properly classified as a Site Class D (Stiff Soil) site (discussed later in this report), and that the Exception of the Supplement 3 to Section 11.4.8 of ASCE 7-16 will apply to the proposed structures. Thus, a site-specific ground response analysis in accordance with ASCE 7-16 Section 21.1, and a ground motion hazard analysis in accordance with ASCE 7-16 Section 21.2 are not included in our scope of services.

- Estimates of the allowable bearing values for the 24"x24" plywood/concrete pad, and the resistance to pull-out loads for the anticipated anchor type (Home Pride earth anchors);

- Estimate of the lateral resistance for the proposed foundation system, including the applicable coefficient of friction between the supporting surface (gravel) and plywood/concrete pads;

- Estimate of earth pressures acting on site retaining walls, including vertical and lateral support requirements;

- Estimates of the post-construction total and differential settlements for the new structures supported on the recommended foundation system;

- Criteria for support of exterior concrete flatwork;

- Criteria for the design of rigid and flexible pavements;

- General provisions for the control of surface and subsurface drainage; and

- Preliminary screening for soil corrosivity and its impact on the buried foundation elements and underground utilities.

To fulfill the above purpose, the scope of our investigation consisted of the following specific tasks:

- Reviewed pertinent geotechnical and geological reports, as well as hazard maps and reports relevant to the site and vicinity.

- Marked the planned boring and CPT locations in the field, coordinated the field exploration with the client representatives, retained a utility locating firm to help clear the boring and CPT locations, and notified Underground Service Alert (USA) at least 72 hours in advance.

- Obtained permits for borings and CPTs from the County of San Mateo Department of Environmental Health.

- Drilled, logged, and sampled four borings to approximate depths of 20 to 30 feet using a truck-mounted drilling rig. The borings were advanced under the supervision of one of our engineers who also obtained disturbed bulk and relatively undisturbed ring samples of the subsurface materials at 3- to 5-foot-intervals for visual examination and laboratory testing. The borings were backfilled with cement grout per the permit requirements. The drilling spoils were left at the site.

- Advanced three CPTs to an approximate depth of 50 feet. The CPTs were backfilled with cement grout per the permit requirements.

- Performed a laboratory testing program on the collected soil samples to evaluate the geotechnical engineering characteristics of the subsurface soils. Tests included direct shear

tests, Atterberg Limits, grain-size analyses, moisture-density measurements, R-value, and soil corrosivity testing, as judged appropriate.

- Conducted engineering analyses based on the results obtained from the above tasks and oriented towards the above-stated purpose of the investigation; and

- Prepared this report presenting the results of our investigation, summarizing our findings and recommendations for the subject project, and including a vicinity map, a site plan showing the approximate boring and CPT locations, an area geologic map, a regional fault map, the boring and CPT logs, subsurface profile(s) and the laboratory test results.

4.0 GEOLOGY AND SEISMICITY

4.1 Site and Area Geology

A review of the *Geology of the Onshore Part of San Mateo County, California: Derived from the Digital Database Open-File 98-137*, prepared by Brabb et al. (1998), indicates that the northwestern portion of the site is underlain by Pleistocene age marine terrace deposits (Qmt) described as "poorly consolidated and poorly indurated well- to poorly sorted sand and gravel." The southeastern portion of the lot along Pilarcitos Creek is mapped as Holocene alluvial fan deposits (Qyf, Qyfo) generally consisting of unconsolidated sand, silt, clayey silt, and gravel.

A portion of the geologic map that includes the site area is presented on Plate 3, Area Geologic Map.

4.2 Faulting and Seismicity

No earthquake faults have been mapped crossing the site area. The distances from the site to the major faults in the area and their estimated probability of generating a major earthquake ($M_w \geq 6.7$) are listed in the Table 1 on the following page. The major active faults with respect to the subject site are also shown on the attached Plate 4, Regional Fault Map.

According to the California Geological Survey (CGS) map of *Earthquake Zones of Required Investigation, Half Moon Bay Quadrangle* (2021), the site is not situated within an Alquist-Priolo Earthquake Fault Zone (AP Zone). However, the site is situated within an area designated as an earthquake-induced liquefaction hazard zone. Evaluation of the potential of the site materials for seismically-induced liquefaction requires the upper 50 feet of soils must be explored and characterized as a minimum (per Special Publication 117A adopted by the State of California).

Table 1
Significant Earthquake Scenarios

Fault	Approximate Distance to Site (kilometers)[1]	Location with Respect to Site (Driving Range Tee)	Probability of $M_W \geq 6.7$ within 30 Years[2]
San Gregorio	4	SW	5%
Pilarcitos	5	NE	0.5%
San Andreas (Entire)	8	NE	33%
San Andreas (Peninsula)	8	NE	9%
Monte Vista – Shannon	21	SE	1%
Hayward-Rodgers Creek	37	NE	32%
Calaveras	50	NE	25%

[1] USGS Fault Files from Google Earth, and CGS Fault Activity Map of California
2 Working Group on California Earthquake Probabilities, 2014

5.0 FIELD EXPLORATION AND LABORATORY TESTING

Conditions of the subsurface materials within the project area were explored by drilling four borings to approximate depths of 20 to 30 feet below the existing ground surface (bgs) using a truck-mounted drilling rig equipped with 6-inch diameter continuous flight augers. In order to better address the liquefaction hazards, three 50-foot-deep Cone Penetration Tests (CPTs) were advanced with a truck-mounted CPT rig. The approximate boring and CPT locations are shown on the attached Plate 2, Site Plan. Plate 5, Cross Section A-A', presents our interpretation of the subsurface conditions extrapolated from the information obtained during our site investigation.

A continuous log of the subsurface materials encountered in the boreholes was maintained by our engineer on site. Disturbed bulk and relatively undisturbed ring samples of the site materials were obtained. The subsurface materials were visually classified in the field; the classifications were then checked by visual examination, grain size analysis, and Atterberg Limits testing performed in the laboratory. In addition to sample classification, the boring logs contain interpretation of where stratum changes or gradational changes occur between samples and where subtle changes become significant enough to log. The boring logs depict BAGG's interpretations of subsurface conditions only at the locations indicated on Plate 2, Site Plan, and only on the date noted on the logs.

Cone penetrometer tests (CPT) consist of hydraulically advancing a probe into the soil strata with a truck-mounted CPT rig. The probe is fitted with transducers that read resistance at the tip of the probe, or cone,

friction acting between the sides of the sleeve immediately behind the cone and the surrounding soil, and pore pressure. The resulting data is then correlated to establish soil behavior types, consistencies, and shear strength data. The location of the CPTs are also shown on the attached Plate 2, Site Plan, and the CPT logs are presented in Appendix A.

The boring logs and the CPT data are intended for use only in conjunction with this report, and only for the purpose outlined by this report. The graphical representation of the materials encountered in the borings, and the results of laboratory tests, as well as explanatory/illustrative data are attached, as follows:

- Plate 6, Unified Soil Classification System; illustrates the general features of the soil classification system used on the boring logs;
- Plate 7, Soil Terminology; lists and describes the soil engineering terms used on the boring logs;
- Plate 8, Boring Log Notes; describes general and specific conditions that apply to the boring logs;
- Plate 9, Key to Symbols; describes various symbols used on the boring logs;
- Plates 10-A through 13-B, Boring Logs; describe the subsurface materials encountered, show the depths and blow counts for the samples, and summarize the results of the strength tests, Atterberg Limits, sieve analyses, and moisture-density data;
- Plate 14, Plasticity Data; presents the results of Atterberg Limits tests performed on selected samples of the site materials;
- Plate 15, Gradation Test Data; presents the result of two gradation tests performed on selected samples of the site materials;
- Plate 16, R-Value Test Report; presents the results of an R-value test performed on a sample of the near-surface soil from Boring B-9 near the proposed asphalt driveway; and
- Plate 17, Corrosivity Test Summary; presents the results of corrosivity testing performed by an outside laboratory on two selected soil samples.

Direct shear strength tests were performed on collected soil samples to evaluate the strength parameters of the site earth materials. The direct shear tests were performed at both natural (field) and artificially increased moisture contents, while under various surcharge pressures. The moisture content and dry density of several undisturbed samples were measured to aid in correlating their engineering properties. In addition, Atterberg Limits tests were performed on selected samples to aid in classification as well as obtain

an indication of the samples' expansion potential. Gradation and wash over the No. 200 sieve tests were also performed on selected samples of the site materials to classify the samples. Additionally, an R-value test was conducted on a bulk sample of the near-surface soil to aid in the pavement section design. Furthermore, corrosivity testing was carried out by Cooper Testing Labs on two selected soil samples. The results of the noted tests are shown on the boring logs and on the plates described above.

6.0 SITE CONDITIONS

6.1 Subsurface Conditions

Borings B-4 through B-9 encountered a 1- to 2-foot-thick layer of artificial fill consisting predominantly of stiff sandy lean clay and/or medium dense clayey sand with varying gravel content; however, relatively dry and loose/soft surficial materials were observed at Boring B-6 and B-9 locations. Atterberg Limits testing on a fill soil sample obtained at a depth of about 1 foot below the ground surface (bgs) in Boring B-9 yielded a liquid limit of 40 and a plasticity index of 17, indicating the existing fill material is moderately expansive in nature.

Native soils encountered in the borings consisted predominantly of interlayered lean clay, clayey sand, silty sand, and/or well-graded sand with silt. The upper clay deposits were generally stiff to very stiff and become medium stiff as depth increases. The sandy deposits were mostly medium dense in consistency with a few loose sand layers in the upper about 15 feet of the profile in Boring B-6. In addition, thin, less than 6-inch-thick fat clay layers were observed in the deep borings below about 27 feet bgs. Atterberg Limits testing on native clay and/or clayey sand samples in the upper about 5 feet of the boring profiles yielded liquid limits in the range of 39 to 49 and plasticity indices between 15 and 25, indicating the near-surface native materials are moderately to highly expansive in nature.

CPT-3 through CPT-5 advanced as part of this investigation also revealed interlayered clayey, silty, and/or sandy deposits within the maximum explored depth of 50 feet. The encountered fine-grained soils were medium stiff to very stiff while the granular deposits, consisting predominantly of silty sand to sandy silt and/or clean sand to silty sand, were generally medium dense to dense in consistency. However, the CPT profiles showed large variation in the depth to the first sand layer and the total thickness of the granular deposits. Excluding the surficial ½ foot of topsoil, CPT-3 first encountered sandy deposits at the approximate depth of 8½ feet bgs. CPT-4, however, revealed sandy soils down to the depth of about 12½ feet bgs. At

location of CPT-5, the upper approximately 2½ feet of the profile also consisted of sandy materials; however, below 2½ bgs, CPT-5 revealed mostly clayey deposits with scattered, 2-inch- to 2½-foot-thick, sandy lenses. The total thickness of the medium dense sandy deposits in CPT-5 was about 7 feet, while CPT-3 and CPT-4 encountered approximately 17 feet and 24 feet of medium dense sand, respectively.

BAGG advanced five borings (Borings B-1 through B-5) and two CPTs (CPT-1 and CPT-2) as part of the previous investigation on the northeastern half of the site for the City of Half Moon Bay Corporation Yard project in 2021. The previous Borings B-1 through B-5 revealed predominantly clayey deposits within their maximum explored depths of 5 to 25 feet bgs, except that Boring B-1 encountered medium dense clayey sand below 13 feet to its bottom at 15 feet, and Boring B-2 encountered medium dense to dense clayey sand below 15½ feet to its bottom at 20 feet. The two sand layers may, however, extend further in depth. CPT-1 and CPT-2 revealed interbedded clayey and sandy deposits within the maximum explored depth of 50 feet.

Our boring and CPT profiles indicated the site is generally underlain by interlayered clayey and sandy soils; however, the depths of the sand layers, the thickness and consistency of each sandy layer, as well as the total amount of the sandy deposits with the explored depths, are non-uniform and vary from one location to another. For more information regarding our interpretation of the subsurface materials, we refer you to Plates 10-A through 13-B, Boring Logs. The CPT data is presented in Appendix A attached to this report. The previous Boring B-1 through B-5 logs, as well as CPT-1 and CPT-2 data, are presented in the attached Appendix B.

6.2 Groundwater

Groundwater was first encountered in Borings B-6, B-7, and B-8 at the approximate depth of 17½, 19, and 15 feet bgs, respectively, and was measured upon completion of drilling and sampling at the depths of about 18 feet in B-6 and B-7 and about 9 feet bgs in Boring B-8. Groundwater was not encountered in Boring B-9 within its maximum explored depth of 20 feet. The CPTs estimated groundwater depths of about 15 feet in CPT-3 and about 12½ feet in CPT-5.

Groundwater was not encountered in the previous Borings B-1 through B-5, which were extended to the maximum depth of 25 feet bgs. CPT-1 and CPT-2 estimated groundwater depths of about 10½ and 18 feet bgs, respectively.

Groundwater levels typically fluctuate due to seasonal changes such as variations in rainfall and temperature, hydrogeological variations such as groundwater pumping or recharging, and/or other factors not evident at the time of exploration. Plate 1.3 of the California Geological Survey (CGS, 2021) Seismic Hazard Zone Report 132 (SHZR 132), *Seismic Hazard Zone Report for the Half Moon Bay 7.5-Minute Quadrangle, San Mateo County, California,* indicates the depth to historically high groundwater level in the general site area is less than 10 feet.

7.0 GEO-HAZARD ANALYSIS

7.1 Liquefaction Potential

According to the regulatory Seismic Hazard Zone Official Map prepared by the CGS (2021), the subject site is situated within a Seismic Hazard Zone associated with liquefaction. These zones are defined as "areas where historical occurrence of liquefaction, or local geological, geotechnical and groundwater conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required."

Soil liquefaction is a condition where saturated granular soils near the ground surface undergo a substantial loss of strength due to increased pore water pressure resulting from cyclic stress applications induced by earthquakes or other vibrations. In the process, the soil acquires mobility sufficient to permit both vertical and horizontal movements, if not confined. Soils most susceptible to liquefaction are loose, uniformly graded, fine-grained, sands, and loose silts with very low cohesion. In general, liquefaction hazards are most severe in the upper 50 feet of the soil profile. In deeper deposits, the greater overburden soils tend to isolate the ground surface from the impact of any liquefaction in deeper soils, and the overburden pressures tend to limit shear strains that occur during liquefaction.

Our boring and CPT data indicated the site is generally underlain by non-uniform, interlayered clayey and sandy deposits. Liquefaction analysis was performed using the CPT soundings and the boring data (within the maximum depths explored) following the procedures recommended by Boulanger and Idriss (2014). For

the purpose of this analysis, we used a groundwater level of 9 feet which was the highest groundwater level measured in our borings. Our analysis used an earthquake magnitude of 7.7 as obtained from the USGS Unified Hazard Tool (https://earthquake.usgs.gov/hazards/interactive/index.php), and a Peak Ground Acceleration of 0.89g obtained from the U.S. Seismic Design Maps by California's Office of Statewide Health Planning and Development (OSHPD, https://seismicmaps.org/).

Our analysis indicates that the loose to dense sand layers presented beneath the site are potentially liquefiable. The estimated liquefaction settlements are highly associated with the total amount of the potentially liquefiable sands at each of the exploration locations. Our analysis estimated liquefaction settlements of approximately 1½ inches in CPT-3, 2 inches in CPT-4, and ¼ inch in CPT-5. The estimated liquefaction settlements within the maximum explored depth of the borings were about 3 inches in Boring B-6 (30-foot-deep), 1⅓ inches in B-7 (21½-foot-deep), 2½ inches in B-8 (28½-foot-deep), and ⅓ inch in B-9 (20-foot-deep). Potentially liquefiable soils are also likely present beneath the explored depths in the borings.

Our analysis also estimated that the seismic compaction within the sandy deposits above the assumed groundwater level (9 feet) in Borings B-6 through B-9 ranged from less than ¼ inch to about ⅔ inch. The estimated seismic compaction in CPT-3 and CPT-5 was negligible; however, we estimated about 1⅓ inches of seismic compaction in the upper sandy deposits in CPT-4.

With a groundwater level of 9 feet (instead of 11 feet used in our 2021 analysis), we estimated liquefaction settlements of about 1 inch in the previous CPT-1 and ⅔ inch in CPT-2. The estimated seismic compaction was about ⅓ inch in CPT-1 but was negligible in CPT-2. Estimated seismic settlement was negligible in the previous Borings B-1 through B-5 as they were relatively shallow and the encountered sandy materials were either too clayey or too dense to be considered liquefiable.

We note that the empirical calculation methods, such as the one used here, for estimating expected settlements due to liquefaction are known to be conservative, especially when the soils in question contain in excess of 30 percent fines. Also, our analysis used a relatively conservative groundwater depth of 9 feet which was the groundwater depth measured in Boring B-8 near the creek, while other borings/CPTs measured/estimated groundwater depths in the range of 11 feet (2021) to more than 20 feet bgs. We

therefore anticipate the total seismic settlements in the project area would generally be in the range of ¼ to 1½ inches but could be as much as 3 inches or so in some localized areas such as the CPT-4 location.

Based on the estimated seismic settlements and the relative distance between the exploration points, we estimate the differential settlements due to seismic compaction and liquefaction of the granular soils would be approximately 1 inch in 50 feet across the site.

7.2 Lateral Spreading

Lateral spreading is a potential hazard commonly associated with liquefaction where extensional ground cracking and settlement occur as a response to lateral migration of subsurface liquefiable material. Lateral movement can range from a few inches to several feet and can cause significant structural damage. Lateral spreading generally arises where sloping terrain and/or a free-face condition occurs in conjunction with the presence of loose, saturated soils at shallow depths, particularly along riverbanks and shorelines.

Calculations to evaluate the potential for lateral spread toward the adjacent Pilarcitos Creek using the method suggested by Boulanger and Idriss (2014) indicates a possible 1 foot of lateral movement at CPT-3 and 1¼ feet at CPT-4, but estimated no lateral movement at CPT-5. Borings B-6 through B-9 using the method suggested by Youd, et al (2002) estimated lateral movements ranging from negligible amount to as much as 12 feet. It should be noted that the above estimates of lateral spreading assume all the liquefiable layers encountered in each boring are continuous toward the creek. As shown on Plate 5, Cross Section A-A', the sandy deposits potentially subject to lateral movement are generally non-uniform and discontinuous, with the exception of a potentially continuous sand layer between the approximate elevations of 50 to 60 feet above the mean sea level, which is about 5 feet below the bottom of Pilarcitos Creek. Assuming this layer is continuous toward the creek, for a design earthquake of Magnitude 7.7 at a distance of about 6 kilometers, we have estimated lateral spreading on the order of 6 inches in the vicinity of Boring B-7 and CPT-4, increasing to about 1½ feet at the creek bank. Because the source of the deformations in this scenario would be at some depth, we anticipate that much of the movement would consist of relatively large soil masses moving toward the creek; however, it is impossible to predict where fractures would occur at the surface.

7.3 Ground Shaking

The site could experience very strong ground shaking from future earthquakes during the anticipated lifetime of the project. The intensity of the ground shaking will depend on the magnitude of the earthquake, distance to the epicenter, and the response characteristics of the on-site soils. While it is not possible to totally preclude damage to structures during major earthquakes, strict adherence to good engineering design and construction practices will help reduce the risk of damage. The 2022 California Building Code defines the minimum standards of good engineering practice.

As discussed above, our investigation indicated the presence of potentially liquefiable soils beneath the site. If the fundamental period of vibration of the planned structures is less than 0.5 seconds, which is likely the case for this project, the site class can be calculated with shear wave velocities, blow counts and/or soil strengths in accordance with Section 20.4 of ASCE 7-16. Based on our boring and CPT data, it is our opinion that a Site Class D may be assumed for design purposes.

Class "D" is defined as a "stiff soil profile" with an average shear wave velocity between 600 and 1,200 feet per second, and/or average undrained shear strength between 1,000 and 2,000 psf in the top 100 feet of the site.

Using the site coordinates of 37.4679° North Latitude and 122.4239° West Longitude, and the OSHPD Seismic Design Maps, earthquake ground motion parameters were computed in accordance with the 2022 California Building Code and the ASCE 7-16, and are listed in the following table. As S_1 is greater than 0.2g, Table 2 below assumes the Exception in Supplement No.3 to Section 11.4.8 of ASCE 7-16 applies. If the Exception does not apply to the design of this project, the seismic design will require a site-specific ground motion hazard analysis in accordance with Section 21.2 of ASCE 7-16. Such analysis is beyond our present scope of services.

Table 2
Parameters for Seismic Design

2022 CBC Site Parameter	Value
Site Latitude	37.4679° N
Site Longitude	122.4239° W
Site Class	Class D, Stiff Soil
Risk Category	III
Mapped Spectral Acceleration for Short Periods S_s	1.93
Mapped Spectral Acceleration for 1-second Period S_1	0.73
Site Coefficient F_a	1.0
Site Coefficient F_v	1.7**
Site-Modified Spectral Acceleration for short Periods S_{Ms}	1.93
Site-Modified Spectral Acceleration for 1-second Period S_{M1}	1.24*
Design Spectral Acceleration for short Periods S_{Ds}	1.29
Design Spectral Acceleration for 1-second Periods S_{D1}	0.83*

* This value has not been increased by 50% per Exception of Supplement No.3 of Section 11.4.8.
** See Table 11.4.2 - This value to be used only for calculation of T_S, for determination of Seismic Design Category and when taking the exception under Item 1 of Section 11.4.8.

8.0 DISCUSSION AND RECOMMENDATIONS

8.1 General

Based on our review of the published geologic and geotechnical documents, research of the existing soils information, and the subsurface exploration conducted at the subject site, as well as the results obtained from our laboratory testing program, we have developed the following geotechnical recommendations and design criteria for the subject project. When the final project plans become available, they should be reviewed by this office to confirm that they have been prepared in accordance with this report, as well as confirm that our recommendations properly address the proposed project in its final form.

Analysis of the boring profiles and the CPT soundings indicates the impact of liquefaction and seismic compaction from a design level earthquake on the site could be seismic settlements on the order of ¼ to 1½ inches with some localized areas potentially having as much as 3 inches of seismic settlement. Our investigation also indicated that the site could be subjected to lateral spreading during a major earthquake. Our best estimate indicates the lateral spreading could be on the order of 6 inches near the center of the project, and increasing to about 1½ feet adjacent to the creek. Despite the liquefaction and lateral spreading potential, our boring data and laboratory test results indicate the subgrade soils generally are capable of supporting the proposed modular structures and the associated improvements.

8.2 Site Grading

Site grading is anticipated to consist of the removal of existing vegetation and debris from the construction areas, preparation of building pads and pavement subgrades, and installation of underground utilities. Site grading may also consist of foundation excavation if concrete footings are required to support site retaining walls, fence posts, etc.

As used in this report, the term 'compact' and its derivatives mean that all engineered fill material, whether imported or on-site material, should be compacted to at least 90% of maximum dry density as determined by ASTM Test Method D1557. The term also implies that immediately prior to being compacted, the fill material should be thoroughly moisture conditioned to a moisture content that is slightly above optimum for imported non-expansive fill material, and at least 2% over optimum for onsite clayey soils. The properly moisture-conditioned fill should be spread evenly in lifts not exceeding 8 inches in loose thickness, and each lift should be thoroughly moisture conditioned and compacted before subsequent lifts are placed. Class II Aggregate Base, and the upper 12 inches of subgrades within pavement and modular building areas, should be compacted to a minimum of 95% of the maximum dry density at the moisture content specified above.

The following grading procedures should be followed in building pad, pavement, and flatwork areas:

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

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

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

The existing sandy fill soil and the upper native clay are generally suitable for use as structural fill, provided they are free of organic matters and rocks larger than 4 inches in size, and are approved by BAGG's field

representative. Imported fill soil, if any, should be predominantly granular in nature and should be free of organics, debris, or rocks over 4 inches in size, and should be approved by the Geotechnical Engineer before importing to the site. As a general guide to acceptance, imported soils should have a Plasticity Index less than 15, and R-value of at least 20, and fines content between 15 and 60 percent.

It must be the Contractor's responsibility to select equipment and procedures that will accomplish the grading as described above. The Contractor must also organize his work in such a manner that BAGG Engineers can observe and test the grading operations, including excavation, placement of fill and backfill, and compaction of subgrades.

8.3 Foundations

Based on the results of our subsurface exploration and laboratory testing, it is our opinion the proposed modular houses can be supported on surface foundations set on compacted base rock with tie-downs, as proposed. Conventional concrete spread/strip footings can be used to support structures such as retaining walls, seating, fence posts, etc., as necessary. Recommendations for each of the foundation type are presented in the following paragraphs.

8.3.1 Foundations on Ground Surface with Tie-Downs

It is our understanding that the proposed modular house foundations will consist of 18-inch-tall, load bearing piers supported on either 24"x24" pressure treated plywood pad or 24"x24" pre-cast concrete pads. Home Pride earth anchors are anticipated to be installed for seismic resistance. We also understand the housing pads will not be paved with asphaltic concrete but will be covered with compacted base rock.

We recommend the proposed 24"x24" plywood/concrete pads should be placed on minimum 12 inches of Class II aggregate base. The aggregate baserock and the top 12 inches of subgrade should be compacted to a minimum of 95 percent relative compaction while at the moisture content specified under Site Grading.

For 24-inch-wide plywood or concrete pads supported on 12 inches of compacted Class II aggregate base, we estimate the allowable bearing pressures can be taken as 2,500 pounds per square foot (psf) for dead loads and 4,000 psf for total design loads including seismic.

Helical augur tie-downs are frequently a design-build item that are installed to a specified minimum torque. Based on the soils information, we recommend the anchors should be a minimum 30 inches deep. On a preliminary basis, a 30-inch anchor with ¾-inch shaft and two 4-inch discs (Home Pride HP3) installed vertically (with stabilizer) through 12 inches of compacted Class II aggregate base, will be able to resist a pull out load on the order of 3,600 pounds.

Lateral loads may also be resisted by the friction between the bottom of the wood/concrete footings and the aggregate base surface. The friction coefficient between the plywood pad and the supporting aggregate base is estimated to be 0.50. The friction coefficient between the concrete pad and the supporting aggregate base is estimated to be 0.40.

8.3.2 Spread/Strip Footings

Spread/strip footings, if required, should be properly established a minimum of 24 inches below the lowest adjacent grade. The minimum required width for the isolated and continuous shallow footings is 24 inches and 12 inches, respectively. At this depth, the allowable bearing value should be taken as 2,500 psf for dead loads and 3,750 psf for total design loads for all footings. The latter value may be increased by one-third, when resisting transient and seismic loads.

For concrete footings, lateral loads may be resisted by passive soil pressures against the sides of the footings in conjunction with the friction between concrete footing bottom and the soil below. The allowable passive resistance to wind or seismic loads can be taken as an equivalent fluid pressure of 350 pounds per cubic foot (pcf) in compacted fill and undisturbed native materials. The top 12 inches of the passive resistance should be ignored, unless the foundation is protected by a pavement or a concrete slab. A coefficient of friction of 0.3 between compacted fill/undisturbed soil and the bottom of concrete footings may be used in conjunction with the passive pressure.

Concrete foundations must be appropriately reinforced as deemed appropriate by the project structural engineers. The bottom of the footing excavations should be relatively clean, firm, and free of any loose or yielding soils before reinforcing steel and concrete are placed. It is critical that foundation excavations are not allowed to dry out and crack before concrete is poured and that the exposed soils are at the recommended moisture content when concrete is poured. Any dried and cracked soils should be entirely removed as directed by this office, and replaced with properly compacted fill or lean concrete.

8.4 Settlement

Total static settlements for foundations constructed as recommended are anticipated to be less than ½-inch with differential settlement of approximately half this value. The seismically induced liquefaction settlement discussed in Section 7.1, Liquefaction Potential, should be considered additional to the estimated static settlements.

8.5 Retaining Walls and Temporary Shoring

Retaining walls, if any, should be designed to resist lateral earth pressures from the adjoining soil and surcharge loads from adjacent structures. Walls that are restrained from movement at the top should be designed to resist an equivalent fluid pressure of 70 pcf for level backfill. Free standing walls should be designed to resist active lateral earth pressures taken as an equivalent fluid pressure of 50 pounds per cubic foot (pcf) for level backfill. For sloping backfill, the above pressures should be increased by 3 pcf for every 5-degree increase in the backfill slope angle up to a maximum gradient of 2H:1V (Horizontal to Vertical). Surcharge loads should be added to the above pressures at a rate of 33% and 50% of the applied surcharge load for cantilever and restrained walls, respectively.

Seismic pressures on the retaining walls may be simulated by a rectangular pressure distribution against the wall equal to 10H, where H is the height of the wall.

The above lateral pressures do not include any hydrostatic pressures resulting from groundwater, seepage water, or infiltration of natural rainfall and/or irrigation water behind the walls. Therefore, all walls over 2 feet in height should be provided with a drainage blanket behind the wall. The drainage blanket should consist of a pre-manufactured drainage panel, or a one-foot-thick blanket of Caltrans Class 2 Permeable material, or a one-foot-thick blanket of free-draining gravel encapsulated by a suitable filter fabric. A 12-inch cap of relatively impermeable soil should be placed at the top of the drainage blanket to minimize infiltration of surface water. The cap material should be compacted to a minimum of 90 percent relative compaction at a moisture content of at least 2 percent over optimum. In addition, a 4-inch diameter perforated PVC pipe should be installed holes facing down at the base of the drainage layer to facilitate removal of water collected behind the wall. The perforated pipe should drain via gravity flow to an approved discharge point.

General backfill behind the walls, excluding drainage materials, should conform to the fill requirements included under the "Site Grading" section of this report. Retaining walls should be supported on concrete footings as recommended under Foundations.

Vertical site excavations measuring 5 feet or more in height should be properly shored as per the Cal-OSHA guidelines. Temporary shoring may consist of approved soldier-pile and wood lagging walls, soil-nail or tie-back walls with shotcrete, or other approved alternative. The temporary shoring should be designed to withstand an active earth pressure of 45 pcf. Construction equipment should not be allowed at the top of the excavation closer than a distance equal to the height of the excavation. Where a temporary sloped excavation is desired, the side slope gradient of 1H:1V should be utilized if the excavation exposes clayey soils and a gradient of 1½H:1V should be utilized if the excavation exposes silty and/or sandy soils.

8.6 Exterior Flatwork

All concrete slabs should be constructed on a well compacted and moisture conditioned soil subgrade as recommended in the "Site Grading" section of this report. Once the subgrade has been prepared, it should be maintained above optimum moisture content until the concrete slab is placed. The subgrade should be approved by the Geotechnical Engineer immediately before the slab is poured. The slab should be reinforced as per the project Structural Engineer's recommendations.

Where new exterior slabs will be constructed adjacent to irrigated landscape areas, or where natural runoff will drain toward the subgrade area, below-grade concrete curbs should be constructed at the edges of planters and landscaping areas. The intent is to minimize moisture seeping from landscaping areas into the pavement subgrade through the aggregate base. The curbs should extend 2 to 3 inches below the bottom of the aggregate base. Where trees will be located adjacent to pavement areas, a suitable root barrier will also help limit migration of irrigation water into the aggregate base.

8.7 Pavement Design

8.7.1 Flexible Pavements

An R-value test was performed on a sample of the near-surface clayey soil obtained from Boring B-9 near the proposed driveway area. The test results indicated an R-value of 9, as shown on the attached Plate 16,

R-Value Test Report. The two R-value tests carried out as part of our previous investigation for the corporation yard project estimated R-values of 19 and 13.

Considering the variability of the soils cross the project area, for purpose of this investigation, we used an R-value of 9 to calculate the pavement sections for Traffic Indices of 5.0, 6.0, and 7.0. Generally, a Traffic Index (TI) of 5.0 is appropriate for automobile parking stalls, whereas a Traffic Index of 6.0 would be appropriate for heavily-used automobile driveways with only occasional use by heavy trucks (such as once a week or so by garbage trucks), and Traffic Indices of 7.0 or higher are used where the pavement would be subject to more frequent truck traffic such as daily use by delivery trucks. The estimated pavement sections with aggregate base and subbase are tabulated below.

Table 3
Summary of Asphaltic Concrete Pavement Sections
(Subgrade R-value=9)

Pavement Component	TI=5.0		TI=6.0		TI=7.0	
Asphaltic Concrete (AC) in Inches	3	3	3½	3½	4	4
Class II Aggregate Base (R_{Min}=78)	9	4	12	4	14½	5
Class II Aggregate Subbase or Recycled AB (R_{Min}=50)	--	5½	--	8½	--	10½
Total Thickness in Inches	12	12½	15½	16	18½	19½

The pavement sections presented in the above table have been calculated using the design method described in the Caltrans Highway Design Manual (Topic 633, May 2012) with the added safety factors. The method characterizes the subgrade soil conditions with R-values, and characterizes the traffic loading conditions with a Traffic Index. All materials and construction procedures, including placement and compaction of pavement components, should be performed in conformance with the latest edition of the Caltrans Standard Specifications, except that compaction should be performed in accordance with ASTM Test Method D1557.

All pavement components should be compacted to at least 95 percent of the maximum dry density at moisture contents specified under the Site Grading section of this report. All over-sized rocks and cobbles larger than 4 inches should be completely removed, unless they can be crushed in place with the construction equipment.

8.7.2 Rigid Pavements

Where Portland Cement Concrete (rigid) Pavements are to be used, they should be supported on a subgrade that has been prepared as recommended under "Site Grading". Concrete pavements exposed to regular automobiles and weekly use by a garbage truck (if applicable), should consist of 6 inches of concrete with a minimum compressive strength of 3,700 psi (MR=550 psi) supported on at least 6 inches of Class II Aggregate Base material compacted to a minimum of 95 percent relative compaction.

As a minimum, concrete pavements should be reinforced with deformed bars in both directions to control cracking, and joints should be provided in both directions within the pavement designed to prevent formation of irregular cracks.

Where traffic can drive over the edge of the concrete pavement, such as at transition to AC paving, the Portland Cement Association suggests the thickened edge should be increased by 20 percent, and tapered back to normal slab thickness over a distance of 10 times the slab thickness.

8.8 Utility Trench Backfill

Utility trenches may be backfilled with on-site soils that are free of debris, roots and other organic matter, and rocks or lumps exceeding 2 inches in greatest dimension. The fill should also be uniformly moisture conditioned to the proper moisture content and compacted as per the recommendations included above.

The utility lines should be properly bedded and shaded with granular material, such as, sand or pea gravel. As a general rule, the bedding layer should be 2 to 4 inches thick and the utility lines should be shaded with the granular materials to a minimum of 4 inches above the utility line. The bedding and shading layers should be compacted using a vibratory compactor before subsequent backfill is placed. The contractor should use extreme caution with the vibratory compactor on the shading layer, as excessive vibrations and/or imbalanced shading materials could result in dislodging the pipe and loosening the joints.

BAGG Engineers should be allowed an opportunity to observe the trench backfill operations and perform field compaction tests to evaluate the moisture content and relative compaction of the fill materials.

Alternatively, the utility trenches may be backfilled with flowable fill (a cementitious slurry consisting of a mixture of fine aggregate or filler, water, and cementitious material(s) capable of filling all voids in irregular excavations and hard to reach places). The flowable fill is self-leveling material that hardens in a matter of a few hours without the need for compaction in layers. Flowable fill is sometimes referred to as controlled density fill (CDF), controlled low strength material (CLSM), and lean concrete slurry. A 1- to 2-sack flowable fill material is usually considered to be acceptable for the subject project.

8.9 Drainage

It is recommended that a minimum 5-percent slope away from the structures for a horizontal distance of at least 5 feet be established in adjacent planter areas and a minimum 1-percent slope away from the structures for a horizontal distance of at least 5 feet be established in areas containing hardscape. Drainage should not be allowed to pond on the site or adjacent to any foundation, and should be directed towards appropriate discharge points. Surface waters should not be permitted to drain over slopes. Any area where surface run-off becomes concentrated should be provided with a catch basin that discharges the collected runoff in a manner that will not cause erosion. Surface and subsurface drainage facilities and catchment areas should be checked frequently and cleaned or maintained throughout the project life, as necessary.

8.10 Corrosion Potential

Two near-surface soil samples obtained from Borings B-6 and B-8 were submitted to Cooper Testing Laboratories for corrosivity testing. The results of chemical analyses, pH, ORP, and resistivity are tabulated in the following table, and attached on Plate 17, Corrosivity Tests Summary. The following table also presents the results of our preliminary screening of the corrosivity of the samples tested.

Table 4
Corrosion Test Results

Analysis/Test	Boring B-6 @ 2' – 5'	Boring B-8 @ 1.5' – 4'	Corrosivity Classification
Resistivity @ 100% Saturation [Ohm-Cm]	7,471	3,851	Mildly Corrosive[1]
pH	7.4	7.5	Neutral[2]
ORP (Redox) [mV]	486	492	Non-Corrosive[2]
Chloride [mg/Kg]	<2	4	Negligible[3]
Sulfate [mg/Kg]	8	3	Negligible[4]
Sulfide (Qualitative by Lead)	Negative	Negative	Not Present
Moisture Content (%)	15.0	17.7	N.A.

[1]National Association of Corrosion Engineers (NACE) Corrosion Basics, page 191.
[2]Standard Method 2580B.
[3]For metals encased in concrete, extrapolated from CTM 372.
[4]For metals encased in concrete, ACI-318, Building Code Requirements for Reinforced Concrete.

The results for pH, ORP (redox), chloride, and sulfate content as well as sulfide were essentially reported as negligible amounts in terms of corrosion. With respect to resistivity, the samples were classified as "mildly corrosive". Corrosive effects to concrete and masonry materials will be moderate, while the effects may be noticeable with metals in direct contact with the soil subgrade.

To minimize the corrosive degradation of any steel, ductile iron, or copper pipes over time, we recommend that these types of pipes be coated or polyethylene sleeved, or cathodic protection should be designed and implemented for the protection of such pipes. The soils can severely degrade copper pipes over a short period of time, as such, copper pipes should not be in contact with soil.

Subsurface conditions are not the only factors that may cause corrosion; design and construction practice may also be primary causes for failure. A review of plans and specifications for underground structures may be conducted by a qualified corrosion engineer prior to installation, if desired.

8.11 Plan Review

It is recommended that the Geotechnical Engineer (BAGG Engineers) be retained to review the final project plans. This review is intended to assess general suitability of our recommendations for the project in its final form, and to verify the appropriate implementation of our recommendations into the project plans and specifications.

8.12 Observation and Testing

It is recommended that the Geotechnical Engineer (BAGG Engineers) be retained to provide observation and testing services during site grading, foundation construction, utility trench excavation and backfill, and subgrade preparation phases of the work. This is intended to verify that the work in the field is performed as recommended and in accordance with the approved plans and specifications, as well as verify that subsurface conditions encountered during construction are similar to those anticipated during the design phase. Unanticipated soil conditions may warrant revised recommendations. For this reason, we cannot accept responsibility for the recommendations contained in this report if we are not given the opportunity to observe and test the construction activities.

9.0 CLOSURE

This report has been prepared in accordance with generally accepted engineering practices for the strict use of County of San Mateo and other professionals associated with the specific project described in this report. The recommendations presented in this report are based on our understanding of the subject site improvement as described herein, and upon the subsurface conditions encountered in the exploratory borings and the CPTs advanced for this project.

It is not uncommon for unanticipated conditions to be encountered during site grading and/or foundation installation and it is not possible for all such variations to be found by a field exploration program appropriate for this type of project. The recommendations contained in this report are therefore contingent upon the review of the final improvement plans by this office, and upon geotechnical observation and testing by BAGG Engineers of all pertinent aspects of the project, including grading, excavation and backfilling, subgrade preparation, and installation of foundations.

Subsurface conditions and standards of practice change with time. Therefore, we should be consulted to update this report, if the construction does not commence within 18 months from the date this report is submitted. Additionally, the recommendations of this report are only valid for the proposed development as described herein. If the proposed project is modified, our recommendations should be reviewed and either approved or modified by this office in writing.

The following plates and appendices are attached and complete this report:

Plate 1	Vicinity Map
Plate 2	Site Plan
Plate 3	Area Geologic Map
Plate 4	Regional Fault Map
Plate 5	Cross Section A-A'
Plate 6	Unified Soil Classification System
Plate 7	Soil Terminology
Plate 8	Boring Log Notes
Plate 9	Key to Symbols
Plates 10-A through 13-B	Boring Logs
Plate 14	Plasticity Data
Plate 15	Gradation Test Data
Plate 16	R-Value Test Report
Plate 17	Corrosivity Tests Summary
Appendix A	Cone Penetration Test (CPT) Results (CPT-3 through CPT-5)
Appendix B	2021 Boring & CPT Logs (B-1 through B-5; CPT-1 & CPT-2)

ASFE document titled "Important Information about This Geotechnical Engineering Report"

10.0 REFERENCES

ACI Committee 318, 2008, *ACI 318-08, Building Code Requirements for Structural Concrete and Commentary,* American Concrete Institute.

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California Department of Conservation, Division of Mines and Geology, 2000, *Digital Images of Official maps of Alquist-Priolo Earthquake Fault Zones of California, Central Coast Region.*

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Source: Google Maps, accessed on 9/17/2021.

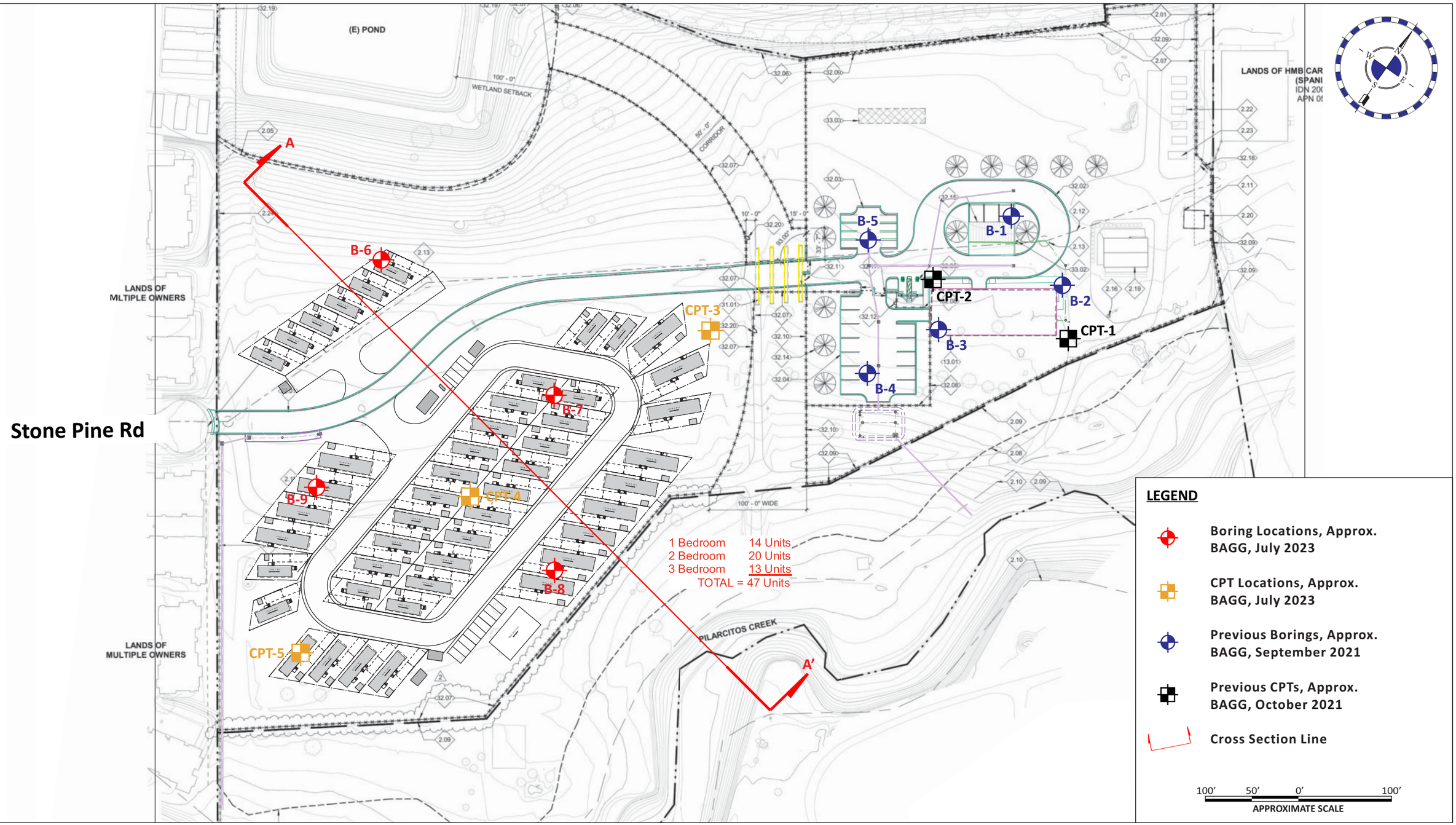
Source: Google Earth Imagery, dated 9/27/2021.

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

VICINITY MAP

DATE:	JOB NUMBER:	PLATE
August 2023	COUSM-23-03	1

BAGG ENGINEERS



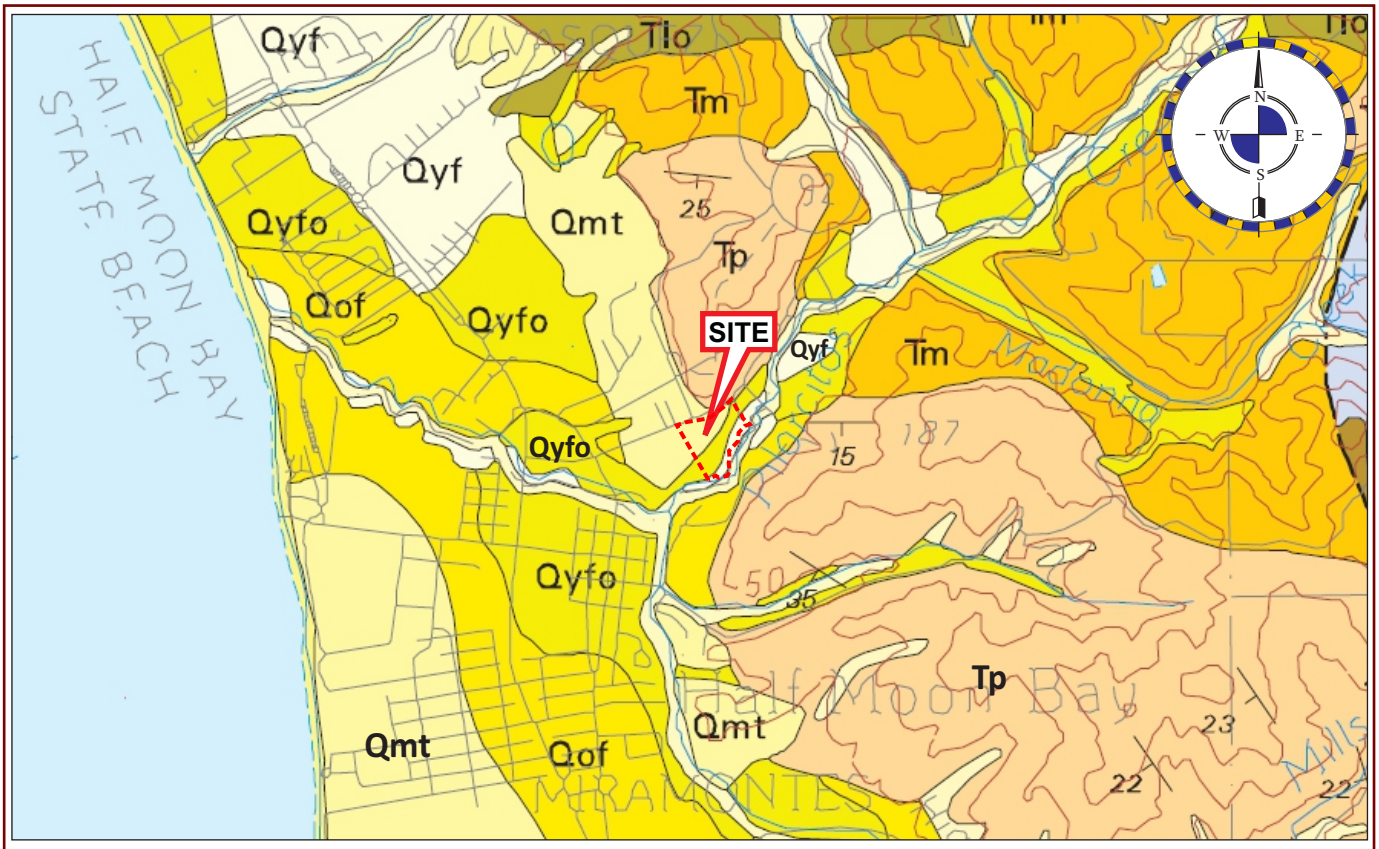
Base Map:
Conceptual site plan with BKF markups, unsigned, undated.

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

BAGG ENGINEERS

SITE PLAN

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



LEGEND

Qyf — **Younger (inner) alluvial fan deposits (Holocene) –** Unconsolidated fine- to coarse-grained sand, silt, and gravel.

Qyfo — **Younger (outer) alluvial fan deposits (Holocene) –** Unconsolidated fine sand, silt, and clayey silt.

Qof — **Coarse-grained older alluvial fan and stream terrace deposits (Pleistocene) –** Poorly consolidated gravel, sand, and silt.

Qmt — **Marine terrace deposits (Pleistocene) –** Poorly consolidated and poorly indurated well- to poorly-sorted sand and gravel.

Tp — **Purisima Formation (Pliocene and upper Miocene) –** Predominantly gray and greenish-gray to buff fine-grained sandstone, siltstone, and mudstone, but also includes some porcelaneous shale and mudstone, chert, silty mudstone, and volcanic ash.

Tm — **Monterey Formation (middle Miocene) –** Grayish-brown and brownish-black to very pale orange and white, porcelaneous shale with chert, porcelaneous mudstone, impure diatomite, calcareous claystone, and with small amounts of siltstone and sandstone near base.

Tlo — **Lompico Sandstone (middle Miocene) –** Very pale orange, fine to coarse-grained, mostly well-cemented and hard arkosic sandstone.

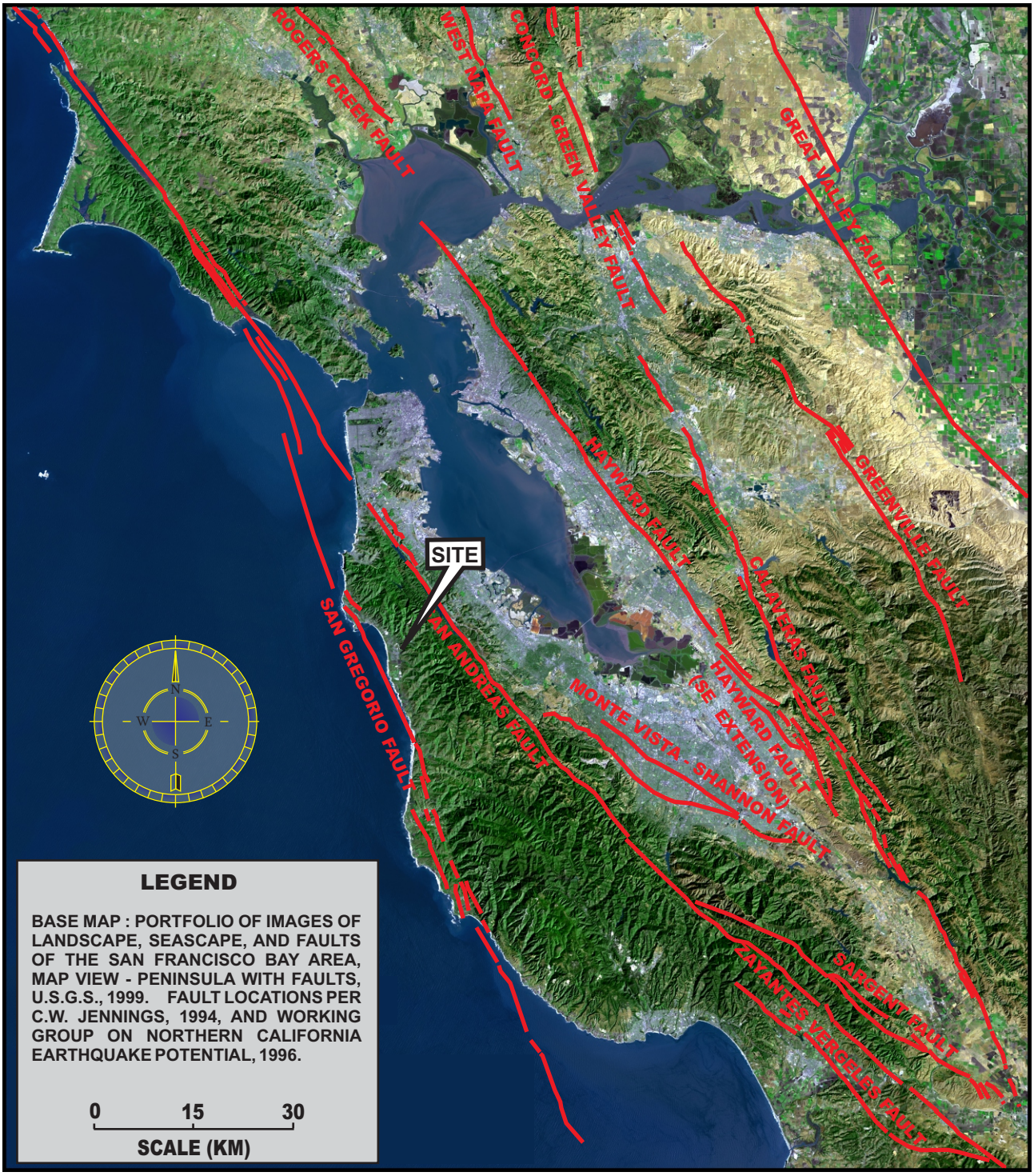
Reference: *Geology of the Onshore Part of San Mateo County: Derived From the Digital Database Open-File 98-137,* by Brabb et al., 1998.

