

Appendix D: Geotechnical Investigation

TYPE OF SERVICES	Geotechnical Investigation
PROJECT NAME	Ohlone Parkway Industrial Facility
LOCATION	Ohlone Parkway and Manabe Ow Road Watsonville, California
CLIENT	CA Ventures
PROJECT NUMBER	1309-2-1
DATE	May 5, 2022



GEOTECHNICAL

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Project Name	Ohlone Parkway Industrial Facility
Location	Ohlone Parkway and Manabe Ow Road Watsonville, California
Client	CA Ventures
Client Address	2030 Main Street, Suite 1300 Irvine, California
Project Number	1309-2-1
Date	May 5, 2022

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Type of Services	Geotechnical Investigation
Project Name	Ohlone Parkway Industrial Facility
Location	Ohlone Parkway and Manabe Ow Road Watsonville, California

SECTION 1: INTRODUCTION

This geotechnical report was prepared for the sole use of CA Ventures for the Ohlone Parkway Industrial Facility project in Watsonville, California. The location of the site is shown on the Vicinity Map, Figure 1. For our use, we were provided with the following documents:

- A set of preliminary grading plans titled, "Ohlone Parkway Industrial, Slough Road W, Watsonville, California 95076," Sheets C2.0 to C2.2 and C3.0 to C3.2, prepared by Bowman & Williams, dated April 20, 2022 Team Review.
- A conceptual site plan titled, "Conceptual Site Plan, Overall, Scheme: South Dock Alternate, Slough Rd W, Watsonville, CA 95076, USA," prepared by Ware Malcomb, dated March 18, 2022.
- A surcharge monitoring exhibit titled, "Watsonville Fedex Ground Facility, Slough Road West, Surcharge Monitoring," prepared by Land Set Engineers, Inc., dated September 2015.
- An ALTA survey titled, "ALTA/NSPS Survey Lands of OW Family Ohlone Parkway, LLC, A California Limited Liability Company, City of Watsonville, Santa Cruz County, California," prepared Mid Coast Engineers, dated December 9, 2021.
- A geotechnical report titled, "Preliminary Geotechnical Engineering Report for the Proposed Industrial Park Development (West Parcel), SWC Ohlone Parkway and Manabe Ow Road, Watsonville, California," prepared by Intertek PSI, dated March 23, 2021.
- Packets of Daily Field Reports titled, "MH South Parcel, Watsonville, CA," "South Parcel (07351018), Watsonville, CA," and "South Parcel G.C., Watsonville, CA," prepared by Intertek PSI, dates ranging from January 29, 2018 to November 15, 2021.

1.1 PROJECT DESCRIPTION

The project will include developing the approximately 13½-acre site for a new warehouse. The new warehouse will be approximately 175,500 square feet with interior clear height of 32 feet. The building will be of concrete tilt-up construction. Two office areas are planned in the northeast and northwest corners. Dock-high and grade-level doors are planned along the southside of the building. New utilities, landscaping, storm water management areas, and other improvements necessary for overall site development will also be constructed.

Building loads are expected to be typical of this type of construction. For this report, we have assumed dead plus live loads up to about 100 kips for interior column footings and 5 to 7 kips per lineal foot for perimeter strip footings. We understand fill has previously been imported to raise the site above the flood plain. In our exploration locations, existing fill depths range from about 3½ to 10½ feet. Based on aerial imagery, it appears site stripping and grading started between 2015 and 2016. Fill placement between January 2018 to April 2019 and November 3 to 15, 2021 was documented in Daily Field Reports from Intertek PSI, however the fill thickness and extent placed during this period is not clearly documented throughout all of these reports. Additionally, from our site observations during our initial investigation work in October 2021 and correspondence with you, we understand additional fill had been placed at the site between the time the fill noted within the Daily Field Reports from January 2018 to April 2019 was placed and our initial investigation work in October 2021. The exact timing, duration, and placement of this fill is not clearly known at this time for these fills placed beyond what was documented above.

Based on correspondence with the civil engineer Bowman & Williams and the preliminary grading plan provided by them, finished floor elevation will be at Elevation 25.8 feet (datum unspecified). Based on the topographic survey provided dated November 23, 2021 site grading is anticipated to include cuts and fills on the order of 1 to 5 feet to achieve finished floor elevation.

1.2 SCOPE OF SERVICES

Our scope of services was presented in our proposals dated August 31, 2021 and March 17, 2022 and consisted of field and laboratory programs to evaluate physical and engineering properties of the subsurface soils, engineering analysis to prepare recommendations for site work and grading, building foundations, flatwork, retaining walls, and pavements, and preparation of this report. Brief descriptions of our exploration and laboratory programs are presented below.

1.3 EXPLORATION PROGRAM

Field exploration consisted of thirteen borings drilled on October 13 and 14, 2021, and March 31 and April 1, 2022 with truck- and track-mounted, hollow-stem auger drilling equipment to depths of about 8 to 51½ feet. Additionally, five Cone Penetration Tests (CPTs) were advanced on October 2, 2021 to depths of about 60 to 100 feet. Seismic shear wave velocity measurements were collected from CPT-3. Borings EB-1, EB-2, EB-3, EB-4, and EB-5 were advanced adjacent to CPT-1, CPT-2, CPT-3, CPT-4, and CPT-5 for direct evaluation of physical samples

to correlated soil behavior. The borings and CPTs were backfilled with cement grout in accordance with local requirements.

The approximate locations of our exploratory borings and CPTs are shown on the Site Plan, Figure 2. Details regarding our field program are included in Appendix A.

1.4 PREVIOUS FIELD EXPLORATION

Professional Service Industries, Inc. (PSI) previously performed thirteen Cone Penetration Tests (CPTs) as part of their 2015 and 2016 investigation, and six CPTs and four hollow-stem auger borings as part of their 2021 investigation. The hollow-stem auger borings were drilled to a depth of about 31½ feet each; the CPTs were advanced to depths of about 60½ to 111½ feet below the existing ground surface. PSI's exploration and investigation included the current site as well as the adjacent site to the southwest. The approximate locations of PSI's explorations within the current site boundary are shown on the attached Site Plan, Figure 2. Copies of the previous exploration logs within the approximate current site boundary and laboratory tests are included in Appendix C.

1.5 LABORATORY TESTING PROGRAM

In addition to visual classification of samples, the laboratory program focused on obtaining data for foundation design and seismic ground deformation estimates. Testing included moisture contents, dry densities, washed sieve analyses, Plasticity Index tests, and consolidation tests. Details regarding our laboratory program are included in Appendix B.

1.6 CORROSION EVALUATION

Three samples from our borings from depths from about 2 to 6 feet were tested for saturated resistivity, pH, and soluble sulfates and chlorides. Additionally, we ran two in-situ resistivity screenings using the Wenner 4-pin method to a maximum depth of about 15 feet. In general, the on-site soils can be characterized as mildly to very severely corrosive to buried metal, and moderately-corrosive to buried concrete. Please refer to Section 3 for further information.

1.7 ENVIRONMENTAL SERVICES

Environmental services were not requested for this project. If environmental concerns are determined to be present during future evaluations, the project environmental consultant should review our geotechnical recommendations for compatibility with the environmental concerns.

SECTION 2: REGIONAL SETTING

2.1 REGIONAL SEISMICITY

While seismologists cannot predict earthquake events, geologists from the U.S. Geological Survey have recently updated (in 2015) earlier estimates from their 2014 Uniform California Earthquake Rupture Forecast (Version 3; UCERF3) publication. The estimated probability of

one or more magnitude 6.7 earthquakes (the size of the destructive 1994 Northridge earthquake) expected to occur somewhere in the San Francisco Bay Area has been revised (increased) to 72 percent for the period 2014 to 2043 (Aagaard et al., 2016). The faults in the region with the highest estimated probability of generating damaging earthquakes between 2014 and 2043 are the Hayward (33%), Calaveras (26%), and San Andreas Faults (22%). In this 30-year period, the probability of an earthquake of magnitude 6.7 or larger occurring is 22 percent along the San Andreas Fault and 33 percent for the Hayward Fault.

The faults considered capable of generating significant earthquakes are generally associated with the well-defined areas of crustal movement, which trend northwesterly. The table below presents the State-considered active faults within 25 kilometers of the site.

Table 1: Approximate Fault Distances

Fault Name	Distance	
	(miles)	(kilometers)
Zayante-Vergeles	2.8	4.5
San Andreas (1906)	5.5	8.8
Sargent	9.3	15.0
Monterey Bay-Tularcitos	14.4	23.1

A regional fault map is presented as Figure 3, illustrating the relative distances of the site to significant fault zones.

SECTION 3: SITE CONDITIONS

3.1 SITE BACKGROUND AND SURFACE DESCRIPTION

The site is bounded by Slough Road West and the Watsonville Slough to the north, Ohlone Parkway to the east, train tracks and industrial development to the south, and undeveloped land to the west. We reviewed historic aerial photographs provided on Google Earth and www.historicaerials.com dating back to 1952. The site was generally used for agricultural purposes until between the years 2015 and 2016 where the site appears to have been stripped of vegetation and grading activities started. Trailers and construction vehicles are present in the 2016 photographs. Sitework and fill placement appears to continue until between 2018 and 2019 photographs. Vegetation appears to have grown across a majority of the site surface by the 2020 images and additional fill appears to have been placed within the approximate eastern two-thirds of the site by the latest image from September 2021.

At the time of our site visit in October 2021, the approximate eastern two-thirds of the site was covered with crushed concrete. The approximate western third and southern portion of the site was covered with weeds and small shrubs. A significant grade drop ranging up to about 5 feet or more was located near side of the site. At the time of our site visits in March 2022, additional

fill was observed to have been placed across portions of the site since our October 2021 site visit.

3.2 SUBSURFACE CONDITIONS

Our explorations generally encountered about to 3½ to 10½ feet of existing fills consisting of crushed concrete, very dense poorly graded gravel with clay and sand, medium dense to very dense sand with variable amounts of clay and gravel, and very stiff to hard lean clay with variable amounts of sand. Beneath the fills, our borings generally encountered soft to very stiff, highly plastic clay with some thin interbedded layers of loose to medium dense silty and clayey sand to the terminal depth of Borings EB-1, EB-2, EB-3, EB-4, EB-6, EB-7, EB-9, EB-10, EB-11, EB-12, and EB-13. Beneath the highly plastic clay at Boring EB-5, medium stiff lean clay was encountered from a depth of about 34½ to 42 feet and medium dense silt with sand at a depth of about 42 to 45 feet, the terminal depth of the boring. Beneath the highly plastic clay at Boring EB-8, our exploration encountered medium dense silty sand at a depth of about 46½ to 51½, the maximum depth explored.

Our CPT data generally correlates to their respective adjacent borings to a depth of 45 feet. Beneath the maximum depth of the adjacent borings, generally stiff to very stiff clays with interbedded layers of loose to dense sands were correlated to the maximum depth explored of 100 feet below the ground surface at the time of our explorations. Larger dense to very dense sand layers were encountered within CPT-2 and CPT-3 at depths ranging from about 70 to 100 feet.

3.2.1 Plasticity/Expansion Potential

We performed three Plasticity Index (PI) tests on representative samples of the near surface native soils and existing fills. The samples were collected at depths of about 1½, 2, and 4 feet below site grades at the time the respective exploration was performed. Intertek PSI also previously performed four Plasticity Index (PI) tests and an expansion index test on samples of the near surface soils.

Test results were used to evaluate expansion potential of the surficial fills and native clays. The tests resulted in PIs ranging from about 15 to 33, and an expansion index of 59, indicating low to high expansion potential to wetting and drying cycles.

3.2.2 In-Situ Moisture Contents

Laboratory testing indicated that the in-situ moisture contents within the upper 10 feet range from a few percent below to about 15 percent above the estimated laboratory optimum moisture.

3.3 GROUNDWATER

Groundwater was encountered in our deeper borings at depths ranging from 10 to 27 feet below site grades at the time of our explorations. Groundwater was not encountered to the maximum

depths explored of 8 to 12½ feet in our shallower Borings EB-9 to EB-13. Groundwater was inferred in our CPTs at depths ranging from about 11.7 to 19.5 feet below current grades. All measurements were taken at the time of drilling and may not represent the stabilized levels that can be higher than the initial levels encountered.

We also reviewed nearby groundwater data obtained from the GeoTracker website (geotracker.waterboards.ca.gov). Groundwater data at 950 West Beach Street (approximately 600 feet east of the site) indicated groundwater depths ranging from about 3¾ to 4½ feet below existing grades between the years 2011 and 2012. Additionally, groundwater data at 103 Lee Road (approximately 1,600 feet southwest of the site) indicated groundwater levels ranging from about 1¾ to 6 feet below existing grades between the years 2000 and 2012.

Based on the groundwater level measurements from our borings and the above data, we recommend a design groundwater depth of 3 feet beneath the bottom of existing fills that blanket the site. Fluctuations in groundwater levels occur due to many factors including seasonal fluctuation, underground drainage patterns, regional fluctuations, and other factors.

3.4 CORROSION SCREENING

We tested three samples collected at depths of 2 to 6 feet for resistivity, pH, soluble sulfates, and chlorides. The laboratory test results are summarized in Table 2A.

Table 2A: Summary of Laboratory Corrosion Test Results

Sample Location	Depth (feet)	Soil pH ¹	Resistivity ² (ohm-cm)	Chloride ³ (mg/kg)	Sulfate ^{3,4} (mg/kg)
EB-4	2.0	6.1	1,027	26	1,260
EB-5	5.0	6.6	1,161	24	63
EB-2	6.0	7.3	4,947	11	40

(1) ASTM G51

(2) ASTM G57 - 100% saturation

(3) ASTM D4327

(4) 1 mg/kg = 0.0001% by dry weight

As discussed, we also performed in-situ resistivity tests using the Wenner 4-pin method at two locations. Tests were performed at varying depths ranging from 2½ to 15 feet. The field resistivity test results are summarized in Table 2B.

Table 2B: Summary of Field Resistivity Test Results

Sample Location	Resistivity at Varying Depths ¹ (ohm-cm)						
	2.5 feet	3.75 feet	5.0 feet	7.5 feet	10.0 feet	11.25 feet	15.0 feet
CT-1	1,178	-	968	943	757	-	-
CT-2	-	9,695	-	1,918	-	1,189	1,632

(1) ASTM G57 – field procedure

Many factors can affect the corrosion potential of soil including moisture content, resistivity, permeability, and pH, as well as chloride and sulfate concentration. Typically, soil resistivity, which is a measurement of how easily electrical current flows through a medium (soil and/or water), is the most influential factor. In addition to soil resistivity, chloride and sulfate ion concentrations, and pH also contribute to corrosion potential.

3.4.1 Preliminary Soil Corrosion Screening

Based on the test results summarized in Table 2A and 2B, and published correlations between resistivity and corrosion potential, the soils on site may be considered mildly to very severely corrosive to buried metallic improvements (Chaker and Palmer, 1989).

In accordance with the 2019 CBC Section 1904.1, alternative cementitious materials for different exposure categories and classes shall be determined in accordance with ACI 318-19 Table 19.3.1.1, Table R19.3.1, and Table 19.3.2.1. Based on the laboratory sulfate test results, there is a moderate sulfate exposure and a cement type restriction is required. We have summarized applicable exposure categories and classes from ACI 318-19, Table 19.3.1.1 below in Table 2C.

Table 2C: ACI 318-19 Table 19.3.1.1 Exposure Categories and Classes

Freezing and Thawing (F)	Sulfate (S, soil)	In Contact with Water (W)	Corrosion Protection of Reinforcement (C)
F0 ¹	S1 ²	W1 ³	C1 ⁴

(1) (F0) "Concrete not exposed to freezing-and-thawing cycles" (ACI 318-19)

(2) (S1) "Moderate sulfate exposure" (ACI 318-19)

(3) (W1) "Concrete in contact with water where low permeability is not required" (ACI 318-19)

(4) (C1) "Concrete exposed to moisture but not to an external source of chlorides" (ACI 318-19)

We recommend the structural engineer and a corrosion engineer be retained to confirm the above information and provide additional recommendations, as needed.

3.5 IN-SITU WATER INFILTRATION

To estimate the infiltration rate of the soils at locations and depths provided by the Civil Engineer for the project, we performed two in-situ field infiltration tests using a Guelph permeameter by SoilMoisture Equipment Corp., Model #2800, in general accordance with ASTM D5126. Generally, the Guelph permeameter is a constant head device which uses two water-filled chambers to measure infiltration rate in a shallow borehole. A constant head level is established in the borehole and the rate of water outflow into the surrounding soil is noted. The rate of flow when it reaches a steady state, or constant rate, is used to determine an approximate infiltration rate for that location and depth.

The approximate location of the field infiltration tests (I-1 and I-2) are shown on the Site Plan, Figure 2. The infiltration tests were performed at approximate depths of 6 feet below existing site grades, corresponding to approximate Elevation 16 feet (datum unspecified) as provided by the Civil Engineer. The test results are summarized in Table 3.

Table 3: In-Situ Field Guelph Permeameter Test Results

Location	Depth Below Existing Grade (ft)	3D Infiltration Rate (in/hr)
I-1	6	2.65
I-2	6	1.75

3.5.1 Reliability of Field Test Data

Test results may not be truly indicative of the long-term, in-situ infiltration. Other factors including stratifications, heterogeneous deposits, overburden stress, disturbance, organic content, depth to groundwater, and other factors can influence test results. In addition, for stratified soils such as those encountered at the site, the average horizontal infiltration is typically greater than the average vertical infiltration.

3.5.2 Findings and Recommendations

Based on our findings, the soil at the locations tested and at a depth of about 6 feet below site grades at the time of testing have infiltration rates ranging from about 1.7 to 2.6 inches per hour. Based on our test results, the in-situ field tests indicated generally a moderate infiltration rate at the depth and locations tested.

We recommend the above estimate be confirmed in the field at the time of construction, as required. In addition, the project civil engineer should review the above information and provide additional recommendations as deemed necessary.

3.5.3 General Comments and Design Considerations

As discussed, the tests were performed at discrete locations and depths. In addition, some disturbance in preparing the test also can occur. Therefore, the above results can vary significantly and may not be representative over the entire site. Localized areas/depths with higher or lower permeable materials can increase or decrease the actual infiltration rates. Therefore, we recommend the potential for variations be considered when evaluating the soil infiltration capacity or performance.

SECTION 4: GEOLOGIC HAZARDS

4.1 FAULT SURFACE RUPTURE

Several significant faults are located within 25 kilometers of the site; however, the site is not located within a State-designated Alquist Priolo Earthquake Fault Zone. As shown in Figure 3, no known surface expression of fault traces is thought to cross the site; therefore, fault surface rupture hazard is not a significant geologic hazard at the site.

4.2 ESTIMATED GROUND SHAKING

Moderate to severe (design-level) earthquakes can cause strong ground shaking, which is the case for most sites within the Bay Area. A peak ground acceleration (PGA_M) was estimated following the ground motion hazard analysis procedure presented in Chapter 16 and 18 and Appendix J of the 2019 California Building Code (CBC) and Chapter 21, Section 21.2 of ASCE 7-16 and Supplement No. 1. For our analysis we used a PGA_M of 0.87g which was determined in accordance with Section 21.5 of ASCE 7-16.

4.3 LIQUEFACTION POTENTIAL

The site vicinity is not currently mapped by the State of California as part of the State-designated Liquefaction Hazard Zone study area. However, to explore the potential for liquefaction, our CPT program addressed this potential issue by testing potentially liquefiable layers to depths of at least 50 feet, performing visual classification on sampled materials, evaluating CPT data, and performing various tests to further classify soil properties.

4.3.1 Background

During strong seismic shaking, cyclically induced stresses can cause increased pore pressures within the soil matrix that can result in liquefaction triggering, soil softening due to shear stress loss, potentially significant ground deformation due to settlement within sandy liquefiable layers as pore pressures dissipate, and/or flow failures in sloping ground or where open faces are present (lateral spreading) (NCEER 1998). Limited field and laboratory data is available regarding ground deformation due to settlement; however, in clean sand layers settlement on the order of 2 to 4 percent of the liquefied layer thickness can occur. Soils most susceptible to liquefaction are loose, non-cohesive soils that are saturated and are bedded with poor drainage, such as sand and silt layers bedded with a cohesive cap.

4.3.2 Analysis

As discussed in the “Subsurface” section above, several sand layers were encountered below the design groundwater depth of 3 feet below existing fills or natural ground surface. Following the liquefaction analysis framework in the 2008 monograph, *Soil Liquefaction During Earthquakes* (Idriss and Boulanger, 2008), incorporating updates in *CPT and SPT Based Liquefaction Triggering Procedures* (Boulanger and Idriss, 2014), and in accordance with CDMG Special Publication 117A guidelines (CDMG, 2008) for quantitative analysis, these layers were analyzed for liquefaction triggering and potential post-liquefaction settlement. These methods compare the ratio of the estimated cyclic shaking (Cyclic Stress Ratio - CSR) to the soil's estimated resistance to cyclic shaking (Cyclic Resistance Ratio - CRR), providing a factor of safety against liquefaction triggering. Factors of safety less than or equal to 1.3 are considered to be potentially liquefiable and capable of post-liquefaction re-consolidation (i.e. settlement).

The CSR for each layer quantifies the stresses anticipated to be generated due to a design-level seismic event, is based on the peak horizontal acceleration generated at the ground

surface discussed in the “Estimated Ground Shaking” section above, and is corrected for overburden and stress reduction factors as discussed in the procedure developed by Seed and Idriss (1971) and updated in the 2008 Idriss and Boulanger monograph.

The soil's CRR is estimated from the in-situ measurements from CPTs and laboratory testing on samples retrieved from our borings. SPT “N” values obtained from hollow-stem auger borings were not used in our analyses, as the “N” values obtained are less reliable in sands below groundwater. The tip pressures are corrected for effective overburden stresses, taking into consideration both the groundwater level at the time of exploration and the design groundwater level, and stress reduction versus depth factors. The CPT method utilizes the soil behavior type index (I_c) to estimate the plasticity of the layers.

In estimating post-liquefaction settlement at the site, we have implemented a depth weighting factor proposed by Cetin (2009). Following evaluation of 49 high-quality, cyclically induced, ground settlement case histories from seven different earthquakes, Cetin proposed the use of a weighting factor based on the depth of layers. The weighting procedure was used to tune the surface observations at liquefaction sites to produce a better model fit with measured data. Aside from the better model fit it produced, the rationale behind the use of a depth weighting factor is based on the following: 1) upward seepage, triggering void ratio redistribution, and resulting in unfavorably higher void ratios for the shallower sublayers of soil layers; 2) reduced induced shear stresses and number of shear stress cycles transmitted to deeper soil layers due to initial liquefaction of surficial layers; and 3) possible arching effects due to nonliquefied soil layers. All these may significantly reduce the contribution of volumetric settlement of deeper soil layers to the overall ground surface settlement (Cetin, 2009).

The results of our CPT analyses (CPT-1 to CPT-5) are presented on Figures 4A through 4E of this report. Calculations for these CPTs are attached as Appendix D.

4.3.3 Summary

Our analyses indicate that several layers could potentially experience liquefaction triggering that could result in post-liquefaction total settlement at the ground on the order of up to about $\frac{1}{3}$ inch based on the Yoshimine (2006) method. As discussed in SP 117A, differential movement for level ground sites over deep soil sites will be up to about two-thirds of the total settlement between independent foundation elements. In our opinion, differential settlements are anticipated to be on the order of $\frac{1}{4}$ inch between foundation elements estimated to be over a horizontal distance of 50 to 60 feet.

4.3.4 Ground Deformation and Surficial Cracking Potential

The methods used to estimate liquefaction settlements assume that there is a sufficient cap of non-liquefiable material to prevent ground deformation or sand boils. For ground deformation to occur, the pore water pressure within the liquefiable soil layer will need to be great enough to break through the overlying non-liquefiable layer, which could cause significant ground deformation and settlement. The work of Youd and Garris (1995) indicates that the non-

liquefiable cap ranging from about 23 to 45 feet is sufficient to prevent ground deformation and significant surficial cracking; therefore, the above total settlement estimates are reasonable.

4.4 LATERAL SPREADING

Lateral spreading is horizontal/lateral ground movement of relatively flat-lying soil deposits towards a free face such as an excavation, channel, or open body of water; typically lateral spreading is associated with liquefaction of one or more subsurface layers near the bottom of the exposed slope. As failure tends to propagate as block failures, it is difficult to analyze and estimate where the first tension crack will form.

Watsonville Slough runs parallel to the site approximately 100 to 120 feet north of the site boundary. Based on our field observations, we estimate the channel bottom ranges from about 10 to 13 feet below the northern site boundary grades. As part of our liquefaction analyses, we calculated the Lateral Displacement Index (LDI) for potentially liquefiable layers based on methods presented in the 2008 monograph, *Soil Liquefaction During Earthquakes* (Idriss and Boulanger, 2008). LDI is a summation of the maximum shear strains versus depth, which is a measurement of the potential maximum displacement at that exploration location. Summations of the LDI values to a depth equal to twice the open face height were included. Estimated displacements in the vicinity of CPT-1 through CPT-5 based on the LDI calculations are considered negligible.

4.5 SEISMIC SETTLEMENT/UNSATURATED SAND SHAKING

Loose to medium dense unsaturated sandy soils can settle during strong seismic shaking. We evaluated the potential for seismic compaction of the unsaturated sands based on the work by Robertson and Shao (2010). Based on our analyses, the potential for significant seismic settlement affecting the proposed improvements is low.

4.6 TSUNAMI/SEICHE

The terms tsunami or seiche are described as ocean waves or similar waves usually created by undersea fault movement or by a coastal or submerged landslide. Tsunamis may be generated at great distance from shore (far field events) or nearby (near field events). Waves are formed, as the displaced water moves to regain equilibrium, and radiates across the open water, similar to ripples from a rock being thrown into a pond. When the waveform reaches the coastline, it quickly raises the water level, with water velocities as high as 15 to 20 knots. The water mass, as well as vessels, vehicles, or other objects in its path create tremendous forces as they impact coastal structures.

Tsunamis have affected the coastline along the Pacific Northwest during historic times. The Fort Point tide gauge in San Francisco recorded approximately 21 tsunamis between 1854 and 1964. The 1964 Alaska earthquake generated a recorded wave height of 7.4 feet and drowned eleven people in Crescent City, California. For the case of a far-field event, the Bay area would have hours of warning; for a near field event, there may be only a few minutes of warning, if any.

The site is approximately 3¼ miles inland from the Monterey Bay shoreline, and is approximately Elevation 18 to 24 feet based on topographic data provided and our aerial imagery data obtained using an unmanned aircraft (drone, UAS) in October 2021. Additionally, the site is not mapped within an inundation area as shown on the State of California Tsunami Inundation Map. Therefore, the potential for inundation due to tsunami or seiche is considered low.

4.7 FLOODING

Based on our internet search of the Federal Emergency Management Agency (FEMA) flood map public database, the site is located within Zone AE, described as a special flood hazard area subject to inundation by the 1% annual chance flood with a base flood elevation ranging from about Elevation 23 feet (NAVD88) to the west of the site and Elevation 24 feet just beyond the east boundary of the site. We recommend the project civil engineer be retained to confirm this information and verify the base flood elevation, if appropriate.

The Department of Water Resources (DWR), Division of Safety of Dams (DSOD) compiled a database of Dam Failure Inundation Hazard Maps (DSOD, 2015). The generalized hazard maps were prepared by dam owners as required by the State Office of Emergency Services; they are intended for planning purposes only. Based on our review of these maps, the site is not located within a dam failure inundation area.

SECTION 5: CONCLUSIONS

5.1 SUMMARY

From a geotechnical viewpoint, the project is feasible provided the concerns listed below are addressed in the project design. Descriptions of each concern with brief outlines of our recommendations follow the listed concerns.

- Potential for significant static settlement from aerial fill and building loads
- Existing site fills
- Shallow groundwater
- Expansive soils
- Soil corrosion potential
- Presence of cohesionless soils
- Differential movement across variations in loading

5.1.1 Potential for Significant Static Settlement from Aerial Fill and Building Loads

Based on the topographic survey provided dated November 23, 2021, we estimate site grades will need to be raised ranging up to about 5 feet to achieve finished floor. The largest fills required appear to be within the northeast and eastern portions of the proposed building footprint.

Based on our borings and CPTs, generally medium stiff to stiff compressible clays are present at depths ranging from about 10 feet to about 35 to 45 feet below site grades. Based on the site conditions, we anticipate significant consolidation settlement may occur in areas requiring thicker fill. We estimate total static settlements on the order of ½ inch for new fills up to about 2 feet. Settlement estimates increase up to 3 to 4 inches for fills on the order of 4 to 5 feet. This total settlement is generally due to primary consolidation of saturated native clays underlying the site. These estimates are based on a fill surcharge height to the planned finished floor and finished grade surrounding the building.

In addition to settlements from fill placement, based on estimated foundation loading (up to 100 kips for interior columns and 5 to 7 kips per lineal foot for exterior wall dead plus live loading) and the proposed grading, we estimate static settlements on the order of ½ inch could occur due to the weight of new building loads. Based on discussions with you and the structural engineer, we understand total consolidation and foundation settlements exceed structural requirements. Additional recommendations and foundation alternatives are provided in the “Foundations” section.

5.1.2 Existing Site Fills

As discussed, fills have previously been placed at the site. At our exploration locations, 3½ to 10½ feet of fill was observed. Based on our borings and the Daily Field Reports and data provided regarding placement and compaction of the fills, compaction appears to have been provided to the fill materials placed. However, the information and data provided is somewhat unclear and some information is potentially missing. Additionally, fill appears to have been placed prior to as well as between the time periods of the compaction records provided. Additional testing (i.e. test pits and compaction testing) should be performed to further evaluate the overall compaction of the existing fills within the location of the proposed building footprint to determine whether the fills can remain as is or should be removed and recompacted within the building area or some other mitigation performed. Additional recommendations are provided in the “Earthwork” section.

5.1.3 Shallow Groundwater

Shallow groundwater was measured in our borings as shallow as about 10 feet below the site grades at the time of exploration. High groundwater is estimated to be at a depth of about 3 feet below the bottom of the existing fills at the site. Our experience with similar sites indicates that shallow groundwater could significantly impact grading and underground construction. These impacts typically consist of potentially wet and unstable subgrade, difficulty achieving compaction, and difficult underground utility installation. Dewatering and shoring of utility

trenches may be required in some isolated areas of the site. Additional recommendations addressing this concern are provided in the “Earthwork” section of this report.

5.1.4 Expansive Soils

The existing fills that generally blanket the site are low to moderately expansive. The native soils beneath the fills are highly expansive. Expansive soils can undergo significant volume change with changes in moisture content. They shrink and harden when dried and expand and soften when wetted. To reduce the potential for damage to the planned structure, slabs-on-grade should have sufficient reinforcement and be supported on a layer of non-expansive fill; footings should extend below the zone of seasonal moisture fluctuation. In addition, it is important to limit moisture changes in the surficial soils by using positive drainage away from buildings as well as limiting landscaping watering. We recommend that a plug of low-permeability clay soil, sand-cement slurry, or lean concrete be placed within trenches just outside where the trenches pass into building and pavement areas. Detailed grading and foundation recommendations addressing this concern are presented in the following sections.

5.1.5 Soil Corrosion Potential

A preliminary soil corrosion screening was performed based on the results of analytical tests on samples of the near-surface soil as well as in-situ testing. Testing on the samples indicate sulfate exposure is moderate and designated as Category S1 per published ACI guidelines. Additionally, the corrosion potential for buried metallic structures, such as metal pipes, is considered mildly to very severely corrosive based on comparisons to published standards. We recommend that special requirements for corrosion control be made to protect metal pipes. We recommend that a corrosion engineer be retained to review this information and provide recommendations, as needed, and perform additional testing as deemed necessary for the proposed site development.

5.1.6 Presence of Cohesionless Soils

Some of the existing fills are sandy soils with lower fines content. Sandy soils may not stand vertical when excavated and excavation sidewalls for foundations, utility trenches, temporary slopes, etc. may cave in or accumulate significant amount of slough. Grading and excavation contractors should be made aware of this condition and plan on potentially needing to form footings and other similar construction issues as relates to utility excavations, etc. Additional recommendations are provided within “Foundations” section of this report.

5.1.7 Differential Movement Across Variations in Loading

As discussed, the soil will settle under the weight of new fill and proposed structural loads. Differential movement can occur between these zones of variation in soil loading as well as at transitions where ground improvement or no ground improvement is performed. The following items will need to be considered in design to avoid significant distress.

- Hinge connections should be used wherever differential settlements may be detrimental to exterior flatwork, such as at building connections or abrupt changes in grade or surface loads.
- Where utilities transition to the structure areas and areas with abrupt changes in new fill or another variation in loading to the subsurface soils, flexible utility connections or other types of mitigation may be necessary to prevent damage or disruption of utilities.

5.2 PLANS AND SPECIFICATIONS REVIEW

We recommend that we be retained to review the geotechnical aspects of the project structural, civil, and landscape plans and specifications, allowing sufficient time to provide the design team with any comments prior to issuing the plans for construction.

5.3 CONSTRUCTION OBSERVATION AND TESTING

As site conditions may vary significantly between the small-diameter borings performed during this investigation, we also recommend that a Cornerstone representative be present to provide geotechnical observation and testing during earthwork and foundation construction. This will allow us to form an opinion and prepare a letter at the end of construction regarding contractor compliance with project plans and specifications, and with the recommendations in our report. We will also be allowed to evaluate any conditions differing from those encountered during our investigation and provide supplemental recommendations as necessary. For these reasons, the recommendations in this report are contingent of Cornerstone providing observation and testing during construction. Contractors should provide at least a 48-hour notice when scheduling our field personnel.

SECTION 6: EARTHWORK

6.1 SITE DEMOLITION

All existing improvements not to be reused for the current development, including all foundations, flatwork, pavements, utilities, and other improvements should be demolished and removed from the site. Recommendations in this section apply to the removal of these improvements prior to the start of mass grading or the construction of new improvements for the project.

Cornerstone should be notified prior to the start of demolition and should be present on at least a part-time basis during all backfill and mass grading as a result of demolition. Occasionally, other types of buried structures (wells, cisterns, debris pits, etc.) can be found on sites with prior development. If encountered, Cornerstone should be contacted to address these types of structures on a case-by-case basis.

6.1.1 Demolition of Existing Slabs, Foundations and Pavements

All slabs, foundations, and pavements should be completely removed from within planned building areas.

6.1.2 Abandonment of Existing Utilities

All utilities should be completely removed from within planned building areas. For any utility line to be considered acceptable to remain within building areas, the utility line must be completely backfilled with grout or sand-cement slurry (sand slurry is not acceptable), the ends outside the building area capped with concrete, and the trench fills either removed and replaced as engineered fill with the trench side slopes flattened to at least 1:1, or the trench fills are determined not to be a risk to the structure. The assessment of the level of risk posed by the particular utility line will determine whether the utility may be abandoned in place or needs to be completely removed. The contractor should assume that all utilities will be removed from within building areas unless provided written confirmation from both the owner and the geotechnical engineer.

Utilities extending beyond the building area may be abandoned in place provided the ends are plugged with concrete, they do not conflict with planned improvements, and that the trench fills do not pose significant risk to the planned surface improvements.

The risk for owners associated with abandoning utilities in place include the potential for future differential settlement of existing trench fills, and/or partial collapse and potential ground loss into utility lines that are not completely filled with grout.

6.2 SITE CLEARING AND PREPARATION

6.2.1 Site Stripping

The site should be stripped of all surface vegetation, and surface and subsurface improvements to be removed within the proposed development area. Demolition of existing improvements is discussed in the prior paragraphs. Surface vegetation and topsoil should be stripped to a sufficient depth to remove all material greater than 3 percent organic content by weight.

6.2.2 Tree and Shrub Removal

Trees and shrubs designated for removal should have the root balls and any roots greater than ½-inch diameter removed completely. Mature trees are estimated to have root balls extending to depths of 2 to 4 feet, depending on the tree size. Significant root zones are anticipated to extend to the diameter of the tree canopy. Grade depressions resulting from root ball removal should be cleaned of loose material and backfilled in accordance with the recommendations in the "Compaction" section of this report.

6.3 EXISTING FILLS

Up to 10½ feet of fill was encountered during our site investigation. Based on our borings, field reports, and data provided regarding placement and compaction of the fills, compaction appears to have been provided to the fills. However, there appears to be data gaps and the information provided is unclear and some information is potentially missing. As recommended, additional testing (i.e. test pits and compaction testing) should be performed to further evaluate the overall compaction of the existing fills within the proposed building footprint area. This testing would be used to determine whether the fills can remain as is or if they should be removed and recompacted within the building area. If the fills are determined not adequately compacted as currently placed, ground improvement could also be performed to improve the fills. Additional recommendations can be provided based on the design teams desired foundation alternative and approach to reducing potential static settlements within the building area.

Fills extending into planned pavement and flatwork areas may be left in place provided they are determined to be a low risk for future differential settlement and that the upper 12 inches of fill below pavement subgrade is re-worked and compacted as discussed in the “Compaction” section below.

6.4 TEMPORARY CUT AND FILL SLOPES

The contractor is responsible for maintaining all temporary slopes and providing temporary shoring where required. Temporary shoring, bracing, and cuts/fills should be performed in accordance with the strictest government safety standards. On a preliminary basis, the upper 10 feet at the site may be classified as OSHA Soil Type C materials.

Excavations performed during site demolition and fill removal should be sloped at 3:1 (horizontal:vertical) within the upper 5 feet below building subgrade. Actual excavation inclinations should be reviewed in the field during construction, as needed. Excavations below building subgrade and excavations in pavement and flatwork areas should be sloped in accordance with OSHA soil classification requirements.

In general, the contractor should be responsible for all temporary trenches and excavations at the site and design of any required temporary shoring. Support of adjacent existing improvements without distress should also be the contractor’s responsibility.

6.5 SHALLOW GROUNDWATER

We recommend that contractors anticipate dewatering to control water seeping into deeper excavations close to or below the groundwater. Groundwater conditions can be difficult to maintain, and if the groundwater is in a relatively widespread, continuous layer, it may be hard to dewater, requiring continuous dewatering during excavations. The contractors should anticipate working with and mitigating unstable soil conditions, especially when close to the groundwater depth.

6.6 SUBGRADE PREPARATION

After site clearing and demolition is complete, and prior to backfilling any excavations resulting from fill removal or demolition, the excavation subgrade and subgrade within areas to receive additional site fills, slabs-on-grade and/or pavements should be scarified to a depth of 6 inches, moisture conditioned, and compacted in accordance with the “Compaction” section below.

Sandier soils may be encountered at the subgrade elevation depending on the location and final site grades. As such, we recommend that subgrade compaction and proof rolling be performed within 24 hours of capillary break layer or slab-on-grade construction.

6.7 WET SOIL STABILIZATION GUIDELINES

Native soil and fill materials, especially soils with high fines contents such as clays and silty soils, can become unstable due to high moisture content, whether from high in-situ moisture contents or from winter rains. As the moisture content increases over the laboratory optimum, it becomes more likely the materials will be subject to softening and yielding (pumping) from construction loading or become unworkable during placement and compaction.

As discussed in the “Subsurface” section in this report, the in-situ moisture contents range from a few percent below to about 15 percent over the estimated laboratory optimum in the upper 10 feet of the soil profile. The contractor should anticipate needing to moisture condition some soils and drying others prior to reusing them as fill especially if work is performed in winter or spring. In addition, repetitive rubber-tire loading will likely de-stabilize the soils.

There are several methods to address potential unstable soil conditions and facilitate fill placement and trench backfill. Some of the methods are briefly discussed below. Implementation of the appropriate stabilization measures should be evaluated on a case-by-case basis according to the project construction goals and the site conditions.

6.7.1 Chemical Treatment

Where the unstable area exceeds about 5,000 to 10,000 square feet and/or site winterization is desired, chemical treatment with quicklime (CaO), kiln-dust, or cement may be more cost-effective than removal and replacement. Recommended chemical treatment depths will typically range from 12 to 18 inches depending on the magnitude of the instability.

6.7.2 Scarification and Drying

The subgrade may be scarified to a depth of 8 to 12 inches and allowed to dry to near optimum conditions if sufficient dry weather is anticipated to allow sufficient drying. More than one round of scarification may be needed to break up the soil clods.

6.7.3 Removal and Replacement

As an alternative to scarification, the contractor may choose to over-excavate the unstable soils and replace them with dry on-site or import materials. A Cornerstone representative should be present to provide recommendations regarding the appropriate depth of over-excavation, whether a geosynthetic (stabilization fabric or geogrid) is recommended, and what materials are recommended for backfill.

6.8 MATERIAL FOR FILL

6.8.1 Re-Use of On-site Soils

On-site soils with an organic content less than 3 percent by weight may be reused as general fill. General fill should not have lumps, clods or cobble pieces larger than 6 inches in diameter; 85 percent of the fill should be smaller than 2½ inches in diameter. Minor amounts of oversize material (smaller than 12 inches in diameter) may be allowed provided the oversized pieces are not allowed to nest together and the compaction method will allow for loosely placed lifts not exceeding 12 inches.

6.8.2 High Moisture in Fills and Underlying Native Soils

As discussed, the in-situ moisture contents range up to about 15 percent over the estimated laboratory optimum in the upper 10 feet of the soil profile. Additionally, the soils may become significantly wetter during wet winter weather. The contractor should anticipate drying and processing soils prior to reusing them as fill. The contractors should anticipate working with and mitigating unstable soil conditions.

6.8.3 Potential Import Sources

Imported and non-expansive material should be inorganic with a Plasticity Index (PI) of 15 or less, and not contain recycled asphalt concrete where it will be used within the building areas. To prevent significant caving during trenching or foundation construction, imported material should have sufficient fines. Samples of potential import sources should be delivered to our office at least 10 days prior to the desired import start date. Information regarding the import source should be provided, such as any site geotechnical reports. If the material will be derived from an excavation rather than a stockpile, potholes will likely be required to collect samples from throughout the depth of the planned cut that will be imported. At a minimum, laboratory testing will include PI tests. Material data sheets for select fill materials (Class 2 aggregate base, ¾-inch crushed rock, quarry fines, etc.) listing current laboratory testing data (not older than 6 months from the import date) may be provided for our review without providing a sample. If current data is not available, specification testing will need to be completed prior to approval.

Environmental and soil corrosion characterization should also be considered by the project team prior to acceptance. Suitable environmental laboratory data to the planned import quantity should be provided to the project environmental consultant; additional laboratory testing may be required based on the project environmental consultant's review. The potential import source

should also not be more corrosive than the on-site soils, based on pH, saturated resistivity, and soluble sulfate and chloride testing.

6.8.4 Non-Expansive Fill Using Lime Treatment

As discussed above, non-expansive fill should have a Plasticity Index (PI) of 15 or less. As mentioned, the existing fills have low to moderate expansion material. The lower expansion soils present at the site could potentially be used as non-expansive fill. However, as an alternative to harvesting these lower expansive soils or importing non-expansive fill, chemical treatment can be considered to create non-expansive fill. If this option is considered, additional laboratory tests should be performed during site grading to provide supplemental recommendations.

6.9 COMPACTION REQUIREMENTS

All fills, and subgrade areas where fill, slabs-on-grade, and pavements are planned, should be placed in loose lifts 8 inches thick or less and compacted in accordance with ASTM D1557 (latest version) requirements as shown in the table below. In general, clayey soils should be compacted with sheepsfoot equipment and sandy/gravelly soils with vibratory equipment; open-graded materials such as crushed rock should be placed in lifts no thicker than 18 inches and consolidated in place with vibratory equipment. Each lift of fill and all subgrade should be firm and unyielding under construction equipment loading in addition to meeting the compaction requirements to be approved. The contractor (with input from a Cornerstone representative) should evaluate the in-situ moisture conditions, as the use of vibratory equipment on soils with high moistures can cause unstable conditions. General recommendations for soil stabilization are provided in the "Wet Soil Stabilization Guidelines" section of this report. Where the soil's PI is 20 or greater, the expansive soil criteria should be used.

Table 4: Compaction Requirements

Description	Material Description	Minimum Relative ¹ Compaction (percent)	Moisture ² Content (percent)
General Fill (within upper 5 feet)	On-Site Expansive Soils	87 – 92	>3
	Low Expansion Soils	90	>1
General Fill (below a depth of 5 feet)	On-Site Expansive Soils	95	>3
	Low Expansion Soils	95	>1
Trench Backfill	On-Site Expansive Soils	87 – 92	>3
	Low Expansion Soils	90	>1

Table 4 Continues

Table 4: Compaction Requirements (Continued)

Description	Material Description	Minimum Relative ¹ Compaction (percent)	Moisture ² Content (percent)
Trench Backfill (upper 6 inches of pavement subgrade)	On-Site Low Expansion Soils	95	>1
Crushed Rock Fill	¾-inch Clean Crushed Rock	Consolidate In-Place	NA
Non-Expansive Fill	Imported Non-Expansive Fill	90	Optimum
Flatwork Subgrade	On-Site Expansive Soils	87 - 92	>3
	Low Expansion Soils	90	>1
Flatwork Aggregate Base	Class 2 Aggregate Base ³	90	Optimum
Pavement Subgrade	On-Site Expansive Soils	87 - 92	>3
	Low Expansion Soils	95	>1
Pavement Aggregate Base	Class 2 Aggregate Base ³	95	Optimum
Asphalt Concrete	Asphalt Concrete	95 (Marshall)	NA

1 – Relative compaction based on maximum density determined by ASTM D1557 (latest version)

2 – Moisture content based on optimum moisture content determined by ASTM D1557 (latest version)

3 – Class 2 aggregate base shall conform to Caltrans Standard Specifications, latest edition, except that the relative compaction should be determined by ASTM D1557 (latest version)

6.9.1 Construction Moisture Conditioning

Expansive soils can undergo significant volume change when dried then wetted. The contractor should keep all exposed expansive soil subgrade (and also trench excavation side walls) moist until protected by overlying improvements (or trenches are backfilled). If expansive soils are allowed to dry out significantly, re-moisture conditioning may require several days of re-wetting (flooding is not recommended), or deep scarification, moisture conditioning, and re-compaction.

6.10 TRENCH BACKFILL

Utility lines constructed within public right-of-way should be trenched, bedded and shaded, and backfilled in accordance with the local or governing jurisdictional requirements. Utility lines in private improvement areas should be constructed in accordance with the following requirements unless superseded by other governing requirements.

All utility lines should be bedded and shaded to at least 6 inches over the top of the lines with crushed rock (¾-inch-diameter or greater) or well-graded sand and gravel materials conforming to the pipe manufacturer's requirements. Open-graded shading materials should be consolidated in place with vibratory equipment and well-graded materials should be compacted to at least 90 percent relative compaction with vibratory equipment prior to placing subsequent backfill materials. Open-graded materials (i.e. crushed rock, pea gravel, etc.) should also be completely enclosed within filter fabric, Mirafi 140N, or approved equivalent when extending near and below the design groundwater.

General backfill over shading materials may consist of on-site native materials provided they meet the requirements in the “Material for Fill” section, and are moisture conditioned and compacted in accordance with the requirements in the “Compaction” section.

Where utility lines will cross perpendicular to strip footings, the footing should be deepened to encase the utility line, providing sleeves or flexible cushions to protect the pipes from anticipated foundation settlement, or the utility lines should be backfilled to the bottom of footing with sand-cement slurry or lean concrete. Where utility lines will parallel footings and will extend below the “foundation plane of influence,” an imaginary 1:1 plane projected down from the bottom edge of the footing, either the footing will need to be deepened so that the pipe is above the foundation plane of influence, or the utility trench will need to be backfilled with sand-cement slurry or lean concrete within the influence zone. Sand-cement slurry used within foundation influence zones should have a minimum compressive strength of 75 psi.

On expansive soils sites it is desirable to reduce the potential for water migration into building and pavement areas through the granular shading materials. We recommend that a plug of low-permeability clay soil, sand-cement slurry, or lean concrete be placed within trenches just outside where the trenches pass into building and pavement areas.

6.11 SITE DRAINAGE

Ponding should not be allowed adjacent to building foundations, slabs-on-grade, or pavements. Hardscape surfaces should slope at least 2 percent towards suitable discharge facilities; landscape areas should slope at least 3 percent towards suitable discharge facilities. Roof runoff should be directed away from building areas in closed conduits, to approved infiltration facilities, or on to hardscaped surfaces that drain to suitable facilities. Retention, detention or infiltration facilities should be spaced at least 10 feet from buildings, and preferably at least 5 feet from slabs-on-grade or pavements. However, if retention, detention or infiltration facilities are located within these zones, we recommend that these treatment facilities meet the requirements in the Storm Water Treatment Design Considerations section of this report.

6.12 LOW-IMPACT DEVELOPMENT (LID) IMPROVEMENTS

The Municipal Regional Permit (MRP) requires regulated projects to treat 100 percent of the amount of runoff identified in Provision C.3.d from a regulated project’s drainage area with low impact development (LID) treatment measures onsite or at a joint stormwater treatment facility. LID treatment measures are defined as rainwater harvesting and use, infiltration, evapotranspiration, or biotreatment. A biotreatment system may only be used if it is infeasible to implement harvesting and use, infiltration, or evapotranspiration at a project site.

Technical infeasibility of infiltration may result from site conditions that restrict the operability of infiltration measures and devices. Various factors affecting the feasibility of infiltration treatment may create an environmental risk, structural stability risk, or physically restrict infiltration. The presence of any of these limiting factors may render infiltration technically infeasible for a proposed project. To aid in determining if infiltration may be feasible at the site, we provide the following site information regarding factors that may aid in determining the feasibility of

infiltration facilities at the site. We also performed infiltration testing in two locations at the site. Further information regarding this testing was provided in Section 3.5 of this report.

- The near-surface soils consist of variable (clayey and sandy) existing fills and underlying clayey native soils categorized as Hydrologic Soil Group D. In our opinion, the clayey native soils will likely significantly limit the infiltration of stormwater. The variable nature of the existing fills should also be considered as infiltration rates may significantly vary from one location and depth to another.
- Locally, seasonal high groundwater is not mapped in the area but was encountered as shallow as 10 feet beneath existing site grades and therefore is expected to be within 10 feet of the base of the infiltration measure.
- In our opinion, infiltration locations within 10 feet of the buildings would create a geotechnical hazard.

6.12.1 Storm Water Treatment Design Considerations

If storm water treatment improvements, such as shallow bio-retention swales, basins or pervious pavements, are required as part of the site improvements to satisfy Storm Water Quality (C.3) requirements, we recommend the following items be considered for design and construction.

6.12.1.1 General Bioswale Design Guidelines

- If possible, avoid placing bioswales or basins within 10 feet of the building perimeter or within 5 feet of exterior flatwork or pavements. If bioswales must be constructed within these setbacks, the side(s) and bottom of the trench excavation should be lined with 10-mil visqueen to reduce water infiltration into the surrounding expansive clay.
- Bioswales constructed within 3 feet of proposed buildings may be within the foundation zone of influence for perimeter wall loads. Therefore, where bioswales will parallel foundations and will extend below the “foundation plane of influence,” an imaginary 1:1 plane projected down from the bottom edge of the foundation, the foundation will need to be deepened so that the bottom edge of the bioswale filter material is above the foundation plane of influence.
- The bottom of bioswale or detention areas should include a perforated drain placed at a low point, such as a shallow trench or sloped bottom, to reduce water infiltration into the surrounding soils near structural improvements, and to address the low infiltration capacity of the on-site clay soils.

6.12.1.2 Bioswale Infiltration Material

- Gradation specifications for bioswale filter material, if required, should be specified on the grading and improvement plans.

- Compaction requirements for bioswale filter material in non-landscaped areas or in pervious pavement areas, if any, should be indicated on the plans and specifications to satisfy the anticipated use of the infiltration area.
- If bioswales are to be vegetated, the landscape architect should select planting materials that do not reduce or inhibit the water infiltration rate, such as covering the bioswale with grass sod containing a clayey soil base.
- Due to the relatively loose consistency and/or high organic content of many bioswale filter materials, long-term settlement of the bioswale medium should be anticipated. To reduce initial volume loss, bioswale filter material should be wetted in 12-inch lifts during placement to pre-consolidate the material. Mechanical compaction should not be allowed, unless specified on the grading and improvement plans, since this could significantly decrease the infiltration rate of the bioswale materials.
- It should be noted that the volume of bioswale filter material may decrease over time depending on the organic content of the material. Additional filter material may need to be added to bioswales after the initial exposure to winter rains and periodically over the life of the bioswale areas, as needed.

6.12.1.3 Bioswale Construction Adjacent to Pavements

If bio-infiltration swales or basins are considered adjacent to proposed parking lots or exterior flatwork, we recommend that mitigative measures be considered in the design and construction of these facilities to reduce potential impacts to flatwork or pavements. Exterior flatwork, concrete curbs, and pavements located directly adjacent to bio-swales may be susceptible to settlement or lateral movement, depending on the configuration of the bioswale and the setback between the improvements and edge of the swale. To reduce the potential for distress to these improvements due to vertical or lateral movement, the following options should be considered by the project civil engineer:

- Improvements should be setback from the edge of a bioswale (assuming a sloping bioswale) such that there is at least 1 foot of horizontal distance between the edge of improvements and the top edge of the bioswale excavation for every 1 foot of vertical bioswale depth, or
- Concrete curbs for pavements, or lateral restraint for exterior flatwork, located directly adjacent to a bioswale, or not meeting the above setback, should be designed to resist lateral earth pressures in accordance with the recommendations in the “Retaining Walls” section of this report, or concrete curbs or edge restraint should be adequately keyed into the native soil or engineered to reduce the potential for rotation or lateral movement of the curbs.

6.13 LANDSCAPE CONSIDERATIONS

Since the near-surface soils are moderately to highly expansive, we recommend reducing the amount of surface water infiltrating these soils near foundations and exterior slabs-on-grade. This can typically be achieved by:

- Using drip irrigation
- Avoiding open planting within 3 feet of the building perimeter or near the top of slopes
- Regulating the amount of water distributed to lawns or planter areas by using irrigation timers
- Selecting landscaping that requires little or no watering, especially near foundations.

We recommend that the landscape architect consider these items when developing landscaping plans.

SECTION 7: 2019 CBC SEISMIC DESIGN CRITERIA

7.1 SEISMIC DESIGN CRITERIA

We developed site-specific seismic design parameters in accordance with Chapter 16, Chapter 18 and Appendix J of the 2019 California Building Code (CBC) and Chapters 11, 12, 20, and 21 and Supplement No. 1 of ASCE 7-16.

7.1.1 Site Location and Provided Data For 2019 CBC Seismic Design

The project is located at latitude 36.903543° and longitude -121.774251°, which is based on Google Earth (WGS84) coordinates at the approximate center of the site in Watsonville, California. We have assumed that a Seismic Importance Factor (I_e) of 1.00 has been assigned to the structure in accordance with Table 1.5-2 of ASCE 7-16 for structures classified as Risk Category II. The building period has not been provided by the project structural engineer.

7.2 2019 CBC SEISMIC DESIGN CRITERIA

As discussed in the “Subsurface” section of our report, our CPT and exploratory borings generally encountered medium dense to very dense sands and medium stiff to hard clay deposits to a depth of 100 feet, the maximum depth explored. Some interbedded layers of loose to very dense sands were encountered within the clays. Shear wave velocity (V_s) measurements were performed while advancing CPT-3, resulting in a time-averaged shear wave velocity for the top 30 meters (V_{s30}) of 190 meters per second (622 feet per second), for the upper 100 feet.

7.2.1 2019 CBC Seismic Design

As our explorations encountered deep alluvial soils with shear wave velocity for the upper 30 meters between 600 and 1200 feet per second, per section 20.3.2 of ASCE 7-16, we have classified the site as Soil Classification D, which is described as a “stiff soil” profile. Because we used site specific data from our explorations and laboratory testing, the site class should be considered as “determined” for the purposes of estimating the seismic design parameters from the code. Our site-specific ground motion hazard analysis considered a V_{S30} of 190 m/s (622 ft/s).

In accordance with Section 11.4.8 of ASCE 7-16, we performed a ground motion hazard analysis following Chapter 21, Section 21.2 of ASCE 7-16. We evaluated both Probabilistic MCE_R Ground Motions in accordance with Method 1 and Deterministic MCE_R Ground Motions to generate our recommended design response spectrum for the project, see Figure 6. The recommended design spectral accelerations and associated periods are also provided graphically on Figure 6.

SECTION 8: FOUNDATIONS

8.1 SUMMARY OF RECOMMENDATIONS

As mentioned, we understand the estimated total settlements likely exceed the tolerable foundation limits for conventional shallow foundations provided soil improvement or a soil surcharge is not performed. There are some potential alternatives to reduce or accelerate the rate of settlement or to mitigate the effects of settlement on the building. These alternatives include:

- Fill surcharge program with or without wick drains to expedite static settlements and induce settlement to occur prior to building construction and loading, which will enable the structure to be supported on conventional shallow foundations.
- Ground improvement beneath foundations to reduce settlements enabling the structure to be supported on conventional shallow foundations. Ground improvement can also be performed beneath slab-on-grade areas if settlements are determined to exceed structural requirements.
- Deep foundations to support the building columns and walls to mitigate the effects of settlement. If settlements exceed structural requirements beneath slab areas, the slabs could be designed as structural slabs spanning unsupported between pile caps and grade beams.

8.2 SHALLOW FOUNDATIONS

8.2.1 Conventional Shallow Footings

Provided ground improvement or a fill surcharge program is performed to reduce settlements, the building can be supported on conventional shallow footings. Conventional shallow footings should bear on natural, undisturbed soil, engineered fill, or ground improvement, be at least 15 inches wide, and extend at least 18 inches below the lowest adjacent grade. Lowest adjacent grade is defined as the deeper of the following: 1) bottom of the adjacent interior slab-on-grade, or 2) finished exterior grade, excluding landscaping topsoil.

If a fill surcharge program is performed and provided the “Earthwork” recommendations are followed, footings would be capable of supporting maximum allowable bearing pressures of 2,000 psf for dead loads, 3,000 psf for combined dead plus live loads, and 4,000 psf for all loads including wind and seismic. These pressures are based on factors of safety of 3.0, 2.0, and 1.5 applied to the ultimate bearing pressure for dead, dead plus live, and all loads, respectively. These pressures are net values; the weight of the footing may be neglected for the portion of the footing extending below grade (typically, the full footing depth). Top and bottom mats of reinforcing steel should be included in continuous footings to help span irregularities and differential settlement.

If ground improvement is performed beneath foundations, bearing pressures will be dependent on the final ground improvement technique and spacing; however, substantial improvement in bearing capacity would be expected. We estimate that typical allowable bearing pressures of about 4,000 to 5,000 psf for combined dead plus live loads may be feasible. These estimated bearing pressures should be further evaluated with the ground improvement contractor once retained.

8.2.2 Footing Settlement

For both improvement methods, the surcharge or ground improvement design should reduce the total combined static and seismic settlements to less than about 1½ inches with ¾ to 1 inch differential settlement over a horizontal distance of 50 to 60 feet, enabling the structure to be supported on spread footings. This total and differential settlement is preliminary and this criteria should be confirmed collaboratively with the structural engineer and owner.

8.2.3 Lateral Loading

Lateral loads may be resisted by friction between the bottom of footing and the supporting subgrade, and also by passive pressures generated against footing sidewalls. An ultimate frictional resistance of 0.40 applied to the footing dead load, and an ultimate passive pressure based on an equivalent fluid pressure of 400 pcf may be used in design. The structural engineer should apply an appropriate factor of safety to the ultimate values above. Where footings are adjacent to landscape areas without hardscape, the upper 12 inches of soil should be neglected when determining passive pressure capacity.

8.2.4 Conventional Shallow Footing Construction Considerations

Where utility lines will cross perpendicular to strip footings, the footing should be deepened to encase the utility line, providing sleeves or flexible cushions to protect the pipes from anticipated foundation settlement, or the utility lines should be backfilled to the bottom of footing with sand-cement slurry or lean concrete. Where utility lines will parallel footings and will extend below the “foundation plane of influence,” an imaginary 1:1 plane projected down from the bottom edge of the footing, either the footing will need to be deepened so that the pipe is above the foundation plane of influence or the utility trench will need to be backfilled with sand-cement slurry or lean concrete within the influence zone. Sand-cement slurry used within foundation influence zones should have a minimum compressive strength of 75 psi.

Footing excavations should be filled as soon as possible or be kept moist until concrete placement by regular sprinkling to prevent desiccation. A Cornerstone representative should observe all footing excavations prior to placing reinforcing steel and concrete. If there is a significant schedule delay between our initial observation and concrete placement, we may need to re-observe the excavations.

As mentioned, there are some sandier existing fills present. If these sands are encountered within footings, footing excavation walls may not stand vertical and may need to be sloped to a minimum 1:1 inclination or Stay-Form or similar may need to be placed within the footing excavations as they are excavated during construction of the foundation elements. Granular material encountered in the footing bottoms may be disturbed to a depth of 6 to 8 inches following excavation and will need to be compacted to 90 percent relative compaction prior to steel placement. Care should be taken to not disturb the compacted granular material during steel placement. We should re-observe the footing excavations in granular materials after reinforcing steel has been placed and just prior to concrete placement. Footing excavations should also be kept moist by regular sprinkling with water to prevent desiccation and potential raveling of the granular materials. As an alternative, a rat slab can be placed over the granular material after we have observed the footing excavation to protect the granular material prior to steel placement.

8.3 FILL SURCHARGE PROGRAM WITH OR WITHOUT WICK DRAINS

To expedite the rate of settlements and to minimize total and differential static settlements from fill placement and building loads to the settlements discussed above, enabling the structure to be supported on conventional shallow footings, the site can be pre-consolidated using a temporary surcharge program. Wick drains can also be used to further expedite settlement. This program should be designed and performed by a design-build ground improvement contractor with extensive experience in surcharging, wick drain installation, and monitoring. We should work with them to provide a monitoring program, which should include, at a minimum, settlement plates and piezometers. Plate and piezometer locations and depths should be coordinated with the contractor. The monitoring program should be in place well in advance prior to constructing the surcharge fill. It is very important that these be installed prior to any grading or placing of fill, and baseline readings taken. All instrumentation should be protected by the grading contractor during fill placement. The actual fill thickness, wick spacing, and

quantity should be determined by the contractor and forwarded to us for review. Regular monitoring with frequent data collection should be expected and planned for. In addition, modification to our estimates should be expected based on the actual field condition encountered and performance at the time of construction.

8.3.1 Preliminary Surcharge Program Estimates

To provide some initial estimates and timing, we contacted Keller, a design-build ground improvement contractor, to provide preliminary estimates. Based on their preliminary evaluation, they recommended two options:

- Option 1 – Wick Drains at 3-foot Triangular Spacing: Wick drains would be a maximum depth of 45 feet below the ground surface at a 3-foot triangular spacing. Wick drain installation would take about 7 to 8 weeks. Fill would be placed up to pad grade followed by an additional 5-foot surcharge (600 psf) load above the pad. The surcharge would remain in-place roughly 3 months. With this program, no additional settlement is anticipated during the building's service.
- Option 2 – Wick Drains at 4-foot Triangular Spacing: Wick drains would be a maximum depth of 45 feet below the ground surface at a 4-foot triangular spacing. Wick drain installation would take about 7 to 8 weeks. Fill would be placed up to pad grade followed by an additional 5-foot surcharge (600 psf) load above the pad. The surcharge would remain in-place roughly 3 months. With this program, 1¾ to 2 inches of long-term settlement is anticipated during the building's service.

Please note the above estimated surcharge duration can vary from one to several weeks based on the final design including wick drains configuration and settlement tolerances. In addition, real-time settlement monitoring data will also be used to better evaluate and potentially reduce the above surcharge duration estimates.

8.4 GROUND IMPROVEMENT

As discussed above, conventional shallow footings supporting the warehouse building may be used in combination with ground improvement. Ground improvement can be used to improve the subsurface soils such that the total combined static and seismic settlements are reduced to 1½ inches or less, with a differential settlement of ¾ to 1 inch over a horizontal distance of 50 to 60 feet, enabling the structure to be supported on spread footings. This total settlement is preliminary, and the criteria should be confirmed collaboratively with the structural engineer and owner.

8.4.1 Ground Improvement Requirements

Ground improvement should consist of densification techniques to reduce static settlement. Ground improvement can also improve the ground's resistance to liquefaction and improve bearing capacity and seismic performance. Densification techniques could potentially consist of vibro replacement (i.e. stone columns), granular compaction piles (i.e. rammed aggregate),

grouted displacement columns (i.e. CLSM), soil-cement mixing, or similar densification techniques. If the site soils are environmentally impacted, we anticipate that a ground improvement method that results in a low permeability improved zone will be desired by the regulatory agency to reduce the possibility of cross-contamination of water between aquifers in water bearing zones. If so, this would exclude compacted gravel column methods such as stone columns and rammed aggregate piers.

The primary intent of the ground improvement design beneath the proposed building would be to increase the stiffness of the underlying compressible soils within the upper approximately 35 to 40 feet from the surface to reduce the potential static settlements of the existing in-place soils. The degree to which the soil properties are improved will depend on the improvement method, as well as the depth and spacing. The actual ground improvement goals will need to be finalized based on input from the structural engineer and owner to reduce the risk of settlement to tolerable levels.

Drilled displacement columns are formed in displaced soil cavities and displace liquefiable and compressible soil with cemented Controlled Low Strength Material. CLSM column ground improvement can mitigate liquefaction and settlement of heavy foundations and slabs. CLSM columns are ideal for sensitive project sites such as those near critical structures that require low noise and no vibration construction methods, unreinforced masonry walls, occupied offices, sensitive soil (e.g. Bay Mud), and hazardous/contaminated soil sites where deep ground improvement is required.

The CLSM columns are separated from the bottom of the footing using a minimum 6-inch layer of crushed rock or other material "cushion". No connectivity of the CLSM columns and overlying structural element is allowed. In some cases, a Ground Anchor may be used in a higher strength column to resist uplift forces. Lateral resistance is provided by footing, mat, or slab bottom friction at the concrete to cushion layer interface or passive resistance of the side walls. The target strengths of the CLSM are usually between 500 to 1,000 psi at 28 days, depending on load demands. The CLSM strength is tested using standard sampling and loading methods.

Vibro replacement and granular compaction piles are similar in that a probe is vibrated into the ground to the design depth and a compacted open-graded gravel column is constructed from the bottom up. The surrounding soils are densified by the displacement of the soil as well as the vibrations from consolidating and expanding the gravel column laterally. One of the disadvantages of these densification pile types are the noise and vibration (and sometimes dust) produced during construction. The vibrations may cause noise and vibrations that can be heard or felt off-site. Pre-drilling through surficial materials may reduce noise and vibration and should be anticipated for improvement areas adjacent to the site that may be sensitive to vibrations. As mentioned above, if the site soils are environmentally impacted, the use of stone/granular piles may not be allowed by the regulatory agency depending on vertical contaminant transport risks.

Deep Soil Mixing (DSM) is a ground improvement technique through blending a hardening agent (usually cement grout) with the native soils. The process improves the strength and stiffness of the soil to increase bearing capacity, decrease settlement, and mitigate seismic

issues. A revolving hollow shaft with mixing paddles and/or a section of auger (the mixing tool) is advanced into the soil. As the mixing tool is advanced, the cement grout is pumped through the hollow stem of the revolving shaft and discharged laterally along the lower mixing paddle where it is mixed with the native soil. When the design depth is reached, the tool is withdrawn while maintaining, or often increasing, the rotational speed of the mixing tool. The resulting column is a blended mixture of soil and cement grout that will cure over time to the required design strength. DSMs can also provide uplift capacity by introduction of tie-down rebar.

Depending on the chosen ground improvement technique, the upper 2 feet of the working pad will likely need to be re-compacted after ground improvement installation, due to surface disturbance and potential ground heave. For this reason, we do not recommend preparation of the building pad, placement of non-expansive fill, or the construction of utilities prior to ground improvement.

The diameter of the ground improvement elements would likely be 16 to 30 inches and spacing would be proposed by the ground improvement contractors based on their experience and documented case histories of improvement performed on other projects with similar soil conditions which we would review as part of their submittal. The spacing would be selected to reduce the total combined static and seismic settlement to $1\frac{1}{2}$ inches or less with a differential settlement of $\frac{3}{4}$ to 1 inch over a horizontal distance of 50 feet. We would recommend modulus tests at the on-set of construction to verify that the ground improvement will control the static settlement. This recommendation is predicated on our working with and reviewing the ground improvement contractor's submittal documentation on their proposed spacing and installation methodology and case histories from other similar projects. We would also independently observe installation in the field and prepare a signed and stamped close-out letter which confirms that installed ground improvement meets our recommendations.

8.4.2 Ground Improvement Design Guidelines

We recommend that the ground improvement design include, but not be limited to: 1) drawings showing the ground improvement layout, spacing and diameter, 2) the foundation layout plan, 3) proposed ground improvement length, 4) top and bottom elevations, 5) estimate of static settlement and modulus to meet settlement goals. We recommend that all displacement columns be capped with a minimum 6-inch-thick compacted gravel pad to facilitate load transfer and to decouple the footings from underlying ground improvement elements. The actual gravel pad thickness should be confirmed by the design-build contractor. We should be retained to review the ground improvement contractor's plan and densification estimates prior to construction, and to review and confirm that the contractor's ground improvement design will satisfactorily meet the design criteria based on the previous performance testing. Ground improvement would generally be constructed as follows: 1) clear the site of existing demolition debris, 2) mass grading to the building pad subgrade elevation, 3) install the ground improvement on the approved layout, and 4) over-excavation and re-compact top of building pad, as required, prior to construction of remainder of pad and the foundations. The degree to which the soil density is increased will depend on the improvement method and spacing. Even though the above methods are designed to mitigate different existing soil

conditions, ground improvement should provide an additional increase in bearing capacity and soil stiffness at the individual improvement locations.

8.4.3 Ground Improvement Performance Testing

Foundation areas must meet the above total settlement criteria, which will include all settlement estimated from static loads. Analysis of settlement for static loading should include compression within the treatment area due to structural loads as well as estimated consolidation settlement beneath the treatment area, and seismic settlement estimated for within and below the zone of treatment. Ground improvement must also provide adequate support for the design bearing capacity.

Verification testing should include at least two modulus tests within the building footprint. To validate the parameters selected for a specific project, modulus load tests are performed on test piers typically constructed in locations chosen in coordination with the geotechnical engineer. Modulus tests are conducted to a pressure equal to at least 150% of the maximum design top of column stress to assure a reasonable level of safety which supports long term settlement control and demonstrates that the ground improvement element has adequate strength. Modulus testing should be performed in general accordance with ASTM D1143. Supplemental borings and lab testing may be required to confirm design assumptions and ground improvement design parameters.

8.5 DEEP FOUNDATIONS

As an alternative to a fill surcharge program or shallow foundations overlying ground improvement, the building may also be supported on a deep foundation system, such as augercast or driven piles. If this option is desired, we can provide additional recommendations.

SECTION 9: CONCRETE SLABS AND PEDESTRIAN PAVEMENTS

For the conventional footing alternative underlain by ground improvement, should ground improvement only be installed under the footings and not under the slabs-on-grade, slab settlement and deflection is anticipated due to placement of new fill to achieve finished floor elevation as outlined in the “Conclusions” section. Additionally, interior slab loading including rack and heavy equipment loading, etc. is not known at this time. Depending on this loading and extents of the loading, additional static settlement may result. Slabs-on-grade should be designed to account for potential combined static and seismic settlements. If slab settlement exceeds structural requirements, ground improvement can also be implemented within the slab-on-grade areas to reduce settlement to tolerable levels. If static and seismic settlements do not exceed structural/owner requirements and ground improvement will not be performed beneath the slab-on-grade areas, at a minimum we recommend the slabs be designed to tolerate some deflection where the slabs transition from on-footing support to ground-only support. The following options may be considered if it is desired to reduce potential slab distress:

- The overall thickness of the slab-on-grade may be increased.
- The slab-on-grade can be designed with increased reinforcement.
- The slab-on-grade can be designed with more closely spaced construction or control joints to help reduce the extent of future cracking.

9.1 OFFICE SLABS-ON-GRADE

Based on site grades and currently proposed finished grades, the near surface soils in proximity to finished grades have a low to moderate expansion potential. Due to the moderate expansion potential of these soils, the proposed office slabs-on-grade should be at least 5-inches thick and be supported on at least 9 inches of non-expansive fill (NEF) to reduce the potential for slab damage due to soil heave. The NEF layer should be constructed over subgrade prepared in accordance with the recommendations in the “Earthwork” section of this report. Based on the currently proposed grades, fills will be required at various locations to achieve finished building pad grades. Depending on the final grades and fills, the above recommended NEF layer may potentially be reduced. Additional testing should be performed to further evaluate the actual subgrade materials and additional recommendations provided.

If moisture-sensitive floor coverings are planned, the recommendations in the “Interior Slabs Moisture Protection Considerations” section below may be incorporated in the project design if desired. If significant time elapses between initial subgrade preparation and NEF construction, the subgrade should be proof-rolled to confirm subgrade stability, and if the soil has been allowed to dry out, the subgrade should be re-moisture conditioned in accordance with the “Compaction” section of this report.

The structural engineer should determine the appropriate slab reinforcement for the loading requirements and considering the expansion potential of the underlying soils. For unreinforced concrete slabs, ACI 302.1R recommends limiting control joint spacing to 24 to 36 times the slab thickness in each direction, or a maximum of 18 feet.

9.2 WAREHOUSE SLABS-ON-GRADE

Warehouse slabs-on-grade should be at least 6 inches thick, should have a minimum compressive strength of 3,500 psi, and should be designed for the specific warehouse loading (i.e., forklifts, rack loads, etc.). At this time, rack loading information, etc. was not available. The slab should also be designed to accommodate potential slab settlement beneath heavily loaded slab areas.

Warehouse slabs-on-grade should also be supported on at least 6 inches of crushed granular base having an R-value of at least 50 and no more than 10 percent passing the No. 200 sieve, such as Class 2 aggregate base. Due to the moderate plasticity of the existing surficial soils, an additional 3 inches of non-expansive fill (NEF) should underlie the upper granular base.

To summarize, the warehouse slab-on-grade should be underlain by the materials and alternatives outlined below. Additional details follow these points.

- Zone A Fill Material – Upper 6 inches of pad subgrade should consist of crushed granular base having an R-value of at least 50 and no more than 10 percent passing the No. 200 sieve, such as Class 2 aggregate base.
- Zone B Fill Material – from 6 to 19 inches below pad subgrade (or below the Zone A noted above), the soil/material should also consist of a non-expansive fill (NEF) with a Plasticity Index (PI) of 15, or less.
- Zone B Fill Material Alternative 1 – from 6 to 9 inches below pad subgrade (or below the Zone A noted above), the non-expansive fill material also can consist of the same material used for Zone A
- Zone B Fill Material Alternative 2 – from 6 to 9 inches below pad subgrade (or below the Zone A noted above), onsite material with a PI of 15, or less or the onsite material not meeting non-expansive fill requirements can be chemically treated to meet non-expansive requirements with a PI of 15, or less

As noted above, depending on the final grades and fills, the above recommended NEF layer may potentially be reduced. Additional testing should be performed to further evaluate the actual subgrade materials and additional recommendations provided.

All base and sub-base materials should be placed and compacted in accordance with the “Compaction” section of this report. If there will be areas within the warehouse that are moisture sensitive, such as equipment and elevator rooms, a vapor barrier may be placed over the upper granular base prior to slab construction. Please refer to the recommendations in the “Interior Slabs Moisture Protection Considerations” section for vapor barrier construction. Consideration should be given to limiting the control joint spacing to a maximum of about 2 feet in each direction for each inch of concrete thickness.

9.3 INTERIOR SLABS MOISTURE PROTECTION CONSIDERATIONS

The following general guidelines for concrete slab-on-grade construction where floor coverings are planned are presented for the consideration by the developer, design team, and contractor. These guidelines are based on information obtained from a variety of sources, including the American Concrete Institute (ACI) and are intended to reduce the potential for moisture-related problems causing floor covering failures, and may be supplemented as necessary based on project-specific requirements. The application of these guidelines or not will not affect the geotechnical aspects of the slab-on-grade performance.

- Place a minimum 15-mil vapor retarder conforming to ASTM E 1745, Class C requirements or better directly below the concrete slab; the vapor retarder should extend to the slab edges and be sealed at all seams and penetrations in accordance with manufacturer’s recommendations and ASTM E 1643 requirements. A 4-inch-thick

capillary break, consisting of crushed rock should be placed below the vapor retarder and consolidated in place with vibratory equipment. The mineral aggregate shall be of such size that the percentage composition by dry weight as determined by laboratory sieves will conform to the following gradation:

Sieve Size	Percentage Passing Sieve
1"	100
$\frac{3}{4}$ "	90 – 100
No. 4	0 – 10
No. 200	0 – 5

The capillary break rock may be considered as the upper 4 inches of the non-expansive fill previously recommended.

- The concrete water:cement ratio should be 0.45 or less. Mid-range plasticizers may be used to increase concrete workability and facilitate pumping and placement.
- Water should not be added after initial batching unless the slump is less than specified and/or the resulting water:cement ratio will not exceed 0.45.
- Polishing the concrete surface with metal trowels is not recommended.
- Where floor coverings are planned, all concrete surfaces should be properly cured.
- Water vapor emission levels and concrete pH should be determined in accordance with ASTM F1869-98 and F710-98 requirements and evaluated against the floor covering manufacturer's requirements prior to installation.

9.4 EXTERIOR FLATWORK

Exterior concrete flatwork subject to pedestrian and/or occasional light pick up loading should be at least 4 inches thick and supported on at least 6 inches of non-expansive fill overlying subgrade prepared in accordance with the "Earthwork" recommendations of this report. In addition, the upper 4 inches of NEF should also meet Class 2 aggregate base requirements. Flatwork that will be subject to heavier or frequent vehicular loading should be designed in accordance with the recommendations in the "Vehicular Pavements" section below. To help reduce the potential for uncontrolled shrinkage cracking, adequate expansion and control joints should be included. Consideration should be given to limiting the control joint spacing to a maximum of about 2 feet in each direction for each inch of concrete thickness.

We recommend that exterior slabs be isolated from adjacent improvements. Hinge connections should be used wherever differential settlements may be detrimental to exterior flatwork, such as at building connections or abrupt changes in grade or surface loads.

