APPENDIX C

GEOTECHNICAL INVESTIGATION

CORNERSTONE EARTH GROUP

TYPE OF SERVICES	Geotechnical Investigation
PROJECT NAME	East 14th Street Mixed-Use Development
LOCATION	1188 East 14th Street San Leandro, California
CLIENT	Sansome Pacific Properties
PROJECT NUMBER	444-3-1
DATE	June 5, 2018

CORNERSTONE EARTH GROUP

Type of Services	**Geotechnical Investigation**
Project Name	**East 14th Street Mixed-Use Development**
Location	**1188 East 14th Street** **San Leandro, California**
Client	**Sansome Pacific Properties**
Client Address	**303 Sacramento Street, 4th Floor** **San Francisco, California 94111**
Project Number	**444-3-1**
Date	**June 5, 2018**

Prepared by

John R. Dye P.E., G.E.
Principal Engineer
Geotechnical Project Manager

REGISTERED PROFESSIONAL ENGINEER
JOHN R. DYE
No. GE2582
EXPIRES 12/31/20
GEOTECHNICAL
STATE OF CALIFORNIA

Scott E. Fitinghoff, P.E., G.E.
Senior Principal Engineer
Quality Assurance Reviewer

1259 Oakmead Parkway | Sunnyvale, CA 94085
T 408 245 4600 | F 408 245 4620

1220 Oakland Boulevard, Suite 220 | Walnut Creek, CA 94596
T 925 988 9500 | F 925 988 9501

www.cornerstoneearth.com

CORNERSTONE EARTH GROUP

TABLE OF CONTENTS

CORNERSTONE EARTH GROUP

Type of Services	**Geotechnical Investigation**
Project Name	**East 14th Street Mixed-Use Development**
Location	**1188 East 14th Street** **San Leandro, California**

SECTION 1: INTRODUCTION

This geotechnical investigation report was prepared for the sole use of Sansome Pacific Properties, and their design team for the proposed mixed-use residential development at approximate addresses 1120 to 1188 East 14th Street in San Leandro, California. The location of the site is shown on the Vicinity Map, Figure 1. For our use, we were provided the following:

- A set of Architectural schematic site plans prepared by Lowney Architecture, dated March 14, 2018.

1.1 PROJECT DESCRIPTION

The project site consists of an approximately 1.6-acre property comprised of Assessor Parcel Numbers (APN) 77-447-15-6, 77-447-14-7, 77-447-14-6 and 77-447-7-1. The site is presently occupied by two two-story office buildings and a single-story retail building with a partial basement along East 14th Street, and a parking lot east of the buildings. The northern building is occupied by office and commercial space on both floors whereby the middle two-story building includes parking on the ground floor and commercial office space above. We understand that the project will consist of demolishing existing site improvements and construction of a mixed-use residential building with a footprint of approximately 29,000 square feet.

Based on the conceptual design and discussions with you, we understand the proposed mixed-use building will consist of five-stories of wood-frame construction over a two-story concrete podium with parking, retail and lobby space.

Appurtenant utilities, landscaping, and other improvements necessary for site development are also planned. Based on our understanding of the existing site, a basement is present below the existing retail building. As the conceptual grading plans indicate the site will remain at approximately the existing elevation, which is about 60 feet (WGS84 Elevation datum), and no basement excavation is planned for the proposed mixed-use development, required grading is expected to be on the order of 2 to 3 feet. We assume the basement backfill will be on the order of 8 to 10 feet thick.

Based on discussions with Hohbach-Lewin, Inc., we understand dead and live structural loading for the proposed development will be up to approximately 650 kips for typical interior columns and 450 kips for typical perimeter columns.

1.2 SCOPE OF SERVICES

Our scope of services was presented in our revised proposal dated March 30, 2018 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 a site reconnaissance and subsurface exploration program. Five (5) Cone Penetration Tests (CPTs) were advanced to depths of about 50 feet each on April 26, 2018 using 20-ton truck mounted CPT equipment and three (3) exploratory borings were drilled to depths between approximately 26½ and 40 feet below the existing ground surface on May 14, 2018 using conventional hollow-stem auger truck mounted drilling equipment.

The borings and CPT holes were backfilled with cement grout in accordance with local requirements; exploration permits were obtained as required by local jurisdictions. 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 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, triaxial compression tests, and a consolidation test. Details regarding our laboratory program are included in Appendix B.

1.5 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

The San Francisco Bay Area region is one of the most seismically active areas in the Country. While seismologists cannot predict earthquake events, the U.S. Geological Survey's Working Group on California Earthquake Probabilities 2015 revises earlier estimates from their 2008 (2008, UCERF2) publication. Compared to the previous assessment issued in 2008, the estimated rate of earthquakes around magnitude 6.7 (the size of the destructive 1994 Northridge earthquake) has gone down by about 30 percent. The expected frequency of such

events statewide has dropped from an average of one per 4.8 years to about one per 6.3 years. However, in the new study, the estimate for the likelihood that California will experience a magnitude 8 or larger earthquake in the next 30 years has increased from about 4.7 percent for UCERF2 to about 7.0 percent for UCERF3.

UCERF3 estimates that each region of California will experience a magnitude 6.7 or larger earthquake in the next 30 years. Additionally, there is a 63 percent chance of at least one magnitude 6.7 or greater earthquake occurring in the Bay Area region between 2007 and 2036.

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 30 kilometers of the site.