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

AREA GEOLOGIC MAP

DATE:	JOB NUMBER:	PLATE:
August 2023	COUSM-23-03	3

BvGG ENGINEERS



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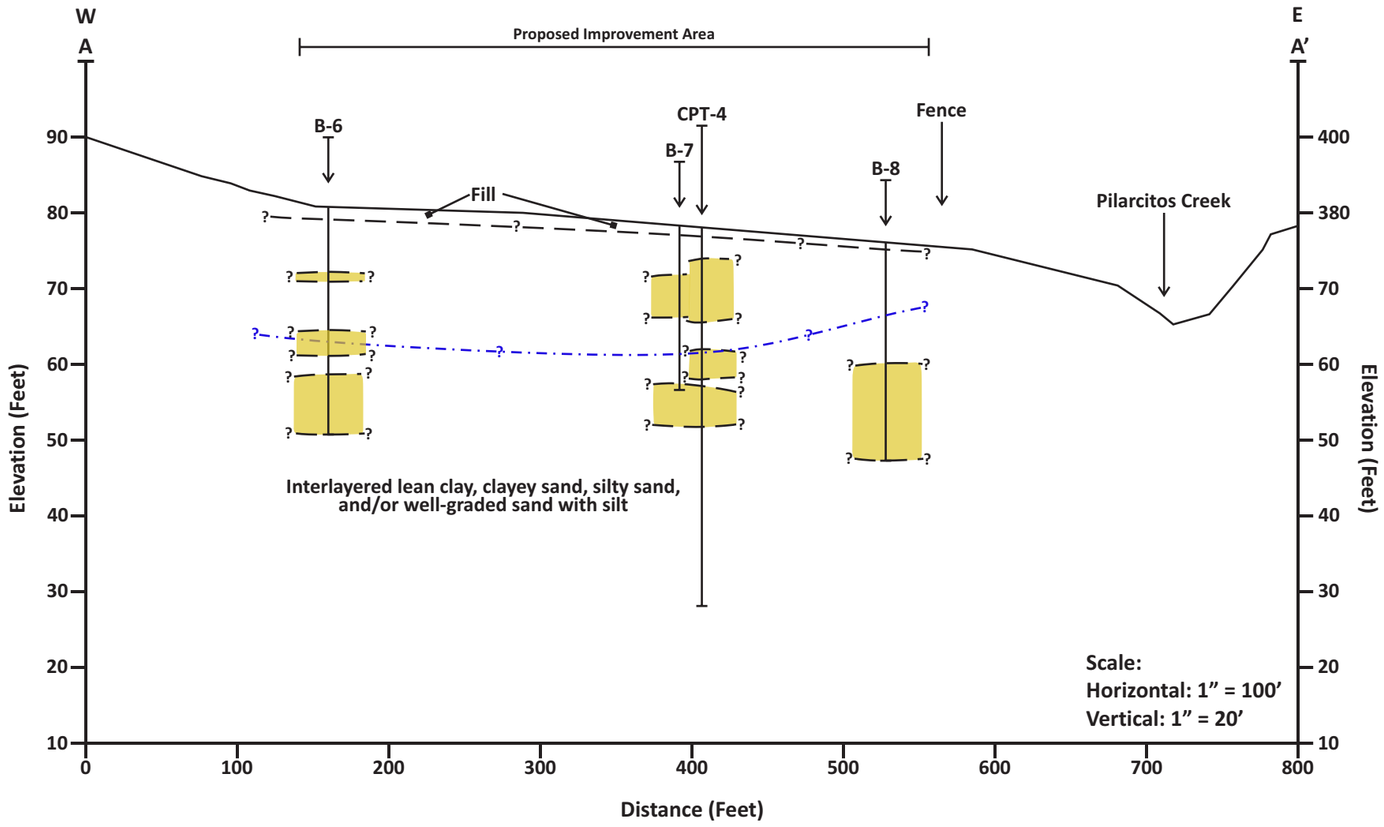
SMC-HMB FARMWORKER HOUSING PROJECT
880 STONE PINE ROAD
HALF MOON BAY, SAN MATEO COUNTY, CALIFORNIA

REGIONAL FAULT MAP

DATE:	JOB NUMBER:	PLATE
August 2023	COUSM-23-03	4

BAGG ENGINEERS



Legend

- Approximate Existing Ground Surface
- Approximate Geologic Contact
- Approximate Measured Groundwater Depth
- Potentially Liquefiable Soil
- B-4 — Approximate Boring/CPT Location

Note:
Elevations based on Conceptual site plan with BKF markups, unsigned, undated.

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

BAGG ENGINEERS

CROSS SECTION A-A'

JOB NUMBER:	SCALE:	DATE:	PLATE:
COUSM-23-03	1"=100' & 1"=20'	August 2023	5

COARSE-GRAINED SOILS

LESS THAN 50% FINES*

GROUP SYMBOLS	ILLUSTRATIVE GROUP NAMES	MAJOR DIVISIONS
GW	Well graded gravel Well graded gravel with sand	GRAVELS More than half of coarse fraction is larger than No. 4 sieve size
GP	Poorly graded gravel Poorly graded gravel with sand	
GM	Silty gravel Silty gravel with sand	
GC	Clayey gravel Clayey gravel with sand	
SW	Well graded sand Well graded sand with gravel	SANDS More than half of coarse fraction is smaller than No. 4 sieve size
SP	Poorly graded sand Poorly graded sand with gravel	
SM	Silty sand Silty sand with gravel	
SC	Clayey sand Clayey sand with gravel	

NOTE: Coarse-grained soils receive dual symbols if:
(1) their fines are CL-ML (e.g. SC-SM or GC-GM) or
(2) they contain 5-12% fines (e.g. SW-SM, GP-GC, etc.)

FINE-GRAINED SOILS

MORE THAN 50% FINES*

GROUP SYMBOLS	ILLUSTRATIVE GROUP NAMES	MAJOR DIVISIONS
CL	Lean clay Sandy lean clay with gravel	SILTS AND CLAYS liquid limit less than 50
ML	Silt Sandy silt with gravel	
OL	Organic clay Sandy organic clay with gravel	
CH	Fat clay Sandy fat clay with gravel	SILTS AND CLAYS liquid limit more than 50
MH	Elastic silt Sandy elastic silt with gravel	
OH	Organic clay Sandy organic clay with gravel	
PT	Peat Highly organic silt	HIGHLY ORGANIC SOIL

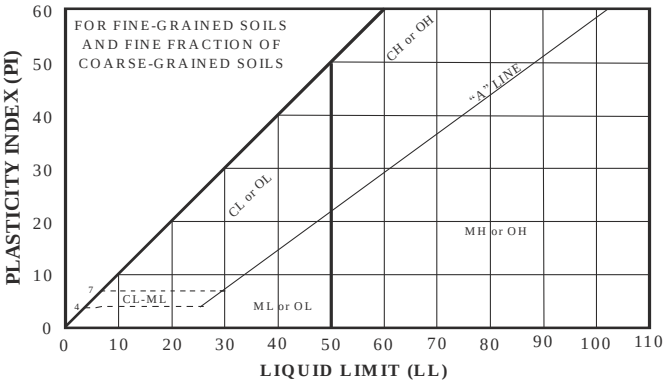
NOTE: Fine-grained soils receive dual symbols if their limits in the hatched zone on the Plasticity Chart(L-M)

SOIL SIZES

COMPONENT	SIZE RANGE
BOULDERS	ABOVE 12 in.
COBBLES	3 in. to 12 in.
GRAVEL	No. 4 to 3 in.
Coarse	¾ in to 3 in.
Fine	No. 4 to ¾ in.
SAND	No. 200 to No.4
Coarse	No. 10 to No. 4
Medium	No. 40 to No. 10
Fine	No. 200 to No. 40
*FINES:	BELOW No. 200

NOTE: Classification is based on the portion of a sample that passes the 3-inch sieve.

PLASTICITY CHART



Reference: ASTM D 2487-06, Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).

GENERAL NOTES: The tables list 30 out of a possible 110 Group Names, all of which are assigned to unique proportions of constituent soils. Flow charts in ASTM D 2487-06 aid assignment of the Group Names. Some general rules for fine grained soils are: less than 15% sand or gravel is not mentioned; 15% to 25% sand or gravel is termed "with sand" or "with gravel", and 30% to 49% sand or gravel is termed "sandy" or "gravelly". Some general rules for coarse-grained soils are: uniformly-graded or gap-graded soils are "Poorly" graded (SP or GP); 15% or more sand or gravel is termed "with sand" or "with gravel", 15% to 25% clay and silt is termed clayey and silty and any cobbles or boulders are termed "with cobbles" or "with boulders".

UNIFIED SOIL CLASSIFICATION SYSTEM

BYGG ENGINEERS

SOIL TYPES (Ref 1)

Boulders: particles of rock that will not pass a 12-inch screen.
Cobbles: particles of rock that will pass a 12-inch screen, but not a 3-inch sieve.
Gravel: particles of rock that will pass a 3-inch sieve, but not a #4 sieve.
Sand: particles of rock that will pass a #4 sieve, but not a #200 sieve.
Silt: soil that will pass a #200 sieve, that is non-plastic or very slightly plastic, and that exhibits little or no strength when dry.
Clay: soil that will pass a #200 sieve, that can be made to exhibit plasticity (putty-like properties) within a range of water contents, and that exhibits considerable strength when dry.

MOISTURE AND DENSITY

Moisture Condition: an observational term; dry, moist, wet, or saturated.
Moisture Content: the weight of water in a sample divided by the weight of dry soil in the soil sample, expressed as a percentage.
Dry Density: the pounds of dry soil in a cubic foot of soil.

DESCRIPTORS OF CONSISTENCY (Ref 3)

Liquid Limit: the water content at which a soil that will pass a #40 sieve is on the boundary between exhibiting liquid and plastic characteristics. The consistency feels like soft butter.
Plastic Limit: the water content at which a soil that will pass a #40 sieve is on the boundary between exhibiting plastic and semi-solid characteristics. The consistency feels like stiff putty.
Plasticity Index: the difference between the liquid limit and the plastic limit, i.e. the range in water contents over which the soil is in a plastic state.

MEASURES OF CONSISTENCY OF COHESIVE SOILS (CLAYS) (Ref's 2 & 3)

Very Soft	N=0-1*	C=0-250 psf	Squeezes between fingers
Soft	N=2-4	C=250-500 psf	Easily molded by finger pressure
Medium Stiff	N=5-8	C=500-1000 psf	Molded by strong finger pressure
Stiff	N=9-15	C=1000-2000 psf	Dented by strong finger pressure
Very stiff	N=16-30	C=2000-4000 psf	Dented slightly by finger pressure
Hard	N>30	C>4000 psf	Dented slightly by a pencil point

***N**=blows per foot in the Standard Penetration Test. In cohesive soils, with the 3-inch-diameter ring sampler, 140-pound weight, divide the blow count by 1.2 to get N (Ref 4).

MEASURES OF RELATIVE DENSITY OF GRANULAR SOILS (GRAVELS, SANDS, AND SILTS) (Ref's 2 & 3)

Very Loose	N=0-4**	RD=0-30	Easily push a ½-inch reinforcing rod by hand
Loose	N=5-10	RD=30-50	Push a ½-inch reinforcing rod by hand
Medium Dense	N=11-30	RD=50-70	Easily drive a ½-inch reinforcing rod
Dense	N=31-50	RD=70-90	Drive a ½-inch reinforcing rod 1 foot
Very Dense	N>50	RD=90-100	Drive a ½-inch reinforcing rod a few inches

****N**=Blows per foot in the Standard Penetration Test. In granular soils, with the 3-inch-diameter ring sampler, 140-pound weight, divide the blow count by 2 to get N (Ref 4).

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

Ref 1: ASTM Designation: D 2487-06, **Standard Classification of Soils for Engineering Purposes** (Unified Soil Classification System).

Ref 2: Terzaghi, Karl, and Peck, Ralph B., **Soil Mechanics in Engineering Practice,** John Wiley & Sons, New York, 2nd Ed., 1967, pp. 30, 341, and 347.

Ref 3: Sowers, George F., **Introductory Soil Mechanics and Foundations: Geotechnical Engineering,** Macmillan Publishing Company, New York, 4th Ed., 1979, pp. 80, 81, and 312.

Ref 4: Lowe, John III, and Zaccheo, Phillip F., **Subsurface Explorations and Sampling,** Chapter 1 in "Foundation Engineering Handbook," Hsai-Yang Fang, Editor, Van Nostrand Reinhold Company, New York, 2nd Ed, 1991, p. 39.

SOIL TERMINOLOGY

BVGG ENGINEERS

GENERAL NOTES FOR BORING LOGS:

The boring logs are intended for use only in conjunction with the text, and for only the purposes the text outlines for our services. The Plate "Soil Terminology" defines common terms used on the boring logs.

The plate "Unified Soil Classification System," illustrates the method used to classify the soils. The soils were visually classified in the field; the classifications were modified by visual examination of samples in the laboratory, supported, where indicated on the logs, by tests of Liquid Limit, Plasticity Index, and/or gradation. In addition to the interpretations for sample classification, there are interpretations of where stratum changes occur between samples, where gradational changes substantively occur, and where minor changes within a stratum are significant enough to log.

There may be variations in subsurface conditions between borings. Soil characteristics change with variations in moisture content, with exchange of ions, with loosening and densifying, and for other reasons. Groundwater levels change with seasons, with pumping, from leaks, and for other reasons. Thus boring logs depict interpretations of subsurface conditions only at the locations indicated, and only on the date(s) noted.

SPECIAL FIELD NOTES FOR THIS REPORT:

1. The borings were advanced on July 24, 2023, using a truck-mounted drilling rig equipped with 6-inch diameter continuous flight augers. The Cone Penetration Tests (CPTs) were advanced on July 26, 2023, with a truck-mounted CPT rig. The boreholes and the CPTs were backfilled with cement grout.

2. The boring/CPT locations were approximately located using existing site features such as trees, poles, etc.

3. The soils' Group Names [e.g. LEAN CLAY] and Group Symbols [e.g. (CL)] were determined or estimated per ASTM D 2487, Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System, see Plate 6). Other engineering terms used on the boring logs are defined on Plate 7, Soil Terminology.

4. Groundwater was encountered in Borings B-6 through B-8 on the date and at the depths noted on the boring logs; however, groundwater was not encountered in Boring B-9 advanced to about 20 feet below the ground surface. The pore pressure dissipation tests performed in CPT-3 and CPT-5 estimated groundwater depths of approximately 15 and 12½ feet, respectively.

5. The soil samples were obtained using the sampler type noted on the boring logs and described on Plate 9, Key to Symbols.

6. The "Blow Count" Column on the boring logs indicates the number of blows required to drive the Modified California and/or Standard Penetration Test sampler below the bottom of the boring, with the blow counts given for each 6 inches of sampler penetration.

7. The tabulated strength values on the boring logs are peak strength values.

KEY TO SYMBOLS

Symbol	Description
Strata symbols	
	Sandy lean clay
	Clayey sand
	Well-graded sand with silt
	Lean Clay
	Silty sand
	Lean clay with sand
	Clayey sand with gravel
Misc. Symbols	
	Water first encountered during drilling
	Water level at completion of boring
	Boring continues
Soil Samplers	
	Modified California Sampler: 18" long, 2.375" ID by 3" OD, split-barrel sampler driven w/ 140-pound hammer falling 30 inches (ASTM D3550)

Symbol	Description
	Standard Penetration Test: 18" long, 1.375" ID by 2" OD, split-spoon sampler driven w/ 140-pound hammer falling 30 inches (ASTM D 1586-11)
Line Types	
_____	Denotes a sudden, or well identified strata change
_ _ _	Denotes a gradual, or poorly identified strata change
Laboratory Data	
DS	Direct shear test performed on a sample at natural or field moisture content (ASTM D3080).
DSX	Direct shear test performed after the sample was submerged in water until volume changes ceased (ASTM D3080).
LL	Liquid Limit established per ASTM D4318 Test Method
PI	Plasticity Index established per ASTM D4318 Test Method
Gravel (%)	Percent soil particles finer than a 3" sieve and coarser than a No. 4 sieve (ASTM C136/C117)
Sand (%)	Percent soil particles finer than a No. 4 sieve and coarser than a No. 200 sieve (ASTM C136/C117)
Fines (%)	Percent soil particles finer than a No. 200 sieve (ASTM C117)
Swell (%)	Percent expansion of a submerged sample under a given surcharge pressure
Nat.	Natural or field water content
bgs	Below the ground surface

BORING LOG

Boring No. B-6
Page 1 of 2

JOB NAME: SMC-HMB Farmworker Housing Project
CLIENT: County of San Mateo
LOCATION: 880 Stone Pine Road, Half Moon Bay, CA
DRILLER: Cenozoic Exploration
DRILL METHOD: Truck-Mounted Drilling Rig - 6" Diam. Continuous Flight Augers

JOB NO.: COUSM-23-03
DATE DRILLED: 7/24/2023
ELEVATION: 83± feet
LOGGED BY: JL

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
				8.6		0	4 12 20	CL	SANDY LEAN CLAY: dark brown, soft on the surface, stiff below, dry to moist, fine to medium sand, trace coarse sand, trace fine gravel, little organics	Fill 1% Gravel 41% Sand 58% Fines Native 0.5% Swell
DSX	320	20.3	630	13.1	105			CL		
DS	400	Nat.	660	13.9	102	3	4 4 4	SC	SANDY LEAN CLAY: dark gray, very stiff, dry to moist, fine to medium sand, few coarse sand, trace fine gravel	29% Fines LL=39, PI=15
						6			CLAYEY SAND: dark gray, medium dense, moist, mostly medium sand, few fine sand, few coarse sand ... color change to brown	
DS	1200	Nat.	760	11.0	99	9	6 6 5	SW-SM	WELL-GRADED SAND with SILT: brown and gray, loose, wet, well-graded sand	5% Fines
DS	2500	Nat.	1730	11.6	95			CL	LEAN CLAY: gray-brown with orange-brown mottling, medium stiff, moist, trace fine sand	
						12		SC	CLAYEY SAND: brown to orange-brown, loose, wet, fine to medium sand	
				25.1			5 7 9			40% Fines
DS	1800	Nat.	890	22.9	102	15			... approximately 6" of stiff, moist, lean clay ... medium dense clayey sand	LL=32, PI=11
						18	5	SM	SILTY SAND: brown, medium dense, wet, fine sand, contains 1" to 2" thick lean clay layers	48% Fines

BORING LOG

Boring No. B-6
Page 2 of 2

JOB NAME: SMC-HMB Farmworker Housing Project *JOB NO.:* COUSM-23-03

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
DS	2300	Nat.	1530	30.0	91		6 7	CL	... gray-brown, medium dense, wet	Non-Plastic
						21			SANDY LEAN CLAY: dark gray to dark blue-gray, medium stiff, moist, fine sand	
								SM	SILTY SAND: gray-brown, medium dense, wet, fine sand	
				27.1			6			23% Fines
DS	2600	Nat.	1630	25.8	98	24	8 9			Non-Plastic
						27				
				22.4			3		... dark gray to dark blue-gray, medium dense, saturated, fine to medium sand	30% Fines
				27.2			4 8		... about 5" bluish gray fat clay	Non-Plastic
						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.	
						33				
						36				
						39				

BORING LOG

Boring No. B-7
Page 1 of 2

JOB NAME: SMC-HMB Farmworker Housing Project
CLIENT: County of San Mateo
LOCATION: 880 Stone Pine Road, Half Moon Bay, CA
DRILLER: Cenozoic Exploration
DRILL METHOD: Truck-Mounted Drilling Rig - 6" Diam. Continuous Flight Augers

JOB NO.: COUSM-23-03
DATE DRILLED: 7/24/2023
ELEVATION: 80± feet
LOGGED BY: JL

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
						0		SC	CLAYEY SAND: dark gray, medium dense, dry to moist, well-graded sand	Fill?
DS	320	Nat.	2380	21.1	97		8 13 13	CL	SANDY LEAN CLAY: dark gray, very stiff, moist, fine to medium sand, trace organics	Native LL=46, PI=20
						3		SC	CLAYEY SAND: dark brown to brown, medium dense, moist, fine to medium sand	
DSX	700	26.3	610	25.8	97		4 5 7	CL SM	SANDY LEAN CLAY: brown, medium stiff, moist, fine to medium sand	
						6			SILTY SAND: brown to dark brown, medium dense, moist, fine to medium sand	
						9				
				23.2			4 5 9		... dark brown, loose, wet, fine to medium sand	30% Fines
DS	1400	Nat.	1110	17.9	105					Non-Plastic
DS	3000	Nat.	2150	18.3	108					
						12		SW-SM SC	WELL-GRADED SAND with SILT: orange-brown and gray, medium dense, wet, well-graded sand, trace fine gravel	
									CLAYEY SAND: brown to orange-brown, medium dense, wet, fine to medium sand	
						15	7 9 7		... about 6" of sandy lean clay	
DS	2000	Nat.	1580	23.0	99				... medium dense clayey fine sand	
						18				

BORING LOG

Boring No. B-7
Page 2 of 2

JOB NAME: SMC-HMB Farmworker Housing Project *JOB NO.:* COUSM-23-03

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
								CL	LEAN CLAY with SAND: dark gray, stiff, moist, little fine sand	
DS	2400	Nat.	1370	24.3	103	21	7 14 22	SM	SILTY SAND: brown to orange-brown, medium dense, moist, fine sand	
									The boring was terminated at approximately 21½ feet bgs. Groundwater was encountered at about 19 feet bgs and was measured at about 18 feet bgs upon completion of the boring. The borehole was backfilled with cement grout.	
						24				
						27				
						30				
						33				
						36				
						39				

BORING LOG

Boring No. B-8
Page 1 of 2

JOB NAME: SMC-HMB Farmworker Housing Project
CLIENT: County of San Mateo
LOCATION: 880 Stone Pine Road, Half Moon Bay, CA
DRILLER: Cenozoic Exploration
DRILL METHOD: Truck-Mounted Drilling Rig - 6" Diam. Continuous Flight Augers

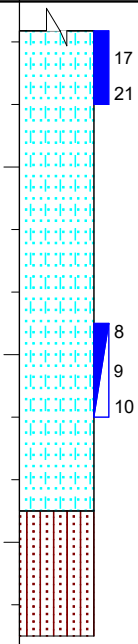
JOB NO.: COUSM-23-03
DATE DRILLED: 7/24/2023
ELEVATION: 77± feet
LOGGED BY: JL

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
						0		SC	CLAYEY SAND: dark brown, medium dense, moist, well-graded sand, trace fine gravel, few organics	Fill
DSX	320	18.7	1110	15.6	113		8 9 10	SC		Native 0.9% Swell
DSX	1500	17.0	2410	14.5	115	3		CL	CLAYEY SAND: brown to orange-brown, medium dense, moist, well-graded sand, trace fine gravel	
DS	500	Nat.	1970	29.9	92		6 11 15		LEAN CLAY: dark brown with red-brown stains, very stiff, moist, few well-graded sand	92% Fines LL=49, PI=25
						6				
DS	1000	Nat.	1030	17.7	110	9	6 7 8	SC	CLAYEY SAND: dark brown, medium dense, moist, medium to coarse sand	
								CL	LEAN CLAY: brown to gray-brown with orange-brown stains, stiff, moist, few fine sand	
						12		CL	SANDY LEAN CLAY: brown to orange-brown, stiff, moist to wet, well-graded sand	
DS	1400	Nat.	1030	28.8	95		6 7 10			66% Fines
						15		SC	CLAYEY SAND: brown, medium dense, wet, well-graded sand	
						18	12	SW-SM	WELL-GRADED SAND with SILT: brown, medium dense, saturated, well-graded sand, few	

BORING LOG

Boring No. B-8
Page 2 of 2

JOB NAME: SMC-HMB Farmworker Housing Project *JOB NO.:* COUSM-23-03

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
DS	1700	Nat.	1890	14.8	114				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. Groundwater was encountered at about 15 feet bgs and was measured at about 9 feet bgs upon completion of the boring. The borehole was backfilled with cement grout.	
						33				
						36				
						39				

BORING LOG

Boring No. B-9
Page 1 of 2

JOB NAME: SMC-HMB Farmworker Housing Project
CLIENT: County of San Mateo
LOCATION: 880 Stone Pine Road, Half Moon Bay, CA
DRILLER: Cenozoic Exploration
DRILL METHOD: Truck-Mounted Drilling Rig - 6" Diam. Continuous Flight Augers

JOB NO.: COUSM-23-03
DATE DRILLED: 7/24/2023
ELEVATION: 78± feet
LOGGED BY: JL

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
						0		SC	CLAYEY SAND with GRAVEL: brown, loose and dry on surface, medium dense and moist below, well-graded sand, little fine gravel	Fill
DS	320	Nat.	340	12.0	97		8			LL=40, PI=17
DS	1500	Nat.	1710	6.5	108		11	CL		Native R-Value=9
							10			
						3			LEAN CLAY with SAND: dark gray, stiff, moist, little fine to medium sand, trace organics	
				22.4			6			75% Fines
DSX	500	21.6	710	20.7	104		8		... brown at about 2½ feet, well-graded sand, trace fine gravel	
							9			
						6			... orange-brown, stiff, moist	
								SC	CLAYEY SAND: orange-brown, medium dense, moist, well-graded sand, trace fine gravel	
							5			
				19.3		9	9			31% Fines
DS	1200	Nat.	1400	16.4	113		13			
						12		CL	LEAN CLAY: orange-brown with dark gray stains, medium stiff, moist to wet, few fine sand	
							5			
							5			
DS	1800	Nat.	920	39.2	84		7			
						15		SC	CLAYEY SAND: orange-brown, medium dense, moist, well-graded sand	
								CL	LEAN CLAY with SAND: orange-brown o brown, medium stiff, moist to wet, few to little fine sand	
						18				
							6			

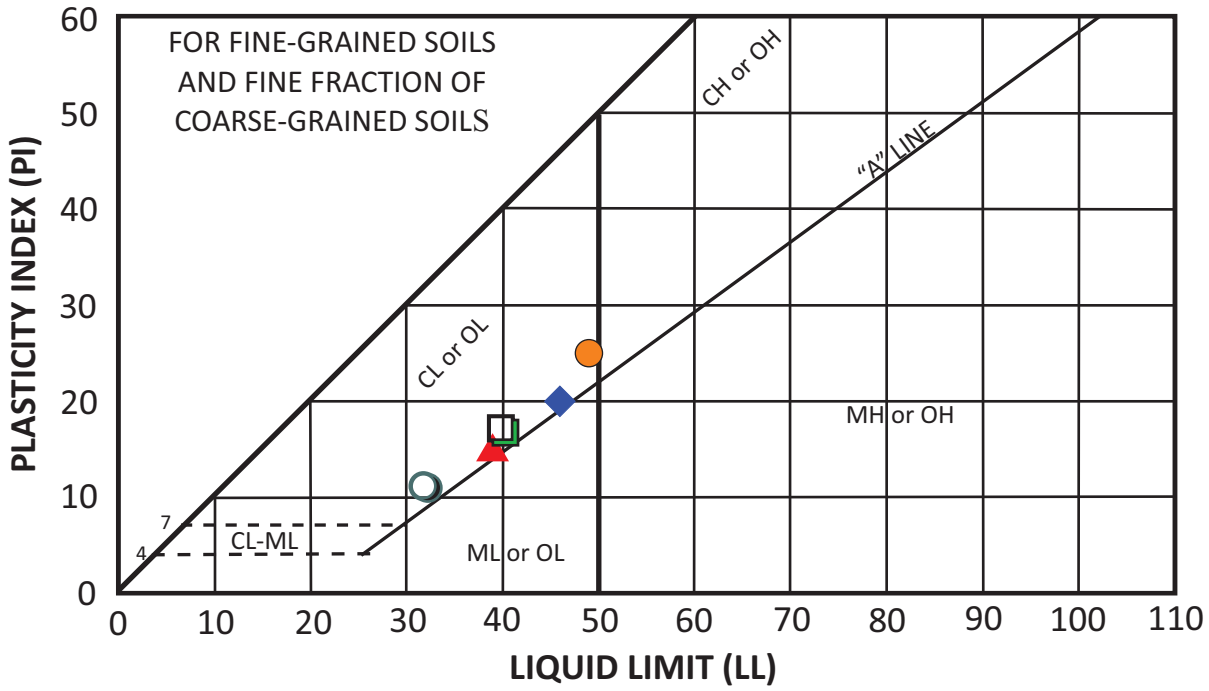
BORING LOG

Boring No. B-9
Page 2 of 2

JOB NAME: SMC-HMB Farmworker Housing Project *JOB NO.:* COUSM-23-03

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
				22.9	104		9 15		... about 2" of medium-grained sand lense ... increased sand content at 20' bgs	
						21			The boring was terminated at approximately 20 feet bgs. Groundwater was not encountered in the boring. The borehole was backfilled with cement grout.	
						24				
						27				
						30				
						33				
						36				
						39				

PLASTICITY CHART



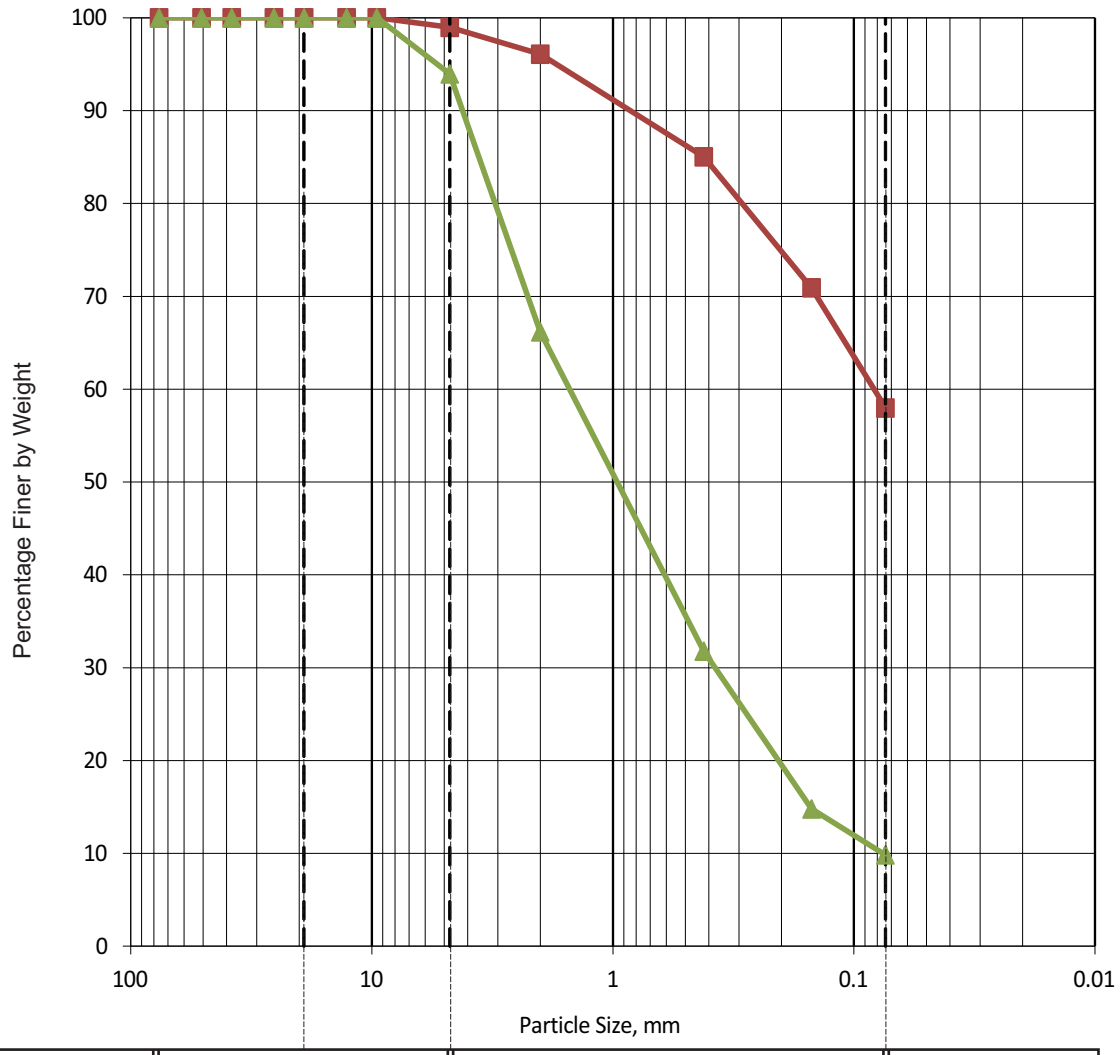
SYMBOL	SAMPLE SOURCE	DEPTH (FEET)	NATURAL WATER CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	SOIL DESCRIPTION
▲	Boring B-6	3.5	13.9	39	24	15	Dark Gray Clayey Sand (SC)
○	Boring B-6	14	25.1	32	21	11	Brown Clayey Sand (SC)
-	Boring B-6	19	30.0		Non-Plastic		Gray-Brown Silty Sand (SM)
-	Boring B-6	23.5	27.1		Non-Plastic		Gray-Brown Silty Sand (SM)
-	Boring B-6	28.5	22.4		Non-Plastic		Dark Blue-Gray Silty Sand (SM)
◆	Boring B-7	1.5	21.1	46	26	20	Dark Gray Sandy Lean Clay (CL)
-	Boring B-7	10.5	23.2		Non-Plastic		Dark Brown Silty Sand (SM)
●	Boring B-8	4	29.9	49	24	25	Dark Brown Lean Clay (CL)
□	Boring B-9	1.5	12.0	40	23	17	Brown Clayey Sand w/ Gravel (SC)

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

PLASTICITY DATA

DATE:	JOB NUMBER:	PLATE
August 2023	COUSM-23-03	14

BAGG ENGINEERS



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

LEGEND				
BORING NUMBER	B-6	B-8		
DEPTH (FEET)	1	18.5		
SOIL DESCRIPTION	Sandy Lean Clay (CL)	Well-Graded Sand with Silt (SW-SM)		

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

GRADATION TEST DATA

DATE:	JOB NUMBER:	PLATE:
August 2023	COUSM-23-03	15

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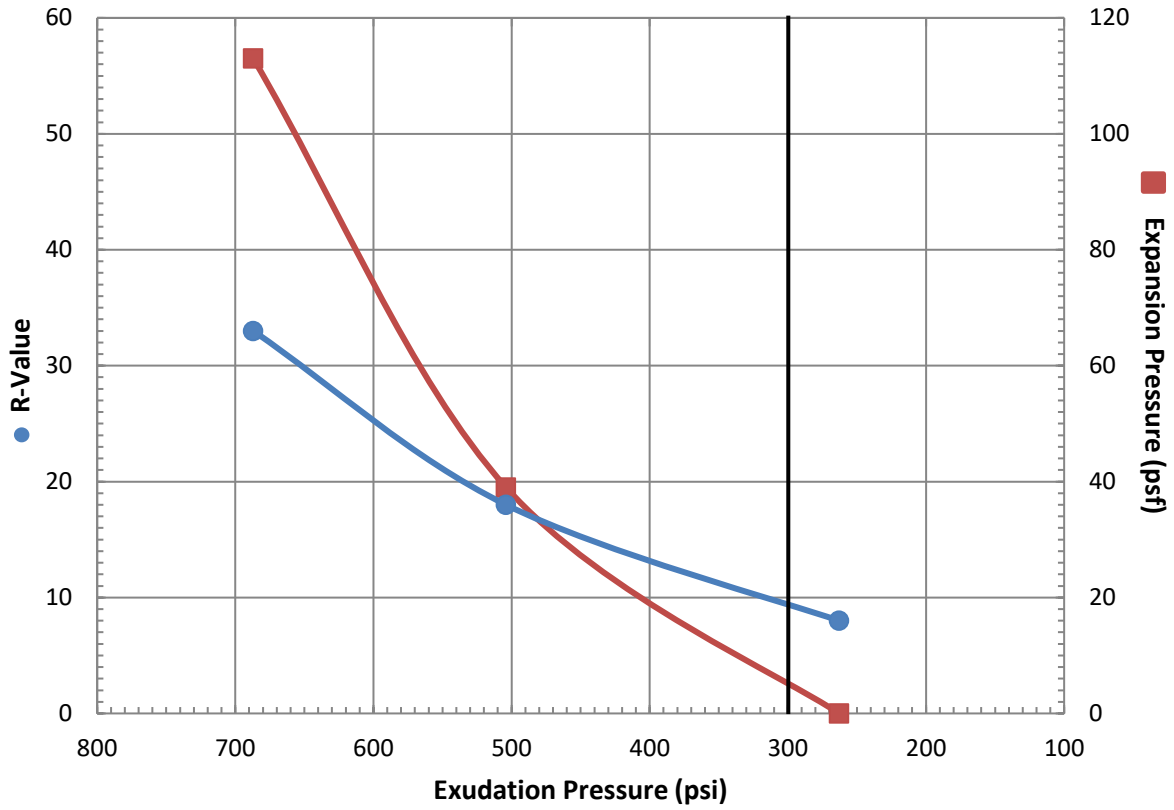
B-9 Bulk Sample at Depth 1.5-3.5 FT



Resistance R-Value and Expansion Pressure - Cal Test 301

No.	Compact. Pressure psi	Density pcf	Moist. %	Expansion Pressure psf	Horizontal Press. Psi @ 160 psi	Sample Height in.	Exud. Pressure psi	R Value	R Value Corr.
1	320	113.3	15.1	113	98	2.54	687	33	33
2	250	110.5	15.9	39	123	2.59	504	18	19
3	140	106.4	18.1	0	139	2.64	263	8	9

R-value at 300 psi exudation pressure = 9
Exp. Pressure at 300 psi exudation pressure = 6 psf

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

R-VALUE TEST REPORT

DATE:	JOB NUMBER:	PLATE
August 2023	COUSM-23-03	16

Corrosivity Tests Summary

CTL # 011-948 **Date:** 7/28/2023 **Tested By:** PJ **Checked:** PJ
Client: BAGG Engineers **Project:** Farmworkers Housing Project **Proj. No:** C00SM-23-03
Remarks:

Sample Location or ID			Resistivity @ 15.5 °C (Ohm-cm)			Chloride	Sulfate		pH	ORP (Redox)		Sulfide	Moisture	Soil Visual Description
			As Rec.	Min	Sat.	mg/kg	mg/kg	%		E_H (mv)	At Test	Qualitative by Lead	At Test %	
						Dry Wt.	Dry Wt.	Dry Wt.						
Boring	Sample, No.	Depth, ft.	ASTM G57	Cal 643	ASTM G57	ASTM D4327	ASTM D4327	ASTM D4327	ASTM G51	ASTM G200	Temp °C	Acetate Paper	ASTM D2216	
B-6	-	2-5	-	-	7,471	<2	8	0.0008	7.4	486	23	Negative	15.0	Black Sandy CLAY
B-8	-	1.5-4	-	-	3,851	4	3	0.0003	7.5	492	23	Negative	17.7	Dark Yellowish Brown CLAY w/ Sand, trace Gravel

APPENDIX A

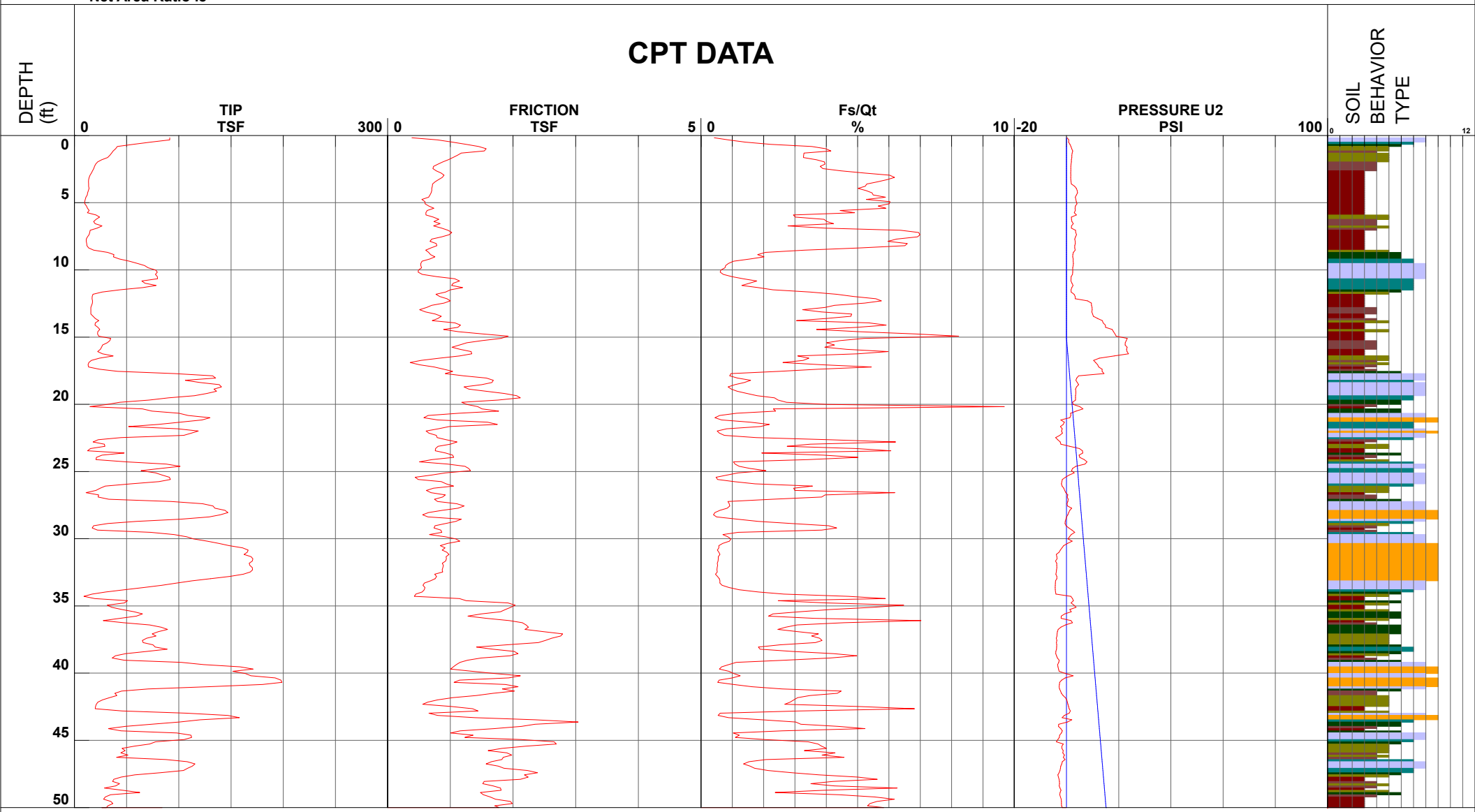
Cone Penetration Test (CPT) Results
(CPT-3 through CPT-5)

BAGG Engineering

Project	SMC-HMB Farmworker Housing project	Operator	AJ-ER	Filename	SDF(864).cpt
Job Number	COUSM-23-03	Cone Number	DDG1589	GPS	
Hole Number	CPT-03	Date and Time	7/26/2023 10:51:49 AM	Maximum Depth	50.52 ft
EST GW Depth During Test		15.10 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Cone Size 15cm²

S*Soil behavior type and SPT based on data from UBC-1983

SMC-HMB Farmworker Housing project

Project ID: BAGG Engineering
Data File: SDF(864).cpt
CPT Date: 7/26/2023 10:51:49 AM
GW During Test: 15 ft