SECTION 10: VEHICULAR PAVEMENTS

10.1 ASPHALT CONCRETE

The following asphalt concrete pavement recommendations tabulated below are based on the Procedure 608 of the Caltrans Highway Design Manual, estimated traffic indices for various pavement-loading conditions, and on a design R-value of 10. The design R-value was chosen based on engineering judgement considering the variable surface conditions. If desired, additional R-value testing can be performed on samples of the final subgrade soils to confirm the preliminary pavement design.

We have also included pavement structural section alternatives for chemical-treated (lime/cement) subgrade soil with an estimated R-value of 50 for your consideration. If it is desired to chemical-treat, we recommend the upper 12 inches of subgrade soil be treated. Additional testing will need to be performed to determine the appropriate lime/cement percentage to be mixed with the subgrade soil.

Table 5: Asphalt Concrete Pavement Recommendations, Untreated Subgrade

Design Traffic Index (TI)	Asphalt Concrete (inches)	Class 2 Aggregate Base* (inches)	Total Pavement Section Thickness (inches)
4.0	2.5	7.0	9.5
4.5	2.5	8.5	11.0
5.0	3.0	9.0	12.0
5.5	3.0	11.0	14.0
6.0	3.5	11.5	15.0
6.5	4.0	13.0	17.0
7.0	4.0	14.5	18.5
7.5	4.5	15.5	20.0
8.0	5.0	16.0	21.0
8.5	5.0	18.5	23.5
9.0	5.5	19.0	24.5
9.5	6.0	20.5	26.5
10.0	6.5	21.0	27.5
10.5	6.5	23.0	29.5
11.0	7.0	24.0	31.0

(1) Caltrans Class 2 aggregate base; minimum R-value of 78; subgrade R-value of 10

Table 6: Asphalt Concrete Pavement Recommendations, Chemical-Treated Subgrade

Design Traffic Index (TI)	Asphalt Concrete (inches)	Class 2 Aggregate Base* (inches)	Total Pavement Section Thickness (inches)
4.0/4.5	2.5	4.0	6.5
5.0/5.5	3.0	4.0	7.0
6.0	3.5	4.0	7.5
6.5	4.0	4.0	8.0
7.0	4.0	4.5	8.5
7.5	4.5	5.0	9.5
8.0	5.0	5.0	10.0
8.5	5.0	6.5	11.5
9.0	5.5	6.5	12.0
9.5	6.0	7.0	13.0
10.0	6.5	7.5	14.0
10.5	6.5	8.5	15.0
11.0	7.0	8.5	15.5

(1) Caltrans Class 2 aggregate base; minimum R-value of 78; minimum chemical-treated subgrade R-value of 50

Frequently, the full asphalt concrete section is not constructed prior to construction traffic loading. This can result in significant loss of asphalt concrete layer life, rutting, or other pavement failures. To improve the pavement life and reduce the potential for pavement distress through construction, we recommend the full design asphalt concrete section be constructed prior to construction traffic loading. Alternatively, a higher traffic index may be chosen for the areas where construction traffic will use the pavements.

Asphalt concrete pavements constructed on expansive subgrade where the adjacent areas will not be irrigated for several months after the pavements are constructed may experience longitudinal cracking parallel to the pavement edge. These cracks typically form within a few feet of the pavement edge and are due to seasonal wetting and drying of the adjacent soil. The cracking may also occur during construction where the adjacent grade is allowed to significantly dry during the summer, pulling moisture out of the pavement subgrade. Any cracks that form should be sealed with bituminous sealant prior to the start of winter rains. One alternative to reduce the potential for this type of cracking is to install a moisture barrier at least 24 inches deep behind the pavement curb.

10.2 PORTLAND CEMENT CONCRETE

The exterior Portland Cement Concrete (PCC) pavement recommendations tabulated below are based on methods presented in "Concrete Pavement for Trucking Facilities" by the American Concrete Pavement Association (ACPA, 1995), and the Portland Cement Association (PCA)

design manual (PCA, 1984). In our opinion, the truck loading areas where trucks turn, brake, or stop should be constructed of reinforced Portland Cement Concrete (PCC) pavement. We have provided a few pavement alternatives below as the anticipated number of trucks and number of load repetitions per day on a given location of the pavement has not been provided at this time. An alternative should be chosen that is greater than what is expected for the development. At this time, we have assumed trucks will consist of tractor trailers. When more specific truck loading information is available, additional information can be provided.

Table 7: PCC Pavement Recommendations, Untreated Subgrade

Traffic Category	Minimum PCC Thickness¹ (inches)
Trucks per day per lane = 20	7.0
Trucks per day per lane = 80	7.5
Trucks per day per lane = 400	8.0

(1) Subgrade design R-Value = 10

The PCC thickness recommended above are based on a concrete flexural strength of at least 550 psi, minimum 28-day compressive strength of 4,000 psi, and supporting the PCC on at least 6 inches of Class 2 aggregate base compacted to a minimum relative compaction of 95 percent (ASTM D1557) as recommended in the “Earthwork” section of our report, and laterally restraining the PCC with curbs or concrete shoulders. The aggregate base should be constructed over compacted subgrade prepared in accordance with “Compaction” section of this report. The PCC should have a low water-cement ratio (industry standards), and in no case exceed a water-cement plus pozzolan ratio of 0.53.

Adequate expansion and control joints should be included. Joint spacing should not exceed about 24 times the pavement thickness, in approximately square panels for unreinforced concrete. Joint spacing can be increased somewhat for reinforced concrete where light reinforcing steel is provided to help hold together intermediate cracks that may form in panels. Construction and expansion joints, and dowels, should be designed in accordance with industry standards; joint sealing should be included due to the expansive soils at the site.

If the subgrade soils are to be chemically treated (lime/cement), we have provided some pavement alternatives below. For chemically treated subgrade, we recommend the upper 12 inches of subgrade soil be treated and the treated subgrade should obtain a minimum R-value of 50. If chemical treatment of the subgrade is performed, the underlying Class 2 aggregate base section may be reduced from 6 inches to 4 inches, provided it is compacted to a minimum relative compaction of 95 percent (ASTM D1557) as recommended in the “Earthwork” section of our report. Additional testing will need to be performed to determine the appropriate lime/cement percentage to be mixed with the subgrade soil to achieve an estimated R-value of 50. The remaining design and construction details should be consistent with the above recommendations for PCC pavements over untreated subgrade.

Table 8: PCC Pavement Recommendations, Chemical-Treated Subgrade

Traffic Category	Minimum PCC Thickness¹ (inches)
Trucks per day per lane = 20	6.5
Trucks per day per lane = 80	7.0
Trucks per day per lane = 400	7.5

(1) Subgrade design R-Value = 50, assuming 12-inch-thick subgrade chemical treatment

10.3 TRASH ENCLOSURES

Pads where trash containers will be stored, and where garbage trucks will park while emptying trash containers, should be constructed on Portland Cement Concrete. We recommend that the trash enclosure pads and stress (landing) pads where garbage trucks will store, pick up, and empty trash be increased to a minimum PCC thickness of 8 inches. The compressive strength, underlayment, and construction details should be consistent with the above recommendations for PCC pavements.

10.4 PAVEMENT CUTOFF

Surface water penetration into the pavement section can significantly reduce the pavement life, due to the native expansive clays. While quantifying the life reduction is difficult, a normal 20-year pavement design could be reduced to less than 10 years; therefore, increased long-term maintenance may be required.

It would be beneficial to include a pavement cut-off, such as deepened curbs, redwood-headers, or "Deep-Root Moisture Barriers" that are keyed at least 4 inches into the pavement subgrade. This will help limit the additional long-term maintenance.

SECTION 11: RETAINING WALLS

11.1 STATIC LATERAL EARTH PRESSURES

The structural design of any site retaining wall should include resistance to lateral earth pressures that develop from the soil behind the wall, any undrained water pressure, and surcharge loads acting behind the wall. Provided a drainage system is constructed behind the wall to prevent the build-up of hydrostatic pressures as discussed in the section below, we recommend that the walls with level backfill be designed for the following pressures in the table below. Due to the presence of expansive native soils, cantilever retaining walls backfilled with the native clay soil should be designed as restrained. If granular backfill materials are used, then the unrestrained values in the table can be used.

Table 9: Recommended Lateral Earth Pressures

Wall Condition	Lateral Earth Pressure*	Additional Surcharge Loads
Unrestrained – Cantilever Wall	45 pcf	1/3 of vertical loads at top of wall
Restrained – Braced Wall	45 pcf + 8H** psf	1/2 of vertical loads at top of wall

* Lateral earth pressures are based on an equivalent fluid pressure for level backfill conditions

** H is the distance in feet between the bottom of footing and top of retained soil

If adequate drainage cannot be provided behind the wall, an additional equivalent fluid pressure of 40 pcf should be added to the values above for both restrained and unrestrained walls for the portion of the wall that will not have drainage. Damp proofing or waterproofing of the walls may be considered where moisture penetration and/or efflorescence are not desired.

11.2 SEISMIC LATERAL EARTH PRESSURES

The 2019 CBC states that lateral pressures from earthquakes should be considered in the design of basements and retaining walls. At this time, we are not aware of any retaining walls 6 feet or greater in height and have not been provided seismic earth pressures for the project. If retaining walls greater than 6 feet in height are proposed, we should be retained to provide seismic earth pressures, if warranted. In our opinion, seismic earth pressures are not warranted for design of minor retaining walls (i.e. walls 6 feet or less in height).

11.3 WALL DRAINAGE

Adequate drainage should be provided by a subdrain system behind all walls. This system should consist of a 4-inch minimum diameter perforated pipe placed near the base of the wall (perforations placed downward). The pipe should be bedded and backfilled with Class 2 Permeable Material per Caltrans Standard Specifications, latest edition. The permeable backfill should extend at least 12 inches out from the wall and to within 2 feet of outside finished grade. Alternatively, 1/2-inch to 3/4-inch crushed rock may be used in place of the Class 2 Permeable Material provided the crushed rock and pipe are enclosed in filter fabric, such as Mirafi 140N or approved equivalent. The upper 2 feet of wall backfill should consist of compacted on-site soil. The subdrain outlet should be connected to a free-draining outlet or sump.

Miradrain, Geotech Drainage Panels, or equivalent drainage matting can be used for wall drainage as an alternative to the Class 2 Permeable Material or drain rock backfill. Horizontal strip drains connecting to the vertical drainage matting may be used in lieu of the perforated pipe and crushed rock section. The vertical drainage panel should be connected to the perforated pipe or horizontal drainage strip at the base of the wall, or to some other closed or through-wall system such as the TotalDrain system from AmerDrain. Sections of horizontal drainage strips should be connected with either the manufacturer's connector pieces or by pulling back the filter fabric, overlapping the panel dimples, and replacing the filter fabric over the connection. At corners, a corner guard, corner connection insert, or a section of crushed rock covered with filter fabric must be used to maintain the drainage path.

Drainage panels should terminate 18 to 24 inches from final exterior grade. The Miradrain panel filter fabric should be extended over the top of and behind the panel to protect it from intrusion of the adjacent soil.

11.4 BACKFILL

Where surface improvements will be located over the retaining wall backfill, backfill placed behind the walls with a PI less than 20 should be compacted to at least 95 percent relative compaction using light compaction equipment. If the soil's PI is 20 or greater, expansive soil criteria should be used as discussed in the "Compaction" section of this report. Where no surface improvements are planned, backfill should be compacted to at least 90 percent for soils with a PI less than 20. Expansive soil criteria should be followed for soils with a PI of 20 or greater. If heavy compaction equipment is used, the walls should be temporarily braced.

11.5 FOUNDATIONS

Retaining walls for the building may be supported on continuous and/or spread footings designed in accordance with the recommendations presented in the "Foundations" section of this report.

At this time we are not aware of any site retaining walls. We should review the location of any site retaining walls prior to design. In general, conventional minor site retaining walls may be supported on a continuous spread footing. Spread footings should bear on fill or native soils, be at least 18 inches wide, and extend at least 18 inches below the lowest adjacent grade.

On a preliminary basis, footings for site retaining walls constructed to the above dimensions and in accordance with the "Earthwork" recommendations of this report are capable of supporting maximum allowable bearing pressures of 2,000 psf for dead loads, 3,000 psf for combined dead plus live loads, and 4,000 psf for all loads including wind and seismic. Due to the site conditions, we should be retained to review and provide additional design parameters and revised bearing capacities, if needed, based on the actual location and depth of retaining wall footings. The above pressures are based on factors of safety of 3.0, 2.0, and 1.5 applied to the ultimate bearing pressure for dead, dead plus live, and all loads, respectively. The pressures are net values; the weight of the footing may be neglected for the portion of the footing extending below grade (typically, the full footing depth). Top and bottom mats of reinforcing steel should be included in continuous footings to help span irregularities and differential settlement.

Where utility lines will cross perpendicular to strip footings, the footing should be deepened to encase the utility line, providing sleeves or flexible cushions to protect the pipes from anticipated foundation settlement, or the utility lines should be backfilled to the bottom of footing with sand-cement slurry or lean concrete. Where utility lines will parallel footings and will extend below the "foundation plane of influence," an imaginary 1:1 plane projected down from the bottom edge of the footing, either the footing will need to be deepened so that the pipe is above the foundation plane of influence, or the utility trench will need to be backfilled with sand-cement slurry or lean

concrete within the influence zone. Sand-cement slurry used within foundation influence zones should have a minimum compressive strength of 75 psi.

Footing excavations should be filled as soon as possible or be kept moist until concrete placement by regular sprinkling to prevent desiccation. A Cornerstone representative should observe all footing excavations prior to placing reinforcing steel and concrete. If there is a significant schedule delay between our initial observation and concrete placement, we may need to re-observe the excavations.

SECTION 12: LIMITATIONS

This report, an instrument of professional service, has been prepared for the sole use of CA Ventures specifically to support the design of the Ohlone Parkway Industrial Facility project in Watsonville, California. The opinions, conclusions, and recommendations presented in this report have been formulated in accordance with accepted geotechnical engineering practices that exist in Northern California at the time this report was prepared. No warranty, expressed or implied, is made or should be inferred.

Recommendations in this report are based upon the soil and groundwater conditions encountered during our subsurface exploration. If variations or unsuitable conditions are encountered during construction, Cornerstone must be contacted to provide supplemental recommendations, as needed.

CA Ventures may have provided Cornerstone with plans, reports and other documents prepared by others. CA Ventures understands that Cornerstone reviewed and relied on the information presented in these documents and cannot be responsible for their accuracy.

Cornerstone prepared this report with the understanding that it is the responsibility of the owner or his representatives to see that the recommendations contained in this report are presented to other members of the design team and incorporated into the project plans and specifications, and that appropriate actions are taken to implement the geotechnical recommendations during construction.

Conclusions and recommendations presented in this report are valid as of the present time for the development as currently planned. Changes in the condition of the property or adjacent properties may occur with the passage of time, whether by natural processes or the acts of other persons. In addition, changes in applicable or appropriate standards may occur through legislation or the broadening of knowledge. Therefore, the conclusions and recommendations presented in this report may be invalidated, wholly or in part, by changes beyond Cornerstone's control. This report should be reviewed by Cornerstone after a period of three (3) years has elapsed from the date of this report. In addition, if the current project design is changed, then Cornerstone must review the proposed changes and provide supplemental recommendations, as needed.

An electronic transmission of this report may also have been issued. While Cornerstone has taken precautions to produce a complete and secure electronic transmission, please check the electronic transmission against the hard copy version for conformity.

Recommendations provided in this report are based on the assumption that Cornerstone will be retained to provide observation and testing services during construction to confirm that conditions are similar to that assumed for design, and to form an opinion as to whether the work has been performed in accordance with the project plans and specifications. If we are not retained for these services, Cornerstone cannot assume any responsibility for any potential claims that may arise during or after construction as a result of misuse or misinterpretation of Cornerstone's report by others. Furthermore, Cornerstone will cease to be the Geotechnical-Engineer-of-Record if we are not retained for these services.

SECTION 13: REFERENCES

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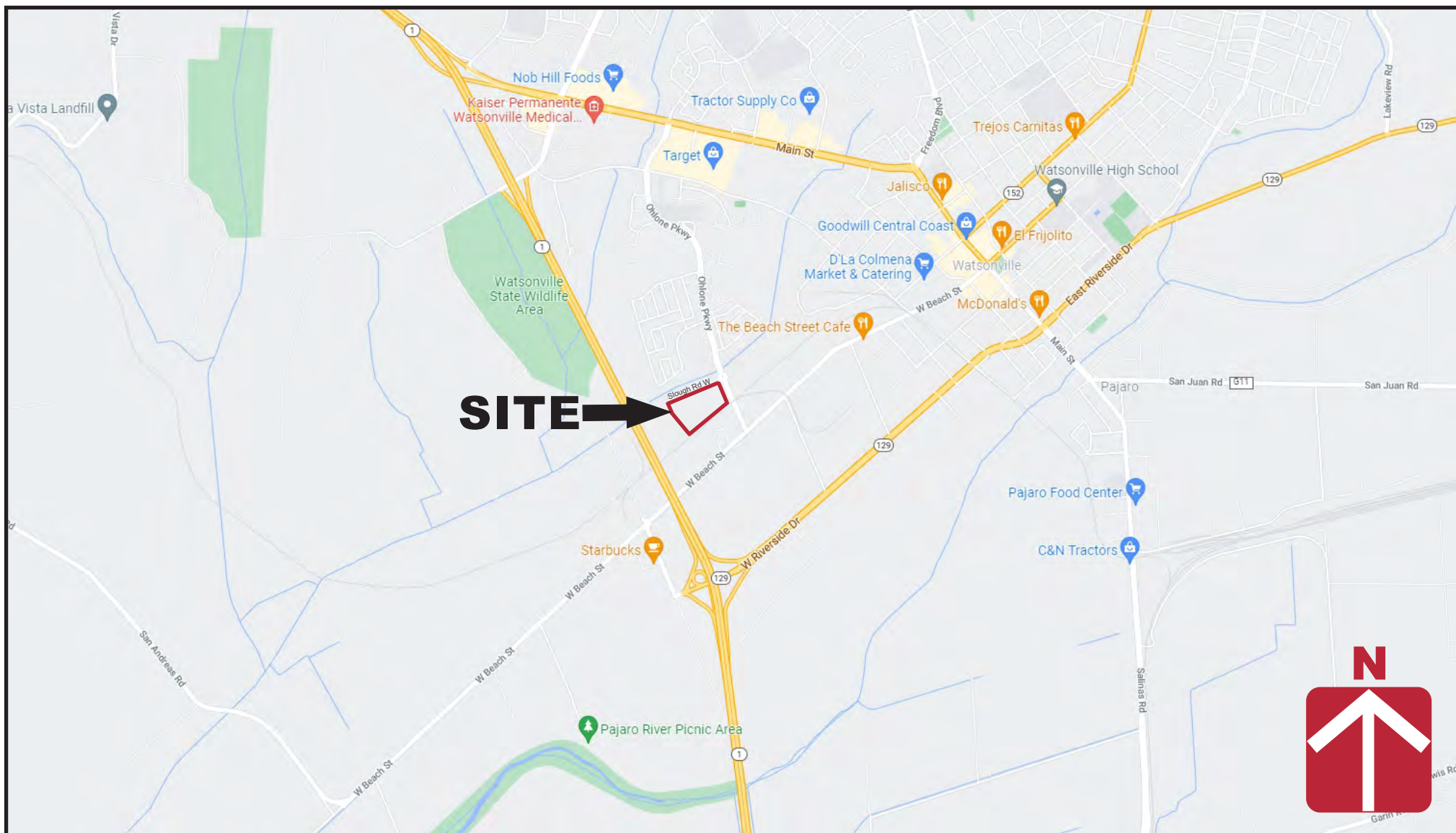
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Vicinity Map

Ohlone Parkway Industrial Facility
Watsonville, CA

Project Number

1309-2-1

Figure Number

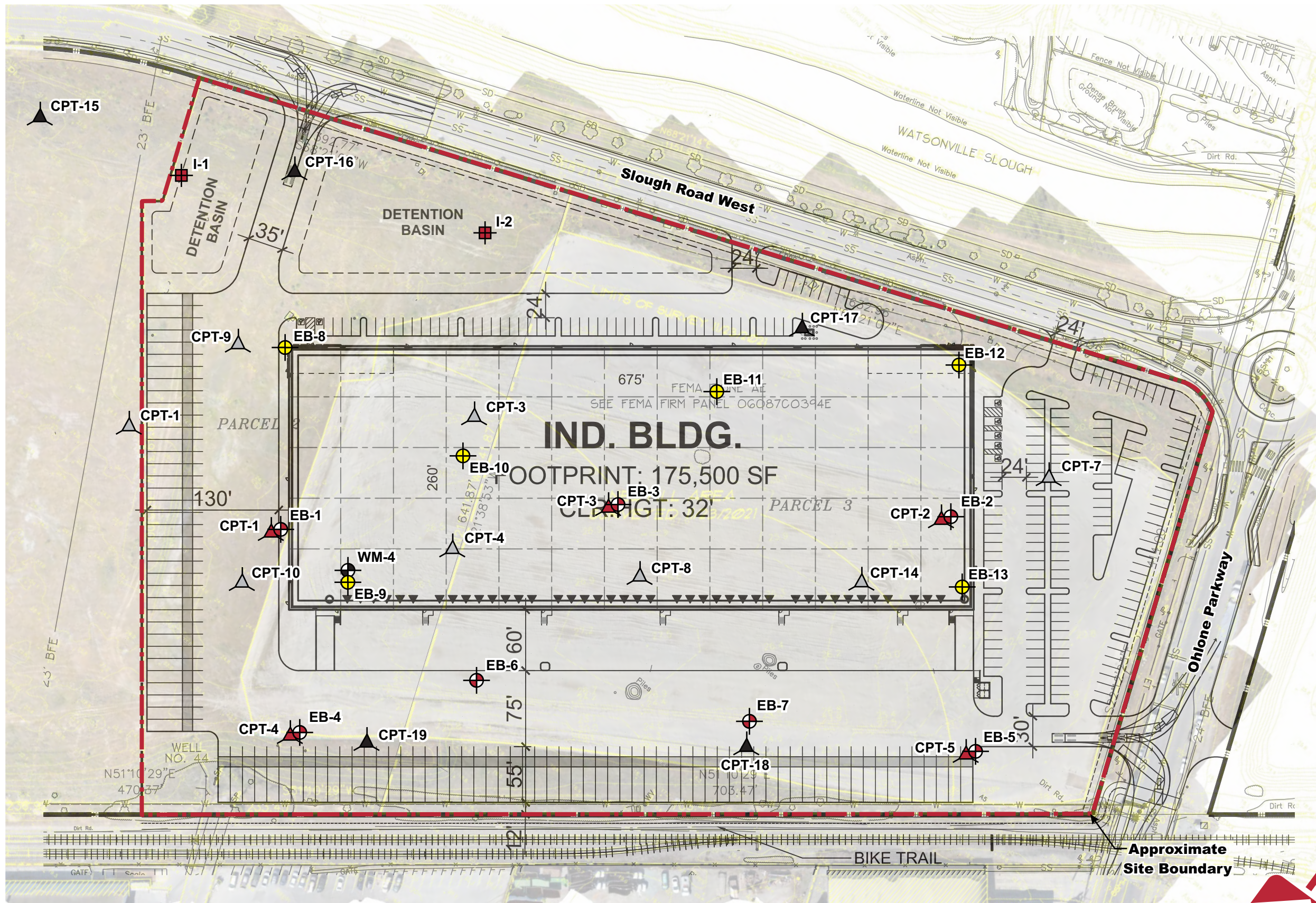
Figure 1

Date

May 2022

Drawn By

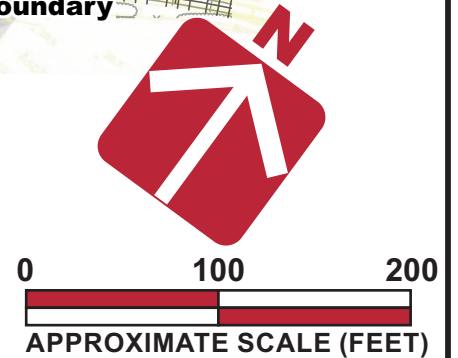
RRN



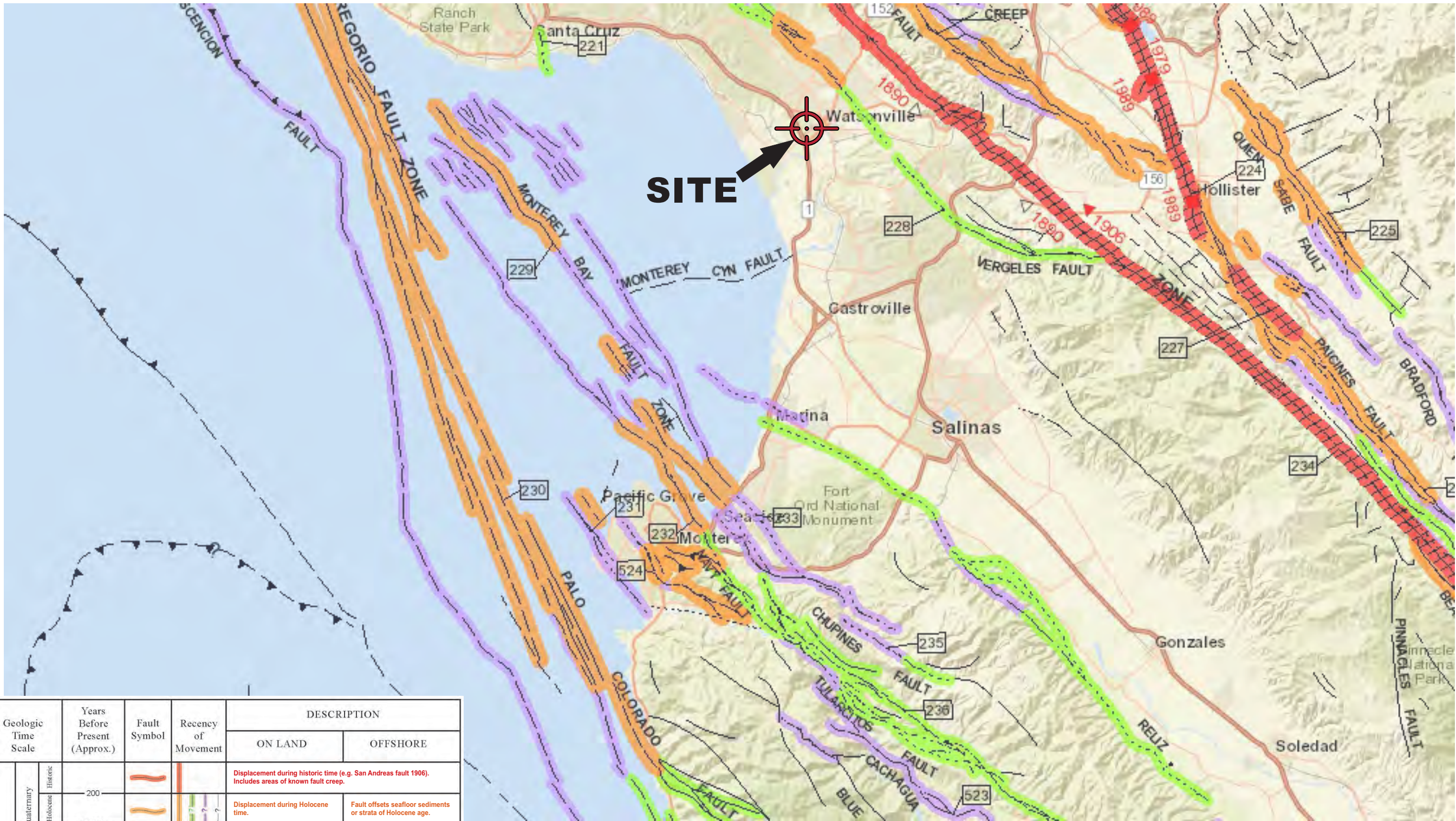
Legend

- | | | |
|--|---|--|
| Approximate location of exploratory boring (EB) (Cornerstone, current investigation) | Approximate location of exploratory boring (EB) (Cornerstone, March 2022) | Approximate location of exploratory boring (WM) (Intertek PSI, 2021) |
| Approximate location of cone penetration test (CPT) (Cornerstone, March 2022) | Approximate location of cone penetration test (CPT) (Intertek PSI, 2021) | |
| Approximate location of infiltration test (I) (Cornerstone, March 2022) | Approximate location of cone penetration test (CPT) (Intertek PSI, 2015-2016) | |

Base: DroneDeploy, dated 03/19/2022
 Overlay by Ware Malcomb, Conceptual Site Plan/Overall,
 Scheme: South Dock Alternate - Sheet 1, dated 03/18/2022

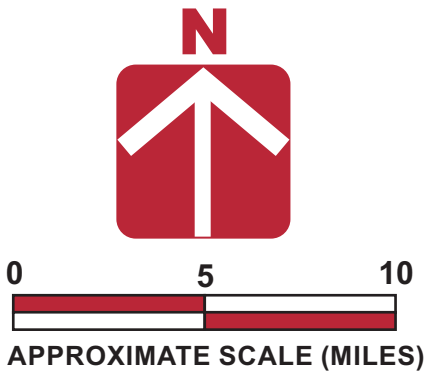


Project Number	1309-2-1
	Figure Number
Figure Number	Figure 2
	Date
Date	May 2022
	Drawn By
Drawn By	RRN
Site Plan	
Ohlone Parkway Industrial Facility Watsonville, CA	



Geologic Time Scale		Years Before Present (Approx.)	Fault Symbol	Recency of Movement	DESCRIPTION	
					ON LAND	OFFSHORE
Quaternary	Late Quaternary	Holocene			Displacement during historic time (e.g. San Andreas fault 1906). Includes areas of known fault creep.	
					Displacement during Holocene time.	Fault offsets seafloor sediments or strata of Holocene age.
	Early Quaternary	Pleistocene			Faults showing evidence of displacement during late Quaternary time.	Fault cuts strata of Late Pleistocene age.
					Undivided Quaternary faults - most faults in this category show evidence of displacement during the last 1,600,000 years; possible exceptions are faults which displace rocks of undifferentiated Plio-Pleistocene age.	Fault cuts strata of Quaternary age.
Pre-Quaternary		1,600,000+			Faults without recognized Quaternary displacement or showing evidence of no displacement during Quaternary time. Not necessarily inactive.	Fault cuts strata of Pliocene or older age.
		4.5 billion (Age of Earth)				

Base by California Geological Survey - 2010 Fault Activity Map of California (Jennings and Bryant, 2010)



Project Number1309-2-1

Figure NumberFigure 3

DateOctober 2021

Drawn ByRRN

Regional Fault Map

Ohlone Parkway Industrial Center
Watsonville, CA

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PROJECT/CPT DATA

Project Title **Ohlone Parkway Industrial Facility**

Project No. **1309-2-1**

Project Manager **MJS**

SEISMIC PARAMETERS

Controlling Fault **San Andreas**

Earthquake Magnitude (Mw) **7.9**

PGA (Amax) **0.87** (g)

SITE SPECIFIC PARAMETERS

Ground Water Depth at Time of Drilling (feet) **14.8**

Design Water Depth (feet) **7.75**

Ave. Unit Weight Above GW (pcf) **125**

Ave. Unit Weight Below GW (pcf) **120**

FIGURE **4A**

CPT NO. **1**

CPT ANALYSIS RESULTS

DRY SAND SETTLEMENT FROM **7.75** FEET

0.00 (Inches)

LIQUEFACTION SETTLEMENT FROM **50** FEET

0.04 (Inches)

TOTAL SEISMIC SETTLEMENT **0.0** INCHES

POTENTIAL LATERAL DISPLACEMENT

LDI² **0.00** L/H **43.8**

LDI¹ Corrected for Distance **0.00** (4 < L/H < 40)

EXPECTED RANGE OF DISPLACEMENT

0.0 to **0.0** feet

¹Not Valid for L/H Values < 4 and > 40.

²LDI Values Only Summed to 2H Below Grade.

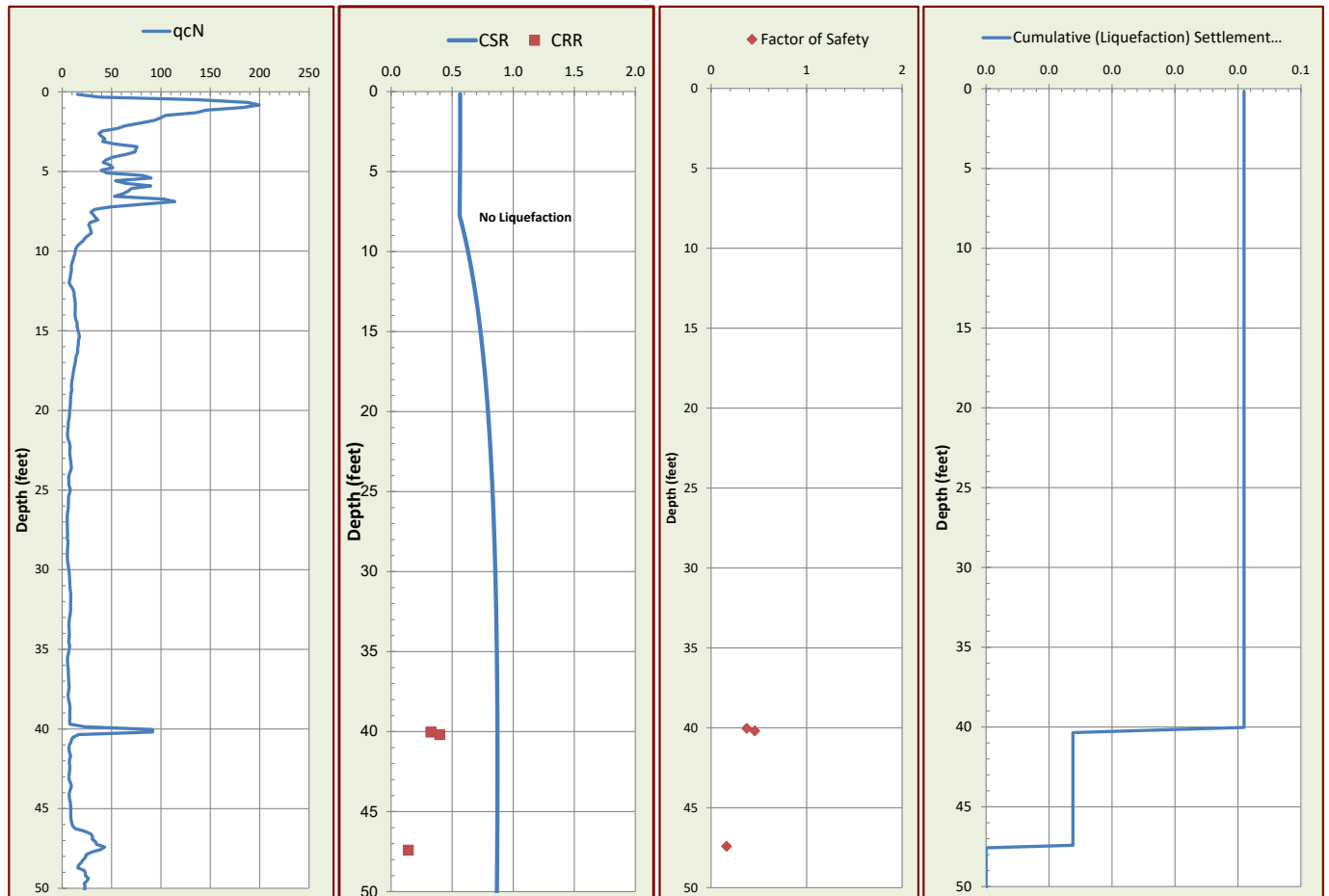


FIGURE 4B
CPT NO. 2
PROJECT/CPT DATA

Project Title **Ohlone Parkway Industrial Facility**

Project No. **1309-2-1**

Project Manager **MJS**
SEISMIC PARAMETERS

Controlling Fault **San Andreas**

Earthquake Magnitude (Mw) **7.9**

PGA (Amax) **0.87** (g)

SITE SPECIFIC PARAMETERS

Ground Water Depth at Time of Drilling (feet) **10**

Design Water Depth (feet) **6.75**

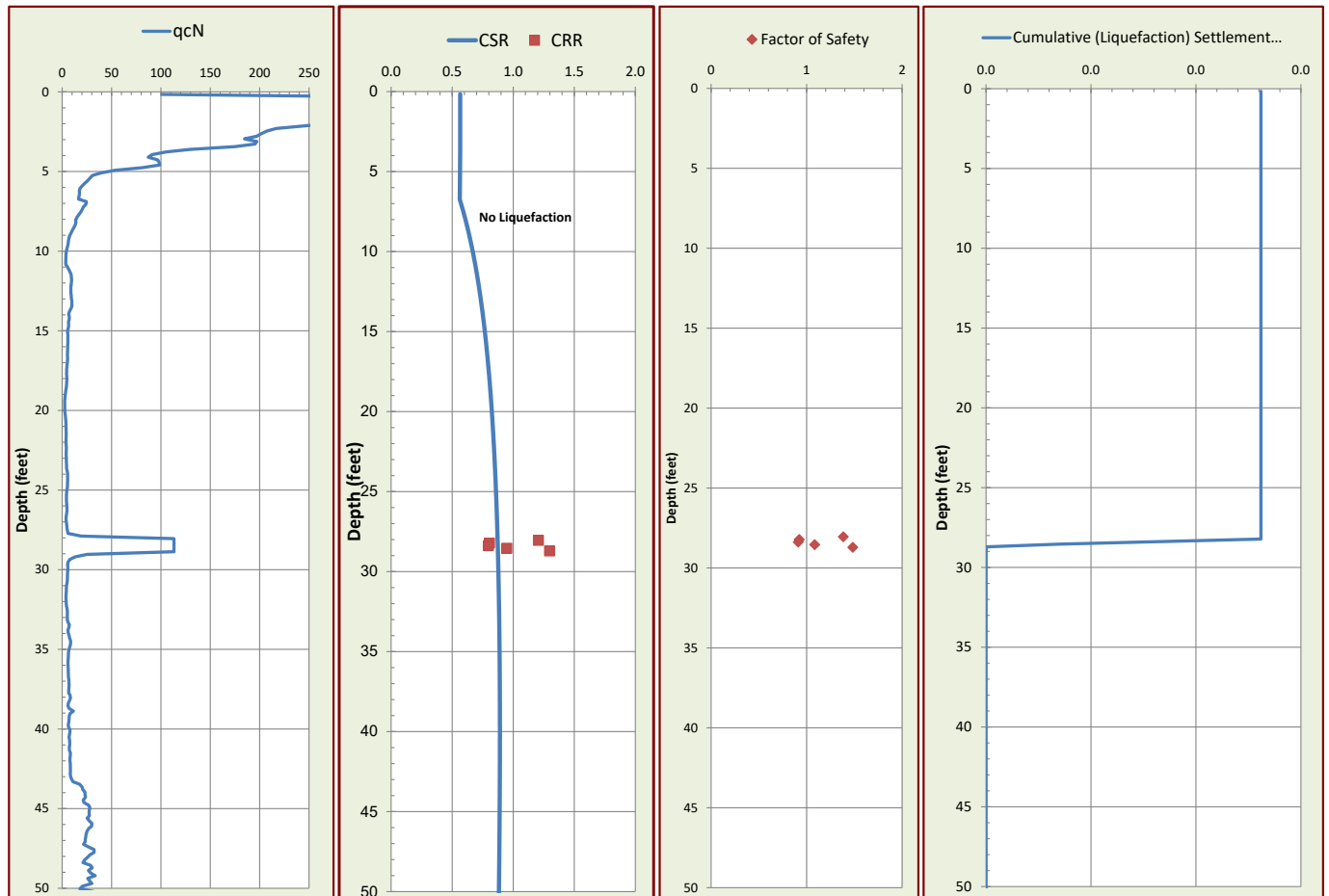
Ave. Unit Weight Above GW (pcf) **125**

Ave. Unit Weight Below GW (pcf) **120**
CPT ANALYSIS RESULTS
DRY SAND SETTLEMENT FROM 6.75 FEET
0.00 (Inches)

LIQUEFACTION SETTLEMENT FROM 50 FEET
0.03 (Inches)

TOTAL SEISMIC SETTLEMENT 0.0 INCHES
POTENTIAL LATERAL DISPLACEMENT
 LDI^2 **0.00** L/H **30.0**
 LDI^1 Corrected for Distance **0.00** ($4 < L/H < 40$)

EXPECTED RANGE OF DISPLACEMENT
0.0 to 0.0 feet
¹Not Valid for L/H Values < 4 and > 40.

²LDI Values Only Summed to 2H Below Grade.


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PROJECT/CPT DATA

Project Title **Ohlone Parkway Industrial Facility**

Project No. **1309-2-1**

Project Manager **MJS**

SEISMIC PARAMETERS

Controlling Fault **San Andreas**

Earthquake Magnitude (Mw) **7.9**

PGA (Amax) **0.87** (g)

SITE SPECIFIC PARAMETERS

Ground Water Depth at Time of Drilling (feet) **11**

Design Water Depth (feet) **8**

Ave. Unit Weight Above GW (pcf) **125**

Ave. Unit Weight Below GW (pcf) **120**

CPT ANALYSIS RESULTS

DRY SAND SETTLEMENT FROM **8** FEET

0.01 (Inches)

LIQUEFACTION SETTLEMENT FROM **50** FEET

0.15 (Inches)

TOTAL SEISMIC SETTLEMENT **0.2** INCHES

POTENTIAL LATERAL DISPLACEMENT

LDI² **0.00** L/H **36.4**

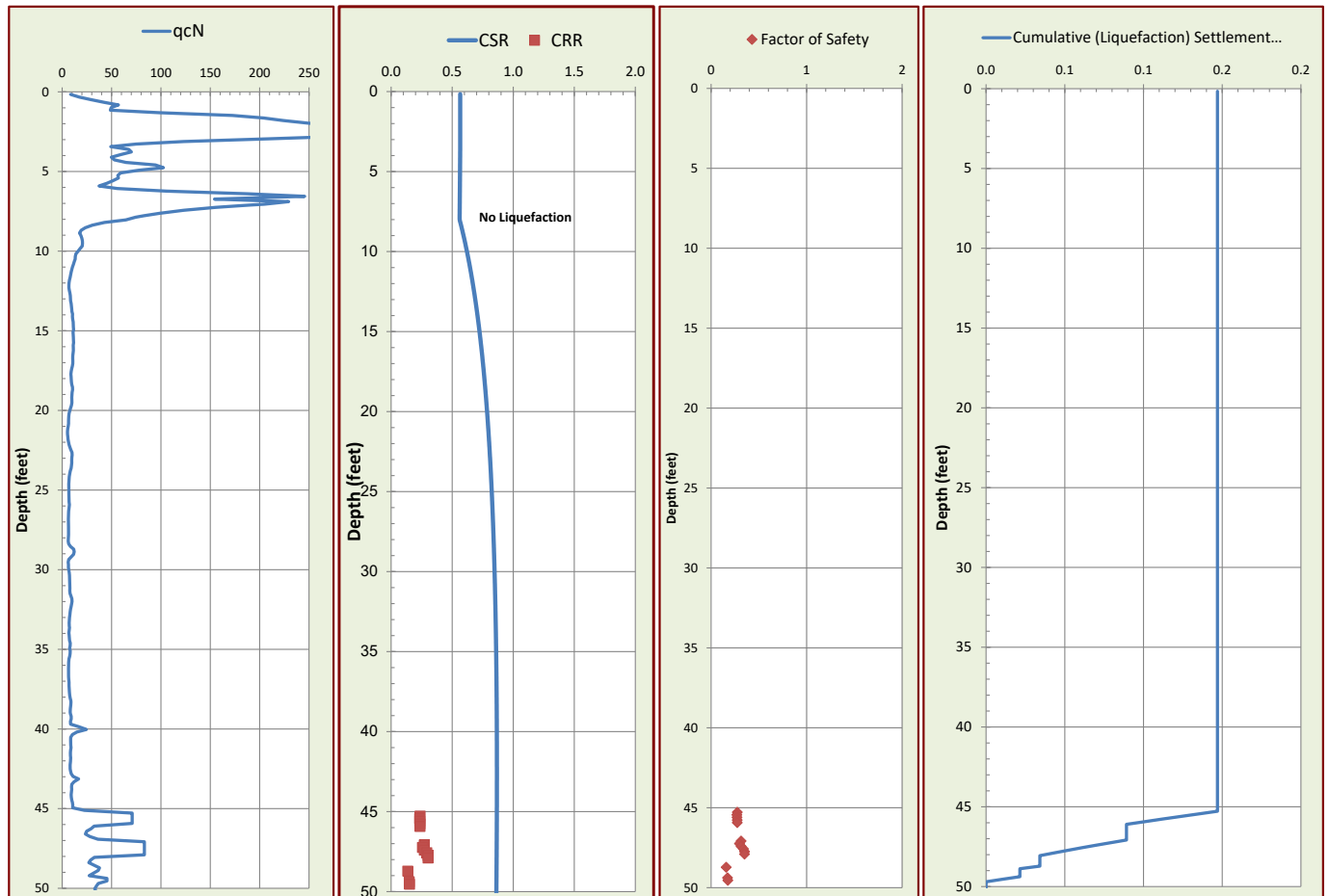
LDI¹ Corrected for Distance **0.00** (4 < L/H < 40)

EXPECTED RANGE OF DISPLACEMENT

0.0 to **0.0** feet

¹Not Valid for L/H Values < 4 and > 40.

²LDI Values Only Summed to 2H Below Grade.



PROJECT/CPT DATA

Project Title **Ohlone Parkway Industrial Facility**

Project No. **1309-2-1**

Project Manager **MJS**

SEISMIC PARAMETERS

Controlling Fault **San Andreas**

Earthquake Magnitude (Mw) **7.9**

PGA (Amax) **0.87** (g)

SITE SPECIFIC PARAMETERS

Ground Water Depth at Time of Drilling (feet) **14**

Design Water Depth (feet) **5.5**

Ave. Unit Weight Above GW (pcf) **125**

Ave. Unit Weight Below GW (pcf) **120**

FIGURE **4D**

CPT NO. **4**

CPT ANALYSIS RESULTS

DRY SAND SETTLEMENT FROM **5.5** FEET

0.00 (Inches)

LIQUEFACTION SETTLEMENT FROM **50** FEET

0.19 (Inches)

TOTAL SEISMIC SETTLEMENT **0.2** INCHES

POTENTIAL LATERAL DISPLACEMENT

LDI² **0.00** L/H **58.3**

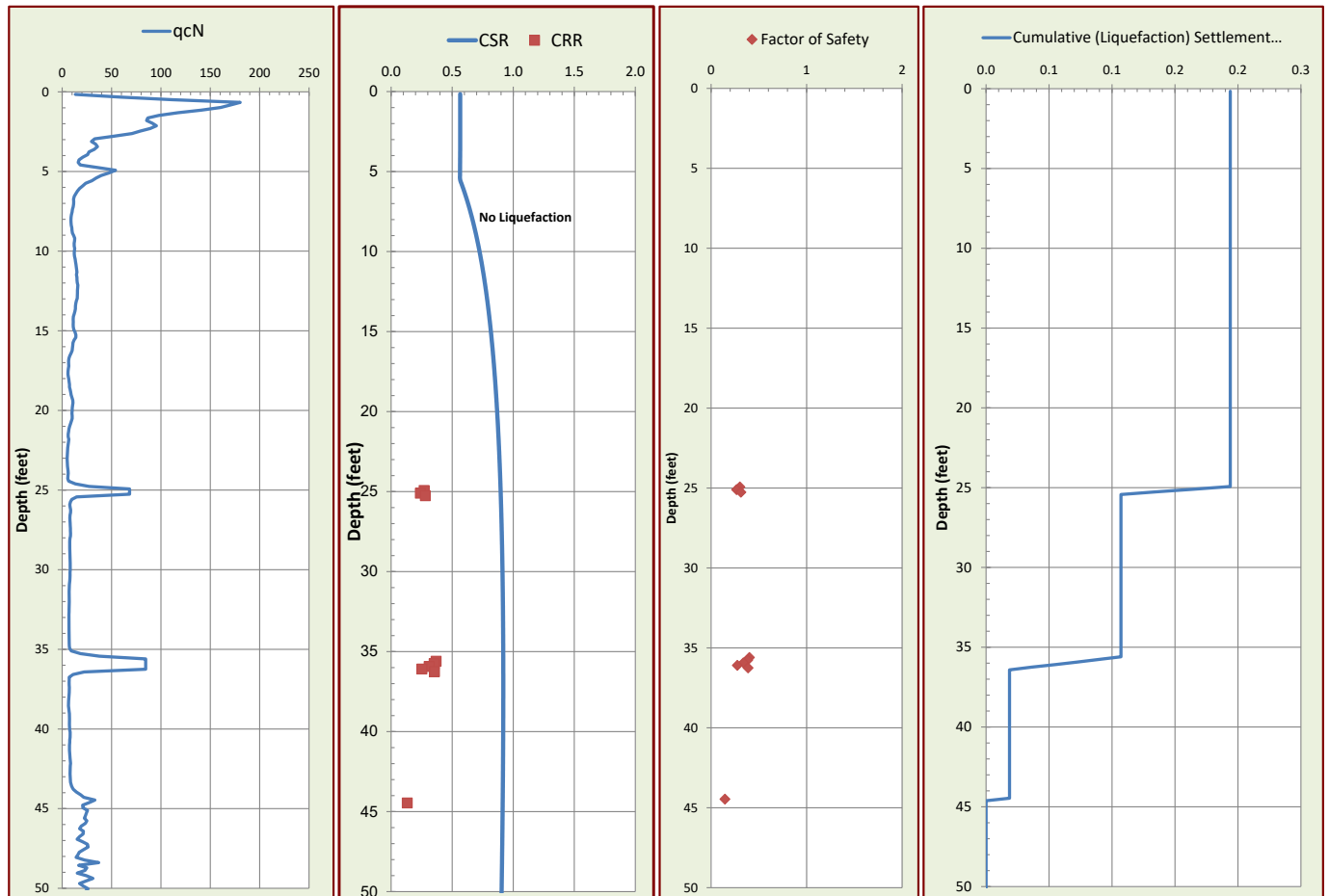
LDI¹ Corrected for Distance **0.00** (4 < L/H < 40)

EXPECTED RANGE OF DISPLACEMENT

0.0 to **0.0** feet

¹Not Valid for L/H Values < 4 and > 40.

²LDI Values Only Summed to 2H Below Grade.



PROJECT/CPT DATA

Project Title **Ohlone Parkway Industrial Facility**

Project No. **1309-2-1**

Project Manager **MJS**

SEISMIC PARAMETERS

Controlling Fault **San Andreas**

Earthquake Magnitude (Mw) **7.9**

PGA (Amax) **0.87** (g)

SITE SPECIFIC PARAMETERS

Ground Water Depth at Time of Drilling (feet) **10**

Design Water Depth (feet) **3.5**

Ave. Unit Weight Above GW (pcf) **125**

Ave. Unit Weight Below GW (pcf) **120**

FIGURE **4E**

CPT NO. **5**

CPT ANALYSIS RESULTS

DRY SAND SETTLEMENT FROM **3.5** FEET

0.00 (Inches)

LIQUEFACTION SETTLEMENT FROM **50** FEET

0.30 (Inches)

TOTAL SEISMIC SETTLEMENT **0.3** INCHES

POTENTIAL LATERAL DISPLACEMENT

LDI² **0.00** L/H **52.5**

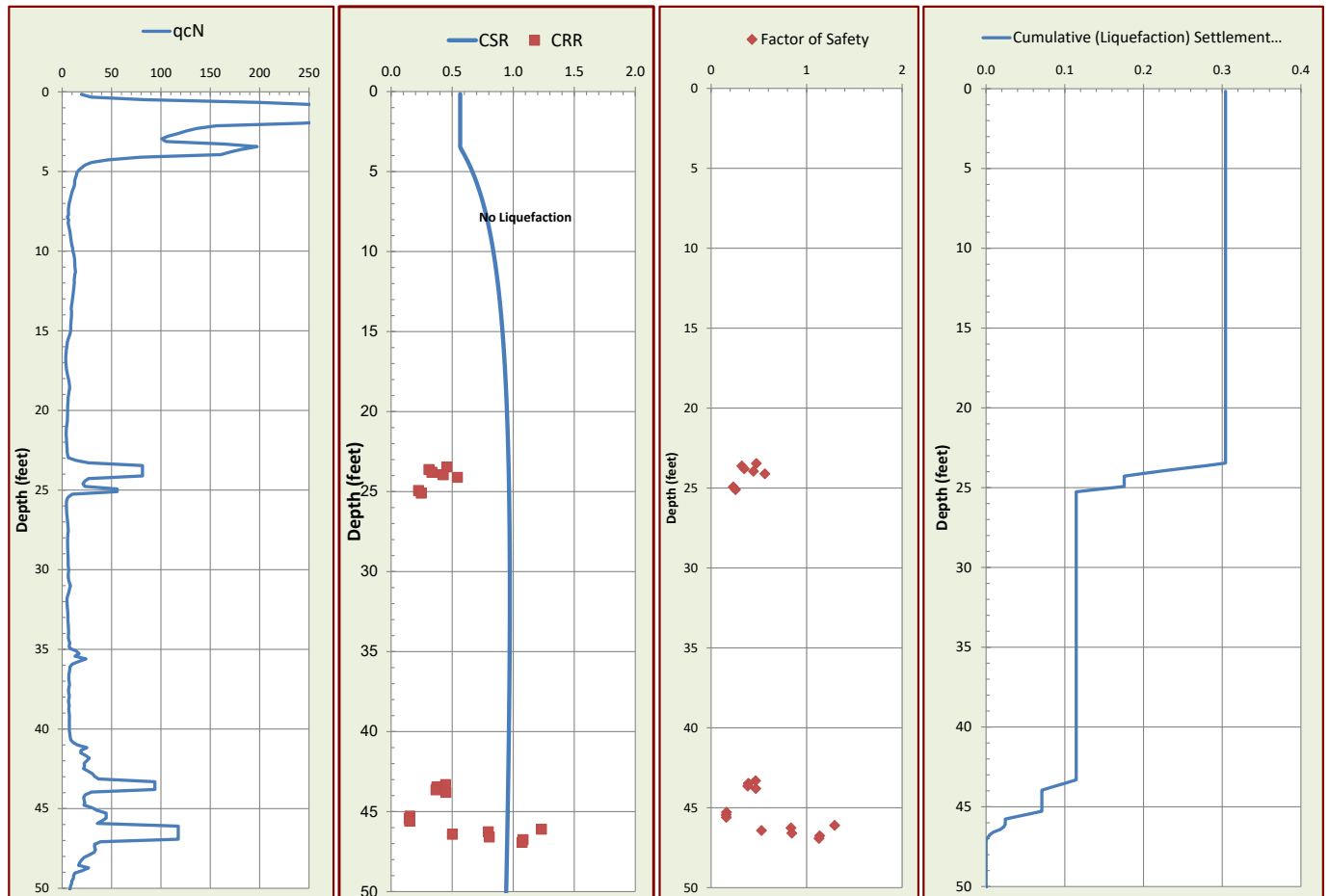
LDI¹ Corrected for Distance **0.00** (4 < L/H < 40)

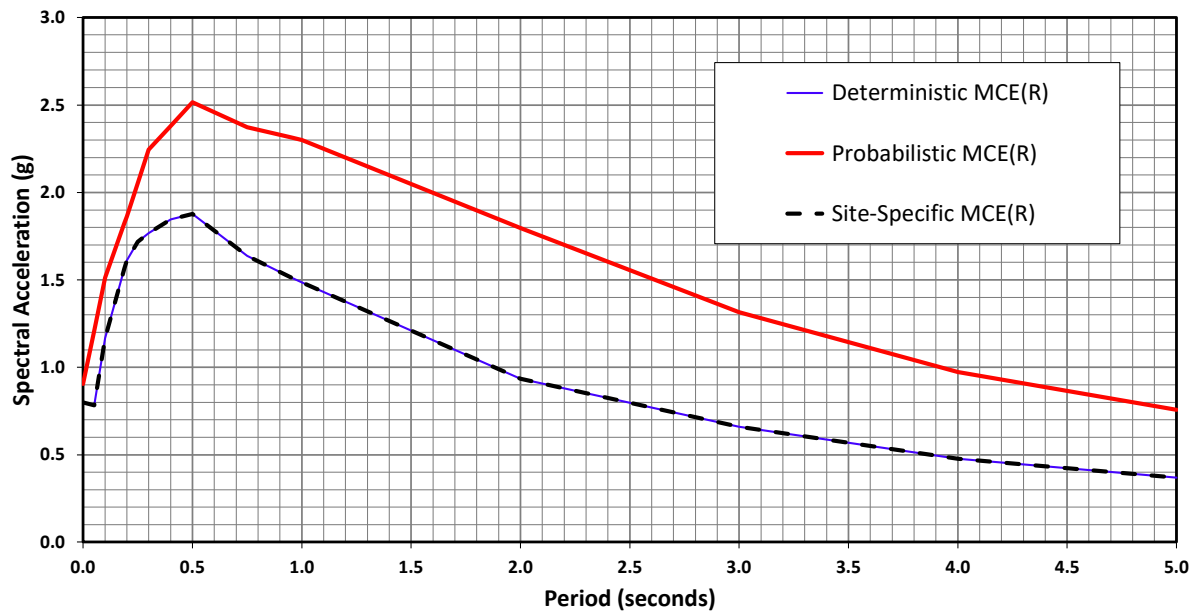
EXPECTED RANGE OF DISPLACEMENT

0.0 to **0.0** feet

¹Not Valid for L/H Values < 4 and > 40.

²LDI Values Only Summed to 2H Below Grade.





The Site-Specific Maximum Considered Earthquake (MCE_R) is defined as the lesser of the following at all periods:

- Deterministic MCE_R – maximum 84th percentile deterministic, or
- Probabilistic MCE_R – defined as the 2,475-year ground motion.

Site-Specific MCE_R	
Period (Seconds)	Spectral Acceleration (g)
0.00	0.800
0.05	0.783
0.10	1.167
0.19	1.564
0.20	1.613
0.25	1.719
0.30	1.767
0.40	1.846
0.50	1.876
0.60	1.781
0.75	1.638
0.95	1.517
1.00	1.485
2.00	0.935
3.00	0.660
4.00	0.478
5.00	0.368

References:

ASCE/SEI 7-16: Minimum Design Loads and Associated Criteria for Buildings and Other Structures with Supplement No. 1.
2019 California Building Code, Title 24, Part 2, Volume 2



CORNERSTONE
EARTH GROUP

MCE_R RESPONSE SPECTRA

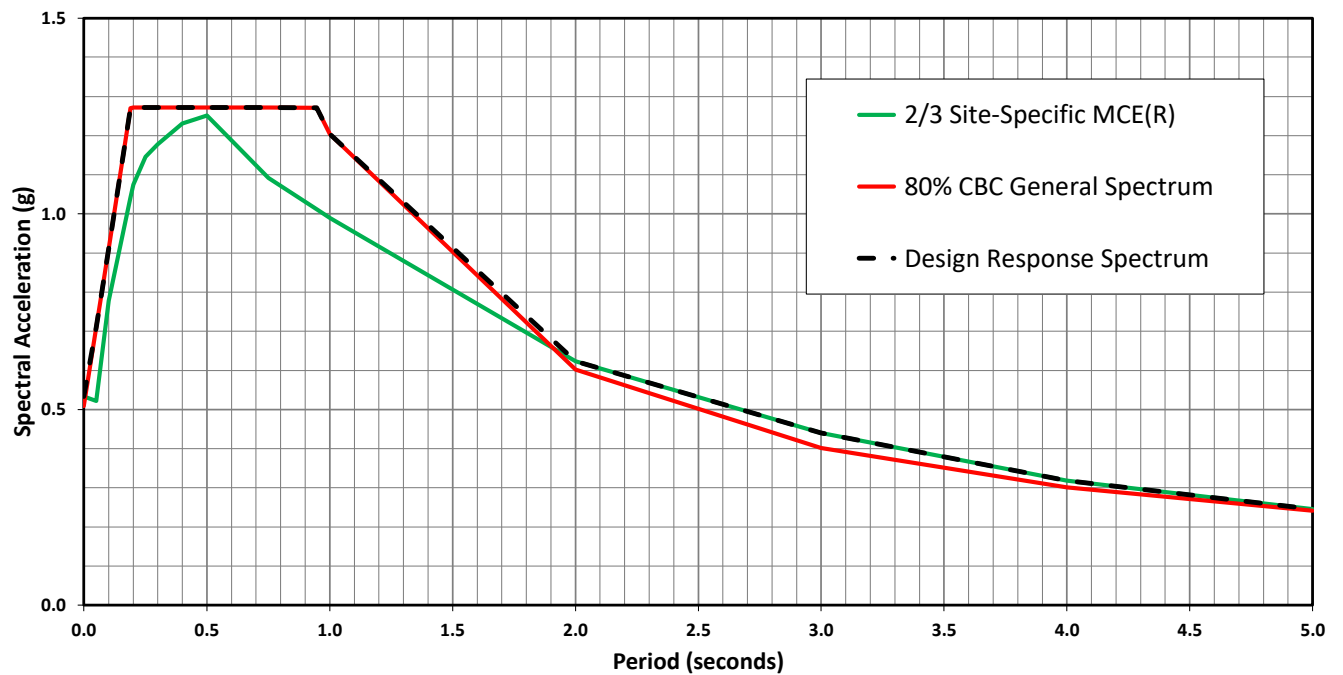
**Ohlone Parkway Industrial Facility
Watsonville, CA**

FIGURE 5

PROJECT NO. 1309-2-1

November 12, 2021

MJS



The Site-Specific Design Response Spectrum per Section 21.2, 21.3 and 21.4 of ASCE 7-16 is defined as the greater of the following at all periods:

- 2/3 of the Site-Specific MCE_R , or
- 80% of the CBC General Spectrum.

Design Response Spectra	
Period (Seconds)	Spectral Acceleration (g)
0.00	0.533
0.05	0.710
0.10	0.911
0.19	1.270
0.20	1.271
0.25	1.271
0.30	1.271
0.40	1.271
0.50	1.271
0.60	1.271
0.75	1.271
0.95	1.271
1.00	1.204
2.00	0.623
3.00	0.440
4.00	0.319
5.00	0.245

Site Design	Design Values
Site Class (Per Chapter 20 ASCE 7-16)	D
Shear Wave Velocity, V_{S30} (m/sec)	190
Site Latitude (degrees)	36.903543
Site Longitude (degrees)	-121.774251
Risk Category	II
Building Period (sec)	Unknown
Importance Factor, I_e	1
¹ Site Specific PGA_M (g)	0.87

¹ Lower of Deterministic and Probabilistic, but not less than 80% of mapped value of $FM \times PGA$, determined in accordance with Section 21.5 of ASCE 7-16.

Design Acceleration Parameters ¹	
S_{DS}	1.271
S_{D1}	1.320
S_{MS}	1.907
S_{M1}	1.980

References:

ASCE/SEI 7-16: Minimum Design Loads and Associated Criteria for Buildings and Other Structures with Supplement No. 1.
2019 California Building Code, Title 24, Part 2, Volume 2



DESIGN RESPONSE SPECTRA

Ohlone Parkway Industrial Facility
Watsonville, CA

FIGURE 6

PROJECT NO. 1309-2-1

November 12, 2021

MJS

APPENDIX A: FIELD INVESTIGATION

The field investigation consisted of a surface reconnaissance and a subsurface exploration program using truck- and track-mounted, hollow-stem auger drilling equipment and 25-ton truck-mounted Cone Penetration Test equipment. Seven 8-inch-diameter exploratory borings were drilled on October 13 and 14, 2021 to depths of about 20 to 45 feet. Six 6½-inch-diameter exploratory borings were drilled on March 31 and April 1, 2022 to depths of about 8 to 51½ feet. Five CPT soundings were also performed in accordance with ASTM D 5778-95 (revised, 2002) on October 2, 2021, to depths ranging from about 60 to 100 feet. The approximate locations of exploratory borings and CPTs are shown on the Site Plan, Figure 2. The soils encountered were continuously logged in the field by our representative and described in accordance with the Unified Soil Classification System (ASTM D2488).

Boring logs, as well as a key to the classification of the soil, are included as part of this appendix. Boring and CPT locations were approximated using existing site boundaries, a handheld GPS unit, and other site features as references.

Boring elevations were approximated based on topographic information provided and aerial survey performed using an unmanned aircraft (drone, UAS) in October 2021. The locations and elevations of the borings and CPTs should be considered accurate only to the degree implied by the method used.

Representative soil samples were obtained from the borings at selected depths. All samples were returned to our laboratory for evaluation and appropriate testing. The standard penetration resistance blow counts were obtained by dropping a 140-pound hammer through a 30-inch free fall. The 2-inch O.D. split-spoon sampler was driven 18 inches and the number of blows was recorded for each 6 inches of penetration (ASTM D1586). 2.5-inch I.D. samples were obtained using a Modified California Sampler driven into the soil with the 140-pound hammer previously described. Relatively undisturbed samples were also obtained with 2.875-inch I.D. Shelby Tube sampler which were hydraulically pushed. Unless otherwise indicated, the blows per foot recorded on the boring log represent the accumulated number of blows required to drive the last 12 inches. The various samplers are denoted at the appropriate depth on the boring logs.

The CPT involved advancing an instrumented cone-tipped probe into the ground while simultaneously recording the resistance at the cone tip (q_c) and along the friction sleeve (f_s) at approximately 5-centimeter intervals. Based on the tip resistance and tip to sleeve ratio (R_f), the CPT classified the soil behavior type and estimated engineering properties of the soil, such as equivalent Standard Penetration Test (SPT) blow count, internal friction angle within sand layers, and undrained shear strength in silts and clays. A pressure transducer behind the tip of the CPT cone measured pore water pressure (u_2). Graphical logs of the CPT data is included as part of this appendix.

Field tests included an evaluation of the unconfined compressive strength of the soil samples using a pocket penetrometer device. The results of these tests are presented on the individual boring logs at the appropriate sample depths. Attached boring and CPT logs and related information depict subsurface conditions at the locations indicated and on the date designated

on the logs. Subsurface conditions at other locations may differ from conditions occurring at these boring and CPT locations. The passage of time may result in altered subsurface conditions due to environmental changes. In addition, any stratification lines on the logs represent the approximate boundary between soil types and the transition may be gradual.

UNIFIED SOIL CLASSIFICATION (ASTM D-2487-98)

MATERIAL TYPES	CRITERIA FOR ASSIGNING SOIL GROUP NAMES			GROUP SYMBOL	SOIL GROUP NAMES & LEGEND	
COARSE-GRAINED SOILS >50% RETAINED ON NO. 200 SIEVE	GRAVELS >50% OF COARSE FRACTION RETAINED ON NO 4. SIEVE	CLEAN GRAVELS <5% FINES	$Cu>4$ AND $1<Cc<3$	GW	WELL-GRADED GRAVEL	
			$Cu>4$ AND $1>Cc>3$	GP	POORLY-GRADED GRAVEL	
		GRAVELS WITH FINES >12% FINES	FINES CLASSIFY AS ML OR CL	GM	SILTY GRAVEL	
			FINES CLASSIFY AS CL OR CH	GC	CLAYEY GRAVEL	
	SANDS >50% OF COARSE FRACTION PASSES ON NO 4. SIEVE	CLEAN SANDS <5% FINES	$Cu>6$ AND $1<Cc<3$	SW	WELL-GRADED SAND	
			$Cu>6$ AND $1>Cc>3$	SP	POORLY-GRADED SAND	
		SANDS AND FINES >12% FINES	FINES CLASSIFY AS ML OR CL	SM	SILTY SAND	
			FINES CLASSIFY AS CL OR CH	SC	CLAYEY SAND	
FINE-GRAINED SOILS >50% PASSES NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT<50	INORGANIC	$PI>7$ AND PLOTS>"A" LINE	CL	LEAN CLAY	
			$PI>4$ AND PLOTS<"A" LINE	ML	SILT	
		ORGANIC	LL (oven dried)/LL (not dried)<0.75	OL	ORGANIC CLAY OR SILT	
	SILTS AND CLAYS LIQUID LIMIT>50	INORGANIC	PI PLOTS >"A" LINE	CH	FAT CLAY	
			PI PLOTS <"A" LINE	MH	ELASTIC SILT	
		ORGANIC	LL (oven dried)/LL (not dried)<0.75	OH	ORGANIC CLAY OR SILT	
HIGHLY ORGANIC SOILS		PRIMARILY ORGANIC MATTER, DARK IN COLOR, AND ORGANIC ODOR		PT	PEAT	

OTHER MATERIAL SYMBOLS	
	Poorly-Graded Sand with Clay
	Clayey Sand
	Sandy Silt
	Artificial/Undocumented Fill
	Poorly-Graded Gravelly Sand
	Topsoil
	Well-Graded Gravel with Clay
	Well-Graded Gravel with Silt
	Sand
	Silt
	Well Graded Gravelly Sand
	Gravelly Silt
	Asphalt
	Boulders and Cobble

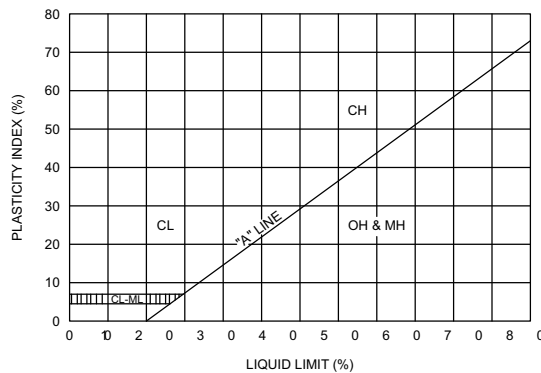
SAMPLER TYPES

	SPT		Shelby Tube
	Modified California (2.5" I.D.)		No Recovery
	Rock Core		Grab Sample

ADDITIONAL TESTS

CA - CHEMICAL ANALYSIS (CORROSIVITY)	PI - PLASTICITY INDEX
CD - CONSOLIDATED DRAINED TRIAXIAL	SW - SWELL TEST
CN - CONSOLIDATION	TC - CYCLIC TRIAXIAL
CU - CONSOLIDATED UNDRAINED TRIAXIAL	TV - TORVANE SHEAR
DS - DIRECT SHEAR	UC - UNCONFINED COMPRESSION
PP - POCKET PENETROMETER (TSF)	(1.5) - (WITH SHEAR STRENGTH IN KSF)
(3.0) - (WITH SHEAR STRENGTH IN KSF)	
RV - R-VALUE	UU - UNCONSOLIDATED UNDRAINED TRIAXIAL
SA - SIEVE ANALYSIS: % PASSING #200 SIEVE	
- WATER LEVEL	

PLASTICITY CHART



PENETRATION RESISTANCE (RECORDED AS BLOWS / FOOT)

SAND & GRAVEL		SILT & CLAY		
RELATIVE DENSITY	BLOWS/FOOT*	CONSISTENCY	BLOWS/FOOT*	STRENGTH** (KSF)
VERY LOOSE	0 - 4	VERY SOFT	0 - 2	0 - 0.25
LOOSE	4 - 10	SOFT	2 - 4	0.25 - 0.5
MEDIUM DENSE	10 - 30	MEDIUM STIFF	4 - 8	0.5 - 1.0
DENSE	30 - 50	STIFF	8 - 15	1.0 - 2.0
VERY DENSE	OVER 50	VERY STIFF	15 - 30	2.0 - 4.0
		HARD	OVER 30	OVER 4.0

* NUMBER OF BLOWS OF 140 LB HAMMER FALLING 30 INCHES TO DRIVE A 2 INCH O.D. (1-3/8 INCH I.D.) SPLIT-BARREL SAMPLER THE LAST 12 INCHES OF AN 18-INCH DRIVE (ASTM-1586 STANDARD PENETRATION TEST).

** UNDRAINED SHEAR STRENGTH IN KIPS/SQ.FT. AS DETERMINED BY LABORATORY TESTING OR APPROXIMATED BY THE STANDARD PENETRATION TEST, POCKET PENETROMETER, TORVANE, OR VISUAL OBSERVATION.



CORNERSTONE EARTH GROUP

BORING NUMBER EB-1

PAGE 1 OF 1

DATE STARTED 10/13/21 DATE COMPLETED 10/13/21

DRILLING CONTRACTOR Exploration Geoservices Inc.

DRILLING METHOD Mobile B-53, 8 inch Hollow-Stem Auger

LOGGED BY JDS

NOTES

PROJECT NAME Ohlone Parkway Industrial Facility

PROJECT NUMBER 1309-2-1

PROJECT LOCATION Watsonville, CA

GROUND ELEVATION 24 FT +/- BORING DEPTH 25 ft.

LATITUDE 36.9025726° LONGITUDE -121.7758489°

GROUND WATER LEVELS:

▽ AT TIME OF DRILLING 25 ft.

▼ AT END OF DRILLING 25 ft.

This log is a part of a report by Cornerstone Earth Group, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
24.0	0		Lean Clay with Sand (CL) [Fill] hard, moist, gray and brown mottled, fine to medium sand, moderate plasticity	28	MC-1B	102	20			○ >4.5
21.5	5		Sandy Lean Clay (CL) [Fill] hard, moist, brown, fine to medium sand, some fine subangular to subrounded gravel, trace organics, low plasticity	30	SPT					○ >4.5
16.3	10		Fat Clay (CH) very stiff, moist, dark gray, some fine sand, high plasticity	26	SPT					○ >4.5
13.5	15		Fat Clay (CH) stiff, moist, gray with brown mottles, trace fine sand, high plasticity	26	MC-5B	86	32			○
	20			28	MC-6B	82	37			○
	25		becomes medium stiff, color changes to bluish gray Bottom of Boring at 25.0 feet.	18	MC-7	76	44			○
				30	MC-9B	78	46			○



PAGE 1 OF 2

▼ AT END OF DRILLING 10 ft.

NOTES

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
										○ HAND PENETROMETER △ TORVANE ● UNCONFINED COMPRESSION ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
										1.0 2.0 3.0 4.0
21.0	0		crushed concrete							
20.0			Poorly Graded Sand with Clay and Gravel (SP-SC) [Fill] very dense to medium dense, moist, brown, fine to coarse sand, fine to coarse subangular to subrounded gravel	50 6"	MC					
17.5			Clayey Sand (SC) [Fill] medium dense, moist, dark brown and brown mottled, fine to medium sand, some fine subangular to subrounded gravel	42	MC-2B	109	10			
14.3			Fat Clay (CH) very stiff, moist, dark gray, some fine sand, high plasticity	21	MC-3B	113	12			
10.5			Fat Clay (CH) stiff, moist, gray with brown mottles, trace fine sand, high plasticity	31	MC-4B	88	30			
					ST-5	76	43			
					MC-6B	75	44			
					ST-7	71	51			
			becomes medium stiff, color changes to bluish gray		ST					
-5.0										
Continued Next Page										

Continued Next Page



PAGE 1 OF 1

▼ AT END OF DRILLING 11 ft.

NOTES

Bottom of Boring at 20.0 feet.

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CORNERSTONE EARTH GROUP

BORING NUMBER EB-4

PAGE 1 OF 2

PROJECT NAME Ohlone Parkway Industrial Facility

PROJECT NUMBER 1309-2-1

PROJECT LOCATION Watsonville, CA

DATE STARTED 10/13/21 DATE COMPLETED 10/13/21

DRILLING CONTRACTOR Exploration Geoservices Inc.

DRILLING METHOD Mobile B-53, 8 inch Hollow-Stem Auger

LOGGED BY JDS

NOTES _____

GROUND ELEVATION 22.5 FT +/- BORING DEPTH 33.5 ft.

LATITUDE 36.9021914° LONGITUDE -121.7753547°

GROUND WATER LEVELS:

▽ AT TIME OF DRILLING 14 ft.

▼ AT END OF DRILLING 14 ft.

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf				
										○ HAND PENETROMETER	△ TORVANE	● UNCONFINED COMPRESSION	▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL	
				1.0	2.0	3.0	4.0							
22.5	0		Sandy Lean Clay (CL) [Fill] hard, moist, brown with light brown mottles, fine to medium sand, some fine subangular to subrounded gravel, moderate plasticity	37	MC-1B	101	17							>4.5
19.5			Lean Clay with Sand (CL) [Fill] hard, moist, brown with gray mottles, fine to medium sand, moderate plasticity	17	MC-2B	108	15							>4.5
17.0	5		Fat Clay (CH) stiff, moist, dark gray, some fine sand, high plasticity	40	MC-3B	89	30							
				22	MC-4B	86	33							
12.0	10		Fat Clay (CH) stiff, moist, gray with brown mottles, trace fine sand, high plasticity											
				29	MC-5B	76	44							
	15													
				29	MC-6B	83	37							
	20													
-1.5			becomes medium stiff, color changes to bluish gray	12	MC-7B	95	23		39					
	25		Silty Sand (SM) loose, moist, gray, fine to medium sand											
-3.0				10	SPT									
-3.5														

Continued Next Page



PROJECT NAME Ohlone Parkway Industrial Facility

PROJECT NUMBER 1309-2-1

PROJECT LOCATION Watsonville, CA

This log is a part of a report by Cornerstone Earth Group, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf				
										○ HAND PENETROMETER △ TORVANE ● UNCONFINED COMPRESSION ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL				
										1.0	2.0	3.0	4.0	
-3.5			Fat Clay (CH) medium stiff, moist, bluish gray, trace fine sand, high plasticity		×									
	30													
					ST-9	73	49				○			
-11.0			Bottom of Boring at 33.5 feet.											
	35													
	40													
	45													
	50													
	55													



CORNERSTONE EARTH GROUP

BORING NUMBER EB-5

PAGE 1 OF 2

DATE STARTED 10/14/21 DATE COMPLETED 10/14/21

DRILLING CONTRACTOR Exploration Geoservices Inc.

DRILLING METHOD Mobile B-53, 8 inch Hollow-Stem Auger

LOGGED BY JDS

NOTES

PROJECT NAME Ohlone Parkway Industrial Facility

PROJECT NUMBER 1309-2-1

PROJECT LOCATION Watsonville, CA

GROUND ELEVATION 20 FT +/- BORING DEPTH 45 ft.

LATITUDE 36.9033061° LONGITUDE -121.7735496°

GROUND WATER LEVELS:

▽ AT TIME OF DRILLING 15 ft.

▼ AT END OF DRILLING 10 ft.