Sounding ID: CPT-03
Project No: COUSM-23-03
Cone/Rig: DDG1589

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
0.33	91.3	146.4	156.5	91.3	0.8	0.9	0.9	6	clean SAND to silty SAND	125	5.0	29	18	26	80	48	-	-	7	0.350	1.75	16
0.49	73.0	117.1	146.5	73.0	1.0	0.8	1.4	6	clean SAND to silty SAND	125	5.0	23	15	23	72	48	-	-	12	0.350	1.96	16
0.66	56.3	90.3	146.1	56.3	1.3	1.3	2.2	5	silty SAND to sandy SILT	120	3.0	30	19	19	64	48	-	-	18	0.200	2.18	16
0.82	41.1	65.9	157.9	41.1	1.5	1.7	3.5	4	clayy SILT to silty CLAY	115	2.0	33	21	15	-	-	2.9	9.9	27	0.070	2.42	15
0.98	39.5	63.4	166.0	39.5	1.6	2.0	4.0	4	clayy SILT to silty CLAY	115	2.0	32	20	15	-	-	2.8	9.9	29	0.070	2.47	15
1.15	37.2	59.7	165.4	37.2	1.5	2.4	4.2	4	clayy SILT to silty CLAY	115	2.0	30	19	15	-	-	2.6	9.9	31	0.070	2.50	15
1.31	35.7	57.2	142.2	35.7	1.2	2.2	3.3	4	clayy SILT to silty CLAY	115	2.0	29	18	14	-	-	2.5	9.9	28	0.070	2.44	15
1.48	33.9	54.4	138.8	33.9	1.1	2.0	3.3	4	clayy SILT to silty CLAY	115	2.0	27	17	13	-	-	2.4	9.9	29	0.070	2.46	15
1.64	31.8	51.0	134.9	31.9	1.0	2.0	3.3	4	clayy SILT to silty CLAY	115	2.0	26	16	12	-	-	2.2	9.9	30	0.070	2.47	15
1.80	26.2	42.0	132.7	26.2	1.0	1.9	3.7	4	clayy SILT to silty CLAY	115	2.0	21	13	11	-	-	1.8	9.9	34	0.070	2.57	15
1.97	22.3	35.8	-	22.3	0.9	1.9	4.0	4	clayy SILT to silty CLAY	115	2.0	18	11	9	-	-	1.6	9.9	38	0.070	2.64	15
2.13	20.3	32.6	-	20.4	0.8	1.7	4.0	4	clayy SILT to silty CLAY	115	2.0	16	10	9	-	-	1.4	9.9	39	0.070	2.67	15
2.30	19.3	30.9	-	19.3	0.7	1.7	3.8	4	clayy SILT to silty CLAY	115	2.0	15	10	8	-	-	1.4	9.9	39	0.070	2.68	15
2.46	18.6	29.8	-	18.6	0.7	1.6	3.9	4	clayy SILT to silty CLAY	115	2.0	15	9	8	-	-	1.3	9.9	40	0.070	2.70	15
2.62	17.4	27.8	-	17.4	0.8	1.6	4.5	3	silty CLAY to CLAY	115	1.5	19	12	8	-	-	1.2	9.9	44	0.005	2.76	15
2.79	16.4	26.2	-	16.4	0.9	1.6	5.3	3	silty CLAY to CLAY	115	1.5	17	11	8	-	-	1.1	9.9	48	0.005	2.83	15
2.95	14.9	24.0	-	15.0	0.9	1.7	6.1	3	silty CLAY to CLAY	115	1.5	16	10	7	-	-	1.0	9.9	52	0.005	2.90	15
3.12	14.1	22.7	-	14.2	0.9	1.6	6.3	3	silty CLAY to CLAY	115	1.5	15	9	7	-	-	1.0	9.9	54	0.005	2.93	15
3.28	13.7	21.9	-	13.7	0.8	1.7	6.0	3	silty CLAY to CLAY	115	1.5	15	9	7	-	-	1.0	9.9	54	0.005	2.93	15
3.45	13.4	21.5	-	13.5	0.8	1.7	5.7	3	silty CLAY to CLAY	115	1.5	14	9	7	-	-	0.9	9.9	53	0.005	2.92	15
3.61	13.5	21.7	-	13.6	0.7	1.9	5.4	3	silty CLAY to CLAY	115	1.5	14	9	7	-	-	0.9	9.9	52	0.005	2.90	15
3.77	13.6	21.8	-	13.7	0.7	3.1	5.3	3	silty CLAY to CLAY	115	1.5	15	9	7	-	-	0.9	9.9	51	0.005	2.89	15
3.94	14.0	22.5	-	14.1	0.7	3.7	5.1	3	silty CLAY to CLAY	115	1.5	15	9	7	-	-	1.0	9.9	50	0.005	2.87	15
4.10	13.4	21.4	-	13.4	0.7	4.1	5.4	3	silty CLAY to CLAY	115	1.5	14	9	6	-	-	0.9	9.9	52	0.005	2.90	15
4.27	12.7	20.3	-	12.8	0.7	4.3	5.6	3	silty CLAY to CLAY	115	1.5	14	8	6	-	-	0.9	9.9	54	0.005	2.93	15
4.43	12.3	19.7	-	12.3	0.7	3.8	5.6	3	silty CLAY to CLAY	115	1.5	13	8	6	-	-	0.8	9.9	55	0.005	2.94	15
4.59	11.1	17.8	-	11.2	0.7	3.4	6.0	3	silty CLAY to CLAY	115	1.5	12	7	6	-	-	0.8	9.9	58	0.005	3.00	15
4.76	10.3	16.6	-	10.4	0.5	3.6	5.4	3	silty CLAY to CLAY	115	1.5	11	7	5	-	-	0.7	9.9	58	0.005	2.99	15
4.92	9.8	15.8	-	9.9	0.6	3.8	6.2	3	silty CLAY to CLAY	115	1.5	11	7	5	-	-	0.7	9.9	62	0.005	3.05	15
5.09	9.9	16.0	-	10.0	0.6	4.0	6.2	3	silty CLAY to CLAY	115	1.5	11	7	5	-	-	0.7	9.9	61	0.005	3.04	15
5.25	11.6	18.6	-	11.7	0.7	3.4	5.8	3	silty CLAY to CLAY	115	1.5	12	8	6	-	-	0.8	9.9	57	0.005	2.97	15
5.41	12.5	20.0	-	12.6	0.7	3.3	6.1	3	silty CLAY to CLAY	115	1.5	13	8	6	-	-	0.9	9.9	56	0.005	2.96	15
5.58	14.2	22.8	-	14.3	0.6	3.4	4.5	3	silty CLAY to CLAY	115	1.5	15	9	7	-	-	1.0	9.9	48	0.005	2.83	15
5.74	12.4	19.9	-	12.5	0.6	3.0	5.0	3	silty CLAY to CLAY	115	1.5	13	8	6	-	-	0.9	9.9	52	0.005	2.91	15
5.91	20.7	33.2	108.3	20.8	0.6	3.8	3.0	4	clayy SILT to silty CLAY	115	2.0	17	10	8	-	-	1.4	9.9	35	0.070	2.59	15
6.07	24.1	38.6	116.2	24.1	0.7	1.9	3.1	4	clayy SILT to silty CLAY	115	2.0	19	12	10	-	-	1.7	9.9	33	0.070	2.55	15
6.23	20.8	33.3	-	20.8	0.8	1.9	4.0	4	clayy SILT to silty CLAY	115	2.0	17	10	9	-	-	1.4	9.9	39	0.070	2.67	15
6.40	18.4	29.4	-	18.4	0.7	2.1	4.1	4	clayy SILT to silty CLAY	115	2.0	15	9	8	-	-	1.3	9.9	42	0.070	2.72	15
6.56	19.8	31.7	-	19.8	0.8	2.6	4.3	4	clayy SILT to silty CLAY	115	2.0	16	10	9	-	-	1.4	9.9	41	0.070	2.71	15
6.73	26.4	41.1	114.1	26.5	0.7	1.9	2.8	4	clayy SILT to silty CLAY	115	2.0	21	13	10	-	-	1.8	9.9	31	0.070	2.50	15
6.89	21.8	35.0	-	21.8	0.9	1.9	4.0	4	clayy SILT to silty CLAY	115	2.0	17	11	9	-	-	1.5	9.9	38	0.070	2.66	15
7.05	15.1	24.2	-	15.2	1.0	3.5	6.5	3	silty CLAY to CLAY	115	1.5	16	10	7	-	-	1.0	9.9	53	0.005	2.92	15
7.22	14.7	23.6	-	14.8	1.0	3.5	7.1	3	silty CLAY to CLAY	115	1.5	16	10	7	-	-	1.0	9.9	56	0.005	2.96	15
7.38	14.0	22.5	-	14.1	1.0	3.9	7.2	3	silty CLAY to CLAY	115	1.5	15	9	7	-	-	1.0	9.9	57	0.005	2.98	15
7.55	12.5	20.0	-	12.6	0.9	3.5	7.2	3	silty CLAY to CLAY	115	1.5	13	8	6	-	-	0.9	9.1	59	0.005	3.01	15
7.71	11.3	18.1	-	11.4	0.7	3.2	6.5	3	silty CLAY to CLAY	115	1.5	12	8	6	-	-	0.8	8.0	60	0.005	3.02	15
7.87	11.3	18.1	-	11.4	0.7	3.3	6.2	3	silty CLAY to CLAY	115	1.5	12	8	6	-	-	0.8	7.9	59	0.005	3.00	15
8.04	11.8	18.9	-	11.8	0.8	3.4	6.9	3	silty CLAY to CLAY	115	1.5	13	8	6	-	-	0.8	8.0	60	0.005	3.02	15
8.20	12.1	19.4	-	12.1	0.8	3.2	6.8	3	silty CLAY to CLAY	115	1.5	13	8	6	-	-	0.8	8.1	59	0.005	3.01	15
8.37	13.6	21.8	-	13.7	0.7	3.1	5.3	3	silty CLAY to CLAY	115	1.5	15	9	7	-	-	0.9	8.9	52	0.005	2.89	15
8.53	18.3	29.4	-	18.4	0.6	3.3	3.4	4	clayy SILT to silty CLAY	115	2.0	15	9	8	-	-	1.3	9.9	39	0.070	2.67	15
8.69	31.8	43.5	100.3	31.8	0.7	2.6	2.1	5	silty SAND to sandy SILT	120	3.0	15	11	10	40	38	-	-	26	0.200	2.40	16
8.86	37.9	51.4	101.1	38.0	0.7	2.4	1.8	5	silty SAND to sandy SILT	120	3.0	17	13	11	45	39	-	-	23	0.200	2.31	16
9.02	37.4	50.3	105.4	37.4	0.8	2.4	2.0	5	silty SAND to sandy SILT	120	3.0	17	12	11	44	39	-	-	24	0.200	2.34	16
9.19	42.9	57.2	99.6	43.0	0.7	2.6	1.6	5	silty SAND to sandy SILT	120	3.0	19	14	12	49	39	-	-	20	0.200	2.23	16
9.35	52.7	69.6	95.5	52.8	0.5	2.6	1.1	6	clean SAND to silty SAND	125	5.0	14	11	14	55	40	-	-	14	0.350	2.05	16
9.51	60.4	78.9	98.9	60.4	0.5	2.6	0.9	6	clean SAND to silty SAND	125	5.0	16	12	15	59	41	-	-	12	0.350	1.96	16
9.68	67.3	87.1	103.4	67.3	0.5	2.6	0.8	6	clean SAND to silty SAND	125	5.0	17	13	16	62	41	-	-	10	0.350	1.90	16
9.84	70.6	90.7	105.9	70.7	0.5	2.4	0.8	6	clean SAND to silty SAND	125	5.0	18	14	17	64	42	-	-	10	0.350	1.88	16
10.01	77.8	98.9	109.3	77.8	0.5	2.4	0.6	6	clean SAND to silty SAND	125	5.0	20	16	18	67	42	-	-	8	0.350	1.80	16
10.17	79.5	100.2	109.9	79.5	0.5	2.4	0.6	6	clean SAND to silty SAND	125	5.0	20	16	18	67	42	-	-	8	0.350	1.79	16
10.34	77.5	96.9	109.9	77.6	0.6	2.3	0.7	6	clean SAND to silty SAND	125	5.0	19	16	18	66	42	-	-	9	0.350	1.84	16
10.50	79.4	98.4	118.5	79.4	0.8	1.8	1.0	6	clean SAND to silty SAND	125	5.0	20	16	19	66	42	-	-	11	0.350	1.92	16
10.66	79.7	97.9	128.1	79.7	1.1	1.8	1.4	6	clean SAND to silty SAND	125	5.0	20	16	19	66	42	-	-	13	0.350	2.01	16
10.83	64.5	78.7	123.9	64.6	1.1	1.7	1.8	5	silty SAND to sandy SILT	120	3.0	26	22	16	59	41	-	-	18	0.200	2.16	16
10.99	67.5	81.7	119.9	67.5	1.0	2.1	1.6	5	silty SAND to sandy SILT	120	3.0	27	23	17	60	41	-	-	16	0.200	2.11	16
11.16	78.2	93.9	123.6	78.3	1.0	2.5	1.3	6	clean SAND to silty SAND	125	5.0	19	16	19	65	41	-	-	13	0.350	2.01	16
11.32	65.8	78.4	124.7	65.8	1.2	2.1	1.8	5	silty SAND to sandy SILT	120	3.0	26	22	16	59	40	-	-	18	0.200	2.17	16
11.48	43.6	51.5	113.9	43.6	1.0	1.8	2.3	5	silty SAND to sandy SILT	120	3.0	17	15	12	45	38	-	-	25	0.200	2.37	16
11.65	26.6	34.1	-	26.6	0.9	1.8	3.6	4	clayy SILT to silty CLAY	115	2.0	17	13	9	-	-	1.8	9.9	37	0.070	2.63	15
11.81	17.8	25.6	-	17.8	0.8	2.9	4.5	3	silty CLAY to CLAY	115	1.5	17	12	7	-	-	1.2	8.1	46	0.005	2.80	15
11.98	17.0	24.2	-	17.1	0.8	3.3	5.1	3	silty CLAY to CLAY	115	1.5	16	11	7	-	-	1.2	7.7	49	0.005	2.85	15
12.14	17.0	23.8	-	17.0	0.9	3.4	5.8	3	silty CLAY to CLAY	115	1.5	16	11	7	-	-	1.1	7.5	52	0.005	2.90	15
12.30	17.4	24.1	-	17.5	1.0	8.1	6.0	3	silty CLAY to CLAY	115	1.5	16	12	7	-	-	1.2	7.6	52	0.005	2.90	15
12.47	17.2	23.5	-	17.4	0.9	9.5	5.5	3	silty CLAY to CLAY	115	1.5	16	11	7	-	-	1.2	7.4	51	0.005	2.88	15
12.63	16.5	22.3	-	16.7	0.7	9.6	4.5	3	silty CLAY to CLAY	115	1.5	15	11	6	-	-	1.1	7.0	49	0.005	2.84	15
12.80	15.7	21.0	-	15.9	0.6	9.8	4.2	3	silty CLAY to CLAY	115	1.5	14	10	6	-	-	1.1	6.6	49	0.005	2.84	15
12.96	15.7	20.7	-	15.9	0.5	9.9	3.4	4	clayy SILT to silty CLAY	115	2.0	10	8	6	-	-	1.1	6.5	46	0.070	2.79	15
13.12	15.7	20.4	-	15.9	0.6	9.7	4.0	3	silty CLAY to CLAY	115	1.5	14	10	6	-	-	1.1	6.4	49	0.005	2.85	15
13.29	15.8	20.3	-	16.0	0.8	10.0	5.1	3	silty CLAY to CLAY	115	1.5	14	11	6	-	-	1.1	6.4	53	0.005	2.91	15
13.45	17.9	22.7	-	18.1	0.9	10.3	5.0	3	silty CLAY to CLAY	115	1.5	15	12	7	-	-	1.2	7.2	50	0.005	2.87	15
13.62	20.1	25.2	-	20.3	0.8	12.0	4.2	3	silty CLAY to CLAY	115	1.5	17	13	7	-	-	1.4	8.0	45	0.005	2.78	15
13.78	23.3	28.9	-	23.6	0.7	13.8	3.2	4	clayy SILT to silty CLAY	115	2.0	14	12	8	-	-	1.6	9.2	38	0.070	2.66	15
13.94	20.0	24.5	-	20.3	1.1	14.0	5.6	3	silty CLAY to CLAY	115	1.5	16	13	7	-	-	1.4	7.8	51	0.005	2.88	15
14.11	19.7	23.8	-	20.0	1.2	14.9	6.2	3	silty CLAY to CLAY	115	1.5	16	13	7	-	-	1.3	7.5	53	0.005	2.92	15
14.27	22.5	26.9	-	22.8	1.1	15.0	5.2	3	silty CLAY to CLAY	115	1.5	18	15	8	-	-	1.5	8.6	47	0.005	2.82	15
14.44	24.2	28.7	-	24.6	0.9	17.5	3.8	4	clayy SILT to silty CLAY	115	2.0	14	12	8	-	-	1.7	9.1	41	0.070	2.71	15
14.60	22.4	26.2	-	22.7	1.1	18.0	5.2	3	silty CLAY to CLAY	115	1.5	17	15	8	-	-	1.5	8.3	48	0.005	2.84	15
14.76	22.2	25.7	-	22.5	1.5	18.5	7.1	3	silty CLAY to CLAY	115	1.5	17	15	8	-	-	1.5	8.1	54	0.005	2.93	15
14.93	23.4	26.8	-	23.8	1.9	19.0	8.5	3	silty CLAY to CLAY	115	1.5	18	16	8	-	-	1.6	8.5	57	0.005	2.98	15
15.09	34.8	39.7	-	35.3	1.8	23.2	5.3	3	silty CLAY to CLAY	115	1.5	26	23	11	-	-	2.4	9.9	41	0.005	2.71	15
15.26	33.9	38.5	-	34.4	1.5	22.9	4.6	4	clayy SILT to silty CLAY	115	2.0	19	17	10	-	-	2.3	9.9	39	0.070	2.67	15
15.42	31.5	35.6	-	31.9	1.3	22.5	4.1	4	clayy SILT to silty CLAY	115	2.0	18	16	9	-	-	2.2	9.9	39	0.070	2.66	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
15.58	27.0	30.3	-	27.4	1.1	22.5	4.4	3	silty CLAY to CLAY	115	1.5	20	18	8	-	-	1.8	9.7	42	0.005	2.74	15
15.75	26.0	29.1	-	26.5	1.0	23.2	4.1	4	clayy SILT to silty CLAY	115	2.0	15	13	8	-	-	1.8	9.3	42	0.070	2.73	15
15.91	24.9	27.7	-	25.3	1.2	23.0	4.8	3	silty CLAY to CLAY	115	1.5	18	17	8	-	-	1.7	8.8	46	0.005	2.79	15
16.08	22.3	24.7	-	22.8	1.3	23.2	6.2	3	silty CLAY to CLAY	115	1.5	16	15	7	-	-	1.5	7.8	52	0.005	2.91	15
16.24	26.8	29.6	-	27.3	1.3	23.8	5.2	3	silty CLAY to CLAY	115	1.5	20	18	8	-	-	1.8	9.4	46	0.005	2.79	15
16.40	37.2	37.9	118.3	37.6	1.1	18.3	3.2	4	clayy SILT to silty CLAY	115	2.0	19	19	10	-	-	2.6	9.9	34	0.070	2.57	15
16.57	24.0	26.2	-	24.2	0.8	12.6	3.6	4	clayy SILT to silty CLAY	115	2.0	13	12	7	-	-	1.6	8.3	42	0.070	2.73	15
16.73	16.3	17.7	-	16.5	0.5	10.4	3.5	3	silty CLAY to CLAY	115	1.5	12	11	5	-	-	1.1	5.5	49	0.005	2.86	15
16.90	13.8	14.9	-	14.0	0.4	11.2	2.8	3	silty CLAY to CLAY	115	1.5	10	9	4	-	-	0.9	4.6	50	0.005	2.87	15
17.06	13.1	14.1	-	13.4	0.5	11.9	4.2	3	silty CLAY to CLAY	115	1.5	9	9	4	-	-	0.9	4.3	58	0.005	2.99	15
17.23	13.6	14.6	-	13.9	0.7	12.4	5.9	3	silty CLAY to CLAY	115	1.5	10	9	5	-	-	0.9	4.5	63	0.005	3.07	15
17.39	24.0	25.6	-	24.3	0.9	13.6	3.9	4	clayy SILT to silty CLAY	115	2.0	13	12	7	-	-	1.6	8.1	44	0.070	2.76	15
17.55	41.6	41.6	109.6	41.8	1.0	13.7	2.6	4	clayy SILT to silty CLAY	115	2.0	21	21	10	-	-	2.9	9.9	29	0.070	2.47	15
17.72	96.0	95.9	115.8	96.3	0.9	14.4	1.0	6	clean SAND to silty SAND	125	5.0	19	19	18	66	41	-	-	11	0.350	1.92	16
17.88	132.5	131.9	145.8	132.5	1.2	4.7	0.9	6	clean SAND to silty SAND	125	5.0	26	26	24	76	42	-	-	8	0.350	1.80	16
18.05	135.3	134.4	155.4	135.4	1.6	3.9	1.2	6	clean SAND to silty SAND	125	5.0	27	27	25	77	42	-	-	10	0.350	1.86	16
18.21	106.2	105.2	141.9	106.3	1.7	3.6	1.6	5	silty SAND to sandy SILT	120	3.0	35	35	21	69	41	-	-	14	0.200	2.03	16
18.37	120.4	119.0	148.0	120.5	1.7	4.2	1.4	6	clean SAND to silty SAND	125	5.0	24	24	23	73	42	-	-	12	0.350	1.95	16
18.54	138.6	136.6	155.0	138.7	1.5	4.7	1.1	6	clean SAND to silty SAND	125	5.0	27	28	25	77	42	-	-	9	0.350	1.84	16
18.70	140.8	138.4	149.9	140.9	1.2	3.9	0.9	6	clean SAND to silty SAND	125	5.0	28	28	25	78	42	-	-	7	0.350	1.77	16
18.87	133.7	131.0	146.7	133.7	1.3	3.5	1.0	6	clean SAND to silty SAND	125	5.0	26	27	24	76	42	-	-	8	0.350	1.82	16
19.03	136.1	133.0	153.9	136.1	1.6	3.6	1.2	6	clean SAND to silty SAND	125	5.0	27	27	25	76	42	-	-	10	0.350	1.86	16
19.19	126.8	123.7	154.8	126.9	1.9	3.6	1.5	6	clean SAND to silty SAND	125	5.0	25	25	24	74	42	-	-	12	0.350	1.96	16
19.36	115.0	111.8	153.9	115.1	2.1	3.5	1.8	5	silty SAND to sandy SILT	120	3.0	37	38	22	71	41	-	-	14	0.200	2.05	16
19.52	90.3	87.6	148.8	90.3	2.1	3.5	2.4	5	silty SAND to sandy SILT	120	3.0	29	30	19	63	40	-	-	19	0.200	2.21	16
19.69	71.6	69.3	135.3	71.7	1.8	3.5	2.5	5	silty SAND to sandy SILT	120	3.0	23	24	15	55	39	-	-	23	0.200	2.30	16
19.85	43.3	41.8	115.5	43.3	1.2	2.3	2.8	4	clayy SILT to silty CLAY	115	2.0	21	22	10	-	-	3.0	9.9	31	0.070	2.50	15
20.01	31.5	31.0	-	31.6	1.3	2.6	4.2	4	clayy SILT to silty CLAY	115	2.0	16	16	8	-	-	2.2	9.9	41	0.070	2.71	15
20.18	14.9	14.6	-	15.0	1.4	5.1	9.9	3	silty CLAY to CLAY	115	1.5	10	10	5	-	-	1.0	4.4	75	0.005	3.22	15
20.34	65.2	62.6	125.1	65.3	1.5	6.3	2.4	5	silty SAND to sandy SILT	120	3.0	21	22	14	52	38	-	-	23	0.200	2.32	16
20.51	74.4	71.2	135.0	74.5	1.8	3.7	2.4	5	silty SAND to sandy SILT	120	3.0	24	25	16	56	39	-	-	22	0.200	2.28	16
20.67	100.1	95.6	120.5	100.1	1.1	1.6	1.1	6	clean SAND to silty SAND	125	5.0	19	20	19	66	40	-	-	12	0.350	1.97	16
20.83	108.8	103.7	112.4	108.8	0.6	1.6	0.6	6	clean SAND to silty SAND	125	5.0	21	22	19	68	41	-	-	7	0.350	1.77	16
21.00	129.9	123.4	123.4	129.9	0.6	1.3	0.4	6	clean SAND to silty SAND	125	5.0	25	26	21	74	42	-	-	5	0.350	1.63	16
21.16	122.1	115.8	124.3	122.1	0.8	-2.2	0.7	6	clean SAND to silty SAND	125	5.0	23	24	21	72	41	-	-	7	0.350	1.75	16
21.33	101.4	95.9	133.4	101.3	1.6	-0.8	1.6	5	silty SAND to sandy SILT	120	3.0	32	34	19	66	40	-	-	15	0.200	2.06	16
21.49	80.3	75.8	133.5	80.3	1.8	-1.2	2.2	5	silty SAND to sandy SILT	120	3.0	25	27	16	58	39	-	-	20	0.200	2.24	16
21.65	51.9	48.8	102.2	51.8	1.0	-2.3	1.9	5	silty SAND to sandy SILT	120	3.0	16	17	11	43	36	-	-	24	0.200	2.34	16
21.82	98.8	92.8	109.5	98.7	0.8	-1.6	0.8	6	clean SAND to silty SAND	125	5.0	19	20	17	65	40	-	-	10	0.350	1.89	16
21.98	118.7	111.3	116.2	118.7	0.6	-1.9	0.5	6	clean SAND to silty SAND	125	5.0	22	24	20	71	41	-	-	6	0.350	1.71	16
22.15	112.0	104.7	113.1	111.9	0.7	-1.6	0.6	6	clean SAND to silty SAND	125	5.0	21	22	19	69	41	-	-	7	0.350	1.76	16
22.31	104.7	97.7	111.6	104.7	0.8	-2.5	0.8	6	clean SAND to silty SAND	125	5.0	20	21	18	66	40	-	-	9	0.350	1.85	16
22.47	44.7	41.6	92.9	44.6	0.8	-4.2	1.8	5	silty SAND to sandy SILT	120	3.0	14	15	10	38	35	-	-	26	0.200	2.38	16
22.64	22.9	20.9	-	22.8	0.9	-3.4	4.3	3	silty CLAY to CLAY	115	1.5	14	15	6	-	-	1.5	6.5	50	0.005	2.86	15
22.80	17.8	16.2	-	17.8	1.1	-2.4	6.7	3	silty CLAY to CLAY	115	1.5	11	12	5	-	-	1.2	5.0	64	0.005	3.07	15
22.97	28.7	26.0	-	28.6	1.0	-2.1	3.7	4	clayy SILT to silty CLAY	115	2.0	13	14	7	-	-	1.9	8.2	42	0.070	2.74	15
23.13	29.3	26.4	-	29.3	0.8	1.2	2.9	4	clayy SILT to silty CLAY	115	2.0	13	15	7	-	-	2.0	8.3	39	0.070	2.66	15
23.30	15.4	13.9	-	15.5	0.8	5.0	5.4	3	silty CLAY to CLAY	115	1.5	9	10	5	-	-	1.0	4.2	63	0.005	3.07	15
23.46	12.5	11.2	-	12.7	0.8	6.1	6.8	3	silty CLAY to CLAY	115	1.5	7	8	4	-	-	0.8	3.3	74	0.005	3.21	15
23.62	47.6	43.7	99.1	47.7	0.9	6.2	2.0	5	silty SAND to sandy SILT	120	3.0	15	16	10	40	36	-	-	26	0.200	2.39	16
23.79	26.5	23.6	-	26.6	1.0	4.8	4.1	3	silty CLAY to CLAY	115	1.5	16	18	7	-	-	1.8	7.4	46	0.005	2.81	15
23.95	21.0	18.6	-	21.1	1.1	5.1	5.4	3	silty CLAY to CLAY	115	1.5	12	14	6	-	-	1.4	5.7	56	0.005	2.96	15
24.12	20.7	18.3	-	20.8	0.7	6.8	3.7	3	silty CLAY to CLAY	115	1.5	12	14	5	-	-	1.4	5.6	50	0.005	2.86	15
24.28	49.3	44.9	76.4	49.5	0.5	7.9	1.1	5	silty SAND to sandy SILT	120	3.0	15	16	10	41	36	-	-	19	0.200	2.21	16
24.44	87.9	79.9	105.9	88.0	1.0	7.1	1.1	6	clean SAND to silty SAND	125	5.0	16	18	16	60	39	-	-	13	0.350	2.02	16
24.61	101.2	91.8	119.7	101.3	1.2	3.6	1.2	6	clean SAND to silty SAND	125	5.0	18	20	18	64	40	-	-	13	0.350	2.00	16
24.77	82.8	74.9	115.1	82.8	1.3	2.4	1.6	5	silty SAND to sandy SILT	120	3.0	25	28	16	57	39	-	-	17	0.200	2.14	16
24.94	63.8	57.6	114.7	63.8	1.3	1.9	2.1	5	silty SAND to sandy SILT	120	3.0	19	21	13	49	37	-	-	23	0.200	2.31	16
25.10	77.8	70.1	100.5	77.9	0.9	2.9	1.2	5	silty SAND to sandy SILT	120	3.0	23	26	14	55	38	-	-	15	0.200	2.09	16
25.26	83.9	75.5	95.4	83.9	0.7	1.1	0.9	6	clean SAND to silty SAND	125	5.0	15	17	15	58	39	-	-	12	0.350	1.97	16
25.43	91.0	81.6	91.0	91.0	0.4	-0.4	0.5	6	clean SAND to silty SAND	125	5.0	16	18	15	60	39	-	-	8	0.350	1.81	16
25.59	91.9	82.3	92.9	91.9	0.5	-1.6	0.5	6	clean SAND to silty SAND	125	5.0	16	18	15	61	39	-	-	9	0.350	1.83	16
25.76	81.0	72.4	98.8	81.0	0.9	-1.8	1.1	6	clean SAND to silty SAND	125	5.0	14	16	14	56	38	-	-	14	0.350	2.05	16
25.92	54.1	48.2	97.7	54.0	0.9	-1.9	1.8	5	silty SAND to sandy SILT	120	3.0	16	18	11	43	36	-	-	23	0.200	2.32	16
26.08	29.6	24.8	-	29.5	1.1	-1.7	3.8	4	clayy SILT to silty CLAY	115	2.0	12	15	7	-	-	2.0	7.8	44	0.070	2.76	15
26.25	24.7	20.6	-	24.7	0.7	-1.0	3.2	4	clayy SILT to silty CLAY	115	2.0	10	12	6	-	-	1.7	6.4	45	0.070	2.78	15
26.41	20.6	17.2	-	20.6	0.6	-0.7	3.2	3	silty CLAY to CLAY	115	1.5	11	14	5	-	-	1.4	5.2	49	0.005	2.85	15
26.58	11.2	9.3	-	11.2	0.7	-0.3	7.2	3	silty CLAY to CLAY	115	1.5	6	7	4	-	-	0.7	2.6	81	0.005	3.30	15
26.74	23.2	19.2	-	23.2	0.9	0.5	4.3	3	silty CLAY to CLAY	115	1.5	13	15	6	-	-	1.6	5.9	51	0.005	2.89	15
26.90	22.8	18.8	-	22.8	0.9	0.3	4.1	3	silty CLAY to CLAY	115	1.5	13	15	6	-	-	1.5	5.8	51	0.005	2.89	15
27.07	33.0	27.1	-	33.0	0.7	0.7	2.4	4	clayy SILT to silty CLAY	115	2.0	14	16	7	-	-	2.2	8.5	36	0.070	2.61	15
27.23	92.8	81.6	101.1	92.8	0.8	0.5	0.9	6	clean SAND to silty SAND	125	5.0	16	19	16	60	39	-	-	12	0.350	1.95	16
27.40	122.8	107.6	124.6	122.8	1.1	0.2	0.9	6	clean SAND to silty SAND	125	5.0	22	25	20	69	41	-	-	10	0.350	1.86	16
27.56	132.7	116.1	132.4	132.7	1.2	0.4	0.9	6	clean SAND to silty SAND	125	5.0	23	27	22	72	41	-	-	9	0.350	1.84	16
27.72	134.6	117.5	131.3	134.6	1.1	2.0	0.8	6	clean SAND to silty SAND	125	5.0	24	27	22	72	41	-	-	8	0.350	1.81	16
27.89	144.2	125.7	130.9	144.3	0.9	1.3	0.6	6	clean SAND to silty SAND	125	5.0	25	29	22	75	41	-	-	6	0.350	1.70	16
28.05	147.0	127.9	127.9	147.0	0.7	0.9	0.4	6	clean SAND to silty SAND	125	5.0	26	29	22	75	41	-	-	5	0.350	1.62	16
28.22	139.7	121.3	121.3	139.7	0.6	0.5	0.4	6	clean SAND to silty SAND	125	5.0	24	28	21	73	41	-	-	5	0.350	1.62	16
28.38	129.0	111.7	116.0	129.0	0.6	0.0	0.5	6	clean SAND to silty SAND	125	5.0	22	26	20	71	41	-	-	6	0.350	1.70	16
28.54	102.3	88.4	115.0	102.3	1.2	-0.2	1.2	6	clean SAND to silty SAND	125	5.0	18	20	17	63	39	-	-	13	0.350	2.00	16
28.71	59.7	51.5	103.1	59.7	1.1	-0.5	1.9	5	silty SAND to sandy SILT	120	3.0	17	20	12	45	36	-	-	23	0.200	2.32	16
28.87	32.0	25.2	-	32.0	0.9	-0.6	3.0	4	clayy SILT to silty CLAY	115	2.0	13	16	7	-	-	2.2	7.9	40	0.070	2.70	15
29.04	18.5	14.5	-	18.5	0.8	-0.2	4.5	3	silty CLAY to CLAY	115	1.5	10	12	5	-	-	1.2	4.3	59	0.005	3.01	15
29.20	17.1	13.3	-	17.1	0.7	0.9	4.8	3	silty CLAY to CLAY	115	1.5	9	11	4	-	-	1.1	4.0	62	0.005	3.06	15
29.36	22.1	17.2	-	22.1	0.8	2.1	4.2	3	silty CLAY to CLAY	115	1.5	11	15	5	-	-	1.5	5.2	53	0.005	2.92	15
29.53	72.9	62.4	94.4	73.0	0.9	3.2	1.2	5	silty SAND to sandy SILT	120	3.0	21	24	13	51	37	-	-	17	0.200	2.13	16
29.69	95.5	81.5	96.8	95.5	0.7	1.8	0.7	6	clean SAND to silty SAND	125	5.0	16	19	15	60	39	-	-	10	0.350	1.90	16
29.86	107.6	91.7	109.6	107.6	0.9	1.2	0.9	6	clean SAND to silty SAND	125	5.0	18	22	17	64	39	-	-	11	0.350	1.91	16
30.02	114.0	96.9	116.9	114.0	1.1	0.5	1.0	6	clean SAND to silty SAND	125	5.0	19	23	18	66	40	-	-	11	0.350	1.92	16
30.19	127.2	107.9	125.0	127.2	1.2	2.2	0.9	6	clean SAND to silty SAND	125	5.0	22	25	20	70	40	-	-	10	0.350	1.87	16
30.35	138.2	117.1	126.7	138.3	1.0	0.4	0.7	6	clean SAND to silty SAND	125	5.0	23	28	21	72	41	-	-	7	0.350	1.77	16
30.51	148.2	125.2	129.1	148.1	0.8	-1.1	0.6	6	clean SAND to silty SAND	125	5.0	25	30	22	74	41	-	-	6	0.350	1.69	16
30.68	161.0	135.8	137.4	161.0	0.9	-1.7	0.6	6	clean SAND to silty SAND	125	5.0	27	32	24	77	42	-	-	5	0.350	1.66	16
30.84	166.4	140.2	140.2	166.4	0.9	-2.3	0.5	6	clean SAND to silty SAND	125	5.0	28	33	24	78	42	-	-	5	0.350	1.63	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: BAGG Engineering
Data File: SDF(864).cpt
CPT Date: 7/26/2023 10:51:49 AM
GW During Test: 15 ft

Sounding ID: CPT-03
Project No: COUSM-23-03
Cone/Rig: DDG1589

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
31.01	165.5	139.1	139.9	165.4	0.9	-2.8	0.6	6	clean SAND to silty SAND	125	5.0	28	33	24	78	42	-	-	5	0.350	1.65	16
31.17	162.4	136.3	139.2	162.4	1.0	-3.9	0.6	6	clean SAND to silty SAND	125	5.0	27	32	24	77	42	-	-	6	0.350	1.68	16
31.33	169.1	141.6	141.6	169.1	0.9	-3.7	0.6	6	clean SAND to silty SAND	125	5.0	28	34	24	78	42	-	-	5	0.350	1.64	16
31.50	170.8	142.7	142.7	170.8	0.9	-3.6	0.6	6	clean SAND to silty SAND	125	5.0	29	34	25	79	42	-	-	5	0.350	1.63	16
31.66	170.4	142.1	142.1	170.3	0.9	-4.2	0.5	6	clean SAND to silty SAND	125	5.0	28	34	24	79	42	-	-	5	0.350	1.63	16
31.83	167.4	139.3	139.3	167.3	0.9	-3.8	0.5	6	clean SAND to silty SAND	125	5.0	28	33	24	78	42	-	-	5	0.350	1.63	16
31.99	168.0	139.6	139.6	168.0	0.9	-3.7	0.5	6	clean SAND to silty SAND	125	5.0	28	34	24	78	42	-	-	5	0.350	1.63	16
32.15	170.4	141.3	141.3	170.4	0.9	-3.7	0.5	6	clean SAND to silty SAND	125	5.0	28	34	24	78	42	-	-	5	0.350	1.62	16
32.32	170.6	141.2	141.2	170.5	0.9	-3.8	0.5	6	clean SAND to silty SAND	125	5.0	28	34	24	78	42	-	-	5	0.350	1.62	16
32.48	168.5	139.2	139.2	168.4	0.9	-3.9	0.5	6	clean SAND to silty SAND	125	5.0	28	34	24	78	42	-	-	5	0.350	1.63	16
32.65	161.7	133.4	133.4	161.6	0.8	-4.1	0.5	6	clean SAND to silty SAND	125	5.0	27	32	23	77	41	-	-	5	0.350	1.62	16
32.81	148.6	122.3	125.2	148.5	0.8	-3.7	0.5	6	clean SAND to silty SAND	125	5.0	24	30	21	74	41	-	-	6	0.350	1.68	16
32.97	130.4	107.1	115.1	130.3	0.8	-3.7	0.6	6	clean SAND to silty SAND	125	5.0	21	26	19	69	40	-	-	7	0.350	1.75	16
33.14	112.8	92.5	103.6	112.7	0.7	-4.2	0.6	6	clean SAND to silty SAND	125	5.0	19	23	17	64	39	-	-	9	0.350	1.82	16
33.30	98.0	80.3	93.2	98.0	0.6	-4.2	0.6	6	clean SAND to silty SAND	125	5.0	16	20	15	60	39	-	-	10	0.350	1.87	16
33.47	83.8	68.5	85.4	83.7	0.6	-4.3	0.7	6	clean SAND to silty SAND	125	5.0	14	17	13	54	38	-	-	12	0.350	1.96	16
33.63	66.5	54.2	80.1	66.4	0.6	-4.3	0.9	5	silty SAND to sandy SILT	120	3.0	18	22	11	47	36	-	-	16	0.200	2.11	16
33.79	48.0	39.1	77.8	47.9	0.6	-4.3	1.3	5	silty SAND to sandy SILT	120	3.0	13	16	9	36	34	-	-	23	0.200	2.31	16
33.96	30.0	21.0	-	30.0	0.5	-4.2	2.0	4	clayy SILT to silty CLAY	115	2.0	11	15	6	-	-	2.0	6.5	38	0.070	2.65	15
34.12	16.9	11.8	-	16.9	0.4	-4.0	3.0	3	silty CLAY to CLAY	115	1.5	8	11	4	-	-	1.1	3.4	57	0.005	2.98	15
34.29	9.1	6.3	-	9.1	0.4	1.7	6.1	3	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.6	92	0.005	3.43	15
34.45	19.5	13.5	-	19.5	1.1	2.3	6.6	3	silty CLAY to CLAY	115	1.5	9	13	5	-	-	1.3	4.0	68	0.005	3.14	15
34.61	50.8	41.1	110.4	50.9	1.3	2.7	2.6	4	clayy SILT to silty CLAY	115	2.0	21	25	10	-	-	3.5	9.9	30	0.070	2.48	15
34.78	47.9	33.0	-	47.9	1.9	1.7	4.2	4	clayy SILT to silty CLAY	115	2.0	17	24	9	-	-	3.3	9.9	40	0.070	2.70	15
34.94	31.4	21.6	-	31.5	2.0	2.8	6.9	3	silty CLAY to CLAY	115	1.5	14	21	7	-	-	2.1	6.7	58	0.005	2.99	15
35.11	35.7	24.5	-	35.8	2.0	3.7	5.8	3	silty CLAY to CLAY	115	1.5	16	24	7	-	-	2.4	7.6	52	0.005	2.90	15
35.27	45.5	31.1	-	45.5	1.9	1.3	4.3	3	silty CLAY to CLAY	115	1.5	21	30	8	-	-	3.1	9.8	42	0.005	2.73	15
35.43	57.1	45.8	131.1	57.2	1.8	1.8	3.3	4	clayy SILT to silty CLAY	115	2.0	23	29	11	-	-	3.9	9.9	31	0.070	2.52	15
35.60	65.2	52.2	116.7	65.2	1.5	-0.6	2.4	5	silty SAND to sandy SILT	120	3.0	17	22	12	46	36	-	-	26	0.200	2.38	16
35.76	59.4	47.5	108.8	59.4	1.3	-2.0	2.2	5	silty SAND to sandy SILT	120	3.0	16	20	11	42	35	-	-	26	0.200	2.39	16
35.93	43.6	29.5	-	43.6	1.6	-2.1	3.8	4	clayy SILT to silty CLAY	115	2.0	15	22	8	-	-	3.0	9.3	41	0.070	2.71	15
36.09	27.6	18.6	-	27.6	1.9	1.7	7.6	3	silty CLAY to CLAY	115	1.5	12	18	6	-	-	1.8	5.7	63	0.005	3.07	15
36.26	47.0	31.6	-	47.1	2.1	2.3	4.8	3	silty CLAY to CLAY	115	1.5	21	31	9	-	-	3.2	9.9	43	0.005	2.75	15
36.42	72.0	57.3	141.2	72.0	2.2	-0.4	3.2	4	clayy SILT to silty CLAY	115	2.0	29	36	14	-	-	5.0	9.9	28	0.070	2.44	15
36.58	82.9	65.8	140.2	82.9	2.2	-2.1	2.8	5	silty SAND to sandy SILT	120	3.0	22	28	15	53	37	-	-	25	0.200	2.35	16
36.75	89.3	70.8	137.7	89.2	2.2	-3.2	2.5	5	silty SAND to sandy SILT	120	3.0	24	30	16	56	38	-	-	22	0.200	2.30	16
36.91	80.5	63.7	148.4	80.4	2.5	-3.5	3.2	4	clayy SILT to silty CLAY	115	2.0	32	40	15	-	-	5.6	9.9	27	0.070	2.40	15
37.08	74.4	58.8	160.0	74.4	2.8	-3.6	3.9	4	clayy SILT to silty CLAY	115	2.0	29	37	14	-	-	5.2	9.9	30	0.070	2.49	15
37.24	78.1	61.6	157.8	78.0	2.8	-3.6	3.6	4	clayy SILT to silty CLAY	115	2.0	31	39	15	-	-	5.4	9.9	29	0.070	2.46	15
37.40	69.1	54.4	155.8	69.0	2.6	-3.9	3.9	4	clayy SILT to silty CLAY	115	2.0	27	35	13	-	-	4.8	9.9	32	0.070	2.52	15
37.57	65.1	51.2	153.8	65.1	2.5	-3.7	4.0	4	clayy SILT to silty CLAY	115	2.0	26	33	13	-	-	4.5	9.9	33	0.070	2.54	15
37.73	65.8	51.7	149.6	65.7	2.4	-3.8	3.8	4	clayy SILT to silty CLAY	115	2.0	26	33	13	-	-	4.5	9.9	32	0.070	2.52	15
37.90	75.3	59.0	128.9	75.2	1.9	-3.8	2.6	5	silty SAND to sandy SILT	120	3.0	20	25	13	50	36	-	-	25	0.200	2.37	16
38.06	77.4	60.6	111.6	77.3	1.4	-3.8	1.9	5	silty SAND to sandy SILT	120	3.0	20	26	13	50	37	-	-	21	0.200	2.26	16
38.22	88.8	69.5	120.5	88.8	1.7	-3.8	1.9	5	silty SAND to sandy SILT	120	3.0	23	30	15	55	37	-	-	20	0.200	2.23	16
38.39	69.4	54.2	134.3	69.4	2.0	-4.1	3.0	4	clayy SILT to silty CLAY	115	2.0	27	35	13	-	-	4.8	9.9	28	0.070	2.44	15
38.55	49.1	31.7	-	49.0	2.1	-4.1	4.4	3	silty CLAY to CLAY	115	1.5	21	33	9	-	-	3.4	9.9	42	0.005	2.73	15
38.72	39.3	25.2	-	39.2	2.0	-3.8	5.3	3	silty CLAY to CLAY	115	1.5	17	26	7	-	-	2.7	7.8	49	0.005	2.86	15
38.88	36.2	23.2	-	36.2	1.5	-3.5	4.4	3	silty CLAY to CLAY	115	1.5	15	24	7	-	-	2.5	7.2	48	0.005	2.83	15
39.04	47.8	30.6	-	47.8	1.3	-2.8	2.8	4	clayy SILT to silty CLAY	115	2.0	15	24	8	-	-	3.3	9.6	36	0.070	2.61	15
39.21	102.4	79.4	107.1	102.4	1.2	-3.0	1.2	6	clean SAND to silty SAND	125	5.0	16	20	16	59	38	-	-	14	0.350	2.03	16
39.37	123.6	95.7	114.2	123.6	1.1	-3.4	0.9	6	clean SAND to silty SAND	125	5.0	19	25	18	66	39	-	-	10	0.350	1.90	16
39.54	158.6	122.6	130.4	158.5	1.0	-3.2	0.7	6	clean SAND to silty SAND	125	5.0	25	32	22	74	41	-	-	7	0.350	1.74	16
39.70	171.1	132.1	135.4	171.1	1.0	-3.0	0.6	6	clean SAND to silty SAND	125	5.0	26	34	23	76	41	-	-	6	0.350	1.68	16
39.86	151.7	116.9	132.5	151.6	1.4	-2.8	0.9	6	clean SAND to silty SAND	125	5.0	23	30	22	72	40	-	-	9	0.350	1.84	16
40.03	163.7	126.0	144.8	163.7	1.7	-0.3	1.1	6	clean SAND to silty SAND	125	5.0	25	33	23	75	41	-	-	9	0.350	1.86	16
40.19	169.1	129.9	154.4	169.2	2.1	2.6	1.3	6	clean SAND to silty SAND	125	5.0	26	34	25	76	41	-	-	10	0.350	1.90	16
40.36	192.1	147.3	162.4	192.1	1.9	-0.5	1.0	6	clean SAND to silty SAND	125	5.0	29	38	27	80	41	-	-	8	0.350	1.79	16
40.52	197.8	151.4	151.4	197.7	1.1	-1.8	0.6	6	clean SAND to silty SAND	125	5.0	30	40	26	81	42	-	-	5	0.350	1.63	16
40.68	198.8	151.9	151.9	198.7	1.1	-2.6	0.5	6	clean SAND to silty SAND	125	5.0	30	40	26	81	42	-	-	5	0.350	1.61	16
40.85	180.2	137.5	154.9	180.1	1.9	-2.7	1.1	6	clean SAND to silty SAND	125	5.0	28	36	25	78	41	-	-	9	0.350	1.83	16
41.01	128.5	97.9	137.2	128.5	2.1	-2.8	1.7	5	silty SAND to sandy SILT	120	3.0	33	43	20	66	39	-	-	15	0.200	2.07	16
41.18	70.6	53.7	126.1	70.6	1.8	-2.7	2.7	5	silty SAND to sandy SILT	120	3.0	18	24	13	47	36	-	-	27	0.200	2.41	16
41.34	45.2	27.7	-	45.1	2.0	-2.3	4.7	3	silty CLAY to CLAY	115	1.5	18	30	8	-	-	3.1	8.6	46	0.005	2.79	15
41.50	38.7	23.6	-	38.6	1.7	-1.9	4.6	3	silty CLAY to CLAY	115	1.5	16	26	7	-	-	2.6	7.3	49	0.005	2.84	15
41.67	40.6	24.7	-	40.6	1.4	-1.3	3.7	4	clayy SILT to silty CLAY	115	2.0	12	20	7	-	-	2.8	7.7	44	0.070	2.76	15
41.83	33.6	20.4	-	33.6	1.0	-0.4	3.3	4	clayy SILT to silty CLAY	115	2.0	10	17	6	-	-	2.3	6.2	46	0.070	2.80	15
42.00	26.8	16.2	-	26.8	0.8	0.1	3.3	3	silty CLAY to CLAY	115	1.5	11	18	5	-	-	1.8	4.9	51	0.005	2.88	15
42.16	22.5	13.6	-	22.5	0.6	0.3	3.2	3	silty CLAY to CLAY	115	1.5	9	15	4	-	-	1.5	4.0	55	0.005	2.95	15
42.32	21.0	12.6	-	21.0	0.6	0.5	3.0	3	silty CLAY to CLAY	115	1.5	8	14	4	-	-	1.4	3.7	56	0.005	2.96	15
42.49	20.3	12.2	-	20.3	1.0	0.8	5.7	3	silty CLAY to CLAY	115	1.5	8	14	4	-	-	1.3	3.5	69	0.005	3.14	15
42.65	19.9	11.9	-	19.9	1.4	1.0	7.8	3	silty CLAY to CLAY	115	1.5	8	13	4	-	-	1.3	3.4	76	0.005	3.24	15
42.82	45.6	27.3	-	45.7	1.4	1.5	3.3	4	clayy SILT to silty CLAY	115	2.0	14	23	7	-	-	3.1	8.5	40	0.070	2.70	15
42.98	107.6	80.7	94.0	107.6	0.7	1.0	0.6	6	clean SAND to silty SAND	125	5.0	16	22	15	60	38	-	-	10	0.350	1.87	16
43.15	146.9	110.0	116.3	146.9	0.8	-0.8	0.6	6	clean SAND to silty SAND	125	5.0	22	29	20	70	40	-	-	7	0.350	1.73	16
43.31	157.9	118.1	133.2	157.9	1.4	-1.7	0.9	6	clean SAND to silty SAND	125	5.0	24	32	22	72	40	-	-	9	0.350	1.83	16
43.47	120.6	90.0	140.4	120.6	2.4	2.0	2.0	5	silty SAND to sandy SILT	120	3.0	30	40	19	64	39	-	-	17	0.200	2.15	16
43.64	100.5	75.0	158.2	100.5	3.0	0.4	3.1	5	silty SAND to sandy SILT	120	3.0	25	34	17	57	38	-	-	24	0.200	2.35	16
43.80	73.8	54.9	142.5	73.7	2.4	-2.9	3.3	4	clayy SILT to silty CLAY	115	2.0	27	37	13	-	-	5.1	9.9	29	0.070	2.46	15
43.97	48.7	28.6	-	48.7	2.1	-3.1	4.6	3	silty CLAY to CLAY	115	1.5	19	32	8	-	-	3.3	8.9	45	0.005	2.78	15
44.13	32.5	19.0	-	32.5	1.7	-2.2	5.7	3	silty CLAY to CLAY	115	1.5	13	22	6	-	-	2.2	5.8	57	0.005	2.98	15
44.29	44.7	26.1	-	44.7	1.2	-1.6	2.8	4	clayy SILT to silty CLAY	115	2.0	13	22	7	-	-	3.0	8.1	38	0.070	2.66	15
44.46	98.0	72.6	98.8	97.9	1.0	-1.9	1.1	6	clean SAND to silty SAND	125	5.0	15	20	14	56	37	-	-	14	0.350	2.04	16
44.62	111.7	82.6	112.6	111.6	1.4	-2.6	1.3	5	silty SAND to sandy SILT	120	3.0	28	37	16	61	38	-	-	14	0.200	2.04	16
44.79	112.3	82.9	109.3	112.2	1.2	-2.7	1.1	6	clean SAND to silty SAND	125	5.0	17	22	16	61	38	-	-	13	0.350	2.01	16
44.95	105.1	77.5	131.9	105.1	2.1	-3.3	2.1	5	silty SAND to sandy SILT	120	3.0	26	35	17	59	38	-	-	19	0.200	2.21	16
45.11	77.7	57.2	150.8	77.6	2.7	-3.9	3.5	4	clayy SILT to silty CLAY	115	2.0	29	39	14	-	-	5.4	9.9	29	0.070	2.47	15
45.28	72.1	41.3	-	72.0	2.7	-1.2	3.9	4	clayy SILT to silty CLAY	115	2.0	21	36	11	-	-	5.0	9.9	35	0.070	2.60	15
45.44	57.4	32.9	-	57.4	2.2	-1.8	4.0	4	clayy SILT to silty CLAY	115	2.0	16	29	9	-	-	3.9	9.9	40	0.070	2.69	15
45.61	45.6	26.0	-	45.5	1.8	-1.8	4.3	3	silty CLAY to CLAY	115	1.5	17	30	7	-	-	3.1	8.1	45	0.005	2.78	15
45.77	48.6	27.7	-	48.6	1.6	-1.3	3.5	4	clayy SILT to silty CLAY	115	2.0	14	24	7	-	-	3.3	8.6	41	0.070	2.71	15
45.93	44.4	25.2	-	44.4	1.9	-1.4	4.6	3	silty CLAY to CLAY	115	1.5	17	30	7	-	-	3.0	7.8	47	0.005	2.81	15
46.10	51.3	29.1	-	51.3	2.0	-0.8	4.1	4	clayy SILT to silty CLAY	115	2.0	15	26	8	-	-	3.5	9.1	42	0.070	2.73	15
46.26	40.4	22.8	-	40.4	1.8	-1.2	4.9	3	silty CLAY to CLAY	115	1.5	15	27	7	-	-	2.7	7.0	50	0.005	2.87	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: BAGG Engineering
Data File: SDF(864).cpt
CPT Date: 7/26/2023 10:51:49 AM
GW During Test: 15 ft

Sounding ID: CPT-03
Project No: COUSM-23-03
Cone/Rig: DDG1589

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR - -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
46.43	87.7	64.0	121.7	87.7	1.8	-0.6	2.1	5	silty SAND to sandy SILT	120	3.0	21	29	14	52	37	-	-	22	0.200	2.28	16
46.59	107.9	78.6	118.4	107.9	1.7	-1.6	1.6	5	silty SAND to sandy SILT	120	3.0	26	36	16	59	38	-	-	17	0.200	2.13	16
46.75	115.5	84.0	117.8	115.5	1.6	-1.8	1.4	5	silty SAND to sandy SILT	120	3.0	28	39	17	61	38	-	-	15	0.200	2.07	16
46.92	112.9	82.0	122.1	112.8	1.8	-2.2	1.6	5	silty SAND to sandy SILT	120	3.0	27	38	17	60	38	-	-	16	0.200	2.12	16
47.08	108.4	78.6	123.6	108.4	1.9	-2.3	1.8	5	silty SAND to sandy SILT	120	3.0	26	36	16	59	38	-	-	18	0.200	2.16	16
47.25	104.4	75.6	133.5	104.4	2.2	-2.5	2.2	5	silty SAND to sandy SILT	120	3.0	25	35	16	58	37	-	-	20	0.200	2.24	16
47.41	82.2	59.5	140.2	82.2	2.4	-2.8	3.0	4	clayy SILT to silty CLAY	115	2.0	30	41	14	-	-	5.7	9.9	27	0.070	2.41	15
47.57	57.9	32.0	-	57.8	2.2	-3.3	4.0	4	clayy SILT to silty CLAY	115	2.0	16	29	9	-	-	4.0	9.9	40	0.070	2.69	15
47.74	44.8	24.7	-	44.8	2.2	-3.1	5.3	3	silty CLAY to CLAY	115	1.5	16	30	7	-	-	3.0	7.7	50	0.005	2.87	15
47.90	37.6	20.7	-	37.6	2.1	-2.9	6.1	3	silty CLAY to CLAY	115	1.5	14	25	6	-	-	2.5	6.3	56	0.005	2.97	15
48.07	36.6	20.1	-	36.6	1.5	-2.7	4.6	3	silty CLAY to CLAY	115	1.5	13	24	6	-	-	2.5	6.1	52	0.005	2.89	15
48.23	43.3	23.7	-	43.2	1.5	-2.7	3.8	4	clayy SILT to silty CLAY	115	2.0	12	22	7	-	-	2.9	7.3	45	0.070	2.78	15
48.39	39.5	21.6	-	39.4	1.7	-2.8	4.6	3	silty CLAY to CLAY	115	1.5	14	26	6	-	-	2.7	6.6	50	0.005	2.87	15
48.56	28.8	15.7	-	28.7	1.8	-2.5	7.0	3	silty CLAY to CLAY	115	1.5	10	19	5	-	-	1.9	4.7	66	0.005	3.10	15
48.72	46.2	25.2	-	46.2	1.8	-2.1	4.2	3	silty CLAY to CLAY	115	1.5	17	31	7	-	-	3.1	7.8	45	0.005	2.79	15
48.89	62.6	44.8	112.7	62.5	1.5	-2.5	2.5	5	silty SAND to sandy SILT	120	3.0	15	21	11	40	34	-	-	28	0.200	2.45	16
49.05	34.6	18.7	-	34.5	1.5	-2.6	4.8	3	silty CLAY to CLAY	115	1.5	12	23	6	-	-	2.3	5.7	54	0.005	2.94	15
49.22	29.5	16.0	-	29.5	1.6	-2.3	6.2	3	silty CLAY to CLAY	115	1.5	11	20	5	-	-	2.0	4.7	63	0.005	3.06	15
49.38	27.9	15.0	-	27.8	1.7	-2.0	6.9	3	silty CLAY to CLAY	115	1.5	10	19	5	-	-	1.8	4.4	67	0.005	3.12	15
49.54	34.9	18.8	-	34.8	2.0	-1.9	6.1	3	silty CLAY to CLAY	115	1.5	13	23	6	-	-	2.3	5.7	59	0.005	3.00	15
49.71	36.9	19.8	-	36.8	2.0	-1.9	5.9	3	silty CLAY to CLAY	115	1.5	13	25	6	-	-	2.5	6.0	57	0.005	2.97	15
49.87	32.1	17.2	-	32.1	1.7	-1.9	5.9	3	silty CLAY to CLAY	115	1.5	11	21	6	-	-	2.1	5.2	60	0.005	3.02	15
50.04	30.6	16.3	-	30.5	1.8	-1.6	6.5	3	silty CLAY to CLAY	115	1.5	11	20	5	-	-	2.0	4.9	63	0.005	3.07	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

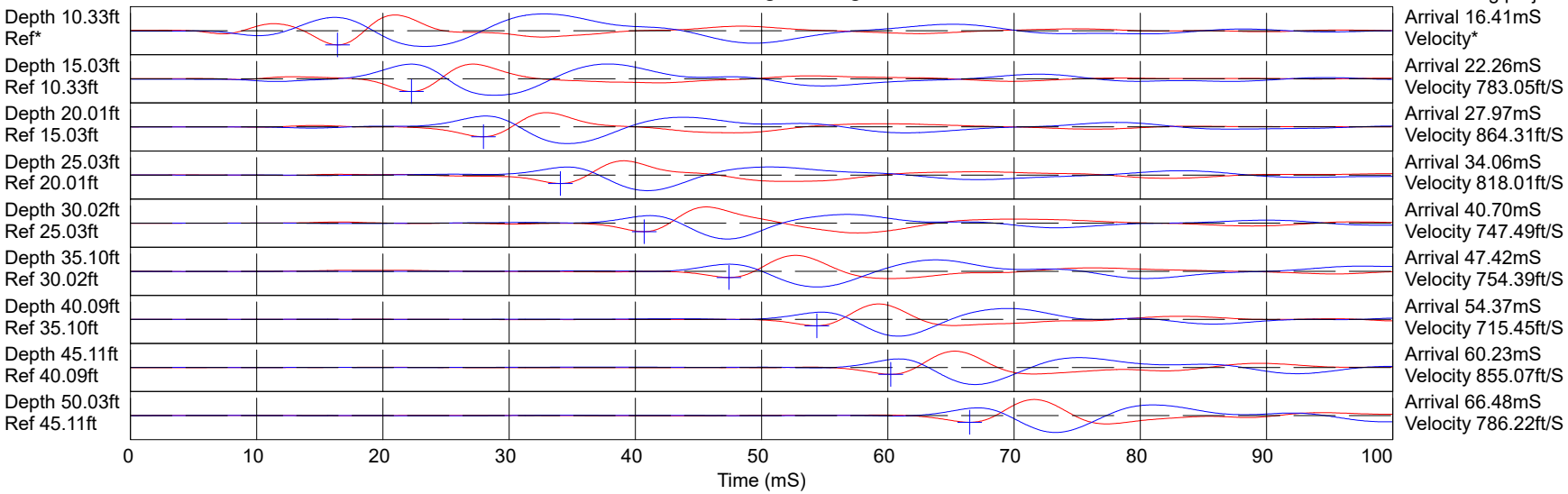
BAGG Engineering

Location	SMC-HMB Farmworker Housing projec	Operator	AJ-ER	
Job Number	COUSM-23-03	Cone Number	DDG1589	GPS
Hole Number	CPT-03	Date and Time	7/26/2023 10:51:49 AM	
Equilized Pressure	2.9	EST GW Depth During Test	15.1	

CPT-03

BAGG Engineering

SMC-HMB Farmworker Housing project



Hammer to Rod String Distance (ft): 2.67

* = Not Determined

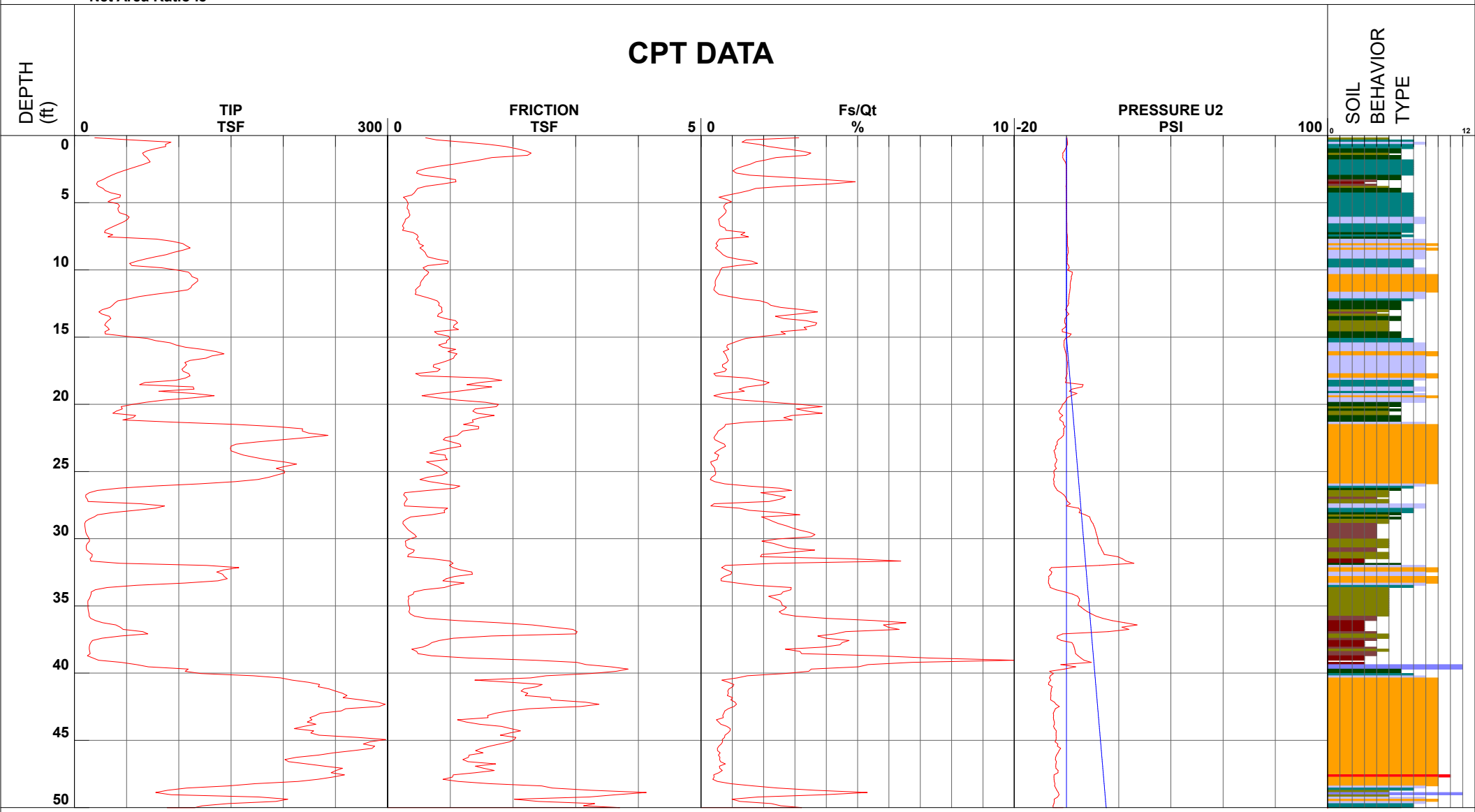
COMMENT:

BAGG Engineering

Project	SMC-HMB Farmworker Housing project	Operator	AJ-ER	Filename	SDF(863).cpt
Job Number	COUSM-23-03	Cone Number	DDG1589	GPS	
Hole Number	CPT-04	Date and Time	7/26/2023 10:01:25 AM	Maximum Depth	50.52 ft
EST GW Depth During Test		15.00 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Cone Size 15cm²

S*Soil behavior type and SPT based on data from UBC-1983

SMC-HMB Farmworker Housing project

Project ID: BAGG Engineering
Data File: SDF(863).cpt
CPT Date: 7/26/2023 10:01:25 AM
GW During Test: 15 ft

Sounding ID: CPT-04
Project No: COUSM-23-03
Cone/Rig: DDG1589

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
0.33	53.8	86.3	120.2	53.8	0.8	0.2	1.4	5	silty SAND to sandy SILT	120	3.0	29	18	17	62	48	-	-	15	0.200	2.06	16
0.49	92.5	148.4	171.7	92.5	1.2	0.4	1.3	6	clean SAND to silty SAND	125	5.0	30	19	28	80	48	-	-	10	0.350	1.86	16
0.66	87.2	139.9	180.1	87.2	1.6	0.4	1.8	6	clean SAND to silty SAND	125	5.0	28	17	27	78	48	-	-	13	0.350	1.99	16
0.82	87.5	140.3	190.2	87.5	1.9	0.0	2.2	5	silty SAND to sandy SILT	120	3.0	47	29	28	78	48	-	-	14	0.200	2.04	16
0.98	77.4	124.2	191.5	77.4	2.1	-0.4	2.7	5	silty SAND to sandy SILT	120	3.0	41	26	26	74	48	-	-	17	0.200	2.14	16
1.15	69.3	111.2	195.6	69.3	2.2	-0.8	3.2	5	silty SAND to sandy SILT	120	3.0	37	23	24	71	48	-	-	20	0.200	2.24	16
1.31	65.2	104.6	199.1	65.2	2.3	-1.4	3.5	5	silty SAND to sandy SILT	120	3.0	35	22	23	68	48	-	-	22	0.200	2.29	16
1.48	66.6	106.7	196.4	66.5	2.2	-1.4	3.4	5	silty SAND to sandy SILT	120	3.0	36	22	23	69	48	-	-	21	0.200	2.26	16
1.64	69.4	111.3	171.1	69.4	1.7	-1.4	2.4	5	silty SAND to sandy SILT	120	3.0	37	23	23	71	48	-	-	17	0.200	2.14	16
1.80	71.1	114.0	164.1	71.0	1.5	-1.0	2.1	5	silty SAND to sandy SILT	120	3.0	38	24	23	71	48	-	-	16	0.200	2.09	16
1.97	72.6	116.5	155.9	72.6	1.3	-0.5	1.8	5	silty SAND to sandy SILT	120	3.0	39	24	23	72	48	-	-	14	0.200	2.03	16
2.13	66.8	107.1	142.5	66.8	1.1	-0.2	1.6	5	silty SAND to sandy SILT	120	3.0	36	22	21	69	48	-	-	14	0.200	2.02	16
2.30	60.1	96.4	126.3	60.1	0.8	-0.1	1.3	6	clean SAND to silty SAND	125	5.0	19	12	19	66	48	-	-	13	0.350	2.01	16
2.46	53.4	85.7	111.2	53.4	0.6	-0.1	1.1	6	clean SAND to silty SAND	125	5.0	17	11	17	62	47	-	-	13	0.350	2.00	16
2.62	46.8	75.0	99.1	46.8	0.5	-0.1	1.0	6	clean SAND to silty SAND	125	5.0	15	9	15	58	46	-	-	13	0.350	2.02	16
2.79	40.6	65.2	93.7	40.6	0.5	0.0	1.1	5	silty SAND to sandy SILT	120	3.0	22	14	13	53	45	-	-	16	0.200	2.09	16
2.95	35.7	57.3	98.9	35.7	0.6	0.0	1.6	5	silty SAND to sandy SILT	120	3.0	19	12	12	49	44	-	-	20	0.200	2.22	16
3.12	31.3	50.2	122.2	31.3	0.9	0.0	2.8	4	clayy SILT to silty CLAY	115	2.0	25	16	12	-	-	2.2	9.9	28	0.070	2.43	15
3.28	27.2	43.6	141.4	27.2	1.1	0.0	4.0	4	clayy SILT to silty CLAY	115	2.0	22	14	11	-	-	1.9	9.9	35	0.070	2.59	15
3.45	22.1	35.5	-	22.1	1.1	0.1	5.0	3	silty CLAY to CLAY	115	1.5	24	15	10	-	-	1.5	9.9	41	0.005	2.72	15
3.61	21.2	34.0	-	21.2	0.9	0.0	4.1	4	clayy SILT to silty CLAY	115	2.0	17	11	9	-	-	1.5	9.9	39	0.070	2.67	15
3.77	23.0	36.8	106.2	23.0	0.6	-0.2	2.7	4	clayy SILT to silty CLAY	115	2.0	18	11	9	-	-	1.6	9.9	32	0.070	2.52	15
3.94	27.4	43.9	92.6	27.4	0.5	-0.1	1.8	5	silty SAND to sandy SILT	120	3.0	15	9	10	40	41	-	-	24	0.200	2.35	16
4.10	29.5	47.3	89.7	29.5	0.4	0.0	1.5	5	silty SAND to sandy SILT	120	3.0	16	10	10	42	41	-	-	22	0.200	2.28	16
4.27	35.0	56.2	88.9	35.0	0.4	0.0	1.2	5	silty SAND to sandy SILT	120	3.0	19	12	12	48	42	-	-	18	0.200	2.16	16
4.43	44.1	70.7	91.8	44.1	0.4	0.0	0.9	6	clean SAND to silty SAND	125	5.0	14	9	14	56	43	-	-	13	0.350	2.00	16
4.59	43.7	70.1	83.3	43.7	0.3	0.0	0.6	6	clean SAND to silty SAND	125	5.0	14	9	13	55	43	-	-	10	0.350	1.90	16
4.76	36.2	58.0	79.6	36.2	0.3	0.0	0.8	6	clean SAND to silty SAND	125	5.0	12	7	12	49	42	-	-	14	0.350	2.05	16
4.92	32.2	51.7	78.9	32.2	0.3	0.0	1.0	5	silty SAND to sandy SILT	120	3.0	17	11	11	45	41	-	-	17	0.200	2.14	16
5.09	41.7	66.9	86.3	41.7	0.3	-0.1	0.8	6	clean SAND to silty SAND	125	5.0	13	8	13	54	42	-	-	13	0.350	1.99	16
5.25	43.3	69.4	86.9	43.3	0.3	-0.1	0.7	6	clean SAND to silty SAND	125	5.0	14	9	13	55	42	-	-	12	0.350	1.96	16
5.41	41.7	66.9	85.0	41.7	0.3	0.0	0.7	6	clean SAND to silty SAND	125	5.0	13	8	13	54	42	-	-	12	0.350	1.98	16
5.58	42.0	67.4	87.2	42.0	0.3	0.1	0.8	6	clean SAND to silty SAND	125	5.0	13	8	13	54	42	-	-	13	0.350	2.00	16
5.74	43.2	69.3	88.3	43.2	0.3	0.0	0.8	6	clean SAND to silty SAND	125	5.0	14	9	14	55	42	-	-	12	0.350	1.98	16
5.91	49.7	79.8	95.3	49.7	0.4	0.1	0.7	6	clean SAND to silty SAND	125	5.0	16	10	15	60	42	-	-	11	0.350	1.91	16
6.07	52.4	84.0	97.0	52.4	0.3	0.1	0.6	6	clean SAND to silty SAND	125	5.0	17	10	16	61	42	-	-	9	0.350	1.86	16
6.23	50.8	80.3	91.6	50.8	0.3	0.1	0.6	6	clean SAND to silty SAND	125	5.0	16	10	15	60	42	-	-	9	0.350	1.84	16
6.40	47.7	74.4	87.2	47.7	0.3	0.1	0.6	6	clean SAND to silty SAND	125	5.0	15	10	14	57	42	-	-	10	0.350	1.88	16
6.56	43.2	66.5	80.8	43.2	0.3	0.1	0.6	6	clean SAND to silty SAND	125	5.0	13	9	13	54	41	-	-	11	0.350	1.93	16
6.73	38.4	58.4	74.9	38.4	0.2	0.1	0.6	6	clean SAND to silty SAND	125	5.0	12	8	11	49	40	-	-	13	0.350	1.99	16
6.89	33.7	50.6	72.9	33.7	0.3	0.1	0.8	5	silty SAND to sandy SILT	120	3.0	17	11	10	45	39	-	-	16	0.200	2.09	16
7.05	29.7	44.1	68.5	29.7	0.2	0.1	0.8	5	silty SAND to sandy SILT	120	3.0	15	10	9	40	38	-	-	17	0.200	2.15	16
7.22	28.8	42.3	83.0	28.8	0.4	0.2	1.4	5	silty SAND to sandy SILT	120	3.0	14	10	9	39	38	-	-	23	0.200	2.30	16
7.38	36.7	53.3	88.4	36.7	0.5	0.3	1.3	5	silty SAND to sandy SILT	120	3.0	18	12	11	46	39	-	-	19	0.200	2.20	16
7.55	32.1	46.0	89.1	32.1	0.5	0.4	1.5	5	silty SAND to sandy SILT	120	3.0	15	11	10	41	39	-	-	22	0.200	2.30	16
7.71	78.7	111.7	118.5	78.7	0.5	0.3	0.6	6	clean SAND to silty SAND	125	5.0	22	16	20	71	43	-	-	7	0.350	1.73	16
7.87	93.9	131.8	132.4	93.9	0.5	0.3	0.5	6	clean SAND to silty SAND	125	5.0	26	19	23	76	44	-	-	5	0.350	1.65	16
8.04	103.7	144.1	144.1	103.7	0.5	0.3	0.5	6	clean SAND to silty SAND	125	5.0	29	21	24	79	44	-	-	5	0.350	1.60	16
8.20	107.0	147.2	147.2	107.0	0.6	0.4	0.5	6	clean SAND to silty SAND	125	5.0	29	21	25	80	44	-	-	5	0.350	1.61	16
8.37	110.9	150.9	150.9	110.9	0.5	0.6	0.5	6	clean SAND to silty SAND	125	5.0	30	22	25	81	44	-	-	5	0.350	1.57	16
8.53	104.0	140.2	140.2	104.0	0.6	0.6	0.5	6	clean SAND to silty SAND	125	5.0	28	21	24	78	44	-	-	5	0.350	1.63	16
8.69	95.0	126.8	132.3	95.0	0.6	0.7	0.6	6	clean SAND to silty SAND	125	5.0	25	19	22	75	43	-	-	6	0.350	1.71	16
8.86	88.2	116.6	126.1	88.2	0.6	0.4	0.7	6	clean SAND to silty SAND	125	5.0	23	18	21	72	43	-	-	7	0.350	1.76	16
9.02	77.2	101.1	116.5	77.2	0.6	0.3	0.8	6	clean SAND to silty SAND	125	5.0	20	15	19	67	42	-	-	9	0.350	1.86	16
9.19	68.0	88.3	113.9	68.0	0.8	0.3	1.1	6	clean SAND to silty SAND	125	5.0	18	14	17	63	42	-	-	13	0.350	1.99	16
9.35	59.5	76.5	117.5	59.5	1.0	0.2	1.6	5	silty SAND to sandy SILT	120	3.0	25	20	16	58	41	-	-	17	0.200	2.14	16
9.51	52.9	67.4	114.9	52.9	1.0	0.3	1.8	5	silty SAND to sandy SILT	120	3.0	22	18	14	54	40	-	-	19	0.200	2.21	16
9.68	55.1	69.6	98.9	55.1	0.6	0.8	1.2	5	silty SAND to sandy SILT	120	3.0	23	18	14	55	40	-	-	15	0.200	2.08	16
9.84	83.6	104.9	115.6	83.7	0.6	1.1	0.7	6	clean SAND to silty SAND	125	5.0	21	17	19	69	42	-	-	8	0.350	1.79	16
10.01	98.4	122.3	128.2	98.4	0.6	0.4	0.6	6	clean SAND to silty SAND	125	5.0	24	20	22	74	43	-	-	6	0.350	1.72	16
10.17	109.1	134.5	137.4	109.2	0.7	2.2	0.6	6	clean SAND to silty SAND	125	5.0	27	22	23	77	43	-	-	6	0.350	1.68	16
10.34	111.4	136.3	137.4	111.5	0.6	2.2	0.6	6	clean SAND to silty SAND	125	5.0	27	22	24	77	43	-	-	5	0.350	1.66	16
10.50	112.5	136.5	136.5	112.6	0.6	1.8	0.5	6	clean SAND to silty SAND	125	5.0	27	23	24	77	43	-	-	5	0.350	1.64	16
10.66	117.9	141.9	141.9	117.9	0.6	1.8	0.5	6	clean SAND to silty SAND	125	5.0	28	24	24	79	44	-	-	5	0.350	1.60	16
10.83	118.2	141.1	141.1	118.2	0.5	1.6	0.5	6	clean SAND to silty SAND	125	5.0	28	24	24	78	43	-	-	5	0.350	1.59	16
10.99	115.4	136.8	136.8	115.5	0.5	1.5	0.5	6	clean SAND to silty SAND	125	5.0	27	23	23	77	43	-	-	5	0.350	1.60	16
11.16	112.6	132.5	132.5	112.7	0.5	1.4	0.5	6	clean SAND to silty SAND	125	5.0	26	23	23	76	43	-	-	5	0.350	1.62	16
11.32	111.6	130.3	130.3	111.7	0.5	1.4	0.4	6	clean SAND to silty SAND	125	5.0	26	22	22	76	43	-	-	5	0.350	1.60	16
11.48	108.5	125.8	125.8	108.6	0.4	1.3	0.4	6	clean SAND to silty SAND	125	5.0	25	22	21	75	43	-	-	5	0.350	1.61	16
11.65	94.4	108.6	112.5	94.4	0.5	1.3	0.5	6	clean SAND to silty SAND	125	5.0	22	19	19	70	42	-	-	6	0.350	1.70	16
11.81	77.1	88.1	98.6	77.2	0.4	1.0	0.6	6	clean SAND to silty SAND	125	5.0	18	15	16	63	41	-	-	8	0.350	1.82	16
11.98	62.4	70.8	93.1	62.4	0.6	1.0	0.9	6	clean SAND to silty SAND	125	5.0	14	12	14	56	40	-	-	13	0.350	2.01	16
12.14	52.7	59.4	94.8	52.8	0.7	0.9	1.3	5	silty SAND to sandy SILT	120	3.0	20	18	12	50	39	-	-	18	0.200	2.17	16
12.30	41.6	46.5	99.5	41.6	0.8	0.7	1.9	5	silty SAND to sandy SILT	120	3.0	16	14	11	42	37	-	-	25	0.200	2.35	16
12.47	38.6	43.0	102.0	38.7	0.8	0.8	2.2	5	silty SAND to sandy SILT	120	3.0	14	13	10	39	37	-	-	27	0.200	2.41	16
12.63	36.5	40.3	101.7	36.5	0.8	0.6	2.3	5	silty SAND to sandy SILT	120	3.0	13	12	10	37	36	-	-	28	0.200	2.45	16
12.80	34.0	37.3	105.9	34.0	0.9	0.0	2.6	4	clayy SILT to silty CLAY	115	2.0	19	17	9	-	-	2.3	9.9	31	0.070	2.51	15
12.96	26.7	33.6	-	26.6	0.9	-0.4	3.3	4	clayy SILT to silty CLAY	115	2.0	17	13	9	-	-	1.8	9.9	36	0.070	2.62	15
13.12	23.5	29.3	-	23.5	0.9	0.2	3.9	4	clayy SILT to silty CLAY	115	2.0	15	12	8	-	-	1.6	9.3	41	0.070	2.71	15
13.29	26.3	32.4	-	26.3	0.8	0.9	3.2	4	clayy SILT to silty CLAY	115	2.0	16	13	8	-	-	1.8	9.9	36	0.070	2.62	15
13.45	33.5	35.9	100.8	33.5	0.8	0.0	2.4	4	clayy SILT to silty CLAY	115	2.0	18	17	9	-	-	2.3	9.9	31	0.070	2.51	15
13.62	34.8	37.1	107.7	34.8	0.9	-0.6	2.7	4	clayy SILT to silty CLAY	115	2.0	19	17	9	-	-	2.4	9.9	32	0.070	2.53	15
13.78	32.3	35.9	-	32.3	1.1	-0.7	3.4	4	clayy SILT to silty CLAY	115	2.0	18	16	9	-	-	2.2	9.9	36	0.070	2.61	15
13.94	30.2	35.6	-	30.2	1.1	-0.7	3.8	4	clayy SILT to silty CLAY	115	2.0	18	15	9	-	-	2.1	9.9	37	0.070	2.64	15
14.11	29.0	33.8	-	29.0	1.1	-0.2	3.8	4	clayy SILT to silty CLAY	115	2.0	17	15	9	-	-	2.0	9.9	38	0.070	2.65	15
14.27	31.8	34.6	-	31.8	1.0	-0.5	3.4	4	clayy SILT to silty CLAY	115	2.0	17	16	9	-	-	2.2	9.9	36	0.070	2.61	15
14.44	33.5	36.1	-	33.5	1.1	-1.6	3.5	4	clayy SILT to silty CLAY	115	2.0	18	17	9	-	-	2.3	9.9	36	0.070	2.61	15
14.60	29.3	30.2	98.5	29.2	0.7	-1.6	2.6	4	clayy SILT to silty CLAY	115	2.0	15	15	8	-	-	2.0	9.9	35	0.070	2.59	15
14.76	29.6	31.4	102.7	29.6	0.8	1.8	2.8	4	clayy SILT to silty CLAY	115	2.0	16	15	8	-	-	2.0	9.9	35	0.070	2.59	15
14.93	48.4	49.4	105.0	48.5	1.0	1.2	2.0	5	silty SAND to sandy SILT	120	3.0	16	16	11	44	37	-	-	24	0.200	2.35	16
15.09	69.5	70.8	107.5	69.5	1.0	-0.4	1.5	5	silty SAND to sandy SILT	120	3.0	24	23	15	56	39	-	-	17	0.200	2.13	16
15.26	77.7	78.9	108.2	77.6	0.9	-0.9	1.2	5	silty SAND to sandy SILT	120	3.0	26	26	16	59	40	-	-	14	0.200	2.05	16
15.42	91.5	92.6	114.8	91.4	0.9	-0.9	1.0	6	clean SAND to silty SAND	125	5.0	19	18	18	64	40	-	-	12	0.350	1.95	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
15.58	97.3	98.3	114.5	97.3	0.8	-1.0	0.8	6	clean SAND to silty SAND	125	5.0	20	19	18	66	41	-	-	10	0.350	1.87	16
15.75	106.3	107.1	121.8	106.3	0.9	-0.9	0.8	6	clean SAND to silty SAND	125	5.0	21	21	20	69	41	-	-	9	0.350	1.84	16
15.91	122.5	123.0	137.3	122.5	1.1	-0.6	0.9	6	clean SAND to silty SAND	125	5.0	25	25	23	74	42	-	-	8	0.350	1.81	16
16.08	135.7	136.0	142.7	135.7	1.0	-0.4	0.7	6	clean SAND to silty SAND	125	5.0	27	27	24	77	42	-	-	6	0.350	1.72	16
16.24	143.3	143.2	150.8	143.3	1.1	-0.2	0.8	6	clean SAND to silty SAND	125	5.0	29	29	25	79	43	-	-	7	0.350	1.72	16
16.40	131.5	131.0	142.0	131.5	1.1	0.0	0.8	6	clean SAND to silty SAND	125	5.0	26	26	24	76	42	-	-	7	0.350	1.77	16
16.57	126.1	125.3	137.7	126.1	1.1	0.1	0.8	6	clean SAND to silty SAND	125	5.0	25	25	23	74	42	-	-	8	0.350	1.79	16
16.73	110.7	109.7	125.4	110.7	1.0	0.2	0.9	6	clean SAND to silty SAND	125	5.0	22	22	20	70	41	-	-	9	0.350	1.85	16
16.90	105.7	104.5	119.4	105.7	0.9	0.4	0.8	6	clean SAND to silty SAND	125	5.0	21	21	19	68	41	-	-	9	0.350	1.85	16
17.06	107.5	105.9	116.8	107.5	0.7	0.3	0.7	6	clean SAND to silty SAND	125	5.0	21	21	19	69	41	-	-	8	0.350	1.79	16
17.23	105.4	103.6	115.0	105.4	0.7	0.3	0.7	6	clean SAND to silty SAND	125	5.0	21	21	19	68	41	-	-	8	0.350	1.81	16
17.39	102.9	100.9	116.2	102.9	0.8	0.2	0.8	6	clean SAND to silty SAND	125	5.0	20	21	19	67	41	-	-	9	0.350	1.86	16
17.55	104.3	102.0	115.6	104.3	0.8	0.2	0.8	6	clean SAND to silty SAND	125	5.0	20	21	19	68	41	-	-	9	0.350	1.84	16
17.72	109.5	106.8	108.6	109.5	0.4	0.2	0.4	6	clean SAND to silty SAND	125	5.0	21	22	19	69	41	-	-	6	0.350	1.67	16
17.88	110.8	107.8	111.9	110.8	0.5	0.0	0.5	6	clean SAND to silty SAND	125	5.0	22	22	19	69	41	-	-	6	0.350	1.70	16
18.05	106.3	103.2	137.3	106.3	1.6	-0.4	1.5	5	silty SAND to sandy SILT	120	3.0	34	35	20	68	41	-	-	14	0.200	2.02	16
18.21	96.9	93.8	140.4	96.9	1.8	-0.1	1.9	5	silty SAND to sandy SILT	120	3.0	31	32	19	65	40	-	-	17	0.200	2.12	16
18.37	67.5	65.2	123.6	67.5	1.5	-0.4	2.2	5	silty SAND to sandy SILT	120	3.0	22	23	14	53	38	-	-	22	0.200	2.28	16
18.54	62.4	60.2	115.2	62.6	1.3	6.4	2.1	5	silty SAND to sandy SILT	120	3.0	20	21	13	50	38	-	-	22	0.200	2.29	16
18.70	113.8	109.4	141.8	113.9	1.7	6.0	1.5	6	clean SAND to silty SAND	125	5.0	22	23	21	70	41	-	-	13	0.350	2.00	16
18.87	114.6	109.9	135.2	114.7	1.4	2.1	1.2	6	clean SAND to silty SAND	125	5.0	22	23	21	70	41	-	-	11	0.350	1.94	16
19.03	80.8	77.3	111.9	80.8	1.1	1.1	1.4	5	silty SAND to sandy SILT	120	3.0	26	27	16	58	39	-	-	16	0.200	2.10	16
19.19	114.6	109.4	119.9	114.7	0.8	4.0	0.7	6	clean SAND to silty SAND	125	5.0	22	23	20	70	41	-	-	8	0.350	1.79	16
19.36	133.9	127.5	127.5	133.9	0.5	1.8	0.4	6	clean SAND to silty SAND	125	5.0	25	27	22	75	42	-	-	5	0.350	1.60	16
19.52	113.4	107.7	118.8	113.4	0.8	0.3	0.7	6	clean SAND to silty SAND	125	5.0	22	23	20	69	41	-	-	8	0.350	1.80	16
19.69	85.9	81.4	112.6	85.9	1.1	-0.1	1.3	5	silty SAND to sandy SILT	120	3.0	27	29	16	60	39	-	-	15	0.200	2.06	16
19.85	68.4	64.6	126.3	68.4	1.6	-0.6	2.3	5	silty SAND to sandy SILT	120	3.0	22	23	14	53	38	-	-	23	0.200	2.30	16
20.01	55.5	52.3	137.3	55.4	1.8	-1.5	3.3	4	clayy SILT to silty CLAY	115	2.0	26	28	13	-	-	3.8	9.9	29	0.070	2.47	15
20.18	44.8	42.0	-	44.7	1.7	-1.7	4.0	4	clayy SILT to silty CLAY	115	2.0	21	22	11	-	-	3.1	9.9	35	0.070	2.60	15
20.34	45.9	43.1	123.9	45.9	1.4	-2.3	3.1	4	clayy SILT to silty CLAY	115	2.0	22	23	11	-	-	3.2	9.9	32	0.070	2.52	15
20.51	40.2	37.6	124.7	40.1	1.4	-2.9	3.5	4	clayy SILT to silty CLAY	115	2.0	19	20	10	-	-	2.8	9.9	35	0.070	2.60	15
20.67	36.9	34.2	-	36.8	1.4	-2.5	4.0	4	clayy SILT to silty CLAY	115	2.0	17	18	9	-	-	2.5	9.9	39	0.070	2.67	15
20.83	58.7	54.8	133.0	58.7	1.7	-1.4	3.0	4	clayy SILT to silty CLAY	115	2.0	27	29	13	-	-	4.1	9.9	28	0.070	2.43	15
21.00	56.0	52.2	124.1	55.9	1.5	-2.5	2.7	5	silty SAND to sandy SILT	120	3.0	17	19	12	46	37	-	-	27	0.200	2.42	16
21.16	46.4	43.1	121.2	46.3	1.4	-2.5	3.0	4	clayy SILT to silty CLAY	115	2.0	22	23	11	-	-	3.2	9.9	31	0.070	2.51	15
21.33	95.2	88.4	122.8	95.2	1.4	-1.3	1.5	5	silty SAND to sandy SILT	120	3.0	29	32	18	63	40	-	-	15	0.200	2.06	16
21.49	154.5	143.1	151.2	154.5	1.2	-1.2	0.8	6	clean SAND to silty SAND	125	5.0	29	31	25	79	42	-	-	7	0.350	1.73	16
21.65	192.3	177.7	177.8	192.3	1.5	-0.5	0.8	6	clean SAND to silty SAND	125	5.0	36	38	31	86	43	-	-	5	0.350	1.65	16
21.82	218.5	201.4	201.4	218.5	1.5	-1.1	0.7	6	clean SAND to silty SAND	125	5.0	40	44	34	90	44	-	-	5	0.350	1.57	16
21.98	218.3	200.7	200.7	218.2	1.2	-1.0	0.6	6	clean SAND to silty SAND	125	5.0	40	44	33	90	44	-	-	5	0.350	1.51	16
22.15	224.4	205.9	205.9	224.4	1.2	-1.1	0.5	6	clean SAND to silty SAND	125	5.0	41	45	34	91	44	-	-	5	0.350	1.49	16
22.31	243.0	222.4	222.4	242.9	1.1	-1.2	0.5	6	clean SAND to silty SAND	125	5.0	44	49	36	93	44	-	-	5	0.350	1.43	16
22.47	222.4	203.1	203.1	222.3	0.9	-2.0	0.4	6	clean SAND to silty SAND	125	5.0	41	44	33	90	44	-	-	5	0.350	1.44	16
22.64	199.3	181.6	181.6	199.2	0.9	-3.1	0.4	6	clean SAND to silty SAND	125	5.0	36	40	30	87	43	-	-	5	0.350	1.49	16
22.80	174.7	158.8	158.8	174.6	1.0	-3.6	0.6	6	clean SAND to silty SAND	125	5.0	32	35	27	82	43	-	-	5	0.350	1.61	16
22.97	154.7	140.3	147.7	154.7	1.2	-3.5	0.8	6	clean SAND to silty SAND	125	5.0	28	31	25	78	42	-	-	7	0.350	1.72	16
23.13	149.8	135.6	144.9	149.7	1.2	-4.2	0.8	6	clean SAND to silty SAND	125	5.0	27	30	24	77	42	-	-	7	0.350	1.75	16
23.30	149.4	134.9	139.5	149.3	1.0	-4.0	0.6	6	clean SAND to silty SAND	125	5.0	27	30	24	77	42	-	-	6	0.350	1.69	16
23.46	149.9	135.1	134.9	149.8	0.8	-4.8	0.5	6	clean SAND to silty SAND	125	5.0	27	30	23	77	42	-	-	5	0.350	1.64	16
23.62	155.7	140.0	140.0	155.6	0.7	-4.5	0.4	6	clean SAND to silty SAND	125	5.0	28	31	24	78	42	-	-	5	0.350	1.58	16
23.79	162.0	145.4	145.4	161.9	0.9	-4.3	0.6	6	clean SAND to silty SAND	125	5.0	29	32	25	79	42	-	-	5	0.350	1.64	16
23.95	172.5	154.4	154.4	172.4	0.9	-4.2	0.5	6	clean SAND to silty SAND	125	5.0	31	34	26	81	42	-	-	5	0.350	1.60	16
24.12	183.9	164.2	164.2	183.8	1.0	-3.7	0.5	6	clean SAND to silty SAND	125	5.0	33	37	28	83	43	-	-	5	0.350	1.57	16
24.28	200.4	178.6	178.6	200.3	0.6	-3.9	0.3	6	clean SAND to silty SAND	125	5.0	36	40	29	86	43	-	-	5	0.350	1.41	16
24.44	212.9	189.3	189.3	212.8	0.7	-4.4	0.3	6	clean SAND to silty SAND	125	5.0	38	43	30	88	43	-	-	5	0.350	1.41	16
24.61	202.1	179.4	179.4	202.1	0.8	-4.4	0.4	6	clean SAND to silty SAND	125	5.0	36	40	29	86	43	-	-	5	0.350	1.47	16
24.77	193.4	171.3	171.3	193.3	0.9	-3.8	0.4	6	clean SAND to silty SAND	125	5.0	34	39	28	85	43	-	-	5	0.350	1.51	16
24.94	201.0	177.6	177.6	200.9	0.9	-4.7	0.4	6	clean SAND to silty SAND	125	5.0	36	40	29	86	43	-	-	5	0.350	1.50	16
25.10	201.4	177.6	177.6	201.3	1.0	-4.8	0.5	6	clean SAND to silty SAND	125	5.0	36	40	29	86	43	-	-	5	0.350	1.52	16
25.26	193.8	170.5	170.5	193.7	0.9	-4.6	0.5	6	clean SAND to silty SAND	125	5.0	34	39	28	85	43	-	-	5	0.350	1.52	16
25.43	186.2	163.5	163.5	186.1	0.6	-4.7	0.3	6	clean SAND to silty SAND	125	5.0	33	37	27	83	43	-	-	5	0.350	1.47	16
25.59	175.7	153.9	153.9	175.6	0.5	-5.0	0.3	6	clean SAND to silty SAND	125	5.0	31	35	25	81	42	-	-	5	0.350	1.46	16
25.76	154.2	134.9	134.9	154.1	0.7	-4.8	0.4	6	clean SAND to silty SAND	125	5.0	27	31	23	77	42	-	-	5	0.350	1.60	16
25.92	119.7	104.5	117.8	119.6	0.9	-4.8	0.8	6	clean SAND to silty SAND	125	5.0	21	24	19	68	40	-	-	9	0.350	1.83	16
26.08	75.1	65.4	106.5	75.0	1.2	-4.6	1.6	5	silty SAND to sandy SILT	120	3.0	22	25	14	53	38	-	-	18	0.200	2.18	16
26.25	42.4	36.8	106.4	42.3	1.1	-4.0	2.6	4	clayy SILT to silty CLAY	115	2.0	18	21	9	-	-	2.9	9.9	32	0.070	2.52	15
26.41	22.1	17.6	-	22.0	0.6	-3.5	3.1	3	silty CLAY to CLAY	115	1.5	12	15	5	-	-	1.5	5.4	48	0.005	2.83	15
26.58	14.3	11.4	-	14.3	0.3	-2.1	2.2	3	silty CLAY to CLAY	115	1.5	8	10	3	-	-	0.9	3.3	53	0.005	2.91	15
26.74	10.9	8.6	-	10.9	0.3	-1.0	2.7	3	silty CLAY to CLAY	115	1.5	6	7	3	-	-	0.7	2.4	64	0.005	3.09	15
26.90	10.8	8.5	-	10.8	0.3	-0.3	3.2	3	silty CLAY to CLAY	115	1.5	6	7	3	-	-	0.7	2.4	68	0.005	3.13	15
27.07	12.4	9.8	-	12.4	0.3	0.0	2.9	3	silty CLAY to CLAY	115	1.5	7	8	3	-	-	0.8	2.8	62	0.005	3.05	15
27.23	13.1	10.2	-	13.1	0.3	0.4	2.5	3	silty CLAY to CLAY	115	1.5	7	9	3	-	-	0.8	2.9	58	0.005	2.99	15
27.40	63.2	54.3	67.0	63.3	0.3	1.5	0.4	6	clean SAND to silty SAND	125	5.0	11	13	10	47	37	-	-	11	0.350	1.94	16
27.56	86.3	74.0	80.0	86.3	0.3	0.0	0.3	6	clean SAND to silty SAND	125	5.0	15	17	13	57	38	-	-	7	0.350	1.76	16
27.72	77.6	66.4	98.9	77.7	1.0	4.7	1.3	5	silty SAND to sandy SILT	120	3.0	22	26	14	53	38	-	-	16	0.200	2.12	16
27.89	58.3	49.8	94.3	58.4	0.9	5.2	1.6	5	silty SAND to sandy SILT	120	3.0	17	19	11	44	36	-	-	22	0.200	2.28	16
28.05	36.5	28.1	-	36.6	0.9	4.8	2.6	4	clayy SILT to silty CLAY	115	2.0	14	18	7	-	-	2.5	8.9	36	0.070	2.62	15
28.22	22.1	17.0	-	22.3	0.7	7.1	3.4	3	silty CLAY to CLAY	115	1.5	11	15	5	-	-	1.5	5.2	50	0.005	2.87	15
28.38	19.0	14.5	-	19.2	0.4	8.9	2.1	4	clayy SILT to silty CLAY	115	2.0	7	10	4	-	-	1.3	4.4	47	0.070	2.81	15
28.54	14.0	10.7	-	14.2	0.3	9.1	2.4	3	silty CLAY to CLAY	115	1.5	7	9	3	-	-	0.9	3.1	57	0.005	2.97	15
28.71	10.8	8.2	-	10.9	0.2	9.5	2.7	3	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.7	2.3	66	0.005	3.11	15
28.87	9.8	7.5	-	10.0	0.2	10.1	3.0	3	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	2.0	71	0.005	3.18	15
29.04	10.0	7.6	-	10.2	0.3	10.5	3.3	3	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	2.1	72	0.005	3.19	15
29.20	10.3	7.7	-	10.5	0.3	10.8	3.5	3	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	2.1	73	0.005	3.20	15
29.36	10.6	7.9	-	10.8	0.3	11.1	3.8	3	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.7	2.2	73	0.005	3.20	15
29.53	11.0	8.2	-	11.2	0.4	11.3	4.1	3	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.7	2.3	74	0.005	3.21	15
29.69	11.8	8.8	-	12.0	0.4	11.6	4.3	3	silty CLAY to CLAY	115	1.5	6	8	3	-	-	0.7	2.5	72	0.005	3.19	15
29.86	13.1	9.7	-	13.3	0.5	11.8	4.1	3	silty CLAY to CLAY	115	1.5	6	9	3	-	-	0.8	2.8	68	0.005	3.14	15
30.02	14.4	10.6	-	14.6	0.4	12.0	2.8	3	silty CLAY to CLAY	115	1.5	7	10	3	-	-	0.9	3.1	59	0.005	3.01	15
30.19	14.4	10.6	-	14.7	0.3	12.1	2.2	3	silty CLAY to CLAY	115	1.5	7	10	3	-	-	0.9	3.1	55	0.005	2.95	15
30.35	12.5	9.2	-	12.7	0.3	12.3	2.7	3	silty CLAY to CLAY	115	1.5	6	8	3	-	-	0.8	2.6	63	0.005	3.06	15
30.51	11.3	8.3	-	11.6	0.3	12.7	3.0	3	silty CLAY to CLAY	115	1.5	6	8	3	-	-	0.7	2.3	68	0.005	3.13	15
30.68	11.3	8.3	-	11.6	0.3	13.2	3.3	3	silty CLAY to CLAY	115	1.5	6	8	3	-	-	0.7	2.3	70	0.005	3.16	15
30.84	11.7	8.6	-	12.0	0.4	13.5	4.3	3	silty CLAY to CLAY	115	1.5	6	8	3	-	-	0.7	2.4	73	0.005	3.20	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: BAGG Engineering
Data File: SDF(863).cpt
CPT Date: 7/26/2023 10:01:25 AM
GW During Test: 15 ft

Sounding ID: CPT-04
Project No: COUSM-23-03
Cone/Rig: DDG1589

Depth ft	qc PS tsf	qc1n PS - *	q1ncs PS -	qt PS tsf *	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60% *	SPT R-N 60% *	SPT IcN1 60% *	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR - *	Fin Ic % *	D50 - mm	Ic SBT Indx *	Nk -
31.01	14.3	10.4	-	14.5	0.4	14.0	3.3	3	silty CLAY to CLAY	115	1.5	7	10	3	-	-	0.9	3.0	62	0.005	3.06	15
31.17	17.1	12.4	-	17.4	0.3	14.4	2.2	4	clayy SILT to silty CLAY	115	2.0	6	9	4	-	-	1.1	3.6	51	0.070	2.88	15
31.33	16.8	12.1	-	17.2	0.3	19.6	2.1	4	clayy SILT to silty CLAY	115	2.0	6	8	4	-	-	1.1	3.6	51	0.070	2.89	15
31.50	15.0	10.8	-	15.4	0.7	21.4	5.5	3	silty CLAY to CLAY	115	1.5	7	10	4	-	-	1.0	3.1	71	0.005	3.17	15
31.66	15.6	11.2	-	16.0	1.0	22.8	7.3	3	silty CLAY to CLAY	115	1.5	7	10	4	-	-	1.0	3.2	76	0.005	3.24	15
31.83	43.3	35.6	103.6	43.8	1.0	25.9	2.5	4	clayy SILT to silty CLAY	115	2.0	18	22	9	-	-	3.0	9.8	32	0.070	2.53	15
31.99	126.4	103.7	117.9	126.7	1.0	12.7	0.8	6	clean SAND to silty SAND	125	5.0	21	25	19	68	40	-	-	9	0.350	1.84	16
32.15	157.5	129.0	135.5	157.4	1.0	-5.8	0.7	6	clean SAND to silty SAND	125	5.0	26	32	23	75	41	-	-	6	0.350	1.72	16
32.32	143.2	117.0	130.2	143.1	1.2	-6.5	0.8	6	clean SAND to silty SAND	125	5.0	23	29	21	72	41	-	-	8	0.350	1.81	16
32.48	136.4	111.2	130.2	136.2	1.3	-5.6	1.0	6	clean SAND to silty SAND	125	5.0	22	27	21	71	40	-	-	10	0.350	1.88	16
32.65	141.8	115.5	133.0	141.7	1.4	-5.9	1.0	6	clean SAND to silty SAND	125	5.0	23	28	22	72	40	-	-	9	0.350	1.86	16
32.81	143.5	116.6	127.9	143.3	1.1	-6.8	0.8	6	clean SAND to silty SAND	125	5.0	23	29	21	72	41	-	-	8	0.350	1.79	16
32.97	146.4	118.7	126.5	146.2	0.9	-6.7	0.6	6	clean SAND to silty SAND	125	5.0	24	29	21	73	41	-	-	7	0.350	1.74	16
33.14	137.5	111.4	120.4	137.4	0.9	-6.9	0.6	6	clean SAND to silty SAND	125	5.0	22	27	20	71	40	-	-	7	0.350	1.76	16
33.30	105.7	85.5	112.8	105.6	1.2	-6.9	1.2	6	clean SAND to silty SAND	125	5.0	17	21	17	62	39	-	-	13	0.350	2.01	16
33.47	59.5	48.0	98.0	59.3	1.0	-6.5	1.8	5	silty SAND to sandy SILT	120	3.0	16	20	11	43	35	-	-	24	0.200	2.33	16
33.63	31.4	21.6	-	31.2	0.9	-6.2	3.1	4	clayy SILT to silty CLAY	115	2.0	11	16	6	-	-	2.1	6.7	44	0.070	2.76	15
33.79	20.1	13.8	-	20.0	0.6	-4.0	3.2	3	silty CLAY to CLAY	115	1.5	9	13	4	-	-	1.3	4.1	54	0.005	2.94	15
33.96	16.1	11.0	-	16.0	0.4	-0.5	3.0	3	silty CLAY to CLAY	115	1.5	7	11	4	-	-	1.0	3.2	59	0.005	3.01	15
34.12	15.9	10.9	-	16.0	0.4	2.4	2.9	3	silty CLAY to CLAY	115	1.5	7	11	3	-	-	1.0	3.1	59	0.005	3.01	15
34.29	15.2	10.3	-	15.3	0.3	4.3	2.5	3	silty CLAY to CLAY	115	1.5	7	10	3	-	-	1.0	2.9	58	0.005	3.00	15
34.45	14.4	9.8	-	14.5	0.3	4.9	2.8	3	silty CLAY to CLAY	115	1.5	7	10	3	-	-	0.9	2.8	61	0.005	3.04	15
34.61	12.9	8.7	-	13.0	0.3	5.0	3.0	3	silty CLAY to CLAY	115	1.5	6	9	3	-	-	0.8	2.4	66	0.005	3.11	15
34.78	12.9	8.7	-	13.0	0.3	4.6	3.1	3	silty CLAY to CLAY	115	1.5	6	9	3	-	-	0.8	2.4	67	0.005	3.12	15
34.94	12.9	8.7	-	13.0	0.3	4.5	3.1	3	silty CLAY to CLAY	115	1.5	6	9	3	-	-	0.8	2.4	67	0.005	3.12	15
35.11	12.9	8.7	-	13.0	0.4	5.7	3.3	3	silty CLAY to CLAY	115	1.5	6	9	3	-	-	0.8	2.4	68	0.005	3.13	15
35.27	13.2	8.8	-	13.3	0.4	6.7	3.2	3	silty CLAY to CLAY	115	1.5	6	9	3	-	-	0.8	2.4	67	0.005	3.12	15
35.43	13.6	9.0	-	13.7	0.3	8.0	3.0	3	silty CLAY to CLAY	115	1.5	6	9	3	-	-	0.9	2.5	65	0.005	3.09	15
35.60	14.0	9.3	-	14.2	0.4	9.5	3.1	3	silty CLAY to CLAY	115	1.5	6	9	3	-	-	0.9	2.6	65	0.005	3.09	15
35.76	14.2	9.4	-	14.4	0.4	11.3	3.6	3	silty CLAY to CLAY	115	1.5	6	9	3	-	-	0.9	2.6	67	0.005	3.12	15
35.93	15.5	10.3	-	15.8	0.6	13.9	4.6	3	silty CLAY to CLAY	115	1.5	7	10	4	-	-	1.0	2.9	69	0.005	3.15	15
36.09	20.2	13.3	-	20.5	1.1	17.5	6.2	3	silty CLAY to CLAY	115	1.5	9	13	5	-	-	1.3	3.9	68	0.005	3.13	15
36.26	27.0	17.7	-	27.5	1.8	22.3	7.1	3	silty CLAY to CLAY	115	1.5	12	18	6	-	-	1.8	5.4	63	0.005	3.06	15
36.42	39.7	26.0	-	40.2	2.3	27.0	6.2	3	silty CLAY to CLAY	115	1.5	17	26	8	-	-	2.7	8.1	52	0.005	2.89	15
36.58	43.9	28.7	-	44.3	2.6	21.2	6.3	3	silty CLAY to CLAY	115	1.5	19	29	8	-	-	3.0	9.0	50	0.005	2.87	15
36.75	46.7	30.4	-	47.2	3.0	23.9	6.6	3	silty CLAY to CLAY	115	1.5	20	31	9	-	-	3.2	9.6	50	0.005	2.86	15
36.91	65.4	42.5	-	65.8	3.0	16.0	4.8	4	clayy SILT to silty CLAY	115	2.0	21	33	11	-	-	4.5	9.9	38	0.070	2.66	15
37.08	70.3	45.5	-	70.2	3.0	-1.4	4.4	4	clayy SILT to silty CLAY	115	2.0	23	35	12	-	-	4.9	9.9	36	0.070	2.61	15
37.24	44.3	28.6	-	44.3	1.7	-3.5	3.9	4	clayy SILT to silty CLAY	115	2.0	14	22	8	-	-	3.0	9.0	42	0.070	2.73	15
37.40	26.3	17.0	-	26.3	1.1	-3.6	4.4	3	silty CLAY to CLAY	115	1.5	11	18	5	-	-	1.8	5.1	55	0.005	2.94	15
37.57	17.4	11.2	-	17.4	0.8	-2.0	5.4	3	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.1	3.2	70	0.005	3.16	15
37.73	15.7	10.0	-	15.7	0.7	2.0	5.3	3	silty CLAY to CLAY	115	1.5	7	10	4	-	-	1.0	2.8	73	0.005	3.19	15
37.90	14.7	9.4	-	14.8	0.7	2.6	5.2	3	silty CLAY to CLAY	115	1.5	6	10	3	-	-	0.9	2.6	75	0.005	3.22	15
38.06	14.3	9.1	-	14.4	0.6	2.9	4.7	3	silty CLAY to CLAY	115	1.5	6	10	3	-	-	0.9	2.5	73	0.005	3.20	15
38.22	14.3	9.1	-	14.3	0.4	3.1	3.2	3	silty CLAY to CLAY	115	1.5	6	10	3	-	-	0.9	2.5	66	0.005	3.11	15
38.39	14.7	9.3	-	14.7	0.5	3.3	3.7	3	silty CLAY to CLAY	115	1.5	6	10	3	-	-	0.9	2.6	68	0.005	3.14	15
38.55	15.1	9.5	-	15.2	0.5	3.5	3.8	3	silty CLAY to CLAY	115	1.5	6	10	3	-	-	1.0	2.7	68	0.005	3.13	15
38.72	12.4	7.8	-	12.5	0.7	4.4	7.0	3	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.8	2.1	87	0.005	3.37	15
38.88	17.8	11.2	-	17.9	1.3	5.5	8.4	3	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.1	3.2	79	0.005	3.28	15
39.04	23.1	14.5	-	23.3	2.4	6.7	9.9	3	silty CLAY to CLAY	115	1.5	10	15	5	-	-	1.5	4.3	76	0.005	3.23	15
39.21	44.8	28.0	-	45.0	3.0	9.5	7.1	3	silty CLAY to CLAY	115	1.5	19	30	8	-	-	3.1	8.8	53	0.005	2.91	15
39.37	59.4	37.0	-	59.3	3.2	-2.2	5.6	3	silty CLAY to CLAY	115	1.5	25	40	10	-	-	4.1	9.9	43	0.005	2.75	15
39.54	70.9	44.1	-	71.0	3.6	3.5	5.2	3	silty CLAY to CLAY	115	1.5	29	47	12	-	-	4.9	9.9	39	0.005	2.67	15
39.70	109.0	83.4	180.7	109.0	3.8	-0.8	3.6	4	clayy SILT to silty CLAY	115	2.0	42	54	19	-	-	7.6	9.9	25	0.070	2.36	15
39.86	106.0	81.0	175.9	105.9	3.6	-6.4	3.5	4	clayy SILT to silty CLAY	115	2.0	40	53	18	-	-	7.4	9.9	25	0.070	2.36	15
40.03	121.0	92.3	164.5	120.9	3.2	-5.0	2.7	5	silty SAND to sandy SILT	120	3.0	31	40	20	64	39	-	-	21	0.200	2.24	16
40.19	171.2	130.4	161.5	171.1	2.5	-6.2	1.5	6	clean SAND to silty SAND	125	5.0	26	34	25	76	41	-	-	12	0.350	1.95	16
40.36	197.6	150.2	169.5	197.4	2.3	-6.5	1.2	6	clean SAND to silty SAND	125	5.0	30	40	28	80	42	-	-	9	0.350	1.83	16
40.52	208.5	158.3	159.1	208.4	1.4	-6.0	0.7	6	clean SAND to silty SAND	125	5.0	32	42	27	82	42	-	-	5	0.350	1.65	16
40.68	224.5	170.2	177.5	224.4	2.0	-6.7	0.9	6	clean SAND to silty SAND	125	5.0	34	45	30	85	42	-	-	6	0.350	1.71	16
40.85	234.8	177.7	190.1	234.7	2.5	-6.9	1.1	6	clean SAND to silty SAND	125	5.0	36	47	32	86	42	-	-	7	0.350	1.75	16
41.01	233.5	176.4	187.9	233.4	2.4	-5.5	1.0	6	clean SAND to silty SAND	125	5.0	35	47	31	86	42	-	-	7	0.350	1.74	16
41.18	244.0	184.1	189.2	243.9	2.2	-5.8	0.9	6	clean SAND to silty SAND	125	5.0	37	49	32	87	43	-	-	6	0.350	1.69	16
41.34	250.0	188.3	190.9	249.9	2.1	-5.9	0.9	6	clean SAND to silty SAND	125	5.0	38	50	33	88	43	-	-	5	0.350	1.66	16
41.50	256.9	193.2	195.7	256.8	2.2	-6.0	0.9	6	clean SAND to silty SAND	125	5.0	39	51	34	89	43	-	-	5	0.350	1.66	16
41.67	261.1	196.1	196.5	261.0	2.2	-6.0	0.8	6	clean SAND to silty SAND	125	5.0	39	52	34	89	43	-	-	5	0.350	1.65	16
41.83	257.3	193.0	201.5	257.2	2.6	-6.0	1.0	6	clean SAND to silty SAND	125	5.0	39	51	34	89	43	-	-	6	0.350	1.71	16
42.00	274.7	205.7	209.4	274.6	2.6	-6.1	1.0	6	clean SAND to silty SAND	125	5.0	41	55	36	91	43	-	-	6	0.350	1.67	16
42.16	290.3	217.0	224.8	290.2	3.1	-4.6	1.1	6	clean SAND to silty SAND	125	5.0	43	58	38	93	43	-	-	6	0.350	1.70	16
42.32	297.7	222.2	231.2	297.6	3.4	-4.0	1.1	6	clean SAND to silty SAND	125	5.0	44	60	39	93	43	-	-	6	0.350	1.70	16
42.49	291.9	217.6	224.0	291.8	3.1	-2.7	1.1	6	clean SAND to silty SAND	125	5.0	44	58	38	93	43	-	-	6	0.350	1.69	16
42.65	259.8	193.4	195.8	259.8	2.3	-4.2	0.9	6	clean SAND to silty SAND	125	5.0	39	52	34	89	43	-	-	5	0.350	1.66	16
42.82	255.4	189.8	189.8	255.3	1.9	-4.6	0.8	6	clean SAND to silty SAND	125	5.0	38	51	33	88	43	-	-	5	0.350	1.63	16
42.98	235.7	174.9	174.7	235.6	1.7	-5.0	0.7	6	clean SAND to silty SAND	125	5.0	35	47	30	85	42	-	-	5	0.350	1.64	16
43.15	231.1	171.2	171.2	231.0	1.6	-4.9	0.7	6	clean SAND to silty SAND	125	5.0	34	46	29	85	42	-	-	5	0.350	1.64	16
43.31	225.5	166.8	167.6	225.4	1.6	-5.0	0.7	6	clean SAND to silty SAND	125	5.0	33	45	29	84	42	-	-	5	0.350	1.65	16
43.47	227.5	168.1	168.1	227.4	1.1	-4.9	0.5	6	clean SAND to silty SAND	125	5.0	34	46	28	84	42	-	-	5	0.350	1.55	16
43.64	223.1	164.5	164.5	223.0	1.3	-4.6	0.6	6	clean SAND to silty SAND	125	5.0	33	45	28	83	42	-	-	5	0.350	1.59	16
43.80	231.2	170.3	170.3	231.1	1.5	-4.6	0.6	6	clean SAND to silty SAND	125	5.0	34	46	29	85	42	-	-	5	0.350	1.61	16
43.97	219.8	161.6	168.3	219.7	1.8	-5.0	0.8	6	clean SAND to silty SAND	125	5.0	32	44	29	83	42	-	-	6	0.350	1.71	16
44.13	210.4	154.5	166.3	210.4	2.0	-4.5	0.9	6	clean SAND to silty SAND	125	5.0	31	42	28	81	41	-	-	7	0.350	1.76	16
44.29	229.1	168.0	177.4	229.0	2.1	-3.9	0.9	6	clean SAND to silty SAND	125	5.0	34	46	30	84	42	-	-	7	0.350	1.73	16
44.46	226.4	165.8	173.1	226.3	2.0	-4.0	0.9	6	clean SAND to silty SAND	125	5.0	33	45	29	84	42	-	-	6	0.350	1.71	16
44.62	234.2	171.3	173.7	234.2	1.8	-4.0	0.8	6	clean SAND to silty SAND	125	5.0	34	47	30	85	42	-	-	5	0.350	1.67	16
44.79	271.6	198.3	198.3	271.5	2.0	-4.0	0.8	6	clean SAND to silty SAND	125	5.0	40	54	34	90	43	-	-	5	0.350	1.61	16
44.95	298.2	217.4	217.4	298.1	2.0	-4.0	0.7	6	clean SAND to silty SAND	125	5.0	43	60	36	93	43	-	-	5	0.350	1.55	16
45.11	283.1	206.1	206.1	283.0	1.9	-4.4	0.7	6	clean SAND to silty SAND	125	5.0	41	57	35	91	43	-	-	5	0.350	1.57	16
45.28	276.6	201.1	201.1	276.6	1.8	-3.3	0.7	6	clean SAND to silty SAND	125	5.0	40	55	34	90	43	-	-	5	0.350	1.56	16
45.44	287.6	208.7	208.7	287.5	1.6	-3.4	0.6	6	clean SAND to silty SAND	125	5.0	42	58	35	91	43	-	-	5	0.350	1.51	16
45.61	285.0	206.6	206.6	285.0	1.5	-2.3	0.5	6	clean SAND to silty SAND	125	5.0	41	57	34	91	43	-	-	5	0.350	1.49	16
45.77	267.3	193.4	193.4	267.2	1.4	-2.8	0.5	6	clean SAND to silty SAND	125	5.0	39	53	32	89	43	-	-	5	0.350	1.52	16
45.93	248.1	179.3	179.3	248.0	1.5	-3.3	0.6	6	clean SAND to silty SAND	125	5.0	36	50	30	86	42	-	-	5	0.350	1.59	16
46.10	233.8	168.7	168.7	233.7	1.3	-3.8	0.6	6	clean SAND to silty SAND	125	5.0	34	47	29	84	42	-	-	5	0.350	1.58	16
46.26	212.7	153.3	153.3	212.6	1.3	-4.2	0.6	6	clean SAND to silty SAND	125	5.0	31	43	26	81	41	-	-	5	0.350	1.64	16

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Project No: COUSM-23-03
Cone/Rig: DDG1589