This log is a part of a report by Cornerstone Earth Group, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
20.0	0		crushed concrete							
19.0			Sandy Lean Clay (CL) [Fill] hard, moist, dark gray and brown mottled, fine to medium sand, some fine subangular to subrounded gravel, some cobbles, low plasticity Liquid Limit = 30, Plastic Limit = 15	50 6"	MC-1B	123	11	15		>4.5
16.5			Fat Clay (CH) very stiff to stiff, moist, dark gray, some fine sand, high plasticity Liquid Limit = 57, Plastic Limit = 24	44	MC-2B	97	24	33		
12.0			Fat Clay (CH) stiff, moist, gray with brown mottles, trace fine sand, high plasticity	25	MC-3A	88	29			
				20	MC-4B	79	41			
				23	MC-5	76	41			
				20	MC-6B	77	43			
-3.0			Silty Sand (SM) medium dense, moist, gray, fine sand	23	SPT-7		27			

Continued Next Page



CORNERSTONE EARTH GROUP

BORING NUMBER EB-6

PAGE 1 OF 2

DATE STARTED 10/14/21 DATE COMPLETED 10/14/21

DRILLING CONTRACTOR Exploration Geoservices Inc.

DRILLING METHOD Mobile B-53, 8 inch Hollow-Stem Auger

LOGGED BY JDS

NOTES

PROJECT NAME Ohlone Parkway Industrial Facility

PROJECT NUMBER 1309-2-1

PROJECT LOCATION Watsonville, CA

GROUND ELEVATION 23.5 FT +/- BORING DEPTH 30 ft.

LATITUDE 36.9026069° LONGITUDE -121.7749933°

GROUND WATER LEVELS:

▽ AT TIME OF DRILLING 25 ft.

▼ AT END OF DRILLING 25 ft.

This log is a part of a report by Cornerstone Earth Group, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
23.5	0		crushed concrete							
22.5			Clayey Sand with Gavel (SC) [Fill] dense to very dense, moist, brown, fine to coarse sand, fine to coarse subangular to subrounded gravel	60	MC-1B	119	10			
				50	MC					
	6"									
18.5	5		Clayey Sand (SC) [Fill] dense, moist, reddish brown, fine to medium sand, some fine subangular to subrounded gravel	42	MC-3B	117	9			
16.5			Lean Clay with Sand (CL) [Fill] very stiff, moist, brown, fine sand, moderate plasticity							
14.0	10		Fat Clay (CH) very stiff, moist, dark gray, some fine sand, high plasticity	14	MC-4B	91	27			
11.5			Fat Clay (CH) very stiff, moist, gray with brown mottles, trace fine sand, high plasticity							
	15			30	MC-5B	83	36			
			becomes stiff							
	20			30	MC-6B	78	42			
			becomes medium stiff, color changes to bluish gray	25	MC-7B	81	40			
-2.5	25									

Continued Next Page



CORNERSTONE EARTH GROUP

BORING NUMBER EB-7

PAGE 1 OF 2

PROJECT NAME Ohlone Parkway Industrial FacilityPROJECT NUMBER 1309-2-1PROJECT LOCATION Watsonville, CADATE STARTED 10/14/21 DATE COMPLETED 10/14/21DRILLING CONTRACTOR Exploration Geoservices Inc.DRILLING METHOD Mobile B-53, 8 inch Hollow-Stem AugerLOGGED BY JDS

NOTES _____

GROUND ELEVATION 23.5 FT +/- BORING DEPTH 30 ft.LATITUDE 36.9029930° LONGITUDE -121.7741936°**GROUND WATER LEVELS:**▽ AT TIME OF DRILLING 16 ft.▼ AT END OF DRILLING 16 ft.

ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf				
										○ HAND PENETROMETER	△ TORVANE	● UNCONFINED COMPRESSION	▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL	
23.5	0		crushed concrete											
22.5			Poorly Graded Gravel with Clay and Sand (GP-GC) [Fill] very dense, moist, brown and gray, fine to coarse subangular to subrounded gravel, fine to coarse sand	50 3"	MC-1B	103	9							
				50 6"	MC									
18.5	5		Clayey Sand (SC) [Fill] very dense, moist, reddish brown, fine to medium sand, some fine subangular to subrounded gravel	50 5"	MC-3B	117	9							
14.8			Fat Clay (CH) very stiff, moist, dark gray, some fine sand, high plasticity	24	MC-4B	89	30							
13.8	10		Fat Clay (CH) very stiff, moist, gray with brown mottles, trace fine sand, high plasticity											
				24	MC-5B	84	35							
	15													
			becomes medium stiff	16	MC-6B	76	42							
	20													
			becomes soft, color changes to bluish gray	17	MC-7B	76	47							
	25													
-2.5														

Continued Next Page



CORNERSTONE EARTH GROUP

BORING NUMBER EB-8

PAGE 1 OF 2

DATE STARTED 3/31/22 DATE COMPLETED 3/31/22

DRILLING CONTRACTOR Cuesta Geoservices Inc.

DRILLING METHOD MPP LAD Track Rig, 6½ inch Hollow-Stem Auger

LOGGED BY RA

NOTES

PROJECT NAME Ohlone Parkway Industrial Facility

PROJECT NUMBER 1309-2-1

PROJECT LOCATION Watsonville, CA

GROUND ELEVATION 23.5 FT +/- BORING DEPTH 51.5 ft.

LATITUDE 36.902973° LONGITUDE -121.776192°

GROUND WATER LEVELS:

▽ AT TIME OF DRILLING 27 ft.

▼ AT END OF DRILLING 27 ft.

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
23.5	0		Clayey Sand (SC) [Fill] loose, moist, brown and gray mottled, fine to medium sand, some fine subangular to subrounded gravel	18	MC-1B	107	12			
20.5	5		Sandy Lean Clay (CL) [Fill] very stiff, moist, brown, fine to medium sand, low to moderate plasticity	17	MC-2B	113	15			>4.5
16.5	10		Poorly Graded Sand (SP) [Fill] loose, moist, brown, fine sand	9	MC-3B	109	15			
15.8	10		Fat Clay (CH) very stiff, moist, dark gray, some fine sand, high plasticity	18	MC-4B	87	27			
13.8	10		Fat Clay (CH) very stiff, moist, gray with brown mottles, trace fine sand, high plasticity	13	MC-5B	88	29			
	15				ST-6	77	41			
	20		becomes stiff	7	MC-7B	74	46			
	25		becomes medium stiff		ST-8	74	47			
-2.5										

Continued Next Page



PROJECT NAME Ohlone Parkway Industrial Facility

PROJECT NUMBER 1309-2-1

PROJECT LOCATION Watsonville, CA

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT pcf	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf				
										○ HAND PENETROMETER △ TORVANE ● UNCONFINED COMPRESSION ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL				
										1.0	2.0	3.0	4.0	
-22.5			Fat Clay (CH) stiff, moist, gray with brown mottles, trace fine sand, high plasticity	6	MC-9B	82	33							
	30				ST-10	70	51							
				5	ST-11B	63	61							
	35													
				7	MC-12B	75	46							
	40													
				9	MC-13B	71	39							
	45													
-23.0			Silty Sand (SM) medium dense, moist, gray, fine sand	22	MC-14B	99	25							
	50			10	SPT-15		29							
-28.0			Bottom of Boring at 51.5 feet.											
	55													



CORNERSTONE EARTH GROUP

BORING NUMBER EB-9

PAGE 1 OF 1

PROJECT NAME Ohlone Parkway Industrial FacilityPROJECT NUMBER 1309-2-1PROJECT LOCATION Watsonville, CAGROUND ELEVATION 25.5 FT +/- BORING DEPTH 12.5 ft.LATITUDE 36.902595° LONGITUDE -121.775533°**GROUND WATER LEVELS:**▽ **AT TIME OF DRILLING** Not Encountered▼ **AT END OF DRILLING** Not EncounteredDATE STARTED 3/31/22 DATE COMPLETED 3/31/22DRILLING CONTRACTOR Cuesta Geoservices Inc.DRILLING METHOD MPP LAD Track Rig, 6½ inch Hollow-Stem AugerLOGGED BY RA

NOTES _____

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf				
										○ HAND PENETROMETER	△ TORVANE	● UNCONFINED COMPRESSION	▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL	
										1.0	2.0	3.0	4.0	
25.5	0		Sandy Lean Clay (CL) [Fill] stiff, moist, brown with gray and dark brown mottles, fine to medium sand, some fine subangular to subrounded gravel, low to moderate plasticity Liquid Limit = 33, Plastic Limit = 16 becomes hard	13	1A MC 1B	109 94	14 22	17						
				26	MC-2B	99	17							>4.5
	5		becomes medium stiff	6	MC-3B	90	23							
18.8			Poorly Graded Sand (SP) [Fill] loose, moist, brown, fine to medium sand	5	MC-4B	91	28							
17.8			Lean Clay with Sand (CL) [Fill] stiff, moist, dark brown to brown, fine to medium sand, moderate plasticity	16	MC-5B	94	28							
15.8	10		Fat Clay (CH) very stiff, moist, dark gray, some fine sand, high plasticity	10	MC-6B	83	32							
13.0			Bottom of Boring at 12.5 feet.											
	15													
	20													
	25													



CORNERSTONE EARTH GROUP

BORING NUMBER EB-10

PAGE 1 OF 1

PROJECT NAME Ohlone Parkway Industrial FacilityPROJECT NUMBER 1309-2-1PROJECT LOCATION Watsonville, CAGROUND ELEVATION 26 FT +/- BORING DEPTH 12.5 ft.LATITUDE 36.903055° LONGITUDE -121.775505°**GROUND WATER LEVELS:**▼ AT TIME OF DRILLING Not Encountered▼ AT END OF DRILLING Not EncounteredDATE STARTED 3/31/22 DATE COMPLETED 3/31/22DRILLING CONTRACTOR Cuesta Geoservices Inc.DRILLING METHOD MPP LAD Track Rig, 6½ inch Hollow-Stem AugerLOGGED BY RA

NOTES _____

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf				
										○ HAND PENETROMETER				
										△ TORVANE				
										● UNCONFINED COMPRESSION				
										▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL				
										1.0 2.0 3.0 4.0				
26.0	0		Sandy Lean Clay (CL) [Fill] hard, moist, dark brown and brown mottled, fine to medium sand, moderate plasticity	36	MC-1B	101	20							>4.5
				25	MC-2B	99	17							>4.5
	5			19	MC-3B	96	23							
			becomes very stiff	21	MC-4B	89	25							
18.0			Lean Clay with Sand (CL) [Fill] very stiff, moist, brown and light brown mottled, fine to medium sand, moderate plasticity	5	MC-5B	86	31							
	10			13	MC-6	94	26							
15.5			Fat Clay (CH) very stiff, moist, dark gray to gray, some fine sand, high plasticity	9	MC-7B	89	30							
13.5			Bottom of Boring at 12.5 feet.											
	15													
	20													
	25													



▼ AT END OF DRILLING Not Encountered

NOTES

SYMBOL

[illegible]



CORNERSTONE EARTH GROUP

BORING NUMBER EB-12

PAGE 1 OF 1

PROJECT NAME Ohlone Parkway Industrial FacilityPROJECT NUMBER 1309-2-1PROJECT LOCATION Watsonville, CAGROUND ELEVATION 21 FT +/- BORING DEPTH 8 ft.LATITUDE 36.904089° LONGITUDE -121.774417°**GROUND WATER LEVELS:**▼ AT TIME OF DRILLING Not Encountered▼ AT END OF DRILLING Not EncounteredDATE STARTED 4/1/22 DATE COMPLETED 4/1/22DRILLING CONTRACTOR Cuesta Geoservices Inc.DRILLING METHOD MPP LAD Track Rig, 6½ inch Hollow-Stem AugerLOGGED BY RA

NOTES _____

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf				
21.0	0		Clayey Sand with Gravel (SC) [Fill] loose, moist, dark brown with brown mottles, fine to medium sand, fine to coarse subangular to subrounded gravel	11	MC-1B	127	9							
18.0			Sandy Lean Clay (CL) [Fill] very stiff, moist, brown with gray mottles, fine to medium sand, moderate plasticity	7	MC-2B	102	20							
15.5	5		Fat Clay (CH) stiff to very stiff, moist, dark gray, some fine sand, high plasticity	19	MC-3B	93	28							
13.0			Bottom of Boring at 8.0 feet.	15	MC-4B	77	34							
	10													
	15													
	20													
	25													



CORNERSTONE EARTH GROUP

BORING NUMBER EB-13

PAGE 1 OF 1

PROJECT NAME Ohlone Parkway Industrial FacilityPROJECT NUMBER 1309-2-1PROJECT LOCATION Watsonville, CAGROUND ELEVATION 24.5 FT +/- BORING DEPTH 11 ft.LATITUDE 36.903637° LONGITUDE -121.773932°**GROUND WATER LEVELS:**▼ AT TIME OF DRILLING Not Encountered▼ AT END OF DRILLING Not EncounteredDATE STARTED 4/1/22 DATE COMPLETED 4/1/22DRILLING CONTRACTOR Cuesta Geoservices Inc.DRILLING METHOD MPP LAD Track Rig, 6½ inch Hollow-Stem AugerLOGGED BY RA

NOTES _____

This log is a part of a report by Cornerstone Earth Group, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT pcf	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf				
										○ HAND PENETROMETER				
										△ TORVANE				
										● UNCONFINED COMPRESSION				
										▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL				
										1.0 2.0 3.0 4.0				
24.5	0		Silty Gravel with Sand (GM) [Fill] dense, moist, gray and brown mottled, fine to coarse subangular to subrounded gravel, fine to coarse sand, abundant AC and concrete fragments	28 6"	MC-1	103	10							
				55	MC-2B	109	12							
19.5	5		Clayey Sand with Gravel (SC) [Fill] medium dense, moist, dark brown with brown mottles, fine to medium sand, fine to coarse subangular to subrounded gravel	24	MC-3B	111	12							
				38	MC-4B	117	14							
16.0			Fat Clay (CH) very stiff, moist, dark gray, some fine sand, high plasticity	17	MC-5B	92	27							
	10			7	MC-6B	82	32							
13.5			Bottom of Boring at 11.0 feet.											
	15													
	20													
	25													



Cornerstone Earth Group

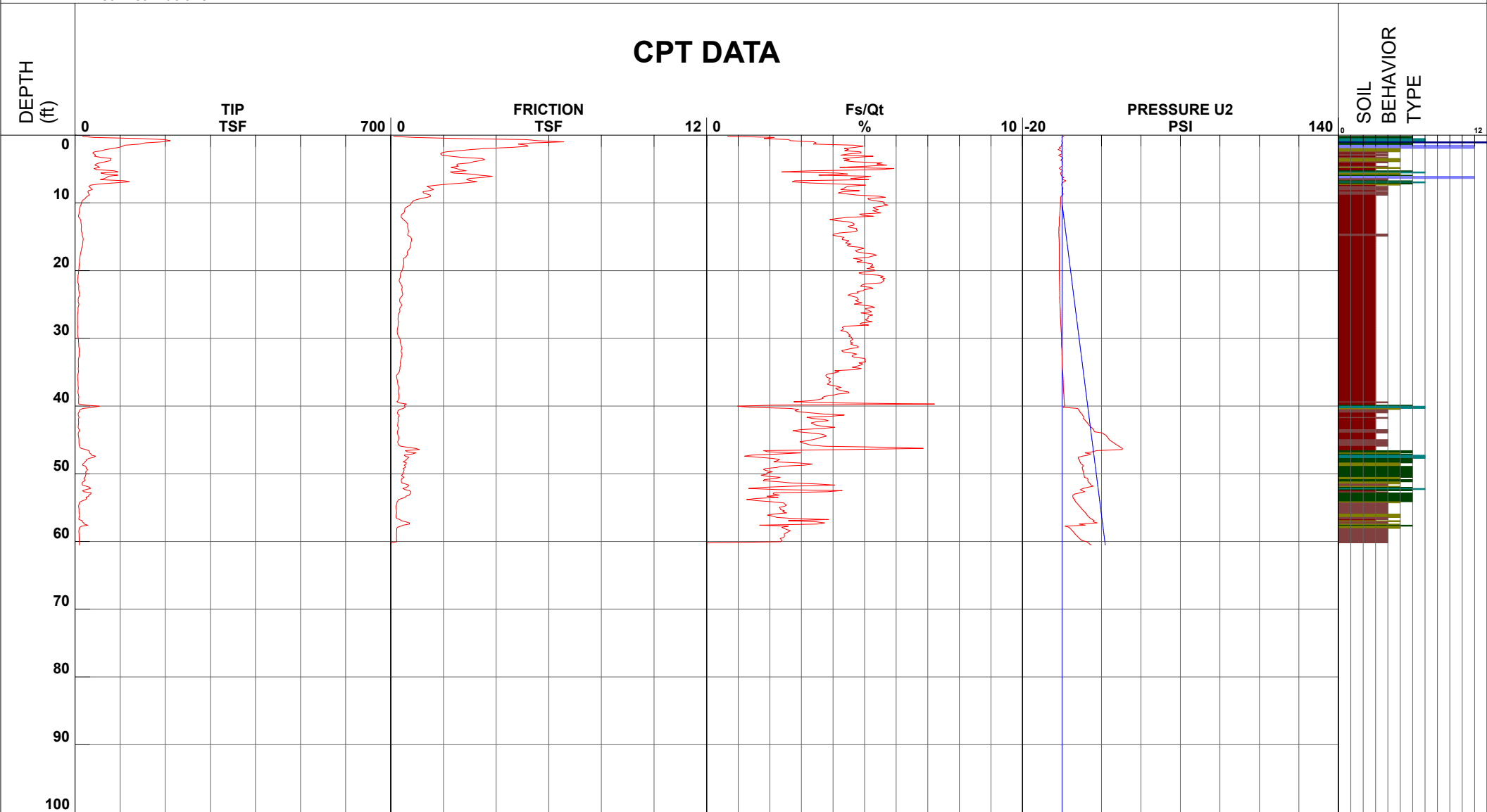
Project Ohlone Parkway Industrial
Job Number 1309-2-1
Hole Number CPT-01
EST GW Depth During Test

Operator AJ-OO
Cone Number DDG1589
Date and Time 10/2/2021 9:57:51 AM
10.00 ft

Filename SDF(018).cpt
GPS
Maximum Depth 60.53 ft

Net Area Ratio .8

CPT DATA



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

Cone Size 15cm squared

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



Cornerstone Earth Group

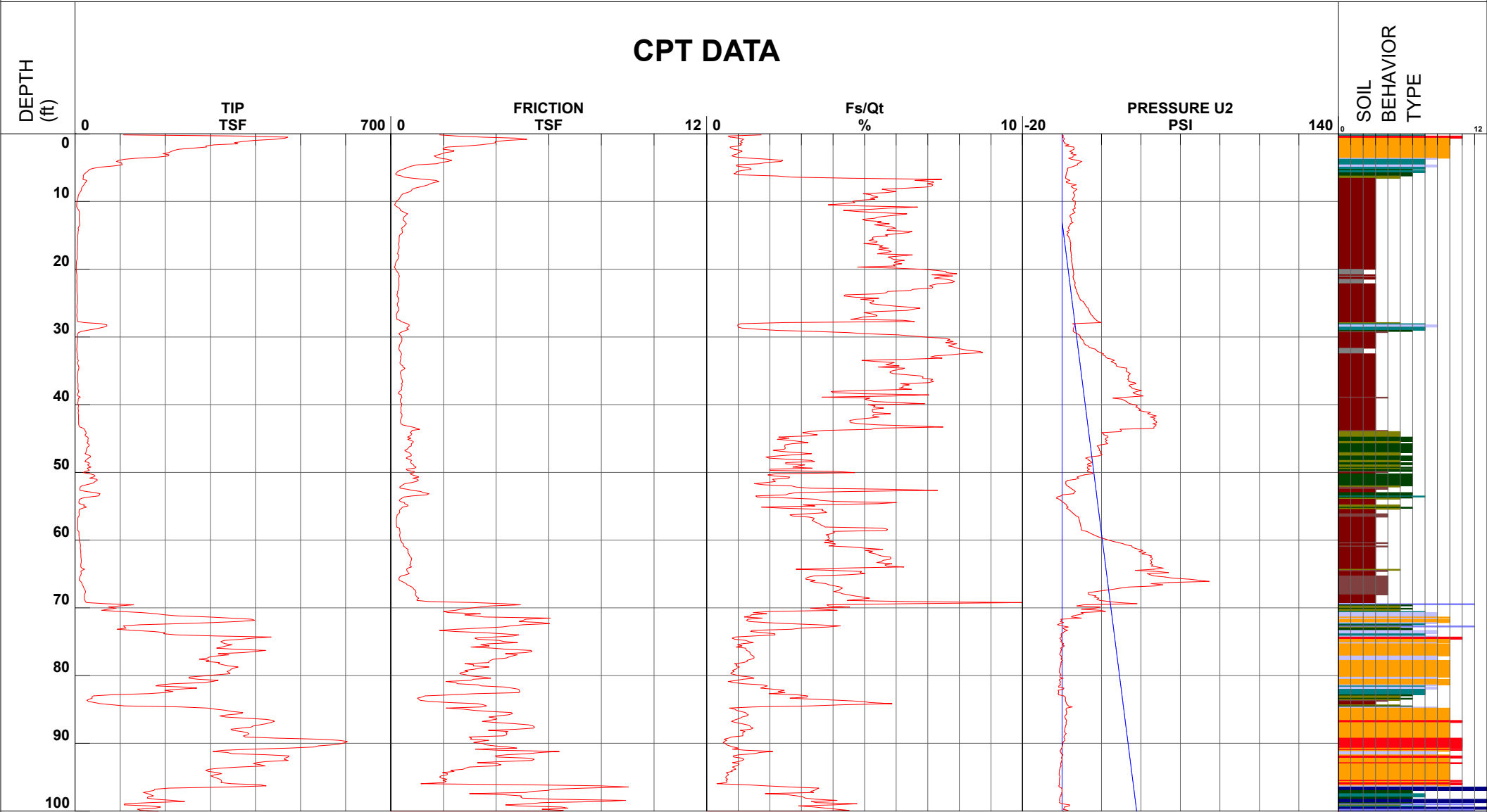
Project Ohlone Parkway Industrial
Job Number 1309-2-1
Hole Number CPT-02
EST GW Depth During Test

Operator AJ-OO
Cone Number DDG1589
Date and Time 10/2/2021 1:23:17 PM
12.90 ft

Filename SDF(021).cpt
GPS
Maximum Depth 100.56 ft

Net Area Ratio .8

CPT DATA



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

Cone Size 15cm squared

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



Cornerstone Earth Group

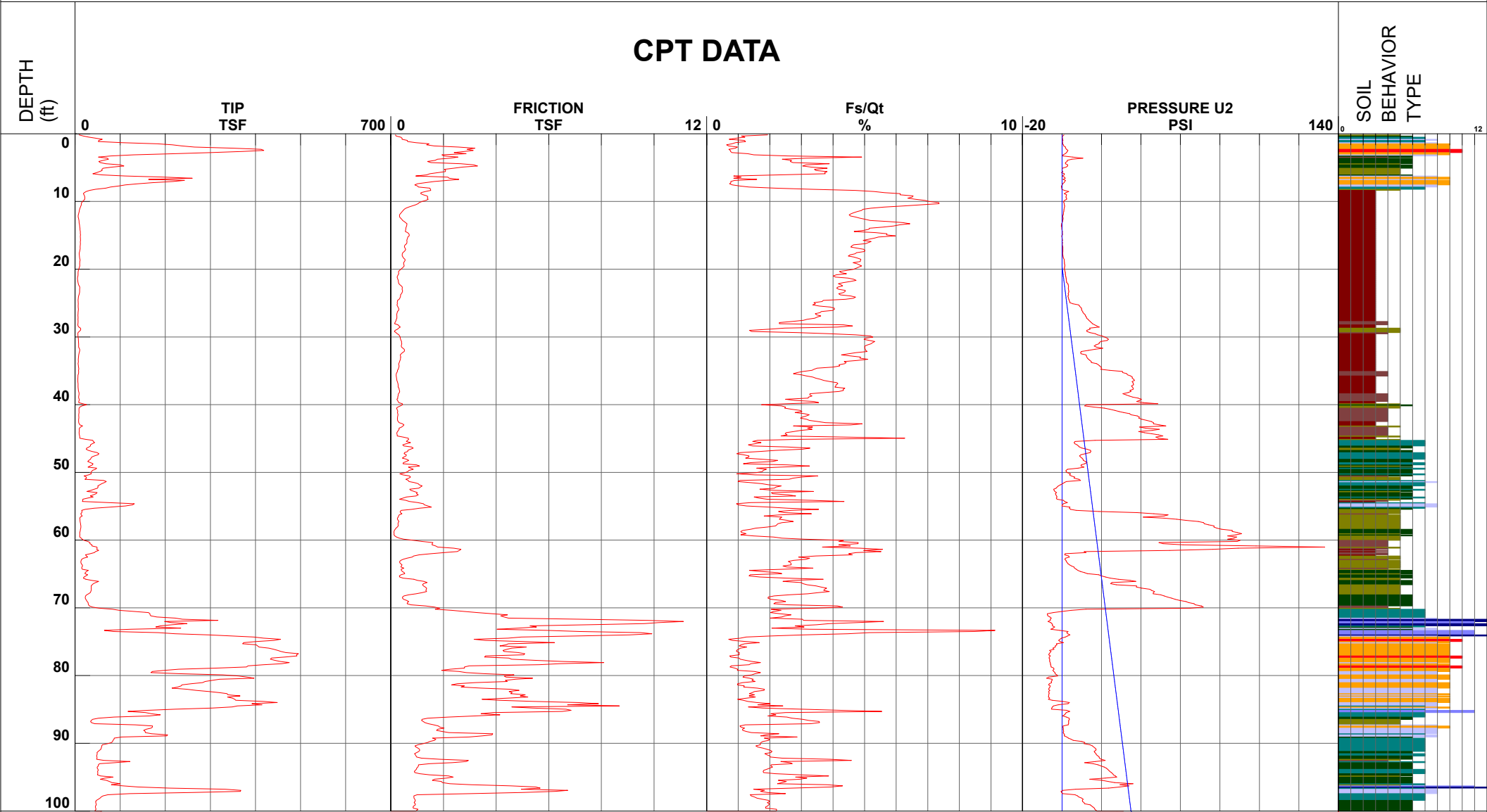
Project Ohlone Parkway Industrial
Job Number 1309-2-1
Hole Number CPT-03
EST GW Depth During Test

Operator AJ-OO
Cone Number DDG1589
Date and Time 10/2/2021 8:33:11 AM
19.50 ft

Filename SDF(017).cpt
GPS
Maximum Depth 100.56 ft

Net Area Ratio .8

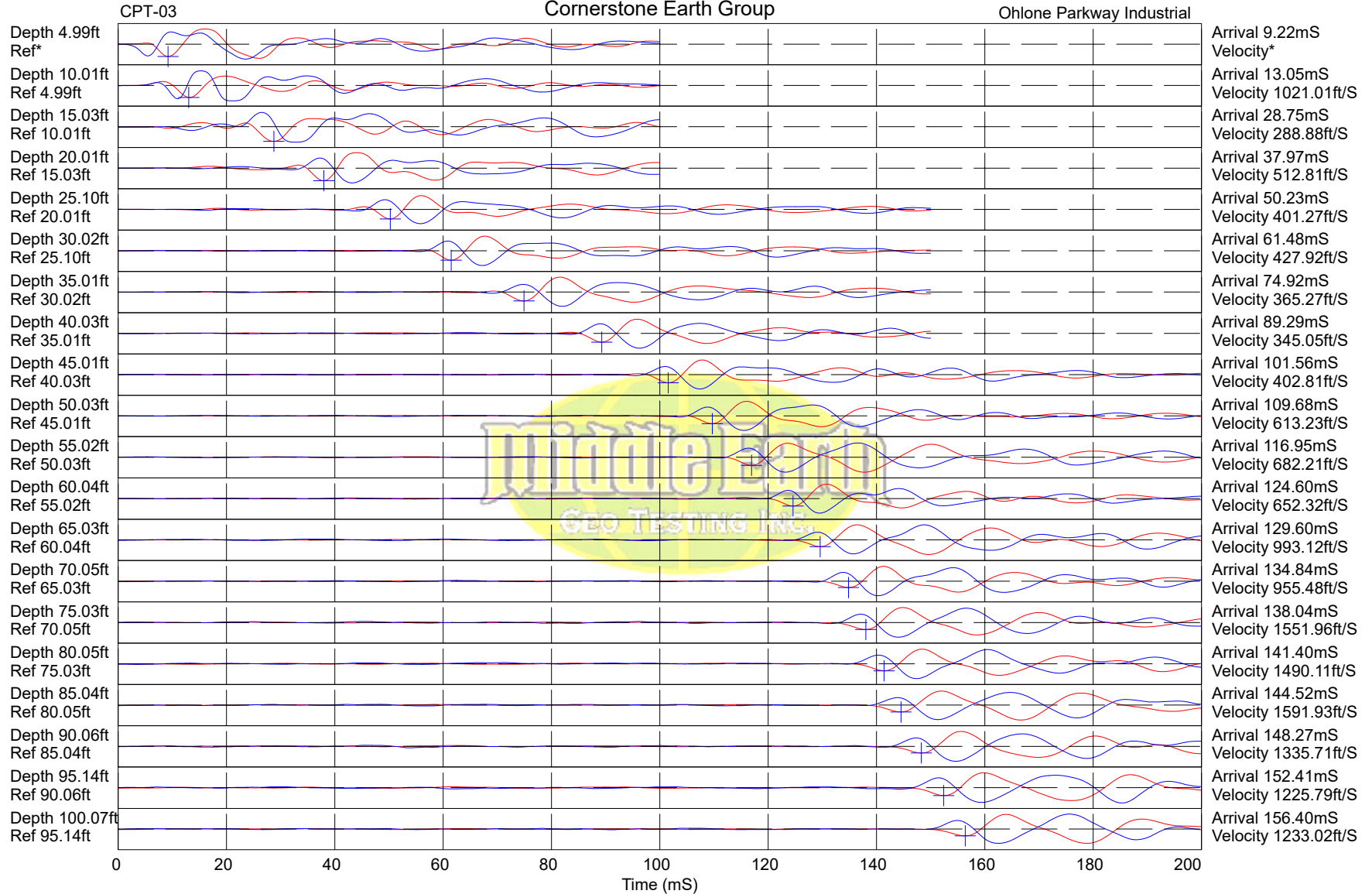
CPT DATA



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

Cone Size 15cm squared

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



Hammer to Rod String Distance (ft): 5.83

* = Not Determined

COMMENT:



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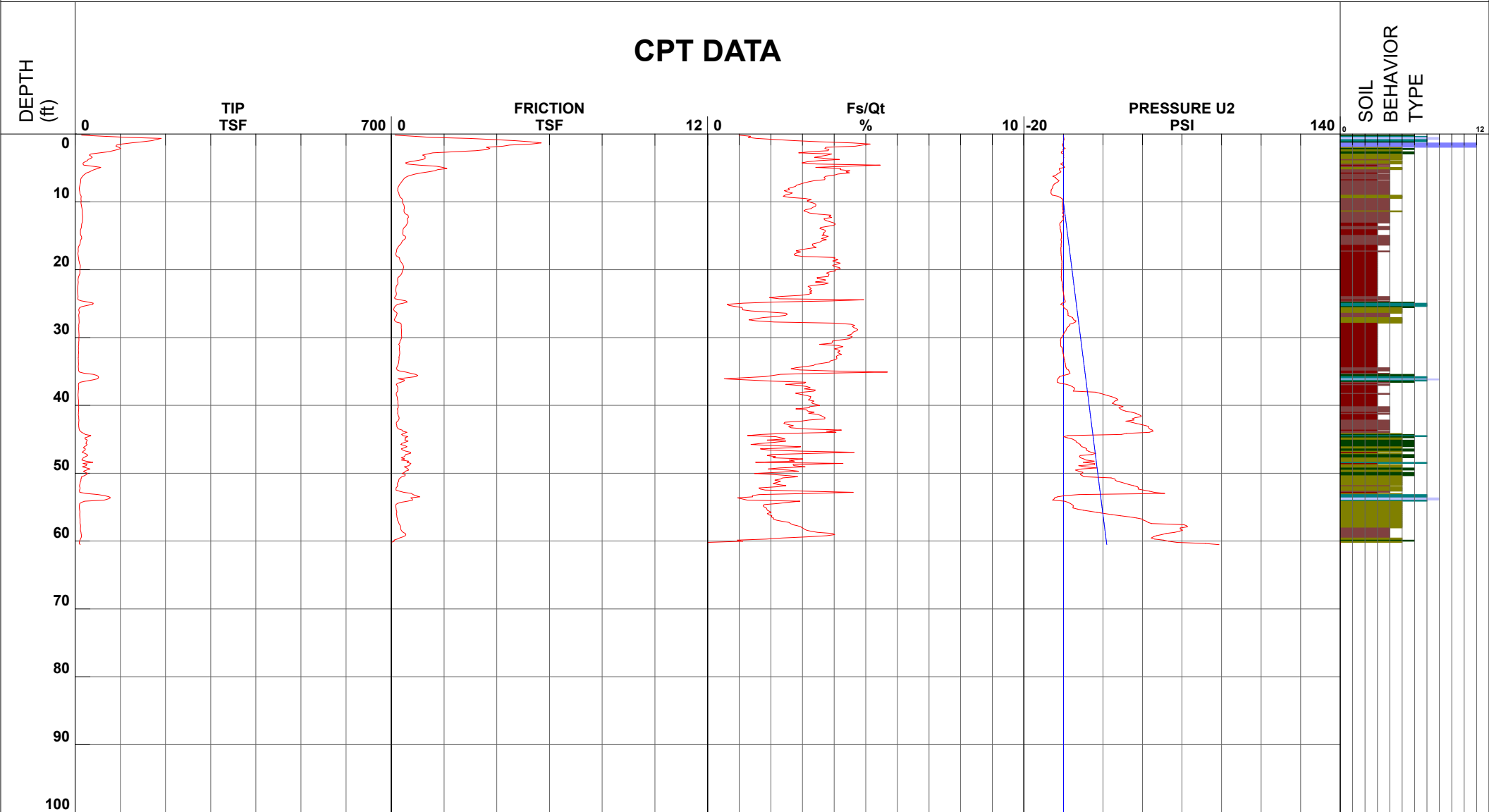
Project Ohlone Parkway Industrial
Job Number 1309-2-1
Hole Number CPT-04
EST GW Depth During Test

Operator AJ-OO
Cone Number DDG1589
Date and Time 10/2/2021 10:54:14 AM
10.00 ft

Filename SDF(019).cpt
GPS
Maximum Depth 60.53 ft

Net Area Ratio .8

CPT DATA



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

Cone Size 15cm squared

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



Cornerstone Earth Group

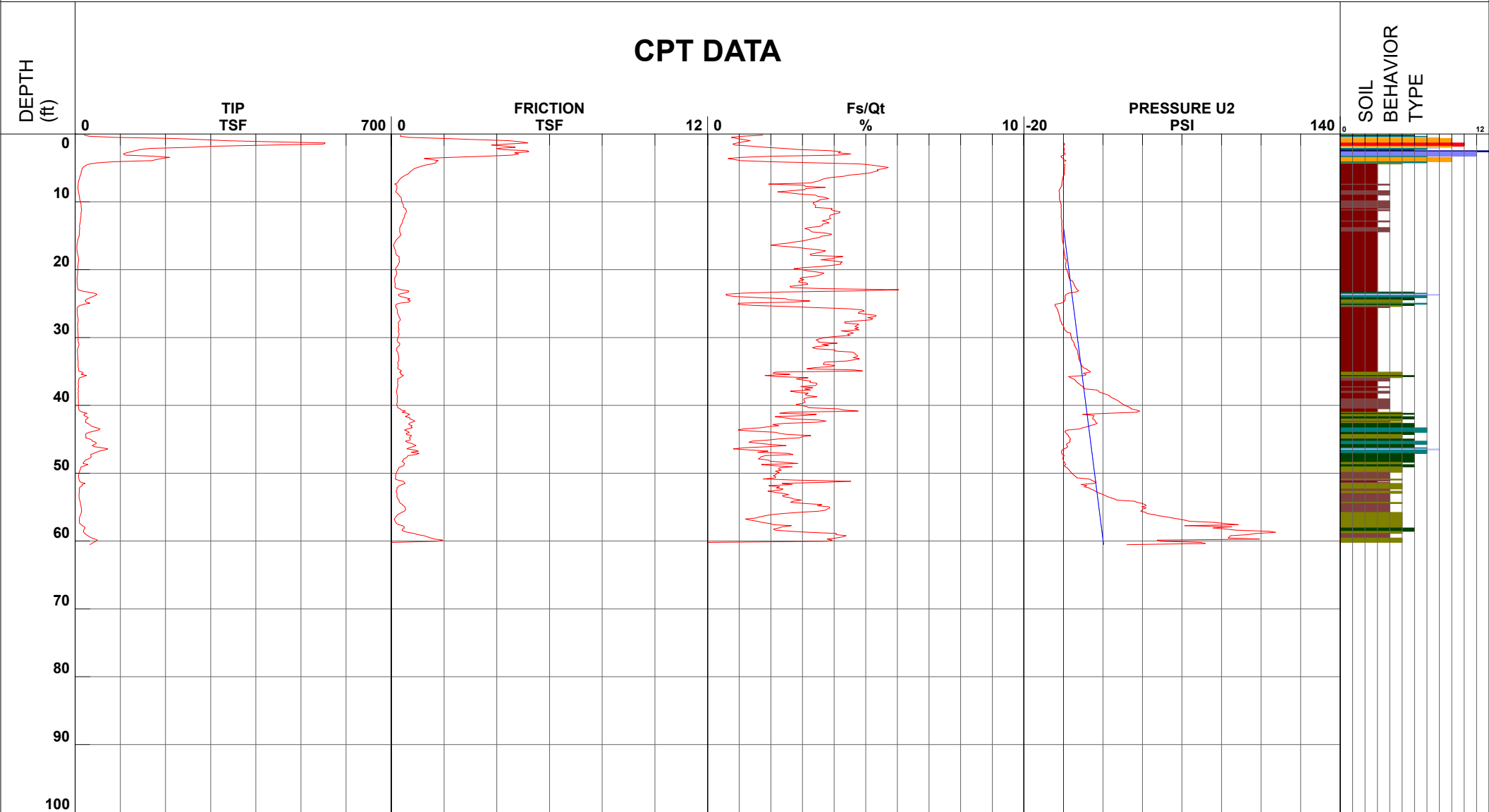
Project Ohlone Parkway Industrial
Job Number 1309-2-1
Hole Number CPT-05
EST GW Depth During Test

Operator AJ-OO
Cone Number DDG1589
Date and Time 10/2/2021 12:33:31 PM
13.70 ft

Filename SDF(020).cpt
GPS
Maximum Depth 60.53 ft

Net Area Ratio .8

CPT DATA



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

Cone Size 15cm squared

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

APPENDIX B: LABORATORY TEST PROGRAM

The laboratory testing program was performed to evaluate the physical and mechanical properties of the soils retrieved from the site to aid in verifying soil classification.

Moisture Content: The natural water content was determined (ASTM D2216) on 95 samples of the materials recovered from the borings. These water contents are recorded on the boring logs at the appropriate sample depths.

Dry Densities: In place dry density determinations (ASTM D2937) were performed on 93 samples to measure the unit weight of the subsurface soils. Results of these tests are shown on the boring logs at the appropriate sample depths.

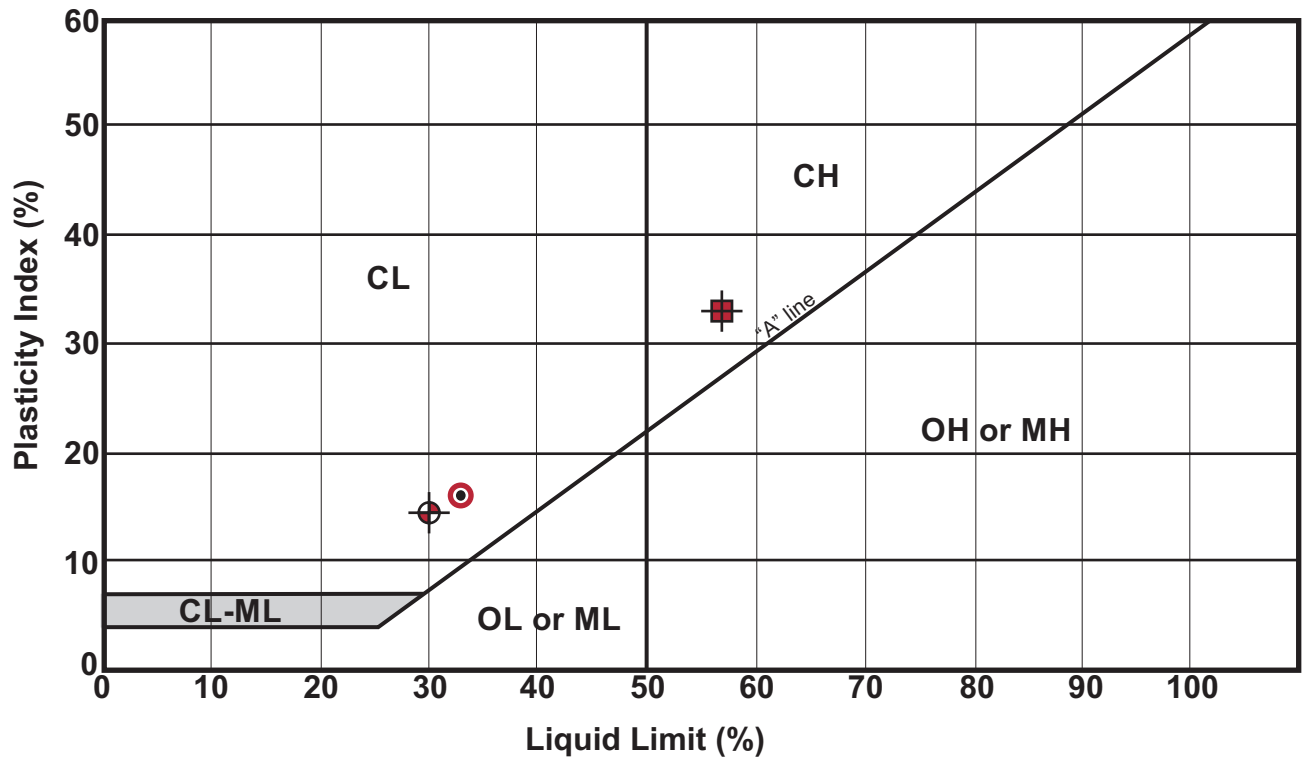
Washed Sieve Analyses: The percent soil fraction passing the No. 200 sieve (ASTM D1140) was determined on two samples of the subsurface soils to aid in the classification of these soils. Results of these tests are shown on the boring logs at the appropriate sample depths.

Plasticity Index: Three Plasticity Index determinations (ASTM D4318) were performed on samples of the subsurface soils to measure the range of water contents over which this material exhibits plasticity. The Plasticity Index results were used to classify the soil in accordance with the Unified Soil Classification System and to evaluate the soil expansion potential. Results of these tests are shown on the boring logs at the appropriate sample depths.

Consolidation: Six consolidation tests (ASTM D2435) were performed on relatively undisturbed samples of the subsurface clayey soils to assist in evaluating the compressibility property of this soil. Results of the consolidation tests are presented graphically in this appendix.

Corrosion: Soluble sulfate determinations (ASTM D4327), resistivity tests (ASTM G57), chloride determinations (ASTM D4327), and pH determinations (ASTM G51) were performed on three representative samples of the subsurface soils. Results of these tests are attached to this appendix.

Plasticity Index (ASTM D4318) Testing Summary



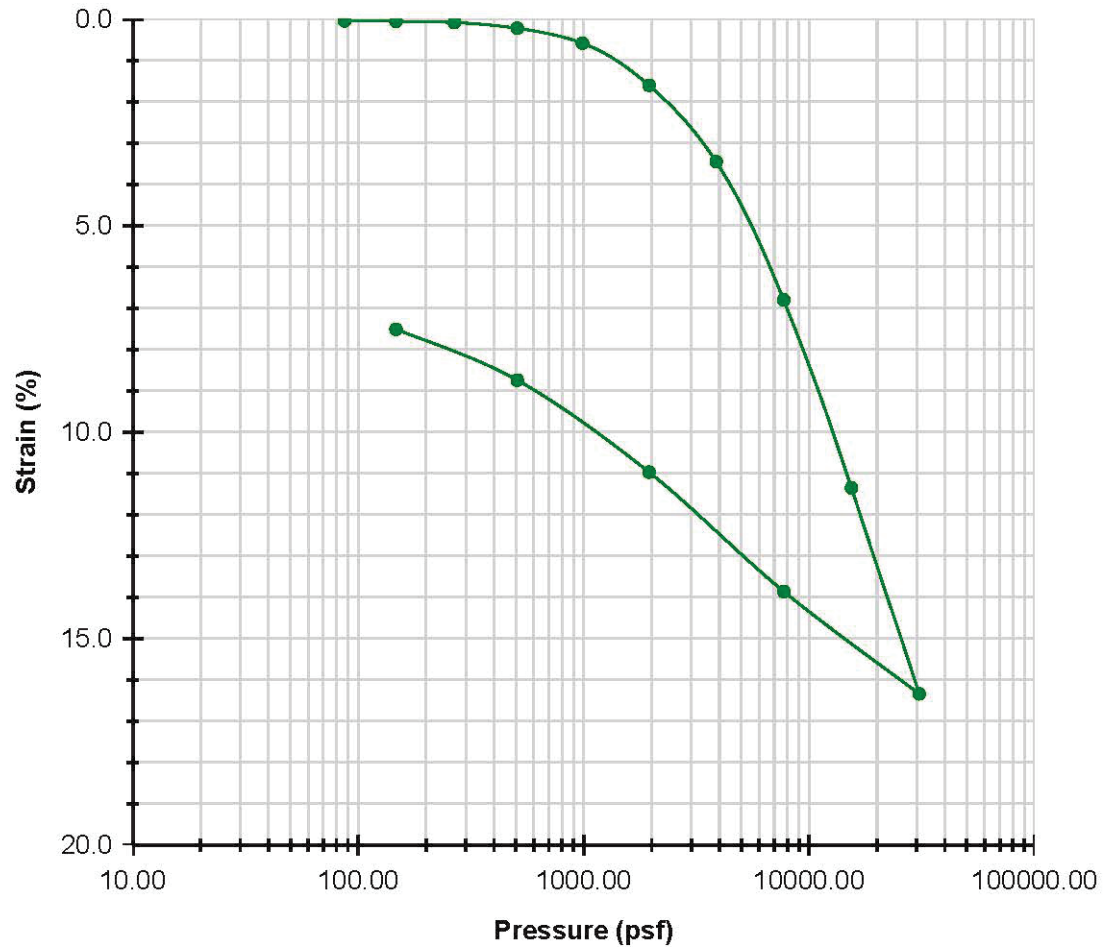
Symbol	Boring No.	Depth (ft)	Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index	Passing No. 200 (%)	Group Name (USCS - ASTM D2487)
⊙	EB-5	2.0	11	30	15	15	—	Sandy Lean Clay (CL) [Fill]
⊠	EB-5	4.0	24	57	24	33	—	Fat Clay (CH)
⊙	EB-9	1.5	14	33	16	17	—	Sandy Lean Clay (CL) [Fill]

Samples prepared in accordance with ASTM D421

Consolidation Test ASTM D2435

Boring: EB-2 Sample: 5 Depth: 11.2'

Description: Fat Clay (CH)



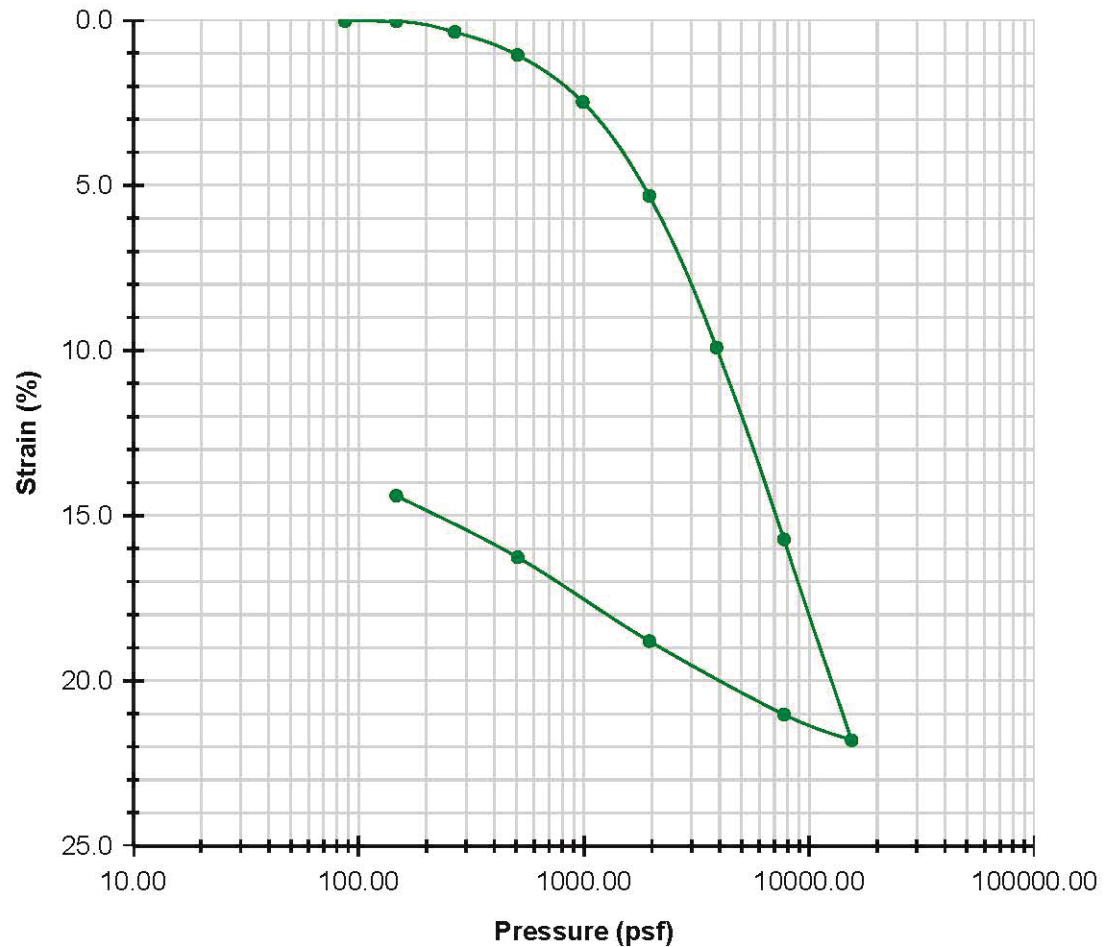
	BEFORE	AFTER
Moisture (%)	43.3	39.7
Dry Density (pcf)	76.2	81.6
Saturation (%)	95.9	100.0
Void Ratio	1.23	1.08

—●— (A) Stress Strain Curve

Consolidation Test ASTM D2435

Boring: EB-2 Sample: 7 Depth: 20.2'

Description: Fat Clay (CH)



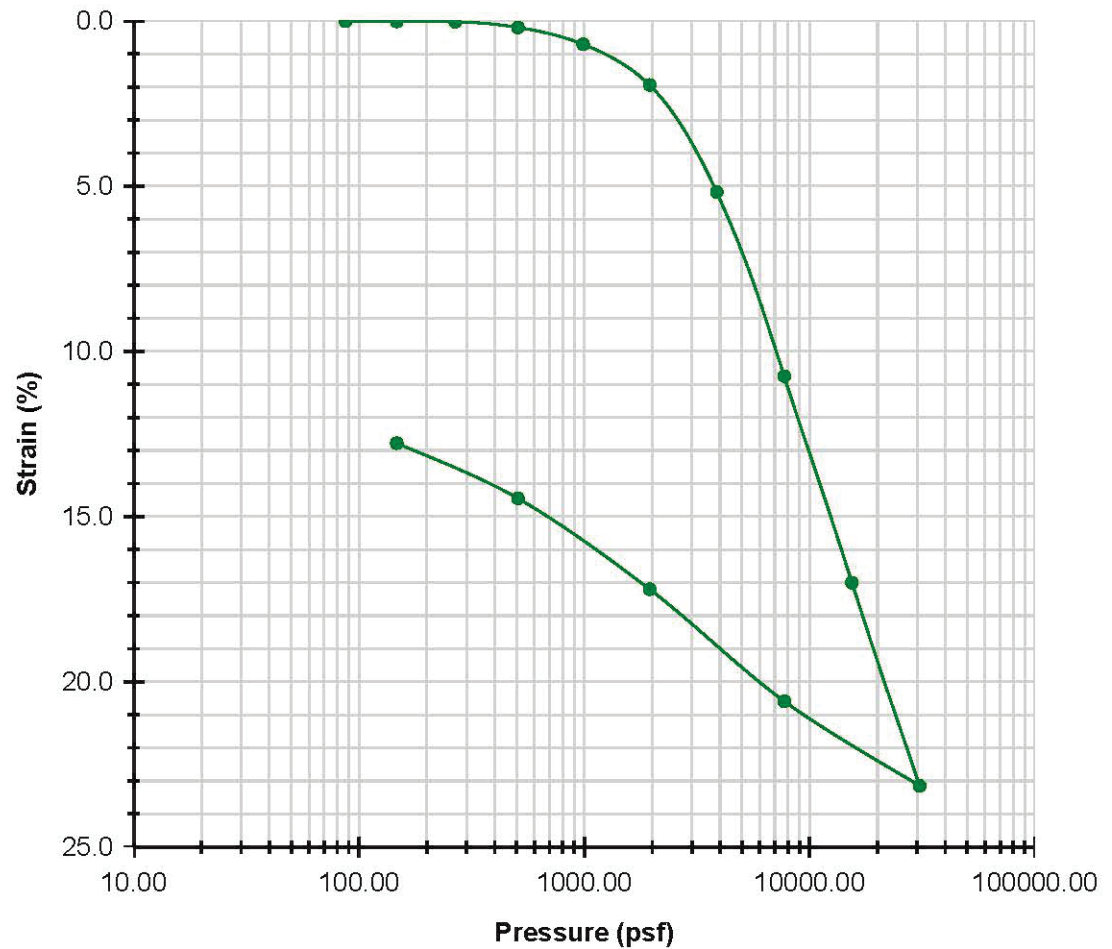
	BEFORE	AFTER
Moisture (%)	51.4	38.6
Dry Density (pcf)	71.4	84.1
Saturation (%)	99.3	100.0
Void Ratio	1.45	1.08

—●— (A) Stress Strain Curve

Consolidation Test ASTM D2435

Boring: EB-4 Sample: 9 Depth: 33.2'

Description: Fat Clay (CH)

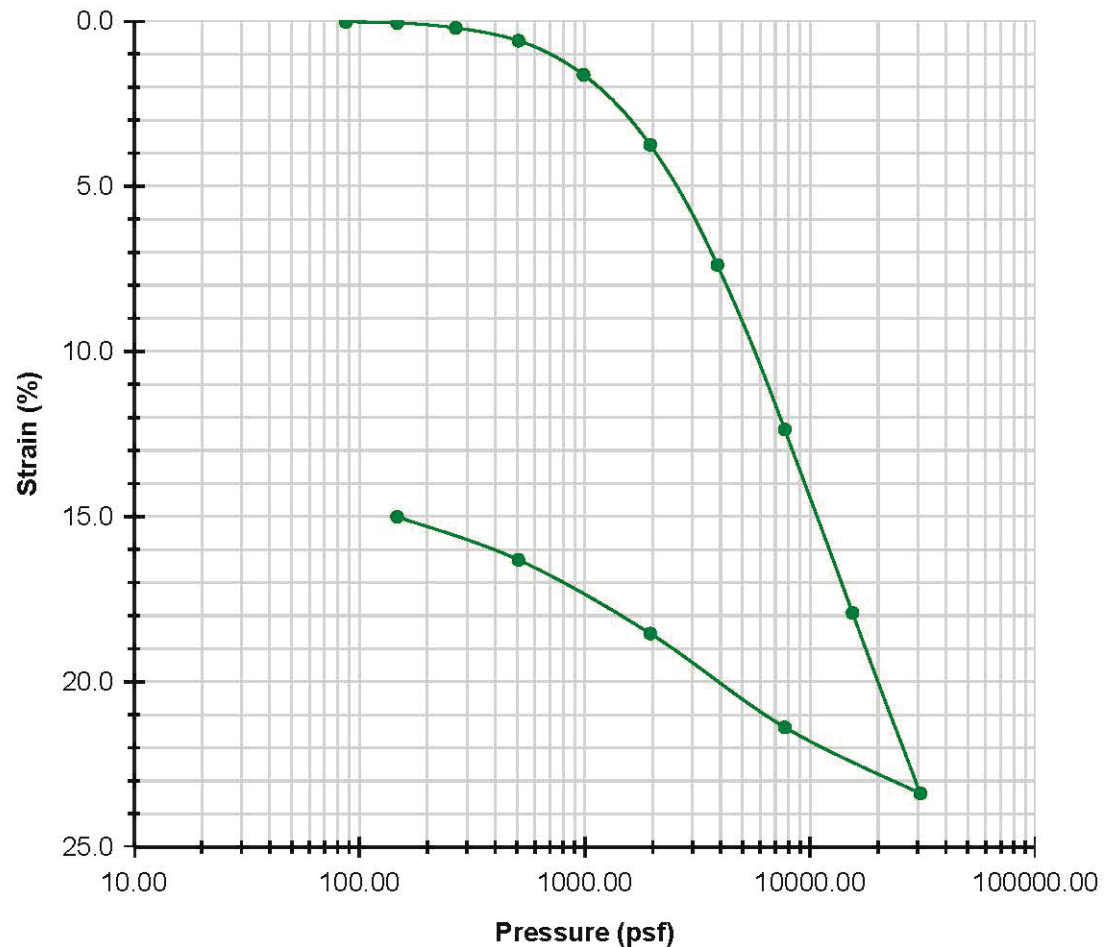


	BEFORE	AFTER
Moisture (%)	49.4	39.6
Dry Density (pcf)	72.7	82.9
Saturation (%)	98.6	100.0
Void Ratio	1.40	1.11

—●— (A) Stress Strain Curve

Consolidation Test ASTM D2435

Boring: EB-8 Sample: 8 Depth: 23.3'
 Description: Fat Clay (CH)



	BEFORE	AFTER
Moisture (%)	47.1	35.0
Dry Density (pcf)	74.1	87.0
Saturation (%)	99.2	100.0
Void Ratio	1.29	0.95

—●— (A) Stress Strain Curve

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EARTH GROUP

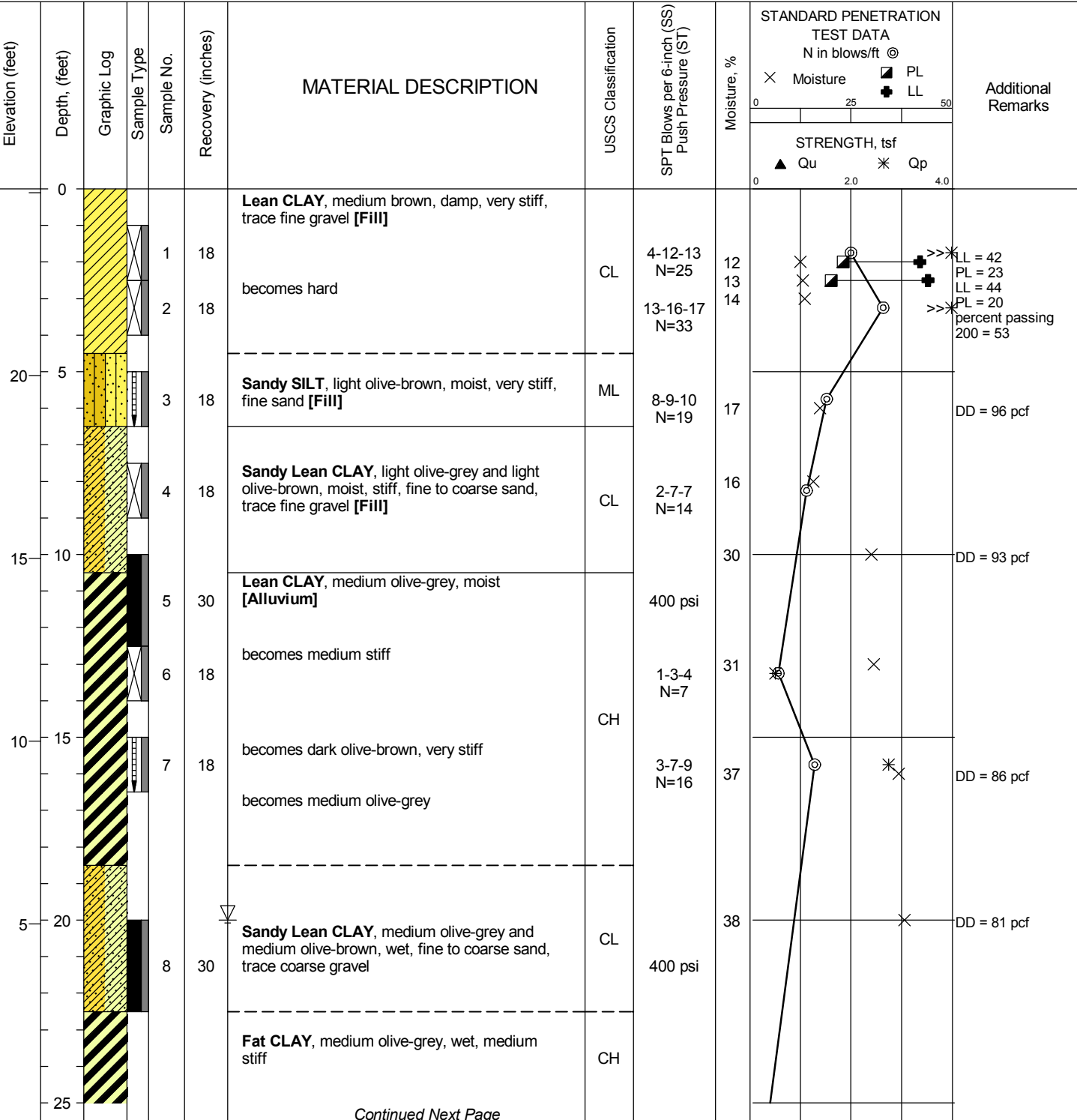
Date Tested	11/1/2021
Tested By	BBA, FLL

[illegible]

APPENDIX C: PREVIOUS EXPLORATION AND LABORATORY DATA

Intertek PSI (2015, 2016, 2021)

BORING WW-4		
Water		While drilling
		20 feet
		
BORING LOCATION: Center of BLDG 1b		



BORING WW-4		
Water		While drilling
		
		
BORING LOCATION: Center of BLDG 1b		

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS) Push Pressure (ST)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft @				Additional Remarks
										✕ Moisture ■ PL 0				

PROJECT NO.: 575-1751-1
PROJECT: Four Stones RE LLC - Watsonville West
LOCATION: SWC Ohlone Pkwy & Slough Rd W.
Watsonville, California



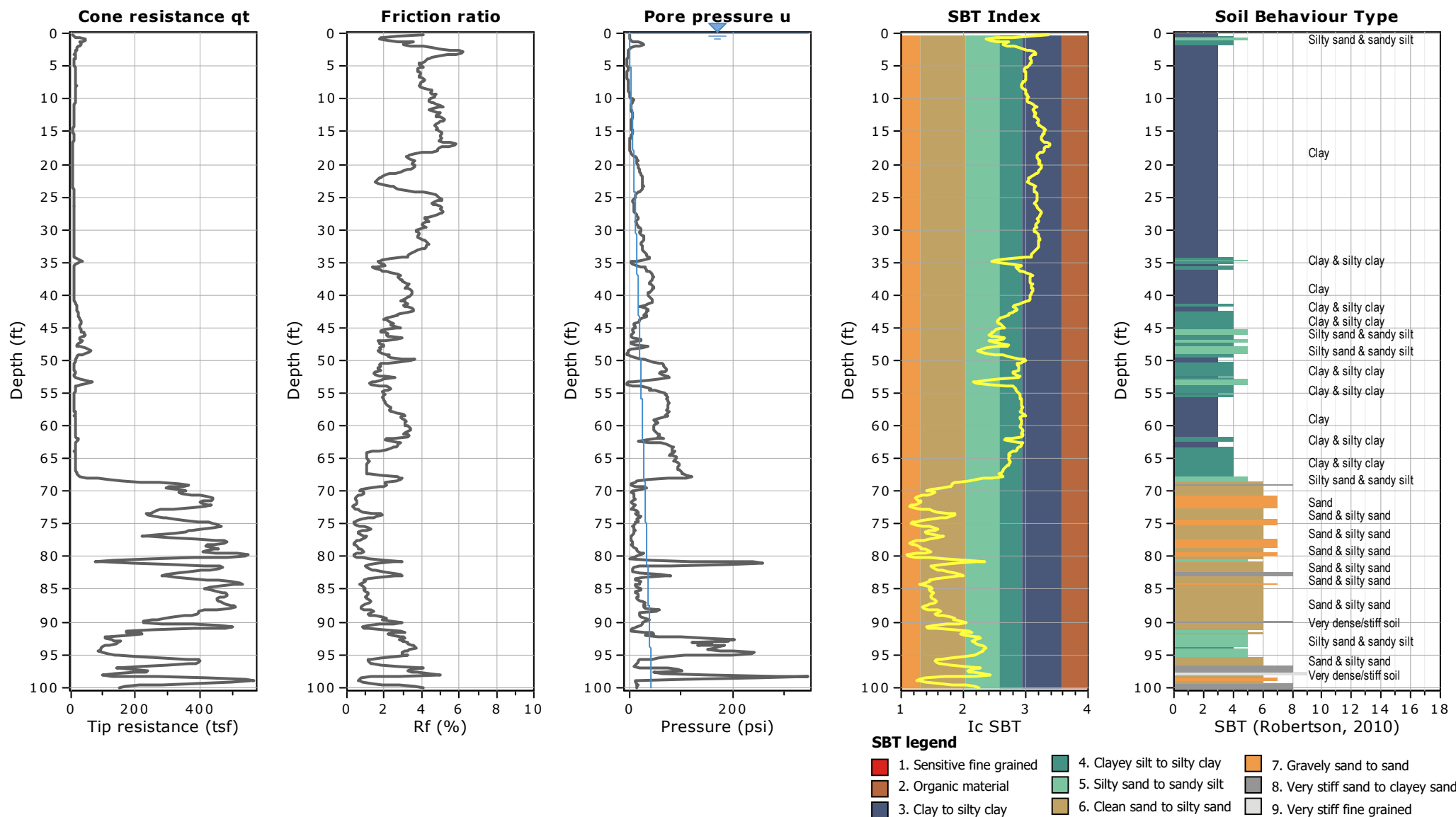
PSI
4703 Tidewater Avenue
Suite B
Oakland, CA 94601

Project: 05751751 Four Stones Watsonville West
Location: Watsonville CA

CPT: CPT-1 2015

Total depth: 100.07 ft, Date: 12/1/2015

Surface Elevation: 14.50 ft





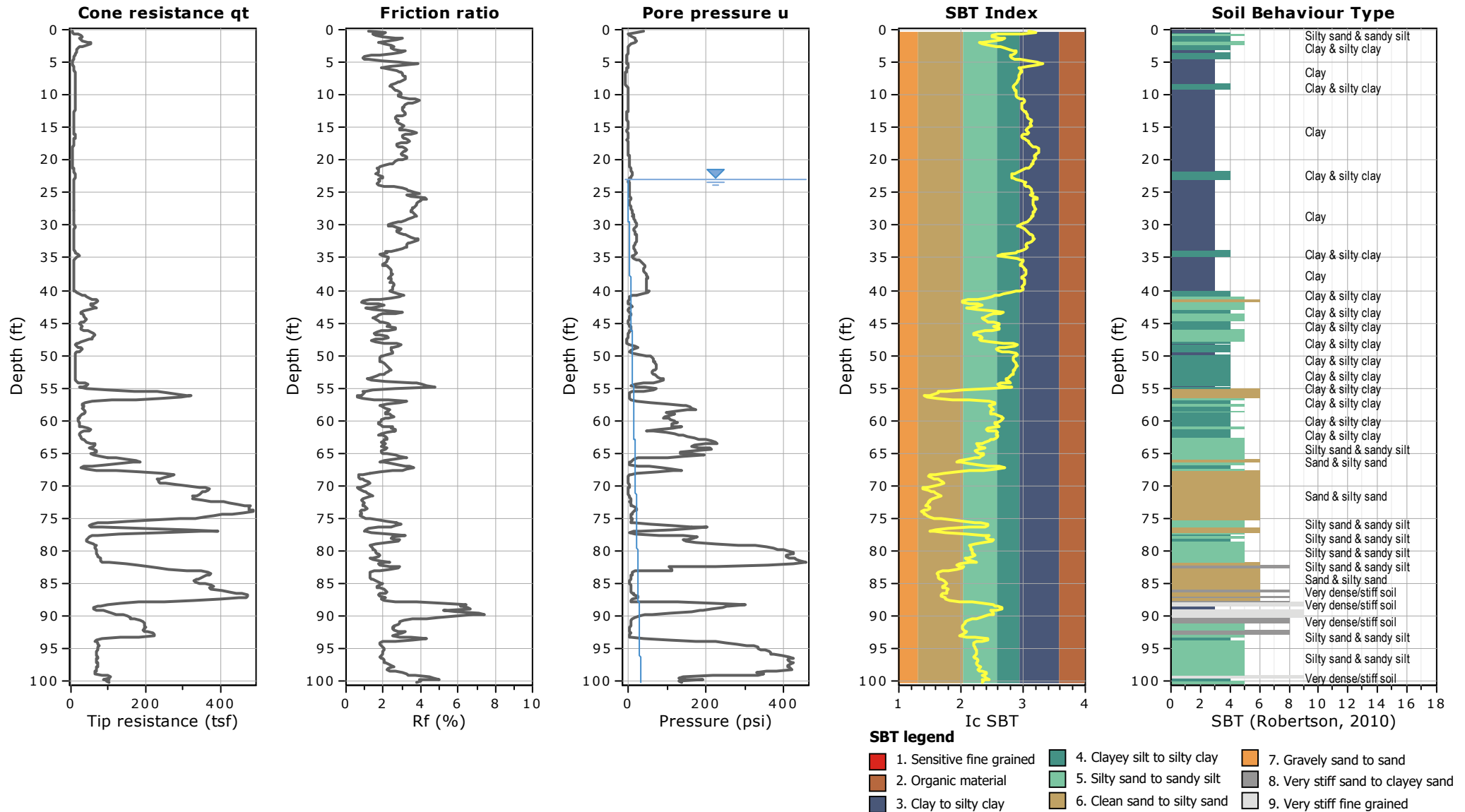
PSI
4703 Tidewater Avenue
Suite B
Oakland, CA 94601

Project: 05751751 Four Stones Watsonville West
Location: Watsonville CA

CPT: CPT-3 2015

Total depth: 100.23 ft, Date: 12/2/2015

Surface Elevation: 14.50 ft





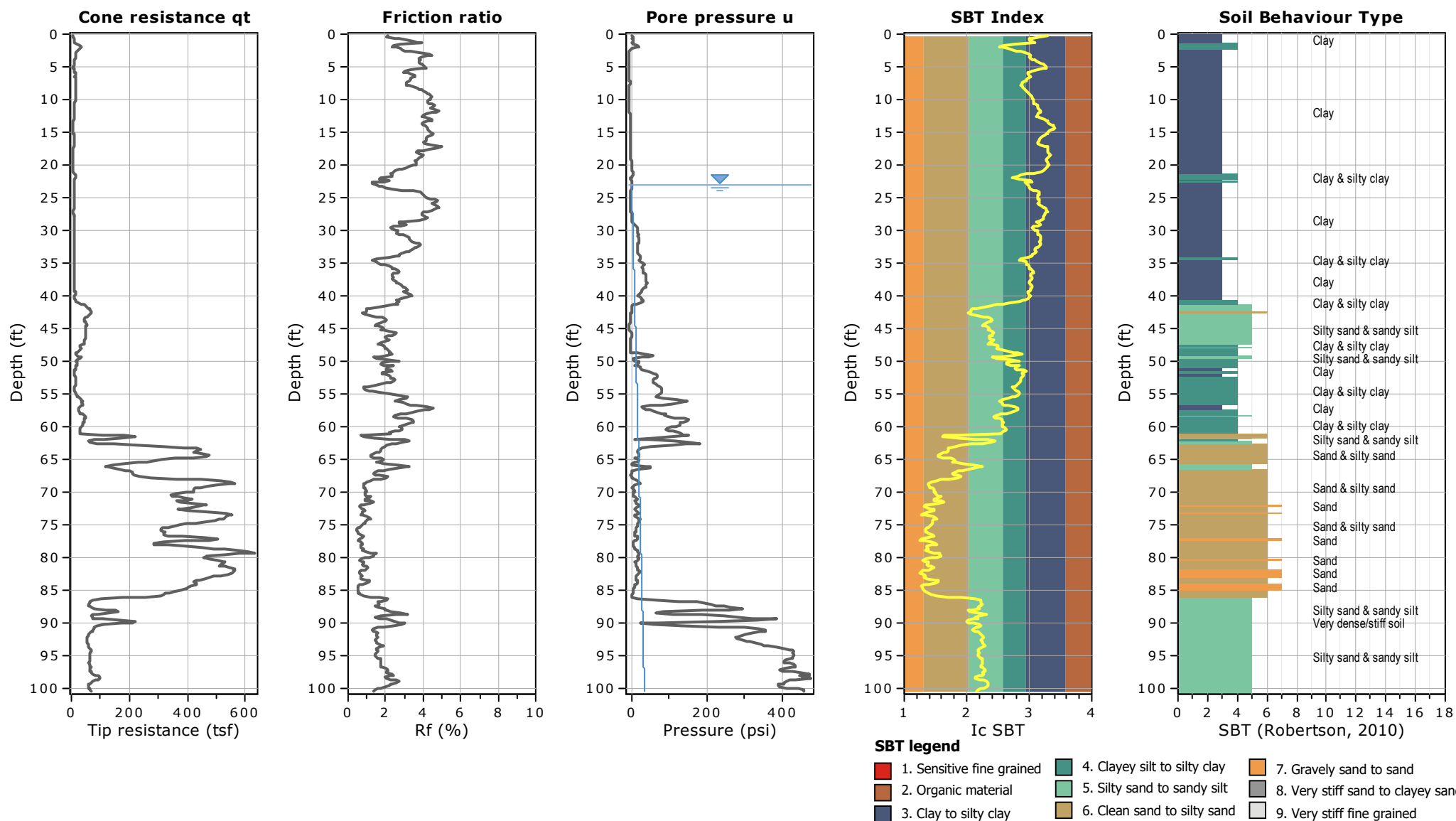
PSI
4703 Tidewater Avenue
Suite B
Oakland, CA 94601

Project: 05751751 Four Stones Watsonville West
Location: Watsonville CA

CPT: CPT-4 2015

Total depth: 100.39 ft, Date: 12/2/2015

Surface Elevation: 15.00 ft





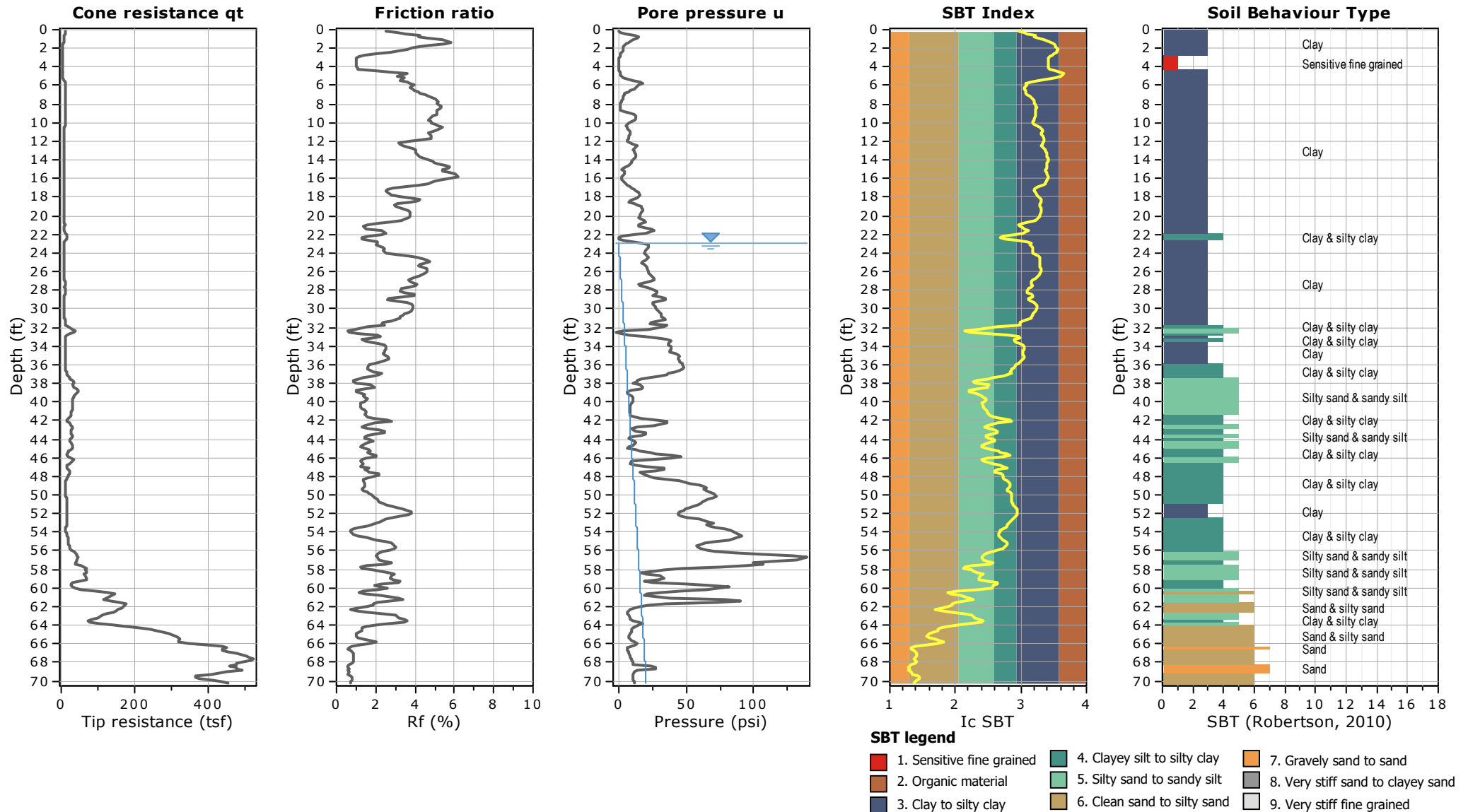
PSI
4703 Tidewater Avenue
Suite B
Oakland, CA 94601

Project: 05751751 Four Stones Watsonville West
Location: Watsonville CA

CPT: CPT-7 2016

Total depth: 70.21 ft, Date: 5/16/2016

Surface Elevation: 14.50 ft



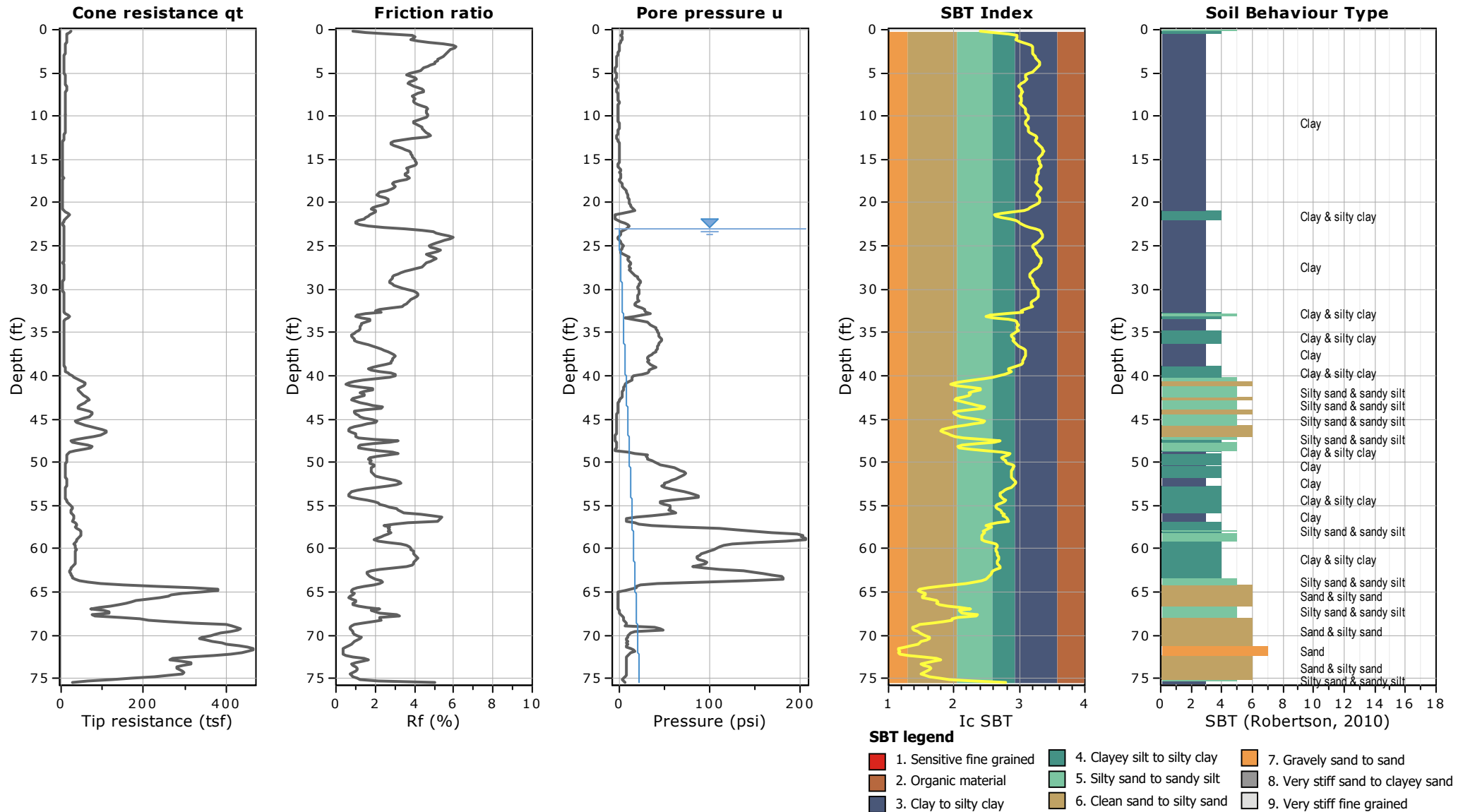


PSI
4703 Tidewater Avenue
Suite B
Oakland, CA 94601

Project: 05751751 Four Stones Watsonville West
Location: Watsonville CA

CPT: CPT-8 2016

Total depth: 75.46 ft, Date: 5/3/2016
Surface Elevation: 15.00 ft





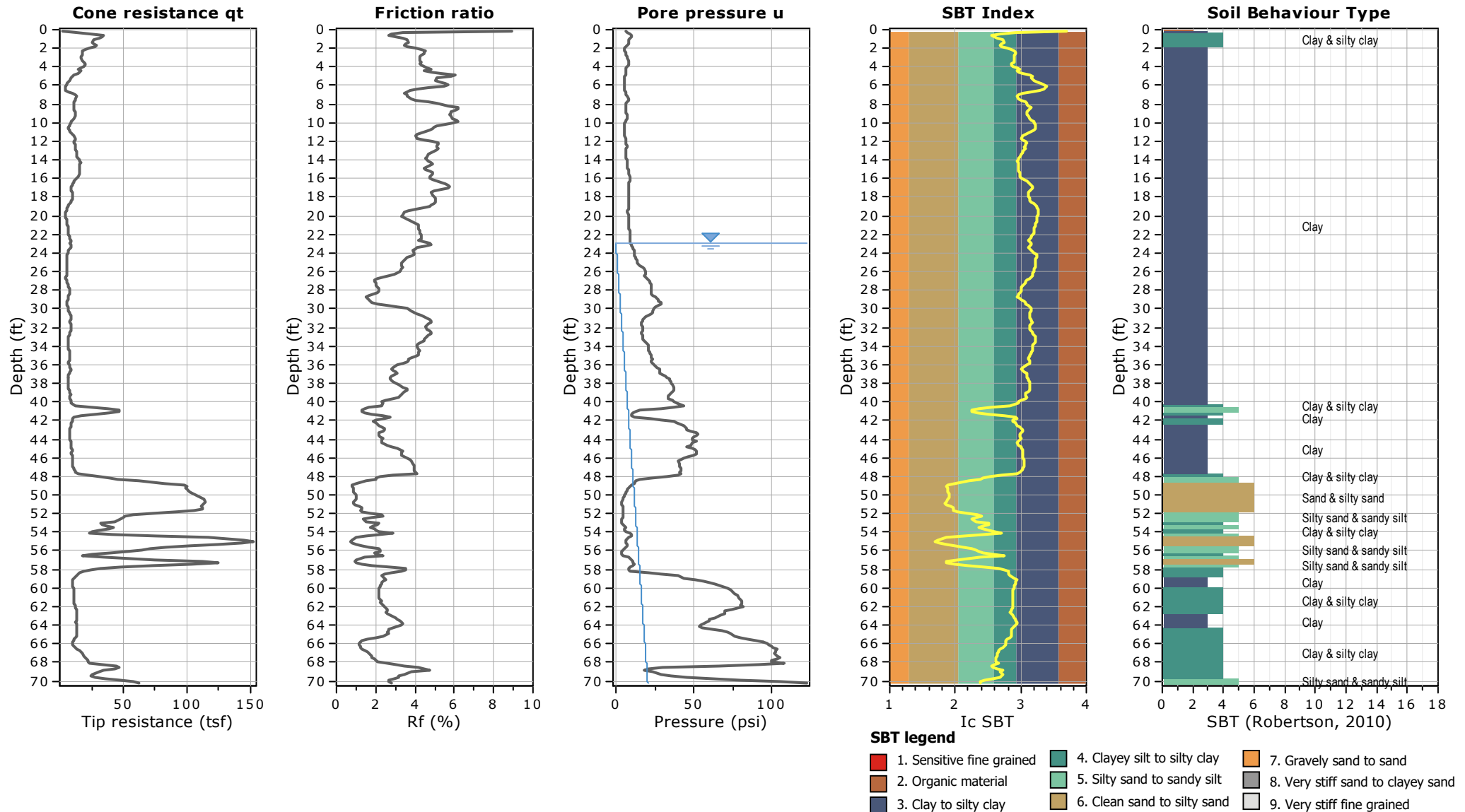
PSI
4703 Tidewater Avenue
Suite B
Oakland, CA 94601

Project: 05751751 Four Stones Watsonville West
Location: Watsonville CA

CPT: CPT-9 2016

Total depth: 70.21 ft, Date: 5/3/2016

Surface Elevation: 14.50 ft





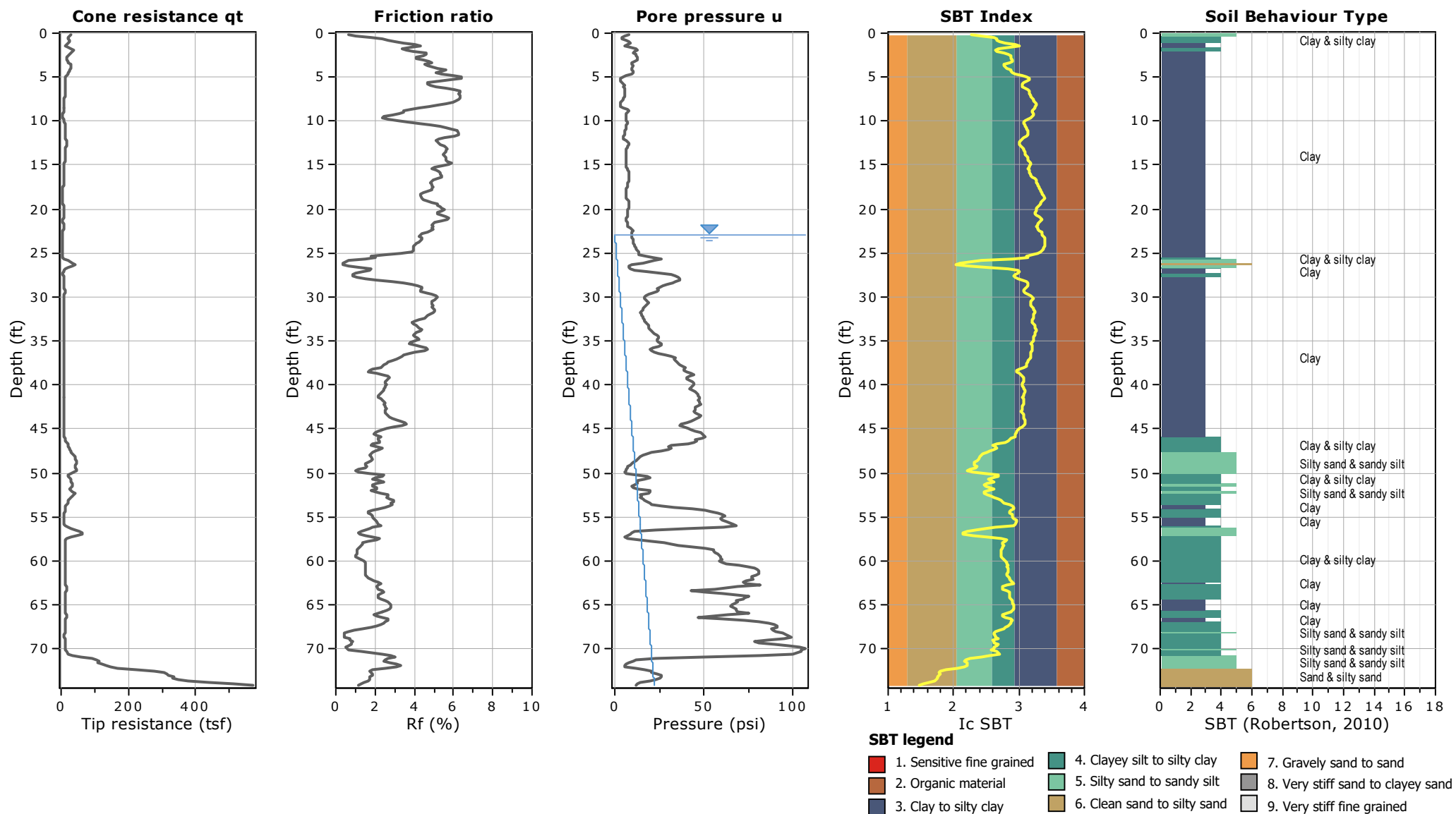
PSI
4703 Tidewater Avenue
Suite B
Oakland, CA 94601

Project: 05751751 Four Stones Watsonville West
Location: Watsonville CA

CPT: CPT-10 2016

Total depth: 74.15 ft, Date: 5/3/2015

Surface Elevation: 15.00 ft





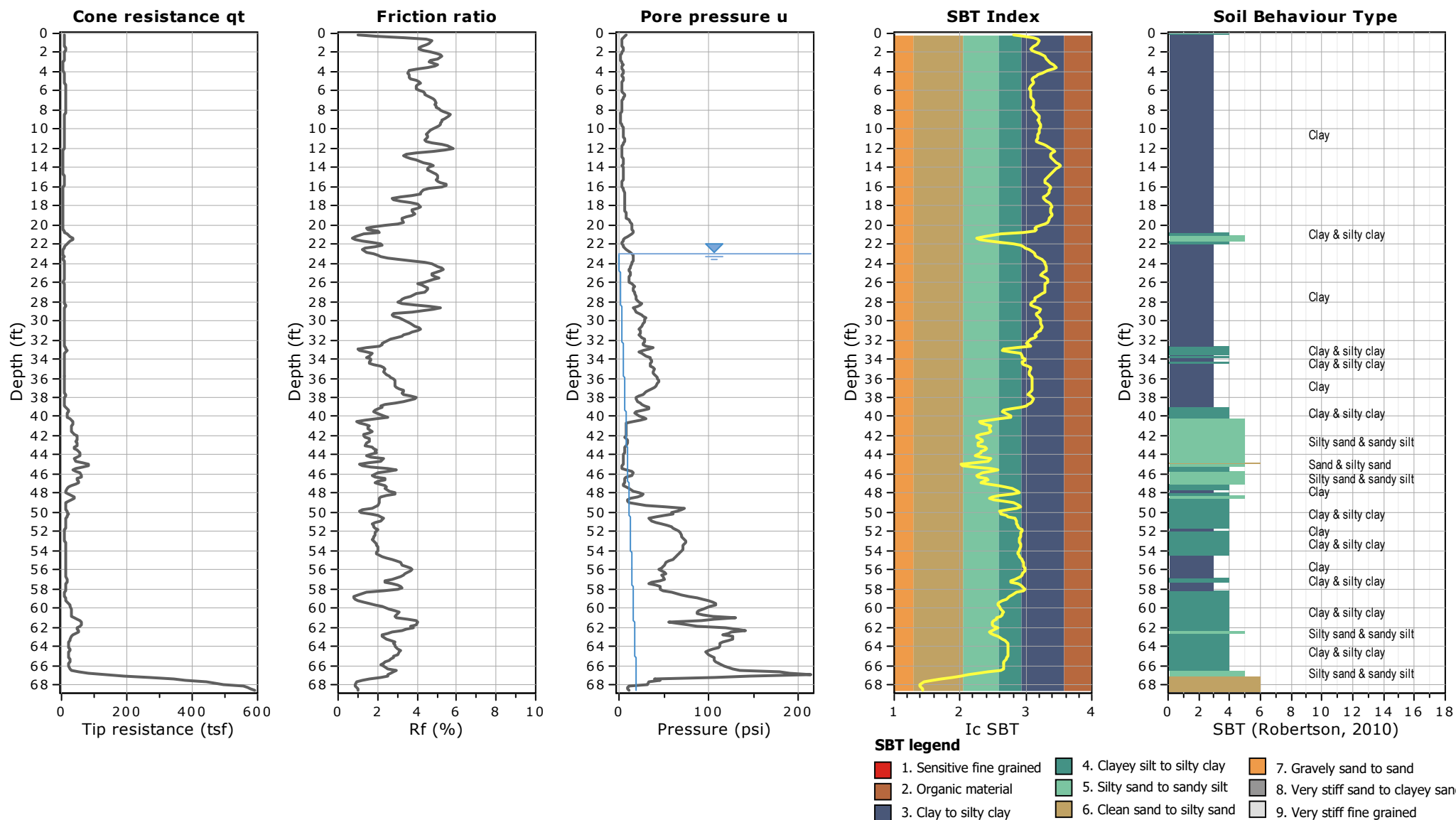
PSI
4703 Tidewater Avenue
Suite B
Oakland, CA 94601

Project: 05751751 Four Stones Watsonville West
Location: Watsonville CA

CPT: CPT-14 2016

Total depth: 68.57 ft, Date: 5/2/2016

Surface Elevation: 15.00 ft





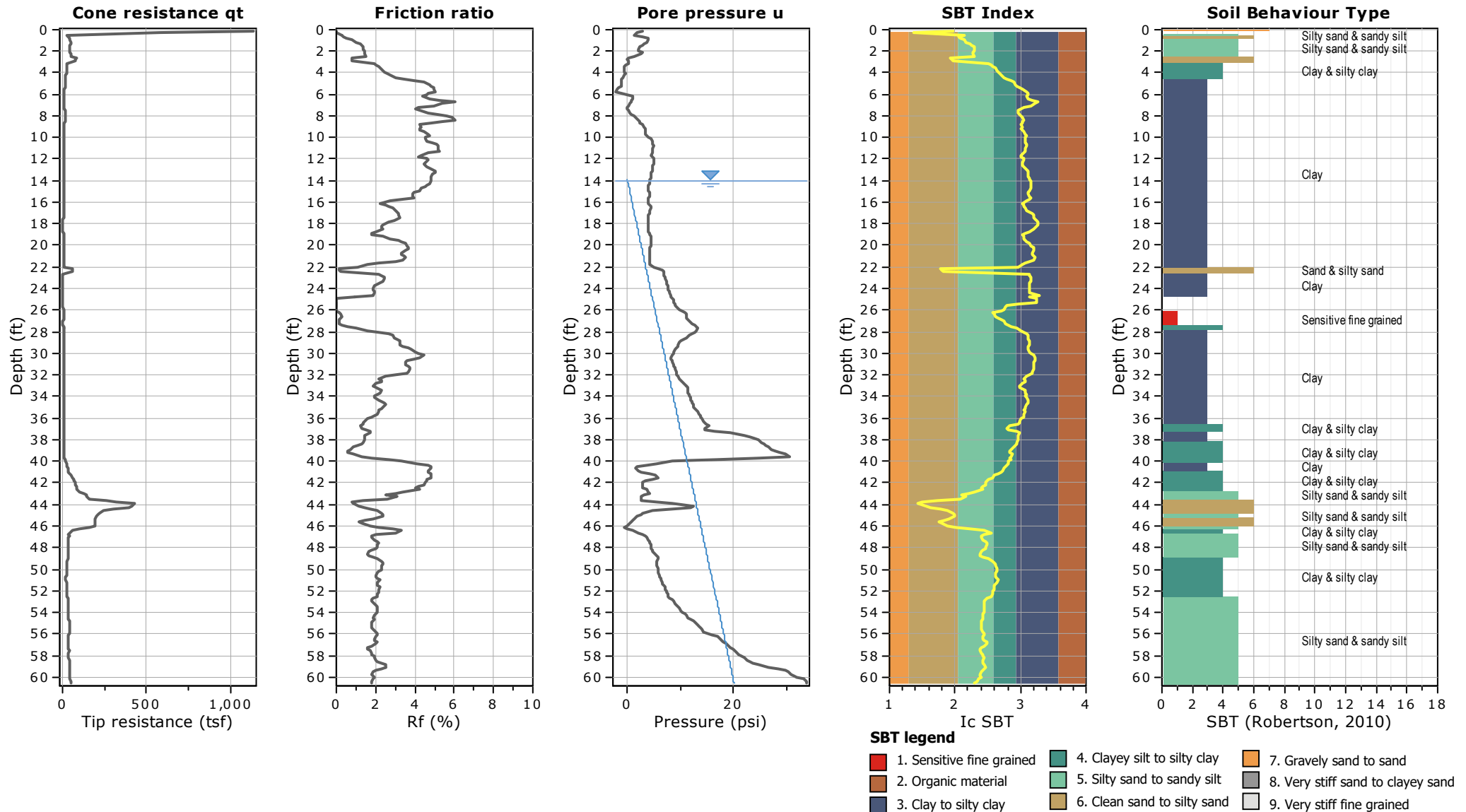
PSI
4703 Tidewater Avenue
Suite B
Oakland, CA 94601

Project: 05751751 Four Stones Watsonville West
Location: Watsonville CA

CPT: CPT-15 2021

Total depth: 60.53 ft, Date: 1/21/2021

Surface Elevation: 22.00 ft





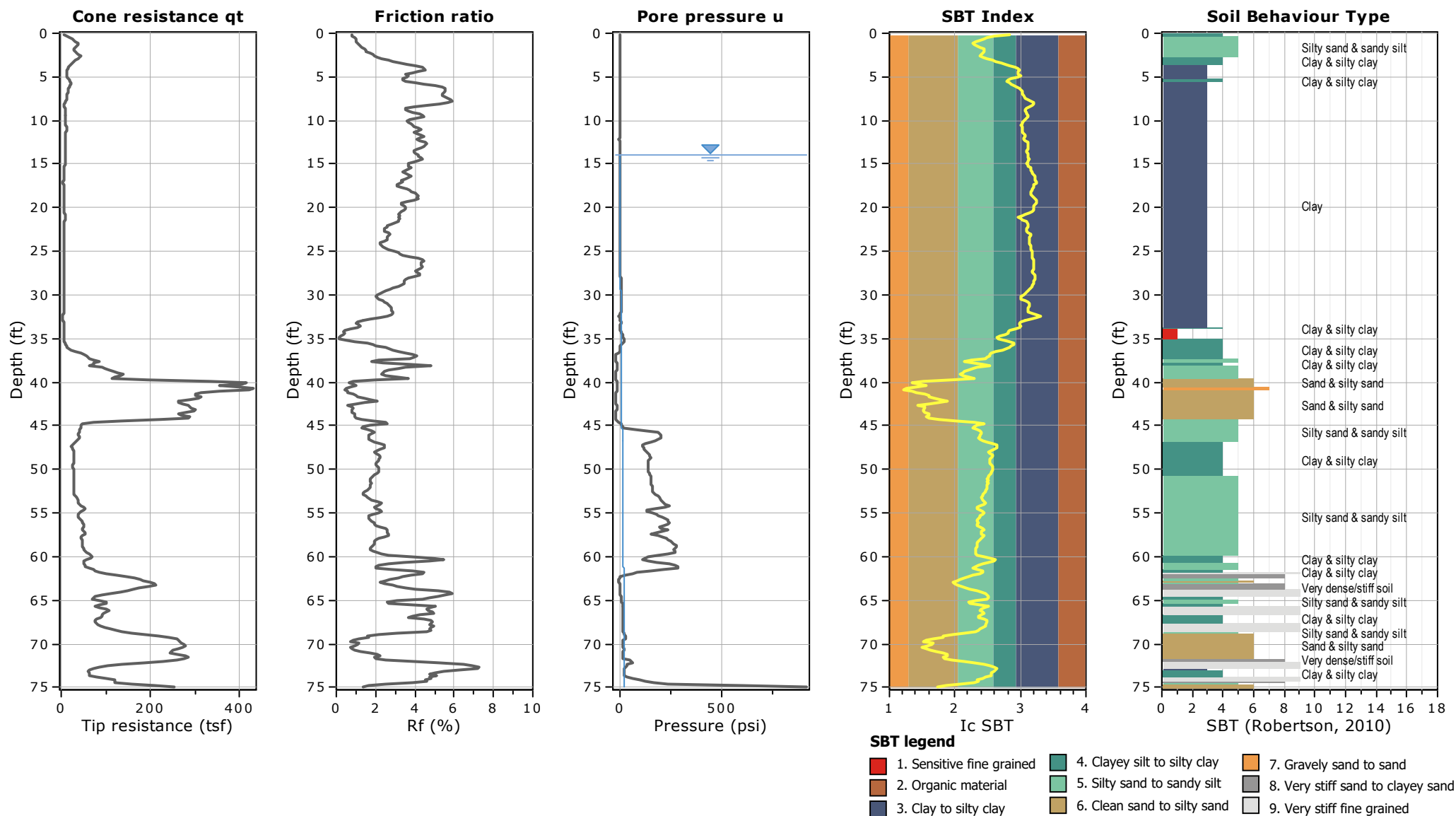
PSI
4703 Tidewater Avenue
Suite B
Oakland, CA 94601

Project: 05751751 Four Stones Watsonville West
Location: Watsonville CA

CPT: CPT-16 2021

Total depth: 74.93 ft, Date: 1/21/2021

Surface Elevation: 22.00 ft





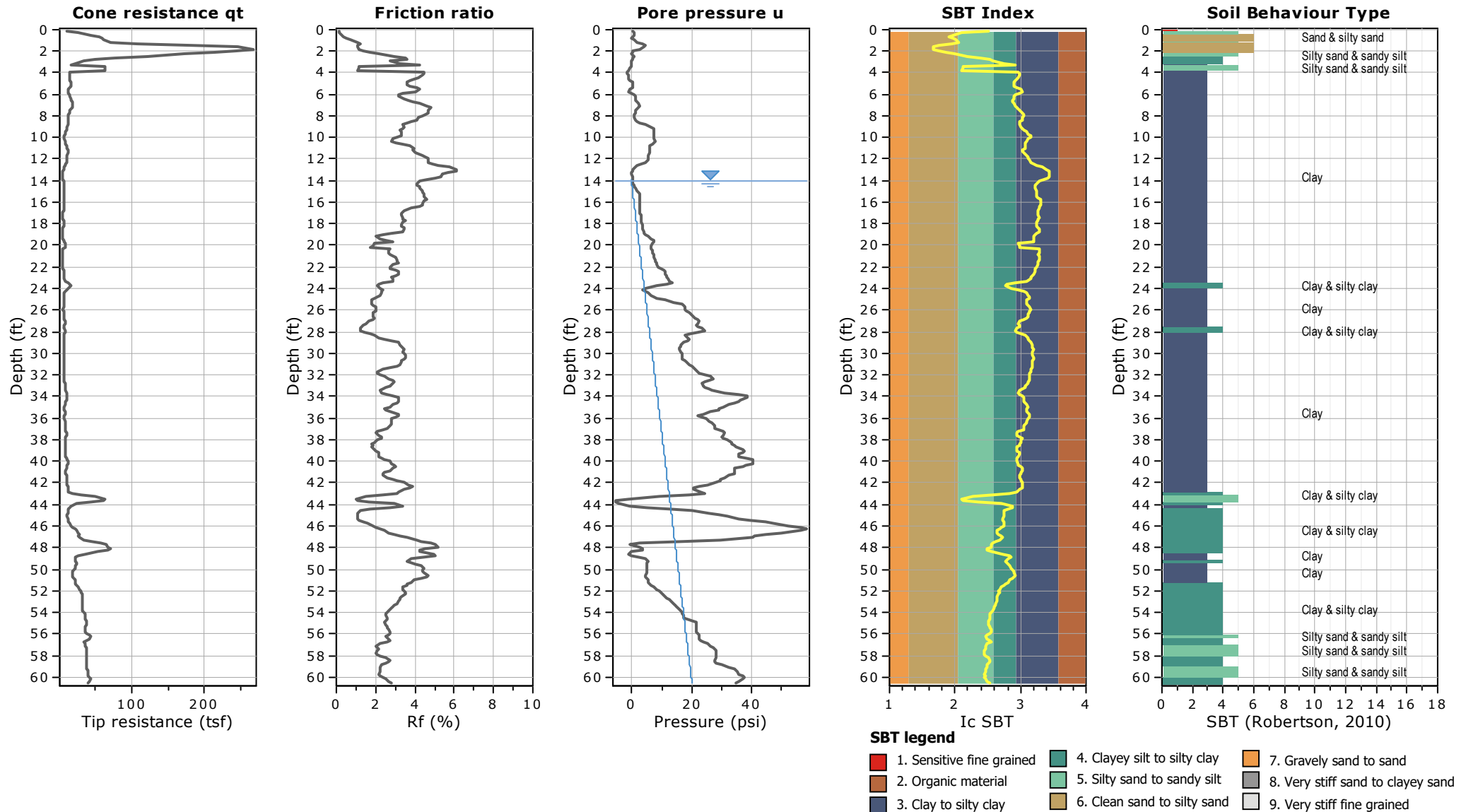
PSI
4703 Tidewater Avenue
Suite B
Oakland, CA 94601

Project: 05751751 Four Stones Watsonville West
Location: Watsonville CA

CPT: CPT-17 2021

Total depth: 60.53 ft, Date: 1/21/2021

Surface Elevation: 20.00 ft





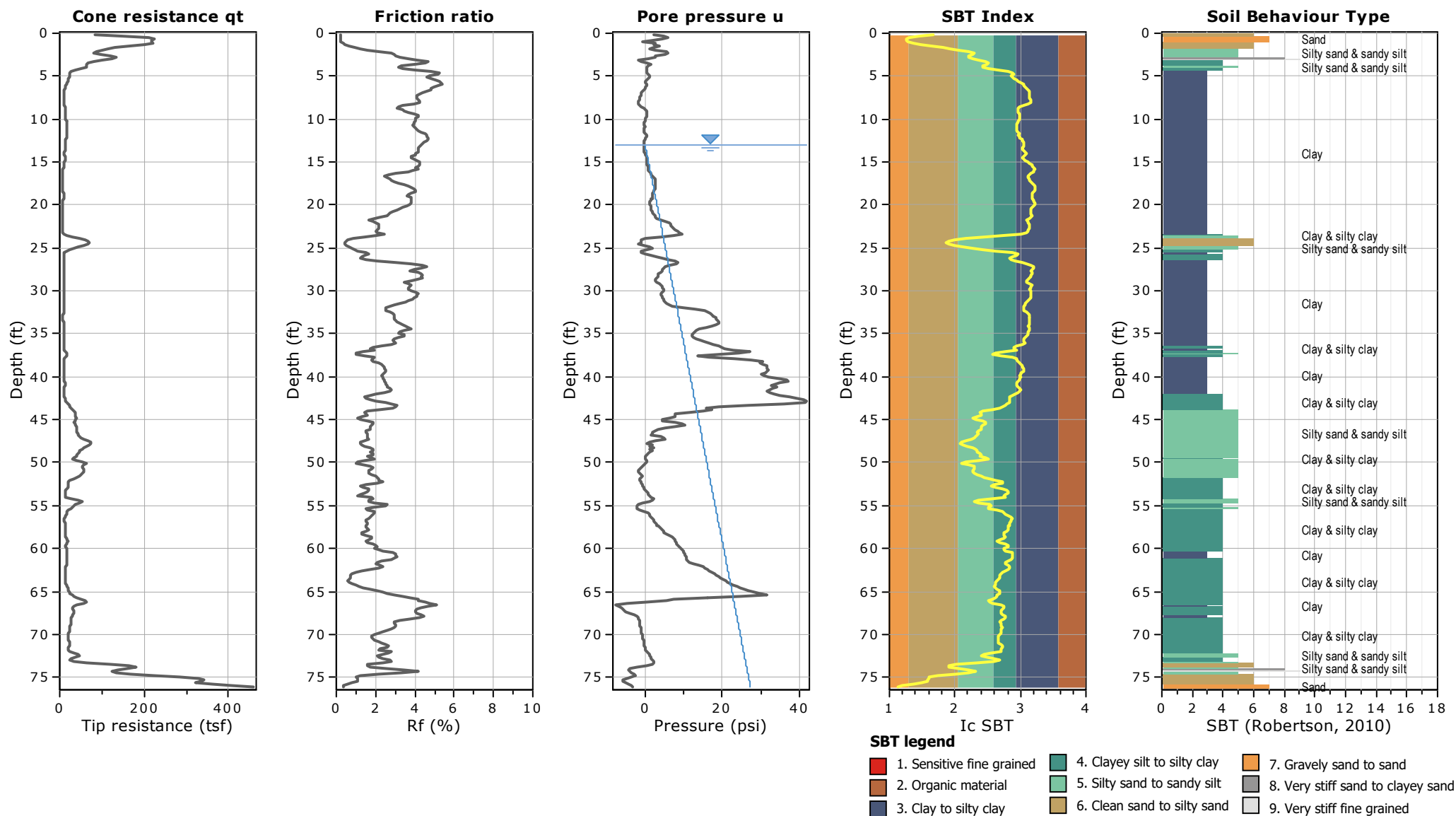
PSI
4703 Tidewater Avenue
Suite B
Oakland, CA 94601

Project: 05751751 Four Stones Watsonville West
Location: Watsonville CA

CPT: CPT-18 2021

Total depth: 76.12 ft, Date: 1/21/2021

Surface Elevation: 20.00 ft





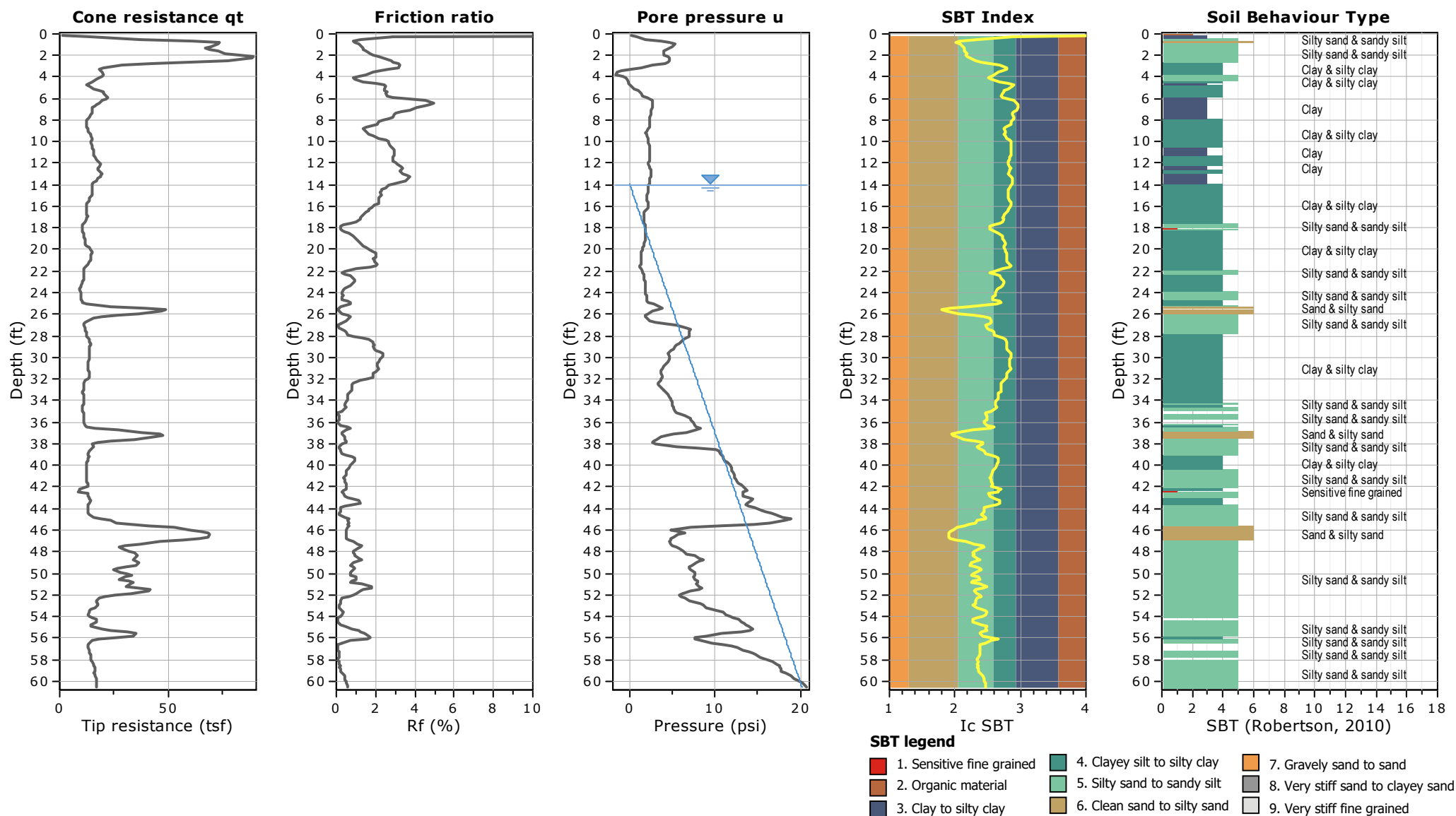
PSI
4703 Tidewater Avenue
Suite B
Oakland, CA 94601

Project: 05751751 Four Stones Watsonville West
Location: Watsonville CA

CPT: CPT-19 2021

Total depth: 60.53 ft, Date: 1/21/2021

Surface Elevation: 23.00 ft





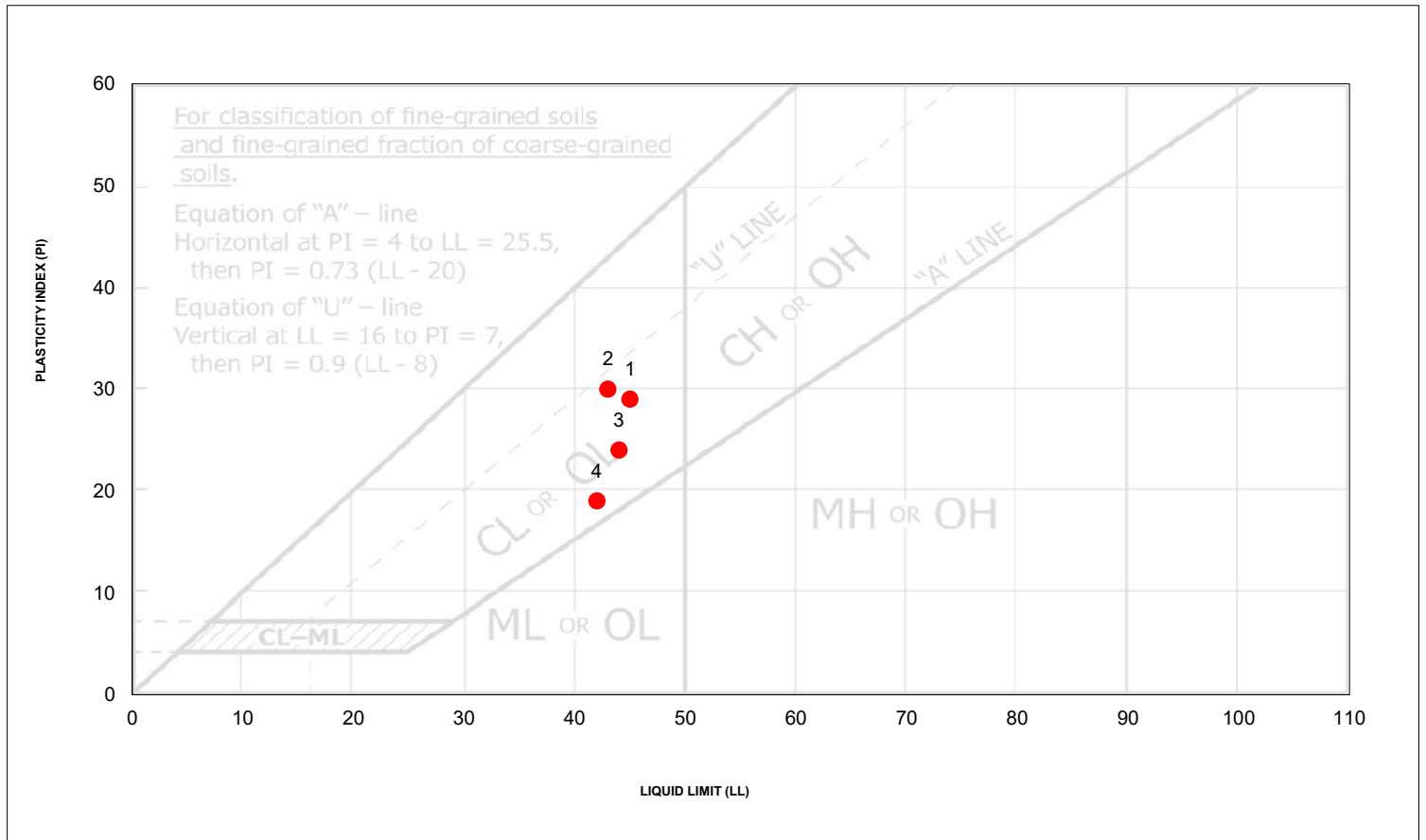
Atterberg Limits Summary

(ASTM D4318

ASTM D2116

ASTM D4829)

Project Name	Four Stone - Watsonville West	Project Number	575-1751
Address	Watsonville, CA		



Symbol	Boring ID	Depth (ft)	In-Situ Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plastic Index (%)	Soil Type USCS	Expansion Index
1	WW-1	0 - 5	11	45	16	29	CL	59
2	WW-3	2	12	43	14	30	CL	
3	WW-4	0 - 5	13	44	20	24	CL	
4	WW-4	2	12	42	23	19	CL	
5								
6								
7								
8								

Proctor Report

These test results apply only to the specific locations and materials noted and may not represent any other locations or elevations. This report may not be reproduced, except in full, without written permission by Professional Service Industries, Inc. If a non-compliance appears on this report, to the extent that the reported non-compliance impacts the project, the resolution is outside the PSI scope of engagement.

Client: OAKLAND GEO PSI
4703 TIDEWATER AVE, SUITE B
OAKLAND, CA 94601

CC:

Project: FOUR STONE - WATSONVILLE
WATSONVILLE, CA

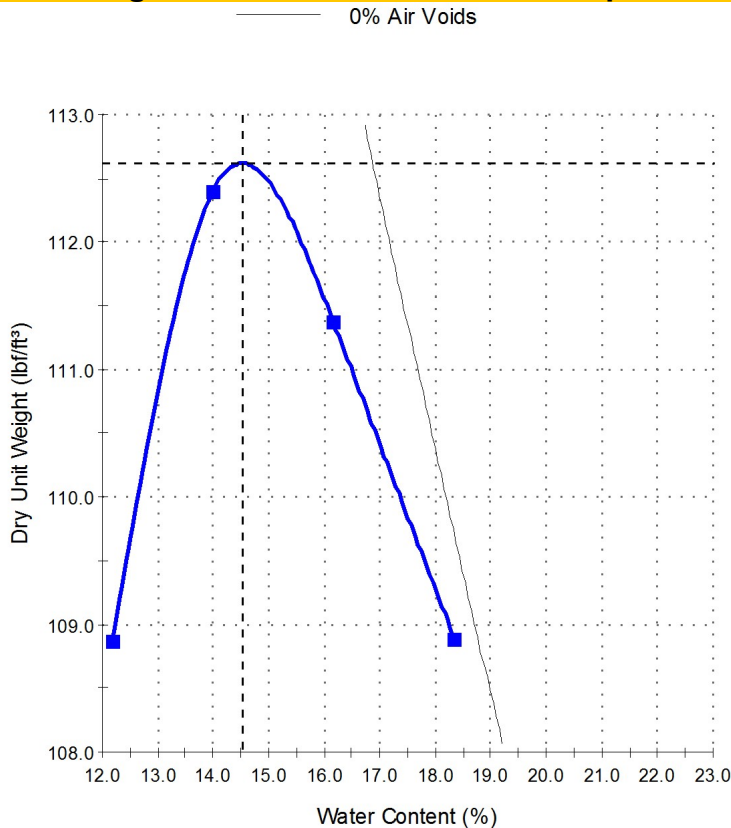


Approved Signatory: Douglas Abernathy (Senior Project Engineer)
Date of Issue: 3/11/2021

Sample Details

Sample ID:	00661527-11-S6	Date Sampled:	1/13/2021
Date Received:	1/21/2021	Sampled By:	Manuel Uribe
Specification:	All Sieves	Material:	Dark Brn Sandy Lean Clay (CL)
Sampling Method:	Hollow Stem Auger - Automatic	General Location:	WW-4
Location:	Bulk @0-5'	Tested By:	Shahab Emami
Date Tested:	2/12/2021		

Dry Unit Weight - Water Content Relationship



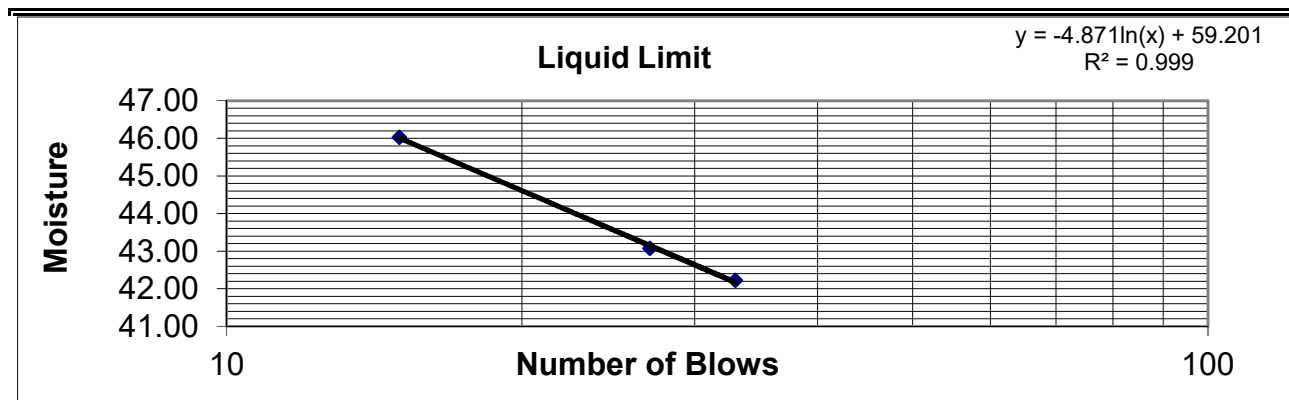
Test Results

ASTM D 1557

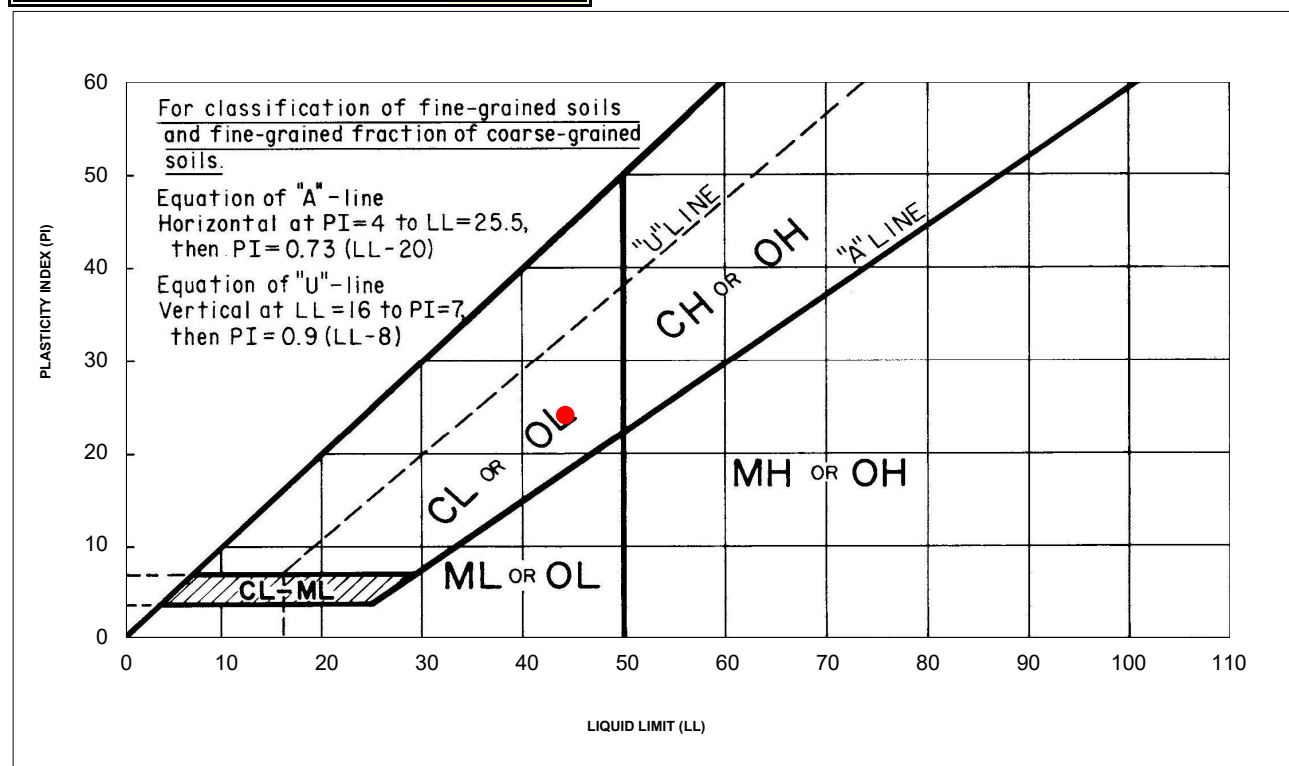
Maximum Dry Unit Weight (lb/ft³):	112.6
Optimum Water Content (%):	14.5
Method:	A
Preparation Method:	Dry
Rammer Type:	Automatic Hammer
Specific Gravity (Fines):	2.60
Specific Gravity Method:	estimate
Retained Sieve No 4 (4.75mm) (%):	4
Passing Sieve No 4 (4.75mm) (%):	96
Tested By:	Shahab Emami
Date Tested:	2/12/2021

Comments

Project Name	Four Stone - Watsonville West	Project Number	575-1751
Laboratory Number	1-13-21 & 1-14-21	Date Tested	02/01/21
Boring & Sample No.	WW-4 Bulk @0-5'		
Sample Description	Dark Brn Sandy Lean Clay (CL)		



TEST RESULTS	
LIQUID LIMIT	44
PLASTIC LIMIT	20
PLASTICITY INDEX	24
Classification	CL





Professional Service Industries, Inc.
11980 Telegraph Road, Unit 104
Santa Fe Springs, CA 90670

Phone: (714) 484-8600
Fax: (562) 777-0899

Report No: MAT:00661527-11-S6

Material Test Report

Client: OAKLAND GEO PSI
4703 TIDEWATER AVE, SUITE B
OAKLAND, CA 94601

CC:

Project: FOUR STONE - WATSONVILLE
WATSONVILLE, CA

Sample Details

Sample ID: 00661527-11-S6 **Lift:**
Client Sample ID: **Contractor:**
Date Sampled: 01/13/21
Sampled By: Manuel Uribe
Specification: All Sieves
Supplier:
Source:
Material: Dark Brn Sandy Lean Clay (CL)
Sampling Method: Hollow Stem Auger - Automatic
Soil Description: CL
General Location: WW-4
Location: Bulk @0-5'

Other Test Results

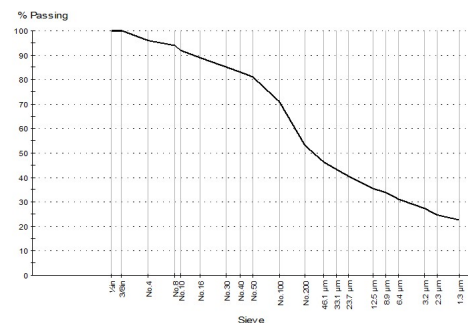
Description	Method	Result	Limits
Maximum Dry Unit Weight (lb/ft ³)	ASTM D 1557	112.6	
Corrected Maximum Dry Unit Weight (lb/ft ³)		112.6	
Optimum Water Content (%)		14.5	
Corrected Optimum Water Content (%)		14.5	
Method		A	
Preparation Method		Dry	
Rammer Type	Automatic Hammer		
Retained Sieve No 4 (4.75mm) (%)		4	
Specific Gravity (Fines)	estimate	2.60	
	ASTM D 1557		
Tested By	Shahab Emami		
Date Tested	2/12/2021		
Dispersion device	ASTM D 422 Mechanical		
Dispersion time (min)		1	
Shape		na	
Hardness		na	
Sand/gravel description		na	
Fm		0.84	
Cu		N/A	
Cc		N/A	
CuS		2.55	
CcS		0.73	
Dm (mm)		N/A	
U-Number		61	
D50S (mm)		0.171	
D50G (mm)		4.463	

Particle Size Distribution

Method: ASTM D 422
Drying by: Oven
Date Tested: 2/8/2021
Tested By: Shahab Emami

Sieve Size	% Passing	Limits
1/2in (12.5mm)	100	
3/8in (9.5mm)	100	
No.4 (4.75mm)	96	
No.8 (2.36mm)	94	
No.10 (2.0mm)	92	
No.16 (1.18mm)	89	
No.30 (600µm)	85	
No.40 (425µm)	83	
No.50 (300µm)	81	
No.100 (150µm)	71	
No.200 (75µm)	53	
46.1 µm	46.3	
33.1 µm	43.1	
23.7 µm	40.6	
12.5 µm	35.5	
8.9 µm	33.9	
6.4 µm	31.2	
3.2 µm	27.3	
2.3 µm	24.7	
1.3 µm	22.7	

Chart



Comments

N/A

Boring / Sample No.

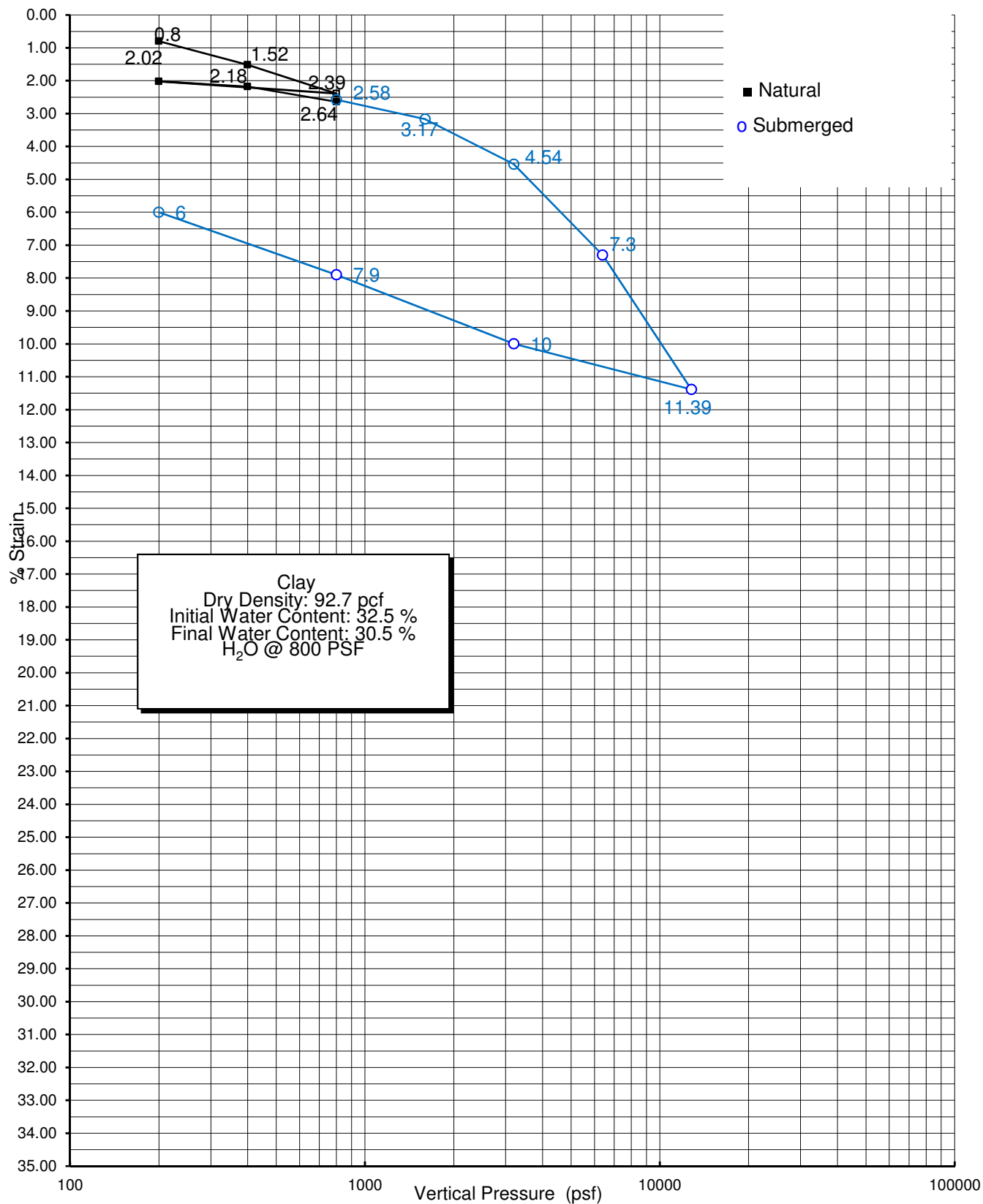
WW-4 / ST-5

Depth:

10'

Date

02-17-21





Professional Service Industries, Inc.
11980 Telegraph Road, Unit 104
Santa Fe Springs, CA 90670

Phone: (714) 484-8600
Fax: (562) 777-0899

Report No: MAT:00661527-11-S5

Issue No: 1

Material Test Report

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Client: OAKLAND GEO PSI
4703 TIDEWATER AVE, SUITE B
OAKLAND, CA 94601

CC:

Project: FOUR STONE - WATSONVILLE
WATSONVILLE, CA

Approved Signatory: Douglas Abernathy (Senior Project Engineer)
Date of Issue: 3/11/2021

Sample Details

Sample ID: 00661527-11-S5 **Contractor:**
Client Sample ID:
Date Sampled: 01/13/21
Sampled By: Manuel Uribe
Specification: All Sieves
Supplier:
Source:
Material:
Sampling Method: Hollow Stem Auger - Automatic
General Location: WW-4
Location: WW-4 ST-5 @10.0
Lift:

Particle Size Distribution

Other Test Results

Description	Method	Result	Limits
Unconfined Compressive Strength (tons/ft ²)	ASTM D 2166	2.60	
Shear Strength (tons/ft ²)		1.30	
Avg. Rate Strain to Failure (%)		1.5	
Strain at Failure (%)		13.6	
Degree of Saturation (%)		106	
Average Height (in.)		3.970	
Average Diameter (in.)		2.400	
Height-Diameter Ratio		1.7	
Initial Dry Density (lb/ft ³)		93.02	
Initial Water Content (%)		30.1	
Water Content Determined		Before Shear	
Water Content Taken From		Trimming	
Liquid Limit			
Plastic Limit			
Preparation Method	Undisturbed Specimens		
Remarks	Tested at 12.0'		
Visual Description	Dark Olive Brn Fat Clay (CH)		
Tested By	Shahab Emami		
Date Tested	2/12/2021		

Chart

Comments

N/A

APPENDIX D: LIQUEFACTION ANALYSES CALCULATIONS

CPT No.

1

PGA (A_{max})

0.87

Total Settlement:

0.04 (Inches)

© 2014 Cornerstone Earth Group, Inc.

Depth (ft)	q _c (tsf)	f _s (tsf)	σ _{vc} (psf)	In situ σ' _{vc} (psf)	Q	F (%)	I _c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q _{cN} near interfaces (soft layer)	Thin Layer Factor (K _{tN})	Interpreted q _{cN}	C _N	q _{c1N}	q _{c1N-CS}	Stress Reduction Coeff, r _d	CSR	K _σ for Sand	CRRM=7.5, σ'vc = 1 atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε _v	Settlement (Inches)
0.160	16.350	0.108	20.0	20.0	158.858	0.663	1.64		Unsaturated	0.0			15.45	1.70	26.27	26.27	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.330	40.310	0.861	41.3	41.3	272.741	2.138	1.86		Unsaturated	12.1			38.10	1.70	64.77	76.82	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.490	144.110	2.617	61.3	61.3	800.426	1.816	1.58		Unsaturated	0.0			136.21	1.70	231.56	231.56	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.660	198.120	5.132	82.5	82.5	948.163	2.591	1.71		Unsaturated	0.0			187.26	1.70	318.34	318.34	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.820	211.070	5.600	102.5	102.5	906.215	2.654	1.72		Unsaturated	0.8			199.50	1.70	339.15	339.15	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.980	193.880	6.568	122.5	122.5	761.377	3.389	1.85		Unsaturated	10.7			183.25	1.70	311.53	328.68	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.150	154.160	5.339	143.8	143.8	558.776	3.465	1.90		Unsaturated	15.2			145.71	1.70	247.71	284.07	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.310	143.550	4.846	163.8	163.8	487.458	3.378	1.92		Unsaturated	16.2			135.68	1.70	230.66	270.28	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.480	110.490	5.149	185.0	185.0	352.895	4.664	2.10		Unsaturated	31.2			104.43	1.70	177.54	250.77	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.640	105.250	5.210	205.0	205.0	319.297	4.955	2.14		Unsaturated	34.6			99.48	1.70	169.12	245.59	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.800	98.140	4.622	225.0	225.0	284.138	4.715	2.15		Unsaturated	34.9			92.76	1.70	157.69	232.06	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.970	82.740	3.607	246.3	246.3	228.904	4.366	2.17		Unsaturated	36.3			78.20	1.70	132.95	203.30	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.130	67.590	3.035	266.3	266.3	179.744	4.499	2.23		Unsaturated	41.6			63.88	1.70	108.60	178.03	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.300	59.060	2.579	287.5	287.5	151.074	4.378	2.27		Unsaturated	44.2			55.82	1.70	94.90	162.73	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.460	43.030	2.096	307.5	307.5	106.308	4.889	2.39		Unsaturated	54.5			40.67	1.70	69.14	135.33	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.620	39.380	1.926	327.5	327.5	94.218	4.911	2.43		Unsaturated	57.2			37.22	1.70	63.28	128.82	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.790	42.150	1.891	348.8	348.8	97.726	4.504	2.39		Unsaturated	54.0			39.84	1.70	67.73	133.35	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.950	45.780	1.943	368.8	368.8	103.236	4.261	2.35		Unsaturated	51.3			43.27	1.70	73.56	139.64	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.120	43.380	2.287	390.0	390.0	95.076	5.295	2.45		Unsaturated	59.0			41.00	1.70	69.70	137.65	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.280	56.700	2.682	410.0	410.0	121.308	4.748	2.35		Unsaturated	50.9			53.59	1.70	91.11	161.69	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.440	80.200	3.465	430.0	430.0	167.705	4.332	2.24		Unsaturated	41.9			75.80	1.68	127.63	201.93	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.610	78.950	3.564	451.3	451.3	161.129	4.528	2.26		Unsaturated	43.9			74.62	1.67	124.33	199.37	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.770	78.070	3.400	471.3	471.3	155.890	4.368	2.26		Unsaturated	43.5			73.79	1.65	121.98	196.15	1.00	0.565	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.940	67.400	3.143	492.5	492.5	131.565	4.680	2.32		Unsaturated	48.9			63.71	1.68	107.05	180.80	1.00	0.565	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.100	53.990	2.998	512.5	512.5	103.198	5.579	2.45		Unsaturated	58.8			51.03	1.70	86.75	159.37	1.00	0.565	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.270	47.110	2.539	533.8	533.8	88.155	5.420	2.48		Unsaturated	61.3			44.53	1.70	75.70	146.04	1.00	0.565	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.430	43.890	2.502	553.8	553.8	80.581	5.736	2.52		Unsaturated	64.8			41.48	1.70	70.52	140.39	1.00	0.565	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.590	51.070	2.564	573.8	573.8	92.179	5.050	2.44		Unsaturated	58.4			48.27	1.68	81.31	152.28	1.00	0.565	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.760	54.280	2.288	595.0	595.0	96.220	4.239	2.37		Unsaturated	52.7			51.30	1.65	84.79	154.49	1.00	0.564	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.920	41.970	2.489	615.0	615.0	73.043	5.974	2.56		Unsaturated	68.0			39.67	1.69	67.12	136.83	1.00	0.564	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.090	47.860	2.626	636.3	636.3	81.947	5.523	2.50		Unsaturated	63.4			45.24	1.64	74.22	144.76	1.00	0.564	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.250	86.240	2.863	656.3	656.3	145.811	3.332	2.18		Unsaturated	37.2			81.51	1.49	121.72	190.44	1.00	0.564	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.410	95.330	2.266	676.3	676.3	158.820	2.385	2.04		Unsaturated	26.2			90.10	1.48	133.41	189.29	1.00	0.564	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.580	57.220	2.363	697.5	697.5	93.625	4.156	2.37		Unsaturated	52.8			54.08	1.55	84.06	153.60	1.00	0.564	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.740	67.560	3.016	717.5	717.5	109.078	4.487	2.36		Unsaturated	51.6			63.86	1.50	95.79	167.94	1.00	0.563	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.910	94.960	3.372	738.8	738.8	151.311	3.564	2.19		Unsaturated	38.4			89.75	1.42	127.25	198.36	1.00	0.563	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.070	74.280	3.856	758.8	758.8	116.646	5.218	2.39		Unsaturated	54.4			70.21	1.45	101.75	176.79	1.00	0.563	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.230	70.670	3.505	778.8	778.8	109.499	4.987	2.39		Unsaturated	54.4			66.80	1.45	96.80	170.49	1.00	0.563	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.400	65.140	2.972	800.0	800.0	99.518	4.591	2.39		Unsaturated	54.1			61.57	1.45	89.57	161.18	0.99	0.563	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.560	56.100	2.876	820.0	820.0	84.556	5.165	2.47		Unsaturated	60.9			53.02	1.47	77.87	148.70	0.99	0.562	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.730	109.120	3.045	841.3	841.3	162.943	2.801	2.09		Unsaturated	30.1			103.14	1.35	139.27	202.94	0.99	0.562	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.890	120.730	3.268	861.3	861.3	178.226	2.717	2.05		Unsaturated	27.4			114.11	1.33	151.21	212.58	0.99	0.562	1.100	n.a.	n.a.	n.a.	0.00	0.00
7.050	86.880	2.797	881.3	881.3	126.600	3.236	2.21		Unsaturated	39.4			82.12	1.37	112.18	180.69	0.99	0.562	1.100	n.a.	n.a.	n.a.	0.00	0.00
7.220	52.120	2.201	902.5	902.5	74.778	4.259	2.44		Unsaturated	58.4			49.26	1.43	70.61	138.62	0.99	0.562	1.100	n.a.	n.a.	n.a.	0.00	0.00
7.380	34.770	1.749	922.5	922.5	57.983	5.097	2.57		Unsaturated	69.0			32.86	1.48	48.56	113.11	0.99	0.562	1.098	n.a.	n.a.	n.a.	0.00	0.00
7.550	30.780	1.378	943.8	943.8	50.412	4.546	2.58		Unsaturated	69.3			29.09	1.48	43.04	106.05	0.99	0.561						

CPT No.

1

PGA (A_{max})

0.87

Total Settlement: 0.04 (Inches)

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Depth (ft)	q _c (tsf)	f _s (tsf)	σ _{vc} (psf)	Insitu σ' _{vc} (psf)	Q	F (%)	I _c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q _{cN} near interfaces (soft layer)	Thin Layer Factor (K _{tN})	Interpreted q _{cN}	C _N	q _{c1N}	q _{c1N-CS}	Stress Reduction Coeff, r _d	CSR	K _σ for Sand	CRR _{M=7.5} , σ'vc = 1 atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε _v	Settlement (Inches)
11.150	9.980	0.526	1393.8	1393.8	13.321	5.665	3.07		Clay	100.0			9.43	1.12	n.a.	n.a.	0.99	0.659	n.a.	n.a.	n.a.	n.a.	0.00	0.00
11.320	9.570	0.516	1415.0	1415.0	12.527	5.827	3.09		Clay	100.0			9.05	1.11	n.a.	n.a.	0.98	0.662	n.a.	n.a.	n.a.	n.a.	0.00	0.00
11.480	8.950	0.494	1435.0	1435.0	11.474	6.003	3.13		Clay	100.0			8.46	1.11	n.a.	n.a.	0.98	0.666	n.a.	n.a.	n.a.	n.a.	0.00	0.00
11.650	8.680	0.421	1456.3	1456.3	10.921	5.291	3.11		Clay	100.0			8.20	1.10	n.a.	n.a.	0.98	0.670	n.a.	n.a.	n.a.	n.a.	0.00	0.00
11.810	8.090	0.399	1476.3	1476.3	9.960	5.433	3.15		Clay	100.0			7.65	1.10	n.a.	n.a.	0.98	0.673	n.a.	n.a.	n.a.	n.a.	0.00	0.00
11.980	7.430	0.393	1497.5	1497.5	8.923	5.882	3.21		Clay	100.0			7.02	1.10	n.a.	n.a.	0.98	0.677	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.140	8.740	0.391	1517.5	1517.5	10.519	4.903	3.11		Clay	100.0			8.26	1.09	n.a.	n.a.	0.98	0.680	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.300	10.630	0.439	1537.5	1537.5	12.828	4.455	3.01		Clay	100.0			10.05	1.09	n.a.	n.a.	0.98	0.684	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.470	12.160	0.475	1558.8	1558.8	14.602	4.169	2.95		Clay	99.0			11.49	1.08	n.a.	n.a.	0.98	0.687	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.630	12.860	0.534	1578.8	1578.8	15.291	4.421	2.95		Clay	99.0			12.16	1.08	n.a.	n.a.	0.98	0.690	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.800	12.870	0.580	1600.0	1600.0	15.088	4.808	2.98		Clay	100.0			12.16	1.08	n.a.	n.a.	0.98	0.694	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.960	13.320	0.617	1620.0	1620.0	15.444	4.933	2.98		Clay	100.0			12.59	1.07	n.a.	n.a.	0.98	0.697	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.120	13.700	0.640	1640.0	1640.0	15.707	4.970	2.97		Clay	100.0			12.95	1.07	n.a.	n.a.	0.98	0.700	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.290	13.830	0.645	1661.3	1661.3	15.650	4.963	2.97		Clay	100.0			13.07	1.07	n.a.	n.a.	0.98	0.703	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.450	14.150	0.634	1681.3	1681.3	15.833	4.761	2.96		Clay	99.7			13.37	1.06	n.a.	n.a.	0.98	0.706	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.620	14.120	0.641	1702.5	1702.5	15.587	4.828	2.97		Clay	100.0			13.35	1.06	n.a.	n.a.	0.98	0.709	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.780	13.660	0.649	1722.5	1722.5	14.861	5.072	3.00		Clay	100.0			12.91	1.06	n.a.	n.a.	0.98	0.712	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.940	13.800	0.655	1742.5	1742.5	14.839	5.069	3.00		Clay	100.0			13.04	1.05	n.a.	n.a.	0.98	0.715	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.110	14.120	0.675	1763.8	1763.8	15.011	5.097	3.00		Clay	100.0			13.35	1.05	n.a.	n.a.	0.98	0.718	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.270	14.340	0.671	1783.8	1783.8	15.078	4.990	2.99		Clay	100.0			13.55	1.05	n.a.	n.a.	0.98	0.720	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.440	15.720	0.663	1805.0	1805.0	16.418	4.475	2.93		Clay	97.4			14.86	1.04	n.a.	n.a.	0.98	0.723	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.600	16.030	0.647	1825.0	1825.0	16.567	4.277	2.91		Clay	96.1			15.15	1.04	n.a.	n.a.	0.98	0.726	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.760	16.030	0.641	1845.0	1845.0	16.377	4.241	2.92		Clay	96.3			15.15	1.04	n.a.	n.a.	0.98	0.728	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.930	16.810	0.700	1865.6	1857.5	17.095	4.406	2.91		Clay	96.0			15.89	1.03	n.a.	n.a.	0.98	0.731	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.090	17.510	0.761	1884.8	1866.7	17.751	4.593	2.91		Clay	95.9			16.55	1.03	n.a.	n.a.	0.98	0.733	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.260	18.170	0.782	1905.2	1876.5	18.351	4.542	2.90		Clay	94.8			17.17	1.03	n.a.	n.a.	0.98	0.736	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.420	18.380	0.789	1924.4	1885.7	18.473	4.531	2.89		Clay	94.5			17.37	1.03	n.a.	n.a.	0.97	0.738	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.580	17.500	0.788	1943.6	1894.9	17.445	4.770	2.93		Clay	97.2			16.54	1.03	n.a.	n.a.	0.97	0.741	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.750	17.370	0.774	1964.0	1904.7	17.208	4.724	2.93		Clay	97.3			16.42	1.03	n.a.	n.a.	0.97	0.743	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.910	17.200	0.757	1983.2	1913.9	16.937	4.673	2.93		Clay	97.5			16.26	1.03	n.a.	n.a.	0.97	0.746	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.080	16.590	0.758	2003.6	1923.7	16.206	4.861	2.96		Clay	99.6			15.68	1.03	n.a.	n.a.	0.97	0.748	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.240	16.690	0.743	2022.8	1932.9	16.223	4.740	2.95		Clay	99.0			15.78	1.02	n.a.	n.a.	0.97	0.750	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.400	16.440	0.740	2042.0	1942.2	15.878	4.801	2.96		Clay	99.8			15.54	1.02	n.a.	n.a.	0.97	0.752	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.570	15.100	0.734	2062.4	1952.0	14.415	5.219	3.02		Clay	100.0			14.27	1.02	n.a.	n.a.	0.97	0.755	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.730	14.530	0.723	2081.6	1961.2	13.756	5.358	3.04		Clay	100.0			13.73	1.02	n.a.	n.a.	0.97	0.757	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.900	14.300	0.689	2102.0	1971.0	13.444	5.203	3.04		Clay	100.0			13.52	1.02	n.a.	n.a.	0.97	0.759	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.060	13.740	0.648	2121.2	1980.2	12.806	5.107	3.05		Clay	100.0			12.99	1.02	n.a.	n.a.	0.97	0.761	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.220	13.190	0.629	2140.4	1989.4	12.184	5.191	3.07		Clay	100.0			12.47	1.02	n.a.	n.a.	0.97	0.763	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.390	12.610	0.625	2160.8	1999.2	11.534	5.420	3.10		Clay	100.0			11.92	1.02	n.a.	n.a.	0.97	0.765	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.550	12.140	0.641	2180.0	2008.4	11.004	5.801	3.14		Clay	100.0			11.47	1.01	n.a.	n.a.	0.97	0.767	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.720	11.490	0.619	2200.4	2018.2	10.296	5.957	3.17		Clay	100.0			10.86	1.01	n.a.	n.a.	0.97	0.769	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.880	11.280	0.590	2219.6	2027.4	10.033	5.796	3.17		Clay	100.0			10.66	1.01	n.a.	n.a.	0.97	0.771	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.040	10.730	0.549	2238.8	2036.6	9.438	5.707	3.18		Clay	100.0			10.14	1.01	n.a.	n.a.	0.97	0.773	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.210	10.400	0.485	2259.2	2046.4	9.060	5.227	3.17		Clay	100.0			9.83	1.01	n.a.	n.a.	0.97	0.775	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.370	9.940	0.484	2278.4	2055.6	8.563	5.497	3.21		Clay	100.0			9.40	1.01	n.a.	n.a.	0.97	0.776	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.540	9.900	0.488	2298.8	2065.4	8.473	5.577	3.21		Clay	100.0			9.36	1.01	n.a.	n.a.	0.97	0.778	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.700	10.350	0.493	2318.0	2074.6	8.860	5.361	3.19		Clay	100.0			9.78	1.01	n.a.	n.a.	0.97	0.780	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.860	9.770	0.496	2337.2	2083.9	8.255	5.762	3.23		Clay	100.0			9.23	1.00	n.a.	n.a.	0.97	0.782	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.030																								

CPT No.