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
46.43	201.5	145.0	145.7	201.4	1.2	-4.2	0.6	6	clean SAND to silty SAND	125	5.0	29	40	25	79	41	-	-	5	0.350	1.65	16
46.59	205.2	147.5	148.9	205.1	1.3	-3.8	0.6	6	clean SAND to silty SAND	125	5.0	29	41	26	80	41	-	-	5	0.350	1.66	16
46.75	222.6	159.7	164.9	222.5	1.7	-4.0	0.8	6	clean SAND to silty SAND	125	5.0	32	45	28	82	42	-	-	6	0.350	1.69	16
46.92	239.5	171.6	171.6	239.4	1.4	-4.1	0.6	6	clean SAND to silty SAND	125	5.0	34	48	29	85	42	-	-	5	0.350	1.59	16
47.08	256.7	183.7	183.7	256.6	1.5	-4.0	0.6	6	clean SAND to silty SAND	125	5.0	37	51	31	87	42	-	-	5	0.350	1.57	16
47.25	250.5	179.0	179.0	250.5	1.7	-3.2	0.7	6	clean SAND to silty SAND	125	5.0	36	50	31	86	42	-	-	5	0.350	1.62	16
47.41	245.8	175.4	175.4	245.7	1.4	-3.2	0.6	6	clean SAND to silty SAND	125	5.0	35	49	30	86	42	-	-	5	0.350	1.57	16
47.57	258.6	184.3	184.3	258.6	1.0	-4.7	0.4	6	clean SAND to silty SAND	125	5.0	37	52	30	87	42	-	-	5	0.350	1.47	16
47.74	247.3	176.0	176.0	247.2	1.0	-4.8	0.4	6	clean SAND to silty SAND	125	5.0	35	49	29	86	42	-	-	5	0.350	1.49	16
47.90	233.1	165.7	165.7	233.0	0.9	-4.8	0.4	6	clean SAND to silty SAND	125	5.0	33	47	27	84	42	-	-	5	0.350	1.49	16
48.07	214.3	152.1	152.1	214.2	1.1	-4.7	0.5	6	clean SAND to silty SAND	125	5.0	30	43	26	81	41	-	-	5	0.350	1.60	16
48.23	173.1	122.7	139.1	173.0	1.6	-4.4	1.0	6	clean SAND to silty SAND	125	5.0	25	35	23	74	40	-	-	9	0.350	1.84	16
48.39	147.2	104.2	144.4	147.1	2.5	-4.5	1.7	5	silty SAND to sandy SILT	120	3.0	35	49	21	68	39	-	-	15	0.200	2.06	16
48.56	107.6	76.1	142.8	107.5	2.6	-4.1	2.5	5	silty SAND to sandy SILT	120	3.0	25	36	17	58	37	-	-	22	0.200	2.28	16
48.72	89.2	63.0	162.9	89.2	3.2	-3.7	3.8	4	clayy SILT to silty CLAY	115	2.0	32	45	15	-	-	6.2	9.9	29	0.070	2.46	15
48.89	77.8	41.0	-	77.7	4.1	-3.1	5.5	3	silty CLAY to CLAY	115	1.5	27	52	11	-	-	5.4	9.9	41	0.005	2.71	15
49.05	92.7	65.3	172.9	92.6	3.6	-2.8	4.1	4	clayy SILT to silty CLAY	115	2.0	33	46	16	-	-	6.4	9.9	30	0.070	2.48	15
49.22	176.4	124.2	166.9	176.4	3.2	-3.4	1.9	5	silty SAND to sandy SILT	120	3.0	41	59	25	74	40	-	-	14	0.200	2.03	16
49.38	204.4	143.7	158.7	204.3	2.0	-4.7	1.0	6	clean SAND to silty SAND	125	5.0	29	41	26	79	41	-	-	8	0.350	1.80	16
49.54	192.9	135.4	159.3	192.8	2.4	-4.7	1.3	6	clean SAND to silty SAND	125	5.0	27	39	25	77	41	-	-	10	0.350	1.89	16
49.71	147.3	103.2	161.3	147.2	3.3	-4.8	2.3	5	silty SAND to sandy SILT	120	3.0	34	49	22	68	39	-	-	18	0.200	2.15	16
49.87	122.6	85.8	155.0	122.5	3.1	-5.1	2.6	5	silty SAND to sandy SILT	120	3.0	29	41	19	62	38	-	-	21	0.200	2.25	16
50.04	115.3	80.6	169.7	115.2	3.7	-5.1	3.3	5	silty SAND to sandy SILT	120	3.0	27	38	18	60	38	-	-	24	0.200	2.35	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

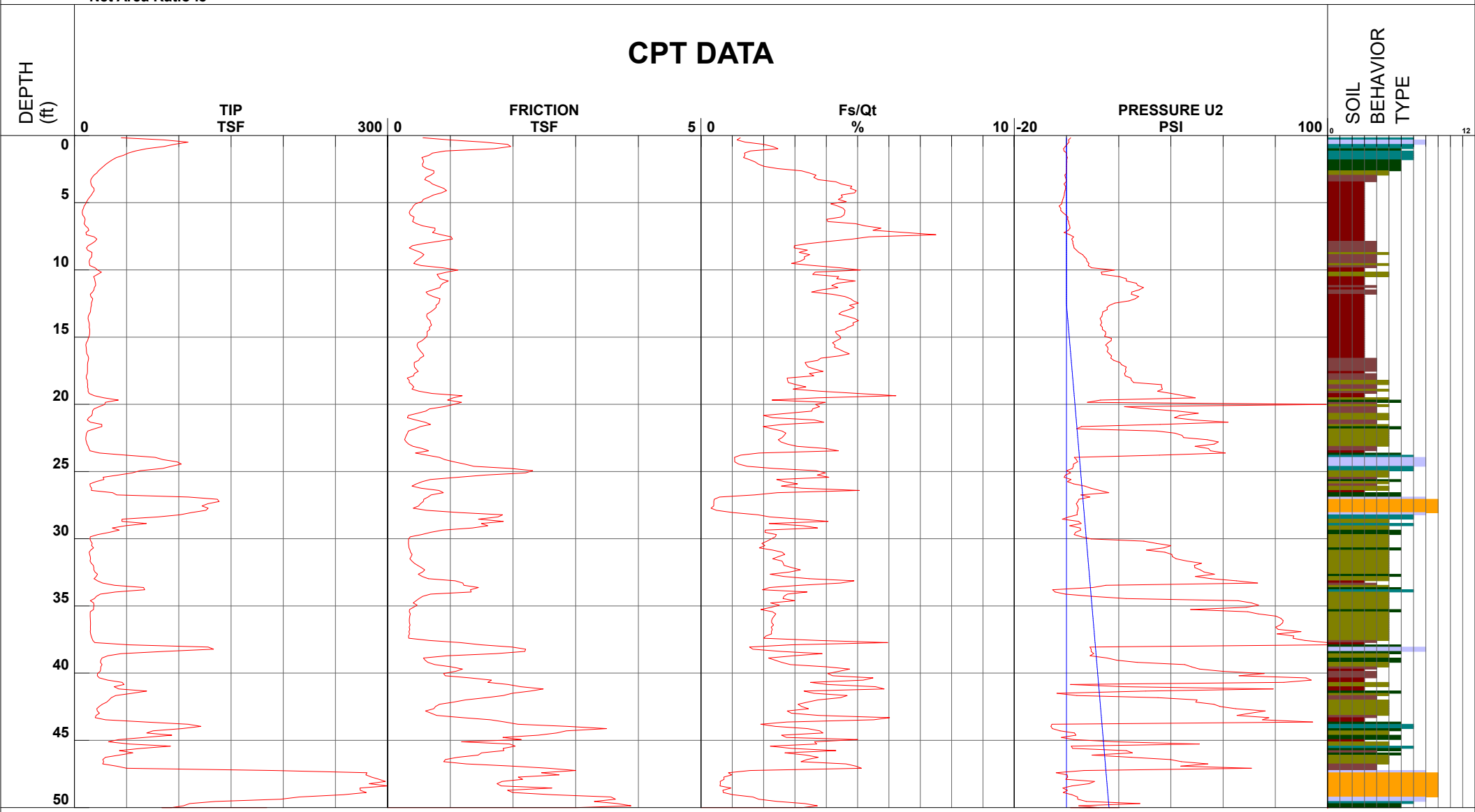
Middle Earth Geo Testing

BAGG Engineering

Project	SMC-HMB Farmworker Housing project	Operator	AJ-ER	Filename	SDF(865).cpt
Job Number	COUSM-23-03	Cone Number	DDG1589	GPS	
Hole Number	CPT-05	Date and Time	7/26/2023 1:04:56 PM	Maximum Depth	50.52 ft
EST GW Depth During Test		12.50 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Cone Size 15cm²

S*Soil behavior type and SPT based on data from UBC-1983

SMC-HMB Farmworker Housing project

Project ID: BAGG Engineering
Data File: SDF(865).cpt
CPT Date: 7/26/2023 1:04:56 PM
GW During Test: 13 ft

Sounding ID: CPT-05
Project No: COUSM-23-03
Cone/Rig: DDG1589

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
0.33	85.5	137.2	156.9	85.5	1.0	0.8	1.2	6	clean SAND to silty SAND	125	5.0	27	17	25	77	48	-	-	9	0.350	1.85	16
0.49	108.8	174.4	198.4	108.8	1.5	1.0	1.4	6	clean SAND to silty SAND	125	5.0	35	22	32	85	48	-	-	9	0.350	1.84	16
0.66	95.4	152.9	197.4	95.4	1.9	0.2	2.0	5	silty SAND to sandy SILT	120	3.0	51	32	30	81	48	-	-	13	0.200	1.99	16
0.82	85.9	137.8	192.3	85.9	2.0	-0.5	2.3	5	silty SAND to sandy SILT	120	3.0	46	29	28	78	48	-	-	15	0.200	2.07	16
0.98	69.0	110.7	172.2	69.0	1.7	-1.1	2.5	5	silty SAND to sandy SILT	120	3.0	37	23	23	70	48	-	-	17	0.200	2.15	16
1.15	58.6	94.0	130.7	58.6	0.9	-0.9	1.6	5	silty SAND to sandy SILT	120	3.0	31	20	19	65	48	-	-	15	0.200	2.06	16
1.31	51.6	82.7	115.6	51.6	0.7	0.1	1.4	5	silty SAND to sandy SILT	120	3.0	28	17	17	61	48	-	-	15	0.200	2.07	16
1.48	47.0	75.4	109.7	47.0	0.7	0.1	1.4	5	silty SAND to sandy SILT	120	3.0	25	16	15	58	48	-	-	16	0.200	2.10	16
1.64	40.2	64.5	99.2	40.2	0.5	0.3	1.4	5	silty SAND to sandy SILT	120	3.0	21	13	13	53	47	-	-	17	0.200	2.14	16
1.80	36.4	58.3	99.4	36.4	0.6	0.1	1.6	5	silty SAND to sandy SILT	120	3.0	19	12	12	49	46	-	-	20	0.200	2.22	16
1.97	33.3	53.4	99.6	33.3	0.6	0.1	1.7	5	silty SAND to sandy SILT	120	3.0	18	11	12	46	46	-	-	22	0.200	2.27	16
2.13	30.3	48.6	98.2	30.3	0.6	0.1	1.8	5	silty SAND to sandy SILT	120	3.0	16	10	11	43	45	-	-	23	0.200	2.32	16
2.30	27.8	44.6	99.1	27.8	0.6	0.0	2.0	5	silty SAND to sandy SILT	120	3.0	15	9	10	40	44	-	-	25	0.200	2.38	16
2.46	25.3	40.6	105.3	25.3	0.6	0.1	2.5	5	silty SAND to sandy SILT	120	3.0	14	8	10	37	43	-	-	29	0.200	2.46	16
2.62	23.0	36.9	117.0	23.0	0.7	0.0	3.2	4	clayy SILT to silty CLAY	115	2.0	18	11	9	-	-	1.6	9.9	34	0.070	2.57	15
2.79	21.3	34.1	-	21.3	0.7	0.0	3.5	4	clayy SILT to silty CLAY	115	2.0	17	11	9	-	-	1.5	9.9	36	0.070	2.62	15
2.95	18.7	30.0	-	18.7	0.7	-0.6	3.7	4	clayy SILT to silty CLAY	115	2.0	15	9	8	-	-	1.3	9.9	39	0.070	2.68	15
3.12	17.0	27.3	-	17.0	0.6	-0.4	3.6	4	clayy SILT to silty CLAY	115	2.0	14	8	7	-	-	1.2	9.9	41	0.070	2.71	15
3.28	15.8	25.3	-	15.8	0.6	-0.1	3.8	4	clayy SILT to silty CLAY	115	2.0	13	8	7	-	-	1.1	9.9	43	0.070	2.74	15
3.45	15.6	24.9	-	15.6	0.7	-0.2	4.4	3	silty CLAY to CLAY	115	1.5	17	10	7	-	-	1.1	9.9	45	0.005	2.79	15
3.61	15.9	25.6	-	15.9	0.7	-1.0	4.5	3	silty CLAY to CLAY	115	1.5	17	11	7	-	-	1.1	9.9	46	0.005	2.79	15
3.77	16.7	26.8	-	16.7	0.8	-0.4	4.9	3	silty CLAY to CLAY	115	1.5	18	11	8	-	-	1.2	9.9	46	0.005	2.80	15
3.94	18.8	30.1	-	18.8	0.9	-0.3	4.8	3	silty CLAY to CLAY	115	1.5	20	13	8	-	-	1.3	9.9	44	0.005	2.76	15
4.10	19.0	30.4	-	18.9	0.9	-0.6	5.0	3	silty CLAY to CLAY	115	1.5	20	13	8	-	-	1.3	9.9	44	0.005	2.77	15
4.27	17.5	28.1	-	17.5	0.9	-0.8	5.0	3	silty CLAY to CLAY	115	1.5	19	12	8	-	-	1.2	9.9	45	0.005	2.79	15
4.43	16.3	26.2	-	16.3	0.7	-0.8	4.6	3	silty CLAY to CLAY	115	1.5	17	11	7	-	-	1.1	9.9	45	0.005	2.79	15
4.59	14.6	23.3	-	14.5	0.7	-1.0	4.6	3	silty CLAY to CLAY	115	1.5	16	10	7	-	-	1.0	9.9	48	0.005	2.83	15
4.76	13.0	20.8	-	12.9	0.6	-1.4	4.5	3	silty CLAY to CLAY	115	1.5	14	9	6	-	-	0.9	9.9	49	0.005	2.86	15
4.92	11.8	18.9	-	11.7	0.5	-1.7	4.8	3	silty CLAY to CLAY	115	1.5	13	8	6	-	-	0.8	9.9	53	0.005	2.91	15
5.09	10.7	17.2	-	10.7	0.4	-1.8	4.3	3	silty CLAY to CLAY	115	1.5	11	7	5	-	-	0.7	9.9	53	0.005	2.91	15
5.25	9.4	15.1	-	9.3	0.4	-2.8	4.5	3	silty CLAY to CLAY	115	1.5	10	6	5	-	-	0.6	9.7	57	0.005	2.97	15
5.41	8.6	13.8	-	8.6	0.4	-2.2	4.7	3	silty CLAY to CLAY	115	1.5	9	6	4	-	-	0.6	8.6	59	0.005	3.01	15
5.58	7.8	12.5	-	7.7	0.4	-2.2	4.8	3	silty CLAY to CLAY	115	1.5	8	5	4	-	-	0.5	7.5	62	0.005	3.06	15
5.74	7.5	12.0	-	7.4	0.3	-1.3	4.8	3	silty CLAY to CLAY	115	1.5	8	5	4	-	-	0.5	7.0	63	0.005	3.07	15
5.91	7.9	12.7	-	7.9	0.4	-0.3	4.8	3	silty CLAY to CLAY	115	1.5	8	5	4	-	-	0.5	7.2	62	0.005	3.05	15
6.07	9.5	15.2	-	9.5	0.4	0.5	4.6	3	silty CLAY to CLAY	115	1.5	10	6	5	-	-	0.6	8.4	57	0.005	2.98	15
6.23	10.2	16.4	-	10.2	0.4	0.4	4.2	3	silty CLAY to CLAY	115	1.5	11	7	5	-	-	0.7	8.9	53	0.005	2.92	15
6.40	9.8	15.7	-	9.8	0.4	0.8	4.2	3	silty CLAY to CLAY	115	1.5	10	7	5	-	-	0.7	8.3	55	0.005	2.94	15
6.56	9.3	15.0	-	9.4	0.5	0.9	5.1	3	silty CLAY to CLAY	115	1.5	10	6	5	-	-	0.6	7.7	59	0.005	3.01	15
6.73	10.7	17.2	-	10.8	0.6	1.2	5.4	3	silty CLAY to CLAY	115	1.5	11	7	5	-	-	0.7	8.7	57	0.005	2.98	15
6.89	13.1	21.1	-	13.2	0.8	1.4	5.9	3	silty CLAY to CLAY	115	1.5	14	9	6	-	-	0.9	9.9	54	0.005	2.94	15
7.05	13.8	22.1	-	13.8	0.8	0.7	5.7	3	silty CLAY to CLAY	115	1.5	15	9	7	-	-	0.9	9.9	53	0.005	2.91	15
7.22	11.0	17.7	-	11.0	0.7	-0.9	6.8	3	silty CLAY to CLAY	115	1.5	12	7	6	-	-	0.7	8.3	61	0.005	3.04	15
7.38	11.4	18.3	-	11.4	0.9	1.2	7.8	3	silty CLAY to CLAY	115	1.5	12	8	6	-	-	0.8	8.4	63	0.005	3.07	15
7.55	18.9	30.4	-	19.0	1.0	2.7	5.5	3	silty CLAY to CLAY	115	1.5	20	13	9	-	-	1.3	9.9	46	0.005	2.80	15
7.71	21.4	34.4	-	21.5	1.0	2.0	4.9	3	silty CLAY to CLAY	115	1.5	23	14	9	-	-	1.5	9.9	42	0.005	2.73	15
7.87	19.8	31.7	-	19.8	0.8	2.4	4.2	4	clayy SILT to silty CLAY	115	2.0	16	10	9	-	-	1.4	9.9	41	0.070	2.70	15
8.04	16.6	26.7	-	16.7	0.6	2.4	3.5	4	clayy SILT to silty CLAY	115	2.0	13	8	7	-	-	1.1	9.9	41	0.070	2.71	15
8.20	13.2	21.2	-	13.3	0.4	2.7	3.1	4	clayy SILT to silty CLAY	115	2.0	11	7	6	-	-	0.9	8.8	43	0.070	2.75	15
8.37	11.6	18.7	-	11.7	0.3	2.9	3.1	4	clayy SILT to silty CLAY	115	2.0	9	6	5	-	-	0.8	7.5	46	0.070	2.80	15
8.53	12.6	20.2	-	12.7	0.4	3.8	3.5	3	silty CLAY to CLAY	115	1.5	13	8	6	-	-	0.9	8.0	46	0.005	2.81	15
8.69	16.8	27.0	-	16.9	0.5	4.7	3.2	4	clayy SILT to silty CLAY	115	2.0	14	8	7	-	-	1.2	9.9	40	0.070	2.68	15
8.86	16.7	26.8	-	16.8	0.6	6.1	3.6	4	clayy SILT to silty CLAY	115	2.0	13	8	7	-	-	1.1	9.9	41	0.070	2.72	15
9.02	16.5	26.4	-	16.6	0.5	6.9	3.4	4	clayy SILT to silty CLAY	115	2.0	13	8	7	-	-	1.1	9.9	41	0.070	2.71	15
9.19	14.9	23.9	-	15.1	0.5	7.7	3.4	4	clayy SILT to silty CLAY	115	2.0	12	7	7	-	-	1.0	8.9	43	0.070	2.74	15
9.35	14.1	22.6	-	14.3	0.4	7.8	3.3	4	clayy SILT to silty CLAY	115	2.0	11	7	6	-	-	1.0	8.2	43	0.070	2.75	15
9.51	14.4	23.1	-	14.6	0.4	8.6	3.0	4	clayy SILT to silty CLAY	115	2.0	12	7	6	-	-	1.0	8.2	41	0.070	2.72	15
9.68	14.8	23.7	-	15.0	0.5	8.3	3.7	4	clayy SILT to silty CLAY	115	2.0	12	7	7	-	-	1.0	8.3	44	0.070	2.77	15
9.84	19.8	31.8	-	20.0	0.9	9.6	4.6	3	silty CLAY to CLAY	115	1.5	21	13	9	-	-	1.4	9.9	42	0.005	2.73	15
10.01	22.1	35.4	-	22.4	1.1	18.4	5.2	3	silty CLAY to CLAY	115	1.5	24	15	10	-	-	1.5	9.9	42	0.005	2.74	15
10.17	25.9	36.7	-	26.1	0.9	13.3	3.7	4	clayy SILT to silty CLAY	115	2.0	18	13	9	-	-	1.8	9.9	36	0.070	2.62	15
10.34	22.1	35.4	-	22.4	0.8	13.6	3.7	4	clayy SILT to silty CLAY	115	2.0	18	11	9	-	-	1.5	9.9	37	0.070	2.63	15
10.50	18.5	29.7	-	18.9	0.8	20.2	4.5	3	silty CLAY to CLAY	115	1.5	20	12	8	-	-	1.3	9.7	43	0.005	2.75	15
10.66	19.3	30.9	-	19.7	0.8	22.9	4.5	3	silty CLAY to CLAY	115	1.5	21	13	8	-	-	1.3	9.9	42	0.005	2.73	15
10.83	19.7	31.2	-	20.1	1.0	22.9	5.1	3	silty CLAY to CLAY	115	1.5	21	13	9	-	-	1.3	9.9	44	0.005	2.77	15
10.99	20.2	31.7	-	20.8	0.9	26.7	4.5	3	silty CLAY to CLAY	115	1.5	21	13	9	-	-	1.4	9.9	42	0.005	2.73	15
11.16	20.3	31.3	-	20.9	0.8	27.3	4.3	4	clayy SILT to silty CLAY	115	2.0	16	10	9	-	-	1.4	9.9	41	0.070	2.72	15
11.32	19.1	29.0	-	19.7	0.8	29.5	4.5	3	silty CLAY to CLAY	115	1.5	19	13	8	-	-	1.3	9.2	44	0.005	2.76	15
11.48	18.7	28.0	-	19.2	0.7	27.9	4.0	4	clayy SILT to silty CLAY	115	2.0	14	9	8	-	-	1.3	8.9	42	0.070	2.73	15
11.65	17.3	25.6	-	17.8	0.6	25.0	3.7	4	clayy SILT to silty CLAY	115	2.0	13	9	7	-	-	1.2	8.1	43	0.070	2.74	15
11.81	15.3	22.3	-	15.8	0.6	24.9	4.4	3	silty CLAY to CLAY	115	1.5	15	10	6	-	-	1.0	7.0	48	0.005	2.84	15
11.98	15.8	22.7	-	16.3	0.7	27.6	4.8	3	silty CLAY to CLAY	115	1.5	15	11	7	-	-	1.1	7.2	49	0.005	2.86	15
12.14	17.5	24.9	-	18.1	0.8	26.4	5.0	3	silty CLAY to CLAY	115	1.5	17	12	7	-	-	1.2	7.9	48	0.005	2.84	15
12.30	17.0	23.8	-	17.5	0.8	24.0	5.1	3	silty CLAY to CLAY	115	1.5	16	11	7	-	-	1.2	7.5	49	0.005	2.86	15
12.47	16.2	22.4	-	16.6	0.8	18.5	5.3	3	silty CLAY to CLAY	115	1.5	15	11	7	-	-	1.1	7.1	51	0.005	2.89	15
12.63	16.3	22.2	-	16.6	0.8	16.5	5.0	3	silty CLAY to CLAY	115	1.5	15	11	7	-	-	1.1	7.0	50	0.005	2.88	15
12.80	15.8	21.3	-	16.1	0.8	15.5	5.1	3	silty CLAY to CLAY	115	1.5	14	11	6	-	-	1.1	6.7	52	0.005	2.90	15
12.96	15.5	20.7	-	15.9	0.7	15.6	5.0	3	silty CLAY to CLAY	115	1.5	14	10	6	-	-	1.0	6.5	52	0.005	2.90	15
13.12	15.3	20.2	-	15.6	0.7	13.9	4.7	3	silty CLAY to CLAY	115	1.5	13	10	6	-	-	1.0	6.3	52	0.005	2.89	15
13.29	14.3	18.7	-	14.5	0.6	13.8	4.6	3	silty CLAY to CLAY	115	1.5	12	10	6	-	-	1.0	5.8	53	0.005	2.92	15
13.45	13.3	17.4	-	13.6	0.6	13.6	4.9	3	silty CLAY to CLAY	115	1.5	12	9	5	-	-	0.9	5.4	56	0.005	2.96	15
13.62	13.0	16.9	-	13.3	0.6	12.9	5.2	3	silty CLAY to CLAY	115	1.5	11	9	5	-	-	0.9	5.3	57	0.005	2.98	15
13.78	13.5	17.4	-	13.7	0.7	13.3	5.3	3	silty CLAY to CLAY	115	1.5	12	9	5	-	-	0.9	5.4	57	0.005	2.98	15
13.94	14.1	18.1	-	14.4	0.7	13.5	5.1	3	silty CLAY to CLAY	115	1.5	12	9	6	-	-	0.9	5.6	56	0.005	2.96	15
14.11	14.4	18.4	-	14.6	0.7	13.0	5.2	3	silty CLAY to CLAY	115	1.5	12	10	6	-	-	1.0	5.7	55	0.005	2.95	15
14.27	14.2	18.0	-	14.4	0.7	13.8	5.0	3	silty CLAY to CLAY	115	1.5	12	9	6	-	-	0.9	5.6	55	0.005	2.95	15
14.44	14.6	18.5	-	14.9	0.7	13.7	4.9	3	silty CLAY to CLAY	115	1.5	12	10	6	-	-	1.0	5.8	54	0.005	2.93	15
14.60	14.6	18.4	-	14.9	0.6	14.9	4.6	3	silty CLAY to CLAY	115	1.5	12	10	6	-	-	1.0	5.7	53	0.005	2.92	15
14.76	14.6	18.2	-	14.9	0.6	15.1	4.6	3	silty CLAY to CLAY	115	1.5	12	10	6	-	-	1.0	5.7	53	0.005	2.92	15
14.93	14.1	17.6	-	14.4	0.6	14.6	4.7	3	silty CLAY to CLAY	115	1.5	12	9	5	-	-	0.9	5.4	55	0.005	2.94	15
15.09	13.3	16.4	-	13.6	0.6	17.2	4.8	3	silty CLAY to CLAY	115	1.5	11	9	5	-	-	0.9	5.1	57	0.005	2.97	15
15.26	12.7	15.6	-	13.0	0.5	17.1	4.7	3	silty CLAY to CLAY	115	1.5	10	8	5	-	-	0.8	4.8	57	0.005	2.98	15
15.42	11.5	14.1	-	11.9	0.5	15.9	4.6	3	silty CLAY to CLAY	115	1.5	9	8	5	-	-	0.8	4.3	59	0.005	3.01	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
15.58	10.9	13.3	-	11.2	0.5	15.0	4.7	3	silty CLAY to CLAY	115	1.5	9	7	4	-	-	0.7	4.0	61	0.005	3.04	15
15.75	11.3	13.7	-	11.6	0.5	15.8	4.6	3	silty CLAY to CLAY	115	1.5	9	8	4	-	-	0.7	4.1	61	0.005	3.03	15
15.91	11.4	13.7	-	11.7	0.5	15.9	4.8	3	silty CLAY to CLAY	115	1.5	9	8	4	-	-	0.7	4.2	61	0.005	3.04	15
16.08	11.6	13.9	-	11.9	0.5	15.6	5.0	3	silty CLAY to CLAY	115	1.5	9	8	5	-	-	0.8	4.2	61	0.005	3.04	15
16.24	11.9	14.2	-	12.2	0.6	16.4	5.1	3	silty CLAY to CLAY	115	1.5	9	8	5	-	-	0.8	4.3	62	0.005	3.05	15
16.40	13.1	15.6	-	13.5	0.6	17.3	4.8	3	silty CLAY to CLAY	115	1.5	10	9	5	-	-	0.9	4.8	58	0.005	2.99	15
16.57	13.5	16.0	-	13.9	0.5	17.0	4.1	3	silty CLAY to CLAY	115	1.5	11	9	5	-	-	0.9	4.9	55	0.005	2.94	15
16.73	13.3	15.6	-	13.6	0.5	18.1	4.0	3	silty CLAY to CLAY	115	1.5	10	9	5	-	-	0.9	4.8	55	0.005	2.94	15
16.90	12.7	14.9	-	13.1	0.4	20.5	3.6	3	silty CLAY to CLAY	115	1.5	10	8	5	-	-	0.8	4.5	54	0.005	2.93	15
17.06	12.6	14.7	-	13.0	0.4	21.1	3.6	3	silty CLAY to CLAY	115	1.5	10	8	5	-	-	0.8	4.5	55	0.005	2.94	15
17.23	12.5	14.4	-	12.9	0.4	22.9	3.7	3	silty CLAY to CLAY	115	1.5	10	8	4	-	-	0.8	4.4	55	0.005	2.95	15
17.39	12.6	14.5	-	13.0	0.5	22.6	4.0	3	silty CLAY to CLAY	115	1.5	10	8	5	-	-	0.8	4.4	56	0.005	2.97	15
17.55	12.5	14.3	-	13.0	0.5	22.8	4.2	3	silty CLAY to CLAY	115	1.5	10	8	5	-	-	0.8	4.4	58	0.005	2.99	15
17.72	12.3	14.0	-	12.7	0.4	22.3	3.8	3	silty CLAY to CLAY	115	1.5	9	8	4	-	-	0.8	4.2	56	0.005	2.97	15
17.88	11.5	13.0	-	11.9	0.4	22.5	4.0	3	silty CLAY to CLAY	115	1.5	9	8	4	-	-	0.7	3.9	59	0.005	3.01	15
18.05	11.4	12.8	-	11.8	0.3	24.7	3.0	3	silty CLAY to CLAY	115	1.5	9	8	4	-	-	0.7	3.8	55	0.005	2.95	15
18.21	12.4	13.9	-	12.9	0.3	24.9	3.0	3	silty CLAY to CLAY	115	1.5	9	8	4	-	-	0.8	4.2	53	0.005	2.91	15
18.37	12.4	13.9	-	12.9	0.3	25.7	3.1	3	silty CLAY to CLAY	115	1.5	9	8	4	-	-	0.8	4.2	53	0.005	2.92	15
18.54	12.7	14.2	-	13.4	0.4	36.4	3.3	3	silty CLAY to CLAY	115	1.5	9	8	4	-	-	0.8	4.3	54	0.005	2.93	15
18.70	12.5	13.8	-	13.2	0.4	36.4	3.7	3	silty CLAY to CLAY	115	1.5	9	8	4	-	-	0.8	4.2	56	0.005	2.97	15
18.87	13.2	14.5	-	13.9	0.4	36.7	3.2	3	silty CLAY to CLAY	115	1.5	10	9	4	-	-	0.9	4.4	53	0.005	2.91	15
19.03	13.1	14.4	-	13.8	0.5	34.9	4.2	3	silty CLAY to CLAY	115	1.5	10	9	5	-	-	0.9	4.4	57	0.005	2.98	15
19.19	14.1	15.4	-	14.9	0.7	40.2	5.4	3	silty CLAY to CLAY	115	1.5	10	9	5	-	-	0.9	4.7	61	0.005	3.03	15
19.36	19.1	20.8	-	20.0	1.2	45.0	6.6	3	silty CLAY to CLAY	115	1.5	14	13	7	-	-	1.3	6.4	58	0.005	2.99	15
19.52	28.2	30.5	-	29.2	1.0	49.3	3.9	4	clayy SILT to silty CLAY	115	2.0	15	14	8	-	-	1.9	9.7	40	0.070	2.70	15
19.69	42.1	42.4	105.6	42.4	1.0	13.1	2.3	5	silty SAND to sandy SILT	120	3.0	14	14	10	39	36	-	-	28	0.200	2.44	16
19.85	29.7	31.8	-	29.9	1.2	8.0	4.1	4	clayy SILT to silty CLAY	115	2.0	16	15	9	-	-	2.0	9.9	41	0.070	2.70	15
20.01	29.0	30.8	-	30.9	1.1	99.5	3.8	4	clayy SILT to silty CLAY	115	2.0	15	14	8	-	-	2.0	9.8	40	0.070	2.69	15
20.18	23.8	25.2	-	24.2	0.9	22.2	4.0	3	silty CLAY to CLAY	115	1.5	17	16	7	-	-	1.6	7.9	44	0.005	2.77	15
20.34	18.7	19.8	-	19.3	0.7	31.4	3.8	3	silty CLAY to CLAY	115	1.5	13	12	6	-	-	1.3	6.1	49	0.005	2.84	15
20.51	17.2	18.1	-	18.0	0.6	42.8	3.8	3	silty CLAY to CLAY	115	1.5	12	11	5	-	-	1.1	5.5	51	0.005	2.88	15
20.67	17.2	18.0	-	18.2	0.5	50.5	3.0	4	clayy SILT to silty CLAY	115	2.0	9	9	5	-	-	1.1	5.5	47	0.070	2.81	15
20.83	16.5	17.2	-	17.4	0.3	43.4	2.1	4	clayy SILT to silty CLAY	115	2.0	9	8	5	-	-	1.1	5.3	43	0.070	2.75	15
21.00	13.7	14.2	-	14.5	0.3	41.3	2.5	4	clayy SILT to silty CLAY	115	2.0	7	7	4	-	-	0.9	4.3	50	0.070	2.86	15
21.16	12.3	12.7	-	13.3	0.4	48.7	4.0	3	silty CLAY to CLAY	115	1.5	8	8	4	-	-	0.8	3.8	60	0.005	3.02	15
21.33	15.2	15.6	-	16.4	0.6	61.9	4.3	3	silty CLAY to CLAY	115	1.5	10	10	5	-	-	1.0	4.7	56	0.005	2.96	15
21.49	26.2	26.8	-	26.9	0.7	35.8	2.7	4	clayy SILT to silty CLAY	115	2.0	13	13	7	-	-	1.8	8.4	38	0.070	2.65	15
21.65	26.3	25.8	83.8	26.5	0.5	5.8	2.1	4	clayy SILT to silty CLAY	115	2.0	13	13	7	-	-	1.8	8.4	35	0.070	2.59	15
21.82	19.3	19.6	-	19.4	0.4	3.9	2.4	4	clayy SILT to silty CLAY	115	2.0	10	10	5	-	-	1.3	6.0	42	0.070	2.73	15
21.98	12.8	12.9	-	13.5	0.3	34.6	2.9	3	silty CLAY to CLAY	115	1.5	9	9	4	-	-	0.8	3.8	54	0.005	2.93	15
22.15	11.7	11.7	-	12.5	0.3	41.4	3.0	3	silty CLAY to CLAY	115	1.5	8	8	4	-	-	0.8	3.4	57	0.005	2.98	15
22.31	11.2	11.2	-	12.1	0.3	44.3	3.0	3	silty CLAY to CLAY	115	1.5	7	7	4	-	-	0.7	3.3	59	0.005	3.00	15
22.47	11.0	10.9	-	11.9	0.3	44.9	2.9	3	silty CLAY to CLAY	115	1.5	7	7	4	-	-	0.7	3.2	59	0.005	3.00	15
22.64	11.0	10.9	-	12.0	0.3	54.0	2.8	3	silty CLAY to CLAY	115	1.5	7	7	3	-	-	0.7	3.2	58	0.005	2.99	15
22.80	11.6	11.5	-	12.8	0.3	58.2	2.9	3	silty CLAY to CLAY	115	1.5	8	8	4	-	-	0.8	3.4	57	0.005	2.98	15
22.97	12.1	12.0	-	13.3	0.3	56.5	3.1	3	silty CLAY to CLAY	115	1.5	8	8	4	-	-	0.8	3.5	57	0.005	2.98	15
23.13	13.2	12.9	-	14.2	0.4	49.3	3.4	3	silty CLAY to CLAY	115	1.5	9	9	4	-	-	0.9	3.8	57	0.005	2.98	15
23.30	13.9	13.5	-	14.9	0.6	54.4	4.4	3	silty CLAY to CLAY	115	1.5	9	9	4	-	-	0.9	4.0	60	0.005	3.03	15
23.46	14.9	14.5	-	16.0	0.7	55.1	4.8	3	silty CLAY to CLAY	115	1.5	10	10	5	-	-	1.0	4.3	60	0.005	3.02	15
23.62	24.0	23.2	-	25.2	0.4	60.8	2.0	4	clayy SILT to silty CLAY	115	2.0	12	12	6	-	-	1.6	7.2	36	0.070	2.61	15
23.79	49.0	46.7	84.2	49.7	0.6	35.6	1.3	5	silty SAND to sandy SILT	120	3.0	16	16	10	42	36	-	-	21	0.200	2.25	16
23.95	77.4	73.6	100.1	77.5	0.8	3.0	1.1	6	clean SAND to silty SAND	125	5.0	15	15	15	57	39	-	-	14	0.350	2.04	16
24.12	84.9	80.5	106.1	84.9	0.9	3.8	1.1	6	clean SAND to silty SAND	125	5.0	16	17	16	60	39	-	-	13	0.350	2.01	16
24.28	98.4	93.1	116.9	98.5	1.1	4.2	1.1	6	clean SAND to silty SAND	125	5.0	19	20	18	65	40	-	-	12	0.350	1.96	16
24.44	102.3	96.7	123.4	102.4	1.2	2.7	1.2	6	clean SAND to silty SAND	125	5.0	19	20	19	66	40	-	-	12	0.350	1.98	16
24.61	92.9	87.5	123.5	93.0	1.4	2.6	1.5	5	silty SAND to sandy SILT	120	3.0	29	31	18	63	40	-	-	15	0.200	2.07	16
24.77	84.6	79.5	141.0	84.6	2.0	2.3	2.4	5	silty SAND to sandy SILT	120	3.0	27	28	17	59	39	-	-	20	0.200	2.24	16
24.94	63.1	59.2	157.3	63.1	2.3	0.1	3.8	4	clayy SILT to silty CLAY	115	2.0	30	32	14	-	-	4.4	9.9	30	0.070	2.48	15
25.10	55.4	51.9	155.7	55.4	2.2	1.6	4.1	4	clayy SILT to silty CLAY	115	2.0	26	28	13	-	-	3.8	9.9	33	0.070	2.54	15
25.26	42.1	38.9	-	42.1	1.6	-0.4	3.8	4	clayy SILT to silty CLAY	115	2.0	19	21	10	-	-	2.9	9.9	36	0.070	2.62	15
25.43	27.6	25.4	-	27.5	1.1	-0.9	4.3	3	silty CLAY to CLAY	115	1.5	17	18	7	-	-	1.9	7.9	46	0.005	2.79	15
25.59	28.3	26.0	-	28.3	0.7	1.7	2.5	4	clayy SILT to silty CLAY	115	2.0	13	14	7	-	-	1.9	8.1	37	0.070	2.64	15
25.76	20.8	19.0	-	20.8	0.6	0.3	2.9	4	clayy SILT to silty CLAY	115	2.0	10	10	5	-	-	1.4	5.8	45	0.070	2.79	15
25.92	14.9	13.6	-	15.0	0.5	2.7	3.4	3	silty CLAY to CLAY	115	1.5	9	10	4	-	-	1.0	4.0	56	0.005	2.96	15
26.08	15.1	13.7	-	15.2	0.4	7.0	2.9	3	silty CLAY to CLAY	115	1.5	9	10	4	-	-	1.0	4.1	53	0.005	2.91	15
26.25	16.5	14.9	-	16.7	0.5	9.4	3.5	3	silty CLAY to CLAY	115	1.5	10	11	5	-	-	1.1	4.5	54	0.005	2.93	15
26.41	16.2	14.6	-	16.4	0.8	12.8	5.6	3	silty CLAY to CLAY	115	1.5	10	11	5	-	-	1.1	4.4	63	0.005	3.06	15
26.58	36.5	33.5	101.6	36.8	0.9	16.2	2.5	4	clayy SILT to silty CLAY	115	2.0	17	18	8	-	-	2.5	9.9	33	0.070	2.55	15
26.74	40.6	37.3	88.3	40.7	0.7	5.5	1.8	5	silty SAND to sandy SILT	120	3.0	12	14	9	34	35	-	-	27	0.200	2.41	16
26.90	109.1	100.0	109.3	109.3	0.6	9.0	0.6	6	clean SAND to silty SAND	125	5.0	20	22	18	67	40	-	-	8	0.350	1.78	16
27.07	136.9	125.1	125.1	136.9	0.6	4.8	0.4	6	clean SAND to silty SAND	125	5.0	25	27	21	74	42	-	-	5	0.350	1.62	16
27.23	138.6	126.4	126.4	138.7	0.6	4.3	0.4	6	clean SAND to silty SAND	125	5.0	25	28	22	75	42	-	-	5	0.350	1.61	16
27.40	127.7	116.1	115.8	127.8	0.5	3.8	0.4	6	clean SAND to silty SAND	125	5.0	23	26	20	72	41	-	-	5	0.350	1.64	16
27.56	122.2	110.9	111.7	122.2	0.5	4.2	0.4	6	clean SAND to silty SAND	125	5.0	22	24	19	70	41	-	-	5	0.350	1.66	16
27.72	128.1	116.0	116.0	128.2	0.4	4.5	0.3	6	clean SAND to silty SAND	125	5.0	23	26	20	72	41	-	-	5	0.350	1.59	16
27.89	126.0	113.9	117.5	126.1	0.6	4.3	0.5	6	clean SAND to silty SAND	125	5.0	23	25	20	71	41	-	-	6	0.350	1.69	16
28.05	112.2	101.1	122.2	112.2	1.1	4.1	1.0	6	clean SAND to silty SAND	125	5.0	20	22	19	67	40	-	-	11	0.350	1.92	16
28.22	101.2	91.0	136.5	101.2	1.8	4.1	1.8	5	silty SAND to sandy SILT	120	3.0	30	34	19	64	40	-	-	17	0.200	2.12	16
28.38	80.1	71.9	131.0	80.1	1.8	0.9	2.2	5	silty SAND to sandy SILT	120	3.0	24	27	16	56	38	-	-	21	0.200	2.26	16
28.54	45.5	40.8	125.4	45.5	1.4	-1.6	3.3	4	clayy SILT to silty CLAY	115	2.0	20	23	10	-	-	3.1	9.9	33	0.070	2.56	15
28.71	45.5	38.6	-	45.6	1.8	4.7	4.2	4	clayy SILT to silty CLAY	115	2.0	19	23	10	-	-	3.1	9.9	38	0.070	2.65	15
28.87	68.9	61.5	121.1	69.0	1.5	5.6	2.2	5	silty SAND to sandy SILT	120	3.0	21	23	14	51	37	-	-	23	0.200	2.31	16
29.04	49.0	43.6	130.6	49.0	1.6	1.3	3.4	4	clayy SILT to silty CLAY	115	2.0	22	24	11	-	-	3.4	9.9	33	0.070	2.54	15
29.20	36.3	30.4	-	36.4	1.4	5.2	3.9	4	clayy SILT to silty CLAY	115	2.0	15	18	8	-	-	2.5	9.6	41	0.070	2.70	15
29.36	42.8	38.0	97.5	42.9	0.9	5.5	2.1	5	silty SAND to sandy SILT	120	3.0	13	14	9	35	35	-	-	29	0.200	2.46	16
29.53	33.6	29.8	89.8	33.6	0.7	3.5	2.2	4	clayy SILT to silty CLAY	115	2.0	15	17	7	-	-	2.3	8.7	33	0.070	2.55	15
29.69	22.5	18.6	-	22.5	0.5	3.0	2.6	4	clayy SILT to silty CLAY	115	2.0	9	11	5	-	-	1.5	5.7	44	0.070	2.77	15
29.86	15.2	12.6	-	15.3	0.4	5.7	2.7	3	silty CLAY to CLAY	115	1.5	8	10	4	-	-	1.0	3.7	54	0.005	2.93	15
30.02	14.9	12.3	-	15.1	0.3	9.5	2.5	3	silty CLAY to CLAY	115	1.5	8	10	4	-	-	1.0	3.6	54	0.005	2.93	15
30.19	15.8	13.0	-	16.4	0.3	29.6	2.4	3	silty CLAY to CLAY	115	1.5	9	11	4	-	-	1.0	3.8	51	0.005	2.89	15
30.35	17.1	14.0	-	17.7	0.3	34.4	2.2	4	clayy SILT to silty CLAY	115	2.0	7	9	4	-	-	1.1	4.1	48	0.070	2.84	15
30.51	16.5	13.4	-	17.3	0.3	40.0	2.3	4	clayy SILT to silty CLAY	115	2.0	7	8	4	-	-	1.1	3.9	50	0.070	2.87	15
30.68	18.3	14.8	-	19.0	0.3	37.3	2.1	4	clayy SILT to silty CLAY	115	2.0	7	9	4	-	-	1.2	4.4	46	0.070	2.80	15
30.84	15.6	12.6	-	16.2	0.4	30.6	2.6	3	silty CLAY to CLAY	115	1.5	8	10	4	-	-	1.0	3.7	53	0.005	2.92	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: BAGG Engineering
Data File: SDF(865).cpt
CPT Date: 7/26/2023 1:04:56 PM
GW During Test: 13 ft

Sounding ID: CPT-05
Project No: COUSM-23-03
Cone/Rig: DDG1589

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
31.01	14.1	11.4	-	14.9	0.4	37.7	3.0	3	silty CLAY to CLAY	115	1.5	8	9	4	-	-	0.9	3.3	58	0.005	3.00	15
31.17	14.6	11.7	-	15.4	0.4	40.3	3.1	3	silty CLAY to CLAY	115	1.5	8	10	4	-	-	0.9	3.4	58	0.005	2.99	15
31.33	15.2	12.2	-	16.0	0.4	40.6	2.8	3	silty CLAY to CLAY	115	1.5	8	10	4	-	-	1.0	3.5	56	0.005	2.96	15
31.50	15.5	12.3	-	16.3	0.4	42.0	2.6	3	silty CLAY to CLAY	115	1.5	8	10	4	-	-	1.0	3.6	54	0.005	2.93	15
31.66	15.0	11.9	-	15.9	0.4	46.1	2.9	3	silty CLAY to CLAY	115	1.5	8	10	4	-	-	1.0	3.4	57	0.005	2.98	15
31.83	16.1	12.8	-	17.2	0.4	51.7	3.0	3	silty CLAY to CLAY	115	1.5	9	11	4	-	-	1.1	3.7	55	0.005	2.95	15
31.99	18.1	14.3	-	19.1	0.5	49.0	3.0	3	silty CLAY to CLAY	115	1.5	10	12	4	-	-	1.2	4.2	52	0.005	2.90	15
32.15	18.6	14.6	-	19.6	0.5	49.2	3.2	3	silty CLAY to CLAY	115	1.5	10	12	4	-	-	1.2	4.3	53	0.005	2.92	15
32.32	18.6	14.6	-	19.6	0.6	51.3	3.5	3	silty CLAY to CLAY	115	1.5	10	12	4	-	-	1.2	4.3	55	0.005	2.94	15
32.48	19.7	15.4	-	20.7	0.6	52.7	3.1	3	silty CLAY to CLAY	115	1.5	10	13	5	-	-	1.3	4.6	51	0.005	2.89	15
32.65	22.2	17.3	-	23.3	0.5	56.7	2.4	4	clayy SILT to silty CLAY	115	2.0	9	11	5	-	-	1.5	5.2	45	0.070	2.78	15
32.81	20.9	16.2	-	21.9	0.6	49.3	2.9	3	silty CLAY to CLAY	115	1.5	11	14	5	-	-	1.4	4.9	49	0.005	2.85	15
32.97	18.8	14.5	-	19.9	0.6	55.3	3.8	3	silty CLAY to CLAY	115	1.5	10	13	5	-	-	1.2	4.3	56	0.005	2.97	15
33.14	22.1	17.0	-	23.3	1.1	65.1	5.4	3	silty CLAY to CLAY	115	1.5	11	15	5	-	-	1.5	5.1	58	0.005	3.00	15
33.30	26.9	20.7	-	28.3	1.2	73.2	4.8	3	silty CLAY to CLAY	115	1.5	14	18	6	-	-	1.8	6.3	52	0.005	2.90	15
33.47	38.4	29.4	-	38.7	1.2	15.1	3.3	4	clayy SILT to silty CLAY	115	2.0	15	19	8	-	-	2.6	9.2	39	0.070	2.67	15
33.63	66.2	56.2	117.3	66.4	1.4	10.1	2.3	5	silty SAND to sandy SILT	120	3.0	19	22	13	48	37	-	-	24	0.200	2.34	16
33.79	67.3	57.0	111.9	67.2	1.3	-5.3	2.0	5	silty SAND to sandy SILT	120	3.0	19	22	13	48	37	-	-	23	0.200	2.30	16
33.96	39.4	29.8	-	39.3	1.3	-4.3	3.6	4	clayy SILT to silty CLAY	115	2.0	15	20	8	-	-	2.7	9.4	40	0.070	2.69	15
34.12	24.8	18.8	-	24.8	0.7	-0.5	3.0	4	clayy SILT to silty CLAY	115	2.0	9	12	5	-	-	1.7	5.7	46	0.070	2.80	15
34.29	21.1	15.9	-	21.3	0.6	9.7	2.9	3	silty CLAY to CLAY	115	1.5	11	14	5	-	-	1.4	4.7	50	0.005	2.86	15
34.45	19.1	14.4	-	19.6	0.5	22.9	2.9	3	silty CLAY to CLAY	115	1.5	10	13	4	-	-	1.3	4.2	52	0.005	2.90	15
34.61	15.2	11.4	-	16.5	0.5	65.7	3.5	3	silty CLAY to CLAY	115	1.5	8	10	4	-	-	1.0	3.3	61	0.005	3.04	15
34.78	18.3	13.7	-	19.7	0.4	70.9	2.5	3	silty CLAY to CLAY	115	1.5	9	12	4	-	-	1.2	4.0	51	0.005	2.88	15
34.94	18.7	13.9	-	20.2	0.5	73.6	2.8	3	silty CLAY to CLAY	115	1.5	9	12	4	-	-	1.2	4.1	52	0.005	2.90	15
35.11	18.4	13.6	-	19.7	0.4	68.9	2.5	3	silty CLAY to CLAY	115	1.5	9	12	4	-	-	1.2	4.0	51	0.005	2.89	15
35.27	18.2	13.5	-	19.2	0.3	47.5	2.2	4	clayy SILT to silty CLAY	115	2.0	7	9	4	-	-	1.2	3.9	49	0.070	2.85	15
35.43	15.2	11.2	-	16.6	0.3	69.4	2.6	3	silty CLAY to CLAY	115	1.5	7	10	4	-	-	1.0	3.2	57	0.005	2.98	15
35.60	15.1	11.1	-	16.5	0.4	73.4	2.8	3	silty CLAY to CLAY	115	1.5	7	10	4	-	-	1.0	3.2	58	0.005	2.99	15
35.76	15.1	11.0	-	16.7	0.4	80.2	2.7	3	silty CLAY to CLAY	115	1.5	7	10	3	-	-	1.0	3.1	58	0.005	2.99	15
35.93	15.2	11.1	-	16.8	0.3	82.1	2.6	3	silty CLAY to CLAY	115	1.5	7	10	4	-	-	1.0	3.2	57	0.005	2.98	15
36.09	15.3	11.1	-	17.0	0.3	82.9	2.6	3	silty CLAY to CLAY	115	1.5	7	10	4	-	-	1.0	3.2	57	0.005	2.98	15
36.26	15.4	11.2	-	17.0	0.3	82.8	2.6	3	silty CLAY to CLAY	115	1.5	7	10	4	-	-	1.0	3.2	57	0.005	2.98	15
36.42	15.4	11.2	-	17.0	0.4	81.9	2.7	3	silty CLAY to CLAY	115	1.5	7	10	4	-	-	1.0	3.2	57	0.005	2.98	15
36.58	15.3	11.1	-	16.9	0.3	80.1	2.6	3	silty CLAY to CLAY	115	1.5	7	10	3	-	-	1.0	3.1	57	0.005	2.98	15
36.75	15.5	11.1	-	17.1	0.4	81.1	2.6	3	silty CLAY to CLAY	115	1.5	7	10	4	-	-	1.0	3.2	57	0.005	2.98	15
36.91	15.1	10.8	-	16.9	0.3	89.8	2.6	3	silty CLAY to CLAY	115	1.5	7	10	3	-	-	1.0	3.1	58	0.005	2.99	15
37.08	15.5	11.0	-	17.1	0.3	80.6	2.6	3	silty CLAY to CLAY	115	1.5	7	10	3	-	-	1.0	3.1	57	0.005	2.98	15
37.24	16.1	11.4	-	17.8	0.3	87.1	2.4	3	silty CLAY to CLAY	115	1.5	8	11	4	-	-	1.0	3.3	55	0.005	2.95	15
37.40	16.9	12.0	-	18.6	0.3	86.8	2.3	3	silty CLAY to CLAY	115	1.5	8	11	4	-	-	1.1	3.4	53	0.005	2.92	15
37.57	17.7	12.5	-	19.4	0.7	91.3	4.3	3	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.1	3.6	62	0.005	3.06	15
37.73	19.4	13.7	-	21.5	1.2	103.1	6.7	3	silty CLAY to CLAY	115	1.5	9	13	5	-	-	1.3	4.0	69	0.005	3.14	15
37.90	52.0	42.4	121.5	54.4	1.5	121.6	3.0	4	clayy SILT to silty CLAY	115	2.0	21	26	10	-	-	3.6	9.9	32	0.070	2.52	15
38.06	128.2	104.2	140.5	128.3	2.0	9.0	1.6	5	silty SAND to sandy SILT	120	3.0	35	43	21	68	40	-	-	14	0.200	2.03	16
38.22	133.3	108.2	147.1	133.4	2.2	9.5	1.7	5	silty SAND to sandy SILT	120	3.0	36	44	22	70	40	-	-	14	0.200	2.04	16
38.39	86.0	69.7	139.5	86.1	2.2	9.5	2.6	5	silty SAND to sandy SILT	120	3.0	23	29	16	55	38	-	-	23	0.200	2.32	16
38.55	44.6	31.0	-	44.8	1.7	10.4	4.1	4	clayy SILT to silty CLAY	115	2.0	15	22	8	-	-	3.1	9.7	41	0.070	2.71	15
38.72	32.1	22.2	-	32.2	0.9	9.0	3.2	4	clayy SILT to silty CLAY	115	2.0	11	16	6	-	-	2.2	6.8	44	0.070	2.76	15
38.88	26.5	18.3	-	26.8	0.6	15.6	2.4	4	clayy SILT to silty CLAY	115	2.0	9	13	5	-	-	1.8	5.5	43	0.070	2.75	15
39.04	25.2	17.4	-	25.6	0.6	19.3	2.6	4	clayy SILT to silty CLAY	115	2.0	9	13	5	-	-	1.7	5.2	46	0.070	2.80	15
39.21	25.0	17.1	-	25.5	0.6	27.1	2.8	4	clayy SILT to silty CLAY	115	2.0	9	12	5	-	-	1.7	5.1	47	0.070	2.83	15
39.37	26.4	18.0	-	27.3	0.8	45.3	3.1	3	silty CLAY to CLAY	115	1.5	12	18	5	-	-	1.8	5.4	48	0.005	2.83	15
39.54	25.2	17.2	-	26.2	1.0	47.9	4.4	3	silty CLAY to CLAY	115	1.5	11	17	5	-	-	1.7	5.2	55	0.005	2.94	15
39.70	25.2	17.1	-	26.2	1.2	50.9	5.2	3	silty CLAY to CLAY	115	1.5	11	17	5	-	-	1.7	5.1	58	0.005	2.99	15
39.86	24.7	16.7	-	25.8	1.1	59.7	4.9	3	silty CLAY to CLAY	115	1.5	11	16	5	-	-	1.6	5.0	57	0.005	2.98	15
40.03	22.1	14.9	-	23.6	0.9	75.8	4.5	3	silty CLAY to CLAY	115	1.5	10	15	5	-	-	1.5	4.4	59	0.005	3.00	15
40.19	21.9	14.8	-	23.2	0.9	66.1	4.7	3	silty CLAY to CLAY	115	1.5	10	15	5	-	-	1.4	4.4	60	0.005	3.02	15
40.36	23.9	16.0	-	25.7	1.3	91.7	6.1	3	silty CLAY to CLAY	115	1.5	11	16	5	-	-	1.6	4.8	62	0.005	3.06	15
40.52	32.0	21.4	-	33.8	1.7	93.8	5.6	3	silty CLAY to CLAY	115	1.5	14	21	7	-	-	2.2	6.5	54	0.005	2.93	15
40.68	45.7	30.5	-	47.4	1.6	83.2	3.7	4	clayy SILT to silty CLAY	115	2.0	15	23	8	-	-	3.1	9.6	40	0.070	2.69	15
40.85	47.6	31.7	-	47.6	1.9	1.5	4.3	4	clayy SILT to silty CLAY	115	2.0	16	24	9	-	-	3.3	9.9	41	0.070	2.72	15
41.01	38.1	25.3	-	38.6	2.1	22.1	5.9	3	silty CLAY to CLAY	115	1.5	17	25	8	-	-	2.6	7.8	51	0.005	2.89	15
41.18	42.5	28.1	-	44.0	2.5	79.2	6.2	3	silty CLAY to CLAY	115	1.5	19	28	8	-	-	2.9	8.8	50	0.005	2.87	15
41.34	69.3	54.7	144.5	69.9	2.3	30.4	3.4	4	clayy SILT to silty CLAY	115	2.0	27	35	13	-	-	4.8	9.9	30	0.070	2.47	15
41.50	55.1	36.3	-	55.0	2.0	-3.7	3.8	4	clayy SILT to silty CLAY	115	2.0	18	28	9	-	-	3.8	9.9	37	0.070	2.64	15
41.67	39.5	26.0	-	39.6	1.8	4.0	5.0	3	silty CLAY to CLAY	115	1.5	17	26	7	-	-	2.7	8.0	48	0.005	2.83	15
41.83	35.3	23.1	-	36.0	1.6	35.0	4.8	3	silty CLAY to CLAY	115	1.5	15	24	7	-	-	2.4	7.1	49	0.005	2.86	15
42.00	33.2	21.7	-	34.2	1.2	50.0	4.0	3	silty CLAY to CLAY	115	1.5	14	22	6	-	-	2.2	6.6	48	0.005	2.83	15
42.16	30.9	20.1	-	31.9	1.1	49.5	3.7	3	silty CLAY to CLAY	115	1.5	13	21	6	-	-	2.1	6.1	48	0.005	2.84	15
42.32	26.8	17.4	-	27.9	0.8	56.4	3.4	3	silty CLAY to CLAY	115	1.5	12	18	5	-	-	1.8	5.2	50	0.005	2.87	15
42.49	23.8	15.4	-	24.9	0.8	58.8	3.6	3	silty CLAY to CLAY	115	1.5	10	16	5	-	-	1.6	4.6	54	0.005	2.93	15
42.65	21.4	13.8	-	22.7	0.7	64.9	3.9	3	silty CLAY to CLAY	115	1.5	9	14	4	-	-	1.4	4.0	58	0.005	2.99	15
42.82	22.0	14.1	-	23.5	0.6	76.1	3.1	3	silty CLAY to CLAY	115	1.5	9	15	4	-	-	1.4	4.1	54	0.005	2.92	15
42.98	24.0	15.4	-	25.3	0.7	70.4	3.2	3	silty CLAY to CLAY	115	1.5	10	16	5	-	-	1.6	4.5	52	0.005	2.90	15
43.15	20.8	13.3	-	22.1	0.8	65.3	4.3	3	silty CLAY to CLAY	115	1.5	9	14	4	-	-	1.4	3.9	61	0.005	3.03	15
43.31	19.9	12.7	-	21.4	1.2	77.5	6.9	3	silty CLAY to CLAY	115	1.5	8	13	5	-	-	1.3	3.7	72	0.005	3.18	15
43.47	29.8	19.0	-	31.2	1.6	75.0	6.0	3	silty CLAY to CLAY	115	1.5	13	20	6	-	-	2.0	5.7	58	0.005	3.00	15
43.64	68.2	52.8	129.3	70.0	1.9	94.3	2.9	4	clayy SILT to silty CLAY	115	2.0	26	34	12	-	-	4.7	9.9	28	0.070	2.43	15
43.80	109.0	84.3	134.1	108.9	2.1	-5.5	2.0	5	silty SAND to sandy SILT	120	3.0	28	36	18	61	38	-	-	18	0.200	2.17	16
43.97	121.1	93.5	156.3	121.0	2.9	-5.9	2.4	5	silty SAND to sandy SILT	120	3.0	31	40	20	65	39	-	-	19	0.200	2.20	16
44.13	102.9	79.3	173.3	102.8	3.5	-5.4	3.5	4	clayy SILT to silty CLAY	115	2.0	40	51	18	-	-	7.2	9.9	25	0.070	2.37	15
44.29	75.2	57.9	160.6	75.2	2.9	-2.4	3.9	4	clayy SILT to silty CLAY	115	2.0	29	38	14	-	-	5.2	9.9	31	0.070	2.50	15
44.46	69.3	53.2	157.7	69.3	2.7	3.1	4.0	4	clayy SILT to silty CLAY	115	2.0	27	35	13	-	-	4.8	9.9	32	0.070	2.54	15
44.62	93.3	71.6	142.5	93.4	2.4	3.6	2.6	5	silty SAND to sandy SILT	120	3.0	24	31	16	56	37	-	-	23	0.200	2.31	16
44.79	67.5	51.7	127.9	67.4	1.8	-2.0	2.8	4	clayy SILT to silty CLAY	115	2.0	26	34	12	-	-	4.7	9.9	28	0.070	2.44	15
44.95	42.6	26.5	-	42.7	2.1	2.7	5.3	3	silty CLAY to CLAY	115	1.5	18	28	8	-	-	2.9	8.2	49	0.005	2.85	15
45.11	32.5	20.1	-	32.9	1.2	18.6	3.9	3	silty CLAY to CLAY	115	1.5	13	22	6	-	-	2.2	6.1	49	0.005	2.85	15
45.28	52.7	32.5	-	53.7	1.9	50.9	3.9	4	clayy SILT to silty CLAY	115	2.0	16	26	9	-	-	3.6	9.9	40	0.070	2.68	15
45.44	92.1	70.2	130.8	92.1	2.0	1.8	2.3	5	silty SAND to sandy SILT	120	3.0	23	31	15	55	37	-	-	22	0.200	2.27	16
45.61	63.9	48.6	128.9	63.9	1.8	2.4	3.0	4	clayy SILT to silty CLAY	115	2.0	24	32	12	-	-	4.4	9.9	30	0.070	2.48	15
45.77	43.1	26.4	-	43.5	1.9	22.9	4.6	3	silty CLAY to CLAY	115	1.5	18	29	7	-	-	2.9	8.2	46	0.005	2.80	15
45.93	56.0	42.5	117.9	56.5	1.5	25.3	2.8	4	clayy SILT to silty CLAY	115	2.0	21	28	10	-	-	3.8	9.9	31	0.070	2.50	15
46.10	43.1	26.2	-	43.3	1.4	9.7	3.6	4	clayy SILT to silty CLAY	115	2.0	13	22	7	-	-	2.9	8.1	42	0.070	2.73	15
46.26	29.8	18.1	-	30.3	1.1	24.8	4.1	3	silty CLAY to CLAY	115	1.5	12	20	5	-	-	2.0	5.4	52	0.005	2.90	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Project ID: BAGG Engineering
Data File: SDF(865).cpt
CPT Date: 7/26/2023 1:04:56 PM
GW During Test: 13 ft