1

PGA (A_{max})

0.87

Total Settlement:

0.04

(Inches)

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Depth (ft)	q _c (tsf)	f _s (tsf)	σ _{vc} (psf)	Insitu σ' _{vc} (psf)	Q	F (%)	I _c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q _{cN} near interfaces (soft layer)	Thin Layer Factor (K _{tN})	Interpreted q _{cN}	C _N	q _{c1N}	q _{c1N-CS}	Stress Reduction Coeff, r _d	CSR	K _σ for Sand	CRRM=7.5, σ'vc = 1 atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε _v	Settlement (Inches)
22.150	8.140	0.400	2732.0	2273.4	5.959	5.909	3.35		Clay	100.0			7.69	0.98	n.a.	n.a.	0.96	0.812	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.310	8.590	0.420	2751.2	2282.6	6.321	5.815	3.33		Clay	100.0			8.12	0.98	n.a.	n.a.	0.96	0.813	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.470	8.370	0.433	2770.4	2291.8	6.095	6.203	3.36		Clay	100.0			7.91	0.98	n.a.	n.a.	0.96	0.814	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.640	8.010	0.423	2790.8	2301.6	5.748	6.390	3.38		Clay	100.0			7.57	0.98	n.a.	n.a.	0.96	0.815	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.800	8.310	0.415	2810.0	2310.8	5.976	6.016	3.35		Clay	100.0			7.85	0.98	n.a.	n.a.	0.96	0.816	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.970	8.600	0.428	2830.4	2320.6	6.192	5.954	3.34		Clay	100.0			8.13	0.98	n.a.	n.a.	0.95	0.818	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.130	8.960	0.428	2849.6	2329.8	6.469	5.677	3.31		Clay	100.0			8.47	0.97	n.a.	n.a.	0.95	0.819	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.290	9.180	0.441	2868.8	2339.0	6.623	5.691	3.30		Clay	100.0			8.68	0.97	n.a.	n.a.	0.95	0.820	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.460	9.900	0.452	2889.2	2348.8	7.200	5.347	3.26		Clay	100.0			9.36	0.97	n.a.	n.a.	0.95	0.821	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.620	9.900	0.444	2908.4	2358.0	7.163	5.252	3.26		Clay	100.0			9.36	0.97	n.a.	n.a.	0.95	0.822	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.790	9.010	0.417	2928.8	2367.8	6.373	5.521	3.31		Clay	100.0			8.52	0.97	n.a.	n.a.	0.95	0.823	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.950	7.880	0.376	2948.0	2377.0	5.390	5.862	3.38		Clay	100.0			7.45	0.97	n.a.	n.a.	0.95	0.824	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.110	7.240	0.347	2967.2	2386.3	4.825	6.019	3.43		Clay	100.0			6.84	0.97	n.a.	n.a.	0.95	0.825	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.280	6.960	0.335	2987.6	2396.0	4.563	6.129	3.45		Clay	100.0			6.58	0.97	n.a.	n.a.	0.95	0.826	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.440	7.170	0.338	3006.8	2405.3	4.712	5.963	3.44		Clay	100.0			6.78	0.97	n.a.	n.a.	0.95	0.827	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.610	7.100	0.342	3027.2	2415.1	4.626	6.117	3.45		Clay	100.0			6.71	0.97	n.a.	n.a.	0.95	0.828	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.770	7.590	0.374	3046.4	2424.3	5.005	6.163	3.42		Clay	100.0			7.17	0.96	n.a.	n.a.	0.95	0.829	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.930	8.640	0.405	3065.6	2433.5	5.841	5.694	3.35		Clay	100.0			8.17	0.96	n.a.	n.a.	0.95	0.830	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.100	8.330	0.413	3086.0	2443.3	5.556	6.088	3.38		Clay	100.0			7.87	0.96	n.a.	n.a.	0.95	0.831	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.260	7.580	0.397	3105.2	2452.5	4.915	6.588	3.45		Clay	100.0			7.16	0.96	n.a.	n.a.	0.95	0.832	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.430	6.790	0.362	3125.6	2462.3	4.246	6.918	3.51		Clay	100.0			6.42	0.96	n.a.	n.a.	0.95	0.833	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.590	6.790	0.342	3144.8	2471.5	4.222	6.553	3.50		Clay	100.0			6.42	0.96	n.a.	n.a.	0.95	0.834	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.750	6.660	0.336	3164.0	2480.7	4.094	6.625	3.51		Clay	100.0			6.29	0.96	n.a.	n.a.	0.95	0.835	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.920	6.710	0.346	3184.4	2490.5	4.110	6.761	3.52		Clay	100.0			6.34	0.96	n.a.	n.a.	0.95	0.836	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.080	6.530	0.341	3203.6	2499.7	3.943	6.923	3.54		Clay	100.0			6.17	0.96	n.a.	n.a.	0.95	0.837	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.250	6.300	0.309	3224.0	2509.5	3.736	6.585	3.54		Clay	100.0			5.95	0.96	n.a.	n.a.	0.94	0.837	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.410	5.740	0.295	3243.2	2518.7	3.270	7.158	3.61		Clay	100.0			5.43	0.96	n.a.	n.a.	0.94	0.838	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.570	5.320	0.280	3262.4	2528.0	2.918	7.596	3.67		Clay	100.0			5.03	0.95	n.a.	n.a.	0.94	0.839	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.740	5.440	0.279	3282.8	2537.7	2.994	7.353	3.65		Clay	100.0			5.14	0.95	n.a.	n.a.	0.94	0.840	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.900	5.480	0.280	3302.0	2547.0	3.007	7.323	3.65		Clay	100.0			5.18	0.95	n.a.	n.a.	0.94	0.841	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.070	5.330	0.273	3322.4	2556.8	2.870	7.438	3.67		Clay	100.0			5.04	0.95	n.a.	n.a.	0.94	0.841	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.230	5.450	0.274	3341.6	2566.0	2.946	7.245	3.65		Clay	100.0			5.15	0.95	n.a.	n.a.	0.94	0.842	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.400	5.520	0.281	3362.0	2575.8	2.981	7.322	3.65		Clay	100.0			5.22	0.95	n.a.	n.a.	0.94	0.843	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.560	5.590	0.293	3381.2	2585.0	3.017	7.519	3.65		Clay	100.0			5.28	0.95	n.a.	n.a.	0.94	0.844	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.720	5.730	0.282	3400.4	2594.2	3.107	6.998	3.62		Clay	100.0			5.42	0.95	n.a.	n.a.	0.94	0.844	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.890	5.700	0.277	3420.8	2604.0	3.064	6.943	3.63		Clay	100.0			5.39	0.95	n.a.	n.a.	0.94	0.845	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.050	5.460	0.280	3440.0	2613.2	2.862	7.495	3.67		Clay	100.0			5.16	0.95	n.a.	n.a.	0.94	0.846	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.220	6.170	0.270	3460.4	2623.0	3.385	6.072	3.56		Clay	100.0			5.83	0.94	n.a.	n.a.	0.94	0.847	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.380	6.140	0.264	3479.6	2632.2	3.343	5.995	3.56		Clay	100.0			5.80	0.94	n.a.	n.a.	0.94	0.847	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.540	5.860	0.254	3498.8	2641.4	3.112	6.177	3.59		Clay	100.0			5.54	0.94	n.a.	n.a.	0.94	0.848	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.710	5.740	0.248	3519.2	2651.2	3.003	6.223	3.61		Clay	100.0			5.43	0.94	n.a.	n.a.	0.94	0.848	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.870	5.690	0.242	3538.4	2660.4	2.947	6.170	3.61		Clay	100.0			5.38	0.94	n.a.	n.a.	0.94	0.849	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.040	5.520	0.244	3558.8	2670.2	2.802	6.526	3.64		Clay	100.0			5.22	0.94	n.a.	n.a.	0.94	0.850	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.200	5.510	0.247	3578.0	2679.4	2.777	6.625	3.65		Clay	100.0			5.21	0.94	n.a.	n.a.	0.94	0.850	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.360	5.650	0.254	3597.2	2688.7	2.865	6.587	3.64		Clay	100.0			5.34	0.94	n.a.	n.a.	0.94	0.851	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.530	5.920	0.269	3617.6	2698.4	3.047	6.550	3.61		Clay	100.0			5.60	0.94	n.a.	n.a.	0.93	0.852	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.690	6.320	0.285	3636.8	2707.7	3.325	6.320	3.57		Clay	100.0			5.97	0.94	n.a.	n.a.	0.93	0.852	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.860	6.800	0.312	3657.2	2717.5	3.659	6.284	3.54		Clay	100.0			6.43	0.94	n.a.	n.a.	0.93	0.853	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.020	7.240	0.334	3676.4	2726.7	3.962	6.174	3.51		Clay	100.0			6.84	0.94	n.a.	n.a.	0.93	0.853	n.a.	n.a.	n.a.</			

CPT No.

1

PGA (A_{max})

0.87

Total Settlement:

0.04

(Inches)

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Depth (ft)	q _c (tsf)	f _s (tsf)	σ _{vc} (psf)	In situ σ' _{vc} (psf)	Q	F (%)	I _c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q _{cN} near interfaces (soft layer)	Thin Layer Factor (K _{tN})	Interpreted q _{cN}	C _N	q _{c1N}	q _{c1N-CS}	Stress Reduction Coeff, r _d	CSR	K _σ for Sand	CRR _{M=7.5} , σ'vc = 1 atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε _v	Settlement (Inches)
33.140	7.540	0.379	4050.8	2906.4	3.795	6.869	3.55		Clay	100.0			7.13	0.92	n.a.	n.a.	0.92	0.862	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.300	7.430	0.372	4070.0	2915.6	3.701	6.895	3.56		Clay	100.0			7.02	0.92	n.a.	n.a.	0.92	0.862	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.460	7.310	0.368	4089.2	2924.8	3.600	6.995	3.57		Clay	100.0			6.91	0.92	n.a.	n.a.	0.92	0.863	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.630	7.450	0.359	4109.6	2934.6	3.677	6.654	3.55		Clay	100.0			7.04	0.92	n.a.	n.a.	0.92	0.863	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.790	7.490	0.370	4128.8	2943.8	3.686	6.812	3.56		Clay	100.0			7.08	0.92	n.a.	n.a.	0.92	0.863	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.960	7.510	0.367	4149.2	2953.6	3.681	6.743	3.55		Clay	100.0			7.10	0.92	n.a.	n.a.	0.92	0.864	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.120	7.650	0.363	4168.4	2962.8	3.757	6.529	3.54		Clay	100.0			7.23	0.92	n.a.	n.a.	0.92	0.864	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.280	7.460	0.344	4187.6	2972.0	3.611	6.410	3.55		Clay	100.0			7.05	0.91	n.a.	n.a.	0.92	0.864	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.450	7.160	0.350	4208.0	2981.8	3.391	6.928	3.59		Clay	100.0			6.77	0.91	n.a.	n.a.	0.92	0.864	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.610	7.280	0.343	4227.2	2991.1	3.455	6.633	3.57		Clay	100.0			6.88	0.91	n.a.	n.a.	0.92	0.865	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.780	8.130	0.330	4247.6	3000.8	4.003	5.486	3.47		Clay	100.0			7.68	0.91	n.a.	n.a.	0.92	0.865	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.940	7.650	0.321	4266.8	3010.1	3.665	5.813	3.52		Clay	100.0			7.23	0.91	n.a.	n.a.	0.92	0.865	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.100	7.190	0.292	4286.0	3019.3	3.343	5.780	3.55		Clay	100.0			6.80	0.91	n.a.	n.a.	0.92	0.866	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.270	6.750	0.259	4306.4	3029.1	3.035	5.639	3.58		Clay	100.0			6.38	0.91	n.a.	n.a.	0.92	0.866	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.430	6.010	0.226	4325.6	3038.3	2.532	5.885	3.66		Clay	100.0			5.68	0.91	n.a.	n.a.	0.92	0.866	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.600	5.670	0.214	4346.0	3048.1	2.295	6.122	3.70		Clay	100.0			5.36	0.91	n.a.	n.a.	0.91	0.866	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.760	5.770	0.220	4365.2	3057.3	2.347	6.121	3.69		Clay	100.0			5.45	0.91	n.a.	n.a.	0.91	0.867	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.930	5.930	0.232	4385.6	3067.1	2.437	6.203	3.68		Clay	100.0			5.60	0.91	n.a.	n.a.	0.91	0.867	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.090	6.210	0.240	4404.8	3076.3	2.605	5.999	3.65		Clay	100.0			5.87	0.91	n.a.	n.a.	0.91	0.867	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.250	6.430	0.248	4424.0	3085.5	2.734	5.877	3.63		Clay	100.0			6.08	0.91	n.a.	n.a.	0.91	0.867	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.420	6.580	0.258	4444.4	3095.3	2.816	5.914	3.62		Clay	100.0			6.22	0.90	n.a.	n.a.	0.91	0.868	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.580	6.740	0.260	4463.6	3104.5	2.904	5.772	3.60		Clay	100.0			6.37	0.90	n.a.	n.a.	0.91	0.868	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.750	6.920	0.264	4484.0	3114.3	3.004	5.641	3.58		Clay	100.0			6.54	0.90	n.a.	n.a.	0.91	0.868	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.910	6.900	0.269	4503.2	3123.5	2.976	5.793	3.59		Clay	100.0			6.52	0.90	n.a.	n.a.	0.91	0.868	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.070	7.080	0.291	4522.4	3132.8	3.076	6.043	3.59		Clay	100.0			6.69	0.90	n.a.	n.a.	0.91	0.868	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.240	7.350	0.312	4542.8	3142.5	3.232	6.147	3.58		Clay	100.0			6.95	0.90	n.a.	n.a.	0.91	0.868	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.400	7.520	0.306	4562.0	3151.8	3.324	5.848	3.56		Clay	100.0			7.11	0.90	n.a.	n.a.	0.91	0.869	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.570	7.090	0.294	4582.4	3161.6	3.036	6.120	3.60		Clay	100.0			6.70	0.90	n.a.	n.a.	0.91	0.869	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.730	6.600	0.281	4601.6	3170.8	2.712	6.524	3.66		Clay	100.0			6.24	0.90	n.a.	n.a.	0.91	0.869	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.890	6.390	0.286	4620.8	3180.0	2.566	7.008	3.69		Clay	100.0			6.04	0.90	n.a.	n.a.	0.91	0.869	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.060	6.520	0.294	4641.2	3189.8	2.633	6.991	3.68		Clay	100.0			6.16	0.90	n.a.	n.a.	0.91	0.869	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.220	7.240	0.300	4660.4	3199.0	3.070	6.118	3.60		Clay	100.0			6.84	0.90	n.a.	n.a.	0.91	0.869	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.390	7.710	0.309	4680.8	3208.8	3.347	5.755	3.55		Clay	100.0			7.29	0.90	n.a.	n.a.	0.90	0.870	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.550	8.270	0.310	4700.0	3218.0	3.679	5.230	3.49		Clay	100.0			7.82	0.90	n.a.	n.a.	0.90	0.870	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.710	8.460	0.310	4719.2	3227.2	3.781	5.073	3.47		Clay	100.0			8.00	0.89	n.a.	n.a.	0.90	0.870	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.880	8.190	0.301	4739.6	3237.0	3.596	5.177	3.50		Clay	100.0			7.74	0.89	n.a.	n.a.	0.90	0.870	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.040	8.100	0.286	4758.8	3246.2	3.524	5.006	3.50		Clay	100.0			7.66	0.89	n.a.	n.a.	0.90	0.870	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.210	8.120	0.268	4779.2	3256.0	3.520	4.675	3.48		Clay	100.0			7.67	0.89	n.a.	n.a.	0.90	0.870	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.370	8.230	0.227	4798.4	3265.2	3.571	3.890	3.43		Clay	100.0			7.78	0.89	n.a.	n.a.	0.90	0.870	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.530	7.920	0.325	4817.6	3274.4	3.366	5.890	3.55		Clay	100.0			7.49	0.89	n.a.	n.a.	0.90	0.870	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.700	8.260	0.595	4838.0	3284.2	3.557	10.181	3.67		Clay	100.0			7.81	0.89	n.a.	n.a.	0.90	0.870	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.860	24.200	0.514	4857.2	3293.5	13.221	2.359	2.84		Clay	90.0			22.87	0.89	n.a.	n.a.	0.90	0.870	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.030	53.850	0.526	4877.6	3303.2	38.892	1.023	2.25		Sand	42.7		1.8	91.62	0.83	75.86	137.96	0.90	0.870	0.936	0.226	0.325	0.37	0.02	0.01
40.190	40.000	0.547	4896.8	3312.5	28.368	1.457	2.45		Sand	58.7	50.9	1.8	91.62	0.83	76.24	145.89	0.90	0.871	0.931	0.264	0.398	0.46	0.02	0.01
40.350	17.860	0.472	4916.0	3321.7	9.274	3.062	3.03		Clay	100.0			16.88	0.89	n.a.	n.a.	0.90	0.871	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.520	11.510	0.332	4936.4	3331.5	5.428	3.666	3.27		Clay	100.0			10.88	0.89	n.a.	n.a.	0.90	0.871	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.680	10.000	0.276	4955.6	3340.7	4.503	3.668	3.33		Clay	100.0			9.45	0.89	n.a.	n.a.	0.90	0.871	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.850	9.190	0.264	4976.0	3350.5	4.001	3.938	3.39		Clay	100.0			8.69	0.89	n.a.	n.a.	0.90	0.871	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.010	7.710	0.252	4995.2	3359.7	3.103	4.831	3.53		Clay	100.														

CPT No.

1

PGA (A_{max})

0.87

Total Settlement: 0.04 (Inches)

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Depth (ft)	q _c (tsf)	f _s (tsf)	σ _{vc} (psf)	Insitu σ' _{vc} (psf)	Q	F (%)	I _c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q _{cN} near interfaces (soft layer)	Thin Layer Factor (K _{tN})	Interpreted q _{cN}	C _N	q _{c1N}	q _{c1N-CS}	Stress Reduction Coeff, r _d	CSR	K _σ for Sand	CRR _{M=7.5} , σ'vc = 1 atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε _v	Settlement (Inches)
44.130	7.480	0.260	5369.6	3539.4	2.710	5.422	3.61		Clay	100.0			7.07	0.87	n.a.	n.a.	0.88	0.871	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.290	7.700	0.276	5388.8	3548.6	2.821	5.512	3.60		Clay	100.0			7.28	0.87	n.a.	n.a.	0.88	0.870	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.460	8.100	0.294	5409.2	3558.4	3.032	5.453	3.57		Clay	100.0			7.66	0.87	n.a.	n.a.	0.88	0.870	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.620	8.710	0.303	5428.4	3567.6	3.361	5.057	3.52		Clay	100.0			8.23	0.87	n.a.	n.a.	0.88	0.870	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.780	8.950	0.303	5447.6	3576.8	3.481	4.863	3.49		Clay	100.0			8.46	0.87	n.a.	n.a.	0.88	0.870	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.950	9.130	0.295	5468.0	3586.6	3.567	4.614	3.47		Clay	100.0			8.63	0.87	n.a.	n.a.	0.88	0.870	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.110	9.150	0.280	5487.2	3595.9	3.563	4.369	3.46		Clay	100.0			8.65	0.87	n.a.	n.a.	0.88	0.870	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.280	9.150	0.260	5507.6	3605.6	3.548	4.057	3.45		Clay	100.0			8.65	0.87	n.a.	n.a.	0.88	0.870	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.440	9.210	0.268	5526.8	3614.9	3.567	4.153	3.45		Clay	100.0			8.71	0.87	n.a.	n.a.	0.88	0.870	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.600	9.370	0.285	5546.0	3624.1	3.641	4.313	3.45		Clay	100.0			8.86	0.87	n.a.	n.a.	0.88	0.870	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.770	9.750	0.308	5566.4	3633.9	3.834	4.417	3.44		Clay	100.0			9.22	0.87	n.a.	n.a.	0.88	0.870	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.930	10.440	0.374	5585.6	3643.1	4.198	4.896	3.43		Clay	100.0			9.87	0.87	n.a.	n.a.	0.88	0.870	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.100	11.410	0.653	5606.0	3652.9	4.712	7.588	3.50		Clay	100.0			10.78	0.87	n.a.	n.a.	0.88	0.870	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.260	14.110	0.937	5625.2	3662.1	6.170	8.295	3.43		Clay	100.0			13.34	0.87	n.a.	n.a.	0.88	0.869	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.420	24.160	1.080	5644.4	3671.3	11.624	5.062	3.08		Clay	100.0			22.84	0.86	n.a.	n.a.	0.88	0.869	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.590	30.780	0.551	5664.8	3681.1	15.184	1.973	2.74		Clay	82.6			29.09	0.86	n.a.	n.a.	0.88	0.869	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.750	32.680	0.626	5684.0	3690.3	16.171	2.098	2.74		Clay	81.9			30.89	0.86	n.a.	n.a.	0.87	0.869	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.920	32.120	0.950	5704.4	3700.1	15.820	3.247	2.86		Clay	91.4			30.36	0.86	n.a.	n.a.	0.87	0.869	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.080	35.850	0.807	5723.6	3709.3	17.787	2.446	2.74		Clay	82.3			33.88	0.86	n.a.	n.a.	0.87	0.869	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.240	36.690	0.513	5742.8	3718.5	18.189	1.518	2.62		Clay	72.4			34.68	0.86	n.a.	n.a.	0.87	0.869	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.410	45.580	0.546	5763.2	3728.3	30.404	1.278	2.39		Sand	54.1			43.08	0.74	31.98	87.93	0.87	0.869	0.945	0.123	0.141	0.16	0.04	0.01
47.570	41.310	0.678	5782.4	3737.6	20.558	1.766	2.61		Clay	71.7			39.05	0.86	n.a.	n.a.	0.87	0.868	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.740	31.070	0.647	5802.8	3747.3	15.034	2.295	2.79		Clay	85.8			29.37	0.86	n.a.	n.a.	0.87	0.868	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.900	25.520	0.585	5822.0	3756.6	12.037	2.588	2.89		Clay	94.5			24.12	0.86	n.a.	n.a.	0.87	0.868	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.060	24.950	0.556	5841.2	3765.8	11.700	2.523	2.90		Clay	94.9			23.58	0.86	n.a.	n.a.	0.87	0.868	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.230	22.210	0.469	5861.6	3775.6	10.213	2.434	2.94		Clay	98.1			20.99	0.86	n.a.	n.a.	0.87	0.868	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.390	20.380	0.587	5880.8	3784.8	9.216	3.366	3.05		Clay	100.0			19.26	0.86	n.a.	n.a.	0.87	0.868	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.560	17.500	0.580	5901.2	3794.6	7.669	3.986	3.16		Clay	100.0			16.54	0.86	n.a.	n.a.	0.87	0.867	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.720	16.770	0.515	5920.4	3803.8	7.261	3.731	3.17		Clay	100.0			15.85	0.86	n.a.	n.a.	0.87	0.867	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.880	23.620	0.549	5939.6	3813.0	10.831	2.659	2.94		Clay	98.1			22.33	0.86	n.a.	n.a.	0.87	0.867	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.050	24.920	0.553	5960.0	3822.8	11.478	2.521	2.90		Clay	95.4			23.55	0.86	n.a.	n.a.	0.87	0.867	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.210	24.980	0.464	5979.2	3832.0	11.477	2.110	2.86		Clay	92.0			23.61	0.85	n.a.	n.a.	0.87	0.867	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.380	28.100	0.502	5999.6	3841.8	13.067	1.998	2.80		Clay	87.2			26.56	0.85	n.a.	n.a.	0.87	0.867	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.540	26.520	0.499	6018.8	3851.0	12.210	2.123	2.84		Clay	90.3			25.07	0.85	n.a.	n.a.	0.86	0.866	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.700	23.620	0.488	6038.0	3860.2	10.673	2.366	2.92		Clay	96.3			22.33	0.85	n.a.	n.a.	0.86	0.866	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.870	24.440	0.461	6058.4	3870.0	11.065	2.154	2.88		Clay	93.5			23.10	0.85	n.a.	n.a.	0.86	0.866	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.030	24.270	0.463	6077.6	3879.2	10.946	2.178	2.89		Clay	94.0			22.94	0.85	n.a.	n.a.	0.86	0.866	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.200	23.840	0.407	6098.0	3889.0	10.692	1.960	2.87		Clay	92.7			22.53	0.85	n.a.	n.a.	0.86	0.866	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.360	23.050	0.438	6117.2	3898.3	10.257	2.193	2.91		Clay	96.0			21.79	0.85	n.a.	n.a.	0.86	0.865	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.520	21.930	0.507	6136.4	3907.5	9.654	2.686	2.98		Clay	100.0			20.73	0.85	n.a.	n.a.	0.86	0.865	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.690	19.660	0.426	6156.8	3917.3	8.466	2.570	3.02		Clay	100.0			18.58	0.85	n.a.	n.a.	0.86	0.865	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.850	21.980	0.398	6176.0	3926.5	9.623	2.106	2.93		Clay	97.1			20.78	0.85	n.a.	n.a.	0.86	0.865	n.a.	n.a.	n.a.	n.a.	0.00	0.00
51.020	22.160	0.394	6196.4	3936.3	9.685	2.068	2.92		Clay	96.6			20.95	0.85	n.a.	n.a.	0.86	0.865	n.a.	n.a.	n.a.	n.a.	0.00	0.00
51.180	17.690	0.402	6215.6	3945.5	7.392	2.758	3.09		Clay	100.0			16.72	0.85	n.a.	n.a.	0.86	0.864	n.a.	n.a.	n.a.	n.a.	0.00	0.00
51.350	15.890	0.419	6236.0	3955.3	6.458	3.282	3.18		Clay	100.0			15.02	0.85	n.a.	n.a.	0.86	0.864	n.a.	n.a.	n.a.	n.a.	0.00	0.00
51.510	16.130	0.556	6255.2	3964.5	6.559	4.272	3.23		Clay	100.0			15.25	0.85	n.a.	n.a.	0.86	0.864	n.a.	n.a.	n.a.	n.a.	0.00	0.00
51.670	16.990	0.681	6274.4	3973.7	6.972	4.915	3.25		Clay	100.0			16.06	0.85	n.a.	n.a.	0.86	0.864	n.a.	n.a.	n.a.	n.a.	0.00	0.00
51.840	25.240	0.663	6294.8	3983.5	11.092	2.999	2.96		Clay	99.8			23.86	0.85	n.a.	n.a.	0.86	0.864	n.a.	n.a.	n.a.	n.a.	0.00	0.00
52.000	3																							

CPT No.

1

PGA (A_{max})

0.87

Total Settlement:

0.04

(Inches)

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Depth (ft)	q_c (tsf)	f_s (tsf)	σ_{vc} (psf)	In situ σ'_{vc} (psf)	Q	F (%)	I_c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q_{cN} near interfaces (soft layer)	Thin Layer Factor (K_{tN})	Interpreted q_{cN}	C_N	q_{c1N}	q_{c1N-CS}	Stress Reduction Coeff, f_d	CSR	K_{σ} for Sand	CRRM=7.5, $\sigma'_{vc} = 1$ atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ϵ_v	Settlement (Inches)
55.120	8.880	0.204	6688.4	4172.4	2.654	3.678	3.53		Clay	100.0			8.39	0.84	n.a.	n.a.	0.84	0.859	n.a.	n.a.	n.a.	n.a.	0.00	0.00
55.280	9.060	0.209	6707.6	4181.6	2.729	3.656	3.52		Clay	100.0			8.56	0.84	n.a.	n.a.	0.84	0.858	n.a.	n.a.	n.a.	n.a.	0.00	0.00
55.450	8.940	0.216	6728.0	4191.4	2.661	3.870	3.54		Clay	100.0			8.45	0.83	n.a.	n.a.	0.84	0.858	n.a.	n.a.	n.a.	n.a.	0.00	0.00
55.610	9.070	0.214	6747.2	4200.7	2.712	3.760	3.53		Clay	100.0			8.57	0.83	n.a.	n.a.	0.84	0.858	n.a.	n.a.	n.a.	n.a.	0.00	0.00
55.770	9.130	0.226	6766.4	4209.9	2.730	3.934	3.54		Clay	100.0			8.63	0.83	n.a.	n.a.	0.84	0.857	n.a.	n.a.	n.a.	n.a.	0.00	0.00
55.940	9.970	0.209	6786.8	4219.7	3.117	3.170	3.44		Clay	100.0			9.42	0.83	n.a.	n.a.	0.84	0.857	n.a.	n.a.	n.a.	n.a.	0.00	0.00
56.100	10.750	0.203	6806.0	4228.9	3.475	2.768	3.37		Clay	100.0			10.16	0.83	n.a.	n.a.	0.84	0.857	n.a.	n.a.	n.a.	n.a.	0.00	0.00
56.270	9.580	0.198	6826.4	4238.7	2.910	3.216	3.47		Clay	100.0			9.05	0.83	n.a.	n.a.	0.84	0.857	n.a.	n.a.	n.a.	n.a.	0.00	0.00
56.430	9.220	0.200	6845.6	4247.9	2.729	3.446	3.51		Clay	100.0			8.71	0.83	n.a.	n.a.	0.84	0.856	n.a.	n.a.	n.a.	n.a.	0.00	0.00
56.590	8.830	0.237	6864.8	4257.1	2.536	4.385	3.59		Clay	100.0			8.35	0.83	n.a.	n.a.	0.84	0.856	n.a.	n.a.	n.a.	n.a.	0.00	0.00
56.760	9.030	0.340	6885.2	4266.9	2.619	6.080	3.65		Clay	100.0			8.53	0.83	n.a.	n.a.	0.84	0.856	n.a.	n.a.	n.a.	n.a.	0.00	0.00
56.920	15.800	0.403	6904.4	4276.1	5.775	3.260	3.22		Clay	100.0			14.93	0.83	n.a.	n.a.	0.84	0.855	n.a.	n.a.	n.a.	n.a.	0.00	0.00
57.090	16.530	0.564	6924.8	4285.9	6.098	4.313	3.26		Clay	100.0			15.62	0.83	n.a.	n.a.	0.84	0.855	n.a.	n.a.	n.a.	n.a.	0.00	0.00
57.250	19.320	0.711	6944.0	4295.1	7.380	4.485	3.21		Clay	100.0			18.26	0.83	n.a.	n.a.	0.84	0.855	n.a.	n.a.	n.a.	n.a.	0.00	0.00
57.410	20.300	0.708	6963.2	4304.3	7.815	4.210	3.17		Clay	100.0			19.19	0.83	n.a.	n.a.	0.84	0.854	n.a.	n.a.	n.a.	n.a.	0.00	0.00
57.580	28.320	0.471	6983.6	4314.1	11.510	1.897	2.84		Clay	89.9			26.77	0.83	n.a.	n.a.	0.83	0.854	n.a.	n.a.	n.a.	n.a.	0.00	0.00
57.740	14.670	0.379	7002.8	4323.3	5.167	3.392	3.27		Clay	100.0			13.87	0.83	n.a.	n.a.	0.83	0.854	n.a.	n.a.	n.a.	n.a.	0.00	0.00
57.910	10.430	0.247	7023.2	4333.1	3.193	3.563	3.45		Clay	100.0			9.86	0.83	n.a.	n.a.	0.83	0.853	n.a.	n.a.	n.a.	n.a.	0.00	0.00
58.070	9.290	0.225	7042.4	4342.4	2.657	3.905	3.54		Clay	100.0			8.78	0.83	n.a.	n.a.	0.83	0.853	n.a.	n.a.	n.a.	n.a.	0.00	0.00
58.230	8.920	0.225	7061.6	4351.6	2.477	4.173	3.58		Clay	100.0			8.43	0.83	n.a.	n.a.	0.83	0.853	n.a.	n.a.	n.a.	n.a.	0.00	0.00
58.400	8.560	0.224	7082.0	4361.4	2.302	4.471	3.63		Clay	100.0			8.09	0.83	n.a.	n.a.	0.83	0.853	n.a.	n.a.	n.a.	n.a.	0.00	0.00
58.560	8.620	0.220	7101.2	4370.6	2.320	4.344	3.62		Clay	100.0			8.15	0.83	n.a.	n.a.	0.83	0.852	n.a.	n.a.	n.a.	n.a.	0.00	0.00
58.730	8.840	0.220	7121.6	4380.4	2.410	4.175	3.59		Clay	100.0			8.36	0.83	n.a.	n.a.	0.83	0.852	n.a.	n.a.	n.a.	n.a.	0.00	0.00
58.890	9.010	0.219	7140.8	4389.6	2.478	4.022	3.58		Clay	100.0			8.52	0.82	n.a.	n.a.	0.83	0.852	n.a.	n.a.	n.a.	n.a.	0.00	0.00
59.060	9.110	0.222	7161.2	4399.4	2.514	4.008	3.57		Clay	100.0			8.61	0.82	n.a.	n.a.	0.83	0.851	n.a.	n.a.	n.a.	n.a.	0.00	0.00
59.220	9.130	0.222	7180.4	4408.6	2.513	4.011	3.57		Clay	100.0			8.63	0.82	n.a.	n.a.	0.83	0.851	n.a.	n.a.	n.a.	n.a.	0.00	0.00
59.380	9.190	0.222	7199.6	4417.8	2.531	3.969	3.57		Clay	100.0			8.69	0.82	n.a.	n.a.	0.83	0.851	n.a.	n.a.	n.a.	n.a.	0.00	0.00
59.550	9.340	0.214	7220.0	4427.6	2.588	3.736	3.54		Clay	100.0			8.83	0.82	n.a.	n.a.	0.83	0.850	n.a.	n.a.	n.a.	n.a.	0.00	0.00
59.710	9.520	0.222	7239.2	4436.8	2.660	3.754	3.53		Clay	100.0			9.00	0.82	n.a.	n.a.	0.83	0.850	n.a.	n.a.	n.a.	n.a.	0.00	0.00
59.880	9.580	0.225	7259.6	4446.6	2.676	3.773	3.53		Clay	100.0			9.05	0.82	n.a.	n.a.	0.83	0.850	n.a.	n.a.	n.a.	n.a.	0.00	0.00
60.040	9.880	0.228	7278.8	4455.8	2.801	3.647	3.51		Clay	100.0			9.34	0.82	n.a.	n.a.	0.83	0.849	n.a.	n.a.	n.a.	n.a.	0.00	0.00

CPT No.

2

PGA (A_{max})

0.87

Total Settlement:

0.03 (Inches)

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Depth (ft)	q _c (tsf)	f _s (tsf)	σ _{vc} (psf)	In situ σ' _{vc} (psf)	Q	F (%)	I _c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q _{cN} near interfaces (soft layer)	Thin Layer Factor (K _{tN})	Interpreted q _{cN}	C _N	q _{c1N}	q _{c1N-CS}	Stress Reduction Coeff, r _d	CSR	K _σ for Sand	CRRM=7.5, σ'vc = 1 atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε _v	Settlement (Inches)
0.160	107.270	1.850	20.0	20.0	1042.785	1.725	1.53		Unsaturated	0.0			101.39	1.70	172.36	172.36	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.330	366.560	2.493	41.3	41.3	2481.309	0.680	1.06		Unsaturated	0.0			346.47	1.70	588.99	588.99	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.490	471.610	3.482	61.3	61.3	2619.835	0.738	1.09		Unsaturated	0.0			445.76	1.70	757.79	757.79	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.660	466.100	4.776	82.5	82.5	2230.930	1.025	1.24		Unsaturated	0.0			440.55	1.70	748.93	748.93	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.820	442.550	5.166	102.5	102.5	1900.300	1.167	1.30		Unsaturated	0.0			418.29	1.70	711.09	711.09	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.980	397.700	4.426	122.5	122.5	1562.042	1.113	1.30		Unsaturated	0.0			375.90	1.70	639.03	639.03	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.150	371.420	3.965	143.8	143.8	1346.634	1.068	1.29		Unsaturated	0.0			351.06	1.70	596.80	596.80	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.310	353.960	3.989	163.8	163.8	1202.362	1.127	1.33		Unsaturated	0.0			334.56	1.70	568.74	568.74	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.480	360.770	3.745	185.0	185.0	1152.936	1.038	1.30		Unsaturated	0.0			340.99	1.70	579.69	579.69	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.640	310.550	3.435	205.0	205.0	942.721	1.106	1.36		Unsaturated	0.0			293.53	1.70	498.99	498.99	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.800	289.800	2.899	225.0	225.0	839.674	1.001	1.34		Unsaturated	0.0			273.91	1.70	465.65	465.65	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.970	291.670	2.150	246.3	246.3	807.779	0.737	1.22		Unsaturated	0.0			275.68	1.70	468.66	468.66	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.130	260.450	1.990	266.3	266.3	693.633	0.764	1.27		Unsaturated	0.0			246.17	1.70	418.49	418.49	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.300	229.310	1.983	287.5	287.5	587.630	0.865	1.35		Unsaturated	0.0			216.74	1.69	366.98	366.98	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.460	219.350	2.400	307.5	307.5	543.479	1.095	1.46		Unsaturated	0.0			207.33	1.66	344.87	344.87	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.620	213.650	2.393	327.5	327.5	512.904	1.121	1.48		Unsaturated	0.0			201.94	1.64	330.37	330.37	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.790	208.270	2.081	348.8	348.8	484.482	1.000	1.45		Unsaturated	0.0			196.85	1.61	316.75	316.75	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.950	195.330	1.946	368.8	368.8	441.840	0.997	1.47		Unsaturated	0.0			184.62	1.59	292.73	292.73	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.120	208.700	1.790	390.0	390.0	459.046	0.858	1.41		Unsaturated	0.0			197.26	1.56	308.18	308.18	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.280	206.580	1.648	410.0	410.0	443.136	0.798	1.39		Unsaturated	0.0			195.26	1.54	301.05	301.05	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.440	184.810	1.729	430.0	430.0	387.042	0.937	1.48		Unsaturated	0.0			174.68	1.52	265.96	265.96	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.610	137.330	1.883	451.3	451.3	280.618	1.373	1.70		Unsaturated	0.0			129.80	1.63	211.17	211.17	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.770	111.200	2.147	471.3	471.3	222.244	1.935	1.88		Unsaturated	13.3			105.10	1.65	173.68	196.32	1.00	0.565	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.940	96.400	2.315	492.5	492.5	188.380	2.407	2.00		Unsaturated	22.9			91.12	1.62	147.67	198.70	1.00	0.565	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.100	92.160	2.173	512.5	512.5	176.506	2.365	2.01		Unsaturated	23.7			87.11	1.62	140.89	192.88	1.00	0.565	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.270	102.330	1.901	533.8	533.8	192.076	1.862	1.90		Unsaturated	15.4			96.72	1.62	156.45	185.65	1.00	0.565	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.430	103.900	1.750	553.8	553.8	191.457	1.689	1.87		Unsaturated	12.8			98.20	1.62	158.95	178.59	1.00	0.565	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.590	104.510	0.995	573.8	573.8	189.180	0.954	1.69		Unsaturated	0.0			98.78	1.65	162.80	162.80	1.00	0.565	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.760	85.750	0.806	595.0	595.0	152.314	0.944	1.76		Unsaturated	3.5			81.05	1.70	137.78	137.79	1.00	0.564	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.920	57.000	0.665	615.0	615.0	99.394	1.173	1.96		Unsaturated	19.6			53.88	1.70	91.59	126.46	1.00	0.564	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.090	41.590	0.574	636.3	636.3	71.140	1.391	2.12		Unsaturated	32.3			39.31	1.70	66.83	118.19	1.00	0.564	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.250	32.460	0.457	656.3	656.3	54.535	1.423	2.21		Unsaturated	39.9			30.68	1.70	52.16	106.61	1.00	0.564	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.410	29.920	0.334	676.3	676.3	49.459	1.128	2.18		Unsaturated	37.8			28.28	1.70	48.08	100.06	1.00	0.564	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.580	27.220	0.255	697.5	697.5	44.237	0.950	2.18		Unsaturated	37.6			25.73	1.70	43.74	94.58	1.00	0.564	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.740	24.240	0.228	717.5	717.5	38.763	0.956	2.23		Unsaturated	41.6			22.91	1.70	38.95	91.20	1.00	0.563	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.910	21.360	0.184	738.8	738.8	33.578	0.875	2.26		Unsaturated	44.2			20.19	1.70	34.32	86.84	1.00	0.563	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.070	19.090	0.206	758.8	758.8	29.533	1.103	2.36		Unsaturated	52.2			18.04	1.70	30.67	85.61	1.00	0.563	1.097	n.a.	n.a.	n.a.	0.00	0.00
6.230	18.380	0.410	778.8	778.8	28.030	2.280	2.57		Unsaturated	68.2			17.37	1.69	29.38	88.20	1.00	0.563	1.097	n.a.	n.a.	n.a.	0.00	0.00
6.400	18.580	0.497	800.0	800.0	33.947	2.736	2.55		Unsaturated	67.1			17.56	1.67	29.30	87.87	0.99	0.563	1.094	n.a.	n.a.	n.a.	0.00	0.00
6.560	17.990	0.826	820.0	820.0	42.878	4.700	2.64		Unsaturated	74.0			17.00	1.65	28.03	87.52	0.99	0.562	1.091	n.a.	n.a.	n.a.	0.00	0.00
6.730	17.550	1.303	841.3	841.3	40.724	7.609	2.81		Unsaturated	87.5			16.59	1.62	26.95	87.99	0.99	0.562	1.089	n.a.	n.a.	n.a.	0.00	0.00
6.890	25.980	1.711	861.3	861.3	59.331	6.697	2.66		Clay	75.6			24.56	1.27	n.a.	n.a.	0.99	0.568	n.a.	n.a.	n.a.	n.a.	0.00	0.00
7.050	25.520	1.828	881.3	881.3	56.918	7.287	2.70		Clay	78.8			24.12	1.26	n.a.	n.a.	0.99	0.574	n.a.	n.a.	n.a.	n.a.	0.00	0.00
7.220	22.820	1.635	902.5	902.5	49.571	7.309	2.74		Clay	82.0			21.57	1.25	n.a.	n.a.	0.99	0.581	n.a.	n.a.	n.a.	n.a.	0.00	0.00
7.380	21.460	1.494	922.5	922.5	45.526	7.116	2.75		Clay	83.2			20.28	1.24	n.a.	n.a.	0.99	0.587	n.a.	n.a.	n.a.	n.a.	0.00	0.00
7.550	19.860	1.416	943.8	943.8	41.087	7.303	2.79		Clay	86.2			18.77	1.24	n.a.	n.a.	0.99	0.593	n.a.	n.a.	n.a.	n.a.	0.00	0.00

CPT No.

2

PGA (A_{max})

0.87

Total Settlement: 0.03 (Inches)

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Depth (ft)	q _c (tsf)	f _s (tsf)	σ _{vc} (psf)	Insitu σ' _{vc} (psf)	Q	F (%)	I _c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q _{cN} near interfaces (soft layer)	Thin Layer Factor (K _{tN})	Interpreted q _{cN}	C _N	q _{c1N}	q _{c1N-CS}	Stress Reduction Coeff, r _d	CSR	K _σ for Sand	CRR _{M=7.5} , σ'vc = 1 atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε _v	Settlement (Inches)
11.150	7.040	0.361	1388.0	1316.2	9.643	5.695	3.18		Clay	100.0			6.65	1.13	n.a.	n.a.	0.99	0.696	n.a.	n.a.	n.a.	n.a.	0.00	0.00
11.320	8.520	0.365	1408.4	1326.0	11.788	4.674	3.05		Clay	100.0			8.05	1.13	n.a.	n.a.	0.98	0.700	n.a.	n.a.	n.a.	n.a.	0.00	0.00
11.480	9.620	0.458	1427.6	1335.2	13.340	5.142	3.04		Clay	100.0			9.09	1.13	n.a.	n.a.	0.98	0.704	n.a.	n.a.	n.a.	n.a.	0.00	0.00
11.650	9.840	0.537	1448.0	1345.0	13.555	5.885	3.07		Clay	100.0			9.30	1.13	n.a.	n.a.	0.98	0.708	n.a.	n.a.	n.a.	n.a.	0.00	0.00
11.810	10.100	0.636	1467.2	1354.3	13.833	6.787	3.10		Clay	100.0			9.55	1.12	n.a.	n.a.	0.98	0.711	n.a.	n.a.	n.a.	n.a.	0.00	0.00
11.980	9.840	0.597	1487.6	1364.0	13.337	6.563	3.11		Clay	100.0			9.30	1.12	n.a.	n.a.	0.98	0.714	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.140	9.580	0.547	1506.8	1373.3	12.855	6.201	3.10		Clay	100.0			9.05	1.12	n.a.	n.a.	0.98	0.718	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.300	9.210	0.497	1526.0	1382.5	12.220	5.878	3.10		Clay	100.0			8.71	1.12	n.a.	n.a.	0.98	0.721	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.470	9.290	0.491	1546.4	1392.3	12.234	5.764	3.10		Clay	100.0			8.78	1.12	n.a.	n.a.	0.98	0.724	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.630	9.360	0.459	1565.6	1401.5	12.240	5.347	3.08		Clay	100.0			8.85	1.11	n.a.	n.a.	0.98	0.727	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.800	9.710	0.485	1586.0	1411.3	12.637	5.442	3.07		Clay	100.0			9.18	1.11	n.a.	n.a.	0.98	0.731	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.960	9.820	0.539	1605.2	1420.5	12.696	5.976	3.10		Clay	100.0			9.28	1.11	n.a.	n.a.	0.98	0.734	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.120	10.340	0.555	1624.4	1429.7	13.328	5.821	3.07		Clay	100.0			9.77	1.11	n.a.	n.a.	0.98	0.737	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.290	10.310	0.593	1644.8	1439.5	13.182	6.253	3.10		Clay	100.0			9.74	1.11	n.a.	n.a.	0.98	0.740	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.450	10.520	0.555	1664.0	1448.7	13.375	5.733	3.07		Clay	100.0			9.94	1.11	n.a.	n.a.	0.98	0.742	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.620	9.210	0.517	1684.4	1458.5	11.474	6.176	3.14		Clay	100.0			8.71	1.10	n.a.	n.a.	0.98	0.745	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.780	7.880	0.460	1703.6	1467.7	9.577	6.546	3.22		Clay	100.0			7.45	1.10	n.a.	n.a.	0.98	0.748	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.940	6.860	0.407	1722.8	1476.9	8.123	6.788	3.28		Clay	100.0			6.48	1.10	n.a.	n.a.	0.98	0.751	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.110	7.560	0.431	1743.2	1486.7	8.997	6.450	3.23		Clay	100.0			7.15	1.10	n.a.	n.a.	0.98	0.754	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.270	7.580	0.429	1762.4	1496.0	8.956	6.409	3.23		Clay	100.0			7.16	1.10	n.a.	n.a.	0.98	0.756	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.440	6.780	0.438	1782.8	1505.7	7.822	7.445	3.32		Clay	100.0			6.41	1.09	n.a.	n.a.	0.98	0.759	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.600	6.940	0.440	1802.0	1515.0	7.972	7.279	3.31		Clay	100.0			6.56	1.09	n.a.	n.a.	0.98	0.761	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.760	6.840	0.408	1821.2	1524.2	7.780	6.886	3.30		Clay	100.0			6.47	1.09	n.a.	n.a.	0.98	0.764	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.930	6.060	0.341	1841.6	1534.0	6.701	6.637	3.34		Clay	100.0			5.73	1.09	n.a.	n.a.	0.98	0.766	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.090	5.800	0.330	1860.8	1543.2	6.311	6.773	3.37		Clay	100.0			5.48	1.09	n.a.	n.a.	0.98	0.769	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.260	6.120	0.321	1881.2	1553.0	6.670	6.190	3.32		Clay	100.0			5.78	1.09	n.a.	n.a.	0.98	0.771	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.420	6.070	0.315	1900.4	1562.2	6.555	6.155	3.33		Clay	100.0			5.74	1.08	n.a.	n.a.	0.97	0.773	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.580	6.070	0.317	1919.6	1571.4	6.504	6.209	3.33		Clay	100.0			5.74	1.08	n.a.	n.a.	0.97	0.776	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.750	6.150	0.313	1940.0	1581.2	6.552	6.046	3.32		Clay	100.0			5.81	1.08	n.a.	n.a.	0.97	0.778	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.910	5.880	0.314	1959.2	1590.4	6.162	6.414	3.36		Clay	100.0			5.56	1.08	n.a.	n.a.	0.97	0.780	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.080	5.820	0.309	1979.6	1600.2	6.037	6.389	3.37		Clay	100.0			5.50	1.08	n.a.	n.a.	0.97	0.782	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.240	5.770	0.284	1998.8	1609.4	5.928	5.953	3.35		Clay	100.0			5.45	1.07	n.a.	n.a.	0.97	0.785	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.400	5.670	0.305	2018.0	1618.6	5.759	6.537	3.39		Clay	100.0			5.36	1.07	n.a.	n.a.	0.97	0.787	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.570	5.620	0.310	2038.4	1628.4	5.651	6.736	3.40		Clay	100.0			5.31	1.07	n.a.	n.a.	0.97	0.789	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.730	5.770	0.312	2057.6	1637.6	5.790	6.585	3.39		Clay	100.0			5.45	1.07	n.a.	n.a.	0.97	0.791	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.900	5.630	0.321	2078.0	1647.4	5.573	6.988	3.42		Clay	100.0			5.32	1.07	n.a.	n.a.	0.97	0.793	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.060	5.400	0.291	2097.2	1656.7	5.253	6.681	3.43		Clay	100.0			5.10	1.07	n.a.	n.a.	0.97	0.795	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.220	5.080	0.288	2116.4	1665.9	4.828	7.156	3.47		Clay	100.0			4.80	1.07	n.a.	n.a.	0.97	0.797	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.390	4.780	0.275	2136.8	1675.7	4.430	7.417	3.51		Clay	100.0			4.52	1.06	n.a.	n.a.	0.97	0.799	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.550	4.820	0.268	2156.0	1684.9	4.442	7.154	3.50		Clay	100.0			4.56	1.06	n.a.	n.a.	0.97	0.800	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.720	4.720	0.252	2176.4	1694.7	4.286	6.928	3.51		Clay	100.0			4.46	1.06	n.a.	n.a.	0.97	0.802	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.880	4.740	0.305	2195.6	1703.9	4.275	8.360	3.56		Clay	100.0			4.48	1.06	n.a.	n.a.	0.97	0.804	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.040	5.030	0.303	2214.8	1713.1	4.580	7.724	3.51		Clay	100.0			4.75	1.06	n.a.	n.a.	0.97	0.806	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.210	4.900	0.277	2235.2	1722.9	4.391	7.331	3.51		Clay	100.0			4.63	1.06	n.a.	n.a.	0.97	0.808	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.370	4.970	0.287	2254.4	1732.1	4.437	7.456	3.51		Clay	100.0			4.70	1.05	n.a.	n.a.	0.97	0.809	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.540	4.550	0.264	2274.8	1741.9	3.918	7.745	3.57		Clay	100.0			4.30	1.05	n.a.	n.a.	0.97	0.811	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.700	3.910	0.240	2294.0	1751.1	3.156	8.697	3.67		Clay	100.0			3.70	1.05	n.a.	n.a.	0.97	0.813	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.860	3.490	0.204	2313.2	1760.3	2.651	8.751	3.74		Clay	100.0			3.30	1.05	n.a.	n.a.	0.97	0.814	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.030	3.200	0.186	2333.6	1770.1	2.297	9.124	3.80																	

CPT No.

2

PGA (A_{max})

0.87

Total Settlement: 0.03 (Inches)

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Depth (ft)	q _c (tsf)	f _s (tsf)	σ _{vc} (psf)	Insitu σ' _{vc} (psf)	Q	F (%)	I _c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q _{cN} near interfaces (soft layer)	Thin Layer Factor (K _{tN})	Interpreted q _{cN}	C _N	q _{c1N}	q _{c1N-CS}	Stress Reduction Coeff, r _d	CSR	K _σ for Sand	CRRM=7.5, σ'vc = 1 atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε _v	Settlement (Inches)
22.150	4.260	0.305	2708.0	1949.8	2.981	10.496	3.74		Clay	100.0			4.03	1.02	n.a.	n.a.	0.96	0.842	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.310	4.460	0.313	2727.2	1959.1	3.161	10.105	3.71		Clay	100.0			4.22	1.02	n.a.	n.a.	0.96	0.843	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.470	4.390	0.303	2746.4	1968.3	3.065	10.040	3.72		Clay	100.0			4.15	1.02	n.a.	n.a.	0.96	0.844	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.640	4.290	0.300	2766.8	1978.1	2.939	10.321	3.74		Clay	100.0			4.05	1.02	n.a.	n.a.	0.96	0.845	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.800	4.240	0.296	2786.0	1987.3	2.865	10.383	3.75		Clay	100.0			4.01	1.02	n.a.	n.a.	0.96	0.846	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.970	4.460	0.285	2806.4	1997.1	3.061	9.314	3.70		Clay	100.0			4.22	1.02	n.a.	n.a.	0.95	0.847	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.130	4.440	0.280	2825.6	2006.3	3.018	9.256	3.70		Clay	100.0			4.20	1.01	n.a.	n.a.	0.95	0.848	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.290	4.550	0.254	2844.8	2015.5	3.104	8.134	3.66		Clay	100.0			4.30	1.01	n.a.	n.a.	0.95	0.849	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.460	4.720	0.262	2865.2	2025.3	3.246	7.982	3.64		Clay	100.0			4.46	1.01	n.a.	n.a.	0.95	0.850	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.620	4.650	0.249	2884.4	2034.5	3.153	7.750	3.64		Clay	100.0			4.40	1.01	n.a.	n.a.	0.95	0.851	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.790	5.290	0.227	2904.8	2044.3	3.754	5.902	3.51		Clay	100.0			5.00	1.01	n.a.	n.a.	0.95	0.852	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.950	5.800	0.247	2924.0	2053.5	4.225	5.694	3.46		Clay	100.0			5.48	1.01	n.a.	n.a.	0.95	0.853	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.110	5.780	0.264	2943.2	2062.7	4.177	6.135	3.49		Clay	100.0			5.46	1.01	n.a.	n.a.	0.95	0.854	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.280	5.850	0.312	2963.6	2072.5	4.215	7.140	3.52		Clay	100.0			5.53	1.01	n.a.	n.a.	0.95	0.855	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.440	5.850	0.279	2982.8	2081.7	4.187	6.403	3.50		Clay	100.0			5.53	1.00	n.a.	n.a.	0.95	0.856	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.610	5.620	0.290	3003.2	2091.5	3.938	7.049	3.54		Clay	100.0			5.31	1.00	n.a.	n.a.	0.95	0.857	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.770	5.650	0.290	3022.4	2100.8	3.940	7.009	3.54		Clay	100.0			5.34	1.00	n.a.	n.a.	0.95	0.858	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.930	5.300	0.265	3041.6	2110.0	3.582	7.009	3.57		Clay	100.0			5.01	1.00	n.a.	n.a.	0.95	0.858	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.100	4.850	0.245	3062.0	2119.8	3.131	7.367	3.63		Clay	100.0			4.58	1.00	n.a.	n.a.	0.95	0.859	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.260	4.580	0.245	3081.2	2129.0	2.855	8.044	3.69		Clay	100.0			4.33	1.00	n.a.	n.a.	0.95	0.860	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.430	4.570	0.261	3101.6	2138.8	2.823	8.628	3.71		Clay	100.0			4.32	1.00	n.a.	n.a.	0.95	0.861	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.590	4.540	0.277	3120.8	2148.0	2.774	9.303	3.74		Clay	100.0			4.29	1.00	n.a.	n.a.	0.95	0.862	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.750	4.660	0.302	3140.0	2157.2	2.865	9.773	3.74		Clay	100.0			4.40	0.99	n.a.	n.a.	0.95	0.862	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.920	4.890	0.307	3160.4	2167.0	3.055	9.263	3.70		Clay	100.0			4.62	0.99	n.a.	n.a.	0.95	0.863	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.080	5.030	0.307	3179.6	2176.2	3.162	8.915	3.68		Clay	100.0			4.75	0.99	n.a.	n.a.	0.95	0.864	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.250	5.020	0.259	3200.0	2186.0	3.129	7.576	3.64		Clay	100.0			4.74	0.99	n.a.	n.a.	0.94	0.865	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.410	5.070	0.243	3219.2	2195.2	3.153	7.011	3.62		Clay	100.0			4.79	0.99	n.a.	n.a.	0.94	0.866	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.570	4.550	0.226	3238.4	2204.4	2.659	7.711	3.70		Clay	100.0			4.30	0.99	n.a.	n.a.	0.94	0.866	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.740	4.130	0.210	3258.8	2214.2	2.259	8.378	3.78		Clay	100.0			3.90	0.99	n.a.	n.a.	0.94	0.867	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.900	4.190	0.214	3278.0	2223.4	2.295	8.389	3.78		Clay	100.0			3.96	0.99	n.a.	n.a.	0.94	0.868	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.070	4.590	0.216	3298.4	2233.2	2.634	7.348	3.69		Clay	100.0			4.34	0.99	n.a.	n.a.	0.94	0.868	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.230	4.960	0.227	3317.6	2242.4	2.944	6.870	3.64		Clay	100.0			4.69	0.98	n.a.	n.a.	0.94	0.869	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.400	5.220	0.227	3338.0	2252.2	3.153	6.393	3.60		Clay	100.0			4.93	0.98	n.a.	n.a.	0.94	0.870	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.560	5.680	0.338	3357.2	2261.5	3.539	8.455	3.63		Clay	100.0			5.37	0.98	n.a.	n.a.	0.94	0.870	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.720	6.190	0.390	3376.4	2270.7	3.965	8.654	3.59		Clay	100.0			5.85	0.98	n.a.	n.a.	0.94	0.871	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.890	20.400	0.494	3396.8	2280.5	16.402	2.643	2.79		Clay	86.2			19.28	0.98	n.a.	n.a.	0.94	0.871	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.050	57.800	0.622	3416.0	2289.7	50.967	1.109	2.17		Sand	36.6	67.01	1.69	113.25	0.97	110.04	175.41	0.94	0.872	0.984	0.609	1.207	1.38	0.00	0.00
28.220	70.630	0.694	3436.4	2299.5	62.482	1.008	2.07		Sand	28.9	67.01	1.69	113.25	0.97	109.74	165.64	0.94	0.873	0.985	0.438	0.806	0.92	0.01	0.01
28.380	70.900	0.697	3455.6	2308.7	62.592	1.007	2.07		Sand	28.8		1.69	113.25	0.97	109.57	165.35	0.94	0.873	0.984	0.434	0.796	0.91	0.01	0.01
28.540	64.420	0.647	3474.8	2317.9	56.607	1.032	2.11		Sand	32.1	67.01	1.69	113.25	0.97	109.47	169.79	0.94	0.874	0.983	0.500	0.948	1.08	0.01	0.01
28.710	54.400	0.603	3495.2	2327.7	47.449	1.144	2.20		Sand	39.2	67.01	1.69	113.25	0.97	109.41	177.08	0.94	0.874	0.980	0.648	1.297	1.48	0.00	0.00
28.870	41.540	0.673	3514.4	2336.9	35.780	1.693	2.40		Sand	55.2	67.01	1.69	113.25	0.97	109.41	186.88	0.94	0.875	0.977	0.973	2.092	2.39	0.00	0.00
29.040	26.610	0.581	3534.8	2346.7	21.172	2.338	2.67		Clay	76.5			25.15	0.97	n.a.	n.a.	0.94	0.875	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.200	13.650	0.466	3554.0	2355.9	10.079	3.923	3.06		Clay	100.0			12.90	0.97	n.a.	n.a.	0.94	0.876	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.360	8.230	0.364	3573.2	2365.1	5.449	5.654	3.37		Clay	100.0			7.78	0.97	n.a.	n.a.	0.94	0.876	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.530	6.190	0.305	3593.6	2374.9	3.700	6.952	3.56		Clay	100.0			5.85	0.97	n.a.	n.a.	0.93	0.877	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.690	5.820	0.345	3612.8	2384.1	3.367	8.598	3.65		Clay	100.0			5.50	0.97	n.a.	n.a.	0.93	0.877	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.860	6.070	0.385	3633.2	2393.9	3.553	9.052	3.64																	

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Depth (ft)	q _c (tsf)	f _s (tsf)	σ _{vc} (psf)	Insitu σ' _{vc} (psf)	Q	F (%)	I _c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q _{cN} near interfaces (soft layer)	Thin Layer Factor (K _{tN})	Interpreted q _{cN}	C _N	q _{c1N}	q _{c1N-CS}	Stress Reduction Coeff, r _d	CSR	K _σ for Sand	CRRM=7.5, σ'vc = 1 atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε _v	Settlement (Inches)
33.140	5.480	0.384	4026.8	2582.9	2.684	11.080	3.79		Clay	100.0			5.18	0.95	n.a.	n.a.	0.92	0.885	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.300	6.350	0.376	4046.0	2592.1	3.339	8.687	3.65		Clay	100.0			6.00	0.95	n.a.	n.a.	0.92	0.886	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.460	7.660	0.358	4065.2	2601.3	4.327	6.355	3.48		Clay	100.0			7.24	0.95	n.a.	n.a.	0.92	0.886	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.630	7.070	0.360	4085.6	2611.1	3.851	7.167	3.55		Clay	100.0			6.68	0.95	n.a.	n.a.	0.92	0.886	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.790	6.180	0.345	4104.8	2620.3	3.150	8.363	3.66		Clay	100.0			5.84	0.95	n.a.	n.a.	0.92	0.886	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.960	6.480	0.353	4125.2	2630.1	3.359	7.996	3.63		Clay	100.0			6.12	0.94	n.a.	n.a.	0.92	0.887	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.120	7.310	0.392	4144.4	2639.3	3.969	7.492	3.55		Clay	100.0			6.91	0.94	n.a.	n.a.	0.92	0.887	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.280	7.900	0.457	4163.6	2648.5	4.394	7.851	3.53		Clay	100.0			7.47	0.94	n.a.	n.a.	0.92	0.887	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.450	8.910	0.461	4184.0	2658.3	5.130	6.767	3.44		Clay	100.0			8.42	0.94	n.a.	n.a.	0.92	0.887	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.610	9.050	0.538	4203.2	2667.5	5.210	7.737	3.47		Clay	100.0			8.55	0.94	n.a.	n.a.	0.92	0.888	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.780	8.540	0.498	4223.6	2677.3	4.802	7.746	3.50		Clay	100.0			8.07	0.94	n.a.	n.a.	0.92	0.888	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.940	7.620	0.425	4242.8	2686.5	4.093	7.731	3.55		Clay	100.0			7.20	0.94	n.a.	n.a.	0.92	0.888	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.100	6.980	0.378	4262.0	2695.8	3.598	7.802	3.60		Clay	100.0			6.60	0.94	n.a.	n.a.	0.92	0.888	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.270	6.710	0.361	4282.4	2705.6	3.377	7.901	3.62		Clay	100.0			6.34	0.94	n.a.	n.a.	0.92	0.888	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.430	6.660	0.365	4301.6	2714.8	3.322	8.095	3.64		Clay	100.0			6.29	0.94	n.a.	n.a.	0.92	0.888	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.600	6.480	0.380	4322.0	2724.6	3.170	8.805	3.67		Clay	100.0			6.12	0.94	n.a.	n.a.	0.91	0.889	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.760	6.250	0.391	4341.2	2733.8	2.984	9.572	3.72		Clay	100.0			5.91	0.93	n.a.	n.a.	0.91	0.889	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.930	6.190	0.391	4361.6	2743.6	2.923	9.753	3.73		Clay	100.0			5.85	0.93	n.a.	n.a.	0.91	0.889	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.090	6.390	0.404	4380.8	2752.8	3.051	9.615	3.71		Clay	100.0			6.04	0.93	n.a.	n.a.	0.91	0.889	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.250	6.480	0.429	4400.0	2762.0	3.099	10.028	3.72		Clay	100.0			6.12	0.93	n.a.	n.a.	0.91	0.889	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.420	6.560	0.431	4420.4	2771.8	3.139	9.904	3.71		Clay	100.0			6.20	0.93	n.a.	n.a.	0.91	0.889	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.580	6.620	0.441	4439.6	2781.0	3.164	10.011	3.71		Clay	100.0			6.26	0.93	n.a.	n.a.	0.91	0.890	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.750	6.750	0.437	4460.0	2790.8	3.239	9.659	3.69		Clay	100.0			6.38	0.93	n.a.	n.a.	0.91	0.890	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.910	7.150	0.406	4479.2	2800.0	3.507	8.262	3.62		Clay	100.0			6.76	0.93	n.a.	n.a.	0.91	0.890	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.070	7.250	0.433	4498.4	2809.2	3.560	8.657	3.63		Clay	100.0			6.85	0.93	n.a.	n.a.	0.91	0.890	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.240	7.420	0.429	4518.8	2819.0	3.661	8.321	3.61		Clay	100.0			7.01	0.93	n.a.	n.a.	0.91	0.890	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.400	7.170	0.415	4538.0	2828.2	3.466	8.468	3.63		Clay	100.0			6.78	0.93	n.a.	n.a.	0.91	0.890	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.570	7.030	0.398	4558.4	2838.0	3.348	8.367	3.64		Clay	100.0			6.64	0.93	n.a.	n.a.	0.91	0.890	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.730	6.910	0.413	4577.6	2847.2	3.246	8.935	3.67		Clay	100.0			6.53	0.92	n.a.	n.a.	0.91	0.890	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.890	8.480	0.390	4596.8	2856.5	4.328	6.311	3.48		Clay	100.0			8.02	0.92	n.a.	n.a.	0.91	0.890	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.060	8.890	0.329	4617.2	2866.3	4.592	4.993	3.40		Clay	100.0			8.40	0.92	n.a.	n.a.	0.91	0.890	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.220	7.810	0.291	4636.4	2875.5	3.820	5.301	3.48		Clay	100.0			7.38	0.92	n.a.	n.a.	0.91	0.890	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.390	6.540	0.296	4656.8	2885.3	2.919	7.021	3.65		Clay	100.0			6.18	0.92	n.a.	n.a.	0.90	0.891	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.550	6.230	0.399	4676.0	2894.5	2.689	10.244	3.77		Clay	100.0			5.89	0.92	n.a.	n.a.	0.90	0.891	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.710	7.380	0.403	4695.2	2903.7	3.466	8.010	3.62		Clay	100.0			6.98	0.92	n.a.	n.a.	0.90	0.891	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.880	12.060	0.422	4715.6	2913.5	6.660	4.351	3.23		Clay	100.0			11.40	0.92	n.a.	n.a.	0.90	0.891	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.040	8.260	0.407	4734.8	2922.7	4.032	6.909	3.53		Clay	100.0			7.81	0.92	n.a.	n.a.	0.90	0.891	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.210	7.550	0.356	4755.2	2932.5	3.528	6.887	3.57		Clay	100.0			7.14	0.92	n.a.	n.a.	0.90	0.891	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.370	7.440	0.360	4774.4	2941.7	3.435	7.115	3.59		Clay	100.0			7.03	0.92	n.a.	n.a.	0.90	0.891	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.530	7.180	0.357	4793.6	2950.9	3.242	7.453	3.62		Clay	100.0			6.79	0.92	n.a.	n.a.	0.90	0.891	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.700	6.630	0.373	4814.0	2960.7	2.853	8.833	3.71		Clay	100.0			6.27	0.92	n.a.	n.a.	0.90	0.891	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.860	6.620	0.423	4833.2	2969.9	2.831	10.051	3.75		Clay	100.0			6.26	0.91	n.a.	n.a.	0.90	0.891	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.030	8.270	0.396	4853.6	2979.7	3.922	6.770	3.53		Clay	100.0			7.82	0.91	n.a.	n.a.	0.90	0.891	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.190	8.300	0.413	4872.8	2988.9	3.924	7.049	3.54		Clay	100.0			7.84	0.91	n.a.	n.a.	0.90	0.891	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.350	7.790	0.383	4892.0	2998.2	3.565	7.159	3.58		Clay	100.0			7.36	0.91	n.a.	n.a.	0.90	0.891	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.520	7.390	0.383	4912.4	3008.0	3.281	7.755	3.63		Clay	100.0			6.98	0.91	n.a.	n.a.	0.90	0.891	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.680	7.950	0.388	4931.6	3017.2	3.635	7.075	3.57		Clay	100.0			7.51	0.91	n.a.	n.a.	0.90	0.891	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.850	8.060	0.393	4952.0	3027.0	3.690	7.040	3.56		Clay	100.0			7.62	0.91	n.a.	n.a.	0.90	0.891	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.010	8.030	0.390	4971.2	3036.2	3.652	7.040	3.57		Clay	100.0			7.59	0.91	n.a.	n.a.	0.90	0.891	n.a.	n.a.	n.a.	n.a.		

CPT No.

2

PGA (A_{max})

0.87

Total Settlement:

0.03

(Inches)

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Depth (ft)	q _c (tsf)	f _s (tsf)	σ _{vc} (psf)	Insitu σ' _{vc} (psf)	Q	F (%)	I _c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q _{cN} near interfaces (soft layer)	Thin Layer Factor (K _{tN})	Interpreted q _{cN}	C _N	q _{c1N}	q _{c1N-CS}	Stress Reduction Coeff, r _d	CSR	K _σ for Sand	CRR _{M=7.5} , σ'vc = 1 atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε _v	Settlement (Inches)
44.130	24.490	0.735	5345.6	3215.9	13.568	3.370	2.92		Clay	96.5			23.15	0.90	n.a.	n.a.	0.88	0.889	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.290	24.970	0.798	5364.8	3225.1	13.821	3.582	2.93		Clay	97.3			23.60	0.89	n.a.	n.a.	0.88	0.889	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.460	22.550	0.779	5385.2	3234.9	12.277	3.924	2.99		Clay	100.0			21.31	0.89	n.a.	n.a.	0.88	0.889	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.620	23.340	0.729	5404.4	3244.1	12.723	3.530	2.95		Clay	99.2			22.06	0.89	n.a.	n.a.	0.88	0.889	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.780	28.320	0.638	5423.6	3253.3	15.743	2.490	2.79		Clay	86.1			26.77	0.89	n.a.	n.a.	0.88	0.889	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.950	29.770	0.768	5444.0	3263.1	16.578	2.838	2.80		Clay	87.3			28.14	0.89	n.a.	n.a.	0.88	0.889	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.110	28.990	0.641	5463.2	3272.3	16.049	2.442	2.78		Clay	85.2			27.40	0.89	n.a.	n.a.	0.88	0.889	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.280	28.850	0.755	5483.6	3282.1	15.909	2.891	2.82		Clay	88.9			27.27	0.89	n.a.	n.a.	0.88	0.888	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.440	29.170	0.848	5502.8	3291.3	16.053	3.209	2.85		Clay	90.8			27.57	0.89	n.a.	n.a.	0.88	0.888	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.600	26.690	0.847	5522.0	3300.6	14.500	3.541	2.91		Clay	95.7			25.23	0.89	n.a.	n.a.	0.88	0.888	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.770	29.020	0.776	5542.4	3310.4	15.859	2.956	2.83		Clay	89.4			27.43	0.89	n.a.	n.a.	0.88	0.888	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.930	31.920	0.785	5561.6	3319.6	17.556	2.693	2.77		Clay	84.7			30.17	0.89	n.a.	n.a.	0.88	0.888	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.100	31.520	0.773	5582.0	3329.4	17.258	2.691	2.78		Clay	85.1			29.79	0.89	n.a.	n.a.	0.88	0.888	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.260	28.330	0.693	5601.2	3338.6	15.294	2.715	2.82		Clay	88.7			26.78	0.89	n.a.	n.a.	0.88	0.887	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.420	26.670	0.659	5620.4	3347.8	14.254	2.760	2.85		Clay	91.0			25.21	0.89	n.a.	n.a.	0.88	0.887	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.590	25.670	0.624	5640.8	3357.6	13.611	2.731	2.86		Clay	92.1			24.26	0.89	n.a.	n.a.	0.88	0.887	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.750	25.360	0.529	5660.0	3366.8	13.384	2.349	2.83		Clay	89.6			23.97	0.88	n.a.	n.a.	0.87	0.887	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.920	24.790	0.585	5680.4	3376.6	13.001	2.665	2.87		Clay	92.9			23.43	0.88	n.a.	n.a.	0.87	0.887	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.080	24.620	0.704	5699.6	3385.8	12.860	3.235	2.93		Clay	97.1			23.27	0.88	n.a.	n.a.	0.87	0.887	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.240	22.810	0.746	5718.8	3395.0	11.753	3.741	3.00		Clay	100.0			21.56	0.88	n.a.	n.a.	0.87	0.886	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.410	28.450	0.783	5739.2	3404.8	15.026	3.060	2.86		Clay	91.6			26.89	0.88	n.a.	n.a.	0.87	0.886	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.570	34.190	0.774	5758.4	3414.0	18.342	2.471	2.73		Clay	81.7			32.32	0.88	n.a.	n.a.	0.87	0.886	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.740	34.290	0.639	5778.8	3423.8	18.342	2.035	2.68		Clay	77.7			32.41	0.88	n.a.	n.a.	0.87	0.886	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.900	29.870	0.587	5798.0	3433.0	15.713	2.175	2.76		Clay	83.5			28.23	0.88	n.a.	n.a.	0.87	0.886	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.060	27.140	0.692	5817.2	3442.3	14.079	2.855	2.86		Clay	92.0			25.65	0.88	n.a.	n.a.	0.87	0.885	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.230	23.910	0.784	5837.6	3452.0	12.162	3.735	2.98		Clay	100.0			22.60	0.88	n.a.	n.a.	0.87	0.885	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.390	22.260	0.753	5856.8	3461.3	11.170	3.897	3.02		Clay	100.0			21.04	0.88	n.a.	n.a.	0.87	0.885	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.560	30.410	0.755	5877.2	3471.1	15.829	2.749	2.81		Clay	88.0			28.74	0.88	n.a.	n.a.	0.87	0.885	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.720	32.170	0.800	5896.4	3480.3	16.793	2.738	2.79		Clay	86.2			30.41	0.88	n.a.	n.a.	0.87	0.885	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.880	28.140	0.868	5915.6	3489.5	14.433	3.446	2.90		Clay	95.2			26.60	0.88	n.a.	n.a.	0.87	0.884	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.050	30.600	0.879	5936.0	3499.3	15.793	3.182	2.85		Clay	91.1			28.92	0.88	n.a.	n.a.	0.87	0.884	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.210	35.420	0.964	5955.2	3508.5	18.494	2.970	2.78		Clay	85.3			33.48	0.88	n.a.	n.a.	0.87	0.884	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.380	27.360	0.907	5975.6	3518.3	13.855	3.723	2.94		Clay	98.0			25.86	0.87	n.a.	n.a.	0.87	0.884	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.540	29.440	0.583	5994.8	3527.5	14.992	2.206	2.78		Clay	85.1			27.83	0.87	n.a.	n.a.	0.86	0.883	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.700	31.860	0.633	6014.0	3536.7	16.316	2.194	2.74		Clay	82.6			30.11	0.87	n.a.	n.a.	0.86	0.883	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.870	21.880	0.896	6034.4	3546.5	10.637	4.749	3.09		Clay	100.0			20.68	0.87	n.a.	n.a.	0.86	0.883	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.030	18.920	0.876	6053.6	3555.7	8.939	5.512	3.19		Clay	100.0			17.88	0.87	n.a.	n.a.	0.86	0.883	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.200	33.560	0.729	6074.0	3565.5	17.121	2.387	2.75		Clay	82.9			31.72	0.87	n.a.	n.a.	0.86	0.882	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.360	42.220	0.816	6093.2	3574.7	21.917	2.082	2.63		Clay	73.2			39.91	0.87	n.a.	n.a.	0.86	0.882	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.520	44.730	0.949	6112.4	3584.0	23.256	2.276	2.63		Clay	73.3			42.28	0.87	n.a.	n.a.	0.86	0.882	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.690	40.500	1.060	6132.8	3593.7	20.833	2.832	2.72		Clay	81.0			38.28	0.87	n.a.	n.a.	0.86	0.882	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.850	32.430	0.840	6152.0	3603.0	16.294	2.861	2.81		Clay	88.0			30.65	0.87	n.a.	n.a.	0.86	0.881	n.a.	n.a.	n.a.	n.a.	0.00	0.00
51.020	48.690	1.017	6172.4	3612.8	32.988	2.229	2.50		Sand	63.3			46.02	0.76	35.02	94.38	0.86	0.881	0.946	0.130	0.152	0.17	0.03	0.00
51.180	49.310	1.048	6191.6	3622.0	33.387	2.268	2.50		Sand	63.3			46.61	0.76	35.44	94.94	0.86	0.881	0.945	0.131	0.153	0.17	0.03	0.00
51.350	44.210	0.960	6212.0	3631.8	22.636	2.336	2.65		Clay	74.6			41.79	0.87	n.a.	n.a.	0.86	0.881	n.a.	n.a.	n.a.	n.a.	0.00	0.00
51.510	42.330	0.793	6231.2	3641.0	21.541	2.023	2.63		Clay	73.1			40.01	0.87	n.a.	n.a.	0.86	0.880	n.a.	n.a.	n.a.	n.a.	0.00	0.00
51.670	35.400	0.534	6250.4	3650.2	17.684	1.653	2.65		Clay	74.8			33.46	0.87	n.a.	n.a.	0.86	0.880	n.a.	n.a.	n.a.	n.a.	0.00	0.00
51.840	24.930	0.453	6270.8	3660.0	11.910	2.077	2.85		Clay	90.6			23.56	0.87	n.a.	n.a.	0.86	0.880	n.a.	n.a.	n.a.	n.a.	0.00	0.00
52.000	14.890	0																						

CPT No.