Sounding ID: CPT-05
Project No: COUSM-23-03
Cone/Rig: DDG1589

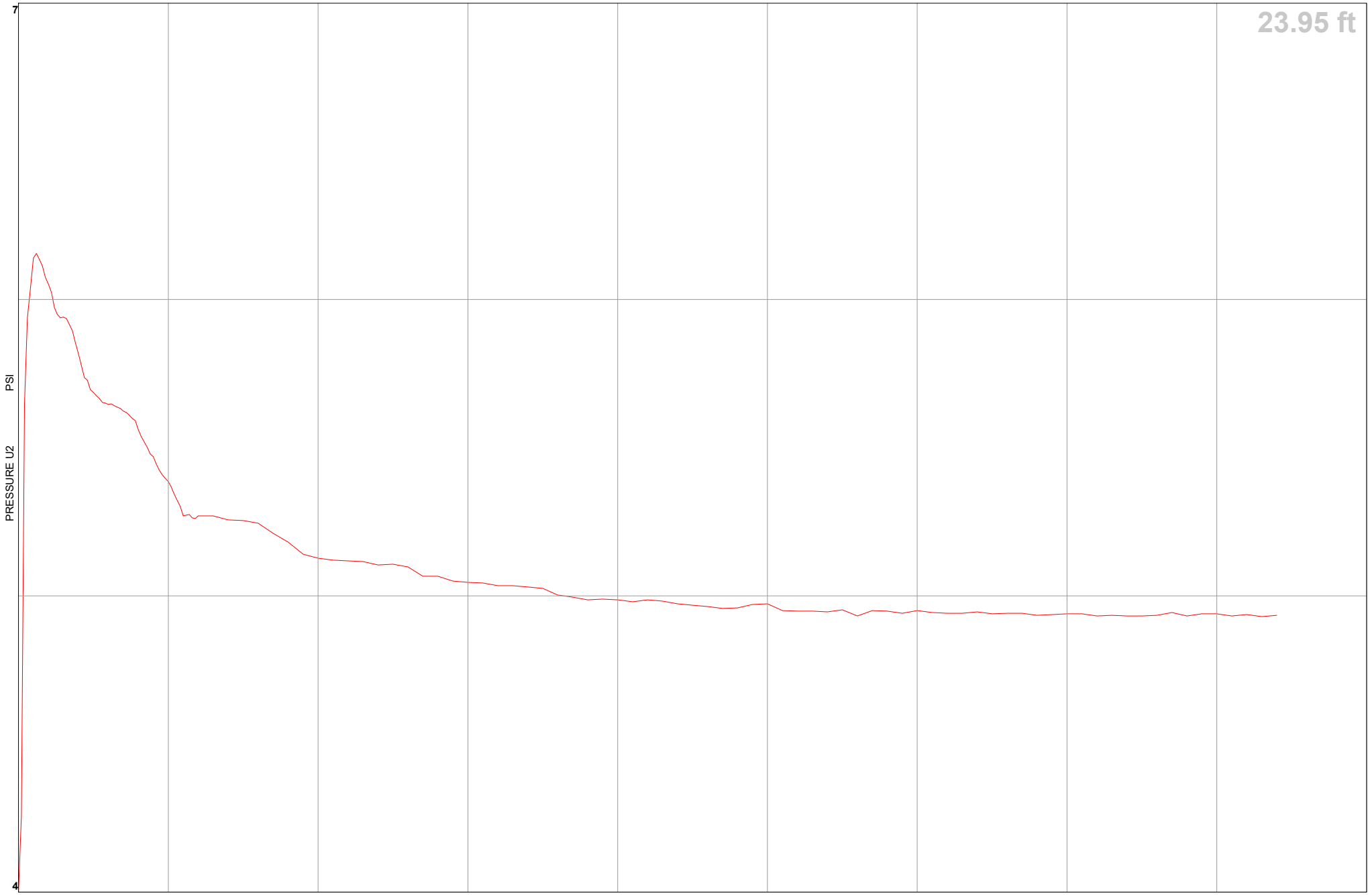
Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
46.43	27.2	16.5	-	28.0	0.9	39.8	3.8	3	silty CLAY to CLAY	115	1.5	11	18	5	-	-	1.8	4.9	53	0.005	2.92	15
46.59	28.0	16.9	-	28.9	0.9	44.1	3.5	3	silty CLAY to CLAY	115	1.5	11	19	5	-	-	1.9	5.1	51	0.005	2.89	15
46.75	27.1	16.4	-	28.2	1.3	54.2	5.1	3	silty CLAY to CLAY	115	1.5	11	18	5	-	-	1.8	4.9	59	0.005	3.00	15
46.92	40.4	24.3	-	41.2	2.0	43.7	5.3	3	silty CLAY to CLAY	115	1.5	16	27	7	-	-	2.7	7.5	50	0.005	2.87	15
47.08	50.2	30.1	-	51.6	2.6	70.9	5.4	3	silty CLAY to CLAY	115	1.5	20	33	9	-	-	3.4	9.4	46	0.005	2.81	15
47.25	191.3	143.7	176.5	191.4	3.0	6.7	1.6	6	clean SAND to silty SAND	125	5.0	29	38	28	79	41	-	-	11	0.350	1.94	16
47.41	280.2	210.2	210.2	280.1	2.5	-4.0	0.9	6	clean SAND to silty SAND	125	5.0	42	56	36	92	43	-	-	5	0.350	1.64	16
47.57	279.2	209.1	213.6	279.2	2.7	0.3	1.0	6	clean SAND to silty SAND	125	5.0	42	56	37	91	43	-	-	6	0.350	1.68	16
47.74	284.6	212.8	212.8	284.6	2.1	0.5	0.7	6	clean SAND to silty SAND	125	5.0	43	57	36	92	43	-	-	5	0.350	1.58	16
47.90	291.8	217.9	217.9	291.8	2.2	-0.2	0.7	6	clean SAND to silty SAND	125	5.0	44	58	37	93	43	-	-	5	0.350	1.58	16
48.07	297.8	222.0	222.0	298.0	1.8	10.7	0.6	6	clean SAND to silty SAND	125	5.0	44	60	37	93	43	-	-	5	0.350	1.51	16
48.23	282.4	210.2	210.2	282.5	1.7	8.6	0.6	6	clean SAND to silty SAND	125	5.0	42	56	35	92	43	-	-	5	0.350	1.54	16
48.39	300.1	223.1	223.1	300.2	1.8	2.1	0.6	6	clean SAND to silty SAND	125	5.0	45	60	37	93	43	-	-	5	0.350	1.51	16
48.56	273.4	202.9	207.6	273.4	2.6	-1.4	1.0	6	clean SAND to silty SAND	125	5.0	41	55	35	90	43	-	-	6	0.350	1.68	16
48.72	273.8	202.9	202.9	273.8	1.9	0.3	0.7	6	clean SAND to silty SAND	125	5.0	41	55	34	90	43	-	-	5	0.350	1.58	16
48.89	279.6	206.9	206.9	279.5	2.0	-1.2	0.7	6	clean SAND to silty SAND	125	5.0	41	56	35	91	43	-	-	5	0.350	1.58	16
49.05	257.4	190.2	199.7	257.5	2.6	2.1	1.0	6	clean SAND to silty SAND	125	5.0	38	51	34	88	43	-	-	6	0.350	1.72	16
49.22	215.3	158.8	193.0	215.3	3.6	4.3	1.7	6	clean SAND to silty SAND	125	5.0	32	43	30	82	42	-	-	11	0.350	1.93	16
49.38	197.6	145.5	186.8	197.7	3.6	4.3	1.9	6	clean SAND to silty SAND	125	5.0	29	40	28	79	41	-	-	13	0.350	1.99	16
49.54	135.3	99.5	164.0	135.5	3.3	7.6	2.5	5	silty SAND to sandy SILT	120	3.0	33	45	21	67	39	-	-	19	0.200	2.19	16
49.71	110.5	81.1	173.3	111.0	3.7	28.1	3.4	5	silty SAND to sandy SILT	120	3.0	27	37	18	60	38	-	-	25	0.200	2.35	16
49.87	104.5	76.6	179.9	104.6	3.9	4.7	3.8	4	clayy SILT to silty CLAY	115	2.0	38	52	18	-	-	7.3	9.9	27	0.070	2.41	15
50.04	93.0	68.1	157.8	93.2	3.0	12.5	3.3	4	clayy SILT to silty CLAY	115	2.0	34	46	16	-	-	6.4	9.9	26	0.070	2.40	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

BAGG Engineering

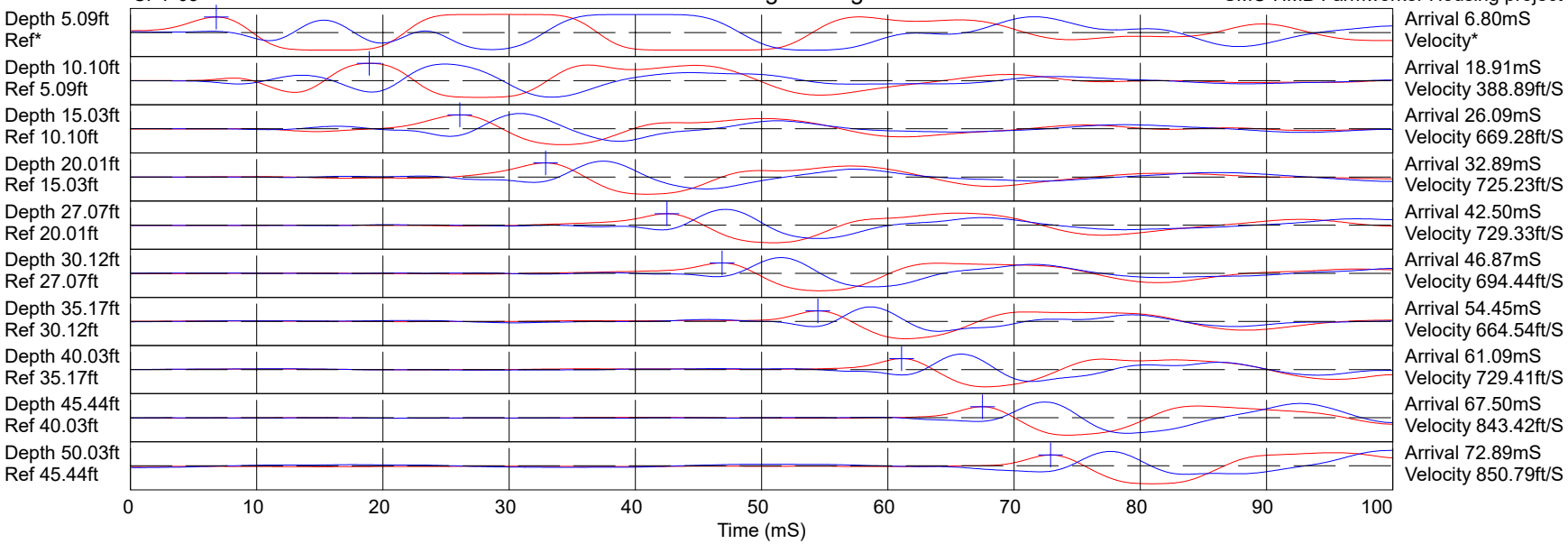
Location	SMC-HMB Farmworker Housing projec	Operator	AJ-ER		
Job Number	COUSM-23-03	Cone Number	DDG1589	GPS	
Hole Number	CPT-05	Date and Time	7/26/2023 1:04:56 PM		
Equilized Pressure	4.9	EST GW Depth During Test	12.5		



CPT-05

BAGG Engineering

SMC-HMB Farmworker Housing project



Hammer to Rod String Distance (ft): 2.67

* = Not Determined

COMMENT:

APPENDIX B

2021 Boring & CPT Logs
(B-1 through B-5; CPT-1 & CPT-2)

BORING LOG

Boring No. B-1
Page 1 of 1

JOB NAME: Proposed Corporation Yard Renovation, City of Half Moon Bay
JOB NO.: HALFM-21-01
CLIENT: City of Half Moon Bay
DATE DRILLED: 9/29/2021
LOCATION: 880 Stone Pine Rd, Half Moon Bay
ELEVATION: 86± feet
DRILLER: West Coast Exploration Inc.
LOGGED BY: JL
DRILL METHOD: Truck-Mounted Drilling Rig - 4½" Diam. Continuous Flight Augers

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
						0			Approx. 6" topsoil over screen	
							14 18 20	CL	SANDY LEAN CLAY: dark brown, very stiff, dry to moist, well-graded sand, few organic	
DSX	320	26.9	480	15.8	88	3				
							12 16 16		... brown to dark brown with orange-brown specks, very stiff, moist, increased sand content, some medium to coarse sand	
DSX	500	13.6	1050	8.8	119					Swell=0.2%
DSX	2000	15.2	1630	9.4	112	6				
									... contains pockets of wet medium-grained sand	
							5 8 11		... brown, stiff, moist to wet, fine to medium sand, few coarse sand, contains lense of sandy silt	
DS	1100	NAT	920	19.9	107	9				
									... lense of medium to coarse sand	
						12			... lense of sandy silt	
				21.2			8 12 20	SC	CLAYEY SAND: dark brown, medium dense, wet, medium to coarse sand	Fines=31% LL=28, PI=9
DS	1800	NAT	1630	18.9	101					
DS	3500	NAT	2720	19.5	104	15				
									The boring was terminated at approximately 15 feet bgs.	
									Groundwater was not encountered in the boring.	
						18			The borehole was backfilled with cement grout.	

BORING LOG

Boring No. B-2
Page 1 of 2

JOB NAME: Proposed Corporation Yard Renovation, City of Half Moon Bay
JOB NO.: HALFM-21-01
CLIENT: City of Half Moon Bay
DATE DRILLED: 9/29/2021
LOCATION: 880 Stone Pine Rd, Half Moon Bay
ELEVATION: 86± feet
DRILLER: West Coast Exploration Inc.
LOGGED BY: JL
DRILL METHOD: Truck-Mounted Drilling Rig - 4½" Diam. Continuous Flight Augers

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
						0			Approx. 2" gravel over 1" sand	
							9	CL	SANDY LEAN CLAY: dark gray, very stiff, moist, well-graded sand, reworked in the upper approx. 1'	
DSX	320	20.3	790	2.3	122		11			Swell=0.5%
DSX	1500	20.7	1500	18.8	102		15		... dark brown at about 2'	
						3				
				25.4			5			
							9		... brown, stiff, moist, fine sand, few medium sand	
							10			
						6				
DS	1000	NAT	1340	30.8	91		10		... mottled brown and orange-brown, very stiff, moist, fine sand, trace medium sand	
						9	12			
							15			
						12				
									... lense of wet medium-grained sand	
							14			
DS	3000	NAT	1400	22.7	104		14		... brown, medium stiff, moist to wet	
							26			
						15			... pockets of wet well-graded sand with fine gravel	
								SC	CLAYEY SAND: brown, medium dense to dense, wet, fine to medium sand, few coarse sand	
						18				
							9			

BORING LOG

Boring No. B-2
Page 2 of 2

JOB NAME: Proposed Corporation Yard Renovation, City of Half Moon Bay *JOB NO.:* HALFM-21-01

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
DS	2500	NAT	1790	23.1	102		16 28			Fines=37%
						21			The boring was terminated at approximately 20 feet bgs. Groundwater was not encountered in the boring. The borehole was backfilled with cement grout.	
						24				
						27				
						30				
						33				
						36				
						39				

BORING LOG

Boring No. B-3
Page 1 of 2

JOB NAME: Proposed Corporation Yard Renovation, City of Half Moon Bay
JOB NO.: HALFM-21-01
CLIENT: City of Half Moon Bay
DATE DRILLED: 9/29/2021
LOCATION: 880 Stone Pine Rd, Half Moon Bay
ELEVATION: 84± feet
DRILLER: West Coast Exploration Inc.
LOGGED BY: JL
DRILL METHOD: Truck-Mounted Drilling Rig - 4½" Diam. Continuous Flight Augers

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
						0			Approx. 6" topsoil over screen	
DS	320	NAT	2720	12.9	107		11	CH	SANDY FAT CLAY: dark gray to dark brown, hard, moist, well-graded sand, few organic	LL=52, PI=25
DS	1500	NAT	3130	16.0	97		16			
							17			
						3		CL	SANDY LEAN CLAY: dark brown, hard, moist, some medium sand, few fine and coarse sand	
DS	400	NAT	2250	14.4	112		12			Fines=59%
							16			
							25			
						6				
				30.3	91		10		... mottled brown and orange-brown, very stiff, moist, fine sand, few medium to coarse sand	
						9	17			
							21			
						12			... mottled brown and orange-brown with dark gray specks, stiff, moist, moderately plastic	
DS	1700	NAT	1160	27.0	98		9			
							10		... lense of sandy silt	
						15	18			
						18				
							10			

BORING LOG

Boring No. B-3
Page 2 of 2

JOB NAME: Proposed Corporation Yard Renovation, City of Half Moon Bay *JOB NO.:* HALFM-21-01

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
				30.6	92		16 20		... brown, stiff, moist to wet	
						21		CH	FAT CLAY with SAND: dark olive-gray with trace dark gray, medium stiff, moist, few fine sand	
DS	3000	NAT	1340	23.9	104	24	7 8 10		... stiff, moist, increased fine sand content	
						27			The boring was terminated at approximately 25 feet bgs. Groundwater was not encountered in the boring. The borehole was backfilled with cement grout.	
						30				
						33				
						36				
						39				

BORING LOG

Boring No. B-4
Page 1 of 1

JOB NAME: Proposed Corporation Yard Renovation, City of Half Moon Bay
JOB NO.: HALFM-21-01
CLIENT: City of Half Moon Bay
DATE DRILLED: 9/29/2021
LOCATION: 880 Stone Pine Rd, Half Moon Bay
ELEVATION: 83± feet
DRILLER: West Coast Exploration Inc.
LOGGED BY: JL
DRILL METHOD: Truck-Mounted Drilling Rig - 4½" Diam. Continuous Flight Augers

Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
						0			Approx. 6" topsoil over screen	
DSX	320	21.9	1210	16.1	108		11 18 26	CH	SANDY FAT CLAY: dark gray-brown, hard, dry to moist, well-graded sand, few fine gravel, trace organic	Swell=4.6%
						3		CL	SANDY LEAN CLAY: dark brown, very stiff, dry to moist, some well-graded sand, trace fine gravel	
				13.5	115		15 18 22			
						6			The boring was terminated at approximately 5 feet bgs.	
									Groundwater was not encountered in the boring.	
						9			The borehole was backfilled with cement grout.	
						12				
						15				
						18				

BORING LOG

Boring No. B-5
Page 1 of 1

JOB NAME: Proposed Corporation Yard Renovation, City of Half Moon Bay
JOB NO.: HALFM-21-01
CLIENT: City of Half Moon Bay
DATE DRILLED: 9/29/2021
LOCATION: 880 Stone Pine Rd, Half Moon Bay
ELEVATION: 85± feet
DRILLER: West Coast Exploration Inc.
LOGGED BY: JL
DRILL METHOD: Truck-Mounted Drilling Rig - 4½" Diam. Continuous Flight Augers

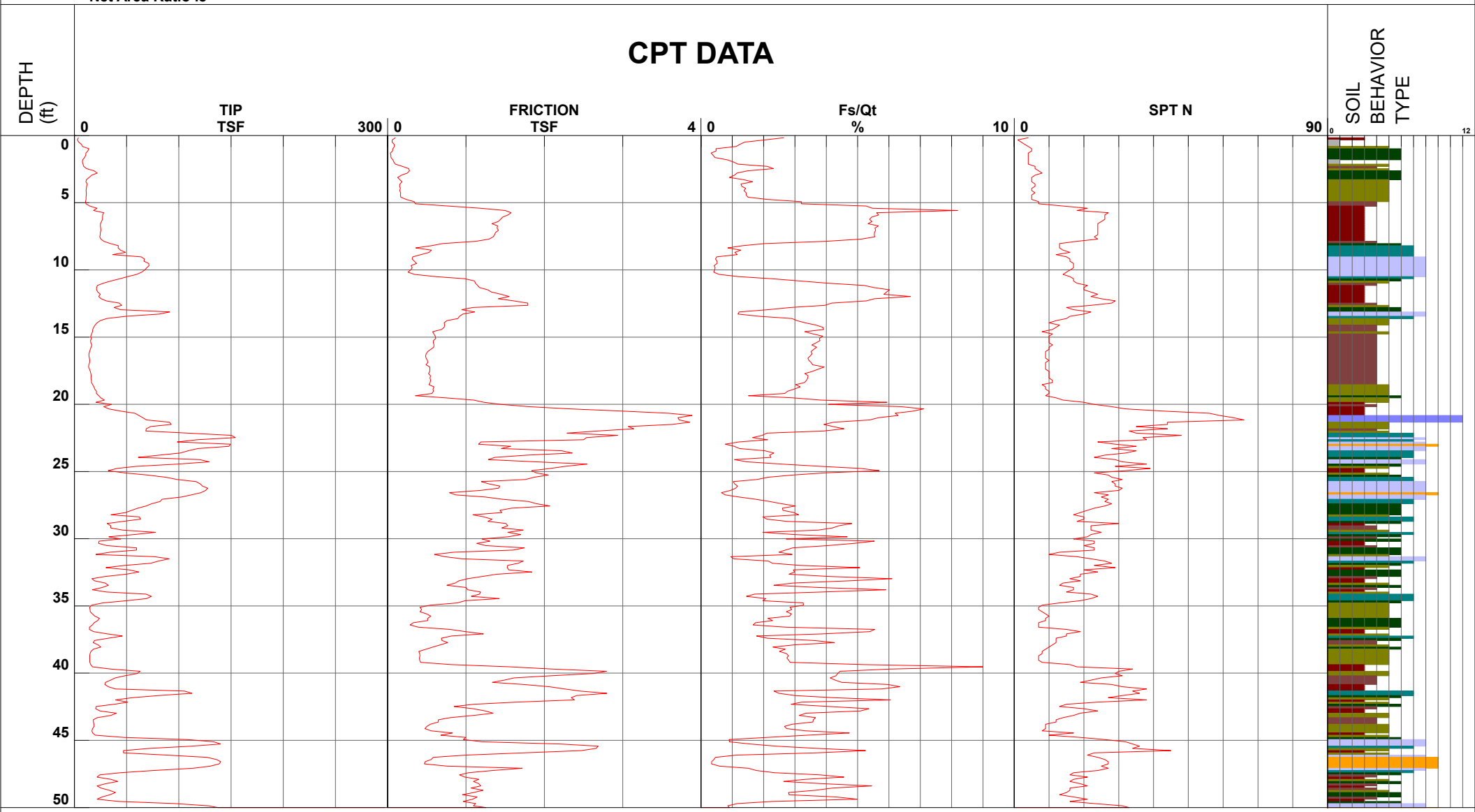
Type of Strength Test	Test Surcharge Pressure, psf	Test Water Content, %	Shear Strength, psf	In-Situ Water Content, %	In-Situ Dry Unit Weight, pcf	Depth, ft.	Soil Symbols, Samplers and Blow Counts	USCS	Description	Remarks
						0			Approx. 6" topsoil	
DS	320	NAT	420	14.4	85		12 21 23	CL	SANDY LEAN CLAY: dark gray, very stiff, dry to moist, well-graded sand, trace organic	LL=31, PI=12
DS DS	400 2000	NAT NAT	740 1710	13.2 13.2	107 107	3	7 8 8		... dark brown, stiff, moist, increased sand content, well-graded sand, trace organic	
						6			The boring was terminated at approximately 5 feet bgs. Groundwater was not encountered in the boring. The borehole was backfilled with cement grout.	
						9				
						12				
						15				
						18				

BAGG Engineers

Project	Corporation Yard Improvements Project	Operator	JM-IY	Filename	SDF(359).cpt
Job Number	HALFM-21-01	Cone Number	DPG1556	GPS	
Hole Number	CPT-01	Date and Time	10/8/2021 2:00:06 PM	Maximum Depth	50.69 ft
EST GW Depth During Test		19.00 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Cone Size 15cm squared

S*Soil behavior type and SPT based on data from UBC-1983

Corporation Yard Improvements Project

Project ID: BAGG Engineers
Data File: SDF(359).cpt
CPT Date: 10/8/2021 2:00:06 PM
GW During Test: 18 ft