2

PGA (A_{max})

0.87

Total Settlement: 0.03 (Inches)

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Depth (ft)	q _c (tsf)	f _s (tsf)	σ _{vc} (psf)	Insitu σ' _{vc} (psf)	Q	F (%)	I _c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q _{cN} near interfaces (soft layer)	Thin Layer Factor (K _{tN})	Interpreted q _{cN}	C _N	q _{c1N}	q _{c1N-CS}	Stress Reduction Coeff, r _d	CSR	K _σ for Sand	CRR _{M=7.5} , σ'vc = 1 atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε _v	Settlement (Inches)
55.120	25.910	0.449	6664.4	3848.9	11.732	1.990	2.84		Clay	90.3			24.49	0.85	n.a.	n.a.	0.84	0.874	n.a.	n.a.	n.a.	n.a.	0.00	0.00
55.280	16.650	0.405	6683.6	3858.1	6.899	3.046	3.13		Clay	100.0			15.74	0.85	n.a.	n.a.	0.84	0.873	n.a.	n.a.	n.a.	n.a.	0.00	0.00
55.450	10.040	0.367	6704.0	3867.9	3.458	5.489	3.53		Clay	100.0			9.49	0.85	n.a.	n.a.	0.84	0.873	n.a.	n.a.	n.a.	n.a.	0.00	0.00
55.610	9.060	0.329	6723.2	3877.1	2.939	5.765	3.60		Clay	100.0			8.56	0.85	n.a.	n.a.	0.84	0.873	n.a.	n.a.	n.a.	n.a.	0.00	0.00
55.770	8.970	0.335	6742.4	3886.4	2.881	5.974	3.61		Clay	100.0			8.48	0.85	n.a.	n.a.	0.84	0.873	n.a.	n.a.	n.a.	n.a.	0.00	0.00
55.940	8.900	0.335	6762.8	3896.1	2.833	6.070	3.62		Clay	100.0			8.41	0.85	n.a.	n.a.	0.84	0.872	n.a.	n.a.	n.a.	n.a.	0.00	0.00
56.100	9.240	0.292	6782.0	3905.4	2.995	4.994	3.56		Clay	100.0			8.73	0.85	n.a.	n.a.	0.84	0.872	n.a.	n.a.	n.a.	n.a.	0.00	0.00
56.270	9.220	0.241	6802.4	3915.2	2.972	4.137	3.51		Clay	100.0			8.71	0.85	n.a.	n.a.	0.84	0.871	n.a.	n.a.	n.a.	n.a.	0.00	0.00
56.430	8.760	0.236	6821.6	3924.4	2.726	4.408	3.56		Clay	100.0			8.28	0.85	n.a.	n.a.	0.84	0.871	n.a.	n.a.	n.a.	n.a.	0.00	0.00
56.590	7.030	0.224	6840.8	3933.6	1.835	6.217	3.79		Clay	100.0			6.64	0.85	n.a.	n.a.	0.84	0.871	n.a.	n.a.	n.a.	n.a.	0.00	0.00
56.760	6.390	0.213	6861.2	3943.4	1.501	7.208	3.89		Clay	100.0			6.04	0.85	n.a.	n.a.	0.84	0.870	n.a.	n.a.	n.a.	n.a.	0.00	0.00
56.920	6.330	0.211	6880.4	3952.6	1.462	7.284	3.91		Clay	100.0			5.98	0.85	n.a.	n.a.	0.84	0.870	n.a.	n.a.	n.a.	n.a.	0.00	0.00
57.090	6.280	0.206	6900.8	3962.4	1.428	7.263	3.91		Clay	100.0			5.94	0.85	n.a.	n.a.	0.84	0.870	n.a.	n.a.	n.a.	n.a.	0.00	0.00
57.250	6.240	0.208	6920.0	3971.6	1.400	7.493	3.93		Clay	100.0			5.90	0.85	n.a.	n.a.	0.84	0.869	n.a.	n.a.	n.a.	n.a.	0.00	0.00
57.410	6.190	0.211	6939.2	3980.8	1.367	7.745	3.95		Clay	100.0			5.85	0.85	n.a.	n.a.	0.84	0.869	n.a.	n.a.	n.a.	n.a.	0.00	0.00
57.580	6.150	0.215	6959.6	3990.6	1.338	8.056	3.96		Clay	100.0			5.81	0.85	n.a.	n.a.	0.83	0.869	n.a.	n.a.	n.a.	n.a.	0.00	0.00
57.740	6.120	0.216	6978.8	3999.8	1.315	8.200	3.97		Clay	100.0			5.78	0.85	n.a.	n.a.	0.83	0.868	n.a.	n.a.	n.a.	n.a.	0.00	0.00
57.910	6.100	0.220	6999.2	4009.6	1.297	8.460	3.99		Clay	100.0			5.77	0.84	n.a.	n.a.	0.83	0.868	n.a.	n.a.	n.a.	n.a.	0.00	0.00
58.070	6.070	0.222	7018.4	4018.8	1.274	8.669	4.00		Clay	100.0			5.74	0.84	n.a.	n.a.	0.83	0.868	n.a.	n.a.	n.a.	n.a.	0.00	0.00
58.230	6.060	0.329	7037.6	4028.0	1.262	12.951	4.10		Clay	100.0			5.73	0.84	n.a.	n.a.	0.83	0.867	n.a.	n.a.	n.a.	n.a.	0.00	0.00
58.400	6.030	0.337	7058.0	4037.8	1.239	13.479	4.11		Clay	100.0			5.70	0.84	n.a.	n.a.	0.83	0.867	n.a.	n.a.	n.a.	n.a.	0.00	0.00
58.560	6.020	0.335	7077.2	4047.1	1.226	13.488	4.12		Clay	100.0			5.69	0.84	n.a.	n.a.	0.83	0.867	n.a.	n.a.	n.a.	n.a.	0.00	0.00
58.730	8.810	0.346	7097.6	4056.8	2.594	6.580	3.67		Clay	100.0			6.33	0.84	n.a.	n.a.	0.83	0.866	n.a.	n.a.	n.a.	n.a.	0.00	0.00
58.890	8.920	0.353	7116.8	4066.1	2.637	6.584	3.67		Clay	100.0			8.43	0.84	n.a.	n.a.	0.83	0.866	n.a.	n.a.	n.a.	n.a.	0.00	0.00
59.060	9.030	0.349	7137.2	4075.9	2.680	6.381	3.65		Clay	100.0			8.53	0.84	n.a.	n.a.	0.83	0.866	n.a.	n.a.	n.a.	n.a.	0.00	0.00
59.220	9.010	0.332	7156.4	4085.1	2.659	6.116	3.65		Clay	100.0			8.52	0.84	n.a.	n.a.	0.83	0.865	n.a.	n.a.	n.a.	n.a.	0.00	0.00
59.380	9.060	0.340	7175.6	4094.3	2.673	6.221	3.65		Clay	100.0			8.56	0.84	n.a.	n.a.	0.83	0.865	n.a.	n.a.	n.a.	n.a.	0.00	0.00
59.550	9.280	0.346	7196.0	4104.1	2.769	6.082	3.63		Clay	100.0			8.77	0.84	n.a.	n.a.	0.83	0.864	n.a.	n.a.	n.a.	n.a.	0.00	0.00
59.710	9.600	0.362	7215.2	4113.3	2.914	6.033	3.61		Clay	100.0			9.07	0.84	n.a.	n.a.	0.83	0.864	n.a.	n.a.	n.a.	n.a.	0.00	0.00
59.880	9.500	0.355	7235.6	4123.1	2.853	6.039	3.62		Clay	100.0			8.98	0.84	n.a.	n.a.	0.83	0.864	n.a.	n.a.	n.a.	n.a.	0.00	0.00
60.040	10.100	0.366	7254.8	4132.3	3.133	5.647	3.57		Clay	100.0			9.55	0.84	n.a.	n.a.	0.83	0.863	n.a.	n.a.	n.a.	n.a.	0.00	0.00
60.200	10.370	0.401	7274.0	4141.5	3.251	5.950	3.57		Clay	100.0			9.80	0.84	n.a.	n.a.	0.82	0.863	n.a.	n.a.	n.a.	n.a.	0.00	0.00
60.370	11.590	0.416	7294.4	4151.3	3.827	5.240	3.48		Clay	100.0			10.95	0.84	n.a.	n.a.	0.82	0.863	n.a.	n.a.	n.a.	n.a.	0.00	0.00
60.530	11.980	0.469	7313.6	4160.5	4.001	5.640	3.48		Clay	100.0			11.32	0.84	n.a.	n.a.	0.82	0.862	n.a.	n.a.	n.a.	n.a.	0.00	0.00
60.700	12.430	0.486	7334.0	4170.3	4.203	5.544	3.46		Clay	100.0			11.75	0.84	n.a.	n.a.	0.82	0.862	n.a.	n.a.	n.a.	n.a.	0.00	0.00
60.860	12.750	0.475	7353.2	4179.5	4.342	5.230	3.43		Clay	100.0			12.05	0.84	n.a.	n.a.	0.82	0.861	n.a.	n.a.	n.a.	n.a.	0.00	0.00
61.020	12.080	0.536	7372.4	4188.8	4.008	6.389	3.51		Clay	100.0			11.42	0.84	n.a.	n.a.	0.82	0.861	n.a.	n.a.	n.a.	n.a.	0.00	0.00
61.190	12.100	0.581	7392.8	4198.5	4.003	6.911	3.53		Clay	100.0			11.44	0.83	n.a.	n.a.	0.82	0.861	n.a.	n.a.	n.a.	n.a.	0.00	0.00
61.350	12.420	0.662	7412.0	4207.8	4.142	7.592	3.54		Clay	100.0			11.74	0.83	n.a.	n.a.	0.82	0.860	n.a.	n.a.	n.a.	n.a.	0.00	0.00
61.520	13.260	0.637	7432.4	4217.6	4.526	6.673	3.48		Clay	100.0			12.53	0.83	n.a.	n.a.	0.82	0.860	n.a.	n.a.	n.a.	n.a.	0.00	0.00
61.680	13.170	0.662	7451.6	4226.8	4.469	7.011	3.50		Clay	100.0			12.45	0.83	n.a.	n.a.	0.82	0.859	n.a.	n.a.	n.a.	n.a.	0.00	0.00
61.840	13.170	0.645	7470.8	4236.0	4.455	6.833	3.49		Clay	100.0			12.45	0.83	n.a.	n.a.	0.82	0.859	n.a.	n.a.	n.a.	n.a.	0.00	0.00
62.010	13.450	0.686	7491.2	4245.8	4.571	7.068	3.49		Clay	100.0			12.71	0.83	n.a.	n.a.	0.82	0.859	n.a.	n.a.	n.a.	n.a.	0.00	0.00
62.170	13.440	0.694	7510.4	4255.0	4.552	7.164	3.49		Clay	100.0			12.70	0.83	n.a.	n.a.	0.82	0.858	n.a.	n.a.	n.a.	n.a.	0.00	0.00
62.340	13.660	0.720	7530.8	4264.8	4.640	7.273	3.49		Clay	100.0			12.91	0.83	n.a.	n.a.	0.82	0.858	n.a.	n.a.	n.a.	n.a.	0.00	0.00
62.500	13.610	0.754	7550.0	4274.0	4.602	7.662	3.51		Clay	100.0			12.86	0.83	n.a.	n.a.	0.82	0.858	n.a.	n.a.	n.a.	n.a.	0.00	0.00
62.660	14.200	0.791	7569.2	4283.2	4.863	7.595	3.49		Clay	100.0			13.42	0.83	n.a.	n.a.	0.82	0.857	n.a.	n.a.	n.a.	n.a.	0.00	0.00
62.830	14.300	0.790	7589.6	4293.0	4.894	7.524	3.48		Clay	100.0			13.52	0.83	n.a.	n.a.	0.81	0.857	n.a.	n.a.	n.a.	n.a.	0.00	0.00
62.990	14.570	0.777	7608.8	4302.2	5.005																			

CPT No.

2

PGA (A_{max})

0.87

Total Settlement:

0.03

(Inches)

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Depth (ft)	q _c (tsf)	f _s (tsf)	σ _{vc} (psf)	Insitu σ' _{vc} (psf)	Q	F (%)	I _c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q _{cN} near interfaces (soft layer)	Thin Layer Factor (K _{tN})	Interpreted q _{cN}	C _N	q _{c1N}	q _{c1N-CS}	Stress Reduction Coeff, r _d	CSR	K _σ for Sand	CRR _{M=7.5} , σ'vc = 1 atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε _v	Settlement (Inches)
66.110	13.740	0.417	7983.2	4481.9	4.350	4.280	3.38		Clay	100.0			12.99	0.82	n.a.	n.a.	0.80	0.849	n.a.	n.a.	n.a.	n.a.	0.00	0.00
66.270	15.410	0.509	8002.4	4491.2	5.081	4.458	3.34		Clay	100.0			14.57	0.82	n.a.	n.a.	0.80	0.848	n.a.	n.a.	n.a.	n.a.	0.00	0.00
66.440	16.080	0.583	8022.8	4500.9	5.363	4.832	3.34		Clay	100.0			15.20	0.82	n.a.	n.a.	0.80	0.848	n.a.	n.a.	n.a.	n.a.	0.00	0.00
66.600	16.770	0.621	8042.0	4510.2	5.653	4.870	3.32		Clay	100.0			15.85	0.82	n.a.	n.a.	0.80	0.847	n.a.	n.a.	n.a.	n.a.	0.00	0.00
66.770	18.350	0.716	8062.4	4520.0	6.336	5.000	3.29		Clay	100.0			17.34	0.82	n.a.	n.a.	0.80	0.847	n.a.	n.a.	n.a.	n.a.	0.00	0.00
66.930	19.470	0.804	8081.6	4529.2	6.813	5.209	3.27		Clay	100.0			18.40	0.82	n.a.	n.a.	0.80	0.846	n.a.	n.a.	n.a.	n.a.	0.00	0.00
67.090	20.140	0.848	8100.8	4538.4	7.090	5.269	3.26		Clay	100.0			19.04	0.82	n.a.	n.a.	0.80	0.846	n.a.	n.a.	n.a.	n.a.	0.00	0.00
67.260	21.140	0.877	8121.2	4548.2	7.510	5.132	3.23		Clay	100.0			19.98	0.82	n.a.	n.a.	0.80	0.846	n.a.	n.a.	n.a.	n.a.	0.00	0.00
67.420	22.810	0.942	8140.4	4557.4	8.224	5.027	3.20		Clay	100.0			21.56	0.82	n.a.	n.a.	0.80	0.845	n.a.	n.a.	n.a.	n.a.	0.00	0.00
67.590	23.710	0.945	8160.8	4567.2	8.596	4.816	3.17		Clay	100.0			22.41	0.82	n.a.	n.a.	0.80	0.845	n.a.	n.a.	n.a.	n.a.	0.00	0.00
67.750	23.040	0.961	8180.0	4576.4	8.282	5.073	3.20		Clay	100.0			21.78	0.82	n.a.	n.a.	0.80	0.844	n.a.	n.a.	n.a.	n.a.	0.00	0.00
67.910	21.980	0.938	8199.2	4585.6	7.798	5.245	3.23		Clay	100.0			20.78	0.82	n.a.	n.a.	0.80	0.844	n.a.	n.a.	n.a.	n.a.	0.00	0.00
68.080	21.000	0.932	8219.6	4595.4	7.351	5.519	3.26		Clay	100.0			19.85	0.81	n.a.	n.a.	0.80	0.844	n.a.	n.a.	n.a.	n.a.	0.00	0.00
68.240	20.850	0.965	8238.8	4604.6	7.267	5.768	3.28		Clay	100.0			19.71	0.81	n.a.	n.a.	0.80	0.843	n.a.	n.a.	n.a.	n.a.	0.00	0.00
68.410	20.340	0.995	8259.2	4614.4	7.026	6.139	3.30		Clay	100.0			19.22	0.81	n.a.	n.a.	0.79	0.843	n.a.	n.a.	n.a.	n.a.	0.00	0.00
68.570	20.820	1.059	8278.4	4623.6	7.215	6.350	3.30		Clay	100.0			19.68	0.81	n.a.	n.a.	0.79	0.842	n.a.	n.a.	n.a.	n.a.	0.00	0.00
68.730	20.810	0.996	8297.6	4632.8	7.193	5.977	3.29		Clay	100.0			19.67	0.81	n.a.	n.a.	0.79	0.842	n.a.	n.a.	n.a.	n.a.	0.00	0.00
68.900	22.570	0.993	8318.0	4642.6	7.931	5.392	3.23		Clay	100.0			21.33	0.81	n.a.	n.a.	0.79	0.841	n.a.	n.a.	n.a.	n.a.	0.00	0.00
69.060	23.200	1.451	8337.2	4651.9	8.182	7.622	3.31		Clay	100.0			21.93	0.81	n.a.	n.a.	0.79	0.841	n.a.	n.a.	n.a.	n.a.	0.00	0.00
69.230	25.860	3.159	8357.6	4661.6	9.302	14.571	3.46		Clay	100.0			24.44	0.81	n.a.	n.a.	0.79	0.841	n.a.	n.a.	n.a.	n.a.	0.00	0.00
69.390	68.130	4.299	8376.8	4670.9	27.379	6.723	2.89		Clay	93.8			64.40	0.81	n.a.	n.a.	0.79	0.840	n.a.	n.a.	n.a.	n.a.	0.00	0.00
69.550	129.520	4.923	8396.0	4680.1	79.648	3.928	2.40		Sand	54.9			122.42	0.74	90.30	162.41	0.79	0.840	0.858	0.398	0.623	0.74	0.01	0.00
69.720	97.800	3.772	8416.4	4689.9	39.912	4.030	2.61		Clay	72.0			92.44	0.81	n.a.	n.a.	0.79	0.839	n.a.	n.a.	n.a.	n.a.	0.00	0.00
69.880	75.060	3.384	8435.6	4699.1	30.151	4.777	2.75		Clay	83.1			70.95	0.81	n.a.	n.a.	0.79	0.839	n.a.	n.a.	n.a.	n.a.	0.00	0.00
70.050	91.460	2.998	8456.0	4708.9	55.270	3.437	2.46		Sand	60.1			86.45	0.70	60.57	126.28	0.79	0.838	0.895	0.187	0.240	0.29	0.03	0.00
70.210	73.560	2.674	8475.2	4718.1	29.386	3.857	2.70		Clay	78.7			69.53	0.81	n.a.	n.a.	0.79	0.838	n.a.	n.a.	n.a.	n.a.	0.00	0.00
70.370	59.620	2.452	8494.4	4727.3	23.427	4.427	2.81		Clay	87.8			56.35	0.81	n.a.	n.a.	0.79	0.838	n.a.	n.a.	n.a.	n.a.	0.00	0.00
70.540	101.090	2.013	8514.8	4737.1	61.170	2.079	2.28		Sand	45.4	370.38		370.38	0.81	299.44	420.25	0.79	0.837	0.758	#####	#####	#####	0.00	0.00
70.700	147.940	2.178	8534.0	4746.3	90.671	1.516	2.06		Sand	27.9	370.38		370.38	0.81	299.29	390.08	0.79	0.837	0.758	#####	#####	#####	0.00	0.00
70.870	179.550	3.407	8554.4	4756.1	110.500	1.944	2.08		Sand	29.1	370.38		370.38	0.81	299.12	392.93	0.79	0.836	0.757	#####	#####	#####	0.00	0.00
71.030	199.560	2.810	8573.6	4765.3	122.990	1.439	1.95		Sand	19.0	370.38		370.38	0.81	298.97	358.65	0.79	0.836	0.756	#####	#####	#####	0.00	0.00
71.190	226.700	3.164	8592.8	4774.5	139.942	1.422	1.91		Sand	15.6	370.38		370.38	0.81	298.82	341.76	0.78	0.835	0.756	#####	#####	#####	0.00	0.00
71.360	296.950	3.541	8613.2	4784.3	183.950	1.210	1.77		Sand	5.0	370.38		370.38	0.81	298.66	298.92	0.78	0.835	0.755	#####	#####	769476.47	0.00	0.00
71.520	344.490	6.062	8632.4	4793.6	213.621	1.782	1.86		Sand	11.9	370.38		370.38	0.81	298.51	321.40	0.78	0.834	0.755	#####	#####	#####	0.00	0.00
71.690	391.860	5.120	8652.8	4803.3	243.114	1.321	1.72		Sand	1.0	370.38		370.38	0.81	298.35	298.35	0.78	0.834	0.754	#####	#####	679681.99	0.00	0.00
71.850	398.510	5.020	8672.0	4812.6	247.043	1.274	1.71		Sand	0.0			376.66	0.81	303.25	303.25	0.78	0.834	0.753	#####	#####	1996386.53	0.00	0.00
72.010	362.990	4.880	8691.2	4821.8	224.560	1.361	1.76		Sand	3.5			343.09	0.80	276.08	276.09	0.78	0.833	0.753	5136.141	8507.578	10211.06	0.00	0.00
72.180	303.580	5.727	8711.6	4831.6	187.165	1.914	1.92		Sand	16.7			286.94	0.80	230.77	272.31	0.78	0.833	0.752	2791.134	4619.537	5547.53	0.00	0.00
72.340	233.830	6.027	8730.8	4840.8	143.394	2.627	2.10		Sand	31.1			221.01	0.80	177.00	249.96	0.78	0.832	0.752	129.590	214.317	257.50	0.00	0.00
72.510	144.080	5.030	8751.2	4850.6	87.214	3.600	2.34		Sand	50.5			136.18	0.74	100.44	173.32	0.78	0.832	0.836	0.564	0.935	1.12	0.01	0.00
72.670	107.580	4.553	8770.4	4859.8	42.469	4.412	2.62		Clay	72.7			101.68	0.80	n.a.	n.a.	0.78	0.831	n.a.	n.a.	n.a.	n.a.	0.00	0.00
72.830	109.800	4.225	8789.6	4869.0	65.677	4.009	2.46		Sand	59.8			103.78	0.71	73.40	142.65	0.78	0.831	0.875	0.247	0.343	0.41	0.02	0.00
73.000	113.160	3.386	8810.0	4878.8	67.696	3.113	2.37		Sand	52.7			106.96	0.71	75.60	142.83	0.78	0.831	0.874	0.248	0.344	0.41	0.02	0.00
73.160	93.460	2.515	8829.2	4888.0	55.375	2.824	2.40		Sand	55.2			88.34	0.69	60.74	124.91	0.78	0.830	0.892	0.183	0.232	0.28	0.03	0.00
73.330	128.670	1.846	8849.6	4897.8	77.188	1.486	2.11		Sand	31.6			121.62	0.70	85.49	140.07	0.78	0.830	0.877	0.235	0.321	0.39	0.02	0.00
73.490	174.360	2.426	8868.8	4907.0	105.468	1.428	2.00		Sand	22.7			164.80	0.73	119.95	166.15	0.78	0.829	0.844	0.445	0.70			

CPT No.

2

PGA (A_{max})

0.87

Total Settlement:

0.03

(Inches)

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Depth (ft)	q _c (tsf)	f _s (tsf)	σ _{vc} (psf)	Insitu σ'vc (psf)	Q	F (%)	I _c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q _c N near interfaces (soft layer)	Thin Layer Factor (K _u)	Interpreted q _c N	C _N	q _{c1} N	q _{c1} N-CS	Stress Reduction Coeff, r _d	CSR	K _σ for Sand	CRRM=7.5, σ'vc = 1 atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε _v	Settlement (Inches)
77.100	314.510	4.622	9302.0	5115.0	188.371	1.492	1.84		Sand	9.9			297.27	0.78	233.20	244.11	0.76	0.820	0.735	66.613	107.743	131.47	0.00	0.00
77.260	297.510	4.477	9321.2	5124.2	177.871	1.529	1.86		Sand	11.8			281.20	0.78	219.05	237.76	0.76	0.819	0.735	34.254	55.363	67.59	0.00	0.00
77.430	293.410	4.384	9341.6	5134.0	175.207	1.518	1.86		Sand	12.0			277.33	0.78	215.16	234.41	0.76	0.819	0.734	24.680	39.859	48.69	0.00	0.00
77.590	275.470	3.899	9360.8	5143.2	164.168	1.440	1.86		Sand	12.1			260.37	0.76	198.16	217.10	0.76	0.818	0.734	5.729	9.245	11.30	0.00	0.00
77.760	297.140	3.794	9381.2	5153.0	177.131	1.297	1.81		Sand	7.7			280.85	0.76	213.63	217.16	0.76	0.818	0.733	5.754	9.279	11.35	0.00	0.00
77.920	290.900	3.723	9400.4	5162.2	173.191	1.301	1.82		Sand	8.3			274.95	0.76	208.07	213.04	0.76	0.817	0.732	4.283	6.902	8.44	0.00	0.00
78.080	319.940	3.723	9419.6	5171.4	190.588	1.181	1.76		Sand	3.5			302.40	0.77	234.04	234.05	0.76	0.817	0.732	23.844	38.393	47.00	0.00	0.00
78.250	318.180	2.813	9440.0	5181.2	189.339	0.897	1.67		Sand	0.0			300.74	0.77	232.16	232.16	0.76	0.816	0.731	19.974	32.138	39.36	0.00	0.00
78.410	327.290	3.137	9459.2	5190.4	194.662	0.972	1.69		Sand	0.0			309.35	0.78	240.89	240.89	0.76	0.816	0.731	47.207	75.898	93.01	0.00	0.00
78.580	339.710	3.136	9479.6	5200.2	201.961	0.936	1.67		Sand	0.0			321.09	0.79	253.03	253.03	0.76	0.816	0.730	187.865	301.814	370.06	0.00	0.00
78.740	361.570	3.730	9498.8	5209.4	214.945	1.045	1.68		Sand	0.0			341.75	0.79	269.45	269.45	0.76	0.815	0.730	1792.317	2877.347	3529.79	0.00	0.00
78.900	352.040	3.367	9518.0	5218.6	209.014	0.970	1.67		Sand	0.0			332.74	0.79	262.23	262.23	0.76	0.815	0.729	626.612	1005.219	1233.80	0.00	0.00
79.070	346.090	3.178	9538.4	5228.4	205.234	0.931	1.66		Sand	0.0			327.12	0.79	257.67	257.67	0.76	0.814	0.729	338.663	542.868	666.68	0.00	0.00
79.230	343.570	2.815	9557.6	5237.6	203.534	0.831	1.63		Sand	0.0			324.74	0.79	256.67	255.67	0.76	0.814	0.728	261.641	419.100	514.96	0.00	0.00
79.400	336.990	2.928	9578.0	5247.4	199.388	0.881	1.65		Sand	0.0			318.52	0.78	249.50	249.50	0.76	0.813	0.728	122.824	196.590	241.69	0.00	0.00
79.560	341.310	2.668	9597.2	5256.7	201.798	0.793	1.62		Sand	0.0			322.60	0.79	253.66	253.66	0.76	0.813	0.727	203.050	324.762	399.47	0.00	0.00
79.720	343.470	2.617	9616.4	5265.9	202.910	0.773	1.61		Sand	0.0			324.64	0.79	255.24	255.24	0.76	0.813	0.726	247.498	395.567	486.82	0.00	0.00
79.890	313.220	2.859	9636.8	5275.7	184.608	0.927	1.69		Sand	0.0			296.05	0.76	225.75	225.75	0.75	0.812	0.726	11.344	18.117	22.31	0.00	0.00
80.050	284.690	3.032	9656.0	5284.9	167.378	1.083	1.77		Sand	4.5			269.08	0.74	198.73	198.82	0.75	0.812	0.763	1.769	2.968	3.66	0.00	0.00
80.220	252.760	3.516	9676.4	5294.7	148.138	1.418	1.89		Sand	14.2			238.90	0.74	177.35	203.52	0.75	0.811	0.749	2.318	3.818	4.71	0.00	0.00
80.380	252.950	3.791	9695.6	5303.9	148.117	1.528	1.91		Sand	16.0			239.08	0.75	179.45	213.29	0.75	0.811	0.724	4.358	6.945	8.57	0.00	0.00
80.540	272.480	3.135	9714.8	5313.1	159.632	1.171	1.81		Sand	7.6			257.54	0.73	188.07	191.18	0.75	0.810	0.781	1.190	2.045	2.52	0.00	0.00
80.710	317.220	3.034	9735.2	5322.9	186.141	0.971	1.70		Sand	0.0			299.83	0.76	228.81	228.81	0.75	0.810	0.723	14.766	23.495	29.01	0.00	0.00
80.870	304.750	2.094	9754.4	5332.1	178.550	0.698	1.62		Sand	0.0			288.04	0.75	216.70	216.70	0.75	0.809	0.723	5.562	8.843	10.92	0.00	0.00
81.040	284.360	2.473	9774.8	5341.9	166.251	0.885	1.71		Sand	0.0			268.77	0.73	197.47	197.47	0.75	0.809	0.764	1.643	2.761	3.41	0.00	0.00
81.200	217.380	2.533	9794.0	5351.1	126.291	1.192	1.89		Sand	13.8			205.46	0.71	145.01	167.51	0.75	0.809	0.826	0.464	0.727	0.90	0.01	0.00
81.360	187.240	3.326	9813.2	5360.3	108.279	1.824	2.06		Sand	28.0			176.98	0.72	128.00	186.05	0.75	0.808	0.791	0.937	1.626	2.01	0.00	0.00
81.530	179.120	3.435	9833.6	5370.1	103.356	1.972	2.10		Sand	31.1			169.30	0.72	121.96	183.49	0.75	0.808	0.796	0.839	1.434	1.78	0.00	0.00
81.690	238.010	4.313	9852.8	5379.3	138.172	1.850	1.99		Sand	22.6			224.96	0.76	170.25	224.18	0.75	0.807	0.720	9.957	15.774	19.54	0.00	0.00
81.860	269.990	4.612	9873.2	5389.1	156.981	1.740	1.94		Sand	18.1			255.19	0.77	196.37	239.59	0.75	0.807	0.720	41.237	65.277	80.90	0.00	0.00
82.020	227.680	4.860	9892.4	5398.4	131.804	2.182	2.06		Sand	28.0			215.20	0.76	163.45	228.28	0.75	0.806	0.719	14.091	22.290	27.64	0.00	0.00
82.190	198.870	4.883	9912.8	5408.1	114.645	2.518	2.15		Sand	34.9			187.97	0.74	139.67	209.98	0.75	0.806	0.722	3.479	5.524	6.85	0.00	0.00
82.350	216.860	4.905	9932.0	5417.4	125.169	2.315	2.10		Sand	30.7	204.97		204.97	0.75	154.43	222.16	0.75	0.806	0.718	8.448	13.344	16.56	0.00	0.00
82.510	196.380	4.867	9951.2	5426.6	112.969	2.543	2.16		Sand	35.5	204.97		204.97	0.76	155.83	230.49	0.75	0.805	0.717	17.149	27.068	33.62	0.00	0.00
82.680	163.050	3.219	9971.6	5436.4	93.208	2.036	2.14		Sand	34.4	204.97		204.97	0.76	155.41	228.57	0.75	0.805	0.717	14.455	22.799	28.33	0.00	0.00
82.840	81.660	2.327	9990.8	5445.6	28.157	3.035	2.64		Clay	74.4			77.18	0.78	n.a.	n.a.	0.75	0.804	n.a.	n.a.	n.a.	n.a.	0.00	0.00
83.010	40.540	1.296	10011.2	5455.4	13.027	3.647	2.95		Clay	99.3			38.32	0.78	n.a.	n.a.	0.74	0.804	n.a.	n.a.	n.a.	n.a.	0.00	0.00
83.170	37.180	1.179	10030.4	5464.6	11.772	3.665	2.99		Clay	100.0			35.14	0.78	n.a.	n.a.	0.74	0.803	n.a.	n.a.	n.a.	n.a.	0.00	0.00
83.330	38.290	1.009	10049.6	5473.8	12.154	3.034	2.93		Clay	97.4			36.19	0.78	n.a.	n.a.	0.74	0.803	n.a.	n.a.	n.a.	n.a.	0.00	0.00
83.500	31.000	1.061	10070.0	5483.6	9.470	4.087	3.09		Clay	100.0			29.30	0.78	n.a.	n.a.	0.74	0.803	n.a.	n.a.	n.a.	n.a.	0.00	0.00
83.660	26.500	1.110	10089.2	5492.8	7.812	5.173	3.22		Clay	100.0			25.05	0.78	n.a.	n.a.	0.74	0.802	n.a.	n.a.	n.a.	n.a.	0.00	0.00
83.830	29.560	1.451	10109.6	5502.6	8.907	5.920	3.21		Clay	100.0			27.94	0.78	n.a.	n.a.	0.74	0.802	n.a.	n.a.	n.a.	n.a.	0.00	0.00
83.990	42.800	2.216	10128.8	5511.8	13.693	5.872	3.07		Clay	100.0			40.45	0.78	n.a.	n.a.	0.74	0.801	n.a.	n.a.	n.a.	n.a.	0.00	0.00
84.150	56.250	3.300	10148.0	5521.0	18.539	6.449																		

CPT No.

2

PGA (A_{max})

0.87

Total Settlement:

0.03

(Inches)

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Depth (ft)	q _c (tsf)	f _s (tsf)	σ _{vc} (psf)	Insitu σ' _{vc} (psf)	Q	F (%)	I _c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q _c N near interfaces (soft layer)	Thin Layer Factor (K _t)	Interpreted q _c N	C _N	q _c 1N	q _c 1N-CS	Stress Reduction Coeff, r _d	CSR	K _σ for Sand	CRR _{M=7.5} , σ'vc = 1 atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε _v	Settlement (Inches)
88.090	349.470	3.704	10620.8	5748.0	197.367	1.076	1.72		Sand	0.3			330.31	0.77	253.67	253.67	0.73	0.791	0.700	203.218	313.047	395.82	0.00	0.00
88.250	367.890	4.446	10640.0	5757.2	207.758	1.226	1.74		Sand	2.5			347.72	0.77	267.02	267.02	0.73	0.790	0.700	1245.741	1917.682	2425.98	0.00	0.00
88.420	382.040	4.364	10660.4	5767.0	215.677	1.158	1.71		Sand	0.2			361.10	0.77	277.17	277.17	0.73	0.790	0.699	6143.029	9449.630	11960.70	0.00	0.00
88.580	385.080	4.413	10679.6	5776.2	217.239	1.162	1.71		Sand	0.1			363.97	0.77	279.26	279.26	0.73	0.790	0.699	8747.763	13447.192	17029.10	0.00	0.00
88.750	382.910	4.394	10700.0	5786.0	215.809	1.164	1.72		Sand	0.3			361.92	0.77	277.56	277.56	0.73	0.789	0.698	6558.065	10073.824	12763.97	0.00	0.00
88.910	373.260	4.273	10719.2	5795.2	210.120	1.162	1.72		Sand	0.8			352.80	0.77	270.45	270.45	0.73	0.789	0.698	2088.925	3206.597	4064.93	0.00	0.00
89.070	377.060	2.976	10738.4	5804.4	212.116	0.801	1.60		Sand	0.0			356.39	0.77	273.09	273.09	0.73	0.788	0.697	3157.591	4843.738	6143.37	0.00	0.00
89.240	445.080	3.065	10758.8	5814.2	250.717	0.697	1.51		Sand	0.0			420.68	0.77	322.21	322.21	0.73	0.788	0.697	#####	#####	#####	0.00	0.00
89.400	545.890	3.023	10778.0	5823.4	307.949	0.559	1.38		Sand	0.0			515.96	0.77	395.03	395.03	0.73	0.788	0.696	#####	#####	#####	0.00	0.00
89.570	586.050	3.717	10798.4	5833.2	330.547	0.640	1.40		Sand	0.0			553.92	0.77	423.90	423.90	0.72	0.787	0.696	#####	#####	#####	0.00	0.00
89.730	603.420	3.360	10817.6	5842.4	340.161	0.562	1.35		Sand	0.0			570.34	0.76	436.28	436.28	0.72	0.787	0.695	#####	#####	#####	0.00	0.00
89.900	600.080	3.148	10838.0	5852.2	337.972	0.529	1.33		Sand	0.0			567.18	0.76	433.67	433.67	0.72	0.786	0.695	#####	#####	#####	0.00	0.00
90.060	589.450	3.518	10857.2	5861.5	331.664	0.602	1.38		Sand	0.0			557.14	0.76	425.82	425.82	0.72	0.786	0.694	#####	#####	#####	0.00	0.00
90.220	574.040	3.590	10876.4	5870.7	322.654	0.631	1.40		Sand	0.0			542.57	0.76	414.51	414.51	0.72	0.786	0.694	#####	#####	#####	0.00	0.00
90.390	539.360	3.942	10896.8	5880.5	302.716	0.738	1.47		Sand	0.0			509.79	0.76	389.30	389.30	0.72	0.785	0.693	#####	#####	#####	0.00	0.00
90.550	529.490	4.455	10916.0	5889.7	296.882	0.850	1.52		Sand	0.0			500.46	0.76	382.02	382.02	0.72	0.785	0.693	#####	#####	#####	0.00	0.00
90.720	473.480	4.782	10936.4	5899.5	264.925	1.022	1.61		Sand	0.0			447.52	0.76	341.46	341.46	0.72	0.784	0.692	#####	#####	#####	0.00	0.00
90.880	393.030	3.213	10955.6	5908.7	219.208	0.829	1.60		Sand	0.0			371.48	0.76	283.32	283.32	0.72	0.784	0.692	17864.283	27193.877	34683.89	0.00	0.00
91.040	329.860	4.090	10974.8	5917.9	183.330	1.261	1.79		Sand	6.1			311.78	0.74	231.79	232.81	0.72	0.784	0.691	21.231	32.296	41.21	0.00	0.00
91.210	305.930	6.402	10995.2	5927.7	169.659	2.131	1.98		Sand	21.7			289.16	0.76	220.35	279.44	0.72	0.783	0.691	9026.267	13721.087	17517.95	0.00	0.00
91.370	337.900	5.686	11014.4	5936.9	187.561	1.711	1.88		Sand	13.6			319.38	0.76	243.28	271.74	0.72	0.783	0.691	2549.991	3873.700	4948.03	0.00	0.00
91.540	347.490	5.218	11034.8	5946.7	192.808	1.526	1.84		Sand	9.9			328.44	0.76	250.07	261.75	0.72	0.782	0.690	586.301	890.014	1137.44	0.00	0.00
91.700	425.270	4.395	11054.0	5955.9	236.473	1.047	1.66		Sand	0.0			401.96	0.76	305.92	305.92	0.72	0.782	0.690	#####	#####	3585373.46	0.00	0.00
91.860	474.720	3.966	11073.2	5965.1	264.122	0.845	1.55		Sand	0.0			448.70	0.76	341.35	341.35	0.72	0.782	0.689	#####	#####	#####	0.00	0.00
92.030	472.600	4.043	11093.6	5974.9	262.707	0.866	1.56		Sand	0.0			446.69	0.76	339.68	339.68	0.72	0.781	0.689	#####	#####	#####	0.00	0.00
92.190	465.270	5.225	11112.8	5984.1	258.380	1.137	1.66		Sand	0.0			439.76	0.76	334.28	334.28	0.72	0.781	0.688	#####	#####	#####	0.00	0.00
92.360	463.590	5.444	11133.2	5993.9	257.219	1.189	1.67		Sand	0.0			438.18	0.76	332.93	332.93	0.72	0.781	0.688	#####	#####	#####	0.00	0.00
92.520	472.580	5.367	11152.4	6003.2	262.061	1.149	1.66		Sand	0.0			446.67	0.76	339.24	339.24	0.72	0.780	0.687	#####	#####	#####	0.00	0.00
92.680	424.090	4.268	11171.6	6012.4	234.665	1.020	1.65		Sand	0.0			400.84	0.76	304.31	304.31	0.72	0.780	0.687	#####	#####	2473722.46	0.00	0.00
92.850	402.490	3.289	11192.0	6022.2	222.367	0.829	1.60		Sand	0.0			380.43	0.76	288.69	288.69	0.72	0.779	0.686	48386.504	73048.806	93725.55	0.00	0.00
93.010	395.370	4.032	11211.2	6031.4	218.206	1.034	1.67		Sand	0.0			373.70	0.76	283.47	283.47	0.72	0.779	0.686	18339.141	27667.978	35516.45	0.00	0.00
93.180	411.350	4.181	11231.6	6041.2	226.962	1.031	1.66		Sand	0.0			388.80	0.76	294.80	294.80	0.71	0.779	0.685	#####	#####	314794.01	0.00	0.00
93.340	421.310	3.893	11250.8	6050.4	232.351	0.936	1.62		Sand	0.0			398.21	0.76	301.82	301.82	0.71	0.778	0.685	#####	#####	1408880.02	0.00	0.00
93.500	363.520	2.973	11270.0	6059.6	199.891	0.831	1.63		Sand	0.0			343.59	0.76	260.31	260.31	0.71	0.778	0.684	481.816	725.423	932.56	0.00	0.00
93.670	321.350	2.842	11290.4	6069.4	176.190	0.900	1.70		Sand	0.0			303.73	0.73	220.74	220.74	0.71	0.777	0.684	7.553	11.364	14.62	0.00	0.00
93.830	297.170	2.741	11309.6	6078.6	162.567	0.940	1.73		Sand	1.8			280.88	0.70	197.76	197.76	0.71	0.777	0.730	1.669	2.680	3.45	0.00	0.00
94.000	289.670	2.279	11330.0	6088.4	158.251	0.802	1.70		Sand	0.0			273.79	0.70	190.73	190.73	0.71	0.777	0.750	1.164	1.920	2.47	0.00	0.00
94.160	295.810	2.405	11349.2	6097.6	161.545	0.829	1.70		Sand	0.0			279.59	0.70	196.22	196.22	0.71	0.776	0.734	1.537	2.481	3.20	0.00	0.00
94.320	315.170	1.969	11368.4	6106.8	172.189	0.636	1.60		Sand	0.0			297.89	0.72	214.23	214.23	0.71	0.776	0.682	4.655	6.985	9.00	0.00	0.00
94.490	325.330	2.159	11388.8	6116.6	177.693	0.675	1.61		Sand	0.0			307.50	0.73	223.86	223.86	0.71	0.776	0.682	9.696	14.539	18.74	0.00	0.00
94.650	309.570	2.135	11408.0	6125.8	168.800	0.703	1.64		Sand	0.0			292.60	0.71	208.63	208.63	0.71	0.775	0.690	3.185	4.835	6.24	0.00	0.00
94.820	301.030	1.909	11428.4	6135.6	163.919	0.646	1.62		Sand	0.0			284.53	0.70	200.48	200.48	0.71	0.775	0.719	1.942	3.070	3.96	0.00	0.00
94.980	307.690	1.850	11447.6	6144.8	167.485	0.613	1.60		Sand	0.0			290.82	0.71	206.57	206.57	0.71	0.775	0.697	2.793	4.283	5.53	0.00	

CPT No.

2

PGA (A_{max})

0.87

Total Settlement:

0.03

(Inches)

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Depth (ft)	q_c (tsf)	f_s (tsf)	σ_{vc} (psf)	Insitu σ'_{vc} (psf)	Q	F (%)	I_c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q_{cN} near interfaces (soft layer)	Thin Layer Factor (K_{t1})	Interpreted q_{cN}	C_N	q_{c1N}	q_{c1N-CS}	Stress Reduction Coeff, r_d	CSR	K_{σ} for Sand	$CRR_{M=7.5}$ $\sigma'_{vc} = 1 \text{ atm}$	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ϵ_v	Settlement (Inches)
99.080	108.760	4.362	11939.6	6381.0	32.218	4.244	2.70		Clay	78.6			102.80	0.75	n.a.	n.a.	0.70	0.766	n.a.	n.a.	n.a.	n.a.	0.00	0.00
99.250	165.620	4.819	11960.0	6390.8	86.823	3.018	2.29		Sand	46.0	179.23		179.23	0.70	124.78	201.40	0.70	0.765	0.705	2.047	3.174	4.15	0.00	0.00
99.410	189.630	6.482	11979.2	6400.0	99.804	3.530	2.30		Sand	47.0			179.23	0.70	124.85	202.11	0.70	0.765	0.702	2.132	3.293	4.30	0.00	0.00
99.570	178.370	6.724	11998.4	6409.2	93.612	3.901	2.35		Sand	51.1	179.23		179.23	0.70	125.33	205.12	0.70	0.765	0.691	2.553	3.879	5.07	0.00	0.00
99.740	138.860	5.746	12018.8	6419.0	41.393	4.325	2.62		Clay	72.8			131.25	0.75	n.a.	n.a.	0.70	0.764	n.a.	n.a.	n.a.	n.a.	0.00	0.00
99.900	145.360	6.555	12038.0	6428.2	43.353	4.704	2.63		Clay	73.8			137.39	0.75	n.a.	n.a.	0.70	0.764	n.a.	n.a.	n.a.	n.a.	0.00	0.00
100.070	184.920	6.450	12058.4	6438.0	96.936	3.606	2.31		Sand	48.2			174.78	0.69	120.71	197.65	0.70	0.764	0.715	1.659	2.611	3.42	0.00	0.00

CPT No.

3

PGA (A_{max})

0.87

Total Settlement:

0.15 (Inches)

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Depth (ft)	q _c (tsf)	f _s (tsf)	σ _{vc} (psf)	In situ σ' _{vc} (psf)	Q	F (%)	I _c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q _{cN} near interfaces (soft layer)	Thin Layer Factor (K _{tN})	Interpreted q _{cN}	C _N	q _{c1N}	q _{c1N-CS}	Stress Reduction Coeff, r _d	CSR	K _σ for Sand	CRRM=7.5, σ'vc = 1 atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε _v	Settlement (Inches)
0.160	9.010	0.173	20.0	20.0	87.498	1.927	2.14		Unsaturated	34.6			8.52	1.70	14.48	56.45	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.330	18.500	0.203	41.3	41.3	125.097	1.097	1.86		Unsaturated	12.1			17.49	1.70	29.73	40.02	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.490	31.010	0.375	61.3	61.3	172.104	1.212	1.80		Unsaturated	6.6			29.31	1.70	49.83	50.73	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.660	45.290	0.426	82.5	82.5	216.597	0.942	1.65		Unsaturated	0.0			42.81	1.70	72.77	72.77	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.820	60.250	0.428	102.5	102.5	258.522	0.711	1.51		Unsaturated	0.0			56.95	1.70	96.81	96.81	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.980	52.590	0.626	122.5	122.5	206.348	1.192	1.74		Unsaturated	1.9			49.71	1.70	84.50	84.50	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.150	51.590	0.633	143.8	143.8	186.822	1.229	1.78		Unsaturated	5.0			48.76	1.70	82.90	83.04	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.310	104.480	0.952	163.8	163.8	354.711	0.912	1.50		Unsaturated	0.0			98.75	1.70	167.88	167.88	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.480	182.430	1.452	185.0	185.0	582.857	0.796	1.32		Unsaturated	0.0			172.43	1.70	293.13	293.13	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.640	215.720	1.359	205.0	205.0	654.756	0.630	1.21		Unsaturated	0.0			203.89	1.70	346.62	346.62	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.800	236.810	1.648	225.0	225.0	686.080	0.696	1.24		Unsaturated	0.0			223.83	1.70	380.51	380.51	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.970	264.610	2.572	246.3	246.3	732.805	0.972	1.35		Unsaturated	0.0			250.10	1.70	425.18	425.18	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.130	350.640	3.192	266.3	266.3	933.951	0.911	1.28		Unsaturated	0.0			331.42	1.70	563.41	563.41	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.300	412.740	2.898	287.5	287.5	1057.983	0.702	1.16		Unsaturated	0.0			390.11	1.69	660.53	660.53	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.460	418.470	3.130	307.5	307.5	1037.180	0.748	1.18		Unsaturated	0.0			395.53	1.66	657.92	657.92	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.620	371.350	2.807	327.5	327.5	891.781	0.756	1.22		Unsaturated	0.0			350.99	1.64	574.22	574.22	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.790	301.580	2.404	348.8	348.8	701.724	0.798	1.28		Unsaturated	0.0			285.05	1.61	458.66	458.66	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.950	220.200	2.859	368.8	368.8	498.149	1.299	1.54		Unsaturated	0.0			208.13	1.59	330.00	330.00	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.120	130.240	1.944	390.0	390.0	286.308	1.495	1.72		Unsaturated	0.9			123.10	1.70	209.27	209.27	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.280	79.170	2.030	410.0	410.0	169.557	2.571	2.05		Unsaturated	26.9			74.83	1.70	127.21	183.18	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.440	52.020	2.551	430.0	430.0	108.620	4.924	2.39		Unsaturated	54.2			49.17	1.70	83.59	153.61	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.610	71.300	2.238	451.3	451.3	145.471	3.148	2.16		Unsaturated	35.7			67.39	1.70	114.57	180.09	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.770	74.160	1.772	471.3	471.3	148.059	2.397	2.06		Unsaturated	27.9			70.09	1.70	119.16	175.32	1.00	0.565	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.940	62.700	1.683	492.5	492.5	122.357	2.694	2.15		Unsaturated	35.2			59.26	1.70	100.75	162.65	1.00	0.565	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.100	52.690	1.394	512.5	512.5	100.702	2.658	2.20		Unsaturated	39.3			49.80	1.70	84.66	146.48	1.00	0.565	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.270	55.960	1.528	533.8	533.8	104.811	2.743	2.20		Unsaturated	39.2			52.89	1.70	89.92	152.91	1.00	0.565	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.430	68.350	2.652	553.8	553.8	125.774	3.896	2.27		Unsaturated	44.7			64.60	1.63	105.13	175.84	1.00	0.565	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.590	100.060	3.148	573.8	573.8	181.102	3.155	2.10		Unsaturated	31.3			94.57	1.51	143.09	209.32	1.00	0.565	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.760	108.500	3.294	595.0	595.0	192.864	3.045	2.08		Unsaturated	29.0			102.55	1.48	151.72	216.10	1.00	0.564	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.920	82.160	2.717	615.0	615.0	143.505	3.319	2.18		Unsaturated	37.5			77.66	1.53	119.16	187.51	1.00	0.564	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.090	62.520	2.386	636.3	636.3	107.217	3.836	2.31		Unsaturated	47.6			59.09	1.58	93.56	163.10	1.00	0.564	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.250	59.600	2.034	656.3	656.3	100.597	3.432	2.29		Unsaturated	46.0			56.33	1.58	89.19	156.69	1.00	0.564	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.410	60.240	2.083	676.3	676.3	100.152	3.477	2.29		Unsaturated	46.5			56.94	1.56	89.07	156.80	1.00	0.564	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.580	54.280	2.069	697.5	697.5	88.785	3.836	2.36		Unsaturated	51.8			51.30	1.57	80.47	148.61	1.00	0.564	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.740	47.960	1.791	717.5	717.5	77.264	3.762	2.39		Unsaturated	54.4			45.33	1.58	71.61	138.46	1.00	0.563	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.910	39.540	1.484	738.8	738.8	62.659	3.788	2.46		Unsaturated	59.5			37.37	1.60	59.81	125.15	1.00	0.563	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.070	58.960	1.358	758.8	758.8	92.465	2.318	2.19		Unsaturated	37.8			55.73	1.52	84.91	145.57	1.00	0.563	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.230	111.310	0.950	778.8	778.8	172.817	0.856	1.69		Unsaturated	0.0			105.21	1.48	155.93	155.93	1.00	0.563	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.400	198.800	2.166	800.0	800.0	304.978	1.092	1.60		Unsaturated	0.0			187.90	1.31	245.23	245.23	0.99	0.563	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.560	259.860	2.222	820.0	820.0	393.930	0.856	1.45		Unsaturated	0.0			245.61	1.28	315.41	315.41	0.99	0.562	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.730	163.150	2.583	841.3	841.3	243.936	1.587	1.79		Unsaturated	5.9			154.21	1.34	207.02	207.77	0.99	0.562	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.890	242.680	2.148	861.3	861.3	358.897	0.887	1.48		Unsaturated	0.0			229.38	1.27	290.76	290.76	0.99	0.562	1.100	n.a.	n.a.	n.a.	0.00	0.00
7.050	216.760	1.647	881.3	881.3	316.824	0.761	1.47		Unsaturated	0.0			204.88	1.26	258.14	258.14	0.99	0.562	1.100	n.a.	n.a.	n.a.	0.00	0.00
7.220	172.530	1.322	902.5	902.5	249.044	0.768	1.54		Unsaturated	0.0			163.07	1.31	212.87	212.87	0.99	0.562	1.100	n.a.	n.a.	n.a.	0.00	0.00
7.380	139.930	1.013	922.5	922.5	199.648	0.726	1.59		Unsaturated	0.0			132.26	1.35	178.28	178.28	0.99	0.562	1.100	n.a.	n.a.	n.a.	0.00	0.00
7.550	112.000	0.908	943.8	943.8	157.844	0.814	1.70		Unsaturated	0.0			105.86	1.39	147.16	147.16								

CPT No.

3

PGA (A_{max})

0.87

Total Settlement:

0.15 (Inches)

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Depth (ft)	q _c (tsf)	f _s (tsf)	σ _{vc} (psf)	Insitu σ' _{vc} (psf)	Q	F (%)	I _c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q _{cN} near interfaces (soft layer)	Thin Layer Factor (K _{tN})	Interpreted q _{cN}	C _N	q _{c1N}	q _{c1N-CS}	Stress Reduction Coeff, r _d	CSR	K _σ for Sand	CRR _{M=7.5} , σ'vc = 1 atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε _v	Settlement (Inches)
11.150	10.300	0.509	1393.0	1383.6	13.882	5.296	3.03		Clay	100.0			9.74	1.12	n.a.	n.a.	0.99	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
11.320	9.600	0.470	1413.4	1393.4	12.765	5.283	3.06		Clay	100.0			9.07	1.12	n.a.	n.a.	0.98	0.654	n.a.	n.a.	n.a.	n.a.	0.00	0.00
11.480	9.060	0.432	1432.6	1402.6	11.897	5.172	3.08		Clay	100.0			8.56	1.11	n.a.	n.a.	0.98	0.657	n.a.	n.a.	n.a.	n.a.	0.00	0.00
11.650	8.520	0.396	1453.0	1412.4	11.036	5.085	3.10		Clay	100.0			8.05	1.11	n.a.	n.a.	0.98	0.661	n.a.	n.a.	n.a.	n.a.	0.00	0.00
11.810	7.850	0.358	1472.2	1421.7	10.008	5.037	3.13		Clay	100.0			7.42	1.11	n.a.	n.a.	0.98	0.665	n.a.	n.a.	n.a.	n.a.	0.00	0.00
11.980	7.390	0.333	1492.6	1431.4	9.282	5.009	3.15		Clay	100.0			6.98	1.11	n.a.	n.a.	0.98	0.668	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.140	7.180	0.327	1511.8	1440.7	8.918	5.086	3.17		Clay	100.0			6.79	1.11	n.a.	n.a.	0.98	0.672	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.300	7.180	0.339	1531.0	1449.9	8.848	5.279	3.18		Clay	100.0			6.79	1.10	n.a.	n.a.	0.98	0.675	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.470	7.700	0.374	1551.4	1459.7	9.487	5.394	3.17		Clay	100.0			7.28	1.10	n.a.	n.a.	0.98	0.679	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.630	8.280	0.416	1570.6	1468.9	10.205	5.547	3.15		Clay	100.0			7.83	1.10	n.a.	n.a.	0.98	0.682	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.800	8.700	0.450	1591.0	1478.7	10.691	5.692	3.14		Clay	100.0			8.22	1.10	n.a.	n.a.	0.98	0.685	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.960	8.870	0.512	1610.2	1487.9	10.841	6.348	3.17		Clay	100.0			8.38	1.10	n.a.	n.a.	0.98	0.688	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.120	9.020	0.560	1629.4	1497.1	10.962	6.827	3.18		Clay	100.0			8.53	1.10	n.a.	n.a.	0.98	0.691	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.290	9.600	0.617	1649.8	1506.9	11.647	7.035	3.17		Clay	100.0			9.07	1.09	n.a.	n.a.	0.98	0.695	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.450	9.930	0.606	1669.0	1516.1	11.998	6.664	3.15		Clay	100.0			9.39	1.09	n.a.	n.a.	0.98	0.697	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.620	10.200	0.604	1689.4	1525.9	12.262	6.454	3.13		Clay	100.0			9.64	1.09	n.a.	n.a.	0.98	0.701	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.780	10.390	0.580	1708.6	1535.1	12.423	6.085	3.11		Clay	100.0			9.82	1.09	n.a.	n.a.	0.98	0.703	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.940	11.120	0.573	1727.8	1544.3	13.282	5.585	3.06		Clay	100.0			10.51	1.09	n.a.	n.a.	0.98	0.706	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.110	11.020	0.566	1748.2	1554.1	13.057	5.581	3.07		Clay	100.0			10.42	1.08	n.a.	n.a.	0.98	0.709	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.270	11.270	0.560	1767.4	1563.4	13.287	5.396	3.05		Clay	100.0			10.65	1.08	n.a.	n.a.	0.98	0.712	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.440	11.800	0.551	1787.8	1573.1	13.865	5.049	3.02		Clay	100.0			11.15	1.08	n.a.	n.a.	0.98	0.715	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.600	11.890	0.636	1807.0	1582.4	13.886	5.785	3.06		Clay	100.0			11.24	1.08	n.a.	n.a.	0.98	0.717	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.760	11.970	0.683	1826.2	1591.6	13.894	6.179	3.08		Clay	100.0			11.31	1.08	n.a.	n.a.	0.98	0.720	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.930	12.250	0.697	1846.6	1601.4	14.146	6.156	3.07		Clay	100.0			11.58	1.08	n.a.	n.a.	0.98	0.723	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.090	11.640	0.695	1865.8	1610.6	13.296	6.493	3.10		Clay	100.0			11.00	1.07	n.a.	n.a.	0.98	0.725	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.260	11.850	0.644	1886.2	1620.4	13.462	5.907	3.07		Clay	100.0			11.20	1.07	n.a.	n.a.	0.98	0.728	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.420	11.990	0.637	1905.4	1629.6	13.546	5.767	3.06		Clay	100.0			11.33	1.07	n.a.	n.a.	0.97	0.730	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.580	12.080	0.619	1924.6	1638.8	13.568	5.569	3.05		Clay	100.0			11.42	1.07	n.a.	n.a.	0.97	0.733	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.750	12.260	0.607	1945.0	1648.6	13.693	5.378	3.04		Clay	100.0			11.59	1.07	n.a.	n.a.	0.97	0.735	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.910	11.830	0.616	1964.2	1657.8	13.087	5.680	3.07		Clay	100.0			11.18	1.07	n.a.	n.a.	0.97	0.737	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.080	11.920	0.609	1984.6	1667.6	13.106	5.575	3.07		Clay	100.0			11.27	1.06	n.a.	n.a.	0.97	0.740	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.240	12.000	0.603	2003.8	1676.8	13.118	5.485	3.06		Clay	100.0			11.34	1.06	n.a.	n.a.	0.97	0.742	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.400	11.710	0.545	2023.0	1686.0	12.691	5.090	3.05		Clay	100.0			11.07	1.06	n.a.	n.a.	0.97	0.744	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.570	11.360	0.522	2043.4	1695.8	12.193	5.049	3.06		Clay	100.0			10.74	1.06	n.a.	n.a.	0.97	0.747	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.730	11.310	0.516	2062.6	1705.0	12.057	5.023	3.07		Clay	100.0			10.69	1.06	n.a.	n.a.	0.97	0.749	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.900	11.380	0.541	2083.0	1714.8	12.058	5.235	3.08		Clay	100.0			10.76	1.06	n.a.	n.a.	0.97	0.751	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.060	11.330	0.563	2102.2	1724.1	11.924	5.475	3.09		Clay	100.0			10.71	1.06	n.a.	n.a.	0.97	0.753	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.220	10.910	0.547	2121.4	1733.3	11.365	5.549	3.11		Clay	100.0			10.31	1.05	n.a.	n.a.	0.97	0.755	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.390	10.150	0.506	2141.8	1743.1	10.417	5.578	3.14		Clay	100.0			9.59	1.05	n.a.	n.a.	0.97	0.757	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.550	9.650	0.458	2161.0	1752.3	9.781	5.346	3.15		Clay	100.0			9.12	1.05	n.a.	n.a.	0.97	0.759	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.720	9.300	0.437	2181.4	1762.1	9.318	5.320	3.17		Clay	100.0			8.79	1.05	n.a.	n.a.	0.97	0.761	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.880	9.540	0.432	2200.6	1771.3	9.529	5.121	3.15		Clay	100.0			9.02	1.05	n.a.	n.a.	0.97	0.763	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.040	9.720	0.436	2219.8	1780.5	9.672	5.058	3.14		Clay	100.0			9.19	1.05	n.a.	n.a.	0.97	0.765	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.210	9.910	0.461	2240.2	1790.3	9.819	5.249	3.15		Clay	100.0			9.37	1.05	n.a.	n.a.	0.97	0.767	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.370	10.240	0.490	2259.4	1799.5	10.125	5.373	3.14		Clay	100.0			9.68	1.04	n.a.	n.a.	0.97	0.769	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.540	11.050	0.539	2279.8	1809.3	10.955	5.435	3.12		Clay	100.0			10.44	1.04	n.a.	n.a.	0.97	0.771	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.700	11.160	0.543	2299.0	1818.5	11.010	5.422	3.12		Clay	100.0			10.55	1.04	n.a.	n.a.	0.97	0.772	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.860	10.650	0.517	2318.2	1827.7	10.385	5.442	3.14		Clay	100.0			10.07	1.04	n.a.	n.a.	0.97	0.774	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.030	10.450	0.484	2338.6	18																				

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Depth (ft)	q _c (tsf)	f _s (tsf)	σ _{vc} (psf)	Insitu σ' _{vc} (psf)	Q	F (%)	I _c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q _{cN} near interfaces (soft layer)	Thin Layer Factor (K _{tN})	Interpreted q _{cN}	C _N	q _{c1N}	q _{c1N-CS}	Stress Reduction Coeff, r _d	CSR	K _σ for Sand	CRRM=7.5, σ'vc = 1 atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε _v	Settlement (Inches)
22.150	7.370	0.305	2713.0	2017.2	5.962	5.079	3.31		Clay	100.0			6.97	1.01	n.a.	n.a.	0.96	0.804	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.310	8.250	0.349	2732.2	2026.5	6.794	5.076	3.27		Clay	100.0			7.80	1.01	n.a.	n.a.	0.96	0.806	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.470	9.270	0.397	2751.4	2035.7	7.756	5.029	3.22		Clay	100.0			8.76	1.01	n.a.	n.a.	0.96	0.807	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.640	10.500	0.435	2771.8	2045.5	8.912	4.771	3.16		Clay	100.0			9.92	1.01	n.a.	n.a.	0.96	0.808	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.800	10.640	0.436	2791.0	2054.7	8.998	4.716	3.15		Clay	100.0			10.06	1.01	n.a.	n.a.	0.96	0.809	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.970	10.300	0.428	2811.4	2064.5	8.617	4.814	3.17		Clay	100.0			9.74	1.01	n.a.	n.a.	0.95	0.811	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.130	10.200	0.446	2830.6	2073.7	8.473	5.071	3.19		Clay	100.0			9.64	1.01	n.a.	n.a.	0.95	0.812	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.290	10.240	0.447	2849.8	2082.9	8.464	5.065	3.19		Clay	100.0			9.68	1.00	n.a.	n.a.	0.95	0.813	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.460	9.960	0.428	2870.2	2092.7	8.147	5.024	3.20		Clay	100.0			9.41	1.00	n.a.	n.a.	0.95	0.814	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.620	9.620	0.400	2889.4	2101.9	7.779	4.893	3.21		Clay	100.0			9.09	1.00	n.a.	n.a.	0.95	0.815	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.790	8.730	0.368	2909.8	2111.7	6.890	5.053	3.26		Clay	100.0			8.25	1.00	n.a.	n.a.	0.95	0.816	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.950	8.150	0.370	2929.0	2120.9	6.304	5.537	3.31		Clay	100.0			7.70	1.00	n.a.	n.a.	0.95	0.817	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.110	7.580	0.355	2948.2	2130.1	5.733	5.816	3.36		Clay	100.0			7.16	1.00	n.a.	n.a.	0.95	0.818	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.280	7.390	0.341	2968.6	2139.9	5.520	5.767	3.37		Clay	100.0			6.98	1.00	n.a.	n.a.	0.95	0.819	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.440	7.160	0.313	2987.8	2149.1	5.273	5.521	3.38		Clay	100.0			6.77	1.00	n.a.	n.a.	0.95	0.821	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.610	7.020	0.257	3008.2	2158.9	5.110	4.663	3.35		Clay	100.0			6.64	0.99	n.a.	n.a.	0.95	0.822	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.770	7.030	0.255	3027.4	2168.2	5.088	4.619	3.34		Clay	100.0			6.64	0.99	n.a.	n.a.	0.95	0.823	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.930	7.210	0.243	3046.6	2177.4	5.223	4.270	3.32		Clay	100.0			6.81	0.99	n.a.	n.a.	0.95	0.824	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.100	7.280	0.248	3067.0	2187.2	5.255	4.321	3.32		Clay	100.0			6.88	0.99	n.a.	n.a.	0.95	0.825	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.260	7.100	0.235	3086.2	2196.4	5.060	4.222	3.33		Clay	100.0			6.71	0.99	n.a.	n.a.	0.95	0.825	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.430	7.110	0.249	3106.6	2206.2	5.037	4.476	3.34		Clay	100.0			6.72	0.99	n.a.	n.a.	0.95	0.826	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.590	7.180	0.276	3125.8	2215.4	5.071	4.906	3.36		Clay	100.0			6.79	0.99	n.a.	n.a.	0.95	0.827	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.750	7.360	0.292	3145.0	2224.6	5.203	5.040	3.36		Clay	100.0			6.96	0.99	n.a.	n.a.	0.95	0.828	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.920	7.720	0.307	3165.4	2234.4	5.493	4.996	3.34		Clay	100.0			7.30	0.99	n.a.	n.a.	0.95	0.829	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.080	7.440	0.291	3184.6	2243.6	5.213	4.978	3.35		Clay	100.0			7.03	0.98	n.a.	n.a.	0.95	0.830	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.250	7.160	0.255	3205.0	2253.4	4.933	4.581	3.35		Clay	100.0			6.77	0.98	n.a.	n.a.	0.94	0.831	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.410	6.920	0.243	3224.2	2262.6	4.692	4.569	3.37		Clay	100.0			6.54	0.98	n.a.	n.a.	0.94	0.832	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.570	6.790	0.228	3243.4	2271.8	4.550	4.408	3.37		Clay	100.0			6.42	0.98	n.a.	n.a.	0.94	0.833	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.740	6.650	0.225	3263.8	2281.6	4.399	4.490	3.39		Clay	100.0			6.29	0.98	n.a.	n.a.	0.94	0.833	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.900	6.530	0.230	3283.0	2290.8	4.268	4.695	3.41		Clay	100.0			6.17	0.98	n.a.	n.a.	0.94	0.834	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.070	6.730	0.230	3303.4	2300.6	4.415	4.521	3.39		Clay	100.0			6.36	0.98	n.a.	n.a.	0.94	0.835	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.230	6.810	0.227	3322.6	2309.8	4.458	4.415	3.38		Clay	100.0			6.44	0.98	n.a.	n.a.	0.94	0.836	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.400	6.740	0.208	3343.0	2319.6	4.370	4.110	3.37		Clay	100.0			6.37	0.98	n.a.	n.a.	0.94	0.837	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.560	6.770	0.201	3362.2	2328.9	4.370	3.958	3.36		Clay	100.0			6.40	0.98	n.a.	n.a.	0.94	0.837	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.720	6.860	0.180	3381.4	2338.1	4.422	3.488	3.33		Clay	100.0			6.48	0.97	n.a.	n.a.	0.94	0.838	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.890	6.970	0.155	3401.8	2347.9	4.488	2.949	3.29		Clay	100.0			6.59	0.97	n.a.	n.a.	0.94	0.839	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.050	6.570	0.146	3421.0	2357.1	4.123	3.004	3.32		Clay	100.0			6.21	0.97	n.a.	n.a.	0.94	0.840	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.220	6.490	0.271	3441.4	2366.9	4.030	5.680	3.48		Clay	100.0			6.13	0.97	n.a.	n.a.	0.94	0.840	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.380	7.000	0.312	3460.6	2376.1	4.436	5.917	3.46		Clay	100.0			6.62	0.97	n.a.	n.a.	0.94	0.841	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.540	8.890	0.356	3479.8	2385.3	5.995	4.982	3.31		Clay	100.0			8.40	0.97	n.a.	n.a.	0.94	0.842	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.710	12.320	0.299	3500.2	2395.1	8.826	2.832	3.03		Clay	100.0			11.64	0.97	n.a.	n.a.	0.94	0.842	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.870	12.910	0.250	3519.4	2404.3	9.275	2.241	2.95		Clay	99.4			12.20	0.97	n.a.	n.a.	0.94	0.843	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.040	12.210	0.163	3539.8	2414.1	8.649	1.563	2.90		Clay	95.1			11.54	0.97	n.a.	n.a.	0.94	0.844	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.200	9.610	0.134	3559.0	2423.3	6.463	1.711	3.03		Clay	100.0			9.08	0.96	n.a.	n.a.	0.94	0.844	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.360	7.010	0.196	3578.2	2432.5	4.293	3.745	3.36		Clay	100.0			6.63	0.96	n.a.	n.a.	0.94	0.845	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.530	6.440	0.241	3598.6	2442.3	3.800	5.189	3.48		Clay	100.0			6.09	0.96	n.a.	n.a.	0.93	0.845	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.690	6.750	0.306	3617.8	2451.5	4.031	6.201	3.50		Clay	100.0			6.38	0.96	n.a.	n.a.	0.93	0.846	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.860	6.710	0.333	3638.2	2461.3	3.974	6.804	3.53		Clay	100.0			6.34	0.96	n.a.	n.a.	0.93	0.847	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.020	7.080	0.356	3657.4	2470.6	4.251	6.783	3.50		Clay	100.0			6.69	0.96	n.a.	n.a.	0.							

CPT No.

3

PGA (A_{max})

0.87

Total Settlement: 0.15 (Inches)

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Depth (ft)	q _c (tsf)	f _s (tsf)	σ _{vc} (psf)	Insitu σ' _{vc} (psf)	Q	F (%)	I _c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q _{cN} near interfaces (soft layer)	Thin Layer Factor (K _{tN})	Interpreted q _{cN}	C _N	q _{c1N}	q _{c1N-CS}	Stress Reduction Coeff, r _d	CSR	K _σ for Sand	CRR _{M=7.5} , σ'vc = 1 atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε _v	Settlement (Inches)
33.140	7.760	0.368	4031.8	2650.3	4.335	6.401	3.48		Clay	100.0			7.33	0.94	n.a.	n.a.	0.92	0.856	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.300	7.430	0.369	4051.0	2659.5	4.064	6.829	3.52		Clay	100.0			7.02	0.94	n.a.	n.a.	0.92	0.857	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.460	7.530	0.350	4070.2	2668.7	4.118	6.368	3.50		Clay	100.0			7.12	0.94	n.a.	n.a.	0.92	0.857	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.630	7.810	0.331	4090.6	2678.5	4.304	5.738	3.46		Clay	100.0			7.38	0.94	n.a.	n.a.	0.92	0.857	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.790	7.510	0.322	4109.8	2687.7	4.059	5.906	3.49		Clay	100.0			7.10	0.94	n.a.	n.a.	0.92	0.858	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.960	7.200	0.304	4130.2	2697.5	3.807	5.912	3.51		Clay	100.0			6.81	0.94	n.a.	n.a.	0.92	0.858	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.120	7.490	0.303	4149.4	2706.7	4.001	5.590	3.48		Clay	100.0			7.08	0.94	n.a.	n.a.	0.92	0.858	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.280	7.690	0.312	4168.6	2715.9	4.128	5.568	3.47		Clay	100.0			7.27	0.94	n.a.	n.a.	0.92	0.859	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.450	7.930	0.307	4189.0	2725.7	4.282	5.259	3.44		Clay	100.0			7.50	0.94	n.a.	n.a.	0.92	0.859	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.610	8.690	0.294	4208.2	2734.9	4.816	4.456	3.36		Clay	100.0			8.21	0.93	n.a.	n.a.	0.92	0.859	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.780	8.540	0.281	4228.6	2744.7	4.682	4.367	3.36		Clay	100.0			8.07	0.93	n.a.	n.a.	0.92	0.860	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.940	7.980	0.255	4247.8	2753.9	4.253	4.348	3.40		Clay	100.0			7.54	0.93	n.a.	n.a.	0.92	0.860	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.100	8.620	0.250	4267.0	2763.2	4.695	3.857	3.33		Clay	100.0			8.15	0.93	n.a.	n.a.	0.92	0.860	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.270	8.460	0.230	4287.4	2773.0	4.556	3.633	3.33		Clay	100.0			8.00	0.93	n.a.	n.a.	0.92	0.860	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.430	8.070	0.209	4306.6	2782.2	4.253	3.526	3.35		Clay	100.0			7.63	0.93	n.a.	n.a.	0.92	0.861	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.600	7.290	0.204	4327.0	2792.0	3.672	3.985	3.43		Clay	100.0			6.89	0.93	n.a.	n.a.	0.91	0.861	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.760	6.980	0.205	4346.2	2801.2	3.432	4.254	3.47		Clay	100.0			6.60	0.93	n.a.	n.a.	0.91	0.861	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.930	6.910	0.215	4366.6	2811.0	3.363	4.547	3.49		Clay	100.0			6.53	0.93	n.a.	n.a.	0.91	0.862	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.090	6.820	0.218	4385.8	2820.2	3.281	4.711	3.51		Clay	100.0			6.45	0.93	n.a.	n.a.	0.91	0.862	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.250	6.800	0.226	4405.0	2829.4	3.250	4.916	3.52		Clay	100.0			6.43	0.93	n.a.	n.a.	0.91	0.862	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.420	6.820	0.234	4425.4	2839.2	3.246	5.068	3.53		Clay	100.0			6.45	0.93	n.a.	n.a.	0.91	0.862	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.580	6.810	0.246	4444.6	2848.4	3.221	5.358	3.55		Clay	100.0			6.44	0.92	n.a.	n.a.	0.91	0.862	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.750	6.870	0.262	4465.0	2858.2	3.245	5.650	3.56		Clay	100.0			6.49	0.92	n.a.	n.a.	0.91	0.863	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.910	7.100	0.273	4484.2	2867.4	3.388	5.622	3.54		Clay	100.0			6.71	0.92	n.a.	n.a.	0.91	0.863	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.070	7.320	0.278	4503.4	2876.6	3.524	5.489	3.52		Clay	100.0			6.92	0.92	n.a.	n.a.	0.91	0.863	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.240	7.370	0.281	4523.8	2886.4	3.539	5.499	3.52		Clay	100.0			6.97	0.92	n.a.	n.a.	0.91	0.863	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.400	7.390	0.279	4543.0	2895.6	3.535	5.455	3.52		Clay	100.0			6.98	0.92	n.a.	n.a.	0.91	0.863	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.570	7.620	0.311	4563.4	2905.4	3.675	5.822	3.52		Clay	100.0			7.20	0.92	n.a.	n.a.	0.91	0.864	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.730	7.810	0.315	4582.6	2914.6	3.787	5.706	3.50		Clay	100.0			7.38	0.92	n.a.	n.a.	0.91	0.864	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.890	8.090	0.329	4601.8	2923.9	3.960	5.678	3.49		Clay	100.0			7.65	0.92	n.a.	n.a.	0.91	0.864	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.060	8.560	0.338	4622.2	2933.7	4.260	5.403	3.45		Clay	100.0			8.09	0.92	n.a.	n.a.	0.91	0.864	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.220	9.260	0.325	4641.4	2942.9	4.716	4.689	3.38		Clay	100.0			8.75	0.92	n.a.	n.a.	0.91	0.864	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.390	9.320	0.290	4661.8	2952.7	4.734	4.154	3.35		Clay	100.0			8.81	0.92	n.a.	n.a.	0.90	0.864	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.550	9.130	0.282	4681.0	2961.9	4.585	4.159	3.36		Clay	100.0			8.63	0.92	n.a.	n.a.	0.90	0.865	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.710	8.810	0.277	4700.2	2971.1	4.348	4.293	3.38		Clay	100.0			8.33	0.91	n.a.	n.a.	0.90	0.865	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.880	8.580	0.260	4720.6	2980.9	4.173	4.180	3.39		Clay	100.0			8.11	0.91	n.a.	n.a.	0.90	0.865	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.040	8.830	0.266	4739.8	2990.1	4.321	4.114	3.38		Clay	100.0			8.35	0.91	n.a.	n.a.	0.90	0.865	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.210	9.680	0.227	4760.2	2999.9	4.867	3.110	3.27		Clay	100.0			9.15	0.91	n.a.	n.a.	0.90	0.865	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.370	9.640	0.252	4779.4	3009.1	4.819	3.481	3.30		Clay	100.0			9.11	0.91	n.a.	n.a.	0.90	0.865	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.530	8.860	0.283	4798.6	3018.3	4.281	4.376	3.39		Clay	100.0			8.77	0.91	n.a.	n.a.	0.90	0.865	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.700	9.010	0.298	4819.0	3028.1	4.359	4.519	3.40		Clay	100.0			8.52	0.91	n.a.	n.a.	0.90	0.865	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.860	17.930	0.440	4838.2	3037.3	10.213	2.834	2.98		Clay	100.0			16.95	0.91	n.a.	n.a.	0.90	0.865	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.030	25.940	0.447	4858.6	3047.1	15.431	1.902	2.73		Clay	81.4			24.52	0.91	n.a.	n.a.	0.90	0.866	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.190	15.770	0.369	4877.8	3056.3	8.724	2.768	3.03		Clay	100.0			14.91	0.91	n.a.	n.a.	0.90	0.866	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.350	10.970	0.268	4897.0	3065.6	5.560	3.147	3.22		Clay	100.0			10.37	0.91	n.a.	n.a.	0.90	0.866	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.520	9.170	0.219	4917.4	3075.4	4.365	3.263	3.32		Clay	100.0			8.67	0.91	n.a.	n.a.	0.90	0.866	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.680	9.090	0.235	4936.6	3084.6	4.293	3.549	3.34		Clay	100.0			8.59	0.91	n.a.	n.a.	0.90	0.866	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.850	9.130	0.258	4957.0	3094.4	4.299	3.885	3.36		Clay	100.0			8.63	0.90	n.a.	n.a.	0.90	0.866	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.010	9.150	0.264	4976.2	3103.6	4.293	3.958	3.37		Clay	100.0														

CPT No.