Sounding ID: CPT-01
Project No: HALFM-21-01
Cone/Rig: DPG1556

Depth ft	qc PS tsf	qc1n PS - *	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
0.33	2.8	4.5	-	2.8	0.1	0.3	2.1	3	silty CLAY to CLAY	115	1.5	3	2	2	-	-	0.2	9.9	73	0.005	3.21	15
0.49	4.1	6.6	-	4.1	0.1	0.1	1.4	3	silty CLAY to CLAY	115	1.5	4	3	2	-	-	0.3	9.9	57	0.005	2.98	15
0.66	6.8	10.9	-	6.8	0.1	0.3	1.2	4	clayy SILT to silty CLAY	115	2.0	5	3	3	-	-	0.5	9.9	44	0.070	2.77	15
0.82	7.8	12.5	-	7.8	0.1	0.2	1.1	4	clayy SILT to silty CLAY	115	2.0	6	4	3	-	-	0.5	9.9	40	0.070	2.70	15
0.98	13.9	22.4	43.9	13.9	0.1	0.2	0.5	5	silty SAND to sandy SILT	120	3.0	7	5	5	18	45	-	-	23	0.200	2.31	16
1.15	12.8	20.6	43.0	12.8	0.1	0.7	0.5	5	silty SAND to sandy SILT	120	3.0	7	4	5	15	44	-	-	24	0.200	2.34	16
1.31	11.0	17.7	37.1	11.1	0.0	0.6	0.3	5	silty SAND to sandy SILT	120	3.0	6	4	4	10	42	-	-	24	0.200	2.34	16
1.48	10.8	17.4	38.5	10.8	0.0	0.4	0.4	5	silty SAND to sandy SILT	120	3.0	6	4	4	9	42	-	-	25	0.200	2.38	16
1.64	9.7	15.5	38.8	9.7	0.0	0.6	0.4	5	silty SAND to sandy SILT	120	3.0	5	3	4	6	41	-	-	28	0.200	2.44	16
1.80	8.0	12.8	-	8.0	0.1	0.4	0.8	4	clayy SILT to silty CLAY	115	2.0	6	4	3	-	-	0.6	9.9	37	0.070	2.63	15
1.97	7.6	12.2	-	7.6	0.1	0.4	1.0	4	clayy SILT to silty CLAY	115	2.0	6	4	3	-	-	0.5	9.9	40	0.070	2.69	15
2.13	8.3	13.3	-	8.3	0.1	0.4	1.2	4	clayy SILT to silty CLAY	115	2.0	7	4	4	-	-	0.6	9.9	40	0.070	2.69	15
2.30	8.9	14.3	-	8.9	0.2	0.5	2.1	4	clayy SILT to silty CLAY	115	2.0	7	4	4	-	-	0.6	9.9	46	0.070	2.79	15
2.46	11.6	18.6	-	11.6	0.3	0.5	2.3	4	clayy SILT to silty CLAY	115	2.0	9	6	5	-	-	0.8	9.9	41	0.070	2.72	15
2.62	18.8	30.2	74.0	18.8	0.3	0.7	1.5	5	silty SAND to sandy SILT	120	3.0	10	6	7	27	42	-	-	28	0.200	2.43	16
2.79	21.8	35.0	70.1	21.8	0.3	1.2	1.2	5	silty SAND to sandy SILT	120	3.0	12	7	8	32	42	-	-	23	0.200	2.32	16
2.95	16.6	26.6	61.7	16.6	0.2	0.6	1.1	5	silty SAND to sandy SILT	120	3.0	9	6	6	23	40	-	-	26	0.200	2.40	16
3.12	14.1	22.7	55.1	14.2	0.1	0.6	0.9	5	silty SAND to sandy SILT	120	3.0	8	5	5	18	39	-	-	28	0.200	2.43	16
3.28	11.5	18.4	60.8	11.5	0.2	0.6	1.4	4	clayy SILT to silty CLAY	115	2.0	9	6	5	-	-	0.8	9.9	35	0.070	2.60	15
3.45	11.1	17.8	-	11.1	0.2	0.4	1.7	4	clayy SILT to silty CLAY	115	2.0	9	6	5	-	-	0.8	9.9	38	0.070	2.66	15
3.61	12.3	19.8	60.7	12.3	0.2	0.2	1.3	4	clayy SILT to silty CLAY	115	2.0	10	6	5	-	-	0.9	9.9	33	0.070	2.56	15
3.77	11.7	18.8	60.3	11.7	0.2	0.3	1.3	4	clayy SILT to silty CLAY	115	2.0	9	6	5	-	-	0.8	9.9	34	0.070	2.58	15
3.94	11.4	18.3	-	11.4	0.2	0.3	1.5	4	clayy SILT to silty CLAY	115	2.0	9	6	5	-	-	0.8	9.9	36	0.070	2.61	15
4.10	11.2	17.9	-	11.2	0.2	0.3	1.4	4	clayy SILT to silty CLAY	115	2.0	9	6	5	-	-	0.8	9.9	36	0.070	2.61	15
4.27	11.5	18.4	-	11.5	0.2	0.4	1.5	4	clayy SILT to silty CLAY	115	2.0	9	6	5	-	-	0.8	9.9	36	0.070	2.61	15
4.43	11.4	18.2	-	11.4	0.2	0.4	1.5	4	clayy SILT to silty CLAY	115	2.0	9	6	5	-	-	0.8	9.9	36	0.070	2.62	15
4.59	11.1	17.9	-	11.2	0.2	0.2	1.5	4	clayy SILT to silty CLAY	115	2.0	9	6	5	-	-	0.8	9.9	37	0.070	2.64	15
4.76	11.2	17.9	-	11.2	0.2	0.2	2.2	4	clayy SILT to silty CLAY	115	2.0	9	6	5	-	-	0.8	9.9	41	0.070	2.72	15
4.92	10.6	17.0	-	10.6	0.3	0.1	3.3	3	silty CLAY to CLAY	115	1.5	11	7	5	-	-	0.7	9.9	49	0.005	2.84	15
5.09	11.0	17.7	-	11.0	0.4	0.5	3.3	3	silty CLAY to CLAY	115	1.5	12	7	5	-	-	0.8	9.9	48	0.005	2.83	15
5.25	14.6	23.5	-	14.7	0.8	0.9	5.4	3	silty CLAY to CLAY	115	1.5	16	10	7	-	-	1.0	9.9	50	0.005	2.87	15
5.41	21.7	34.8	-	21.7	1.2	0.8	5.6	3	silty CLAY to CLAY	115	1.5	23	14	10	-	-	1.5	9.9	44	0.005	2.76	15
5.58	18.3	29.3	-	18.3	1.5	0.5	8.3	3	silty CLAY to CLAY	115	1.5	20	12	9	-	-	1.3	9.9	54	0.005	2.94	15
5.74	28.1	45.1	-	28.1	1.6	0.6	5.7	3	silty CLAY to CLAY	115	1.5	30	19	12	-	-	2.0	9.9	40	0.005	2.69	15
5.91	27.1	43.4	-	27.1	1.5	0.1	5.7	3	silty CLAY to CLAY	115	1.5	29	18	12	-	-	1.9	9.9	41	0.005	2.70	15
6.07	26.9	43.2	-	26.9	1.5	-0.3	5.5	3	silty CLAY to CLAY	115	1.5	29	18	12	-	-	1.9	9.9	40	0.005	2.69	15
6.23	26.8	43.0	-	26.8	1.4	-0.6	5.5	3	silty CLAY to CLAY	115	1.5	29	18	11	-	-	1.9	9.9	40	0.005	2.69	15
6.40	25.9	41.5	-	25.8	1.4	-2.3	5.5	3	silty CLAY to CLAY	115	1.5	28	17	11	-	-	1.8	9.9	41	0.005	2.70	15
6.56	25.0	40.1	-	25.0	1.3	-1.4	5.4	3	silty CLAY to CLAY	115	1.5	27	17	11	-	-	1.7	9.9	41	0.005	2.71	15
6.73	24.8	39.7	-	24.7	1.4	-0.9	5.8	3	silty CLAY to CLAY	115	1.5	26	17	11	-	-	1.7	9.9	42	0.005	2.73	15
6.89	25.1	40.3	-	25.1	1.4	-0.5	5.6	3	silty CLAY to CLAY	115	1.5	27	17	11	-	-	1.7	9.9	41	0.005	2.72	15
7.05	25.4	40.7	-	25.4	1.4	0.1	5.7	3	silty CLAY to CLAY	115	1.5	27	17	11	-	-	1.8	9.9	41	0.005	2.72	15
7.22	24.9	39.9	-	24.9	1.4	1.5	5.6	3	silty CLAY to CLAY	115	1.5	27	17	11	-	-	1.7	9.9	42	0.005	2.72	15
7.38	24.7	39.6	-	24.7	1.4	1.1	5.6	3	silty CLAY to CLAY	115	1.5	26	16	11	-	-	1.7	9.9	42	0.005	2.72	15
7.55	24.3	39.0	-	24.3	1.3	1.7	5.6	3	silty CLAY to CLAY	115	1.5	26	16	11	-	-	1.7	9.9	42	0.005	2.73	15
7.71	25.3	40.6	-	25.3	1.3	2.2	5.2	3	silty CLAY to CLAY	115	1.5	27	17	11	-	-	1.8	9.9	40	0.005	2.69	15
7.87	28.2	45.2	145.1	28.2	1.1	0.0	4.1	4	clayy SILT to silty CLAY	115	2.0	23	14	11	-	-	2.0	9.9	34	0.070	2.58	15
8.04	34.4	49.0	104.8	34.4	0.7	-1.0	2.1	5	silty SAND to sandy SILT	120	3.0	16	11	11	43	39	-	-	25	0.200	2.36	16
8.20	42.1	59.3	94.8	42.1	0.6	0.1	1.3	5	silty SAND to sandy SILT	120	3.0	20	14	12	50	40	-	-	18	0.200	2.17	16
8.37	41.9	58.4	81.4	41.9	0.4	0.2	0.9	5	silty SAND to sandy SILT	120	3.0	19	14	12	49	40	-	-	15	0.200	2.06	16
8.53	44.1	60.8	94.4	44.1	0.6	0.2	1.3	5	silty SAND to sandy SILT	120	3.0	20	15	13	51	40	-	-	17	0.200	2.15	16
8.69	49.1	67.0	94.4	49.1	0.5	0.7	1.1	5	silty SAND to sandy SILT	120	3.0	22	16	14	54	40	-	-	15	0.200	2.07	16
8.86	36.6	49.6	82.5	36.7	0.4	0.6	1.2	5	silty SAND to sandy SILT	120	3.0	17	12	11	44	39	-	-	19	0.200	2.20	16
9.02	64.0	85.7	94.7	64.0	0.3	0.4	0.5	6	clean SAND to silty SAND	125	5.0	17	13	16	62	42	-	-	8	0.350	1.80	16
9.19	67.1	89.1	96.3	67.1	0.3	0.3	0.5	6	clean SAND to silty SAND	125	5.0	18	13	16	63	42	-	-	7	0.350	1.76	16
9.35	66.6	87.6	96.5	66.7	0.3	0.4	0.5	6	clean SAND to silty SAND	125	5.0	18	13	16	63	42	-	-	8	0.350	1.79	16
9.51	71.1	92.7	100.9	71.1	0.4	0.5	0.5	6	clean SAND to silty SAND	125	5.0	19	14	17	64	42	-	-	8	0.350	1.77	16
9.68	71.5	92.4	97.6	71.6	0.3	0.6	0.4	6	clean SAND to silty SAND	125	5.0	18	14	16	64	42	-	-	7	0.350	1.73	16
9.84	69.2	88.6	95.6	69.2	0.3	0.6	0.5	6	clean SAND to silty SAND	125	5.0	18	14	16	63	41	-	-	7	0.350	1.76	16
10.01	67.4	85.4	92.5	67.4	0.3	0.6	0.4	6	clean SAND to silty SAND	125	5.0	17	13	15	62	41	-	-	7	0.350	1.77	16
10.17	64.4	81.0	88.0	64.4	0.3	0.5	0.4	6	clean SAND to silty SAND	125	5.0	16	13	15	60	41	-	-	8	0.350	1.77	16
10.34	59.5	74.2	87.0	59.5	0.3	0.4	0.6	6	clean SAND to silty SAND	125	5.0	15	12	14	57	40	-	-	10	0.350	1.88	16
10.50	51.0	63.0	94.6	51.0	0.6	0.4	1.2	5	silty SAND to sandy SILT	120	3.0	21	17	13	52	39	-	-	17	0.200	2.12	16
10.66	43.5	53.4	114.6	43.5	1.0	0.4	2.3	5	silty SAND to sandy SILT	120	3.0	18	15	12	46	38	-	-	25	0.200	2.36	16
10.83	35.1	42.7	124.8	35.1	1.1	0.8	3.2	4	clayy SILT to silty CLAY	115	2.0	21	18	11	-	-	2.4	9.9	32	0.070	2.53	15
10.99	27.6	42.7	-	27.6	1.1	1.4	4.2	4	clayy SILT to silty CLAY	115	2.0	21	14	11	-	-	1.9	9.9	36	0.070	2.61	15
11.16	22.1	33.6	-	22.2	1.1	7.2	5.4	3	silty CLAY to CLAY	115	1.5	22	15	9	-	-	1.5	9.9	44	0.005	2.76	15
11.32	21.2	31.9	-	21.4	1.2	8.5	5.7	3	silty CLAY to CLAY	115	1.5	21	14	9	-	-	1.5	9.9	46	0.005	2.80	15
11.48	21.2	31.5	-	21.4	1.3	9.1	6.2	3	silty CLAY to CLAY	115	1.5	21	14	9	-	-	1.5	9.9	48	0.005	2.83	15
11.65	22.4	32.7	-	22.6	1.3	10.2	6.1	3	silty CLAY to CLAY	115	1.5	22	15	9	-	-	1.5	9.9	47	0.005	2.81	15
11.81	24.8	35.8	-	25.0	1.4	9.7	6.0	3	silty CLAY to CLAY	115	1.5	24	17	10	-	-	1.7	9.9	45	0.005	2.78	15
11.98	23.2	33.0	-	23.4	1.6	9.9	6.9	3	silty CLAY to CLAY	115	1.5	22	15	10	-	-	1.6	9.9	49	0.005	2.85	15
12.14	25.6	35.9	-	25.8	1.4	12.8	5.7	3	silty CLAY to CLAY	115	1.5	24	17	10	-	-	1.8	9.9	44	0.005	2.76	15
12.30	30.4	42.1	-	30.7	1.6	15.9	5.4	3	silty CLAY to CLAY	115	1.5	28	20	11	-	-	2.1	9.9	40	0.005	2.69	15
12.47	42.9	48.7	154.0	43.3	1.8	21.0	4.2	4	clayy SILT to silty CLAY	115	2.0	24	21	12	-	-	3.0	9.9	34	0.070	2.57	15
12.63	45.3	51.2	152.5	45.6	1.8	11.8	4.0	4	clayy SILT to silty CLAY	115	2.0	26	23	13	-	-	3.2	9.9	33	0.070	2.54	15
12.80	38.0	42.6	118.5	38.4	1.1	21.9	2.9	4	clayy SILT to silty CLAY	115	2.0	21	19	10	-	-	2.6	9.9	31	0.070	2.50	15
12.96	44.1	49.1	107.9	45.0	0.9	46.9	2.2	5	silty SAND to sandy SILT	120	3.0	16	15	11	44	37	-	-	25	0.200	2.37	16
13.12	91.1	100.9	127.3	91.5	1.1	16.6	1.2	6	clean SAND to silty SAND	125	5.0	20	18	20	67	41	-	-	12	0.350	1.97	16
13.29	81.5	89.6	116.4	81.6	1.0	3.9	1.2	6	clean SAND to silty SAND	125	5.0	18	16	18	63	41	-	-	13	0.350	2.00	16
13.45	49.4	53.9	104.8	49.4	0.9	2.7	1.9	5	silty SAND to sandy SILT	120	3.0	18	16	12	47	38	-	-	22	0.200	2.30	16
13.62	30.9	33.6	109.1	31.0	0.9	5.2	3.0	4	clayy SILT to silty CLAY	115	2.0	17	15	9	-	-	2.1	9.9	35	0.070	2.59	15
13.78	24.7	30.5	-	24.9	0.8	9.2	3.2	4	clayy SILT to silty CLAY	115	2.0	15	12	8	-	-	1.7	9.7	37	0.070	2.64	15
13.94	21.7	26.5	-	21.9	0.7	10.4	3.5	4	clayy SILT to silty CLAY	115	2.0	13	11	7	-	-	1.5	8.4	41	0.070	2.71	15
14.11	19.8	24.0	-	20.0	0.7	9.1	3.8	4	clayy SILT to silty CLAY	115	2.0	12	10	7	-	-	1.3	7.6	45	0.070	2.77	15
14.27	18.5	22.1	-	18.7	0.7	9.5	4.1	3	silty CLAY to CLAY	115	1.5	15	12	6	-	-	1.2	7.0	47	0.005	2.82	15
14.44	17.6	20.8	-	17.8	0.7	10.2	4.1	3	silty CLAY to CLAY	115	1.5	14	12	6	-	-	1.2	6.5	49	0.005	2.84	15
14.60	17.3	20.2	-	17.5	0.6	11.5	3.5	3	silty CLAY to CLAY	115	1.5	13	12	6	-	-	1.2	6.3	46	0.005	2.81	15
14.76	16.5	19.1	-	16.7	0.6	10.5	3.8	3	silty CLAY to CLAY	115	1.5	13	11	6	-	-	1.1	6.0	49	0.005	2.85	15
14.93	15.6	17.9	-	15.9	0.6	11.5	4.1	3	silty CLAY to CLAY	115	1.5	12	10	5	-	-	1.0	5.6	52	0.005	2.90	15
15.09	16.3	18.4	-	16.5	0.6	11.1	4.0	3	silty CLAY to CLAY	115	1.5	12	11	5	-	-	1.1	5.7	51	0.005	2.88	15
15.26	15.4	17.2	-	15.6	0.6	11.7	4.0	3	silty CLAY to CLAY	115	1.5	11	10	5	-	-	1.0	5.4	52	0.005	2.90	15
15.42	15.8	17.5	-	16.1	0.6	11.8	3.9	3	silty CLAY to CLAY	115	1.5	12	11	5	-	-	1.1	5.4	51	0.005	2.89	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
15.58	16.7	18.3	-	16.9	0.6	11.0	3.7	3	silty CLAY to CLAY	115	1.5	12	11	5	-	-	1.1	5.7	50	0.005	2.86	15
15.75	15.9	17.3	-	16.1	0.6	7.3	3.9	3	silty CLAY to CLAY	115	1.5	12	11	5	-	-	1.1	5.4	52	0.005	2.90	15
15.91	15.3	16.4	-	15.4	0.5	6.4	3.8	3	silty CLAY to CLAY	115	1.5	11	10	5	-	-	1.0	5.1	53	0.005	2.91	15
16.08	14.6	15.5	-	14.7	0.5	7.2	3.8	3	silty CLAY to CLAY	115	1.5	10	10	5	-	-	1.0	4.8	54	0.005	2.92	15
16.24	13.9	14.6	-	14.1	0.5	8.8	3.8	3	silty CLAY to CLAY	115	1.5	10	9	5	-	-	0.9	4.5	55	0.005	2.95	15
16.40	13.9	14.5	-	14.1	0.5	9.7	3.7	3	silty CLAY to CLAY	115	1.5	10	9	4	-	-	0.9	4.4	55	0.005	2.95	15
16.57	14.3	14.8	-	14.5	0.5	10.1	3.7	3	silty CLAY to CLAY	115	1.5	10	10	5	-	-	0.9	4.6	54	0.005	2.93	15
16.73	14.7	15.1	-	15.0	0.5	11.0	3.7	3	silty CLAY to CLAY	115	1.5	10	10	5	-	-	1.0	4.6	54	0.005	2.93	15
16.90	14.6	14.7	-	14.8	0.5	10.6	3.8	3	silty CLAY to CLAY	115	1.5	10	10	5	-	-	1.0	4.5	55	0.005	2.94	15
17.06	13.8	13.8	-	14.0	0.5	11.0	3.8	3	silty CLAY to CLAY	115	1.5	9	9	4	-	-	0.9	4.2	57	0.005	2.97	15
17.23	13.7	13.6	-	13.9	0.5	11.7	4.2	3	silty CLAY to CLAY	115	1.5	9	9	4	-	-	0.9	4.1	59	0.005	3.01	15
17.39	14.4	14.2	-	14.7	0.5	13.3	4.0	3	silty CLAY to CLAY	115	1.5	9	10	4	-	-	0.9	4.4	57	0.005	2.97	15
17.55	15.1	14.7	-	15.4	0.5	13.5	3.8	3	silty CLAY to CLAY	115	1.5	10	10	5	-	-	1.0	4.5	55	0.005	2.95	15
17.72	15.8	15.2	-	16.0	0.5	14.7	3.5	3	silty CLAY to CLAY	115	1.5	10	11	5	-	-	1.0	4.7	53	0.005	2.92	15
17.88	16.1	15.4	-	16.4	0.5	15.8	3.7	3	silty CLAY to CLAY	115	1.5	10	11	5	-	-	1.1	4.7	53	0.005	2.92	15
18.05	15.9	15.1	-	16.2	0.5	17.5	3.6	3	silty CLAY to CLAY	115	1.5	10	11	5	-	-	1.0	4.7	54	0.005	2.93	15
18.21	16.3	15.5	-	16.7	0.5	18.4	3.6	3	silty CLAY to CLAY	115	1.5	10	11	5	-	-	1.1	4.8	53	0.005	2.91	15
18.37	16.4	15.5	-	16.7	0.5	17.9	3.5	3	silty CLAY to CLAY	115	1.5	10	11	5	-	-	1.1	4.8	53	0.005	2.91	15
18.54	17.4	16.4	-	17.8	0.5	19.4	3.2	3	silty CLAY to CLAY	115	1.5	11	12	5	-	-	1.2	5.1	50	0.005	2.86	15
18.70	18.7	17.5	-	19.1	0.6	20.7	3.4	3	silty CLAY to CLAY	115	1.5	12	12	5	-	-	1.2	5.4	49	0.005	2.85	15
18.87	19.5	18.2	-	19.9	0.6	23.1	3.2	3	silty CLAY to CLAY	115	1.5	12	13	5	-	-	1.3	5.7	47	0.005	2.82	15
19.03	21.2	19.7	-	21.6	0.6	24.5	2.9	4	clayy SILT to silty CLAY	115	2.0	10	11	5	-	-	1.4	6.2	44	0.070	2.77	15
19.19	21.1	19.6	-	21.7	0.6	30.2	2.8	4	clayy SILT to silty CLAY	115	2.0	10	11	5	-	-	1.4	6.1	44	0.070	2.76	15
19.36	23.4	21.8	69.9	24.0	0.4	32.7	1.6	4	clayy SILT to silty CLAY	115	2.0	11	12	6	-	-	1.6	6.8	34	0.070	2.58	15
19.52	25.2	23.2	-	26.0	0.7	37.7	3.1	4	clayy SILT to silty CLAY	115	2.0	12	13	6	-	-	1.7	7.3	42	0.070	2.73	15
19.69	28.8	26.3	-	29.4	1.1	34.6	4.0	4	clayy SILT to silty CLAY	115	2.0	13	14	7	-	-	2.0	8.3	43	0.070	2.75	15
19.85	20.7	18.9	-	21.4	1.2	33.2	6.3	3	silty CLAY to CLAY	115	1.5	13	14	6	-	-	1.4	5.9	58	0.005	3.00	15
20.01	35.5	32.2	-	36.2	1.4	35.8	4.2	4	clayy SILT to silty CLAY	115	2.0	16	18	9	-	-	2.4	9.9	41	0.070	2.70	15
20.18	28.2	25.5	-	29.4	1.8	60.8	6.7	3	silty CLAY to CLAY	115	1.5	17	19	8	-	-	1.9	8.1	53	0.005	2.92	15
20.34	32.8	29.6	-	34.1	2.3	64.2	7.4	3	silty CLAY to CLAY	115	1.5	20	22	9	-	-	2.2	9.4	52	0.005	2.90	15
20.51	44.4	39.9	-	45.6	3.0	61.3	7.0	3	silty CLAY to CLAY	115	1.5	27	30	11	-	-	3.1	9.9	45	0.005	2.79	15
20.67	57.8	51.7	-	58.1	3.6	13.1	6.3	3	silty CLAY to CLAY	115	1.5	34	39	14	-	-	4.0	9.9	40	0.005	2.68	15
20.83	61.7	55.0	-	61.8	3.9	4.6	6.4	3	silty CLAY to CLAY	115	1.5	37	41	15	-	-	4.3	9.9	39	0.005	2.67	15
21.00	65.5	58.1	-	65.7	3.7	8.9	5.8	4	clayy SILT to silty CLAY	115	2.0	29	33	15	-	-	4.5	9.9	36	0.070	2.62	15
21.16	69.0	63.1	202.1	69.3	3.7	12.2	5.5	4	clayy SILT to silty CLAY	115	2.0	32	35	16	-	-	4.8	9.9	34	0.070	2.58	15
21.33	91.0	82.9	198.9	91.1	3.9	8.5	4.3	4	clayy SILT to silty CLAY	115	2.0	41	45	19	-	-	6.3	9.9	27	0.070	2.42	15
21.49	92.6	84.3	191.6	92.6	3.6	-0.5	4.0	4	clayy SILT to silty CLAY	115	2.0	42	46	19	-	-	6.5	9.9	26	0.070	2.39	15
21.65	73.0	66.3	178.3	73.0	3.1	-1.2	4.3	4	clayy SILT to silty CLAY	115	2.0	33	37	16	-	-	5.1	9.9	30	0.070	2.48	15
21.82	68.8	62.4	182.1	68.9	3.1	6.1	4.6	4	clayy SILT to silty CLAY	115	2.0	31	34	15	-	-	4.8	9.9	32	0.070	2.53	15
21.98	68.4	61.8	165.8	68.5	2.7	7.3	4.0	4	clayy SILT to silty CLAY	115	2.0	31	34	15	-	-	4.7	9.9	30	0.070	2.48	15
22.15	108.8	98.2	151.3	109.0	2.3	12.6	2.1	5	silty SAND to sandy SILT	120	3.0	33	36	20	66	40	-	-	17	0.200	2.14	16
22.31	150.3	135.5	180.4	150.4	2.9	2.5	2.0	5	silty SAND to sandy SILT	120	3.0	45	50	27	77	42	-	-	14	0.200	2.02	16
22.47	154.1	138.6	173.7	154.2	2.5	2.5	1.7	6	clean SAND to silty SAND	125	5.0	28	31	27	78	42	-	-	12	0.350	1.96	16
22.64	117.8	105.7	158.7	117.8	2.5	2.8	2.1	5	silty SAND to sandy SILT	120	3.0	35	39	22	69	41	-	-	17	0.200	2.12	16
22.80	98.6	88.3	116.3	99.0	1.2	21.1	1.2	6	clean SAND to silty SAND	125	5.0	18	20	17	63	40	-	-	13	0.350	2.01	16
22.97	149.5	133.5	143.0	149.6	1.2	6.9	0.8	6	clean SAND to silty SAND	125	5.0	27	30	24	77	42	-	-	7	0.350	1.75	16
23.13	147.9	131.9	150.2	148.0	1.6	3.5	1.1	6	clean SAND to silty SAND	125	5.0	26	30	24	76	42	-	-	9	0.350	1.84	16
23.30	118.2	105.2	131.5	118.3	1.4	2.2	1.2	6	clean SAND to silty SAND	125	5.0	21	24	20	69	40	-	-	12	0.350	1.96	16
23.46	108.9	96.7	148.1	109.0	2.2	3.8	2.1	5	silty SAND to sandy SILT	120	3.0	32	36	20	66	40	-	-	17	0.200	2.14	16
23.62	101.3	89.8	150.4	101.4	2.4	2.9	2.4	5	silty SAND to sandy SILT	120	3.0	30	34	19	63	40	-	-	19	0.200	2.20	16
23.79	81.2	71.8	130.3	81.3	1.8	1.7	2.2	5	silty SAND to sandy SILT	120	3.0	24	27	16	56	38	-	-	21	0.200	2.26	16
23.95	61.1	54.0	115.6	61.2	1.4	3.7	2.3	5	silty SAND to sandy SILT	120	3.0	18	20	12	47	37	-	-	25	0.200	2.36	16
24.12	120.2	105.9	127.6	120.5	1.3	15.2	1.1	6	clean SAND to silty SAND	125	5.0	21	24	20	69	40	-	-	11	0.350	1.92	16
24.28	129.0	113.4	145.7	129.1	1.9	3.0	1.5	6	clean SAND to silty SAND	125	5.0	23	26	22	71	41	-	-	13	0.350	1.99	16
24.44	99.4	87.2	155.1	99.4	2.5	2.8	2.6	5	silty SAND to sandy SILT	120	3.0	29	33	19	62	39	-	-	20	0.200	2.24	16
24.61	59.6	52.2	151.9	59.7	2.3	2.8	3.9	4	clayy SILT to silty CLAY	115	2.0	26	30	13	-	-	4.1	9.9	32	0.070	2.53	15
24.77	40.7	33.0	-	40.9	2.1	8.3	5.3	3	silty CLAY to CLAY	115	1.5	22	27	9	-	-	2.8	9.9	44	0.005	2.77	15
24.94	32.3	26.1	-	33.2	1.8	41.7	6.0	3	silty CLAY to CLAY	115	1.5	17	22	8	-	-	2.2	8.2	51	0.005	2.88	15
25.10	48.1	38.6	-	48.9	1.9	44.6	4.1	4	clayy SILT to silty CLAY	115	2.0	19	24	10	-	-	3.3	9.9	37	0.070	2.64	15
25.26	70.0	60.9	140.3	70.3	2.1	16.5	3.0	4	clayy SILT to silty CLAY	115	2.0	30	35	14	-	-	4.9	9.9	26	0.070	2.40	15
25.43	87.4	75.8	132.5	87.6	1.9	10.2	2.2	5	silty SAND to sandy SILT	120	3.0	25	29	16	58	39	-	-	20	0.200	2.23	16
25.59	98.4	85.3	130.5	98.6	1.8	6.3	1.8	5	silty SAND to sandy SILT	120	3.0	28	33	18	62	39	-	-	17	0.200	2.14	16
25.76	116.5	100.7	122.1	116.6	1.2	4.7	1.0	6	clean SAND to silty SAND	125	5.0	20	23	19	67	40	-	-	11	0.350	1.92	16
25.92	120.4	103.8	126.0	120.4	1.3	3.0	1.1	6	clean SAND to silty SAND	125	5.0	21	24	20	68	40	-	-	11	0.350	1.93	16
26.08	122.6	105.6	130.2	122.6	1.4	2.3	1.2	6	clean SAND to silty SAND	125	5.0	21	25	20	69	40	-	-	11	0.350	1.94	16
26.25	127.7	109.8	132.2	127.8	1.4	2.2	1.1	6	clean SAND to silty SAND	125	5.0	22	26	21	70	41	-	-	11	0.350	1.92	16
26.41	125.6	107.8	125.7	125.7	1.2	1.4	1.0	6	clean SAND to silty SAND	125	5.0	22	25	20	69	40	-	-	10	0.350	1.88	16
26.58	121.1	103.6	114.1	121.1	0.8	0.4	0.7	6	clean SAND to silty SAND	125	5.0	21	24	19	68	40	-	-	8	0.350	1.79	16
26.74	111.8	95.5	110.7	111.8	0.9	-0.8	0.8	6	clean SAND to silty SAND	125	5.0	19	22	18	65	40	-	-	10	0.350	1.87	16
26.90	102.4	87.3	115.9	102.4	1.2	1.0	1.2	6	clean SAND to silty SAND	125	5.0	17	20	17	63	39	-	-	14	0.350	2.02	16
27.07	83.9	71.4	117.5	83.9	1.5	1.5	1.8	5	silty SAND to sandy SILT	120	3.0	24	28	15	56	38	-	-	19	0.200	2.19	16
27.23	82.0	69.7	128.6	82.1	1.8	1.8	2.2	5	silty SAND to sandy SILT	120	3.0	23	27	15	55	38	-	-	21	0.200	2.27	16
27.40	74.0	62.7	132.8	74.0	1.9	0.9	2.6	5	silty SAND to sandy SILT	120	3.0	21	25	14	52	37	-	-	24	0.200	2.35	16
27.56	68.7	58.1	139.8	68.7	2.1	0.1	3.1	4	clayy SILT to silty CLAY	115	2.0	29	34	14	-	-	4.8	9.9	27	0.070	2.42	15
27.72	60.8	51.3	122.7	60.8	1.6	0.2	2.7	5	silty SAND to sandy SILT	120	3.0	17	20	12	45	36	-	-	27	0.200	2.42	16
27.89	54.8	46.2	118.1	54.8	1.4	0.0	2.7	4	clayy SILT to silty CLAY	115	2.0	23	27	11	-	-	3.8	9.9	29	0.070	2.46	15
28.05	49.1	41.3	121.1	49.1	1.5	0.0	3.1	4	clayy SILT to silty CLAY	115	2.0	21	25	10	-	-	3.4	9.9	32	0.070	2.53	15
28.22	34.9	26.2	-	35.0	1.1	3.3	3.3	4	clayy SILT to silty CLAY	115	2.0	13	17	7	-	-	2.4	8.2	41	0.070	2.70	15
28.38	62.3	52.3	107.6	62.4	1.2	4.7	2.0	5	silty SAND to sandy SILT	120	3.0	17	21	12	46	36	-	-	24	0.200	2.33	16
28.54	63.3	53.1	111.7	63.3	1.3	1.1	2.2	5	silty SAND to sandy SILT	120	3.0	18	21	12	46	36	-	-	24	0.200	2.35	16
28.71	46.6	39.0	113.8	46.6	1.3	1.0	2.9	4	clayy SILT to silty CLAY	115	2.0	19	23	10	-	-	3.2	9.9	32	0.070	2.53	15
28.87	31.4	23.2	-	31.4	1.5	2.5	5.1	3	silty CLAY to CLAY	115	1.5	15	21	7	-	-	2.1	7.2	50	0.005	2.87	15
29.04	34.8	25.7	-	34.9	1.5	4.7	4.6	3	silty CLAY to CLAY	115	1.5	17	23	7	-	-	2.4	8.1	47	0.005	2.81	15
29.20	34.7	25.5	-	34.8	1.5	4.3	4.4	3	silty CLAY to CLAY	115	1.5	17	23	7	-	-	2.4	8.0	46	0.005	2.80	15
29.36	46.2	33.8	-	46.3	1.7	7.2	3.9	4	clayy SILT to silty CLAY	115	2.0	17	23	9	-	-	3.2	9.9	39	0.070	2.67	15
29.53	77.6	64.4	118.1	77.7	1.5	6.3	2.0	5	silty SAND to sandy SILT	120	3.0	21	26	14	52	37	-	-	21	0.200	2.26	16
29.69	56.9	47.1	128.0	56.9	1.7	2.9	3.1	4	clayy SILT to silty CLAY	115	2.0	24	28	11	-	-	3.9	9.9	30	0.070	2.49	15
29.86	33.0	23.9	-	33.1	1.5	6.0	4.9	3	silty CLAY to CLAY	115	1.5	16	22	7	-	-	2.2	7.5	49	0.005	2.85	15
30.02	44.3	36.6	110.9	44.6	1.2	12.4	2.8	4	clayy SILT to silty CLAY	115	2.0	18	22	9	-	-	3.0	9.9	33	0.070	2.55	15
30.19	23.6	17.0	-	23.7	1.3	10.0	6.0	3	silty CLAY to CLAY	115	1.5	11	16	6	-	-	1.6	5.2	60	0.005	3.03	15
30.35	23.3	16.7	-	23.8	1.1	25.3	5.3	3	silty CLAY to CLAY	115	1.5	11	16	5	-	-	1.5	5.1	58	0.005	3.00	15
30.51	31.2	22.3	-	31.7	1.3	28.1	4.3	3	silty CLAY to CLAY	115	1.5	15	21	6	-	-	2.1	6.9	48	0.005	2.83	15
30.68	59.5	48.8	128.4	59.8	1.7	16.5	3.0	4	clayy SILT to silty CLAY	115	2.0	24	30	12	-	-	4.1	9.9	29	0.070	2.47	15
30.84	59.5	48.7	122.7	59.5	1.6	2.5	2.8	4	clayy SILT to silty CLAY	115	2.0	24	30	12	-	-	4.1	9.9	28	0.070	2.45	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
31.01	33.9	24.1	-	34.0	0.8	1.2	2.6	4	clayy SILT to silty CLAY	115	2.0	12	17	6	-	-	2.3	7.5	39	0.070	2.67	15
31.17	20.6	14.5	-	20.7	0.6	4.9	3.2	3	silty CLAY to CLAY	115	1.5	10	14	4	-	-	1.4	4.4	53	0.005	2.91	15
31.33	76.6	62.5	88.1	76.9	0.7	17.2	1.0	5	silty SAND to sandy SILT	120	3.0	21	26	13	51	37	-	-	15	0.200	2.07	16
31.50	90.8	73.9	99.9	90.8	0.9	2.3	1.1	6	clean SAND to silty SAND	125	5.0	15	18	15	57	38	-	-	14	0.350	2.04	16
31.66	80.6	65.5	124.0	80.6	1.7	0.5	2.2	5	silty SAND to sandy SILT	120	3.0	22	27	14	53	37	-	-	22	0.200	2.28	16
31.83	72.9	59.2	122.1	72.9	1.7	-0.6	2.3	5	silty SAND to sandy SILT	120	3.0	20	24	13	50	37	-	-	24	0.200	2.33	16
31.99	48.5	33.7	-	48.4	1.5	-1.7	3.3	4	clayy SILT to silty CLAY	115	2.0	17	24	9	-	-	3.3	9.9	36	0.070	2.62	15
32.15	30.1	20.9	-	30.1	1.5	-0.8	5.4	3	silty CLAY to CLAY	115	1.5	14	20	6	-	-	2.0	6.5	54	0.005	2.93	15
32.32	52.4	42.3	122.3	52.5	1.5	2.8	3.1	4	clayy SILT to silty CLAY	115	2.0	21	26	10	-	-	3.6	9.9	32	0.070	2.52	15
32.48	61.6	49.7	131.0	61.6	1.8	1.1	3.1	4	clayy SILT to silty CLAY	115	2.0	25	31	12	-	-	4.3	9.9	29	0.070	2.47	15
32.65	49.6	39.9	116.7	49.6	1.4	-0.7	2.9	4	clayy SILT to silty CLAY	115	2.0	20	25	10	-	-	3.4	9.9	32	0.070	2.53	15
32.81	29.5	20.3	-	29.5	1.2	-1.4	4.4	3	silty CLAY to CLAY	115	1.5	14	20	6	-	-	2.0	6.2	50	0.005	2.88	15
32.97	16.8	11.5	-	16.8	1.0	-0.2	6.9	3	silty CLAY to CLAY	115	1.5	8	11	4	-	-	1.1	3.3	74	0.005	3.21	15
33.14	19.2	13.1	-	19.3	0.9	4.9	5.3	3	silty CLAY to CLAY	115	1.5	9	13	4	-	-	1.3	3.9	64	0.005	3.09	15
33.30	29.4	20.0	-	29.7	0.9	15.1	3.1	4	clayy SILT to silty CLAY	115	2.0	10	15	6	-	-	2.0	6.2	45	0.070	2.79	15
33.47	32.6	22.1	-	32.8	0.8	12.0	2.5	4	clayy SILT to silty CLAY	115	2.0	11	16	6	-	-	2.2	6.8	40	0.070	2.69	15
33.63	26.5	17.9	-	26.8	1.0	10.6	4.1	3	silty CLAY to CLAY	115	1.5	12	18	5	-	-	1.8	5.5	52	0.005	2.90	15
33.79	17.3	11.6	-	17.5	1.0	12.9	6.7	3	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.1	3.4	73	0.005	3.20	15
33.96	30.7	20.6	-	31.1	1.2	21.1	4.1	3	silty CLAY to CLAY	115	1.5	14	20	6	-	-	2.1	6.4	49	0.005	2.85	15
34.12	68.6	54.5	102.8	68.8	1.2	11.7	1.8	5	silty SAND to sandy SILT	120	3.0	18	23	12	47	36	-	-	22	0.200	2.28	16
34.29	73.7	58.5	98.9	73.7	1.1	0.5	1.5	5	silty SAND to sandy SILT	120	3.0	19	25	12	49	36	-	-	19	0.200	2.21	16
34.45	69.1	54.7	112.5	69.1	1.4	2.5	2.1	5	silty SAND to sandy SILT	120	3.0	18	23	12	47	36	-	-	24	0.200	2.33	16
34.61	49.9	39.5	97.3	49.9	1.0	0.3	2.1	5	silty SAND to sandy SILT	120	3.0	13	17	9	36	34	-	-	28	0.200	2.44	16
34.78	27.2	18.0	-	27.3	0.9	1.4	3.5	3	silty CLAY to CLAY	115	1.5	12	18	5	-	-	1.8	5.5	50	0.005	2.86	15
34.94	16.6	10.9	-	16.8	0.5	10.5	3.7	3	silty CLAY to CLAY	115	1.5	7	11	4	-	-	1.1	3.2	63	0.005	3.07	15
35.11	14.5	9.6	-	15.2	0.4	35.2	3.3	3	silty CLAY to CLAY	115	1.5	6	10	3	-	-	0.9	2.7	65	0.005	3.09	15
35.27	14.9	9.8	-	15.7	0.4	38.9	3.4	3	silty CLAY to CLAY	115	1.5	7	10	3	-	-	0.9	2.8	64	0.005	3.09	15
35.43	15.2	9.9	-	16.0	0.4	40.8	3.2	3	silty CLAY to CLAY	115	1.5	7	10	3	-	-	1.0	2.8	63	0.005	3.06	15
35.60	17.2	11.2	-	18.0	0.5	43.4	3.3	3	silty CLAY to CLAY	115	1.5	7	11	4	-	-	1.1	3.2	60	0.005	3.02	15
35.76	19.4	12.6	-	20.2	0.5	40.5	3.2	3	silty CLAY to CLAY	115	1.5	8	13	4	-	-	1.3	3.7	56	0.005	2.97	15
35.93	24.0	15.6	-	25.0	0.5	49.0	2.3	4	clayy SILT to silty CLAY	115	2.0	8	12	4	-	-	1.6	4.7	47	0.070	2.81	15
36.09	22.3	14.4	-	23.0	0.5	36.6	2.5	4	clayy SILT to silty CLAY	115	2.0	7	11	4	-	-	1.5	4.3	50	0.070	2.86	15
36.26	18.9	12.2	-	19.7	0.3	42.8	2.0	4	clayy SILT to silty CLAY	115	2.0	6	9	4	-	-	1.2	3.6	50	0.070	2.87	15
36.42	17.2	11.1	-	18.2	0.3	46.5	1.9	4	clayy SILT to silty CLAY	115	2.0	6	9	3	-	-	1.1	3.2	52	0.070	2.90	15
36.58	14.5	9.3	-	15.4	0.4	47.6	3.2	3	silty CLAY to CLAY	115	1.5	6	10	3	-	-	0.9	2.6	65	0.005	3.09	15
36.75	14.4	9.2	-	15.5	0.8	54.8	6.5	3	silty CLAY to CLAY	115	1.5	6	10	4	-	-	0.9	2.6	80	0.005	3.28	15
36.91	18.4	11.8	-	19.6	1.0	61.2	6.1	3	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.2	3.4	71	0.005	3.17	15
37.08	31.4	20.0	-	32.3	1.2	42.1	4.2	3	silty CLAY to CLAY	115	1.5	13	21	6	-	-	2.1	6.1	50	0.005	2.87	15
37.24	45.8	35.4	89.2	46.2	0.8	18.8	1.9	5	silty SAND to sandy SILT	120	3.0	12	15	8	33	33	-	-	28	0.200	2.45	16
37.40	32.4	20.5	-	32.6	0.7	8.9	2.3	4	clayy SILT to silty CLAY	115	2.0	10	16	5	-	-	2.2	6.3	40	0.070	2.70	15
37.57	19.2	12.1	-	19.6	0.7	20.7	4.1	3	silty CLAY to CLAY	115	1.5	8	13	4	-	-	1.2	3.5	62	0.005	3.05	15
37.73	18.0	11.3	-	18.9	0.8	44.3	4.9	3	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.2	3.3	67	0.005	3.12	15
37.90	22.5	14.1	-	23.5	0.7	48.9	3.3	3	silty CLAY to CLAY	115	1.5	9	15	4	-	-	1.5	4.2	54	0.005	2.94	15
38.06	25.2	15.8	-	26.2	0.6	50.7	2.5	4	clayy SILT to silty CLAY	115	2.0	8	13	5	-	-	1.7	4.7	47	0.070	2.82	15
38.22	18.2	11.4	-	19.1	0.5	45.3	3.1	3	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.2	3.3	59	0.005	3.00	15
38.39	15.8	9.9	-	16.9	0.4	53.8	2.9	3	silty CLAY to CLAY	115	1.5	7	11	3	-	-	1.0	2.8	62	0.005	3.05	15
38.55	15.0	9.3	-	16.1	0.4	58.3	3.2	3	silty CLAY to CLAY	115	1.5	6	10	3	-	-	0.9	2.6	65	0.005	3.10	15
38.72	14.7	9.1	-	16.0	0.4	61.7	3.3	3	silty CLAY to CLAY	115	1.5	6	10	3	-	-	0.9	2.5	66	0.005	3.11	15
38.88	14.7	9.1	-	16.0	0.4	62.7	3.2	3	silty CLAY to CLAY	115	1.5	6	10	3	-	-	0.9	2.5	66	0.005	3.11	15
39.04	14.6	9.0	-	15.9	0.4	63.6	3.3	3	silty CLAY to CLAY	115	1.5	6	10	3	-	-	0.9	2.5	67	0.005	3.12	15
39.21	14.8	9.1	-	16.1	0.4	66.6	3.4	3	silty CLAY to CLAY	115	1.5	6	10	3	-	-	0.9	2.5	67	0.005	3.12	15
39.37	15.6	9.6	-	16.9	0.8	66.9	6.1	3	silty CLAY to CLAY	115	1.5	6	10	4	-	-	1.0	2.7	77	0.005	3.25	15
39.54	17.4	10.6	-	18.9	1.6	74.9	9.9	3	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.1	3.0	85	0.005	3.35	15
39.70	34.8	21.2	-	36.4	2.1	82.4	6.5	3	silty CLAY to CLAY	115	1.5	14	23	7	-	-	2.3	6.5	57	0.005	2.97	15
39.86	62.9	38.2	-	63.9	2.8	47.7	4.6	4	clayy SILT to silty CLAY	115	2.0	19	31	10	-	-	4.3	9.9	39	0.070	2.68	15
40.03	60.0	36.4	-	60.1	2.6	5.6	4.5	4	clayy SILT to silty CLAY	115	2.0	18	30	10	-	-	4.1	9.9	40	0.070	2.69	15
40.19	48.4	29.2	-	48.4	2.1	0.1	4.5	3	silty CLAY to CLAY	115	1.5	19	32	8	-	-	3.3	9.2	44	0.005	2.76	15
40.36	39.2	23.6	-	39.2	1.6	3.1	4.4	3	silty CLAY to CLAY	115	1.5	16	26	7	-	-	2.7	7.3	47	0.005	2.83	15
40.52	34.7	20.9	-	34.8	1.5	5.7	4.6	3	silty CLAY to CLAY	115	1.5	14	23	6	-	-	2.3	6.4	51	0.005	2.88	15
40.68	29.7	17.8	-	29.9	1.3	8.1	4.9	3	silty CLAY to CLAY	115	1.5	12	20	6	-	-	2.0	5.4	55	0.005	2.95	15
40.85	29.1	17.4	-	29.3	1.7	12.3	6.5	3	silty CLAY to CLAY	115	1.5	12	19	6	-	-	1.9	5.3	62	0.005	3.04	15
41.01	32.5	19.4	-	32.8	2.1	15.8	6.9	3	silty CLAY to CLAY	115	1.5	13	22	6	-	-	2.2	5.9	60	0.005	3.02	15
41.18	39.3	23.4	-	39.7	2.3	22.7	6.1	3	silty CLAY to CLAY	115	1.5	16	26	7	-	-	2.7	7.2	54	0.005	2.93	15
41.34	105.4	78.9	141.6	105.6	2.5	8.2	2.4	5	silty SAND to sandy SILT	120	3.0	26	35	17	59	38	-	-	21	0.200	2.25	16
41.50	112.5	84.0	150.9	112.5	2.8	-0.3	2.5	5	silty SAND to sandy SILT	120	3.0	28	37	18	61	38	-	-	21	0.200	2.25	16
41.67	80.6	60.1	142.5	80.5	2.4	-2.5	3.1	4	clayy SILT to silty CLAY	115	2.0	30	40	14	-	-	5.6	9.9	27	0.070	2.41	15
41.83	55.7	32.8	-	55.7	2.3	-1.7	4.4	3	silty CLAY to CLAY	115	1.5	22	37	9	-	-	3.8	9.9	41	0.005	2.71	15
42.00	39.4	23.1	-	39.4	2.4	1.8	6.5	3	silty CLAY to CLAY	115	1.5	15	26	7	-	-	2.7	7.2	55	0.005	2.95	15
42.16	51.0	29.9	-	51.2	1.6	6.3	3.4	4	clayy SILT to silty CLAY	115	2.0	15	26	8	-	-	3.5	9.4	39	0.070	2.67	15
42.32	38.3	22.3	-	38.3	1.1	1.7	3.1	4	clayy SILT to silty CLAY	115	2.0	11	19	6	-	-	2.6	6.9	43	0.070	2.75	15
42.49	20.8	12.1	-	20.9	0.8	3.1	4.6	3	silty CLAY to CLAY	115	1.5	8	14	4	-	-	1.4	3.5	64	0.005	3.08	15
42.65	20.4	11.8	-	20.5	1.1	7.6	6.1	3	silty CLAY to CLAY	115	1.5	8	14	4	-	-	1.3	3.4	71	0.005	3.17	15
42.82	24.5	14.2	-	24.7	1.2	10.1	5.7	3	silty CLAY to CLAY	115	1.5	9	16	5	-	-	1.6	4.2	64	0.005	3.08	15
42.98	40.2	23.2	-	40.4	1.3	14.2	3.6	4	clayy SILT to silty CLAY	115	2.0	12	20	6	-	-	2.7	7.2	44	0.070	2.77	15
43.15	34.9	20.1	-	35.0	1.1	6.2	3.4	3	silty CLAY to CLAY	115	1.5	13	23	6	-	-	2.3	6.2	47	0.005	2.81	15
43.31	21.8	12.6	-	21.9	0.8	5.9	4.1	3	silty CLAY to CLAY	115	1.5	8	15	4	-	-	1.4	3.7	61	0.005	3.04	15
43.47	18.1	10.4	-	18.3	0.6	12.7	4.2	3	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.2	2.9	67	0.005	3.12	15
43.64	18.2	10.4	-	18.5	0.6	17.0	4.2	3	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.2	2.9	67	0.005	3.12	15
43.80	18.7	10.7	-	19.1	0.5	21.1	3.4	3	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.2	3.0	62	0.005	3.05	15
43.97	18.8	10.7	-	19.3	0.5	23.6	3.1	3	silty CLAY to CLAY	115	1.5	7	13	3	-	-	1.2	3.1	61	0.005	3.03	15
44.13	17.4	9.9	-	17.9	0.5	25.7	3.2	3	silty CLAY to CLAY	115	1.5	7	12	3	-	-	1.1	2.8	64	0.005	3.07	15
44.29	16.6	9.4	-	17.4	0.6	37.8	4.0	3	silty CLAY to CLAY	115	1.5	6	11	3	-	-	1.1	2.6	69	0.005	3.15	15
44.46	17.5	9.9	-	18.3	0.8	43.5	5.6	3	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.1	2.8	74	0.005	3.22	15
44.62	20.0	11.3	-	21.0	0.7	51.0	3.9	3	silty CLAY to CLAY	115	1.5	8	13	4	-	-	1.3	3.2	63	0.005	3.07	15
44.79	47.4	34.6	96.8	48.9	1.0	76.0	2.2	4	clayy SILT to silty CLAY	115	2.0	17	24	8	-	-	3.2	8.3	31	0.070	2.51	15
44.95	107.7	78.4	99.9	107.9	1.0	11.5	0.9	6	clean SAND to silty SAND	125	5.0	16	22	15	59	38	-	-	12	0.350	1.98	16
45.11	133.5	97.0	115.8	133.5	1.2	-0.3	0.9	6	clean SAND to silty SAND	125	5.0	19	27	18	66	39	-	-	11	0.350	1.91	16
45.28	140.0	101.6	139.1	139.9	2.2	-3.5	1.6	5	silty SAND to sandy SILT	120	3.0	34	47	20	68	39	-	-	14	0.200	2.05	16
45.44	112.3	81.4	145.9	112.3	2.7	-3.3	2.4	5	silty SAND to sandy SILT	120	3.0	27	37	18	60	38	-	-	21	0.200	2.25	16
45.61	71.9	39.9	-	71.8	2.7	-2.9	3.8	4	clayy SILT to silty CLAY	115	2.0	20	36	10	-	-	5.0	9.9	36	0.070	2.61	15
45.77	47.0	26.1	-	47.0	2.5	-1.2	5.6	3	silty CLAY to CLAY	115	1.5	17	31	8	-	-	3.2	8.1	50	0.005	2.86	15
45.93	47.0	26.0	-	47.1	1.7	1.7	3.9	4	clayy SILT to silty CLAY	115	2.0	13	24	7	-	-	3.2	8.1	44	0.070	2.76	15
46.10	88.4	63.8	94.7	88.5	1.0	3.2	1.2	5	silty SAND to sandy SILT	120	3.0	21	29	13	52	36	-	-	16	0.200	2.12	16
46.26	126.8	91.3	98.6	126.8	0.6	-0.1	0.5	6	clean SAND to silty SAND	125	5.0	18	25	16	64	39	-	-	7	0.350	1.76	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR - -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
46.43	136.2	98.0	102.2	136.2	0.6	-0.5	0.4	6	clean SAND to silty SAND	125	5.0	20	27	17	66	39	-	-	6	0.350	1.71	16
46.59	140.1	100.7	101.8	140.1	0.5	0.1	0.3	6	clean SAND to silty SAND	125	5.0	20	28	17	67	39	-	-	5	0.350	1.66	16
46.75	138.6	99.4	100.7	138.6	0.5	0.0	0.3	6	clean SAND to silty SAND	125	5.0	20	28	17	67	39	-	-	5	0.350	1.66	16
46.92	130.1	93.2	103.7	130.1	0.8	-0.5	0.6	6	clean SAND to silty SAND	125	5.0	19	26	17	65	39	-	-	8	0.350	1.81	16
47.08	113.5	81.1	119.9	113.4	1.7	-0.8	1.6	5	silty SAND to sandy SILT	120	3.0	27	38	17	60	38	-	-	16	0.200	2.11	16
47.25	75.6	54.0	104.8	75.6	1.3	-0.7	1.8	5	silty SAND to sandy SILT	120	3.0	18	25	12	47	35	-	-	22	0.200	2.30	16
47.41	43.9	23.7	-	43.9	1.0	0.1	2.5	4	clayy SILT to silty CLAY	115	2.0	12	22	6	-	-	3.0	7.3	39	0.070	2.67	15
47.57	24.2	13.0	-	24.7	0.9	22.7	4.3	3	silty CLAY to CLAY	115	1.5	9	16	4	-	-	1.6	3.8	61	0.005	3.04	15
47.74	21.6	11.6	-	22.4	1.0	38.3	5.2	3	silty CLAY to CLAY	115	1.5	8	14	4	-	-	1.4	3.3	68	0.005	3.14	15
47.90	34.9	18.7	-	35.9	1.2	51.5	3.6	3	silty CLAY to CLAY	115	1.5	12	23	5	-	-	2.3	5.7	49	0.005	2.86	15
48.07	41.4	22.1	-	41.7	1.1	11.4	2.8	4	clayy SILT to silty CLAY	115	2.0	11	21	6	-	-	2.8	6.8	42	0.070	2.73	15
48.23	30.0	16.0	-	30.1	1.2	6.9	4.3	3	silty CLAY to CLAY	115	1.5	11	20	5	-	-	2.0	4.8	56	0.005	2.96	15
48.39	21.8	11.6	-	22.0	1.2	12.8	6.3	3	silty CLAY to CLAY	115	1.5	8	15	4	-	-	1.4	3.3	72	0.005	3.19	15
48.56	25.4	13.5	-	25.7	1.1	16.7	4.7	3	silty CLAY to CLAY	115	1.5	9	17	4	-	-	1.7	3.9	62	0.005	3.05	15
48.72	33.4	17.7	-	33.7	1.2	17.9	4.0	3	silty CLAY to CLAY	115	1.5	12	22	5	-	-	2.2	5.3	52	0.005	2.90	15
48.89	39.2	20.7	-	39.5	1.1	12.0	3.0	4	clayy SILT to silty CLAY	115	2.0	10	20	6	-	-	2.6	6.3	44	0.070	2.77	15
49.05	34.1	18.0	-	34.1	1.0	2.7	3.1	3	silty CLAY to CLAY	115	1.5	12	23	5	-	-	2.3	5.4	48	0.005	2.83	15
49.22	26.5	13.9	-	26.6	1.1	3.9	4.8	3	silty CLAY to CLAY	115	1.5	9	18	5	-	-	1.7	4.1	62	0.005	3.04	15
49.38	21.7	11.4	-	21.9	1.1	7.3	5.8	3	silty CLAY to CLAY	115	1.5	8	14	4	-	-	1.4	3.3	71	0.005	3.17	15
49.54	42.3	22.1	-	42.5	1.0	13.9	2.5	4	clayy SILT to silty CLAY	115	2.0	11	21	6	-	-	2.9	6.8	40	0.070	2.69	15
49.71	96.2	67.6	98.7	96.3	1.1	4.3	1.2	5	silty SAND to sandy SILT	120	3.0	23	32	14	54	37	-	-	16	0.200	2.10	16
49.87	128.4	90.1	108.5	128.5	1.1	5.7	0.9	6	clean SAND to silty SAND	125	5.0	18	26	17	64	38	-	-	11	0.350	1.92	16
50.04	137.7	96.5	115.6	137.8	1.3	3.5	0.9	6	clean SAND to silty SAND	125	5.0	19	28	18	66	39	-	-	11	0.350	1.91	16
50.20	165.3	115.6	126.5	165.4	1.2	8.9	0.7	6	clean SAND to silty SAND	125	5.0	23	33	21	72	40	-	-	8	0.350	1.78	16

* Indicates the parameter was calculated using the normalized point stress.
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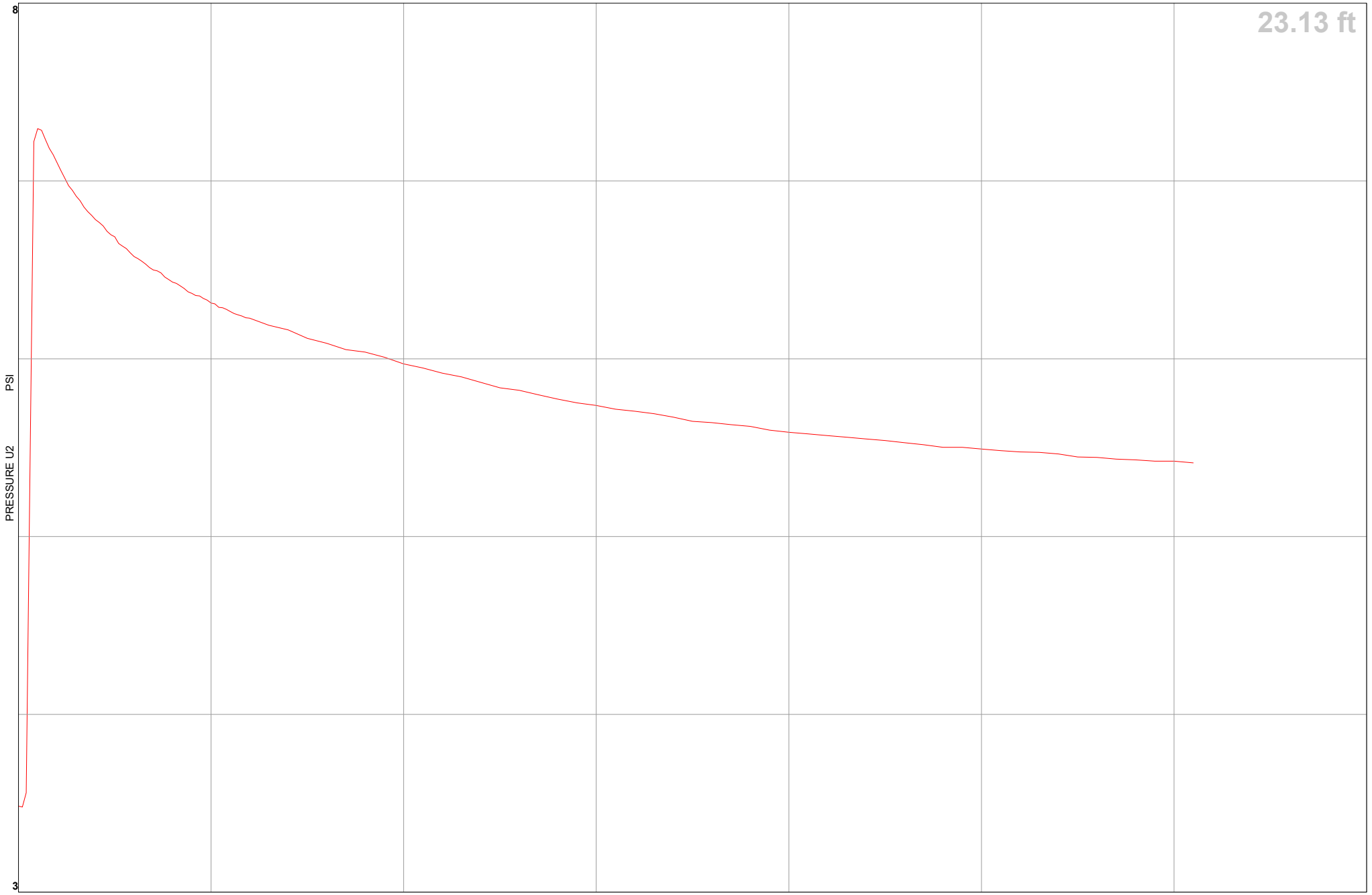
A Professional Engineer must determine their suitability for analysis and design.

BAGG Engineers

Location	Corporation Yard Improvements Projec	Operator	JM-IY		
Job Number	HALFM-21-01	Cone Number	DPG1556	GPS	
Hole Number	CPT-01	Date and Time	10/8/2021 2:00:06 PM		
Equilized Pressure	5.4	EST GW Depth During Test	10.6		

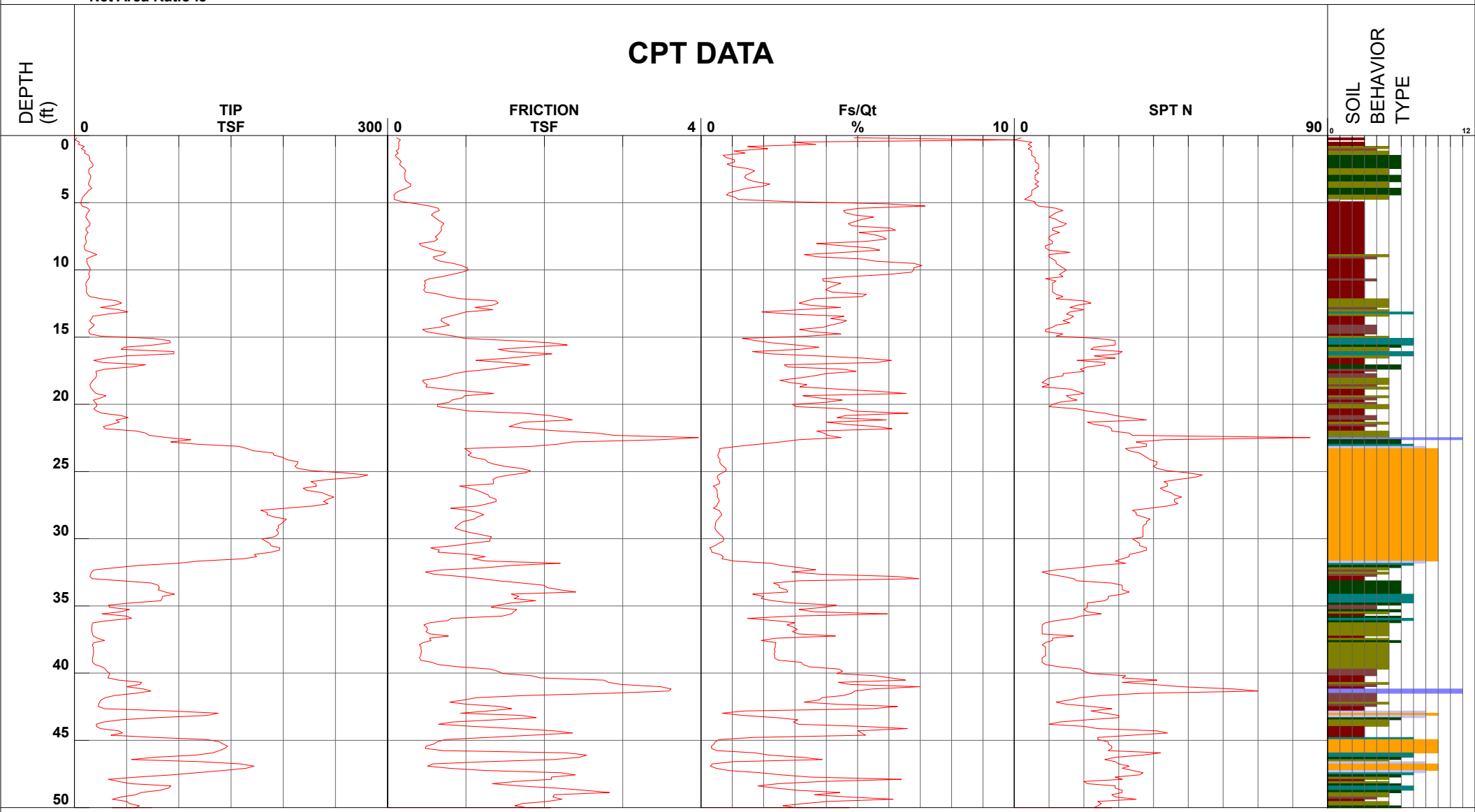


BAGG Engineers

Project	Corporation Yard Improvements Project	Operator	JM-IY	Filename	SDF(360).cpt
Job Number	HALFM-21-01	Cone Number	DPG1556	GPS	
Hole Number	CPT-02	Date and Time	10/8/2021 3:02:21 PM	Maximum Depth	50.69 ft
EST GW Depth During Test		18.30 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Cone Size 15cm squared

S*Soil behavior type and SPT based on data from UBC-1983

Corporation Yard Improvements Project

Project ID: BAGGS Engineering
Data File: SDF(360).cpt
CPT Date: 10/8/2021 3:02:21 PM
GW During Test: 18 ft

Sounding ID: CPT-02
Project No: HALFM-21-01
Cone/Rig: DPG1556

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
0.33	1.1	0.9	-	1.1	0.2	1.3	9.9	2	Organic SOILS - Peats	100	1.0	1	1	1	-	-	0.1	9.9	95	0.100	4.16	10
0.49	4.9	7.8	-	4.9	0.1	1.1	2.9	3	silty CLAY to CLAY	115	1.5	5	3	3	-	-	0.3	9.9	64	0.005	3.08	15
0.66	3.9	6.2	-	3.9	0.1	0.9	3.7	3	silty CLAY to CLAY	115	1.5	4	3	2	-	-	0.3	9.9	75	0.005	3.22	15
0.82	9.5	15.2	-	9.5	0.1	1.1	1.5	4	clayy SILT to silty CLAY	115	2.0	8	5	4	-	-	0.7	9.9	39	0.070	2.68	15
0.98	6.7	10.7	-	6.7	0.1	1.1	2.1	4	clayy SILT to silty CLAY	115	2.0	5	3	3	-	-	0.5	9.9	52	0.070	2.89	15
1.15	10.4	16.6	52.7	10.4	0.1	1.1	1.1	4	clayy SILT to silty CLAY	115	2.0	8	5	4	-	-	0.7	9.9	34	0.070	2.57	15
1.31	9.7	15.5	-	9.7	0.1	1.8	1.4	4	clayy SILT to silty CLAY	115	2.0	8	5	4	-	-	0.7	9.9	38	0.070	2.66	15
1.48	13.6	21.8	49.4	13.6	0.1	1.7	0.7	5	silty SAND to sandy SILT	120	3.0	7	5	5	17	43	-	-	26	0.200	2.39	16
1.64	14.8	23.7	53.0	14.8	0.1	1.6	0.8	5	silty SAND to sandy SILT	120	3.0	8	5	5	19	43	-	-	26	0.200	2.38	16
1.80	14.5	23.2	58.7	14.5	0.2	2.0	1.1	5	silty SAND to sandy SILT	120	3.0	8	5	6	19	42	-	-	28	0.200	2.45	16
1.97	16.1	25.8	61.0	16.1	0.2	1.7	1.1	5	silty SAND to sandy SILT	120	3.0	9	5	6	22	42	-	-	27	0.200	2.41	16
2.13	17.8	28.5	57.6	17.8	0.1	2.0	0.8	5	silty SAND to sandy SILT	120	3.0	10	6	6	26	42	-	-	23	0.200	2.32	16
2.30	17.6	28.3	61.4	17.7	0.2	1.9	1.0	5	silty SAND to sandy SILT	120	3.0	9	6	6	25	42	-	-	25	0.200	2.36	16
2.46	14.2	22.8	67.5	14.3	0.2	1.6	1.5	5	silty SAND to sandy SILT	120	3.0	8	5	6	18	41	-	-	32	0.200	2.54	16
2.62	13.5	21.7	70.7	13.6	0.2	1.5	1.7	4	clayy SILT to silty CLAY	115	2.0	11	7	6	-	-	0.9	9.9	35	0.070	2.59	15
2.79	13.8	22.2	68.6	13.9	0.2	1.7	1.6	4	clayy SILT to silty CLAY	115	2.0	11	7	6	-	-	1.0	9.9	33	0.070	2.56	15
2.95	15.4	24.8	68.2	15.5	0.2	2.0	1.4	5	silty SAND to sandy SILT	120	3.0	8	5	6	21	40	-	-	31	0.200	2.50	16
3.12	15.7	25.1	67.8	15.7	0.2	1.8	1.4	5	silty SAND to sandy SILT	120	3.0	8	5	6	21	40	-	-	30	0.200	2.49	16
3.28	14.9	23.8	69.0	14.9	0.2	1.5	1.5	5	silty SAND to sandy SILT	120	3.0	8	5	6	20	39	-	-	32	0.200	2.52	16
3.45	14.2	22.7	72.3	14.2	0.2	1.5	1.8	4	clayy SILT to silty CLAY	115	2.0	11	7	6	-	-	1.0	9.9	34	0.070	2.58	15
3.61	13.3	21.4	-	13.4	0.3	1.6	2.2	4	clayy SILT to silty CLAY	115	2.0	11	7	6	-	-	0.9	9.9	38	0.070	2.66	15
3.77	14.9	23.9	78.4	14.9	0.3	1.9	2.0	4	clayy SILT to silty CLAY	115	2.0	12	7	6	-	-	1.0	9.9	35	0.070	2.59	15
3.94	16.6	26.6	70.2	16.6	0.2	1.6	1.5	5	silty SAND to sandy SILT	120	3.0	9	6	6	23	39	-	-	30	0.200	2.47	16
4.10	13.5	21.6	60.2	13.5	0.2	1.6	1.2	5	silty SAND to sandy SILT	120	3.0	7	4	5	16	37	-	-	31	0.200	2.50	16
4.27	11.8	18.9	52.1	11.8	0.1	1.5	0.9	5	silty SAND to sandy SILT	120	3.0	6	4	5	12	36	-	-	31	0.200	2.50	16
4.43	9.7	15.6	48.1	9.7	0.1	1.5	0.8	5	silty SAND to sandy SILT	120	3.0	5	3	4	6	35	-	-	33	0.200	2.56	16
4.59	7.9	12.7	-	7.9	0.1	1.2	1.1	4	clayy SILT to silty CLAY	115	2.0	6	4	3	-	-	0.5	9.4	40	0.070	2.70	15
4.76	7.1	11.4	-	7.2	0.1	1.1	1.2	4	clayy SILT to silty CLAY	115	2.0	6	4	3	-	-	0.5	8.2	44	0.070	2.76	15
4.92	6.5	10.4	-	6.5	0.2	1.1	3.0	3	silty CLAY to CLAY	115	1.5	7	4	3	-	-	0.4	7.1	58	0.005	3.00	15
5.09	6.3	10.1	-	6.3	0.4	1.2	6.2	3	silty CLAY to CLAY	115	1.5	7	4	4	-	-	0.4	6.7	73	0.005	3.20	15
5.25	7.5	12.0	-	7.5	0.5	1.2	7.5	3	silty CLAY to CLAY	115	1.5	8	5	4	-	-	0.5	7.8	72	0.005	3.19	15
5.41	12.8	20.5	-	12.8	0.6	1.4	5.2	3	silty CLAY to CLAY	115	1.5	14	9	6	-	-	0.9	9.9	52	0.005	2.91	15
5.58	14.5	23.3	-	14.5	0.7	1.8	4.7	3	silty CLAY to CLAY	115	1.5	16	10	7	-	-	1.0	9.9	48	0.005	2.83	15
5.74	12.8	20.5	-	12.8	0.6	2.2	4.7	3	silty CLAY to CLAY	115	1.5	14	9	6	-	-	0.9	9.9	51	0.005	2.88	15
5.91	11.4	18.3	-	11.5	0.6	2.7	5.0	3	silty CLAY to CLAY	115	1.5	12	8	6	-	-	0.8	9.9	54	0.005	2.94	15
6.07	10.8	17.3	-	10.9	0.6	3.7	5.7	3	silty CLAY to CLAY	115	1.5	12	7	5	-	-	0.7	9.8	58	0.005	2.99	15
6.23	12.3	19.7	-	12.4	0.6	5.1	5.3	3	silty CLAY to CLAY	115	1.5	13	8	6	-	-	0.8	9.9	54	0.005	2.93	15
6.40	13.8	22.1	-	13.9	0.7	5.7	5.1	3	silty CLAY to CLAY	115	1.5	15	9	7	-	-	0.9	9.9	50	0.005	2.88	15
6.56	15.3	24.5	-	15.4	0.7	6.1	4.8	3	silty CLAY to CLAY	115	1.5	16	10	7	-	-	1.1	9.9	48	0.005	2.83	15
6.73	14.3	22.9	-	14.4	0.7	3.3	5.0	3	silty CLAY to CLAY	115	1.5	15	10	7	-	-	1.0	9.9	49	0.005	2.86	15
6.89	11.2	18.0	-	11.3	0.7	3.2	6.3	3	silty CLAY to CLAY	115	1.5	12	7	6	-	-	0.8	9.0	59	0.005	3.01	15
7.05	11.1	17.8	-	11.2	0.7	4.4	6.4	3	silty CLAY to CLAY	115	1.5	12	7	6	-	-	0.8	8.6	60	0.005	3.02	15
7.22	13.2	21.1	-	13.3	0.7	5.4	5.2	3	silty CLAY to CLAY	115	1.5	14	9	6	-	-	0.9	9.9	52	0.005	2.90	15
7.38	11.6	18.6	-	11.7	0.6	4.3	5.7	3	silty CLAY to CLAY	115	1.5	12	8	6	-	-	0.8	8.6	57	0.005	2.97	15
7.55	10.5	16.8	-	10.6	0.6	4.9	6.1	3	silty CLAY to CLAY	115	1.5	11	7	5	-	-	0.7	7.6	60	0.005	3.02	15
7.71	10.8	17.3	-	10.9	0.6	6.2	6.2	3	silty CLAY to CLAY	115	1.5	12	7	6	-	-	0.7	7.6	60	0.005	3.02	15
7.87	11.3	18.1	-	11.4	0.6	6.4	5.5	3	silty CLAY to CLAY	115	1.5	12	8	6	-	-	0.8	7.9	56	0.005	2.97	15
8.04	11.0	17.6	-	11.1	0.4	6.6	3.9	3	silty CLAY to CLAY	115	1.5	12	7	5	-	-	0.7	7.5	51	0.005	2.88	15
8.20	9.5	15.2	-	9.6	0.4	7.3	4.7	3	silty CLAY to CLAY	115	1.5	10	6	5	-	-	0.6	6.2	58	0.005	2.99	15
8.37	9.5	15.2	-	9.7	0.5	8.2	5.7	3	silty CLAY to CLAY	115	1.5	10	6	5	-	-	0.6	6.1	61	0.005	3.04	15
8.53	10.4	16.7	-	10.6	0.6	8.8	6.0	3	silty CLAY to CLAY	115	1.5	11	7	5	-	-	0.7	6.6	60	0.005	3.02	15
8.69	16.3	26.2	-	16.5	0.7	8.9	4.7	3	silty CLAY to CLAY	115	1.5	17	11	7	-	-	1.1	9.9	46	0.005	2.80	15
8.86	21.4	34.4	-	21.6	0.7	6.4	3.4	4	clayy SILT to silty CLAY	115	2.0	17	11	9	-	-	1.5	9.9	36	0.070	2.62	15
9.02	15.7	25.2	-	15.8	0.6	6.4	3.9	4	clayy SILT to silty CLAY	115	2.0	13	8	7	-	-	1.1	9.6	44	0.070	2.76	15
9.19	11.7	18.7	-	11.8	0.6	7.4	5.4	3	silty CLAY to CLAY	115	1.5	12	8	6	-	-	0.8	6.9	55	0.005	2.95	15
9.35	12.0	19.3	-	12.2	0.7	8.2	5.8	3	silty CLAY to CLAY	115	1.5	13	8	6	-	-	0.8	7.0	56	0.005	2.97	15
9.51	12.3	19.8	-	12.5	0.8	8.2	7.1	3	silty CLAY to CLAY	115	1.5	13	8	6	-	-	0.8	7.1	60	0.005	3.02	15
9.68	13.4	21.4	-	13.5	0.9	9.3	7.4	3	silty CLAY to CLAY	115	1.5	14	9	7	-	-	0.9	7.5	59	0.005	3.00	15
9.84	14.9	23.9	-	15.1	1.0	10.2	7.1	3	silty CLAY to CLAY	115	1.5	16	10	7	-	-	1.0	8.3	55	0.005	2.95	15
10.01	15.2	24.3	-	15.4	1.0	9.8	7.1	3	silty CLAY to CLAY	115	1.5	16	10	8	-	-	1.0	8.3	55	0.005	2.95	15
10.17	14.1	22.7	-	14.3	1.0	9.9	7.0	3	silty CLAY to CLAY	115	1.5	15	9	7	-	-	1.0	7.6	56	0.005	2.97	15
10.34	13.7	22.0	-	13.9	0.8	9.5	6.3	3	silty CLAY to CLAY	115	1.5	15	9	7	-	-	0.9	7.3	55	0.005	2.94	15
10.50	14.7	23.5	-	14.9	0.7	10.4	4.9	3	silty CLAY to CLAY	115	1.5	16	10	7	-	-	1.0	7.6	49	0.005	2.85	15
10.66	13.7	22.0	-	13.9	0.5	10.1	4.1	3	silty CLAY to CLAY	115	1.5	15	9	6	-	-	0.9	7.0	47	0.005	2.82	15
10.83	12.0	19.2	-	12.2	0.5	10.2	4.1	3	silty CLAY to CLAY	115	1.5	13	8	6	-	-	0.8	6.0	50	0.005	2.87	15
10.99	10.9	17.1	-	11.1	0.5	10.2	4.7	3	silty CLAY to CLAY	115	1.5	11	7	5	-	-	0.7	5.3	55	0.005	2.95	15
11.16	10.9	16.9	-	11.1	0.5	10.3	4.5	3	silty CLAY to CLAY	115	1.5	11	7	5	-	-	0.7	5.2	55	0.005	2.94	15
11.32	11.7	17.9	-	11.9	0.5	10.6	4.3	3	silty CLAY to CLAY	115	1.5	12	8	5	-	-	0.8	5.6	53	0.005	2.91	15
11.48	11.5	17.4	-	11.8	0.5	11.0	4.2	3	silty CLAY to CLAY	115	1.5	12	8	5	-	-	0.8	5.4	53	0.005	2.91	15
11.65	11.5	17.1	-	11.7	0.5	11.1	4.4	3	silty CLAY to CLAY	115	1.5	11	8	5	-	-	0.8	5.3	54	0.005	2.93	15
11.81	12.5	18.3	-	12.7	0.7	12.1	5.6	3	silty CLAY to CLAY	115	1.5	12	8	6	-	-	0.8	5.7	57	0.005	2.98	15
11.98	14.8	21.4	-	15.0	0.8	11.9	5.4	3	silty CLAY to CLAY	115	1.5	14	10	6	-	-	1.0	6.7	53	0.005	2.91	15
12.14	25.4	36.3	-	25.7	0.9	12.5	3.7	4	clayy SILT to silty CLAY	115	2.0	18	13	9	-	-	1.7	9.9	37	0.070	2.63	15
12.30	40.8	47.1	134.8	41.0	1.4	7.4	3.4	4	clayy SILT to silty CLAY	115	2.0	24	20	12	-	-	2.8	9.9	32	0.070	2.52	15
12.47	45.0	51.5	134.2	45.1	1.4	4.9	3.2	4	clayy SILT to silty CLAY	115	2.0	26	23	12	-	-	3.1	9.9	29	0.070	2.47	15
12.63	38.2	43.5	132.9	38.3	1.3	5.3	3.6	4	clayy SILT to silty CLAY	115	2.0	22	19	11	-	-	2.6	9.9	33	0.070	2.55	15
12.80	25.0	33.9	-	25.2	1.1	8.1	4.6	3	silty CLAY to CLAY	115	1.5	23	17	9	-	-	1.7	9.9	41	0.005	2.71	15
12.96	42.5	47.7	130.7	42.7	1.3	10.6	3.2	4	clayy SILT to silty CLAY	115	2.0	24	21	12	-	-	3.0	9.9	30	0.070	2.49	15
13.12	51.3	57.2	110.0	51.4	1.0	6.9	2.0	5	silty SAND to sandy SILT	120	3.0	19	17	13	49	38	-	-	22	0.200	2.29	16
13.29	31.8	35.2	109.7	31.9	0.9	6.5	2.9	4	clayy SILT to silty CLAY	115	2.0	18	16	9	-	-	2.2	9.9	34	0.070	2.56	15
13.45	17.3	22.3	-	17.6	0.8	12.3	4.8	3	silty CLAY to CLAY	115	1.5	15	12	7	-	-	1.2	7.0	50	0.005	2.86	15
13.62	16.7	21.2	-	16.9	0.7	11.7	4.3	3	silty CLAY to CLAY	115	1.5	14	11	6	-	-	1.1	6.7	49	0.005	2.85	15
13.78	14.6	18.4	-	14.9	0.7	12.5	4.9	3	silty CLAY to CLAY	115	1.5	12	10	6	-	-	1.0	5.7	54	0.005	2.94	15
13.94	16.3	20.2	-	16.5	0.7	13.7	4.7	3	silty CLAY to CLAY	115	1.5	13	11	6	-	-	1.1	6.3	51	0.005	2.89	15
14.11	19.1	23.4	-	19.3	0.8	13.6	4.3	3	silty CLAY to CLAY	115	1.5	16	13	7	-	-	1.3	7.4	47	0.005	2.82	15
14.27	16.8	20.3	-	17.0	0.7	12.9	4.1	3	silty CLAY to CLAY	115	1.5	14	11	6	-	-	1.1	6.4	49	0.005	2.85	15
14.44	14.3	17.1	-	14.5	0.4	13.1	3.3	3	silty CLAY to CLAY	115	1.5	11	10	5	-	-	0.9	5.3	49	0.005	2.86	15
14.60	13.8	16.4	-	14.1	0.5	14.0	3.8	3	silty CLAY to CLAY	115	1.5	11	9	5	-	-	0.9	5.1	52	0.005	2.91	15
14.76	14.8	17.4	-	15.1	0.7	14.0	4.7	3	silty CLAY to CLAY	115	1.5	12	10	5	-	-	1.0	5.4	55	0.005	2.95	15
14.93	25.3	29.4	-	25.6	0.9	15.9	3.5	4	clayy SILT to silty CLAY	115	2.0	15	13	8	-	-	1.7	9.4	39	0.070	2.68	15
15.09	74.5	77.5	110.1	74.7	1.0	10.9	1.3	5	silty SAND to sandy SILT	120	3.0	26	25	16	59	40	-	-	15	0.200	2.08	16
15.26	91.1	94.3	136.8	91.3	1.6	10.5	1.8	5	silty SAND to sandy SILT	120	3.0	31	30	19	65	41	-	-	16	0.200	2.10	16
15.42	91.8	94.5	152.0	92.0	2.1	9.9	2.3	5	silty SAND to sandy SILT	120	3.0	31	31	20	65	41	-	-	18	0.200	2.18	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Middle Earth Geo Testing