3

PGA (A_{max})

0.87

Total Settlement:

0.15 (Inches)

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Depth (ft)	q _c (tsf)	f _s (tsf)	σ _{vc} (psf)	Insitu σ' _{vc} (psf)	Q	F (%)	I _c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q _{cN} near interfaces (soft layer)	Thin Layer Factor (K _{tN})	Interpreted q _{cN}	C _N	q _{c1N}	q _{c1N-CS}	Stress Reduction Coeff, r _d	CSR	K _σ for Sand	CRR _{M=7.5} σ'vc = 1 atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε _v	Settlement (Inches)
44.130	9.620	0.227	5350.6	3283.3	4.230	3.269	3.33		Clay	100.0			9.09	0.89	n.a.	n.a.	0.88	0.866	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.290	9.820	0.228	5369.8	3292.5	4.334	3.193	3.32		Clay	100.0			9.28	0.89	n.a.	n.a.	0.88	0.866	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.460	10.240	0.243	5390.2	3302.3	4.569	3.222	3.30		Clay	100.0			9.68	0.89	n.a.	n.a.	0.88	0.866	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.620	11.000	0.242	5409.4	3311.5	5.010	2.914	3.24		Clay	100.0			10.40	0.89	n.a.	n.a.	0.88	0.866	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.780	11.330	0.462	5428.6	3320.7	5.189	5.365	3.37		Clay	100.0			10.71	0.89	n.a.	n.a.	0.88	0.866	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.950	11.270	0.663	5449.0	3330.5	5.132	7.757	3.47		Clay	100.0			10.65	0.89	n.a.	n.a.	0.88	0.866	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.110	23.900	0.681	5468.2	3339.7	12.675	3.217	2.93		Clay	97.4			22.59	0.89	n.a.	n.a.	0.88	0.866	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.280	39.780	0.636	5488.6	3349.5	27.823	1.716	2.49		Sand	62.5	41.22	1.72	70.90	0.81	57.65	123.24	0.88	0.866	0.941	0.179	0.237	0.27	0.03	0.01
45.440	40.460	0.587	5507.8	3358.7	28.288	1.556	2.46		Sand	60.1	41.22	1.72	70.90	0.81	57.53	122.40	0.88	0.865	0.941	0.177	0.234	0.27	0.03	0.01
45.600	43.610	0.749	5527.0	3368.0	30.602	1.833	2.48		Sand	61.2		1.72	70.90	0.81	57.47	122.65	0.88	0.865	0.941	0.177	0.235	0.27	0.03	0.01
45.770	38.410	0.590	5547.4	3377.8	26.659	1.655	2.50		Sand	63.0	41.22	1.72	70.90	0.81	57.42	123.08	0.88	0.865	0.940	0.178	0.236	0.27	0.03	0.01
45.930	34.490	0.453	5566.6	3387.0	23.687	1.429	2.51		Sand	63.5	41.22	1.72	70.90	0.81	57.35	123.13	0.88	0.865	0.940	0.179	0.237	0.27	0.03	0.01
46.100	34.290	0.497	5587.0	3396.8	18.545	1.577	2.62		Clay	72.5			32.41	0.88	n.a.	n.a.	0.88	0.865	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.260	31.040	0.789	5606.2	3406.0	16.581	2.795	2.80		Clay	87.0			29.34	0.88	n.a.	n.a.	0.88	0.865	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.420	26.210	0.853	5625.4	3415.2	13.702	3.644	2.94		Clay	97.8			24.77	0.88	n.a.	n.a.	0.88	0.865	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.590	24.880	0.749	5645.8	3425.0	12.880	3.396	2.94		Clay	98.1			23.52	0.88	n.a.	n.a.	0.88	0.865	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.750	29.660	0.644	5665.0	3434.2	15.624	2.401	2.78		Clay	85.6			28.03	0.88	n.a.	n.a.	0.87	0.865	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.920	38.280	0.641	5685.4	3444.0	20.579	1.808	2.61		Clay	72.1			36.18	0.88	n.a.	n.a.	0.87	0.865	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.080	49.120	0.520	5704.6	3453.2	34.233	1.123	2.32		Sand	48.2	50.15	1.66	83.25	0.81	67.19	130.15	0.87	0.865	0.934	0.198	0.271	0.31	0.02	0.01
47.240	53.060	0.504	5723.8	3462.4	37.091	1.004	2.26		Sand	43.8		1.66	83.25	0.80	66.95	127.46	0.87	0.864	0.935	0.190	0.257	0.30	0.02	0.01
47.410	51.060	0.589	5744.2	3472.2	35.556	1.223	2.32		Sand	48.8	50.15	1.66	83.25	0.81	67.03	130.22	0.87	0.864	0.933	0.198	0.271	0.31	0.02	0.01
47.570	43.410	0.580	5763.4	3481.4	29.864	1.431	2.42		Sand	56.9	50.15	1.66	83.25	0.81	67.16	133.67	0.87	0.864	0.931	0.209	0.292	0.34	0.02	0.01
47.740	37.420	0.497	5783.8	3491.2	25.407	1.439	2.48		Sand	61.6	50.15	1.66	83.25	0.81	67.17	135.21	0.87	0.864	0.929	0.215	0.302	0.35	0.02	0.01
47.900	35.600	0.438	5803.0	3500.4	24.029	1.338	2.49		Sand	61.8	50.15	1.66	83.25	0.81	67.09	135.18	0.87	0.864	0.929	0.215	0.302	0.35	0.02	0.01
48.060	34.540	0.601	5822.2	3509.7	18.024	1.900	2.67		Clay	76.9			32.65	0.88	n.a.	n.a.	0.87	0.864	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.230	30.470	0.681	5842.6	3519.4	15.655	2.473	2.79		Clay	86.1			28.80	0.87	n.a.	n.a.	0.87	0.864	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.390	28.570	0.592	5861.8	3528.7	14.532	2.311	2.80		Clay	86.9			27.00	0.87	n.a.	n.a.	0.87	0.863	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.560	34.360	0.477	5882.2	3538.5	17.759	1.518	2.63		Clay	73.1			32.48	0.87	n.a.	n.a.	0.87	0.863	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.720	40.030	0.464	5901.4	3547.7	27.066	1.250	2.43		Sand	57.1			37.84	0.76	28.71	84.67	0.87	0.863	0.951	0.120	0.137	0.16	0.04	0.01
48.880	38.700	0.982	5920.6	3556.9	20.096	2.749	2.73		Clay	81.3			36.58	0.87	n.a.	n.a.	0.87	0.863	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.050	33.650	1.091	5941.0	3566.7	17.203	3.555	2.85		Clay	91.1			31.81	0.87	n.a.	n.a.	0.87	0.863	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.210	28.950	0.669	5960.2	3575.9	14.525	2.576	2.83		Clay	89.1			27.86	0.87	n.a.	n.a.	0.87	0.863	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.380	47.950	0.757	5980.6	3585.7	32.644	1.683	2.43		Sand	57.6			45.32	0.76	34.53	92.25	0.87	0.862	0.947	0.128	0.148	0.17	0.03	0.01
49.540	45.480	0.857	5999.8	3594.9	30.804	2.018	2.50		Sand	63.0	45.32		45.32	0.76	34.54	93.71	0.86	0.862	0.946	0.130	0.151	0.18	0.03	0.01
49.700	38.700	0.692	6019.0	3604.1	19.805	1.937	2.64		Clay	74.6			36.58	0.87	n.a.	n.a.	0.86	0.862	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.870	36.660	0.647	6039.4	3613.9	18.617	1.923	2.67		Clay	76.2			34.65	0.87	n.a.	n.a.	0.86	0.862	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.030	34.890	0.548	6058.6	3623.1	17.587	1.719	2.66		Clay	75.7			32.98	0.87	n.a.	n.a.	0.86	0.862	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.200	36.200	0.344	6079.0	3632.9	23.920	1.036	2.43		Sand	57.3			34.22	0.75	25.49	80.63	0.86	0.862	0.951	0.116	0.131	0.15	0.04	0.00
50.360	30.060	0.462	6098.2	3642.1	14.832	1.709	2.72		Clay	80.5			28.41	0.87	n.a.	n.a.	0.86	0.861	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.520	20.130	0.706	6117.4	3651.4	9.351	4.134	3.10		Clay	100.0			19.03	0.87	n.a.	n.a.	0.86	0.861	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.690	24.990	0.750	6137.8	3661.1	11.975	3.422	2.97		Clay	100.0			23.62	0.87	n.a.	n.a.	0.86	0.861	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.850	25.220	0.686	6157.0	3670.4	12.065	3.100	2.94		Clay	98.1			23.84	0.86	n.a.	n.a.	0.86	0.861	n.a.	n.a.	n.a.	n.a.	0.00	0.00
51.020	22.200	0.576	6177.4	3680.2	10.386	3.012	2.98		Clay	100.0			20.98	0.86	n.a.	n.a.	0.86	0.861	n.a.	n.a.	n.a.	n.a.	0.00	0.00
51.180	63.490	0.662	6196.6	3689.4	43.229	1.096	2.23		Sand	41.0			60.01	0.76	45.43	98.96	0.86	0.860	0.941	0.136	0.161	0.19	0.03	0.00
51.350	69.600	0.689	6217.0	3699.2	47.532	1.037	2.18		Sand	37.2			65.78	0.76	49.92	101.93	0.86	0.860	0.940	0.140	0.167	0.19	0.03	0.00
51.510	65.150	0.888	6236.2	3708.4	44.289	1.432	2.28		Sand	45.8			61.58	0.76	46.75	103.22	0.86	0.860						

CPT No.

3

PGA (A_{max})

0.87

Total Settlement:

0.15 (Inches)

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Depth (ft)	q _c (tsf)	f _s (tsf)	σ _{vc} (psf)	Insitu σ' _{vc} (psf)	Q	F (%)	I _c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q _{cN} near interfaces (soft layer)	Thin Layer Factor (K _{tN})	Interpreted q _{cN}	C _N	q _{c1N}	q _{c1N-CS}	Stress Reduction Coeff, r _d	CSR	K _σ for Sand	CRR _{M=7.5} , σ'vc = 1 atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε _v	Settlement (Inches)
55.120	78.260	1.543	6669.4	3916.3	52.055	2.059	2.33		Sand	49.4			73.97	0.75	55.57	116.02	0.84	0.855	0.926	0.163	0.205	0.24	0.03	0.00
55.280	42.220	1.085	6688.6	3925.5	19.807	2.790	2.74		Clay	82.0			39.91	0.85	n.a.	n.a.	0.84	0.855	n.a.	n.a.	n.a.	n.a.	0.00	0.00
55.450	22.480	0.795	6709.0	3935.3	9.720	4.154	3.09		Clay	100.0			21.25	0.85	n.a.	n.a.	0.84	0.854	n.a.	n.a.	n.a.	n.a.	0.00	0.00
55.610	14.920	0.395	6728.2	3944.5	5.859	3.417	3.22		Clay	100.0			14.10	0.85	n.a.	n.a.	0.84	0.854	n.a.	n.a.	n.a.	n.a.	0.00	0.00
55.770	15.800	0.353	6747.4	3953.8	6.286	2.842	3.15		Clay	100.0			14.93	0.85	n.a.	n.a.	0.84	0.854	n.a.	n.a.	n.a.	n.a.	0.00	0.00
55.940	15.620	0.369	6767.8	3963.5	6.174	3.013	3.17		Clay	100.0			14.76	0.85	n.a.	n.a.	0.84	0.853	n.a.	n.a.	n.a.	n.a.	0.00	0.00
56.100	13.430	0.424	6787.0	3972.8	5.053	4.220	3.33		Clay	100.0			12.69	0.85	n.a.	n.a.	0.84	0.853	n.a.	n.a.	n.a.	n.a.	0.00	0.00
56.270	14.680	0.322	6807.4	3982.6	5.663	2.858	3.19		Clay	100.0			13.88	0.85	n.a.	n.a.	0.84	0.853	n.a.	n.a.	n.a.	n.a.	0.00	0.00
56.430	16.790	0.291	6826.6	3991.8	6.702	2.177	3.07		Clay	100.0			15.87	0.85	n.a.	n.a.	0.84	0.853	n.a.	n.a.	n.a.	n.a.	0.00	0.00
56.590	12.370	0.280	6845.8	4001.0	4.472	3.132	3.30		Clay	100.0			11.69	0.85	n.a.	n.a.	0.84	0.852	n.a.	n.a.	n.a.	n.a.	0.00	0.00
56.760	11.420	0.249	6866.2	4010.8	3.983	3.121	3.34		Clay	100.0			10.79	0.84	n.a.	n.a.	0.84	0.852	n.a.	n.a.	n.a.	n.a.	0.00	0.00
56.920	11.890	0.254	6885.4	4020.0	4.203	3.012	3.31		Clay	100.0			11.24	0.84	n.a.	n.a.	0.84	0.852	n.a.	n.a.	n.a.	n.a.	0.00	0.00
57.090	11.980	0.283	6905.8	4029.8	4.232	3.324	3.33		Clay	100.0			11.32	0.84	n.a.	n.a.	0.84	0.851	n.a.	n.a.	n.a.	n.a.	0.00	0.00
57.250	12.210	0.307	6925.0	4039.0	4.332	3.514	3.34		Clay	100.0			11.54	0.84	n.a.	n.a.	0.84	0.851	n.a.	n.a.	n.a.	n.a.	0.00	0.00
57.410	12.850	0.282	6944.2	4048.2	4.633	3.006	3.28		Clay	100.0			12.15	0.84	n.a.	n.a.	0.84	0.851	n.a.	n.a.	n.a.	n.a.	0.00	0.00
57.580	13.290	0.276	6964.6	4058.0	4.834	2.812	3.25		Clay	100.0			12.56	0.84	n.a.	n.a.	0.83	0.851	n.a.	n.a.	n.a.	n.a.	0.00	0.00
57.740	13.570	0.278	6983.8	4067.2	4.956	2.755	3.23		Clay	100.0			12.83	0.84	n.a.	n.a.	0.83	0.850	n.a.	n.a.	n.a.	n.a.	0.00	0.00
57.910	14.010	0.282	7004.2	4077.0	5.155	2.679	3.21		Clay	100.0			13.24	0.84	n.a.	n.a.	0.83	0.850	n.a.	n.a.	n.a.	n.a.	0.00	0.00
58.070	13.970	0.248	7023.4	4086.2	5.119	2.368	3.19		Clay	100.0			13.20	0.84	n.a.	n.a.	0.83	0.850	n.a.	n.a.	n.a.	n.a.	0.00	0.00
58.230	13.760	0.196	7042.6	4095.4	5.000	1.911	3.15		Clay	100.0			13.01	0.84	n.a.	n.a.	0.83	0.849	n.a.	n.a.	n.a.	n.a.	0.00	0.00
58.400	13.150	0.166	7063.0	4105.2	4.686	1.729	3.16		Clay	100.0			12.43	0.84	n.a.	n.a.	0.83	0.849	n.a.	n.a.	n.a.	n.a.	0.00	0.00
58.560	12.960	0.135	7082.2	4114.5	4.578	1.431	3.13		Clay	100.0			12.25	0.84	n.a.	n.a.	0.83	0.849	n.a.	n.a.	n.a.	n.a.	0.00	0.00
58.730	12.530	0.122	7102.6	4124.2	4.354	1.355	3.14		Clay	100.0			11.84	0.84	n.a.	n.a.	0.83	0.848	n.a.	n.a.	n.a.	n.a.	0.00	0.00
58.890	11.910	0.117	7121.8	4133.5	4.040	1.403	3.17		Clay	100.0			11.26	0.84	n.a.	n.a.	0.83	0.848	n.a.	n.a.	n.a.	n.a.	0.00	0.00
59.060	11.700	0.130	7142.2	4143.3	3.924	1.594	3.21		Clay	100.0			11.06	0.84	n.a.	n.a.	0.83	0.848	n.a.	n.a.	n.a.	n.a.	0.00	0.00
59.220	12.060	0.116	7161.4	4152.5	4.084	1.373	3.16		Clay	100.0			11.40	0.84	n.a.	n.a.	0.83	0.847	n.a.	n.a.	n.a.	n.a.	0.00	0.00
59.380	11.500	0.152	7180.6	4161.7	3.801	1.923	3.26		Clay	100.0			10.87	0.84	n.a.	n.a.	0.83	0.847	n.a.	n.a.	n.a.	n.a.	0.00	0.00
59.550	11.600	0.219	7201.0	4171.5	3.835	2.735	3.33		Clay	100.0			10.96	0.84	n.a.	n.a.	0.83	0.847	n.a.	n.a.	n.a.	n.a.	0.00	0.00
59.710	14.940	0.326	7220.2	4180.7	5.420	2.876	3.21		Clay	100.0			14.12	0.84	n.a.	n.a.	0.83	0.846	n.a.	n.a.	n.a.	n.a.	0.00	0.00
59.880	17.110	0.492	7240.6	4190.5	6.438	3.648	3.20		Clay	100.0			16.17	0.84	n.a.	n.a.	0.83	0.846	n.a.	n.a.	n.a.	n.a.	0.00	0.00
60.040	21.180	0.861	7259.8	4199.7	8.358	4.907	3.18		Clay	100.0			20.02	0.83	n.a.	n.a.	0.83	0.846	n.a.	n.a.	n.a.	n.a.	0.00	0.00
60.200	29.560	1.183	7279.0	4208.9	12.317	4.564	3.03		Clay	100.0			27.94	0.83	n.a.	n.a.	0.82	0.846	n.a.	n.a.	n.a.	n.a.	0.00	0.00
60.370	34.090	1.602	7299.4	4218.7	14.431	5.262	3.02		Clay	100.0			32.22	0.83	n.a.	n.a.	0.82	0.845	n.a.	n.a.	n.a.	n.a.	0.00	0.00
60.530	33.580	1.574	7318.6	4227.9	14.154	5.259	3.02		Clay	100.0			31.74	0.83	n.a.	n.a.	0.82	0.845	n.a.	n.a.	n.a.	n.a.	0.00	0.00
60.700	38.340	1.566	7339.0	4237.7	16.363	4.517	2.93		Clay	97.7			36.24	0.83	n.a.	n.a.	0.82	0.845	n.a.	n.a.	n.a.	n.a.	0.00	0.00
60.860	38.820	1.702	7358.2	4246.9	16.549	4.844	2.95		Clay	98.9			36.69	0.83	n.a.	n.a.	0.82	0.844	n.a.	n.a.	n.a.	n.a.	0.00	0.00
61.020	50.490	1.779	7377.4	4256.2	21.992	3.800	2.79		Clay	85.9			47.72	0.83	n.a.	n.a.	0.82	0.844	n.a.	n.a.	n.a.	n.a.	0.00	0.00
61.190	50.620	2.395	7397.8	4265.9	21.998	5.105	2.87		Clay	92.7			47.84	0.83	n.a.	n.a.	0.82	0.844	n.a.	n.a.	n.a.	n.a.	0.00	0.00
61.350	48.900	2.662	7417.0	4275.2	21.141	5.891	2.93		Clay	97.1			46.22	0.83	n.a.	n.a.	0.82	0.843	n.a.	n.a.	n.a.	n.a.	0.00	0.00
61.520	53.150	2.603	7437.4	4285.0	23.072	5.265	2.86		Clay	92.2			50.24	0.83	n.a.	n.a.	0.82	0.843	n.a.	n.a.	n.a.	n.a.	0.00	0.00
61.680	45.820	2.520	7456.6	4294.2	19.604	5.986	2.95		Clay	99.4			43.31	0.83	n.a.	n.a.	0.82	0.842	n.a.	n.a.	n.a.	n.a.	0.00	0.00
61.840	43.060	2.031	7475.8	4303.4	18.275	5.166	2.93		Clay	97.8			40.70	0.83	n.a.	n.a.	0.82	0.842	n.a.	n.a.	n.a.	n.a.	0.00	0.00
62.010	33.840	1.521	7496.2	4313.2	13.953	5.055	3.02		Clay	100.0			31.98	0.83	n.a.	n.a.	0.82	0.842	n.a.	n.a.	n.a.	n.a.	0.00	0.00
62.170	23.380	1.076	7515.4	4322.4	9.079	5.485	3.19		Clay	100.0			22.10	0.83	n.a.	n.a.	0.82	0.841	n.a.	n.a.	n.a.	n.a.	0.00	0.00
62.340	25.170	0.869	7535.8	4332.2	9.881	4.062	3.08		Clay	100.0			23.79	0.83	n.a.	n.a.	0.82	0.841	n.a.	n.a.	n.a.	n.a.	0.00	0.00
62.500	27.920	0.811	7555.0	4341.4	11.122	3.358	2.99		Clay	100.0			26.39	0.83	n.a.	n.a.	0.82	0.841	n.a.	n.a.	n.a.	n.a.	0.00	0.00
62.660	18.770	0.611	7574.2	4350.6	6.888	4.081	3.21		Clay	100.0			17.74	0.83	n.a.	n.a.	0.82	0.840	n.a.	n.a.	n.a.	n.a.	0.00	0.00
62.830	14.880	0.467	7594.6	4360.4	5.083	4.211	3.32		Clay	100.0			14.06	0.83	n.a.	n.a.	0.81	0.840	n.a.	n.a.	n.a.	n.a.	0.00	0.00
62.990	13.																							

CPT No.

3

PGA (A_{max})

0.87

Total Settlement:

0.15

(Inches)

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Depth (ft)	Qc (tsf)	f_s (tsf)	σ_{vc} (psf)	Insitu σ'_{vc} (psf)	Q	F (%)	Ic	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	QcN near interfaces (soft layer)	Thin Layer Factor (K_{tn})	Interpreted QcN	CN	Qc1N	Qc1N-CS	Stress Reduction Coeff, r_d	CSR	K σ for Sand	CRRM=7.5, σ'_{vc} = 1 atm	CRR	Factor of Safety (CRR/Csrr)	Vertical Strain ϵ_v	Settlement (Inches)
66.110	53.030	1.266	7988.2	4549.3	21.557	2.583	2.69		Clay	78.1			50.12	0.82	n.a.	n.a.	0.80	0.833	n.a.	n.a.	n.a.	n.a.	0.00	0.00
66.270	46.410	1.376	8007.4	4558.6	18.605	3.245	2.80		Clay	87.0			43.87	0.82	n.a.	n.a.	0.80	0.832	n.a.	n.a.	n.a.	n.a.	0.00	0.00
66.440	41.080	1.241	8027.8	4568.3	16.227	3.347	2.85		Clay	91.4			38.83	0.82	n.a.	n.a.	0.80	0.832	n.a.	n.a.	n.a.	n.a.	0.00	0.00
66.600	38.340	1.207	8047.0	4577.6	14.993	3.516	2.90		Clay	94.6			36.24	0.82	n.a.	n.a.	0.80	0.832	n.a.	n.a.	n.a.	n.a.	0.00	0.00
66.770	36.320	1.239	8067.4	4587.4	14.076	3.838	2.94		Clay	98.2			34.33	0.82	n.a.	n.a.	0.80	0.831	n.a.	n.a.	n.a.	n.a.	0.00	0.00
66.930	36.690	1.309	8086.6	4596.6	14.205	4.010	2.95		Clay	98.9			34.68	0.81	n.a.	n.a.	0.80	0.831	n.a.	n.a.	n.a.	n.a.	0.00	0.00
67.090	36.350	1.359	8105.8	4605.8	14.025	4.206	2.97		Clay	100.0			34.36	0.81	n.a.	n.a.	0.80	0.831	n.a.	n.a.	n.a.	n.a.	0.00	0.00
67.260	36.850	1.352	8126.2	4615.6	14.207	4.124	2.96		Clay	99.5			34.83	0.81	n.a.	n.a.	0.80	0.830	n.a.	n.a.	n.a.	n.a.	0.00	0.00
67.420	36.550	1.329	8145.4	4624.8	14.045	4.093	2.96		Clay	99.6			34.55	0.81	n.a.	n.a.	0.80	0.830	n.a.	n.a.	n.a.	n.a.	0.00	0.00
67.590	35.640	1.358	8165.8	4634.6	13.618	4.303	2.98		Clay	100.0			33.69	0.81	n.a.	n.a.	0.80	0.829	n.a.	n.a.	n.a.	n.a.	0.00	0.00
67.750	34.280	1.184	8185.0	4643.8	13.001	3.923	2.97		Clay	100.0			32.40	0.81	n.a.	n.a.	0.80	0.829	n.a.	n.a.	n.a.	n.a.	0.00	0.00
67.910	30.630	0.959	8204.2	4653.0	11.402	3.616	3.00		Clay	100.0			28.95	0.81	n.a.	n.a.	0.80	0.829	n.a.	n.a.	n.a.	n.a.	0.00	0.00
68.080	26.710	0.678	8224.6	4662.8	9.693	2.999	3.01		Clay	100.0			25.25	0.81	n.a.	n.a.	0.80	0.828	n.a.	n.a.	n.a.	n.a.	0.00	0.00
68.240	24.200	0.501	8243.8	4672.0	8.595	2.493	3.01		Clay	100.0			22.87	0.81	n.a.	n.a.	0.80	0.828	n.a.	n.a.	n.a.	n.a.	0.00	0.00
68.410	23.490	0.443	8264.2	4681.8	8.269	2.290	3.00		Clay	100.0			22.20	0.81	n.a.	n.a.	0.79	0.827	n.a.	n.a.	n.a.	n.a.	0.00	0.00
68.570	23.550	0.441	8283.4	4691.0	8.275	2.272	3.00		Clay	100.0			22.26	0.81	n.a.	n.a.	0.79	0.827	n.a.	n.a.	n.a.	n.a.	0.00	0.00
68.730	24.830	0.489	8302.6	4700.2	8.799	2.364	2.99		Clay	100.0			23.47	0.81	n.a.	n.a.	0.79	0.827	n.a.	n.a.	n.a.	n.a.	0.00	0.00
68.900	26.290	0.601	8323.0	4710.0	9.396	2.716	3.00		Clay	100.0			24.85	0.81	n.a.	n.a.	0.79	0.826	n.a.	n.a.	n.a.	n.a.	0.00	0.00
69.060	27.970	0.677	8342.2	4719.3	10.086	2.845	2.98		Clay	100.0			26.44	0.81	n.a.	n.a.	0.79	0.826	n.a.	n.a.	n.a.	n.a.	0.00	0.00
69.230	29.920	0.633	8362.6	4729.0	10.885	2.458	2.92		Clay	96.4			28.28	0.81	n.a.	n.a.	0.79	0.825	n.a.	n.a.	n.a.	n.a.	0.00	0.00
69.390	30.250	0.622	8381.8	4738.3	10.999	2.387	2.91		Clay	95.6			28.59	0.81	n.a.	n.a.	0.79	0.825	n.a.	n.a.	n.a.	n.a.	0.00	0.00
69.550	30.870	0.768	8401.0	4747.5	11.235	2.878	2.94		Clay	98.6			29.18	0.81	n.a.	n.a.	0.79	0.825	n.a.	n.a.	n.a.	n.a.	0.00	0.00
69.720	32.970	1.323	8421.4	4757.3	12.091	4.601	3.04		Clay	100.0			31.16	0.81	n.a.	n.a.	0.79	0.824	n.a.	n.a.	n.a.	n.a.	0.00	0.00
69.880	39.570	1.658	8440.6	4766.5	14.833	4.690	2.98		Clay	100.0			37.40	0.81	n.a.	n.a.	0.79	0.824	n.a.	n.a.	n.a.	n.a.	0.00	0.00
70.050	55.350	1.857	8461.0	4776.3	21.406	3.632	2.78		Clay	85.7			52.32	0.81	n.a.	n.a.	0.79	0.824	n.a.	n.a.	n.a.	n.a.	0.00	0.00
70.210	82.940	1.688	8480.2	4785.5	49.463	2.144	2.36		Sand	51.6			78.39	0.68	53.51	114.37	0.79	0.823	0.903	0.160	0.194	0.24	0.03	0.00
70.370	98.410	2.315	8499.4	4794.7	59.123	2.458	2.34		Sand	50.2			93.02	0.70	64.83	128.11	0.79	0.823	0.891	0.192	0.248	0.30	0.02	0.00
70.540	131.660	2.793	8519.8	4804.5	79.913	2.192	2.21		Sand	40.0			124.44	0.72	89.81	153.37	0.79	0.822	0.865	0.312	0.462	0.56	0.02	0.00
70.700	162.680	3.290	8539.0	4813.7	99.269	2.077	2.13		Sand	33.3			153.76	0.74	114.24	177.05	0.79	0.822	0.831	0.647	1.098	1.34	0.00	0.00
70.870	165.990	3.843	8559.4	4823.5	101.234	2.377	2.17		Sand	36.3			156.89	0.75	117.48	184.28	0.79	0.822	0.818	0.867	1.534	1.87	0.00	0.00
71.030	166.050	4.434	8578.6	4832.7	101.169	2.741	2.21		Sand	40.0			156.95	0.75	118.01	188.40	0.79	0.821	0.809	1.043	1.857	2.26	0.00	0.00
71.190	168.130	4.178	8597.8	4841.9	102.367	2.550	2.19		Sand	37.8			158.91	0.75	119.37	188.15	0.78	0.821	0.809	1.031	1.835	2.24	0.00	0.00
71.360	181.200	4.305	8618.2	4851.7	110.415	2.434	2.15		Sand	34.9			171.27	0.76	130.02	198.13	0.78	0.820	0.787	1.703	2.947	3.59	0.00	0.00
71.520	222.190	4.464	8637.4	4861.0	135.866	2.049	2.03		Sand	25.6			210.01	0.78	163.77	223.92	0.78	0.820	0.750	9.747	16.094	19.63	0.00	0.00
71.690	237.890	7.210	8657.8	4870.7	145.504	3.087	2.15		Sand	35.2			224.85	0.80	180.45	260.24	0.78	0.820	0.750	476.883	786.735	959.94	0.00	0.00
71.850	316.520	9.711	8677.0	4880.0	194.299	3.111	2.08		Sand	29.5			299.17	0.80	239.98	322.83	0.78	0.819	0.749	#####	#####	#####	0.00	0.00
72.010	198.320	11.116	8696.2	4889.2	120.613	5.731	2.42		Sand	56.4			187.45	0.79	147.75	236.28	0.78	0.819	0.749	29.588	48.739	59.53	0.00	0.00
72.180	214.050	10.158	8716.6	4899.0	130.257	4.844	2.34		Sand	50.0			202.32	0.80	161.57	250.40	0.78	0.818	0.748	136.503	224.674	274.54	0.00	0.00
72.340	248.090	9.628	8735.8	4908.2	151.254	3.950	2.23		Sand	41.3			234.49	0.80	187.81	276.35	0.78	0.818	0.748	5358.487	8813.058	10774.18	0.00	0.00
72.510	214.960	7.493	8756.2	4918.0	130.557	3.558	2.23		Sand	41.4			203.18	0.79	160.94	243.00	0.78	0.818	0.747	59.040	97.025	118.68	0.00	0.00
72.670	188.770	5.289	8775.4	4927.2	114.207	2.869	2.19		Sand	38.4			178.42	0.77	136.54	209.93	0.78	0.817	0.749	3.469	5.720	7.00	0.00	0.00
72.830	179.170	5.532	8794.6	4936.4	108.153	3.165	2.24		Sand	42.3			169.35	0.76	128.60	203.47	0.78	0.817	0.768	2.310	3.904	4.78	0.00	0.00
73.000	234.530	4.834	8815.0	4946.2	142.264	2.100	2.03		Sand	25.2			221.67	0.78	173.93	235.01	0.78	0.816	0.745	26.135	42.851	52.49	0.00	0.00
73.160	123.320	4.034	8834.2	4955.4	73.439	3.393	2.37		Sand	52.9			116.56	0.71	82.97	152.29	0.78	0.816	0.861	0.304	0.444	0.54	0.02	0.00
73.330	64.860	5.924	8854.6	4965.2	24.342	9.802	3.04		Clay	100.0			61.30	0.80	n.a.	n.a.	0.78	0.816	n.a.	n.a.	n.a.	n.a.	0.00	0.00
73.490	84.590	7.177	8873.8	4974.4	32.226	8.954	2.93		Clay	97.1			79.95	0.80	n.a.	n.a.	0.78	0.815	n.a.	n.a.	n.a.	n.a.	0.00	

CPT No.

3

PGA (A_{max})

0.87

Total Settlement:

0.15 (Inches)

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Depth (ft)	q _c (tsf)	f _s (tsf)	σ _{vc} (psf)	Insitu σ' _{vc} (psf)	Q	F (%)	I _c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q _c N near interfaces (soft layer)	Thin Layer Factor (K _{tN})	Interpreted q _c N	C _N	q _c 1N	q _c 1N-CS	Stress Reduction Coeff, r _d	CSR	K _σ for Sand	CRRM=7.5, σ'vc = 1 atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε _v	Settlement (Inches)
77.100	491.760	3.597	9307.0	5182.4	294.193	0.738	1.48		Sand	0.0			464.80	0.79	366.98	366.98	0.76	0.806	0.731	#####	#####	#####	0.00	0.00
77.260	464.510	3.558	9326.2	5191.6	277.483	0.774	1.51		Sand	0.0			439.05	0.79	346.48	346.48	0.76	0.806	0.731	#####	#####	#####	0.00	0.00
77.430	435.360	4.481	9346.6	5201.4	259.642	1.040	1.63		Sand	0.0			411.49	0.79	324.57	324.57	0.76	0.805	0.730	#####	#####	#####	0.00	0.00
77.590	432.980	4.587	9365.8	5210.6	257.973	1.071	1.64		Sand	0.0			409.24	0.79	322.65	322.65	0.76	0.805	0.730	#####	#####	#####	0.00	0.00
77.760	442.720	5.468	9386.2	5220.4	263.586	1.248	1.68		Sand	0.0			418.45	0.79	329.74	329.74	0.76	0.805	0.729	#####	#####	#####	0.00	0.00
77.920	454.290	6.502	9405.4	5229.6	270.304	1.446	1.73		Sand	1.2			429.39	0.79	338.20	338.20	0.76	0.804	0.729	#####	#####	#####	0.00	0.00
78.080	474.850	8.092	9424.6	5238.8	282.411	1.721	1.78		Sand	5.2			448.82	0.79	353.34	353.74	0.76	0.804	0.728	#####	#####	#####	0.00	0.00
78.250	458.080	6.400	9445.0	5248.6	272.077	1.412	1.72		Sand	0.4			432.97	0.79	340.70	340.70	0.76	0.803	0.727	#####	#####	#####	0.00	0.00
78.410	418.760	5.630	9464.2	5257.8	248.256	1.360	1.73		Sand	1.3			395.80	0.79	311.31	311.31	0.76	0.803	0.727	#####	#####	#####	0.00	0.00
78.580	383.360	2.981	9484.6	5267.6	226.812	0.787	1.58		Sand	0.0			362.34	0.79	284.85	284.85	0.76	0.803	0.726	23586.005	37691.562	46964.57	0.00	0.00
78.740	379.880	2.800	9503.8	5276.8	224.525	0.747	1.56		Sand	0.0			359.05	0.79	282.14	282.14	0.76	0.802	0.726	14455.354	23083.669	28777.03	0.00	0.00
78.900	313.660	2.794	9523.0	5286.0	184.724	0.905	1.68		Sand	0.0			296.47	0.76	226.00	226.00	0.76	0.802	0.725	11.584	18.484	23.05	0.00	0.00
79.070	229.960	2.265	9543.4	5295.8	134.540	1.006	1.81		Sand	8.2			217.35	0.70	151.36	155.42	0.76	0.801	0.846	0.329	0.482	0.60	0.02	0.00
79.230	199.040	1.931	9562.6	5305.0	115.960	0.994	1.86		Sand	11.8			188.13	0.68	128.39	142.61	0.76	0.801	0.862	0.246	0.337	0.42	0.02	0.00
79.400	171.460	2.588	9583.0	5314.8	99.399	1.553	2.04		Sand	26.2			162.06	0.71	114.57	166.92	0.76	0.801	0.828	0.456	0.712	0.89	0.01	0.00
79.560	168.240	2.865	9602.2	5324.1	97.388	1.753	2.08		Sand	29.6			159.02	0.71	112.91	170.52	0.76	0.800	0.822	0.512	0.817	1.02	0.01	0.00
79.720	233.280	3.581	9621.4	5333.3	136.020	1.567	1.95		Sand	18.7			220.49	0.74	163.63	205.20	0.76	0.800	0.742	2.566	4.186	5.23	0.00	0.00
79.890	327.380	4.679	9641.8	5343.1	191.861	1.450	1.82		Sand	8.7			309.43	0.78	240.72	247.57	0.75	0.799	0.722	98.091	155.833	194.96	0.00	0.00
80.050	362.010	4.306	9661.0	5352.3	212.270	1.206	1.73		Sand	1.6			342.16	0.78	267.86	267.86	0.75	0.799	0.722	1410.381	2239.013	2802.58	0.00	0.00
80.220	381.420	4.372	9681.4	5362.1	223.595	1.161	1.70		Sand	0.0			360.51	0.78	282.09	282.09	0.75	0.798	0.721	14324.081	22722.532	28456.85	0.00	0.00
80.380	396.640	5.385	9700.6	5371.3	232.427	1.374	1.75		Sand	3.0			374.90	0.78	293.21	293.21	0.75	0.798	0.721	#####	#####	233708.42	0.00	0.00
80.540	320.620	4.732	9719.8	5380.5	187.162	1.499	1.84		Sand	10.1			303.04	0.78	235.24	247.30	0.75	0.798	0.720	95.119	150.674	188.89	0.00	0.00
80.710	303.750	4.351	9740.2	5390.3	176.996	1.456	1.85		Sand	10.6			287.10	0.76	219.31	232.98	0.75	0.797	0.719	21.573	34.147	42.83	0.00	0.00
80.870	288.300	4.431	9759.4	5399.5	167.697	1.563	1.88		Sand	13.7			272.50	0.77	208.59	235.30	0.75	0.797	0.719	26.881	42.518	53.36	0.00	0.00
81.040	282.460	3.207	9779.8	5409.3	164.087	1.155	1.79		Sand	6.6			266.98	0.73	195.10	196.54	0.75	0.796	0.763	1.563	2.624	3.29	0.00	0.00
81.200	257.270	2.516	9799.0	5418.5	149.063	0.997	1.78		Sand	5.4			243.17	0.71	171.97	172.31	0.75	0.796	0.816	0.545	0.874	1.10	0.01	0.00
81.360	236.990	2.311	9818.2	5427.7	136.963	0.996	1.81		Sand	7.5			224.00	0.69	155.00	157.68	0.75	0.796	0.839	0.349	0.515	0.65	0.02	0.00
81.530	235.050	2.793	9838.6	5437.5	135.689	1.213	1.87		Sand	12.4			222.16	0.71	157.68	175.82	0.75	0.795	0.808	0.618	1.010	1.27	0.00	0.00
81.690	227.960	2.669	9857.8	5446.7	131.392	1.197	1.87		Sand	12.9			215.46	0.71	151.91	171.49	0.75	0.795	0.816	0.530	0.845	1.06	0.01	0.00
81.860	214.840	3.437	9878.2	5456.5	123.546	1.637	1.99		Sand	22.1			203.06	0.73	148.13	197.39	0.75	0.794	0.758	1.636	2.730	3.44	0.00	0.00
82.020	248.120	4.538	9897.4	5465.8	143.008	1.866	1.99		Sand	22.0			234.52	0.76	178.18	231.77	0.75	0.794	0.715	19.279	30.339	38.21	0.00	0.00
82.190	268.310	4.870	9917.8	5475.5	154.737	1.849	1.96		Sand	20.0			253.60	0.77	195.52	245.38	0.75	0.794	0.715	76.614	120.475	151.80	0.00	0.00
82.350	296.170	4.492	9937.0	5484.8	170.957	1.542	1.87		Sand	13.0			279.93	0.76	213.82	237.34	0.75	0.793	0.714	32.848	51.617	65.07	0.00	0.00
82.510	320.110	4.607	9956.2	5494.0	184.851	1.462	1.83		Sand	9.8			302.56	0.77	232.42	242.90	0.75	0.793	0.714	58.423	91.741	115.71	0.00	0.00
82.680	336.950	4.550	9976.6	5503.8	194.549	1.370	1.80		Sand	6.9			318.48	0.77	245.93	248.14	0.75	0.792	0.713	104.769	164.394	207.45	0.00	0.00
82.840	338.360	5.111	9995.8	5513.0	195.207	1.533	1.83		Sand	9.8			319.81	0.78	248.41	259.43	0.75	0.792	0.713	427.834	670.843	846.97	0.00	0.00
83.010	365.700	4.916	10016.2	5522.8	211.023	1.363	1.77		Sand	4.9			345.65	0.78	268.36	268.58	0.74	0.792	0.712	1571.596	2462.419	3110.56	0.00	0.00
83.170	337.800	5.208	10035.4	5532.0	194.532	1.565	1.84		Sand	10.4			319.28	0.78	247.78	261.42	0.74	0.791	0.712	560.901	878.218	1109.92	0.00	0.00
83.330	348.810	4.419	10054.6	5541.2	200.795	1.285	1.77		Sand	4.5			329.69	0.78	255.74	255.84	0.74	0.791	0.711	267.385	418.358	529.00	0.00	0.00
83.500	354.120	3.465	10075.0	5551.0	203.711	0.993	1.68		Sand	0.0			334.71	0.78	259.51	259.51	0.74	0.790	0.711	432.650	676.432	855.77	0.00	0.00
83.660	356.320	4.134	10094.2	5560.2	204.819	1.177	1.73		Sand	1.8			336.79	0.78	261.01	261.01	0.74	0.790	0.710	530.010	828.070	1048.13	0.00	0.00
83.830	417.440	5.421	10114.6	5570.0	240.240	1.315	1.73		Sand	1.1			394.56	0.77	305.64	305.64	0.74	0.790	0.710	#####	#####	3426244.38	0.00	0.00
83.990	448.380	7.111	10133.8	5579.2	258.045	1.604	1.78		Sand	5.0			423.80	0.77	328.15	328.45	0.74							

CPT No.

3

PGA (A_{max})

0.87

Total Settlement:

0.15 (Inches)

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Depth (ft)	q _c (tsf)	f _s (tsf)	σ _{vc} (psf)	Insitu σ' _{vc} (psf)	Q	F (%)	I _c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q _{cN} near interfaces (soft layer)	Thin Layer Factor (K _{tN})	Interpreted q _{cN}	C _N	q _{c1N}	q _{c1N-CS}	Stress Reduction Coeff, r _d	CSR	K _σ for Sand	CRR _{M=7.5} , σ'vc = 1 atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε _v	Settlement (Inches)
88.090	152.380	1.738	10625.8	5815.4	83.849	1.182	2.02		Sand	24.2			144.03	0.65	94.07	139.29	0.73	0.779	0.853	0.231	0.306	0.39	0.02	0.00
88.250	155.630	1.951	10645.0	5824.6	85.629	1.298	2.03		Sand	25.8			147.10	0.66	97.06	145.60	0.73	0.779	0.844	0.262	0.358	0.46	0.02	0.00
88.420	155.930	2.206	10665.4	5834.4	85.722	1.465	2.07		Sand	28.6			147.38	0.67	98.11	151.23	0.73	0.779	0.836	0.297	0.418	0.54	0.02	0.00
88.580	169.580	3.874	10684.6	5843.6	93.412	2.359	2.19		Sand	38.0			160.28	0.69	111.22	178.23	0.73	0.778	0.789	0.677	1.101	1.41	0.00	0.00
88.750	205.290	3.846	10705.0	5853.4	113.622	1.924	2.06		Sand	28.2			194.04	0.71	138.57	198.97	0.73	0.778	0.736	1.784	2.887	3.71	0.00	0.00
88.910	203.550	3.476	10724.2	5862.6	112.539	1.754	2.04		Sand	26.1			192.39	0.71	136.04	192.14	0.73	0.778	0.755	1.247	2.072	2.66	0.00	0.00
89.070	103.740	2.970	10743.4	5871.8	55.814	3.019	2.42		Sand	56.6			98.05	0.64	62.42	127.56	0.73	0.777	0.865	0.190	0.238	0.31	0.02	0.00
89.240	87.000	1.588	10763.8	5881.6	46.271	1.945	2.35		Sand	51.2			82.23	0.61	50.56	110.44	0.73	0.777	0.882	0.153	0.178	0.23	0.03	0.00
89.400	86.360	1.713	10783.0	5890.8	45.867	2.116	2.38		Sand	53.3			81.63	0.61	50.18	110.78	0.73	0.776	0.882	0.153	0.179	0.23	0.03	0.00
89.570	84.270	1.653	10803.4	5900.6	44.640	2.096	2.39		Sand	53.8			79.65	0.61	48.76	109.16	0.72	0.776	0.883	0.151	0.175	0.22	0.03	0.00
89.730	83.440	1.480	10822.6	5909.8	44.130	1.896	2.36		Sand	51.9			78.87	0.61	48.08	107.58	0.72	0.776	0.884	0.148	0.171	0.22	0.03	0.00
89.900	81.360	1.395	10843.0	5919.6	42.913	1.837	2.36		Sand	52.0			76.90	0.61	46.67	105.81	0.72	0.775	0.886	0.145	0.166	0.21	0.03	0.00
90.060	72.690	1.230	10862.2	5928.9	37.978	1.829	2.40		Sand	55.2			68.71	0.60	41.11	99.90	0.72	0.775	0.891	0.137	0.154	0.20	0.03	0.00
90.220	61.060	1.035	10881.4	5938.1	18.733	1.861	2.65		Clay	75.4			57.71	0.76	n.a.	n.a.	0.72	0.775	n.a.	n.a.	n.a.	n.a.	0.00	0.00
90.390	59.290	0.920	10901.8	5947.9	18.104	1.709	2.65		Clay	74.7			56.04	0.76	n.a.	n.a.	0.72	0.774	n.a.	n.a.	n.a.	n.a.	0.00	0.00
90.550	59.120	0.951	10921.0	5957.1	18.015	1.773	2.66		Clay	75.6			55.88	0.76	n.a.	n.a.	0.72	0.774	n.a.	n.a.	n.a.	n.a.	0.00	0.00
90.720	58.300	1.034	10941.4	5966.9	17.708	1.957	2.69		Clay	78.0			55.10	0.76	n.a.	n.a.	0.72	0.773	n.a.	n.a.	n.a.	n.a.	0.00	0.00
90.880	57.590	1.086	10960.6	5976.1	17.439	2.084	2.71		Clay	79.7			54.43	0.76	n.a.	n.a.	0.72	0.773	n.a.	n.a.	n.a.	n.a.	0.00	0.00
91.040	54.860	1.098	10979.8	5985.3	16.497	2.225	2.74		Clay	82.5			51.85	0.76	n.a.	n.a.	0.72	0.773	n.a.	n.a.	n.a.	n.a.	0.00	0.00
91.210	51.670	1.063	11000.2	5995.1	15.403	2.302	2.78		Clay	85.2			48.84	0.76	n.a.	n.a.	0.72	0.772	n.a.	n.a.	n.a.	n.a.	0.00	0.00
91.370	48.860	0.990	11019.4	6004.3	14.440	2.283	2.80		Clay	86.9			46.18	0.76	n.a.	n.a.	0.72	0.772	n.a.	n.a.	n.a.	n.a.	0.00	0.00
91.540	49.260	0.904	11039.8	6014.1	14.546	2.066	2.77		Clay	84.7			46.56	0.76	n.a.	n.a.	0.72	0.772	n.a.	n.a.	n.a.	n.a.	0.00	0.00
91.700	49.020	0.930	11059.0	6023.3	14.441	2.138	2.77		Clay	85.6			46.33	0.76	n.a.	n.a.	0.72	0.771	n.a.	n.a.	n.a.	n.a.	0.00	0.00
91.860	48.100	0.955	11078.2	6032.5	14.110	2.245	2.80		Clay	87.2			45.46	0.76	n.a.	n.a.	0.72	0.771	n.a.	n.a.	n.a.	n.a.	0.00	0.00
92.030	49.020	0.984	11098.6	6042.3	14.389	2.264	2.80		Clay	86.8			46.33	0.76	n.a.	n.a.	0.72	0.770	n.a.	n.a.	n.a.	n.a.	0.00	0.00
92.190	48.860	1.162	11117.8	6051.5	14.311	2.684	2.84		Clay	90.3			46.18	0.76	n.a.	n.a.	0.72	0.770	n.a.	n.a.	n.a.	n.a.	0.00	0.00
92.360	48.080	1.869	11138.2	6061.3	14.027	4.396	2.98		Clay	100.0			45.44	0.76	n.a.	n.a.	0.72	0.770	n.a.	n.a.	n.a.	n.a.	0.00	0.00
92.520	64.630	2.945	11157.4	6070.6	19.455	4.988	2.90		Clay	95.3			61.09	0.76	n.a.	n.a.	0.72	0.769	n.a.	n.a.	n.a.	n.a.	0.00	0.00
92.680	122.190	2.859	11176.6	6079.8	65.018	2.452	2.31		Sand	47.8			115.49	0.64	73.91	138.42	0.72	0.769	0.847	0.228	0.298	0.39	0.02	0.00
92.850	88.650	2.329	11197.0	6089.6	27.277	2.805	2.63		Clay	73.4			83.79	0.76	n.a.	n.a.	0.72	0.769	n.a.	n.a.	n.a.	n.a.	0.00	0.00
93.010	54.770	1.478	11216.2	6098.8	16.122	3.007	2.83		Clay	89.3			51.77	0.76	n.a.	n.a.	0.72	0.768	n.a.	n.a.	n.a.	n.a.	0.00	0.00
93.180	51.910	1.053	11236.6	6108.6	15.156	2.274	2.78		Clay	85.4			49.06	0.76	n.a.	n.a.	0.71	0.768	n.a.	n.a.	n.a.	n.a.	0.00	0.00
93.340	51.790	1.047	11255.8	6117.8	15.091	2.268	2.78		Clay	85.5			48.95	0.76	n.a.	n.a.	0.71	0.768	n.a.	n.a.	n.a.	n.a.	0.00	0.00
93.500	49.610	1.028	11275.0	6127.0	14.354	2.338	2.81		Clay	87.5			46.89	0.76	n.a.	n.a.	0.71	0.767	n.a.	n.a.	n.a.	n.a.	0.00	0.00
93.670	49.670	0.983	11295.4	6136.8	14.347	2.233	2.80		Clay	86.6			46.95	0.76	n.a.	n.a.	0.71	0.767	n.a.	n.a.	n.a.	n.a.	0.00	0.00
93.830	51.300	0.969	11314.6	6146.0	14.853	2.122	2.77		Clay	84.6			48.49	0.75	n.a.	n.a.	0.71	0.767	n.a.	n.a.	n.a.	n.a.	0.00	0.00
94.000	51.750	0.929	11335.0	6155.8	14.972	2.017	2.76		Clay	83.4			48.91	0.75	n.a.	n.a.	0.71	0.766	n.a.	n.a.	n.a.	n.a.	0.00	0.00
94.160	50.250	0.891	11354.2	6165.0	14.460	2.000	2.77		Clay	84.2			47.50	0.75	n.a.	n.a.	0.71	0.766	n.a.	n.a.	n.a.	n.a.	0.00	0.00
94.320	50.820	0.909	11373.4	6174.2	14.620	2.013	2.76		Clay	84.1			48.03	0.75	n.a.	n.a.	0.71	0.765	n.a.	n.a.	n.a.	n.a.	0.00	0.00
94.490	50.810	1.094	11393.8	6184.0	14.590	2.424	2.81		Clay	87.7			48.02	0.75	n.a.	n.a.	0.71	0.765	n.a.	n.a.	n.a.	n.a.	0.00	0.00
94.650	50.020	1.472	11413.0	6193.2	14.310	3.321	2.90		Clay	94.7			47.28	0.75	n.a.	n.a.	0.71	0.765	n.a.	n.a.	n.a.	n.a.	0.00	0.00
94.820	57.250	2.196	11433.4	6203.0	16.616	4.260	2.91		Clay	96.0			54.11	0.75	n.a.	n.a.	0.71	0.764	n.a.	n.a.	n.a.	n.a.	0.00	0.00
94.980	84.480	2.364	11452.6	6212.2	25.354	3.001	2.67		Clay	76.9			79.85	0.75	n.a.	n.a.	0.71	0.764	n.a.	n.a.	n.a.	n.a.	0.00	0.00
95.140	67.140	2.119	11471.8	6221.5	19.739	3.452	2.80		Clay	86.7			63.46	0.75	n.a.	n.a.	0.71	0.764	n.a.	n.a.	n.a.	n.a.	0.00	0.00
95.310	56.480	1.665	11492.2	6231.3	16.284	3.282	2.85		Clay	90.9			53.38	0.75	n.a.	n.a.	0.71	0.763	n.a.	n.a.	n.a.	n.a.	0.00	0.00
95.470	69.860	1.578	11511.4	6240.5	20.545	2.462	2.69		Clay	78.4			66.03	0.75	n.a.	n.a.	0.71	0.763	n.a.	n.a.	n.a.	n.a.	0.00	0.00
95.640	76.540	1.923	11531.8	6250.3	22.647	2.7																		

CPT No. 3

PGA (A_{max}) 0.87

Total Settlement: 0.15 (Inches)

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Depth (ft)	q_c (tsf)	f_s (tsf)	σ_{vc} (psf)	Insitu σ'_{vc} (psf)	Q	F (%)	I_c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q_{cN} near interfaces (soft layer)	Thin Layer Factor (K_{t1})	Interpreted q_{cN}	C _N	q_{c1N}	q_{c1N-CS}	Stress Reduction Coeff, r_d	CSR	K_{σ} for Sand	CRR _{M=7.5} , $\sigma'_{vc} = 1$ atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ϵ_v	Settlement (Inches)
99.080	47.490	0.929	11944.6	6448.4	12.877	2.238	2.83		Clay	89.8			44.89	0.75	n.a.	n.a.	0.70	0.756	n.a.	n.a.	n.a.	n.a.	0.00	0.00
99.250	45.740	0.879	11965.0	6458.2	12.312	2.211	2.85		Clay	90.8			43.23	0.74	n.a.	n.a.	0.70	0.755	n.a.	n.a.	n.a.	n.a.	0.00	0.00
99.410	45.390	0.842	11984.2	6467.4	12.184	2.136	2.84		Clay	90.5			42.90	0.74	n.a.	n.a.	0.70	0.755	n.a.	n.a.	n.a.	n.a.	0.00	0.00
99.570	46.090	0.855	12003.4	6476.6	12.379	2.132	2.84		Clay	90.0			43.56	0.74	n.a.	n.a.	0.70	0.755	n.a.	n.a.	n.a.	n.a.	0.00	0.00
99.740	46.920	1.033	12023.8	6486.4	12.613	2.526	2.87		Clay	92.7			44.35	0.74	n.a.	n.a.	0.70	0.755	n.a.	n.a.	n.a.	n.a.	0.00	0.00
99.900	44.900	0.986	12043.0	6495.6	11.971	2.536	2.89		Clay	94.3			42.44	0.74	n.a.	n.a.	0.70	0.754	n.a.	n.a.	n.a.	n.a.	0.00	0.00
100.070	43.960	0.964	12063.4	6505.4	11.661	2.541	2.90		Clay	95.1			41.55	0.74	n.a.	n.a.	0.70	0.754	n.a.	n.a.	n.a.	n.a.	0.00	0.00

CPT No.

4

PGA (A_{max})

0.87

Total Settlement:

0.19 (Inches)

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Depth (ft)	q _c (tsf)	f _s (tsf)	σ _{vc} (psf)	In situ σ' _{vc} (psf)	Q	F (%)	I _c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q _{cN} near interfaces (soft layer)	Thin Layer Factor (K _{tN})	Interpreted q _{cN}	C _N	q _{c1N}	q _{c1N-CS}	Stress Reduction Coeff, r _d	CSR	K _σ for Sand	CRRM=7.5, σ'vc = 1 atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε _v	Settlement (Inches)
0.160	14.090	0.139	20.0	20.0	136.886	0.989	1.80		Unsaturated	7.3			13.32	1.70	22.64	24.09	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.330	62.850	0.855	41.3	41.3	425.327	1.361	1.59		Unsaturated	0.0			59.40	1.70	100.99	100.99	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.490	117.290	1.510	61.3	61.3	651.428	1.288	1.48		Unsaturated	0.0			110.86	1.70	188.46	188.46	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.660	190.740	2.943	82.5	82.5	912.837	1.543	1.50		Unsaturated	0.0			180.28	1.70	306.48	306.48	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.820	180.440	3.859	102.5	102.5	774.675	2.139	1.66		Unsaturated	0.0			170.55	1.70	289.93	289.93	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.980	169.780	4.688	122.5	122.5	666.705	2.762	1.78		Unsaturated	5.6			160.47	1.70	272.80	273.41	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.150	148.870	5.275	143.8	143.8	539.592	3.545	1.92		Unsaturated	16.4			140.71	1.70	239.21	280.28	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.310	124.130	5.684	163.8	163.8	421.475	4.582	2.06		Unsaturated	28.0			117.33	1.70	199.45	271.21	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.480	103.400	5.313	185.0	185.0	330.231	5.143	2.15		Unsaturated	35.2			97.73	1.70	166.14	242.78	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.640	91.720	4.490	205.0	205.0	278.211	4.901	2.17		Unsaturated	36.5			86.69	1.70	147.38	221.21	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.800	90.480	4.229	225.0	225.0	261.935	4.679	2.16		Unsaturated	36.1			85.52	1.70	145.38	218.31	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.970	96.680	3.610	246.3	246.3	267.527	3.739	2.07		Unsaturated	28.9			91.38	1.70	155.35	220.28	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.130	100.980	3.738	266.3	266.3	268.714	3.707	2.07		Unsaturated	28.6			95.44	1.70	162.26	227.96	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.300	94.410	3.623	287.5	287.5	241.718	3.843	2.11		Unsaturated	31.5			89.23	1.70	151.70	220.11	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.460	83.880	3.190	307.5	307.5	207.592	3.810	2.14		Unsaturated	34.1			79.28	1.70	134.78	202.97	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.620	74.730	2.422	327.5	327.5	179.147	3.248	2.12		Unsaturated	32.3			70.63	1.70	120.08	182.87	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.790	54.650	1.573	348.8	348.8	126.829	2.888	2.17		Unsaturated	36.3			51.65	1.70	87.81	147.81	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.950	34.850	1.369	368.8	368.8	78.488	3.948	2.40		Unsaturated	55.3			32.94	1.70	56.00	118.91	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.120	31.370	1.188	390.0	390.0	68.635	3.810	2.43		Unsaturated	57.5			29.65	1.70	50.41	112.50	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.280	35.830	1.283	410.0	410.0	76.495	3.600	2.38		Unsaturated	53.5			33.87	1.70	57.57	120.26	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.440	37.830	1.278	430.0	430.0	78.868	3.398	2.35		Unsaturated	51.3			35.76	1.70	60.79	123.46	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.610	34.380	1.284	451.3	451.3	69.905	3.758	2.42		Unsaturated	56.7			32.50	1.70	55.24	118.42	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.770	28.720	1.197	471.3	471.3	57.050	4.201	2.52		Unsaturated	64.4			27.15	1.70	46.15	108.94	1.00	0.565	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.940	27.300	0.963	492.5	492.5	53.003	3.558	2.49		Unsaturated	61.9			25.80	1.70	43.87	105.41	1.00	0.565	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.100	22.070	0.696	512.5	512.5	41.894	3.192	2.53		Unsaturated	65.2			20.86	1.70	35.46	95.40	1.00	0.565	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.270	18.060	0.539	533.8	533.8	33.485	3.029	2.58		Unsaturated	69.7			17.07	1.70	29.02	88.04	1.00	0.565	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.430	17.160	0.591	553.8	553.8	40.786	3.498	2.56		Unsaturated	68.0			16.22	1.70	27.57	85.84	1.00	0.565	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.590	19.370	1.058	573.8	573.8	44.970	5.542	2.68		Unsaturated	77.0			18.31	1.70	31.12	92.02	1.00	0.565	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.760	39.070	1.714	595.0	595.0	69.109	4.421	2.48		Unsaturated	61.2			36.93	1.70	62.78	129.45	1.00	0.564	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.920	57.130	1.950	615.0	615.0	99.622	3.432	2.29		Unsaturated	46.3			54.00	1.63	87.94	155.25	1.00	0.564	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.090	50.180	2.113	636.3	636.3	85.946	4.239	2.40		Unsaturated	55.2			47.43	1.64	77.57	146.33	1.00	0.564	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.250	41.910	1.759	656.3	656.3	70.573	4.229	2.46		Unsaturated	59.6			39.61	1.66	65.76	132.77	1.00	0.564	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.410	36.440	1.641	676.3	676.3	60.360	4.546	2.53		Unsaturated	65.1			34.44	1.67	57.52	123.74	1.00	0.564	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.580	31.850	1.395	697.5	697.5	51.859	4.427	2.56	plastic plastic plastic plastic	Clay	67.9			30.10	1.34	n.a.	n.a.	1.00	0.568	n.a.	n.a.	n.a.	n.a.	0.00	0.00
5.740	25.210	1.133	717.5	717.5	50.078	4.558	2.58		Clay	69.5			23.83	1.33	n.a.	n.a.	1.00	0.575	n.a.	n.a.	n.a.	n.a.	0.00	0.00
5.910	21.920	0.905	738.8	738.8	42.549	4.198	2.61		Clay	71.4			20.72	1.32	n.a.	n.a.	1.00	0.583	n.a.	n.a.	n.a.	n.a.	0.00	0.00
6.070	18.640	0.748	758.8	758.8	35.385	4.094	2.65		Clay	75.4			17.62	1.31	n.a.	n.a.	1.00	0.591	n.a.	n.a.	n.a.	n.a.	0.00	0.00
6.230	16.360	0.614	778.8	778.8	30.389	3.843	2.68		Clay	77.8			15.46	1.30	n.a.	n.a.	1.00	0.598	n.a.	n.a.	n.a.	n.a.	0.00	0.00
6.400	14.550	0.538	800.0	800.0	35.375	3.800	2.63		Clay	73.6			13.75	1.29	n.a.	n.a.	0.99	0.605	n.a.	n.a.	n.a.	n.a.	0.00	0.00
6.560	12.970	0.484	820.0	820.0	30.634	3.852	2.68		Clay	77.6			12.26	1.28	n.a.	n.a.	0.99	0.612	n.a.	n.a.	n.a.	n.a.	0.00	0.00
6.730	12.170	0.452	841.3	841.3	27.933	3.844	2.71		Clay	79.9			11.50	1.28	n.a.	n.a.	0.99	0.619	n.a.	n.a.	n.a.	n.a.	0.00	0.00
6.890	12.330	0.416	861.3	861.3	27.633	3.497	2.69		Clay	78.0			11.65	1.27	n.a.	n.a.	0.99	0.626	n.a.	n.a.	n.a.	n.a.	0.00	0.00
7.050	12.240	0.392	881.3	881.3	26.779	3.323	2.68		Clay	77.7			11.57	1.26	n.a.	n.a.	0.99	0.632	n.a.	n.a.	n.a.	n.a.	0.00	0.00
7.220	11.810	0.361	902.5	902.5	25.172	3.180	2.69		Clay	78.4			11.16	1.25	n.a.	n.a.	0.99	0.638	n.a.	n.a.	n.a.	n.a.	0.00	0.00
7.380	11.020	0.325	922.5	922.5	22.892	3.079	2.72		Clay	80.2			10.42	1.24	n.a.	n.a.	0.99	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
7.550	10.610	0.300	943.8	943.8	21.485	2.956	2.73		Clay	81.1			10.03	1.24	n.a.	n.a.	0.99	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
7.710	9.900	0.278	963.8	963.8	19.545	2.950	2.76		Clay	83.6			9.36	1.23	n.a.	n.a.	0.99	0.656	n.a.	n.a.	n.a.	n.a.	0.	

CPT No.

4

PGA (A_{max})

0.87

Total Settlement:

0.19 (Inches)

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Depth (ft)	q _c (tsf)	f _s (tsf)	σ _{vc} (psf)	Insitu σ' _{vc} (psf)	Q	F (%)	I _c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q _{cN} near interfaces (soft layer)	Thin Layer Factor (K _{tN})	Interpreted q _{cN}	C _N	q _{c1N}	q _{c1N-CS}	Stress Reduction Coeff, r _d	CSR	K _σ for Sand	CRRM=7.5, σ'vc = 1 atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε _v	Settlement (Inches)
11.150	15.450	0.480	1393.8	1393.8	21.170	3.251	2.76		Clay	83.5			14.60	1.12	n.a.	n.a.	0.99	0.751	n.a.	n.a.	n.a.	n.a.	0.00	0.00
11.320	15.820	0.481	1415.0	1415.0	21.360	3.183	2.75		Clay	82.8			14.95	1.11	n.a.	n.a.	0.98	0.755	n.a.	n.a.	n.a.	n.a.	0.00	0.00
11.480	15.300	0.481	1435.0	1435.0	20.324	3.301	2.77		Clay	84.9			14.46	1.11	n.a.	n.a.	0.98	0.758	n.a.	n.a.	n.a.	n.a.	0.00	0.00
11.650	15.800	0.510	1456.3	1456.3	20.700	3.384	2.77		Clay	85.0			14.93	1.10	n.a.	n.a.	0.98	0.761	n.a.	n.a.	n.a.	n.a.	0.00	0.00
11.810	15.840	0.557	1476.3	1476.3	20.460	3.691	2.80		Clay	87.2			14.97	1.10	n.a.	n.a.	0.98	0.765	n.a.	n.a.	n.a.	n.a.	0.00	0.00
11.980	16.160	0.630	1497.5	1497.5	20.583	4.089	2.83		Clay	89.3			15.27	1.10	n.a.	n.a.	0.98	0.768	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.140	16.810	0.645	1517.5	1517.5	21.155	4.021	2.82		Clay	88.2			15.89	1.09	n.a.	n.a.	0.98	0.771	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.300	16.590	0.650	1537.5	1537.5	20.580	4.110	2.83		Clay	89.5			15.68	1.09	n.a.	n.a.	0.98	0.774	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.470	16.370	0.602	1558.8	1558.8	20.004	3.864	2.82		Clay	88.8			15.47	1.08	n.a.	n.a.	0.98	0.777	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.630	16.360	0.604	1578.8	1578.8	19.725	3.878	2.83		Clay	89.3			15.46	1.08	n.a.	n.a.	0.98	0.780	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.800	16.270	0.614	1600.0	1600.0	19.338	3.972	2.84		Clay	90.4			15.38	1.08	n.a.	n.a.	0.98	0.783	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.960	16.170	0.630	1620.0	1620.0	18.963	4.099	2.86		Clay	91.6			15.28	1.07	n.a.	n.a.	0.98	0.786	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.120	15.210	0.609	1640.0	1640.0	17.549	4.233	2.89		Clay	94.4			14.38	1.07	n.a.	n.a.	0.98	0.789	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.290	14.560	0.589	1661.3	1661.3	16.529	4.289	2.92		Clay	96.3			13.76	1.07	n.a.	n.a.	0.98	0.791	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.450	14.220	0.569	1681.3	1681.3	15.916	4.251	2.93		Clay	97.1			13.44	1.06	n.a.	n.a.	0.98	0.794	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.620	14.190	0.538	1702.5	1702.5	15.670	4.034	2.92		Clay	96.4			13.41	1.06	n.a.	n.a.	0.98	0.797	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.780	13.610	0.488	1722.5	1722.5	14.803	3.824	2.92		Clay	96.8			12.86	1.06	n.a.	n.a.	0.98	0.799	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.940	12.870	0.458	1742.5	1742.5	13.772	3.814	2.95		Clay	98.7			12.16	1.05	n.a.	n.a.	0.98	0.802	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.110	11.970	0.441	1763.2	1756.3	12.627	3.975	2.99		Clay	100.0			11.31	1.05	n.a.	n.a.	0.98	0.804	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.270	11.790	0.440	1782.4	1765.6	12.346	4.039	3.00		Clay	100.0			11.14	1.05	n.a.	n.a.	0.98	0.807	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.440	11.890	0.441	1802.8	1775.3	12.379	4.016	3.00		Clay	100.0			11.24	1.05	n.a.	n.a.	0.98	0.809	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.600	11.810	0.432	1822.0	1784.6	12.215	3.965	3.00		Clay	100.0			11.16	1.05	n.a.	n.a.	0.98	0.811	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.760	11.890	0.439	1841.2	1793.8	12.231	3.998	3.00		Clay	100.0			11.24	1.04	n.a.	n.a.	0.98	0.814	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.930	12.500	0.452	1861.6	1803.6	12.829	3.908	2.98		Clay	100.0			11.81	1.04	n.a.	n.a.	0.98	0.816	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.090	13.850	0.529	1880.8	1812.8	14.243	4.097	2.95		Clay	99.3			13.09	1.04	n.a.	n.a.	0.98	0.818	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.260	14.650	0.545	1901.2	1822.6	15.033	3.976	2.93		Clay	97.2			13.85	1.04	n.a.	n.a.	0.98	0.820	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.420	14.630	0.527	1920.4	1831.8	14.925	3.854	2.92		Clay	96.7			13.83	1.04	n.a.	n.a.	0.97	0.822	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.580	12.770	0.480	1939.6	1841.0	12.819	4.070	2.99		Clay	100.0			12.07	1.04	n.a.	n.a.	0.97	0.824	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.750	11.600	0.420	1960.0	1850.8	11.476	3.954	3.02		Clay	100.0			10.96	1.04	n.a.	n.a.	0.97	0.827	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.910	11.330	0.403	1979.2	1860.0	11.119	3.900	3.03		Clay	100.0			10.71	1.03	n.a.	n.a.	0.97	0.829	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.080	10.980	0.379	1999.6	1869.8	10.675	3.796	3.03		Clay	100.0			10.38	1.03	n.a.	n.a.	0.97	0.831	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.240	10.700	0.355	2018.8	1879.0	10.315	3.662	3.04		Clay	100.0			10.11	1.03	n.a.	n.a.	0.97	0.832	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.400	9.590	0.318	2038.0	1888.2	9.078	3.714	3.08		Clay	100.0			9.06	1.03	n.a.	n.a.	0.97	0.834	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.570	8.180	0.275	2058.4	1898.0	7.535	3.849	3.16		Clay	100.0			7.73	1.03	n.a.	n.a.	0.97	0.836	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.730	7.230	0.249	2077.6	1907.2	6.492	4.020	3.22		Clay	100.0			6.83	1.03	n.a.	n.a.	0.97	0.838	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.900	6.900	0.219	2098.0	1917.0	6.104	3.748	3.23		Clay	100.0			6.52	1.03	n.a.	n.a.	0.97	0.840	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.060	6.910	0.205	2117.2	1926.3	6.075	3.497	3.21		Clay	100.0			6.53	1.03	n.a.	n.a.	0.97	0.842	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.220	7.080	0.199	2136.4	1935.5	6.212	3.304	3.19		Clay	100.0			6.69	1.02	n.a.	n.a.	0.97	0.843	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.390	6.580	0.194	2156.8	1945.3	5.656	3.528	3.24		Clay	100.0			6.22	1.02	n.a.	n.a.	0.97	0.845	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.550	6.280	0.176	2176.0	1954.5	5.313	3.394	3.26		Clay	100.0			5.94	1.02	n.a.	n.a.	0.97	0.847	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.720	6.200	0.170	2196.4	1964.3	5.195	3.330	3.26		Clay	100.0			5.86	1.02	n.a.	n.a.	0.97	0.848	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.880	6.590	0.182	2215.6	1973.5	5.556	3.322	3.23		Clay	100.0			6.23	1.02	n.a.	n.a.	0.97	0.850	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.040	7.060	0.213	2234.8	1982.7	5.994	3.586	3.22		Clay	100.0			6.67	1.02	n.a.	n.a.	0.97	0.851	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.210	7.430	0.299	2255.2	1992.5	6.326	4.746	3.27		Clay	100.0			7.02	1.02	n.a.	n.a.	0.97	0.853	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.370	7.810	0.313	2274.4	2001.7	6.667	4.683	3.25		Clay	100.0			7.38	1.01	n.a.	n.a.	0.97	0.855	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.540	7.820	0.322	2294.8	2011.5	6.634	4.832	3.26		Clay	100.0			7.39	1.01	n.a.	n.a.	0.97	0.856	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.700	8.560	0.339	2314.0	2020.7	7.327	4.579	3.21		Clay	100.0			8.09	1.01	n.a.	n.a.	0.97	0.857	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.860	9.120	0.369	2333.2	2029.9	7.836	4.637	3.19		Clay	100.0			8.62	1.01	n.a.	n.a.	0.97	0.859	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.030	9.610	0.404	2353.6	2039.7	8.269	4.78																		

CPT No.

4

PGA (A_{max})

0.87

Total Settlement:

0.19 (Inches)

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Depth (ft)	q _c (tsf)	f _s (tsf)	σ _{vc} (psf)	Insitu σ' _{vc} (psf)	Q	F (%)	I _c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q _{cN} near interfaces (soft layer)	Thin Layer Factor (K _{tN})	Interpreted q _{cN}	C _N	q _{c1N}	q _{c1N-CS}	Stress Reduction Coeff, r _d	CSR	K _σ for Sand	CRR _{M=7.5} , σ'vc = 1 atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε _v	Settlement (Inches)
22.150	6.480	0.240	2728.0	2219.4	4.610	4.685	3.38		Clay	100.0			6.12	0.99	n.a.	n.a.	0.96	0.883	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.310	6.190	0.207	2747.2	2228.7	4.322	4.300	3.39		Clay	100.0			5.85	0.99	n.a.	n.a.	0.96	0.884	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.470	5.790	0.184	2766.4	2237.9	3.938	4.178	3.41		Clay	100.0			5.47	0.99	n.a.	n.a.	0.96	0.884	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.640	5.500	0.178	2786.8	2247.7	3.654	4.337	3.45		Clay	100.0			5.20	0.98	n.a.	n.a.	0.96	0.885	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.800	5.370	0.176	2806.0	2256.9	3.515	4.432	3.47		Clay	100.0			5.08	0.98	n.a.	n.a.	0.96	0.886	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.970	5.320	0.171	2826.4	2266.7	3.447	4.387	3.47		Clay	100.0			5.03	0.98	n.a.	n.a.	0.95	0.887	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.130	5.240	0.173	2845.6	2275.9	3.354	4.527	3.49		Clay	100.0			4.95	0.98	n.a.	n.a.	0.95	0.888	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.290	5.490	0.177	2864.8	2285.1	3.551	4.372	3.46		Clay	100.0			5.19	0.98	n.a.	n.a.	0.95	0.889	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.460	5.810	0.191	2885.2	2294.9	3.806	4.380	3.44		Clay	100.0			5.49	0.98	n.a.	n.a.	0.95	0.890	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.620	6.010	0.192	2904.4	2304.1	3.956	4.219	3.41		Clay	100.0			5.68	0.98	n.a.	n.a.	0.95	0.891	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.790	6.280	0.183	2924.8	2313.9	4.164	3.801	3.37		Clay	100.0			5.94	0.98	n.a.	n.a.	0.95	0.891	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.950	6.460	0.148	2944.0	2323.1	4.294	2.959	3.30		Clay	100.0			6.11	0.98	n.a.	n.a.	0.95	0.892	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.110	6.190	0.121	2963.2	2332.3	4.037	2.570	3.30		Clay	100.0			5.85	0.97	n.a.	n.a.	0.95	0.893	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.280	5.980	0.135	2983.6	2342.1	3.833	3.017	3.35		Clay	100.0			5.65	0.97	n.a.	n.a.	0.95	0.894	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.440	6.930	0.342	3002.8	2351.3	4.617	6.294	3.46		Clay	100.0			6.55	0.97	n.a.	n.a.	0.95	0.894	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.610	14.140	0.553	3023.2	2361.1	10.697	4.380	3.07		Clay	100.0			13.36	0.97	n.a.	n.a.	0.95	0.895	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.770	28.750	0.606	3042.4	2370.4	22.974	2.224	2.63		Clay	73.2			27.17	0.97	n.a.	n.a.	0.95	0.896	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.930	40.110	0.452	3061.6	2379.6	34.386	1.171	2.32		Sand	48.9		1.8	68.24	0.95	64.78	127.44	0.95	0.897	0.984	0.190	0.270	0.30	0.02	0.03
25.100	39.240	0.242	3082.0	2389.4	33.532	0.642	2.20		Sand	39.0	37.91	1.8	68.24	0.95	64.57	121.33	0.95	0.897	0.985	0.174	0.240	0.27	0.03	0.03
25.260	26.340	0.179	3101.2	2398.6	22.007	0.721	2.39		Sand	53.8	37.91	1.8	68.24	0.95	64.58	129.27	0.95	0.898	0.983	0.195	0.280	0.31	0.02	0.03
25.430	15.480	0.137	3121.6	2408.4	11.559	0.981	2.69		Clay	78.6			14.63	0.97	n.a.	n.a.	0.95	0.899	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.590	10.270	0.112	3140.8	2417.6	7.197	1.282	2.93		Clay	97.5			9.71	0.97	n.a.	n.a.	0.95	0.899	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.750	8.830	0.098	3160.0	2426.8	5.975	1.345	3.01		Clay	100.0			8.35	0.96	n.a.	n.a.	0.95	0.900	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.920	8.110	0.089	3180.4	2436.6	5.352	1.368	3.06		Clay	100.0			7.67	0.96	n.a.	n.a.	0.95	0.901	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.080	8.510	0.117	3199.6	2445.8	5.651	1.689	3.08		Clay	100.0			8.04	0.96	n.a.	n.a.	0.95	0.901	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.250	9.080	0.178	3220.0	2455.6	6.084	2.376	3.12		Clay	100.0			8.58	0.96	n.a.	n.a.	0.94	0.902	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.410	8.950	0.221	3239.2	2464.8	5.948	3.013	3.19		Clay	100.0			8.46	0.96	n.a.	n.a.	0.94	0.902	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.570	8.410	0.211	3258.4	2474.0	5.482	3.116	3.22		Clay	100.0			7.95	0.96	n.a.	n.a.	0.94	0.903	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.740	8.200	0.201	3278.8	2483.8	5.283	3.064	3.23		Clay	100.0			7.75	0.96	n.a.	n.a.	0.94	0.903	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.900	8.300	0.180	3298.0	2493.0	5.336	2.706	3.20		Clay	100.0			7.84	0.96	n.a.	n.a.	0.94	0.904	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.070	8.530	0.148	3318.4	2502.8	5.490	2.153	3.14		Clay	100.0			8.06	0.96	n.a.	n.a.	0.94	0.904	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.230	8.640	0.131	3337.6	2512.0	5.550	1.882	3.11		Clay	100.0			8.17	0.96	n.a.	n.a.	0.94	0.905	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.400	8.810	0.114	3358.0	2521.8	5.655	1.601	3.07		Clay	100.0			8.33	0.95	n.a.	n.a.	0.94	0.905	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.560	8.820	0.135	3377.2	2531.1	5.635	1.887	3.10		Clay	100.0			8.34	0.95	n.a.	n.a.	0.94	0.906	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.720	8.990	0.187	3396.4	2540.3	5.741	2.565	3.16		Clay	100.0			8.50	0.95	n.a.	n.a.	0.94	0.906	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.890	8.890	0.354	3416.8	2550.1	5.632	4.932	3.32		Clay	100.0			8.40	0.95	n.a.	n.a.	0.94	0.907	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.050	8.280	0.373	3436.0	2559.3	5.128	5.680	3.39		Clay	100.0			7.83	0.95	n.a.	n.a.	0.94	0.907	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.220	8.090	0.374	3456.4	2569.1	4.953	5.882	3.41		Clay	100.0			7.65	0.95	n.a.	n.a.	0.94	0.908	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.380	8.290	0.378	3475.6	2578.3	5.083	5.764	3.40		Clay	100.0			7.84	0.95	n.a.	n.a.	0.94	0.908	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.540	8.120	0.374	3494.8	2587.5	4.926	5.875	3.42		Clay	100.0			7.67	0.95	n.a.	n.a.	0.94	0.909	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.710	8.040	0.377	3515.2	2597.3	4.838	6.004	3.43		Clay	100.0			7.60	0.95	n.a.	n.a.	0.94	0.909	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.870	8.160	0.386	3534.4	2606.5	4.905	6.043	3.42		Clay	100.0			7.71	0.95	n.a.	n.a.	0.94	0.909	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.040	8.280	0.388	3554.8	2616.3	4.971	5.971	3.42		Clay	100.0			7.83	0.95	n.a.	n.a.	0.94	0.910	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.200	8.400	0.387	3574.0	2625.5	5.037	5.845	3.41		Clay	100.0			7.94	0.94	n.a.	n.a.	0.94	0.910	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.360	8.470	0.387	3593.2	2634.7	5.066	5.805	3.40		Clay	100.0			8.01	0.94	n.a.	n.a.	0.94	0.911	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.530	8.440	0.383	3613.6	2644.5	5.017	5.779	3.41		Clay	100.0			7.98	0.94	n.a.	n.a.	0.93	0.911	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.690	8.760	0.387	3632.8	2653.7	5.233	5.576	3.38		Clay	100.0			8.28	0.94	n.a.	n.a.	0.93	0.911	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.860	8.590	0.394	3653.2	2663.5	5.079	5.818	3.40		Clay	100.0			8.12	0.94	n.a.	n.a.	0.93	0.912	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.020	8.600	0.391																						

CPT No.

4

PGA (A_{max})

0.87

Total Settlement:

0.19 (Inches)

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Depth (ft)	q _c (tsf)	f _s (tsf)	σ _{vc} (psf)	Insitu σ' _{vc} (psf)	Q	F (%)	I _c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q _{cN} near interfaces (soft layer)	Thin Layer Factor (K _{tN})	Interpreted q _{cN}	C _N	q _{c1N}	q _{c1N-CS}	Stress Reduction Coeff, r _d	CSR	K _σ for Sand	CRR _{M=7.5} , σ'vc = 1 atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε _v	Settlement (Inches)
33.140	7.130	0.291	4046.8	2852.5	3.580	5.699	3.52		Clay	100.0			6.74	0.92	n.a.	n.a.	0.92	0.917	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.300	7.240	0.289	4066.0	2861.7	3.639	5.554	3.51		Clay	100.0			6.84	0.92	n.a.	n.a.	0.92	0.917	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.460	7.320	0.283	4085.2	2870.9	3.676	5.364	3.50		Clay	100.0			6.92	0.92	n.a.	n.a.	0.92	0.917	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.630	7.360	0.283	4105.6	2880.7	3.685	5.338	3.50		Clay	100.0			6.96	0.92	n.a.	n.a.	0.92	0.917	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.790	7.550	0.275	4124.8	2889.9	3.798	5.009	3.47		Clay	100.0			7.14	0.92	n.a.	n.a.	0.92	0.917	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.960	7.570	0.258	4145.2	2899.7	3.792	4.693	3.45		Clay	100.0			7.16	0.92	n.a.	n.a.	0.92	0.917	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.120	7.270	0.242	4164.4	2908.9	3.567	4.673	3.48		Clay	100.0			6.87	0.92	n.a.	n.a.	0.92	0.917	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.280	7.150	0.221	4183.6	2918.1	3.467	4.371	3.47		Clay	100.0			6.76	0.92	n.a.	n.a.	0.92	0.918	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.450	7.350	0.205	4204.0	2927.9	3.585	3.901	3.43		Clay	100.0			6.95	0.92	n.a.	n.a.	0.92	0.918	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.610	7.540	0.198	4223.2	2937.1	3.696	3.646	3.41		Clay	100.0			7.13	0.92	n.a.	n.a.	0.92	0.918	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.780	7.630	0.221	4243.6	2946.9	3.738	4.012	3.42		Clay	100.0			7.21	0.92	n.a.	n.a.	0.92	0.918	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.940	7.980	0.312	4262.8	2956.1	3.957	5.335	3.47		Clay	100.0			7.54	0.92	n.a.	n.a.	0.92	0.918	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.100	9.760	0.552	4282.0	2965.4	5.139	7.250	3.46		Clay	100.0			9.22	0.91	n.a.	n.a.	0.92	0.918	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.270	19.700	0.719	4302.4	2975.2	11.797	4.096	3.02		Clay	100.0			18.62	0.91	n.a.	n.a.	0.92	0.918	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.430	39.830	0.916	4321.6	2984.4	25.244	2.432	2.62		Clay	72.5			37.65	0.91	n.a.	n.a.	0.92	0.918	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.600	48.400	0.998	4342.0	2994.2	36.732	2.159	2.46		Sand	59.7	49.18	1.72	84.59	0.87	73.21	142.36	0.91	0.918	0.948	0.245	0.368	0.40	0.02	0.02
35.760	51.290	0.932	4361.2	3003.4	38.961	1.899	2.40		Sand	55.3	49.18	1.72	84.59	0.86	73.04	140.61	0.91	0.918	0.948	0.237	0.352	0.38	0.02	0.02
35.930	52.030	0.592	4381.6	3013.2	39.476	1.187	2.28		Sand	45.2		1.72	84.59	0.86	72.71	135.51	0.91	0.918	0.950	0.216	0.311	0.34	0.02	0.02
36.090	49.230	0.258	4400.8	3022.4	37.194	0.549	2.13		Sand	33.2	49.18	1.72	84.59	0.85	72.16	125.68	0.91	0.918	0.954	0.185	0.252	0.27	0.03	0.02
36.250	38.300	0.495	4420.0	3031.6	28.499	1.370	2.43		Sand	57.4	49.18	1.72	84.59	0.86	72.78	141.01	0.91	0.918	0.947	0.239	0.355	0.39	0.02	0.02
36.420	23.620	0.477	4440.4	3041.4	14.072	2.229	2.80		Clay	87.1			22.33	0.91	n.a.	n.a.	0.91	0.918	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.580	11.690	0.364	4459.6	3050.6	6.202	3.845	3.23		Clay	100.0			11.05	0.91	n.a.	n.a.	0.91	0.918	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.750	7.530	0.231	4480.0	3060.4	3.457	4.365	3.47		Clay	100.0			7.12	0.91	n.a.	n.a.	0.91	0.918	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.910	7.540	0.185	4499.2	3069.6	3.447	3.504	3.42		Clay	100.0			7.13	0.91	n.a.	n.a.	0.91	0.919	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.070	7.420	0.215	4518.4	3078.8	3.352	4.170	3.47		Clay	100.0			7.01	0.91	n.a.	n.a.	0.91	0.919	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.240	7.460	0.233	4538.8	3088.6	3.361	4.479	3.49		Clay	100.0			7.05	0.91	n.a.	n.a.	0.91	0.919	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.400	7.660	0.246	4558.0	3097.8	3.474	4.568	3.48		Clay	100.0			7.24	0.90	n.a.	n.a.	0.91	0.919	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.570	7.830	0.237	4578.4	3107.6	3.566	4.281	3.46		Clay	100.0			7.40	0.90	n.a.	n.a.	0.91	0.918	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.730	7.340	0.248	4597.6	3116.8	3.235	4.912	3.52		Clay	100.0			6.94	0.90	n.a.	n.a.	0.91	0.918	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.890	7.160	0.238	4616.8	3126.1	3.104	4.910	3.54		Clay	100.0			6.77	0.90	n.a.	n.a.	0.91	0.918	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.060	7.310	0.214	4637.2	3135.9	3.183	4.287	3.50		Clay	100.0			6.91	0.90	n.a.	n.a.	0.91	0.918	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.220	6.990	0.187	4656.4	3145.1	2.965	4.009	3.51		Clay	100.0			6.61	0.90	n.a.	n.a.	0.91	0.918	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.390	6.720	0.190	4676.8	3154.9	2.778	4.329	3.55		Clay	100.0			6.35	0.90	n.a.	n.a.	0.90	0.918	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.550	6.750	0.202	4696.0	3164.1	2.782	4.577	3.56		Clay	100.0			6.38	0.90	n.a.	n.a.	0.90	0.918	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.710	7.060	0.219	4715.2	3173.3	2.964	4.659	3.54		Clay	100.0			6.67	0.90	n.a.	n.a.	0.90	0.918	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.880	7.390	0.228	4735.6	3183.1	3.156	4.530	3.51		Clay	100.0			6.98	0.90	n.a.	n.a.	0.90	0.918	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.040	7.570	0.232	4754.8	3192.3	3.253	4.476	3.50		Clay	100.0			7.16	0.90	n.a.	n.a.	0.90	0.918	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.210	7.830	0.237	4775.2	3202.1	3.399	4.349	3.48		Clay	100.0			7.40	0.90	n.a.	n.a.	0.90	0.918	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.370	7.830	0.250	4794.4	3211.3	3.384	4.607	3.49		Clay	100.0			7.40	0.90	n.a.	n.a.	0.90	0.918	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.530	7.870	0.247	4813.6	3220.5	3.393	4.517	3.49		Clay	100.0			7.44	0.90	n.a.	n.a.	0.90	0.918	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.700	7.830	0.248	4834.0	3230.3	3.351	4.572	3.49		Clay	100.0			7.40	0.89	n.a.	n.a.	0.90	0.918	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.860	7.810	0.256	4853.2	3239.5	3.324	4.757	3.51		Clay	100.0			7.38	0.89	n.a.	n.a.	0.90	0.918	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.030	7.900	0.265	4873.6	3249.3	3.363	4.856	3.51		Clay	100.0			7.47	0.89	n.a.	n.a.	0.90	0.918	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.190	8.500	0.260	4892.8	3258.5	3.716	4.302	3.44		Clay	100.0			8.03	0.89	n.a.	n.a.	0.90	0.918	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.350	8.530	0.261	4912.0	3267.8	3.718	4.300	3.44		Clay	100.0			8.06	0.89	n.a.	n.a.	0.90	0.917	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.520	8.480	0.225	4932.4	3277.6	3.670	3.741	3.41		Clay	100.0			8.02	0.89	n.a.	n.a.	0.90	0.917	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.680	8.130	0.241	4951.6	3286.8	3.441	4.264	3.47		Clay	100.0			7.68	0.89	n.a.	n.a.	0.90	0.917	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.850	8.080	0.242	4972.0	3296.6	3.394	4.324	3.48		Clay	100.0			7.64	0.89	n.a.	n.a.	0.90	0.917						

CPT No.

4

PGA (A_{max})

0.87

Total Settlement: 0.19 (Inches)

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Depth (ft)	q _c (tsf)	f _s (tsf)	σ _{vc} (psf)	Insitu σ' _{vc} (psf)	Q	F (%)	I _c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q _{cN} near interfaces (soft layer)	Thin Layer Factor (K _{tN})	Interpreted q _{cN}	C _N	q _{c1N}	q _{c1N-CS}	Stress Reduction Coeff, r _d	CSR	K _σ for Sand	CRR _{M=7.5} σ'vc = 1 atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε _v	Settlement (Inches)
44.130	19.760	0.470	5365.6	3485.5	9.799	2.755	2.98		Clay	100.0	18.68	0.88	n.a.	n.a.	n.a.	n.a.	0.88	0.914	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.290	23.200	0.387	5384.8	3494.7	11.736	1.887	2.83		Clay	89.3	21.93	0.88	n.a.	n.a.	n.a.	n.a.	0.88	0.914	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.460	35.070	0.442	5405.2	3504.5	23.772	1.365	2.49		Sand	62.5	33.15	0.76	25.22	81.62	0.88	0.914	0.954	0.117	0.132	0.14	n.a.	0.04	0.02	
44.620	28.940	0.624	5424.4	3513.7	14.929	2.379	2.80		Clay	86.7	27.35	0.87	n.a.	n.a.	n.a.	n.a.	0.88	0.913	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.780	21.980	0.512	5443.6	3522.9	10.933	2.658	2.94		Clay	97.8	20.78	0.87	n.a.	n.a.	n.a.	n.a.	0.88	0.913	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.950	22.230	0.542	5464.0	3532.7	11.039	2.779	2.94		Clay	98.4	21.01	0.87	n.a.	n.a.	n.a.	n.a.	0.88	0.913	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.110	27.190	0.510	5483.2	3541.9	13.805	2.087	2.79		Clay	86.4	25.70	0.87	n.a.	n.a.	n.a.	n.a.	0.88	0.913	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.280	25.910	0.638	5503.6	3551.7	13.041	2.753	2.88		Clay	93.5	24.49	0.87	n.a.	n.a.	n.a.	n.a.	0.88	0.912	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.440	25.010	0.533	5522.8	3560.9	12.496	2.395	2.86		Clay	91.9	23.64	0.87	n.a.	n.a.	n.a.	n.a.	0.88	0.912	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.600	23.810	0.404	5542.0	3570.2	11.786	1.919	2.83		Clay	89.5	22.50	0.87	n.a.	n.a.	n.a.	n.a.	0.88	0.912	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.770	26.480	0.360	5562.4	3580.0	13.240	1.520	2.73		Clay	81.8	25.03	0.87	n.a.	n.a.	n.a.	n.a.	0.88	0.912	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.930	24.810	0.517	5581.6	3589.2	12.270	2.347	2.86		Clay	92.1	23.45	0.87	n.a.	n.a.	n.a.	n.a.	0.88	0.912	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.100	20.430	0.597	5602.0	3599.0	9.797	3.386	3.03		Clay	100.0	19.31	0.87	n.a.	n.a.	n.a.	n.a.	0.88	0.911	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.260	18.660	0.492	5621.2	3608.2	8.785	3.102	3.05		Clay	100.0	17.64	0.87	n.a.	n.a.	n.a.	n.a.	0.88	0.911	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.420	22.770	0.377	5640.4	3617.4	11.030	1.889	2.85		Clay	91.1	21.52	0.87	n.a.	n.a.	n.a.	n.a.	0.88	0.911	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.590	22.470	0.428	5660.8	3627.2	10.829	2.181	2.89		Clay	94.3	21.24	0.87	n.a.	n.a.	n.a.	n.a.	0.88	0.911	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.750	18.720	0.542	5680.0	3636.4	8.734	3.414	3.08		Clay	100.0	17.69	0.87	n.a.	n.a.	n.a.	n.a.	0.87	0.910	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.920	16.010	0.733	5700.4	3646.2	7.218	5.567	3.27		Clay	100.0	15.13	0.87	n.a.	n.a.	n.a.	n.a.	0.87	0.910	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.080	21.920	0.727	5719.6	3655.4	10.428	3.812	3.04		Clay	100.0	20.72	0.87	n.a.	n.a.	n.a.	n.a.	0.87	0.910	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.240	27.150	0.541	5738.8	3664.6	13.251	2.228	2.82		Clay	88.9	25.66	0.87	n.a.	n.a.	n.a.	n.a.	0.87	0.910	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.410	27.780	0.520	5759.2	3674.4	13.553	2.089	2.80		Clay	87.0	26.26	0.86	n.a.	n.a.	n.a.	n.a.	0.87	0.909	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.570	22.990	0.491	5778.4	3683.6	10.914	2.443	2.92		Clay	96.2	21.73	0.86	n.a.	n.a.	n.a.	n.a.	0.87	0.909	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.740	18.270	0.374	5798.8	3693.4	8.323	2.433	3.01		Clay	100.0	17.27	0.86	n.a.	n.a.	n.a.	n.a.	0.87	0.909	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.900	16.880	0.503	5818.0	3702.6	7.547	3.600	3.14		Clay	100.0	15.95	0.86	n.a.	n.a.	n.a.	n.a.	0.87	0.908	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.060	14.910	0.380	5837.2	3711.9	6.461	3.166	3.17		Clay	100.0	14.09	0.86	n.a.	n.a.	n.a.	n.a.	0.87	0.908	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.230	24.220	0.657	5857.6	3721.6	11.442	3.088	2.96		Clay	99.5	22.89	0.86	n.a.	n.a.	n.a.	n.a.	0.87	0.908	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.390	39.200	0.590	5876.8	3730.9	19.439	1.628	2.61		Clay	71.7	37.05	0.86	n.a.	n.a.	n.a.	n.a.	0.87	0.908	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.560	17.640	0.746	5897.2	3740.7	7.855	5.077	3.22		Clay	100.0	16.67	0.86	n.a.	n.a.	n.a.	n.a.	0.87	0.907	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.720	26.440	0.707	5916.4	3749.9	12.524	3.012	2.92		Clay	96.4	24.99	0.86	n.a.	n.a.	n.a.	n.a.	0.87	0.907	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.880	24.430	0.663	5935.6	3759.1	11.419	3.090	2.96		Clay	99.6	23.09	0.86	n.a.	n.a.	n.a.	n.a.	0.87	0.907	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.050	16.180	0.494	5956.0	3768.9	7.006	3.743	3.18		Clay	100.0	15.29	0.86	n.a.	n.a.	n.a.	n.a.	0.87	0.906	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.210	25.820	0.579	5975.2	3778.1	12.087	2.534	2.89		Clay	94.0	24.40	0.86	n.a.	n.a.	n.a.	n.a.	0.87	0.906	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.380	33.000	0.629	5995.6	3787.9	15.841	2.097	2.74		Clay	82.5	31.19	0.86	n.a.	n.a.	n.a.	n.a.	0.87	0.906	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.540	25.730	0.655	6014.8	3797.1	11.968	2.884	2.92		Clay	96.8	24.32	0.86	n.a.	n.a.	n.a.	n.a.	0.86	0.905	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.700	18.580	0.531	6034.0	3806.3	8.177	3.412	3.10		Clay	100.0	17.56	0.86	n.a.	n.a.	n.a.	n.a.	0.86	0.905	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.870	22.810	0.500	6054.4	3816.1	10.368	2.527	2.94		Clay	98.4	21.56	0.86	n.a.	n.a.	n.a.	n.a.	0.86	0.905	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.030	27.790	0.409	6073.6	3825.3	12.942	1.651	2.76		Clay	83.9	26.27	0.86	n.a.	n.a.	n.a.	n.a.	0.86	0.905	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.200	24.910	0.527	6094.0	3835.1	11.401	2.409	2.90		Clay	94.7	23.54	0.85	n.a.	n.a.	n.a.	n.a.	0.86	0.904	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.360	20.250	0.521	6113.2	3844.3	8.945	3.033	3.04		Clay	100.0	19.14	0.85	n.a.	n.a.	n.a.	n.a.	0.86	0.904	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.520	14.230	0.400	6132.4	3853.6	5.794	3.587	3.24		Clay	100.0	13.45	0.85	n.a.	n.a.	n.a.	n.a.	0.86	0.904	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.690	14.770	0.343	6152.8	3863.3	6.054	2.932	3.17		Clay	100.0	13.96	0.85	n.a.	n.a.	n.a.	n.a.	0.86	0.903	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.850	13.110	0.294	6172.0	3872.6	5.177	2.929	3.23		Clay	100.0	12.39	0.85	n.a.	n.a.	n.a.	n.a.	0.86	0.903	n.a.	n.a.	n.a.	n.a.	0.00	0.00
51.020	13.580	0.281	6192.4	3882.4	5.401	2.678	3.20		Clay	100.0	12.84	0.85	n.a.	n.a.	n.a.	n.a.	0.86	0.903	n.a.	n.a.	n.a.	n.a.	0.00	0.00
51.180	12.570	0.281	6211.6	3891.6	4.864	2.966	3.26		Clay	100.0	11.88	0.85	n.a.	n.a.	n.a.	n.a.	0.86	0.902	n.a.	n.a.	n.a.	n.a.	0.00	0.00
51.350	11.640	0.247	6232.0	3901.4	4.370	2.892	3.29		Clay	100.0	11.00	0.85	n.a.	n.a.	n.a.	n.a.	0.86	0.902	n.a.	n.a.	n.a.	n.a.	0.00	0.00
51.510	11.400	0.227	6251.2	3910.6	4.232	2.742	3.29		Clay	100.0	10.78	0.85	n.a.	n.a.	n.a.	n.a.	0.86	0.902	n.a.	n.a.	n.a.	n.a.	0.00	0.00
51.670	10.770	0.230	6270.4	3919.8	3.896	3.009	3.34		Clay	100.0	10.18	0.85	n.a.	n.a.	n.a.	n.a.	0.86	0.901	n.a.	n.a.	n.a.	n.a.	0.00	0.00
51.840	10.																							

CPT No.

4

PGA (A_{max})

0.87

Total Settlement:

0.19 (Inches)

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Depth (ft)	q_c (tsf)	f_s (tsf)	σ_{vc} (psf)	In situ σ'_{vc} (psf)	Q	F (%)	I_c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q_{cN} near interfaces (soft layer)	Thin Layer Factor (K_{tN})	Interpreted q_{cN}	C_N	q_{c1N}	q_{c1N-CS}	Stress Reduction Coeff, f_d	CSR	K_{σ} for Sand	CRRM=7.5, $\sigma'_{vc} = 1$ atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ϵ_v	Settlement (Inches)
55.120	9.670	0.178	6684.4	4118.5	3.073	2.813	3.42		Clay	100.0			9.14	0.84	n.a.	n.a.	0.84	0.894	n.a.	n.a.	n.a.	n.a.	0.00	0.00
55.280	9.850	0.183	6703.6	4127.7	3.149	2.808	3.41		Clay	100.0			9.31	0.84	n.a.	n.a.	0.84	0.893	n.a.	n.a.	n.a.	n.a.	0.00	0.00
55.450	10.220	0.190	6724.0	4137.5	3.315	2.769	3.39		Clay	100.0			9.66	0.84	n.a.	n.a.	0.84	0.893	n.a.	n.a.	n.a.	n.a.	0.00	0.00
55.610	10.570	0.203	6743.2	4146.7	3.472	2.813	3.37		Clay	100.0			9.99	0.84	n.a.	n.a.	0.84	0.893	n.a.	n.a.	n.a.	n.a.	0.00	0.00
55.770	10.550	0.207	6762.4	4156.0	3.450	2.889	3.38		Clay	100.0			9.97	0.84	n.a.	n.a.	0.84	0.892	n.a.	n.a.	n.a.	n.a.	0.00	0.00
55.940	10.520	0.193	6782.8	4165.7	3.422	2.702	3.37		Clay	100.0			9.94	0.84	n.a.	n.a.	0.84	0.892	n.a.	n.a.	n.a.	n.a.	0.00	0.00
56.100	10.600	0.197	6802.0	4175.0	3.449	2.730	3.37		Clay	100.0			10.02	0.84	n.a.	n.a.	0.84	0.891	n.a.	n.a.	n.a.	n.a.	0.00	0.00
56.270	10.710	0.209	6822.4	4184.8	3.488	2.863	3.37		Clay	100.0			10.12	0.84	n.a.	n.a.	0.84	0.891	n.a.	n.a.	n.a.	n.a.	0.00	0.00
56.430	10.980	0.211	6841.6	4194.0	3.605	2.791	3.36		Clay	100.0			10.38	0.83	n.a.	n.a.	0.84	0.891	n.a.	n.a.	n.a.	n.a.	0.00	0.00
56.590	11.190	0.222	6860.8	4203.2	3.692	2.864	3.35		Clay	100.0			10.58	0.83	n.a.	n.a.	0.84	0.890	n.a.	n.a.	n.a.	n.a.	0.00	0.00
56.760	11.670	0.230	6881.2	4213.0	3.907	2.799	3.33		Clay	100.0			11.03	0.83	n.a.	n.a.	0.84	0.890	n.a.	n.a.	n.a.	n.a.	0.00	0.00
56.920	11.470	0.237	6900.4	4222.2	3.799	2.955	3.35		Clay	100.0			10.84	0.83	n.a.	n.a.	0.84	0.889	n.a.	n.a.	n.a.	n.a.	0.00	0.00
57.090	11.620	0.259	6920.8	4232.0	3.856	3.177	3.36		Clay	100.0			10.98	0.83	n.a.	n.a.	0.84	0.889	n.a.	n.a.	n.a.	n.a.	0.00	0.00
57.250	11.440	0.278	6940.0	4241.2	3.758	3.491	3.39		Clay	100.0			10.81	0.83	n.a.	n.a.	0.84	0.889	n.a.	n.a.	n.a.	n.a.	0.00	0.00
57.410	11.700	0.290	6959.2	4250.4	3.868	3.527	3.38		Clay	100.0			11.06	0.83	n.a.	n.a.	0.84	0.888	n.a.	n.a.	n.a.	n.a.	0.00	0.00
57.580	12.560	0.314	6979.6	4260.2	4.258	3.462	3.34		Clay	100.0			11.87	0.83	n.a.	n.a.	0.83	0.888	n.a.	n.a.	n.a.	n.a.	0.00	0.00
57.740	12.900	0.340	6998.8	4269.4	4.404	3.616	3.34		Clay	100.0			12.19	0.83	n.a.	n.a.	0.83	0.887	n.a.	n.a.	n.a.	n.a.	0.00	0.00
57.910	12.940	0.355	7019.2	4279.2	4.408	3.759	3.35		Clay	100.0			12.23	0.83	n.a.	n.a.	0.83	0.887	n.a.	n.a.	n.a.	n.a.	0.00	0.00
58.070	12.570	0.352	7038.4	4288.4	4.221	3.890	3.37		Clay	100.0			11.88	0.83	n.a.	n.a.	0.83	0.887	n.a.	n.a.	n.a.	n.a.	0.00	0.00
58.230	12.440	0.354	7057.6	4297.6	4.147	3.970	3.38		Clay	100.0			11.76	0.83	n.a.	n.a.	0.83	0.886	n.a.	n.a.	n.a.	n.a.	0.00	0.00
58.400	12.790	0.373	7078.0	4307.4	4.295	4.032	3.37		Clay	100.0			12.09	0.83	n.a.	n.a.	0.83	0.886	n.a.	n.a.	n.a.	n.a.	0.00	0.00
58.560	13.280	0.407	7097.2	4316.7	4.509	4.184	3.36		Clay	100.0			12.55	0.83	n.a.	n.a.	0.83	0.885	n.a.	n.a.	n.a.	n.a.	0.00	0.00
58.730	13.770	0.451	7117.6	4326.4	4.720	4.412	3.36		Clay	100.0			13.02	0.83	n.a.	n.a.	0.83	0.885	n.a.	n.a.	n.a.	n.a.	0.00	0.00
58.890	14.090	0.527	7136.8	4335.7	4.854	5.005	3.38		Clay	100.0			13.32	0.83	n.a.	n.a.	0.83	0.885	n.a.	n.a.	n.a.	n.a.	0.00	0.00
59.060	14.380	0.549	7157.2	4345.5	4.971	5.083	3.38		Clay	100.0			13.59	0.83	n.a.	n.a.	0.83	0.884	n.a.	n.a.	n.a.	n.a.	0.00	0.00
59.220	14.830	0.532	7176.4	4354.7	5.163	4.732	3.35		Clay	100.0			14.02	0.83	n.a.	n.a.	0.83	0.884	n.a.	n.a.	n.a.	n.a.	0.00	0.00
59.380	14.540	0.437	7195.6	4363.9	5.015	3.996	3.32		Clay	100.0			13.74	0.83	n.a.	n.a.	0.83	0.883	n.a.	n.a.	n.a.	n.a.	0.00	0.00
59.550	13.740	0.311	7216.0	4373.7	4.633	3.072	3.28		Clay	100.0			12.99	0.83	n.a.	n.a.	0.83	0.883	n.a.	n.a.	n.a.	n.a.	0.00	0.00
59.710	12.490	0.218	7235.2	4382.9	4.049	2.456	3.28		Clay	100.0			11.81	0.83	n.a.	n.a.	0.83	0.882	n.a.	n.a.	n.a.	n.a.	0.00	0.00
59.880	11.340	0.100	7255.6	4392.7	3.511	1.290	3.21		Clay	100.0			10.72	0.82	n.a.	n.a.	0.83	0.882	n.a.	n.a.	n.a.	n.a.	0.00	0.00
60.040	10.750	0.111	7274.8	4401.9	3.232	1.559	3.28		Clay	100.0			10.16	0.82	n.a.	n.a.	0.83	0.882	n.a.	n.a.	n.a.	n.a.	0.00	0.00

CPT No.

5

PGA (A_{max})

0.87

Total Settlement:

0.30 (Inches)

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Depth (ft)	q _c (tsf)	f _s (tsf)	σ _{vc} (psf)	In situ σ' _{vc} (psf)	Q	F (%)	I _c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q _{cN} near interfaces (soft layer)	Thin Layer Factor (K _{tN})	Interpreted q _{cN}	C _N	q _{c1N}	q _{c1N-CS}	Stress Reduction Coeff, r _d	CSR	K _σ for Sand	CRRM=7.5, σ'vc = 1 atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε _v	Settlement (Inches)
0.160	20.610	0.358	20.0	20.0	200.274	1.738	1.87		Unsaturated	12.6			19.48	1.70	33.12	44.83	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.330	31.100	0.341	41.3	41.3	210.394	1.098	1.70		Unsaturated	0.0			29.40	1.70	49.97	49.97	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.490	87.810	0.661	61.3	61.3	487.654	0.752	1.35		Unsaturated	0.0			83.00	1.70	141.09	141.09	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.660	210.770	1.939	82.5	82.5	1008.716	0.920	1.27		Unsaturated	0.0			199.22	1.70	338.67	338.67	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.820	278.790	3.122	102.5	102.5	1197.037	1.120	1.33		Unsaturated	0.0			263.51	1.70	447.96	447.96	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.980	331.600	4.464	122.5	122.5	1302.382	1.347	1.40		Unsaturated	0.0			313.42	1.70	532.82	532.82	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.150	434.790	4.906	143.8	143.8	1576.435	1.129	1.30		Unsaturated	0.0			410.95	1.70	698.62	698.62	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.310	553.690	5.181	163.8	163.8	1880.979	0.936	1.21		Unsaturated	0.0			523.34	1.70	889.67	889.67	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.480	550.620	4.387	185.0	185.0	1759.808	0.797	1.14		Unsaturated	0.0			520.43	1.70	884.74	884.74	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.640	434.370	3.800	205.0	205.0	1318.720	0.875	1.21		Unsaturated	0.0			410.56	1.70	697.95	697.95	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.800	312.110	4.361	225.0	225.0	904.341	1.398	1.46		Unsaturated	0.0			295.00	1.70	501.50	501.50	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.970	256.560	4.705	246.3	246.3	710.501	1.835	1.61		Unsaturated	0.0			242.50	1.70	412.24	412.24	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.130	165.140	3.984	266.3	266.3	439.673	2.414	1.80		Unsaturated	7.3			156.09	1.70	265.35	268.43	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.300	144.090	4.198	287.5	287.5	369.108	2.916	1.91		Unsaturated	15.9			136.19	1.69	230.60	268.78	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.460	132.770	5.155	307.5	307.5	328.811	3.887	2.05		Unsaturated	26.6			125.49	1.66	208.74	279.26	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.620	124.180	5.218	327.5	327.5	297.951	4.208	2.10		Unsaturated	30.7			117.37	1.64	192.02	267.42	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.790	113.140	4.677	348.8	348.8	263.003	4.140	2.12		Unsaturated	32.3			106.94	1.63	174.06	248.34	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.950	106.680	4.833	368.8	368.8	241.123	4.538	2.17		Unsaturated	36.5			100.83	1.63	163.86	241.60	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.120	111.160	4.591	390.0	390.0	244.301	4.137	2.13		Unsaturated	33.5			105.07	1.60	167.79	242.56	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.280	174.230	3.579	410.0	410.0	373.673	2.057	1.78		Unsaturated	5.1			164.68	1.54	253.91	254.20	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.440	208.960	2.280	430.0	430.0	437.677	1.092	1.51		Unsaturated	0.0			197.50	1.52	300.72	300.72	1.00	0.566	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.610	192.170	1.248	451.3	451.3	392.861	0.650	1.35	plastic	Clay	0.0			181.64	1.50	n.a.	n.a.	1.00	0.574	n.a.	n.a.	n.a.	n.a.	0.00	0.00
3.770	180.400	1.510	471.3	471.3	360.841	0.838	1.46	plastic	Clay	0.0			170.51	1.49	n.a.	n.a.	1.00	0.586	n.a.	n.a.	n.a.	n.a.	0.00	0.00
3.940	170.220	1.776	492.5	492.5	333.005	1.045	1.56	plastic	Clay	0.0			160.89	1.47	n.a.	n.a.	1.00	0.599	n.a.	n.a.	n.a.	n.a.	0.00	0.00
4.100	83.980	1.687	512.5	512.5	160.796	2.015	1.98	plastic	Clay	21.4			79.38	1.45	n.a.	n.a.	1.00	0.610	n.a.	n.a.	n.a.	n.a.	0.00	0.00
4.270	48.920	1.690	533.8	533.8	91.562	3.473	2.32	plastic	Clay	48.5			46.24	1.44	n.a.	n.a.	1.00	0.621	n.a.	n.a.	n.a.	n.a.	0.00	0.00
4.430	31.540	1.531	553.8	553.8	57.763	4.897	2.56	plastic	Clay	68.0			29.81	1.42	n.a.	n.a.	1.00	0.631	n.a.	n.a.	n.a.	n.a.	0.00	0.00
4.590	24.680	1.285	573.8	573.8	57.483	5.268	2.59	plastic	Clay	70.0			23.33	1.41	n.a.	n.a.	1.00	0.641	n.a.	n.a.	n.a.	n.a.	0.00	0.00
4.760	20.940	1.143	595.0	595.0	47.422	5.537	2.66	plastic	Clay	75.8			19.79	1.40	n.a.	n.a.	1.00	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
4.920	17.630	1.007	615.0	615.0	56.333	5.813	2.63		Clay	73.0			16.66	1.39	n.a.	n.a.	1.00	0.660	n.a.	n.a.	n.a.	n.a.	0.00	0.00
5.090	15.690	0.879	636.3	636.3	48.320	5.719	2.66		Clay	76.2			14.83	1.37	n.a.	n.a.	1.00	0.670	n.a.	n.a.	n.a.	n.a.	0.00	0.00
5.250	15.220	0.815	656.3	656.3	45.385	5.474	2.67		Clay	76.5			14.39	1.36	n.a.	n.a.	1.00	0.678	n.a.	n.a.	n.a.	n.a.	0.00	0.00
5.410	14.210	0.766	676.3	676.3	41.026	5.523	2.70		Clay	79.1			13.43	1.35	n.a.	n.a.	1.00	0.686	n.a.	n.a.	n.a.	n.a.	0.00	0.00
5.580	13.420	0.703	697.5	697.5	37.480	5.377	2.72		Clay	80.6			12.68	1.34	n.a.	n.a.	1.00	0.695	n.a.	n.a.	n.a.	n.a.	0.00	0.00
5.740	13.380	0.687	717.5	717.5	36.296	5.274	2.72		Clay	80.9			12.65	1.33	n.a.	n.a.	1.00	0.702	n.a.	n.a.	n.a.	n.a.	0.00	0.00
5.910	12.930	0.627	738.8	738.8	34.005	4.989	2.73		Clay	81.2			12.22	1.32	n.a.	n.a.	1.00	0.710	n.a.	n.a.	n.a.	n.a.	0.00	0.00
6.070	11.920	0.530	758.8	758.8	30.420	4.594	2.74		Clay	81.9			11.27	1.31	n.a.	n.a.	1.00	0.717	n.a.	n.a.	n.a.	n.a.	0.00	0.00
6.230	10.810	0.466	778.8	778.8	26.762	4.468	2.77		Clay	84.5			10.22	1.30	n.a.	n.a.	1.00	0.724	n.a.	n.a.	n.a.	n.a.	0.00	0.00
6.400	10.120	0.397	800.0	800.0	24.300	4.084	2.77		Clay	85.0			9.57	1.29	n.a.	n.a.	0.99	0.731	n.a.	n.a.	n.a.	n.a.	0.00	0.00
6.560	9.350	0.346	820.0	820.0	21.805	3.874	2.80		Clay	86.6			8.84	1.28	n.a.	n.a.	0.99	0.737	n.a.	n.a.	n.a.	n.a.	0.00	0.00
6.730	8.630	0.311	841.3	841.3	19.517	3.787	2.83		Clay	89.1			8.16	1.28	n.a.	n.a.	0.99	0.744	n.a.	n.a.	n.a.	n.a.	0.00	0.00
6.890	7.850	0.279	861.3	861.3	17.229	3.758	2.87		Clay	92.2			7.42	1.27	n.a.	n.a.	0.99	0.750	n.a.	n.a.	n.a.	n.a.	0.00	0.00
7.050	7.380	0.250	881.3	881.3	15.749	3.598	2.88		Clay	93.8			6.98	1.26	n.a.	n.a.	0.99	0.756	n.a.	n.a.	n.a.	n.a.	0.00	0.00
7.220	6.960	0.227	902.5	902.5	14.424	3.486	2.91		Clay	95.5			6.58	1.25	n.a.	n.a.	0.99	0.762	n.a.	n.a.	n.a.	n.a.	0.00	0.00
7.380	6.710	0.130	922.5	922.5	13.547	2.076	2.80		Clay	86.9			6.34	1.24	n.a.	n.a.	0.99	0.767	n.a.	n.a.	n.a.	n.a.	0.00	0.00
7.550	6.640	0.203	943.8	943.8	13.072	3.283	2.92		Clay	97.0			6.28	1.24	n.a.	n.a.	0.99	0.773	n.a.	n.a.	n.a.	n.a.	0.00	0.00
7.710	6.880	0.213	963.8	963.8	13.278	3.329	2.92		Clay	96.8			6.50	1.23	n.a.	n.a.	0.99	0.778	n.a.	n.a.	n.a.	n.a.	0.00	0.00
7.870	5.550	0.207	983.8	983.8																				

CPT No.

5

PGA (A_{max})

0.87

Total Settlement: 0.30 (Inches)

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Depth (ft)	q _c (tsf)	f _s (tsf)	σ _{vc} (psf)	Insitu σ' _{vc} (psf)	Q	F (%)	I _c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q _{cN} near interfaces (soft layer)	Thin Layer Factor (K _{tN})	Interpreted q _{cN}	C _N	q _{c1N}	q _{c1N-CS}	Stress Reduction Coeff, r _d	CSR	K _σ for Sand	CRR _{M=7.5} , σ'vc = 1 atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε _v	Settlement (Inches)
11.150	14.170	0.554	1388.0	1316.2	20.477	4.111	2.83		Clay	89.6			13.39	1.13	n.a.	n.a.	0.99	0.860	n.a.	n.a.	n.a.	n.a.	0.00	0.00
11.320	14.290	0.574	1408.4	1326.0	20.491	4.225	2.84		Clay	90.2			13.51	1.13	n.a.	n.a.	0.98	0.863	n.a.	n.a.	n.a.	n.a.	0.00	0.00
11.480	13.490	0.566	1427.6	1335.2	19.137	4.429	2.88		Clay	93.1			12.75	1.13	n.a.	n.a.	0.98	0.866	n.a.	n.a.	n.a.	n.a.	0.00	0.00
11.650	13.160	0.548	1448.0	1345.0	18.492	4.405	2.89		Clay	93.9			12.44	1.13	n.a.	n.a.	0.98	0.868	n.a.	n.a.	n.a.	n.a.	0.00	0.00
11.810	12.920	0.516	1467.2	1354.3	17.997	4.231	2.88		Clay	93.7			12.21	1.12	n.a.	n.a.	0.98	0.871	n.a.	n.a.	n.a.	n.a.	0.00	0.00
11.980	13.040	0.505	1487.6	1364.0	18.029	4.107	2.87		Clay	93.0			12.33	1.12	n.a.	n.a.	0.98	0.874	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.140	12.940	0.500	1506.8	1373.3	17.748	4.105	2.88		Clay	93.4			12.23	1.12	n.a.	n.a.	0.98	0.876	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.300	12.530	0.484	1526.0	1382.5	17.023	4.114	2.89		Clay	94.6			11.84	1.12	n.a.	n.a.	0.98	0.879	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.470	11.920	0.464	1546.4	1392.3	16.012	4.165	2.92		Clay	96.5			11.27	1.12	n.a.	n.a.	0.98	0.881	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.630	11.540	0.438	1565.6	1401.5	15.351	4.071	2.93		Clay	97.1			10.91	1.11	n.a.	n.a.	0.98	0.883	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.800	11.670	0.423	1586.0	1411.3	15.414	3.891	2.91		Clay	96.0			11.03	1.11	n.a.	n.a.	0.98	0.886	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.960	11.330	0.426	1605.2	1420.5	14.822	4.048	2.94		Clay	97.9			10.71	1.11	n.a.	n.a.	0.98	0.888	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.120	10.900	0.419	1624.4	1429.7	14.112	4.153	2.96		Clay	99.8			10.30	1.11	n.a.	n.a.	0.98	0.890	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.290	10.420	0.380	1644.8	1439.5	13.335	3.954	2.97		Clay	100.0			9.85	1.11	n.a.	n.a.	0.98	0.892	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.450	9.970	0.362	1664.0	1448.7	12.615	3.961	2.99		Clay	100.0			9.42	1.11	n.a.	n.a.	0.98	0.894	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.620	9.640	0.343	1684.4	1458.5	12.064	3.895	3.00		Clay	100.0			9.11	1.10	n.a.	n.a.	0.98	0.897	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.780	10.030	0.323	1703.6	1467.7	12.507	3.521	2.96		Clay	99.7			9.48	1.10	n.a.	n.a.	0.98	0.899	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.940	10.230	0.315	1722.8	1476.9	12.686	3.360	2.94		Clay	98.3			9.67	1.10	n.a.	n.a.	0.98	0.900	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.110	9.810	0.315	1743.2	1486.7	12.024	3.527	2.97		Clay	100.0			9.27	1.10	n.a.	n.a.	0.98	0.902	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.270	9.640	0.313	1762.4	1496.0	11.710	3.574	2.99		Clay	100.0			9.11	1.10	n.a.	n.a.	0.98	0.904	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.440	9.460	0.312	1782.8	1505.7	11.381	3.646	3.00		Clay	100.0			8.94	1.09	n.a.	n.a.	0.98	0.906	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.600	9.220	0.343	1802.0	1515.0	10.982	4.119	3.04		Clay	100.0			8.71	1.09	n.a.	n.a.	0.98	0.908	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.760	9.240	0.362	1821.2	1524.2	10.930	4.348	3.06		Clay	100.0			8.73	1.09	n.a.	n.a.	0.98	0.910	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.930	9.240	0.356	1841.6	1534.0	10.847	4.279	3.06		Clay	100.0			8.73	1.09	n.a.	n.a.	0.98	0.911	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.090	8.750	0.313	1860.8	1543.2	10.134	4.008	3.07		Clay	100.0			8.27	1.09	n.a.	n.a.	0.98	0.913	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.260	8.080	0.287	1881.2	1553.0	9.194	4.016	3.10		Clay	100.0			7.64	1.09	n.a.	n.a.	0.98	0.915	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.420	6.960	0.232	1900.4	1562.2	7.694	3.862	3.15		Clay	100.0			6.58	1.08	n.a.	n.a.	0.97	0.916	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.580	6.130	0.195	1919.6	1571.4	6.580	3.777	3.20		Clay	100.0			5.79	1.08	n.a.	n.a.	0.97	0.918	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.750	5.440	0.165	1940.0	1581.2	5.654	3.700	3.25		Clay	100.0			5.14	1.08	n.a.	n.a.	0.97	0.919	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.910	5.200	0.143	1959.2	1590.4	5.307	3.388	3.26		Clay	100.0			4.91	1.08	n.a.	n.a.	0.97	0.921	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.080	4.840	0.124	1979.6	1600.2	4.812	3.208	3.28		Clay	100.0			4.57	1.08	n.a.	n.a.	0.97	0.922	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.240	4.420	0.100	1998.8	1609.4	4.251	2.915	3.30		Clay	100.0			4.18	1.07	n.a.	n.a.	0.97	0.924	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.400	4.110	0.082	2018.0	1618.6	3.832	2.648	3.32		Clay	100.0			3.88	1.07	n.a.	n.a.	0.97	0.925	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.570	3.840	0.093	2038.4	1628.4	3.464	3.279	3.41		Clay	100.0			3.63	1.07	n.a.	n.a.	0.97	0.926	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.730	3.870	0.110	2057.6	1637.6	3.470	3.875	3.44		Clay	100.0			3.66	1.07	n.a.	n.a.	0.97	0.928	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.900	3.920	0.122	2078.0	1647.4	3.498	4.238	3.46		Clay	100.0			3.71	1.07	n.a.	n.a.	0.97	0.929	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.060	4.060	0.142	2097.2	1656.7	3.636	4.702	3.47		Clay	100.0			3.84	1.07	n.a.	n.a.	0.97	0.930	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.220	4.280	0.159	2116.4	1665.9	3.868	4.948	3.46		Clay	100.0			4.05	1.07	n.a.	n.a.	0.97	0.931	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.390	4.520	0.164	2136.8	1675.7	4.120	4.737	3.43		Clay	100.0			4.27	1.06	n.a.	n.a.	0.97	0.933	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.550	4.920	0.168	2156.0	1684.9	4.561	4.368	3.37		Clay	100.0			4.65	1.06	n.a.	n.a.	0.97	0.934	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.720	5.590	0.181	2176.4	1694.7	5.313	4.016	3.30		Clay	100.0			5.28	1.06	n.a.	n.a.	0.97	0.935	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.880	6.380	0.208	2195.6	1703.9	6.200	3.932	3.23		Clay	100.0			6.03	1.06	n.a.	n.a.	0.97	0.936	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.040	6.890	0.294	2214.8	1713.1	6.751	5.082	3.27		Clay	100.0			6.51	1.06	n.a.	n.a.	0.97	0.937	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.210	7.340	0.297	2235.2	1722.9	7.223	4.773	3.23		Clay	100.0			6.94	1.06	n.a.	n.a.	0.97	0.938	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.370	7.650	0.300	2254.4	1732.1	7.532	4.599	3.20		Clay	100.0			7.23	1.05	n.a.	n.a.	0.97	0.939	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.540	8.140	0.291	2274.8	1741.9	8.040	4.161	3.16		Clay	100.0			7.69	1.05	n.a.	n.a.	0.97	0.940	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.700	7.750	0.307	2294.0	1751.1	7.541	4.652	3.21		Clay	100.0			7.33	1.05	n.a.	n.a.	0.97	0.941	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.860	7.230	0.307	2313.2	1760.3	6.900	5.052	3.26		Clay	100.0			6.83	1.05	n.a.	n.a.	0.97	0.942	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.030	6.840	0.286	2333.6	1770.1	6.410	5.048																		

CPT No.

5

PGA (A_{max})

0.87

Total Settlement: 0.30 (Inches)

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Depth (ft)	q _c (tsf)	f _s (tsf)	σ _{vc} (psf)	Insitu σ' _{vc} (psf)	Q	F (%)	I _c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q _{cN} near interfaces (soft layer)	Thin Layer Factor (K _{tN})	Interpreted q _{cN}	C _N	q _{c1N}	q _{c1N-CS}	Stress Reduction Coeff, r _d	CSR	K _σ for Sand	CRR _{M=7.5} σ'vc = 1 atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε _v	Settlement (Inches)
22.150	4.890	0.153	2708.0	1949.8	3.627	4.313	3.45		Clay	100.0			4.62	1.02	n.a.	n.a.	0.96	0.958	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.310	5.080	0.144	2727.2	1959.1	3.794	3.875	3.41		Clay	100.0			4.80	1.02	n.a.	n.a.	0.96	0.958	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.470	5.320	0.136	2746.4	1968.3	4.010	3.456	3.36		Clay	100.0			5.03	1.02	n.a.	n.a.	0.96	0.959	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.640	5.420	0.141	2766.8	1978.1	4.081	3.491	3.36		Clay	100.0			5.12	1.02	n.a.	n.a.	0.96	0.959	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.800	5.900	0.210	2786.0	1987.3	4.536	4.662	3.39		Clay	100.0			5.58	1.02	n.a.	n.a.	0.96	0.960	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.970	6.550	0.390	2806.4	1997.1	5.154	5.750	3.47		Clay	100.0			6.19	1.02	n.a.	n.a.	0.95	0.960	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.130	14.180	0.660	2825.6	2006.3	12.727	5.166	3.05		Clay	100.0			13.40	1.01	n.a.	n.a.	0.95	0.961	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.290	27.660	0.647	2844.8	2015.5	26.036	2.465	2.61		Clay	71.9			26.14	1.01	n.a.	n.a.	0.95	0.961	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.460	42.340	0.476	2865.2	2025.3	39.521	1.163	2.27		Sand	44.8	45.69	1.78	81.33	1.02	82.79	147.90	0.95	0.962	1.007	0.275	0.456	0.47	0.02	0.02
23.620	48.340	0.278	2884.4	2034.5	45.206	0.593	2.07		Sand	28.5		1.78	81.33	1.02	82.72	132.78	0.95	0.962	1.005	0.206	0.309	0.32	0.02	0.03
23.790	45.360	0.271	2904.8	2044.3	42.222	0.617	2.10		Sand	31.2	45.69	1.78	81.33	1.01	82.53	136.06	0.95	0.963	1.005	0.218	0.334	0.35	0.02	0.03
23.950	39.600	0.344	2924.0	2053.5	36.592	0.902	2.24		Sand	42.2	45.69	1.78	81.33	1.01	82.33	145.68	0.95	0.963	1.005	0.262	0.427	0.44	0.02	0.02
24.110	33.330	0.539	2943.2	2062.7	30.498	1.692	2.46		Sand	59.6	45.69	1.78	81.33	1.01	82.16	153.78	0.95	0.964	1.004	0.316	0.543	0.56	0.02	0.02
24.280	28.180	0.699	2963.6	2072.5	25.764	2.618	2.63		Clay	73.5			26.64	1.01	n.a.	n.a.	0.95	0.964	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.440	24.280	0.613	2982.8	2081.7	21.894	2.689	2.69		Clay	78.5			22.95	1.00	n.a.	n.a.	0.95	0.965	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.610	22.310	0.721	3003.2	2091.5	19.898	3.464	2.79		Clay	86.6			21.09	1.00	n.a.	n.a.	0.95	0.965	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.770	24.250	0.663	3022.4	2100.8	21.648	2.916	2.72		Clay	80.5			22.92	1.00	n.a.	n.a.	0.95	0.965	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.930	32.700	0.321	3041.6	2110.0	29.512	1.028	2.35		Sand	50.9		1.8	55.63	1.00	55.71	116.86	0.95	0.966	1.000	0.165	0.224	0.23	0.03	0.03
25.100	19.200	0.185	3062.0	2119.8	16.686	1.046	2.57		Sand	68.3	30.91	1.8	55.64	1.00	55.59	122.04	0.95	0.966	1.000	0.176	0.247	0.26	0.03	0.03
25.260	10.900	0.158	3081.2	2129.0	8.792	1.686	2.91		Clay	95.9			10.30	1.00	n.a.	n.a.	0.95	0.966	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.430	6.750	0.176	3101.6	2138.8	4.862	3.383	3.29		Clay	100.0			6.38	1.00	n.a.	n.a.	0.95	0.967	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.590	5.070	0.174	3120.8	2148.0	3.268	4.946	3.52		Clay	100.0			4.79	1.00	n.a.	n.a.	0.95	0.967	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.750	4.590	0.205	3140.0	2157.2	2.800	6.785	3.65		Clay	100.0			4.34	0.99	n.a.	n.a.	0.95	0.967	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.920	4.630	0.228	3160.4	2167.0	2.815	7.466	3.67		Clay	100.0			4.38	0.99	n.a.	n.a.	0.95	0.968	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.080	4.610	0.230	3179.6	2176.2	2.776	7.629	3.69		Clay	100.0			4.36	0.99	n.a.	n.a.	0.95	0.968	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.250	4.750	0.229	3200.0	2186.0	2.882	7.276	3.66		Clay	100.0			4.49	0.99	n.a.	n.a.	0.94	0.968	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.410	4.890	0.235	3219.2	2195.2	2.989	7.158	3.64		Clay	100.0			4.62	0.99	n.a.	n.a.	0.94	0.968	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.570	4.870	0.247	3238.4	2204.4	2.949	7.583	3.66		Clay	100.0			4.60	0.99	n.a.	n.a.	0.94	0.969	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.740	5.210	0.279	3258.8	2214.2	3.234	7.798	3.64		Clay	100.0			4.92	0.99	n.a.	n.a.	0.94	0.969	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.900	5.430	0.290	3278.0	2223.4	3.410	7.652	3.61		Clay	100.0			5.13	0.99	n.a.	n.a.	0.94	0.969	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.070	5.920	0.301	3298.4	2233.2	3.825	7.043	3.55		Clay	100.0			5.60	0.99	n.a.	n.a.	0.94	0.969	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.230	6.430	0.337	3317.6	2242.4	4.255	7.072	3.51		Clay	100.0			6.08	0.98	n.a.	n.a.	0.94	0.970	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.400	6.610	0.341	3338.0	2252.2	4.388	6.908	3.50		Clay	100.0			6.25	0.98	n.a.	n.a.	0.94	0.970	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.560	6.570	0.313	3357.2	2261.5	4.326	6.395	3.48		Clay	100.0			6.21	0.98	n.a.	n.a.	0.94	0.970	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.720	6.180	0.268	3376.4	2270.7	3.956	5.973	3.50		Clay	100.0			5.84	0.98	n.a.	n.a.	0.94	0.970	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.890	6.000	0.261	3396.8	2280.5	3.773	6.072	3.52		Clay	100.0			5.67	0.98	n.a.	n.a.	0.94	0.970	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.050	5.810	0.278	3416.0	2289.7	3.583	6.775	3.56		Clay	100.0			5.49	0.98	n.a.	n.a.	0.94	0.971	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.220	5.810	0.274	3436.4	2299.5	3.559	6.704	3.56		Clay	100.0			5.49	0.98	n.a.	n.a.	0.94	0.971	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.380	5.720	0.266	3455.6	2308.7	3.458	6.671	3.57		Clay	100.0			5.41	0.98	n.a.	n.a.	0.94	0.971	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.540	5.860	0.279	3474.8	2317.9	3.557	6.772	3.57		Clay	100.0			5.54	0.98	n.a.	n.a.	0.94	0.971	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.710	6.050	0.282	3495.2	2327.7	3.697	6.543	3.55		Clay	100.0			5.72	0.98	n.a.	n.a.	0.94	0.971	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.870	6.220	0.297	3514.4	2336.9	3.819	6.655	3.54		Clay	100.0			5.88	0.97	n.a.	n.a.	0.94	0.971	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.040	6.100	0.257	3534.8	2346.7	3.692	5.925	3.52		Clay	100.0			5.77	0.97	n.a.	n.a.	0.94	0.971	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.200	6.180	0.279	3554.0	2355.9	3.738	6.334	3.53		Clay	100.0			5.84	0.97	n.a.	n.a.	0.94	0.971	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.360	6.350	0.290	3573.2	2365.1	3.859	6.355	3.52		Clay	100.0			6.00	0.97	n.a.	n.a.	0.94	0.972	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.530	6.670	0.293	3593.6	2374.9	4.104	6.004	3.49		Clay	100.0			6.30	0.97	n.a.	n.a.	0.93	0.972	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.690	6.430	0.286	3612.8	2384.1	3.879	6.192	3.51		Clay	100.0			6.08	0.97	n.a.	n.a.	0.93	0.972	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.860	6.690	0.266	3633.2	2393.9	4.071																			

CPT No.

5

PGA (A_{max})

0.87

Total Settlement: 0.30 (Inches)

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Depth (ft)	q _c (tsf)	f _s (tsf)	σ _{vc} (psf)	Insitu σ' _{vc} (psf)	Q	F (%)	I _c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q _{cN} near interfaces (soft layer)	Thin Layer Factor (K _{tN})	Interpreted q _{cN}	C _N	q _{c1N}	q _{c1N-CS}	Stress Reduction Coeff, r _d	CSR	K _σ for Sand	CRRM=7.5, σ'vc = 1 atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε _v	Settlement (Inches)
33.140	6.110	0.288	4026.8	2582.9	3.172	7.023	3.62		Clay	100.0			5.78	0.95	n.a.	n.a.	0.92	0.972	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.300	6.280	0.284	4046.0	2592.1	3.285	6.667	3.59		Clay	100.0			5.94	0.95	n.a.	n.a.	0.92	0.972	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.460	6.560	0.283	4065.2	2601.3	3.481	6.249	3.56		Clay	100.0			6.20	0.95	n.a.	n.a.	0.92	0.972	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.630	6.690	0.243	4085.6	2611.1	3.560	5.225	3.50		Clay	100.0			6.32	0.95	n.a.	n.a.	0.92	0.972	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.790	6.830	0.246	4104.8	2620.3	3.647	5.155	3.49		Clay	100.0			6.46	0.95	n.a.	n.a.	0.92	0.971	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.960	6.820	0.245	4125.2	2630.1	3.618	5.148	3.49		Clay	100.0			6.45	0.94	n.a.	n.a.	0.92	0.971	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.120	6.750	0.266	4144.4	2639.3	3.545	5.684	3.53		Clay	100.0			6.38	0.94	n.a.	n.a.	0.92	0.971	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.280	6.660	0.256	4163.6	2648.5	3.457	5.598	3.53		Clay	100.0			6.29	0.94	n.a.	n.a.	0.92	0.971	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.450	7.250	0.238	4184.0	2658.3	3.881	4.618	3.44		Clay	100.0			6.85	0.94	n.a.	n.a.	0.92	0.971	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.610	8.210	0.253	4203.2	2667.5	4.580	4.134	3.36		Clay	100.0			7.76	0.94	n.a.	n.a.	0.92	0.971	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.780	7.430	0.337	4223.6	2677.3	3.973	6.337	3.51		Clay	100.0			7.02	0.94	n.a.	n.a.	0.92	0.971	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.940	8.080	0.387	4242.8	2686.5	4.436	6.488	3.48		Clay	100.0			7.64	0.94	n.a.	n.a.	0.92	0.971	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.100	14.990	0.318	4262.0	2695.8	9.540	2.469	2.97		Clay	100.0			14.17	0.94	n.a.	n.a.	0.92	0.971	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.270	18.210	0.373	4282.4	2705.6	11.878	2.318	2.87		Clay	92.8			17.21	0.94	n.a.	n.a.	0.92	0.970	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.430	13.740	0.353	4301.6	2714.8	8.538	3.044	3.06		Clay	100.0			12.99	0.94	n.a.	n.a.	0.92	0.970	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.600	25.560	0.460	4322.0	2724.6	17.176	1.967	2.70		Clay	79.0			24.16	0.94	n.a.	n.a.	0.91	0.970	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.760	17.970	0.391	4341.2	2733.8	11.559	2.472	2.90		Clay	94.8			16.98	0.93	n.a.	n.a.	0.91	0.970	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.930	10.770	0.341	4361.6	2743.6	6.261	3.967	3.23		Clay	100.0			10.18	0.93	n.a.	n.a.	0.91	0.970	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.090	8.480	0.235	4380.8	2752.8	4.570	3.743	3.33		Clay	100.0			8.02	0.93	n.a.	n.a.	0.91	0.970	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.250	8.170	0.243	4400.0	2762.0	4.323	4.062	3.37		Clay	100.0			7.72	0.93	n.a.	n.a.	0.91	0.969	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.420	7.740	0.249	4420.4	2771.8	3.990	4.501	3.43		Clay	100.0			7.32	0.93	n.a.	n.a.	0.91	0.969	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.580	7.240	0.231	4439.6	2781.0	3.610	4.593	3.47		Clay	100.0			6.84	0.93	n.a.	n.a.	0.91	0.969	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.750	7.130	0.243	4460.0	2790.8	3.512	4.953	3.50		Clay	100.0			6.74	0.93	n.a.	n.a.	0.91	0.969	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.910	7.130	0.242	4479.2	2800.0	3.493	4.946	3.50		Clay	100.0			6.74	0.93	n.a.	n.a.	0.91	0.969	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.070	7.620	0.256	4498.4	2809.2	3.824	4.759	3.46		Clay	100.0			7.20	0.93	n.a.	n.a.	0.91	0.969	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.240	7.850	0.227	4518.8	2819.0	3.966	4.062	3.40		Clay	100.0			7.42	0.93	n.a.	n.a.	0.91	0.968	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.400	7.200	0.234	4538.0	2828.2	3.487	4.748	3.49		Clay	100.0			6.81	0.93	n.a.	n.a.	0.91	0.968	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.570	6.920	0.207	4558.4	2838.0	3.270	4.467	3.50		Clay	100.0			6.54	0.93	n.a.	n.a.	0.91	0.968	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.730	6.870	0.216	4577.6	2847.2	3.218	4.704	3.52		Clay	100.0			6.49	0.92	n.a.	n.a.	0.91	0.968	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.890	7.670	0.194	4596.8	2856.5	3.761	3.612	3.40		Clay	100.0			7.25	0.92	n.a.	n.a.	0.91	0.968	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.060	7.360	0.199	4617.2	2866.3	3.525	3.947	3.44		Clay	100.0			6.96	0.92	n.a.	n.a.	0.91	0.967	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.220	6.750	0.206	4636.4	2875.5	3.082	4.637	3.53		Clay	100.0			6.38	0.92	n.a.	n.a.	0.91	0.967	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.390	7.090	0.209	4656.8	2885.3	3.301	4.383	3.49		Clay	100.0			6.70	0.92	n.a.	n.a.	0.90	0.967	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.550	7.560	0.228	4676.0	2894.5	3.608	4.364	3.46		Clay	100.0			7.15	0.92	n.a.	n.a.	0.90	0.967	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.710	7.090	0.233	4695.2	2903.7	3.266	4.911	3.52		Clay	100.0			6.70	0.92	n.a.	n.a.	0.90	0.966	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.880	7.240	0.216	4715.6	2913.5	3.351	4.432	3.49		Clay	100.0			6.84	0.92	n.a.	n.a.	0.90	0.966	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.040	7.600	0.221	4734.8	2922.7	3.581	4.216	3.45		Clay	100.0			7.18	0.92	n.a.	n.a.	0.90	0.966	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.210	7.770	0.224	4755.2	2932.5	3.678	4.161	3.44		Clay	100.0			7.34	0.92	n.a.	n.a.	0.90	0.966	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.370	7.710	0.224	4774.4	2941.7	3.619	4.212	3.45		Clay	100.0			7.29	0.92	n.a.	n.a.	0.90	0.965	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.530	7.610	0.222	4793.6	2950.9	3.533	4.258	3.46		Clay	100.0			7.19	0.92	n.a.	n.a.	0.90	0.965	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.700	7.680	0.218	4814.0	2960.7	3.562	4.125	3.45		Clay	100.0			7.26	0.92	n.a.	n.a.	0.90	0.965	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.860	7.690	0.203	4833.2	2969.9	3.551	3.848	3.43		Clay	100.0			7.27	0.91	n.a.	n.a.	0.90	0.965	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.030	7.700	0.215	4853.6	2979.7	3.539	4.070	3.45		Clay	100.0			7.28	0.91	n.a.	n.a.	0.90	0.964	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.190	7.770	0.229	4872.8	2988.9	3.569	4.297	3.46		Clay	100.0			7.34	0.91	n.a.	n.a.	0.90	0.964	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.350	8.340	0.251	4892.0	2998.2	3.932	4.253	3.42		Clay	100.0			7.88	0.91	n.a.	n.a.	0.90	0.964	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.520	8.600	0.335	4912.4	3008.0	4.085	5.446	3.46		Clay	100.0			8.13	0.91	n.a.	n.a.	0.90	0.964	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.680	9.150	0.370	4931.6	3017.2	4.431	5.535	3.44		Clay	100.0			8.65	0.91	n.a.	n.a.	0.90	0.963	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.850	11.850	0.537	4952.0	3027.0	6.194	5.733	3.33		Clay	100.0			11.20	0.91	n.a.	n.a.	0.90	0.963	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.010	16.510	0.409	4971.2	3036.2	9.238	2.913	3.02		Clay	100.														

CPT No.

5

PGA (A_{max})

0.87

Total Settlement: 0.30 (Inches)

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Depth (ft)	q _c (tsf)	f _s (tsf)	σ _{vc} (psf)	Insitu σ' _{vc} (psf)	Q	F (%)	I _c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q _c N near interfaces (soft layer)	Thin Layer Factor (K _u)	Interpreted q _c N	C _N	q _c 1N	q _c 1N-CS	Stress Reduction Coeff, r _d	CSR	K _σ for Sand	CRR _{M=7.5} , σ'vc = 1 atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε _v	Settlement (Inches)
44.130	24.730	0.563	5345.6	3215.9	13.718	2.551	2.84		Clay	90.5			23.37	0.90	n.a.	n.a.	0.88	0.956	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.290	23.040	0.583	5364.8	3225.1	12.624	2.862	2.90		Clay	95.2			21.78	0.89	n.a.	n.a.	0.88	0.956	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.460	23.470	0.765	5385.2	3234.9	12.846	3.679	2.96		Clay	99.8			22.18	0.89	n.a.	n.a.	0.88	0.956	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.620	24.370	0.726	5404.4	3244.1	13.358	3.352	2.92		Clay	96.8			23.03	0.89	n.a.	n.a.	0.88	0.955	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.780	23.320	0.676	5423.6	3253.3	12.669	3.280	2.94		Clay	97.8			22.04	0.89	n.a.	n.a.	0.88	0.955	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.950	32.340	0.720	5444.0	3263.1	18.153	2.432	2.73		Clay	81.6			30.57	0.89	n.a.	n.a.	0.88	0.955	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.110	37.300	0.711	5463.2	3272.3	21.128	2.056	2.64		Clay	73.9			35.26	0.89	n.a.	n.a.	0.88	0.954	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.280	38.410	0.543	5483.6	3282.1	27.069	1.522	2.47		Sand	60.9	44.53		44.53	0.80	35.59	94.51	0.88	0.954	0.955	0.131	0.154	0.16	0.03	0.02
45.440	45.850	0.598	5502.8	3291.3	32.662	1.387	2.38		Sand	53.7	44.54		44.54	0.80	35.46	92.20	0.88	0.954	0.956	0.128	0.150	0.16	0.03	0.02
45.600	47.110	0.768	5522.0	3300.6	33.563	1.731	2.43		Sand	57.4			44.53	0.80	35.44	93.37	0.88	0.953	0.955	0.129	0.152	0.16	0.03	0.02
45.770	42.620	0.854	5542.4	3310.4	24.075	2.144	2.60		Clay	71.1			40.28	0.89	n.a.	n.a.	0.88	0.953	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.930	37.640	0.934	5561.6	3319.6	21.002	2.680	2.71		Clay	79.6			35.58	0.89	n.a.	n.a.	0.88	0.952	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.100	43.010	0.808	5582.0	3329.4	30.306	2.009	2.50		Sand	63.4	68.34	1.72	117.54	0.85	99.82	177.65	0.88	0.952	0.906	0.662	1.231	1.29	0.00	0.00
46.260	59.560	0.683	5601.2	3338.6	42.710	1.203	2.25		Sand	43.2	68.34	1.72	117.54	0.84	99.02	167.22	0.88	0.952	0.915	0.460	0.796	0.84	0.01	0.00
46.420	72.300	0.590	5620.4	3347.8	52.217	0.848	2.10		Sand	30.6		1.72	117.54	0.83	97.97	153.92	0.88	0.951	0.924	0.317	0.502	0.53	0.02	0.01
46.590	64.830	0.871	5640.8	3357.6	46.528	1.404	2.26		Sand	44.0	68.34	1.72	117.54	0.84	98.83	167.51	0.88	0.951	0.913	0.464	0.804	0.85	0.01	0.00
46.750	53.460	1.020	5660.0	3366.8	37.938	2.015	2.43		Sand	57.3	68.34	1.72	117.54	0.84	99.23	174.76	0.87	0.950	0.907	0.595	1.081	1.14	0.01	0.00
46.920	47.090	0.747	5680.4	3376.6	33.109	1.689	2.43		Sand	57.3	68.34	1.72	117.54	0.84	99.11	174.61	0.87	0.950	0.906	0.591	1.073	1.13	0.01	0.00
47.080	41.130	1.051	5699.6	3385.8	22.612	2.744	2.69		Clay	78.1			38.88	0.88	n.a.	n.a.	0.87	0.950	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.240	34.690	0.937	5718.8	3395.0	18.751	2.942	2.77		Clay	84.7			32.79	0.88	n.a.	n.a.	0.87	0.949	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.410	34.700	0.640	5739.2	3404.8	18.697	2.009	2.67		Clay	76.9			32.80	0.88	n.a.	n.a.	0.87	0.949	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.570	35.730	0.603	5758.4	3414.0	19.245	1.836	2.64		Clay	74.3			33.77	0.88	n.a.	n.a.	0.87	0.948	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.740	34.430	0.570	5778.8	3423.8	18.424	1.808	2.65		Clay	75.3			32.54	0.88	n.a.	n.a.	0.87	0.948	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.900	29.350	0.471	5798.0	3433.0	15.410	1.779	2.71		Clay	80.2			27.74	0.88	n.a.	n.a.	0.87	0.948	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.060	23.640	0.456	5817.2	3442.3	12.045	2.197	2.85		Clay	91.4			22.34	0.88	n.a.	n.a.	0.87	0.947	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.230	20.760	0.408	5837.6	3452.0	10.337	2.288	2.92		Clay	96.6			19.62	0.88	n.a.	n.a.	0.87	0.947	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.390	18.830	0.455	5856.8	3461.3	9.188	2.860	3.02		Clay	100.0			17.80	0.88	n.a.	n.a.	0.87	0.946	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.560	17.550	0.501	5877.2	3471.1	8.419	3.429	3.09		Clay	100.0			16.59	0.88	n.a.	n.a.	0.87	0.946	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.720	28.310	0.482	5896.4	3480.3	14.575	1.899	2.75		Clay	83.0			26.76	0.88	n.a.	n.a.	0.87	0.946	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.880	22.090	0.463	5915.6	3489.5	10.966	2.422	2.91		Clay	95.9			20.88	0.88	n.a.	n.a.	0.87	0.945	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.050	13.470	0.360	5936.0	3499.3	6.002	3.424	3.21		Clay	100.0			12.73	0.88	n.a.	n.a.	0.87	0.945	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.210	12.260	0.276	5955.2	3508.5	5.291	2.971	3.23		Clay	100.0			11.59	0.88	n.a.	n.a.	0.87	0.944	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.380	12.050	0.269	5975.6	3518.3	5.151	2.972	3.24		Clay	100.0			11.39	0.87	n.a.	n.a.	0.87	0.944	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.540	10.370	0.241	5994.8	3527.5	4.180	3.262	3.33		Clay	100.0			9.80	0.87	n.a.	n.a.	0.86	0.943	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.700	10.100	0.215	6014.0	3536.7	4.011	3.035	3.33		Clay	100.0			9.55	0.87	n.a.	n.a.	0.86	0.943	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.870	8.980	0.202	6034.4	3546.5	3.363	3.384	3.42		Clay	100.0			8.49	0.87	n.a.	n.a.	0.86	0.943	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.030	8.390	0.181	6053.6	3555.7	3.017	3.369	3.46		Clay	100.0			7.93	0.87	n.a.	n.a.	0.86	0.942	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.200	7.980	0.171	6074.0	3565.5	2.773	3.459	3.50		Clay	100.0			7.54	0.87	n.a.	n.a.	0.86	0.942	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.360	7.600	0.156	6093.2	3574.7	2.548	3.433	3.53		Clay	100.0			7.18	0.87	n.a.	n.a.	0.86	0.941	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.520	7.640	0.163	6112.4	3584.0	2.558	3.549	3.54		Clay	100.0			7.22	0.87	n.a.	n.a.	0.86	0.941	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.690	7.940	0.168	6132.8	3593.7	2.712	3.437	3.51		Clay	100.0			7.50	0.87	n.a.	n.a.	0.86	0.940	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.850	8.650	0.149	6152.0	3603.0	3.094	2.671	3.40		Clay	100.0			8.18	0.87	n.a.	n.a.	0.86	0.940	n.a.	n.a.	n.a.	n.a.	0.00	0.00
51.020	9.190	0.251	6172.4	3612.8	3.379	4.117	3.47		Clay	100.0			8.69	0.87	n.a.	n.a.	0.86	0.939	n.a.	n.a.	n.a.	n.a.	0.00	0.00
51.180	10.230	0.453	6191.6	3622.0	3.939	6.348	3.51		Clay	100.0			9.67	0.87	n.a.	n.a.	0.86	0.939	n.a.	n.a.	n.a.	n.a.	0.00	0.00
51.350	13.650	0.490	6212.0	3631.8	5.807	4.642	3.30		Clay	100.0			12.90	0.87	n.a.	n.a.	0.86	0.939	n.a.	n.a.	n.a.	n.a.	0.00	0.00
51.510	22.490	0.525	6231.2	3641.0	10.642	2.707	2.95		Clay	99.0			21.26	0.87	n.a.	n.a.	0.86	0.938	n.a.	n.a.	n.a.	n.a.	0.00	0.00
51.670	15.390	0.409	6250.4	3650.2	6.720	3.333	3.17		Clay	100.0			14.55	0.87	n.a.	n.a.	0.86	0.938	n					

CPT No.

5

PGA (A_{max})

0.87

Total Settlement:

0.30 (Inches)

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Depth (ft)	q_c (tsf)	f_s (tsf)	σ_{vc} (psf)	In situ σ'_{vc} (psf)	Q	F (%)	I_c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q_{cN} near interfaces (soft layer)	Thin Layer Factor (K_{tN})	Interpreted q_{cN}	C_N	q_{c1N}	q_{c1N-CS}	Stress Reduction Coeff, f_d	CSR	K_σ for Sand	CRRM=7.5, $\sigma'_{vc} = 1$ atm	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ϵ_v	Settlement (Inches)
55.120	14.210	0.525	6664.4	3848.9	5.652	4.828	3.32		Clay	100.0			13.43	0.85	n.a.	n.a.	0.84	0.928	n.a.	n.a.	n.a.	n.a.	0.00	0.00
55.280	14.950	0.543	6683.6	3858.1	6.018	4.681	3.29		Clay	100.0			14.13	0.85	n.a.	n.a.	0.84	0.927	n.a.	n.a.	n.a.	n.a.	0.00	0.00
55.450	14.910	0.534	6704.0	3867.9	5.976	4.618	3.29		Clay	100.0			14.09	0.85	n.a.	n.a.	0.84	0.927	n.a.	n.a.	n.a.	n.a.	0.00	0.00
55.610	14.440	0.484	6723.2	3877.1	5.715	4.371	3.29		Clay	100.0			13.65	0.85	n.a.	n.a.	0.84	0.926	n.a.	n.a.	n.a.	n.a.	0.00	0.00
55.770	14.340	0.395	6742.4	3886.4	5.645	3.599	3.25		Clay	100.0			13.55	0.85	n.a.	n.a.	0.84	0.926	n.a.	n.a.	n.a.	n.a.	0.00	0.00
55.940	13.650	0.312	6762.8	3896.1	5.271	3.042	3.23		Clay	100.0			12.90	0.85	n.a.	n.a.	0.84	0.925	n.a.	n.a.	n.a.	n.a.	0.00	0.00
56.100	12.670	0.242	6782.0	3905.4	4.752	2.605	3.24		Clay	100.0			11.98	0.85	n.a.	n.a.	0.84	0.925	n.a.	n.a.	n.a.	n.a.	0.00	0.00
56.270	11.810	0.203	6802.4	3915.2	4.296	2.408	3.26		Clay	100.0			11.16	0.85	n.a.	n.a.	0.84	0.924	n.a.	n.a.	n.a.	n.a.	0.00	0.00
56.430	10.920	0.167	6821.6	3924.4	3.827	2.225	3.29		Clay	100.0			10.32	0.85	n.a.	n.a.	0.84	0.924	n.a.	n.a.	n.a.	n.a.	0.00	0.00
56.590	10.420	0.147	6840.8	3933.6	3.559	2.099	3.30		Clay	100.0			9.85	0.85	n.a.	n.a.	0.84	0.923	n.a.	n.a.	n.a.	n.a.	0.00	0.00
56.760	10.240	0.112	6861.2	3943.4	3.454	1.642	3.26		Clay	100.0			9.68	0.85	n.a.	n.a.	0.84	0.923	n.a.	n.a.	n.a.	n.a.	0.00	0.00
56.920	10.270	0.128	6880.4	3952.6	3.456	1.868	3.29		Clay	100.0			9.71	0.85	n.a.	n.a.	0.84	0.922	n.a.	n.a.	n.a.	n.a.	0.00	0.00
57.090	10.300	0.147	6900.8	3962.4	3.457	2.149	3.32		Clay	100.0			9.74	0.85	n.a.	n.a.	0.84	0.922	n.a.	n.a.	n.a.	n.a.	0.00	0.00
57.250	10.700	0.165	6920.0	3971.6	3.646	2.275	3.31		Clay	100.0			10.11	0.85	n.a.	n.a.	0.84	0.921	n.a.	n.a.	n.a.	n.a.	0.00	0.00
57.410	11.220	0.199	6939.2	3980.8	3.894	2.561	3.31		Clay	100.0			10.60	0.85	n.a.	n.a.	0.84	0.921	n.a.	n.a.	n.a.	n.a.	0.00	0.00
57.580	14.730	0.280	6959.6	3990.6	5.638	2.484	3.16		Clay	100.0			13.92	0.85	n.a.	n.a.	0.83	0.920	n.a.	n.a.	n.a.	n.a.	0.00	0.00
57.740	17.140	0.430	6978.8	3999.8	6.826	3.150	3.15		Clay	100.0			16.20	0.85	n.a.	n.a.	0.83	0.920	n.a.	n.a.	n.a.	n.a.	0.00	0.00
57.910	21.660	0.480	6999.2	4009.6	9.058	2.645	3.00		Clay	100.0			20.47	0.84	n.a.	n.a.	0.83	0.919	n.a.	n.a.	n.a.	n.a.	0.00	0.00
58.070	23.090	0.496	7018.4	4018.8	9.745	2.533	2.97		Clay	100.0			21.82	0.84	n.a.	n.a.	0.83	0.919	n.a.	n.a.	n.a.	n.a.	0.00	0.00
58.230	21.330	0.420	7037.6	4028.0	8.844	2.359	2.98		Clay	100.0			20.16	0.84	n.a.	n.a.	0.83	0.918	n.a.	n.a.	n.a.	n.a.	0.00	0.00
58.400	20.240	0.406	7058.0	4037.8	8.277	2.428	3.02		Clay	100.0			19.13	0.84	n.a.	n.a.	0.83	0.918	n.a.	n.a.	n.a.	n.a.	0.00	0.00
58.560	19.810	0.486	7077.2	4047.1	8.041	2.985	3.07		Clay	100.0			18.72	0.84	n.a.	n.a.	0.83	0.917	n.a.	n.a.	n.a.	n.a.	0.00	0.00
58.730	20.980	0.626	7097.6	4056.8	8.593	3.588	3.10		Clay	100.0			19.83	0.84	n.a.	n.a.	0.83	0.917	n.a.	n.a.	n.a.	n.a.	0.00	0.00
58.890	22.870	0.874	7116.8	4066.1	9.499	4.525	3.12		Clay	100.0			21.62	0.84	n.a.	n.a.	0.83	0.916	n.a.	n.a.	n.a.	n.a.	0.00	0.00
59.060	25.840	0.994	7137.2	4075.9	10.928	4.464	3.07		Clay	100.0			24.42	0.84	n.a.	n.a.	0.83	0.916	n.a.	n.a.	n.a.	n.a.	0.00	0.00
59.220	29.550	1.241	7156.4	4085.1	12.715	4.776	3.03		Clay	100.0			27.93	0.84	n.a.	n.a.	0.83	0.915	n.a.	n.a.	n.a.	n.a.	0.00	0.00
59.380	33.430	1.375	7175.6	4094.3	14.577	4.609	2.98		Clay	100.0			31.60	0.84	n.a.	n.a.	0.83	0.915	n.a.	n.a.	n.a.	n.a.	0.00	0.00
59.550	38.230	1.506	7196.0	4104.1	16.877	4.349	2.91		Clay	96.0			36.13	0.84	n.a.	n.a.	0.83	0.914	n.a.	n.a.	n.a.	n.a.	0.00	0.00
59.710	45.270	1.657	7215.2	4113.3	20.257	3.976	2.83		Clay	89.1			42.79	0.84	n.a.	n.a.	0.83	0.913	n.a.	n.a.	n.a.	n.a.	0.00	0.00
59.880	50.230	1.950	7235.6	4123.1	22.610	4.183	2.80		Clay	87.4			47.48	0.84	n.a.	n.a.	0.83	0.913	n.a.	n.a.	n.a.	n.a.	0.00	0.00
60.040	46.730	1.740	7254.8	4132.3	20.861	4.037	2.82		Clay	88.7			44.17	0.84	n.a.	n.a.	0.83	0.912	n.a.	n.a.	n.a.	n.a.	0.00	0.00