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
15.58	75.6	77.4	158.6	75.8	2.3	7.5	3.1	5	silty SAND to sandy SILT	120	3.0	26	25	17	59	40	-	-	24	0.200	2.33	16
15.75	48.0	48.9	145.8	48.2	1.8	10.0	3.8	4	clayy SILT to silty CLAY	115	2.0	24	24	12	-	-	3.3	9.9	33	0.070	2.54	15
15.91	44.7	45.2	128.1	45.0	1.4	15.0	3.2	4	clayy SILT to silty CLAY	115	2.0	23	22	11	-	-	3.1	9.9	31	0.070	2.51	15
16.08	95.4	96.1	135.4	95.8	1.6	22.7	1.7	5	silty SAND to sandy SILT	120	3.0	32	32	19	66	41	-	-	15	0.200	2.07	16
16.24	95.3	95.5	151.4	95.5	2.1	9.1	2.2	5	silty SAND to sandy SILT	120	3.0	32	32	20	65	41	-	-	18	0.200	2.17	16
16.40	48.8	48.6	145.0	48.9	1.8	5.7	3.8	4	clayy SILT to silty CLAY	115	2.0	24	24	12	-	-	3.4	9.9	33	0.070	2.54	15
16.57	29.7	31.0	-	29.9	1.5	8.7	5.4	3	silty CLAY to CLAY	115	1.5	21	20	9	-	-	2.0	9.9	45	0.005	2.79	15
16.73	18.5	19.2	-	18.8	1.1	12.0	6.4	3	silty CLAY to CLAY	115	1.5	13	12	6	-	-	1.2	6.0	58	0.005	3.00	15
16.90	26.9	27.6	-	27.3	1.5	19.4	5.8	3	silty CLAY to CLAY	115	1.5	18	18	8	-	-	1.8	8.8	49	0.005	2.85	15
17.06	68.3	66.8	138.0	68.6	1.8	15.6	2.7	5	silty SAND to sandy SILT	120	3.0	22	23	15	54	38	-	-	24	0.200	2.34	16
17.23	54.4	52.9	127.6	54.5	1.5	9.3	2.8	4	clayy SILT to silty CLAY	115	2.0	26	27	12	-	-	3.8	9.9	27	0.070	2.42	15
17.39	28.8	28.6	-	29.1	1.3	12.7	4.7	3	silty CLAY to CLAY	115	1.5	19	19	8	-	-	2.0	9.1	45	0.005	2.78	15
17.55	20.6	20.3	-	21.0	1.0	19.9	5.2	3	silty CLAY to CLAY	115	1.5	14	14	6	-	-	1.4	6.4	53	0.005	2.92	15
17.72	21.2	20.7	-	21.6	0.8	20.2	4.2	3	silty CLAY to CLAY	115	1.5	14	14	6	-	-	1.4	6.5	49	0.005	2.85	15
17.88	21.2	20.5	-	21.6	0.8	19.4	3.8	3	silty CLAY to CLAY	115	1.5	14	14	6	-	-	1.4	6.4	48	0.005	2.83	15
18.05	20.1	19.4	-	20.5	0.6	20.2	3.3	4	clayy SILT to silty CLAY	115	2.0	10	10	6	-	-	1.4	6.1	46	0.070	2.81	15
18.21	17.7	17.0	-	18.1	0.4	18.9	2.7	4	clayy SILT to silty CLAY	115	2.0	8	9	5	-	-	1.2	5.3	46	0.070	2.80	15
18.37	16.3	15.5	-	16.7	0.5	19.6	3.0	3	silty CLAY to CLAY	115	1.5	10	11	5	-	-	1.1	4.8	50	0.005	2.87	15
18.54	14.9	14.2	-	15.3	0.5	19.8	3.6	3	silty CLAY to CLAY	115	1.5	9	10	4	-	-	1.0	4.3	55	0.005	2.95	15
18.70	15.4	14.6	-	15.9	0.5	25.4	3.4	3	silty CLAY to CLAY	115	1.5	10	10	4	-	-	1.0	4.5	53	0.005	2.92	15
18.87	16.7	15.8	-	17.2	0.7	26.2	4.7	3	silty CLAY to CLAY	115	1.5	11	11	5	-	-	1.1	4.9	57	0.005	2.98	15
19.03	18.4	17.2	-	18.9	1.0	26.8	6.0	3	silty CLAY to CLAY	115	1.5	11	12	6	-	-	1.2	5.3	60	0.005	3.02	15
19.19	20.7	19.4	-	21.2	1.4	27.5	6.9	3	silty CLAY to CLAY	115	1.5	13	14	6	-	-	1.4	6.0	60	0.005	3.02	15
19.36	30.4	28.3	-	30.9	1.0	27.6	3.4	4	clayy SILT to silty CLAY	115	2.0	14	15	8	-	-	2.1	9.0	40	0.070	2.68	15
19.52	25.5	23.7	-	25.9	1.0	18.3	3.9	3	silty CLAY to CLAY	115	1.5	16	17	7	-	-	1.7	7.5	45	0.005	2.79	15
19.69	18.2	16.8	-	18.6	0.8	20.0	4.8	3	silty CLAY to CLAY	115	1.5	11	12	5	-	-	1.2	5.2	56	0.005	2.96	15
19.85	19.7	18.1	-	20.2	0.8	23.4	4.2	3	silty CLAY to CLAY	115	1.5	12	13	5	-	-	1.3	5.6	52	0.005	2.90	15
20.01	21.7	19.9	-	22.2	0.6	22.0	3.1	4	clayy SILT to silty CLAY	115	2.0	10	11	6	-	-	1.5	6.2	45	0.070	2.78	15
20.18	21.0	19.1	-	21.4	0.6	22.4	3.2	4	clayy SILT to silty CLAY	115	2.0	10	10	5	-	-	1.4	6.0	46	0.070	2.81	15
20.34	18.5	16.8	-	19.0	0.9	24.0	5.0	3	silty CLAY to CLAY	115	1.5	11	12	5	-	-	1.2	5.2	57	0.005	2.97	15
20.51	21.4	19.4	-	21.9	1.0	25.1	5.2	3	silty CLAY to CLAY	115	1.5	13	14	6	-	-	1.4	6.1	54	0.005	2.93	15
20.67	26.4	23.8	-	26.9	1.7	26.1	6.9	3	silty CLAY to CLAY	115	1.5	16	18	7	-	-	1.8	7.5	55	0.005	2.95	15
20.83	44.6	40.1	-	45.1	2.1	26.2	4.8	4	clayy SILT to silty CLAY	115	2.0	20	22	11	-	-	3.1	9.9	39	0.070	2.67	15
21.00	51.4	46.0	-	51.6	2.2	7.4	4.4	4	clayy SILT to silty CLAY	115	2.0	23	26	12	-	-	3.6	9.9	36	0.070	2.61	15
21.16	39.9	35.5	-	40.0	2.4	7.6	6.1	3	silty CLAY to CLAY	115	1.5	24	27	10	-	-	2.7	9.9	45	0.005	2.79	15
21.33	43.1	38.3	-	43.3	1.7	7.8	4.1	4	clayy SILT to silty CLAY	115	2.0	19	22	10	-	-	3.0	9.9	37	0.070	2.64	15
21.49	35.2	31.2	-	35.3	1.6	4.5	4.8	3	silty CLAY to CLAY	115	1.5	21	23	9	-	-	2.4	9.9	43	0.005	2.75	15
21.65	27.7	24.5	-	27.8	1.6	4.6	5.9	3	silty CLAY to CLAY	115	1.5	16	18	7	-	-	1.9	7.7	52	0.005	2.89	15
21.82	29.6	26.0	-	29.7	1.8	8.0	6.4	3	silty CLAY to CLAY	115	1.5	17	20	8	-	-	2.0	8.2	52	0.005	2.90	15
21.98	59.2	53.8	151.0	59.4	2.2	9.1	3.8	4	clayy SILT to silty CLAY	115	2.0	27	30	13	-	-	4.1	9.9	31	0.070	2.51	15
22.15	68.3	61.9	166.2	68.4	2.7	4.5	4.0	4	clayy SILT to silty CLAY	115	2.0	31	34	15	-	-	4.7	9.9	30	0.070	2.48	15
22.31	71.4	64.7	172.4	71.5	2.9	4.5	4.1	4	clayy SILT to silty CLAY	115	2.0	32	36	16	-	-	5.0	9.9	30	0.070	2.48	15
22.47	88.7	80.2	202.1	88.8	4.0	5.4	4.5	4	clayy SILT to silty CLAY	115	2.0	40	44	19	-	-	6.2	9.9	28	0.070	2.45	15
22.64	111.6	100.6	184.9	111.6	3.5	3.9	3.2	5	silty SAND to sandy SILT	120	3.0	34	37	22	67	40	-	-	21	0.200	2.26	16
22.80	92.4	83.1	150.8	92.4	2.4	2.0	2.6	5	silty SAND to sandy SILT	120	3.0	28	31	18	61	39	-	-	21	0.200	2.26	16
22.97	117.3	105.4	150.0	117.5	2.2	12.2	1.9	5	silty SAND to sandy SILT	120	3.0	35	39	21	69	41	-	-	15	0.200	2.08	16
23.13	157.3	141.0	161.6	157.3	1.8	3.1	1.2	6	clean SAND to silty SAND	125	5.0	28	31	26	78	42	-	-	9	0.350	1.85	16
23.30	165.3	147.8	147.6	165.4	1.0	3.3	0.6	6	clean SAND to silty SAND	125	5.0	30	33	26	80	42	-	-	5	0.350	1.64	16
23.46	171.3	152.9	152.9	171.4	1.0	2.9	0.6	6	clean SAND to silty SAND	125	5.0	31	34	26	81	42	-	-	5	0.350	1.63	16
23.62	190.4	169.6	169.6	190.5	1.1	3.0	0.6	6	clean SAND to silty SAND	125	5.0	34	38	29	84	43	-	-	5	0.350	1.58	16
23.79	190.9	169.7	169.7	191.0	1.0	3.1	0.5	6	clean SAND to silty SAND	125	5.0	34	38	29	84	43	-	-	5	0.350	1.57	16
23.95	199.7	177.1	177.1	199.8	1.1	2.5	0.6	6	clean SAND to silty SAND	125	5.0	35	40	30	86	43	-	-	5	0.350	1.56	16
24.12	203.2	179.8	179.8	203.2	1.2	2.7	0.6	6	clean SAND to silty SAND	125	5.0	36	41	30	86	43	-	-	5	0.350	1.58	16
24.28	214.2	189.1	189.1	214.2	1.3	2.7	0.6	6	clean SAND to silty SAND	125	5.0	38	43	32	88	43	-	-	5	0.350	1.56	16
24.44	213.4	188.0	188.0	213.4	1.4	2.5	0.6	6	clean SAND to silty SAND	125	5.0	38	43	32	88	43	-	-	5	0.350	1.58	16
24.61	211.3	185.8	185.8	211.3	1.5	2.5	0.7	6	clean SAND to silty SAND	125	5.0	37	42	32	87	43	-	-	5	0.350	1.61	16
24.77	213.9	187.7	187.5	214.0	1.7	2.5	0.8	6	clean SAND to silty SAND	125	5.0	38	43	32	88	43	-	-	5	0.350	1.64	16
24.94	227.3	199.1	199.1	227.4	1.8	2.8	0.8	6	clean SAND to silty SAND	125	5.0	40	45	34	90	44	-	-	5	0.350	1.63	16
25.10	258.6	225.9	225.9	258.6	1.8	3.1	0.7	6	clean SAND to silty SAND	125	5.0	45	52	38	94	44	-	-	5	0.350	1.54	16
25.26	280.9	244.9	244.9	281.0	1.6	2.6	0.6	6	clean SAND to silty SAND	125	5.0	49	56	40	95	45	-	-	5	0.350	1.45	16
25.43	271.9	236.6	236.6	272.0	1.4	2.4	0.5	6	clean SAND to silty SAND	125	5.0	47	54	38	95	44	-	-	5	0.350	1.44	16
25.59	243.1	211.1	211.1	243.2	1.3	2.0	0.6	6	clean SAND to silty SAND	125	5.0	42	49	35	92	44	-	-	5	0.350	1.50	16
25.76	226.7	196.5	196.5	226.8	1.4	1.9	0.6	6	clean SAND to silty SAND	125	5.0	39	45	33	89	44	-	-	5	0.350	1.55	16
25.92	230.9	199.7	199.7	230.9	1.3	1.9	0.6	6	clean SAND to silty SAND	125	5.0	40	46	33	90	44	-	-	5	0.350	1.53	16
26.08	231.9	200.1	200.1	231.9	0.9	1.9	0.4	6	clean SAND to silty SAND	125	5.0	40	46	32	90	44	-	-	5	0.350	1.43	16
26.25	219.1	188.7	188.7	219.1	1.0	1.6	0.5	6	clean SAND to silty SAND	125	5.0	38	44	31	88	43	-	-	5	0.350	1.50	16
26.41	222.8	191.5	191.5	222.8	1.1	1.2	0.5	6	clean SAND to silty SAND	125	5.0	38	45	32	88	43	-	-	5	0.350	1.51	16
26.58	237.0	203.3	203.3	237.0	1.2	1.4	0.5	6	clean SAND to silty SAND	125	5.0	41	47	33	90	44	-	-	5	0.350	1.49	16
26.74	242.2	207.4	207.4	242.2	1.3	0.7	0.5	6	clean SAND to silty SAND	125	5.0	41	48	34	91	44	-	-	5	0.350	1.49	16
26.90	248.4	212.2	212.2	248.3	1.3	-0.8	0.5	6	clean SAND to silty SAND	125	5.0	42	50	35	92	44	-	-	5	0.350	1.48	16
27.07	242.5	206.8	206.8	242.5	1.4	-1.0	0.6	6	clean SAND to silty SAND	125	5.0	41	48	34	91	44	-	-	5	0.350	1.52	16
27.23	238.7	203.2	203.2	238.7	1.4	-0.6	0.6	6	clean SAND to silty SAND	125	5.0	41	48	34	90	44	-	-	5	0.350	1.53	16
27.40	243.0	206.4	206.4	242.9	1.3	-0.8	0.5	6	clean SAND to silty SAND	125	5.0	41	49	34	91	44	-	-	5	0.350	1.49	16
27.56	229.0	194.1	194.1	228.9	1.1	-0.9	0.5	6	clean SAND to silty SAND	125	5.0	39	46	32	89	43	-	-	5	0.350	1.50	16
27.72	202.4	171.3	171.3	202.4	0.8	-1.3	0.4	6	clean SAND to silty SAND	125	5.0	34	40	28	85	43	-	-	5	0.350	1.49	16
27.89	178.5	150.8	150.8	178.5	1.0	-1.7	0.6	6	clean SAND to silty SAND	125	5.0	30	36	26	81	42	-	-	5	0.350	1.63	16
28.05	184.6	155.6	155.6	184.5	1.2	-1.7	0.6	6	clean SAND to silty SAND	125	5.0	31	37	27	82	42	-	-	5	0.350	1.64	16
28.22	184.5	155.2	156.4	184.5	1.2	-1.4	0.7	6	clean SAND to silty SAND	125	5.0	31	37	27	82	42	-	-	5	0.350	1.66	16
28.38	191.3	160.6	160.6	191.3	1.1	-2.2	0.6	6	clean SAND to silty SAND	125	5.0	32	38	27	83	42	-	-	5	0.350	1.62	16
28.54	203.1	170.2	170.2	203.0	1.1	-2.7	0.5	6	clean SAND to silty SAND	125	5.0	34	41	29	85	43	-	-	5	0.350	1.57	16
28.71	200.6	167.8	167.8	200.5	1.0	-3.3	0.5	6	clean SAND to silty SAND	125	5.0	34	40	28	84	43	-	-	5	0.350	1.54	16
28.87	198.4	165.6	165.6	198.3	0.9	-3.2	0.5	6	clean SAND to silty SAND	125	5.0	33	40	28	84	42	-	-	5	0.350	1.54	16
29.04	195.1	162.5	162.5	195.0	0.9	-3.4	0.5	6	clean SAND to silty SAND	125	5.0	33	39	27	83	42	-	-	5	0.350	1.54	16
29.20	195.5	162.6	162.6	195.5	0.9	-3.6	0.4	6	clean SAND to silty SAND	125	5.0	33	39	27	83	42	-	-	5	0.350	1.53	16
29.36	193.4	160.6	160.6	193.4	0.9	-3.6	0.5	6	clean SAND to silty SAND	125	5.0	32	39	27	83	42	-	-	5	0.350	1.56	16
29.53	195.4	161.9	161.9	195.3	1.0	-3.7	0.5	6	clean SAND to silty SAND	125	5.0	32	39	27	83	42	-	-	5	0.350	1.58	16
29.69	194.8	161.1	161.1	194.7	1.2	-3.7	0.6	6	clean SAND to silty SAND	125	5.0	32	39	28	83	42	-	-	5	0.350	1.62	16
29.86	191.5	158.1	159.8	191.4	1.3	-3.8	0.7	6	clean SAND to silty SAND	125	5.0	32	38	27	82	42	-	-	5	0.350	1.66	16
30.02	179.8	148.1	153.4	179.7	1.3	-3.8	0.7	6	clean SAND to silty SAND	125	5.0	30	36	26	80	42	-	-	6	0.350	1.70	16
30.19	183.1	150.5	154.8	183.0	1.3	-3.9	0.7	6	clean SAND to silty SAND	125	5.0	30	37	26	81	42	-	-	6	0.350	1.69	16
30.35	186.9	153.4	153.4	186.8	1.1	-4.0	0.6	6	clean SAND to silty SAND	125	5.0	31	37	26	81	42	-	-	5	0.350	1.62	16
30.51	188.3	154.3	154.3	188.2	0.9	-3.8	0.5	6	clean SAND to silty SAND	125	5.0	31	38	26	81	42	-	-	5	0.350	1.56	16
30.68	196.7	160.9	160.9	196.6	0.6	-4.0	0.3	6	clean SAND to silty SAND	125	5.0	32	39	26	83	42	-	-	5	0.350	1.43	16
30.84	196.5	160.4	160.4	196.4	0.7	-4.0	0.3	6	clean SAND to silty SAND	125	5.0	32	39	26	83	42	-	-	5	0.350	1.47	16

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
31.01	188.4	153.5	153.5	188.3	0.6	-4.1	0.3	6	clean SAND to silty SAND	125	5.0	31	38	25	81	42	-	-	5	0.350	1.49	16
31.17	172.3	140.2	142.6	172.3	1.1	-2.4	0.6	6	clean SAND to silty SAND	125	5.0	28	34	24	78	42	-	-	6	0.350	1.67	16
31.33	174.4	141.6	147.6	174.3	1.2	-3.5	0.7	6	clean SAND to silty SAND	125	5.0	28	35	25	78	42	-	-	6	0.350	1.71	16
31.50	161.9	131.2	137.7	161.8	1.1	-4.0	0.7	6	clean SAND to silty SAND	125	5.0	26	32	23	76	41	-	-	6	0.350	1.72	16
31.66	119.2	96.5	119.4	119.1	1.3	-4.7	1.1	6	clean SAND to silty SAND	125	5.0	19	24	19	66	39	-	-	12	0.350	1.95	16
31.83	98.9	79.9	139.1	98.8	2.2	-4.9	2.3	5	silty SAND to sandy SILT	120	3.0	27	33	17	60	38	-	-	20	0.200	2.23	16
31.99	62.1	50.1	120.7	62.0	1.6	-4.3	2.6	5	silty SAND to sandy SILT	120	3.0	17	21	12	44	36	-	-	27	0.200	2.42	16
32.15	39.8	27.3	-	39.7	1.3	-3.7	3.3	4	clayy SILT to silty CLAY	115	2.0	14	20	7	-	-	2.7	8.6	40	0.070	2.69	15
32.32	19.1	13.1	-	19.0	0.7	-2.1	4.1	3	silty CLAY to CLAY	115	1.5	9	13	4	-	-	1.2	3.9	60	0.005	3.02	15
32.48	16.6	11.4	-	16.6	0.5	-0.2	3.3	3	silty CLAY to CLAY	115	1.5	8	11	4	-	-	1.1	3.3	60	0.005	3.02	15
32.65	15.5	10.6	-	15.5	0.6	1.0	4.3	3	silty CLAY to CLAY	115	1.5	7	10	4	-	-	1.0	3.1	67	0.005	3.12	15
32.81	14.9	10.1	-	15.0	0.9	1.9	7.2	3	silty CLAY to CLAY	115	1.5	7	10	4	-	-	1.0	2.9	78	0.005	3.27	15
32.97	17.3	11.7	-	17.3	1.2	2.7	7.8	3	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.1	3.4	76	0.005	3.24	15
33.14	45.8	30.9	-	45.9	1.4	2.4	3.2	4	clayy SILT to silty CLAY	115	2.0	15	23	8	-	-	3.1	9.8	37	0.070	2.64	15
33.30	74.0	58.9	123.0	74.0	1.7	0.7	2.4	5	silty SAND to sandy SILT	120	3.0	20	25	13	50	37	-	-	24	0.200	2.34	16
33.47	80.1	63.7	132.0	80.0	2.0	-1.5	2.6	5	silty SAND to sandy SILT	120	3.0	21	27	14	52	37	-	-	24	0.200	2.34	16
33.63	81.6	64.8	133.1	81.6	2.0	-2.4	2.6	5	silty SAND to sandy SILT	120	3.0	22	27	15	53	37	-	-	24	0.200	2.33	16
33.79	80.2	63.6	138.4	80.1	2.2	-3.0	2.8	5	silty SAND to sandy SILT	120	3.0	21	27	15	52	37	-	-	25	0.200	2.37	16
33.96	86.7	68.7	144.3	86.6	2.4	-3.1	2.8	5	silty SAND to sandy SILT	120	3.0	23	29	16	55	37	-	-	24	0.200	2.34	16
34.12	95.8	75.8	118.7	95.8	1.6	-3.7	1.7	5	silty SAND to sandy SILT	120	3.0	25	32	16	58	38	-	-	18	0.200	2.16	16
34.29	84.5	66.7	120.5	84.4	1.7	-3.8	2.0	5	silty SAND to sandy SILT	120	3.0	22	28	15	54	37	-	-	21	0.200	2.25	16
34.45	84.0	66.2	118.4	83.9	1.6	-3.7	2.0	5	silty SAND to sandy SILT	120	3.0	22	28	14	53	37	-	-	21	0.200	2.25	16
34.61	82.9	65.2	127.6	82.8	1.9	-4.2	2.3	5	silty SAND to sandy SILT	120	3.0	22	28	14	53	37	-	-	23	0.200	2.30	16
34.78	54.2	42.6	121.9	54.1	1.6	-4.8	3.0	4	clayy SILT to silty CLAY	115	2.0	21	27	10	-	-	3.7	9.9	32	0.070	2.52	15
34.94	32.7	21.3	-	32.6	1.4	-4.8	4.6	3	silty CLAY to CLAY	115	1.5	14	22	6	-	-	2.2	6.6	50	0.005	2.87	15
35.11	33.6	21.9	-	33.5	1.3	-3.6	4.2	3	silty CLAY to CLAY	115	1.5	15	22	6	-	-	2.3	6.8	48	0.005	2.84	15
35.27	52.6	34.1	-	52.6	1.6	-3.5	3.3	4	clayy SILT to silty CLAY	115	2.0	17	26	9	-	-	3.6	9.9	36	0.070	2.61	15
35.43	44.6	28.9	-	44.5	1.6	-4.0	3.8	4	clayy SILT to silty CLAY	115	2.0	14	22	8	-	-	3.0	9.1	41	0.070	2.71	15
35.60	26.5	17.1	-	26.4	1.6	-3.5	6.5	3	silty CLAY to CLAY	115	1.5	11	18	6	-	-	1.8	5.2	62	0.005	3.05	15
35.76	50.0	32.2	-	50.0	1.5	-2.5	3.0	4	clayy SILT to silty CLAY	115	2.0	16	25	8	-	-	3.4	9.9	36	0.070	2.61	15
35.93	54.8	42.7	87.5	54.8	0.8	-3.2	1.5	5	silty SAND to sandy SILT	120	3.0	14	18	10	39	34	-	-	24	0.200	2.33	16
36.09	32.5	20.8	-	32.5	0.8	-3.6	2.5	4	clayy SILT to silty CLAY	115	2.0	10	16	6	-	-	2.2	6.4	41	0.070	2.72	15
36.26	18.0	11.5	-	18.0	0.5	-2.9	3.4	3	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.2	3.3	60	0.005	3.02	15
36.42	16.8	10.7	-	16.8	0.5	-1.9	3.2	3	silty CLAY to CLAY	115	1.5	7	11	3	-	-	1.1	3.1	61	0.005	3.03	15
36.58	16.9	10.7	-	16.8	0.5	-1.5	3.4	3	silty CLAY to CLAY	115	1.5	7	11	4	-	-	1.1	3.1	62	0.005	3.05	15
36.75	16.6	10.5	-	16.6	0.5	-1.2	3.5	3	silty CLAY to CLAY	115	1.5	7	11	4	-	-	1.1	3.0	63	0.005	3.07	15
36.91	16.7	10.6	-	16.7	0.5	-0.9	3.4	3	silty CLAY to CLAY	115	1.5	7	11	3	-	-	1.1	3.0	62	0.005	3.05	15
37.08	17.4	11.0	-	17.4	0.5	-0.7	3.5	3	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.1	3.2	62	0.005	3.05	15
37.24	18.1	11.3	-	18.0	0.8	-0.5	4.9	3	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.2	3.3	67	0.005	3.12	15
37.40	22.4	14.0	-	22.4	0.5	-0.1	2.6	3	silty CLAY to CLAY	115	1.5	9	15	4	-	-	1.5	4.2	51	0.005	2.88	15
37.57	28.9	18.0	-	28.9	0.6	-0.3	2.1	4	clayy SILT to silty CLAY	115	2.0	9	14	5	-	-	1.9	5.5	42	0.070	2.72	15
37.73	18.9	11.8	-	18.9	0.5	-0.4	2.7	3	silty CLAY to CLAY	115	1.5	8	13	4	-	-	1.2	3.4	56	0.005	2.96	15
37.90	17.1	10.6	-	17.1	0.4	0.7	2.7	3	silty CLAY to CLAY	115	1.5	7	11	3	-	-	1.1	3.0	59	0.005	3.00	15
38.06	18.0	11.2	-	18.0	0.4	0.8	2.7	3	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.2	3.2	57	0.005	2.98	15
38.22	18.2	11.2	-	18.2	0.4	0.9	2.7	3	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.2	3.3	57	0.005	2.97	15
38.39	18.3	11.3	-	18.3	0.4	1.0	2.7	3	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.2	3.3	57	0.005	2.98	15
38.55	18.2	11.2	-	18.2	0.4	1.1	2.7	3	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.2	3.2	57	0.005	2.98	15
38.72	17.8	10.9	-	17.8	0.4	1.2	2.7	3	silty CLAY to CLAY	115	1.5	7	12	3	-	-	1.1	3.1	58	0.005	2.99	15
38.88	17.3	10.6	-	17.3	0.4	1.3	2.7	3	silty CLAY to CLAY	115	1.5	7	12	3	-	-	1.1	3.0	59	0.005	3.00	15
39.04	17.1	10.4	-	17.2	0.4	1.4	2.9	3	silty CLAY to CLAY	115	1.5	7	11	3	-	-	1.1	3.0	60	0.005	3.02	15
39.21	17.7	10.7	-	17.7	0.6	1.5	3.7	3	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.1	3.1	64	0.005	3.07	15
39.37	19.8	12.0	-	19.8	0.6	1.6	3.7	3	silty CLAY to CLAY	115	1.5	8	13	4	-	-	1.3	3.5	60	0.005	3.03	15
39.54	26.3	15.9	-	26.3	0.9	2.0	3.8	3	silty CLAY to CLAY	115	1.5	11	18	5	-	-	1.7	4.8	54	0.005	2.93	15
39.70	29.7	17.9	-	29.7	1.3	1.7	4.8	3	silty CLAY to CLAY	115	1.5	12	20	6	-	-	2.0	5.4	55	0.005	2.95	15
39.86	31.1	18.7	-	31.1	1.4	1.7	4.9	3	silty CLAY to CLAY	115	1.5	12	21	6	-	-	2.1	5.7	54	0.005	2.94	15
40.03	34.0	20.4	-	34.0	1.5	1.7	4.7	3	silty CLAY to CLAY	115	1.5	14	23	6	-	-	2.3	6.3	52	0.005	2.89	15
40.19	33.0	19.8	-	33.1	1.8	1.6	6.0	3	silty CLAY to CLAY	115	1.5	13	22	6	-	-	2.2	6.1	57	0.005	2.98	15
40.36	32.1	19.2	-	32.2	1.9	1.8	6.5	3	silty CLAY to CLAY	115	1.5	13	21	6	-	-	2.2	5.9	59	0.005	3.01	15
40.52	42.3	25.2	-	42.4	2.8	2.0	6.9	3	silty CLAY to CLAY	115	1.5	17	28	8	-	-	2.9	7.8	54	0.005	2.94	15
40.68	64.4	38.2	-	64.4	2.8	1.5	4.5	4	clayy SILT to silty CLAY	115	2.0	19	32	10	-	-	4.4	9.9	39	0.070	2.67	15
40.85	62.6	37.1	-	62.6	3.0	-1.7	5.0	3	silty CLAY to CLAY	115	1.5	25	42	10	-	-	4.3	9.9	41	0.005	2.71	15
41.01	49.9	29.5	-	49.9	3.5	-1.6	7.3	3	silty CLAY to CLAY	115	1.5	20	33	9	-	-	3.4	9.3	52	0.005	2.90	15
41.18	66.1	38.9	-	66.1	3.6	-1.0	5.7	3	silty CLAY to CLAY	115	1.5	26	44	11	-	-	4.6	9.9	42	0.005	2.74	15
41.34	73.2	43.0	-	73.2	3.6	-1.4	5.1	3	silty CLAY to CLAY	115	1.5	29	49	11	-	-	5.1	9.9	39	0.005	2.67	15
41.50	58.5	34.3	-	58.4	2.8	-2.1	5.0	3	silty CLAY to CLAY	115	1.5	23	39	9	-	-	4.0	9.9	43	0.005	2.74	15
41.67	38.5	22.5	-	38.4	1.7	-2.7	4.8	3	silty CLAY to CLAY	115	1.5	15	26	7	-	-	2.6	6.9	50	0.005	2.87	15
41.83	29.6	17.3	-	29.6	1.1	-2.0	4.2	3	silty CLAY to CLAY	115	1.5	12	20	5	-	-	2.0	5.2	54	0.005	2.92	15
42.00	25.7	15.0	-	25.7	1.0	-1.5	4.2	3	silty CLAY to CLAY	115	1.5	10	17	5	-	-	1.7	4.5	57	0.005	2.98	15
42.16	24.1	14.0	-	24.0	0.8	-1.2	3.7	3	silty CLAY to CLAY	115	1.5	9	16	4	-	-	1.6	4.1	56	0.005	2.97	15
42.32	23.3	13.5	-	23.2	1.0	-0.9	4.9	3	silty CLAY to CLAY	115	1.5	9	16	4	-	-	1.5	4.0	62	0.005	3.06	15
42.49	22.9	13.2	-	22.8	1.4	-0.7	7.1	3	silty CLAY to CLAY	115	1.5	9	15	5	-	-	1.5	3.9	71	0.005	3.17	15
42.65	29.0	16.7	-	29.0	1.6	-0.3	6.0	3	silty CLAY to CLAY	115	1.5	11	19	5	-	-	1.9	5.0	61	0.005	3.04	15
42.82	92.1	67.8	105.2	92.1	1.3	0.2	1.4	5	silty SAND to sandy SILT	120	3.0	23	31	14	54	37	-	-	17	0.200	2.15	16
42.98	137.6	101.2	113.0	137.5	0.9	-3.1	0.7	6	clean SAND to silty SAND	125	5.0	20	28	19	67	39	-	-	8	0.350	1.81	16
43.15	127.0	93.3	125.0	126.9	1.7	-5.1	1.4	5	silty SAND to sandy SILT	120	3.0	31	42	19	65	39	-	-	14	0.200	2.03	16
43.31	78.6	57.7	124.9	78.5	1.9	-5.3	2.5	5	silty SAND to sandy SILT	120	3.0	19	26	13	49	36	-	-	25	0.200	2.36	16
43.47	44.6	25.3	-	44.5	1.4	-5.0	3.3	4	clayy SILT to silty CLAY	115	2.0	13	22	7	-	-	3.0	7.9	41	0.070	2.72	15
43.64	27.9	15.8	-	27.8	0.8	-4.1	3.3	3	silty CLAY to CLAY	115	1.5	11	19	5	-	-	1.8	4.7	51	0.005	2.89	15
43.80	20.9	11.8	-	20.9	0.7	-3.3	3.5	3	silty CLAY to CLAY	115	1.5	8	14	4	-	-	1.4	3.4	60	0.005	3.03	15
43.97	21.2	12.0	-	21.2	1.1	-1.3	5.8	3	silty CLAY to CLAY	115	1.5	8	14	4	-	-	1.4	3.5	69	0.005	3.15	15
44.13	24.8	14.0	-	24.8	1.6	-0.9	7.4	3	silty CLAY to CLAY	115	1.5	9	17	5	-	-	1.6	4.1	70	0.005	3.16	15
44.29	42.3	23.8	-	42.3	2.1	-0.3	5.3	3	silty CLAY to CLAY	115	1.5	16	28	7	-	-	2.9	7.4	51	0.005	2.88	15
44.46	46.0	25.8	-	46.0	2.4	-1.3	5.4	3	silty CLAY to CLAY	115	1.5	17	31	8	-	-	3.1	8.0	49	0.005	2.86	15
44.62	35.0	19.6	-	35.0	1.8	-1.4	5.7	3	silty CLAY to CLAY	115	1.5	13	23	6	-	-	2.3	6.0	56	0.005	2.96	15
44.79	76.4	55.4	103.5	76.4	1.3	-0.5	1.7	5	silty SAND to sandy SILT	120	3.0	18	25	12	48	36	-	-	22	0.200	2.27	16
44.95	127.1	92.1	102.7	127.1	0.7	-2.4	0.6	6	clean SAND to silty SAND	125	5.0	18	25	17	64	39	-	-	8	0.350	1.81	16
45.11	138.8	100.4	105.7	138.8	0.6	-3.7	0.5	6	clean SAND to silty SAND	125	5.0	20	28	18	67	39	-	-	7	0.350	1.72	16
45.28	142.4	102.8	106.2	142.3	0.6	-4.0	0.4	6	clean SAND to silty SAND	125	5.0	21	28	18	68	39	-	-	6	0.350	1.69	16
45.44	146.9	105.9	105.9	146.8	0.5	-4.1	0.3	6	clean SAND to silty SAND	125	5.0	21	29	18	69	39	-	-	5	0.350	1.64	16
45.61	144.3	103.9	103.8	144.2	0.5	-4.4	0.3	6	clean SAND to silty SAND	125	5.0	21	29	18	68	39	-	-	5	0.350	1.64	16
45.77	138.9	99.9	107.1	138.9	0.7	-4.5	0.5	6	clean SAND to silty SAND	125	5.0	20	28	18	67	39	-	-	7	0.350	1.75	16
45.93	132.3	95.0	137.9	132.2	2.3	-4.4	1.8	5	silty SAND to sandy SILT	120	3.0	32	44	19	65	39	-	-	16	0.200	2.10	16
46.10	116.6	83.6	141.6	116.5	2.5	-4.2	2.2	5	silty SAND to sandy SILT	120	3.0	28	39	18	61	38	-	-	19	0.200	2.21	16
46.26	76.2	54.6	142.7	76.1	2.4	-4.1	3.3	4	clayy SILT to silty CLAY	115	2.0	27	38	13	-	-	5.3	9.9	29	0.070	2.47	15

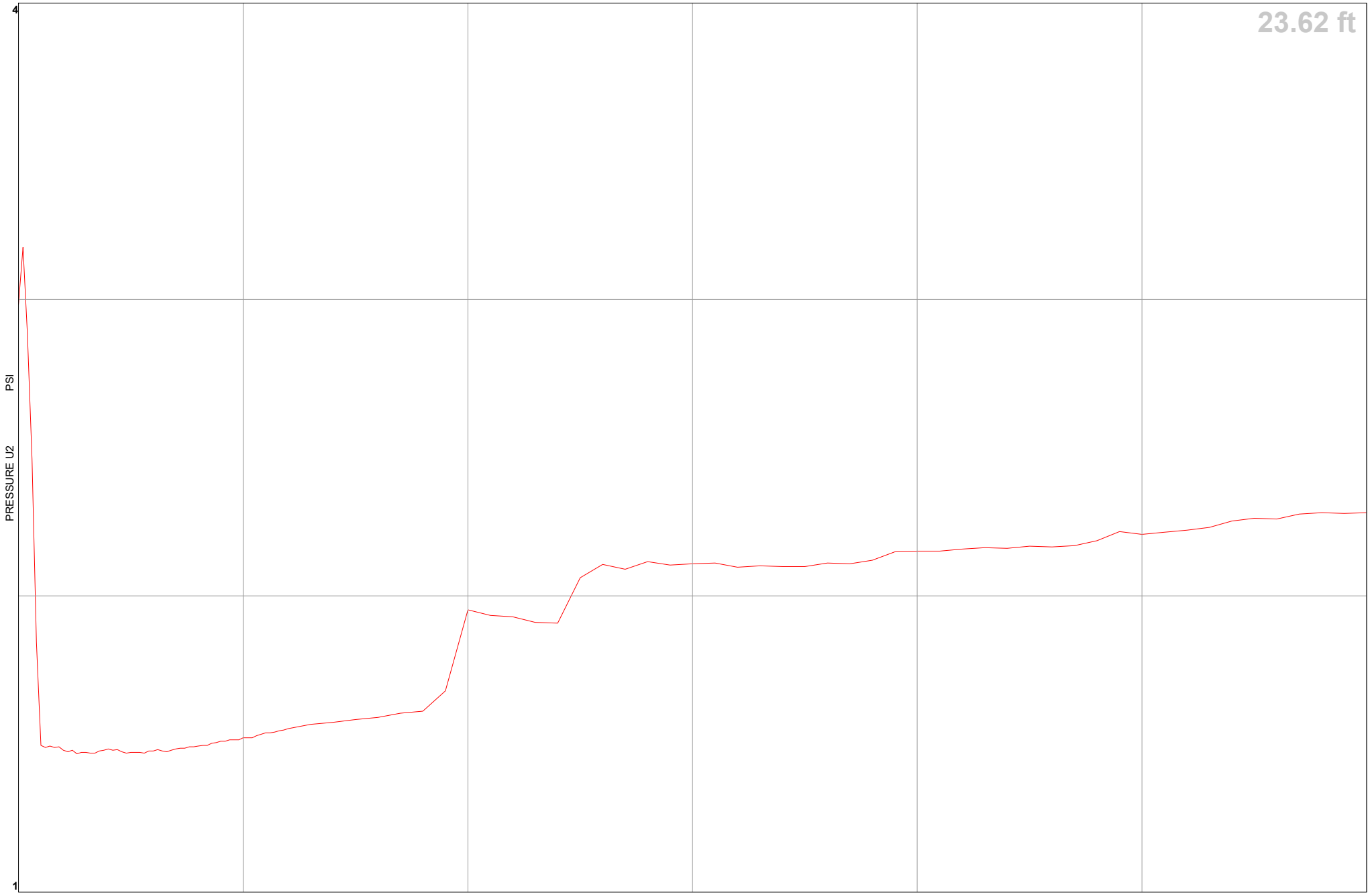
* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
46.43	54.8	29.7	-	54.8	2.1	-2.0	4.1	4	clayy SILT to silty CLAY	115	2.0	15	27	8	-	-	3.7	9.3	42	0.070	2.72	15
46.59	120.7	86.2	110.5	120.7	1.3	-0.9	1.1	6	clean SAND to silty SAND	125	5.0	17	24	17	62	38	-	-	13	0.350	1.99	16
46.75	159.2	113.6	113.6	159.1	0.6	-2.6	0.4	6	clean SAND to silty SAND	125	5.0	23	32	19	71	40	-	-	5	0.350	1.63	16
46.92	171.9	122.5	122.5	171.8	0.5	-3.4	0.3	6	clean SAND to silty SAND	125	5.0	24	34	21	74	40	-	-	5	0.350	1.56	16
47.08	164.5	117.0	119.5	164.4	0.8	-3.7	0.5	6	clean SAND to silty SAND	125	5.0	23	33	20	72	40	-	-	6	0.350	1.68	16
47.25	142.6	101.3	118.7	142.5	1.2	-4.3	0.9	6	clean SAND to silty SAND	125	5.0	20	29	19	67	39	-	-	10	0.350	1.88	16
47.41	117.2	83.2	132.5	117.1	2.2	-2.9	1.9	5	silty SAND to sandy SILT	120	3.0	28	39	17	61	38	-	-	18	0.200	2.17	16
47.57	93.6	66.3	137.1	93.5	2.4	-4.5	2.6	5	silty SAND to sandy SILT	120	3.0	22	31	15	53	37	-	-	24	0.200	2.34	16
47.74	59.8	31.8	-	59.7	2.1	-5.5	3.7	4	clayy SILT to silty CLAY	115	2.0	16	30	8	-	-	4.1	9.9	39	0.070	2.67	15
47.90	32.7	17.3	-	32.6	2.1	-5.5	7.0	3	silty CLAY to CLAY	115	1.5	12	22	6	-	-	2.2	5.2	63	0.005	3.07	15
48.07	42.2	22.3	-	42.1	1.6	-4.6	4.2	3	silty CLAY to CLAY	115	1.5	15	28	6	-	-	2.8	6.9	48	0.005	2.83	15
48.23	54.1	28.6	-	54.0	1.3	-4.9	2.6	4	clayy SILT to silty CLAY	115	2.0	14	27	7	-	-	3.7	8.9	36	0.070	2.61	15
48.39	92.4	65.1	115.2	92.3	1.7	-4.6	1.9	5	silty SAND to sandy SILT	120	3.0	22	31	14	53	36	-	-	20	0.200	2.24	16
48.56	90.3	63.5	129.5	90.2	2.1	-4.9	2.5	5	silty SAND to sandy SILT	120	3.0	21	30	14	52	36	-	-	24	0.200	2.33	16
48.72	82.0	57.6	142.4	81.9	2.5	-4.9	3.2	4	clayy SILT to silty CLAY	115	2.0	29	41	14	-	-	5.7	9.9	28	0.070	2.44	15
48.89	63.9	33.4	-	63.8	2.8	-4.5	4.6	3	silty CLAY to CLAY	115	1.5	22	43	9	-	-	4.4	9.9	42	0.005	2.73	15
49.05	58.7	30.6	-	58.6	2.1	-4.4	3.8	4	clayy SILT to silty CLAY	115	2.0	15	29	8	-	-	4.0	9.6	40	0.070	2.70	15
49.22	45.0	23.4	-	44.9	2.1	-4.6	5.0	3	silty CLAY to CLAY	115	1.5	16	30	7	-	-	3.0	7.2	50	0.005	2.87	15
49.38	36.3	18.8	-	36.2	2.2	-4.2	6.7	3	silty CLAY to CLAY	115	1.5	13	24	6	-	-	2.4	5.7	60	0.005	3.03	15
49.54	50.2	26.0	-	50.2	2.0	-3.9	4.3	3	silty CLAY to CLAY	115	1.5	17	33	7	-	-	3.4	8.1	45	0.005	2.79	15
49.71	52.6	27.2	-	52.5	1.7	-4.2	3.5	4	clayy SILT to silty CLAY	115	2.0	14	26	7	-	-	3.6	8.5	41	0.070	2.71	15
49.87	62.1	43.3	117.3	62.1	1.6	-4.3	2.7	4	clayy SILT to silty CLAY	115	2.0	22	31	10	-	-	4.3	9.9	30	0.070	2.49	15
50.04	58.9	30.3	-	58.8	1.8	-4.4	3.2	4	clayy SILT to silty CLAY	115	2.0	15	29	8	-	-	4.0	9.5	38	0.070	2.65	15
50.20	44.0	22.6	-	44.0	2.1	-4.5	5.1	3	silty CLAY to CLAY	115	1.5	15	29	7	-	-	3.0	7.0	51	0.005	2.88	15

* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

BAGG Engineers

Location	Corporation Yard Improvements Projec	Operator	JM-IY		
Job Number	HALFM-21-01	Cone Number	DPG1556	GPS	
Hole Number	CPT-02	Date and Time	10/8/2021 3:02:21 PM		
Equilized Pressure	2.2	EST GW Depth During Test	18.3		



Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, clients can benefit from a lowered exposure to the subsurface problems that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed below, contact your GBA-member geotechnical engineer. Active involvement in the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Geotechnical-Engineering Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. *Those who rely on a geotechnical-engineering report prepared for a different client can be seriously misled*. No one except authorized client representatives should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one – not even you – should apply this report for any purpose or project except the one originally contemplated.*

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read it *in its entirety*. Do not rely on an executive summary. Do not read selected elements only. *Read this report in full.*

You Need to Inform Your Geotechnical Engineer about Change

Your geotechnical engineer considered unique, project-specific factors when designing the study behind this report and developing the confirmation-dependent recommendations the report conveys. A few typical factors include:

- the client's goals, objectives, budget, schedule, and risk-management preferences;
- the general nature of the structure involved, its size, configuration, and performance criteria;
- the structure's location and orientation on the site; and
- other planned or existing site improvements, such as retaining walls, access roads, parking lots, and underground utilities.

Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.*

This Report May Not Be Reliable

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, that it could be unwise to rely on a geotechnical-engineering report whose reliability may have been affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If your geotechnical engineer has not indicated an "apply-by" date on the report, ask what it should be*, and, in general, *if you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying it. A minor amount of additional testing or analysis – if any is required at all – could prevent major problems.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface through various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing were performed*. The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgment to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team from project start to project finish, so the individual can provide informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, *they are not final*, because the geotechnical engineer who developed them relied heavily on judgment and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* revealed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a full-time member of the design team, to:

- confer with other design-team members,
- help develop specifications,
- review pertinent elements of other design professionals' plans and specifications, and
- be on hand quickly whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction observation.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for informational purposes only*. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report, but they may rely on the factual data relative to the specific times, locations, and depths/elevations referenced. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely*. Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures*. If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. As a general rule, *do not rely on an environmental report prepared for a different client, site, or project, or that is more than six months old.*

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, none of the engineer's services were designed, conducted, or intended to prevent uncontrolled migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration.*** Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

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