Table 1: Approximate Fault Distances

Fault Name	Distance	
	(miles)	(kilometers)
Hayward (Norhern Extension)	1.4	2.2
Hayward (Southern Extension)	1.8	3.0
Calaveras (Northern Section)	10.0	16.1
Calaveras (Southern Section	12.5	20.0
San Andreas (Peninsula)	17.2	27.7

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

To evaluate site history, we reviewed historic aerial photographs from 1946 and 2014 available at www.historicaerials.com (NETR). Prior to 1946, the site and surrounding blocks were occupied by residential single-family homes, and the site remained in this condition until at least 1958. By 1958, a portion of single-family homes on the west side were demolished, and the building at the northwest corner of the site was constructed. By 1968, all residential buildings on the site had been demolished, and the present-day buildings and the parking lot were constructed. The site appears to have remained relatively unchanged from 1968 until the present.

3.2 SURFACE DESCRIPTION

The approximately 1.6-acre site is located at 1120 to 1188 East 14th Street in San Leandro, California. The site is bounded by East 14th Street to the west, Chumalia Street and San Leandro Creek beyond to the north, Hyde Street to the east, and Davis/Callan Street to the south. Currently the site is occupied by three buildings on the western half of the property, including a pair of two-story office buildings and the former single-story retail building at the

corner of East 14th Street and Davis Street. The eastern half of the site is covered with asphalt parking and several landscape medians. We understand the single-story commercial building includes a partial basement; the lateral footprint of the basement is not known at this time. Approximately 2 to 4 inches of asphalt concrete over approximately 2 to 6 inches of granular base was encountered in our borings. In general, asphalt appeared to be in poor condition with significant surface raveling and some cracking.

3.3 SUBSURFACE CONDITIONS

Below the surface pavements, our explorations encountered about 1 to 2 feet of undocumented fill consisting of clayey sand and sandy clay with gravel. The fill was underlain by native alluvial soils, which generally consisted of loose to medium dense silty to clayey sand and medium stiff to hard lean clay and sandy lean clay within the upper 15 feet of the surface. Below this depth, our explorations generally encountered medium stiff to hard, low to moderately compressible lean clay with varying percentages of sand and silt to the maximum depth explored of 50 feet below the current ground surface. The deeper clay was interbedded with occasional thin, discontinuous lenses of loose to medium dense silty to poorly-graded sand. Medium stiff clay as encountered between depths of 25 and 35 feet in borings EB-1 and EB-2, and sand lenses up to 5 feet thick were encountered in all our explorations within the upper 10 feet of the surface.

3.3.1 Plasticity/Expansion Potential

We performed three (3) Plasticity Index (PI) tests on representative near surface samples. The test results were used to evaluate the plasticity and expansion potential of surficial soils. The results of the surficial PI tests indicated PIs ranging from 5 to 13, indicating low expansion potential to wetting and drying cycles.

3.3.2 In-Situ Moisture Contents

Laboratory testing indicated that the in-situ moisture contents within the upper 10 feet were 2 to 10 percent over the estimated laboratory optimum moisture contents.

3.4 GROUND WATER

Ground water was measured at a depth of approximately 16 feet in CPT-1 during a pore-pressure dissipation test, and ground water was measured in borings EB-1 and EB-3 at approximate depths of 32 and 30 feet below the current ground surface, respectively. All measurements were taken at the time of our explorations and may not represent stabilized levels that can be higher than the initial levels encountered.

Based on our recent groundwater data and review of California Geologic Survey historic high ground water maps for the area (CGS, San Leandro 7.5-Minute Quadrangle, 2003), we estimate high groundwater to be as shallow as 15 feet below current site grades. Fluctuations in ground water levels occur due to many factors including seasonal fluctuation, underground drainage patterns, regional fluctuations, and other factors.

SECTION 4: GEOLOGIC HAZARDS

4.1 FAULT RUPTURE

As shown on Figure 3 and in Table 1, several major active faults pass within 30 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 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) was estimated for analysis using a value equal to F_{PGA} x PGA, as allowed in the 2016 edition of the California Building Code. For our liquefaction analysis we used a PGA of 0.84g.

4.3 LIQUEFACTION POTENTIAL

The site is within a State-designated Liquefaction Hazard Zone (CGS, San Leandro Quadrangle, 2003). Our field and laboratory programs addressed this issue by testing and sampling 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 ground water depth of 15 feet. 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 ground water. The tip pressures are corrected for effective overburden stresses, taking into consideration both the ground water level at the time of exploration and the design ground water 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. Selected soil samples collected from advancing borings EB-1 and EB-3 adjacent to CPT-1 and CPT-3, respectively, were tested to evaluate grain size, as well as visually observed for confirmation of CPT soil behavior types.

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 non-liquefied 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 through CPT-5) are presented on Figures C-1 through C-5 of this report.

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 surface up to a ½ inch based on the Yoshimine (2006) method. As discussed in SP 117A, differential movement for level ground sites with deep soil will be up to about two-thirds of the total settlement between independent foundation elements. In our opinion, due the discontinuous nature of interbedded sand lenses below the design ground water level, differential settlements are anticipated to be up to of ½ inch over a horizontal distance of 30 feet.

4.3.4 Ground Rupture Potential

The methods used to estimate liquefaction settlements assume that there is a sufficient cap of non-liquefiable material to prevent ground rupture or sand boils. For ground rupture 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 15-foot thick layer of non-liquefiable cap is sufficient to prevent ground rupture; 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.

San Leandro Creek, which is estimated to be approximately 15 feet deep near the projects vicinity, is approximately 90 feet northwest of the property. Although several soil layers could potentially experience liquefaction below a depth of 15 feet, the layers appear to be relatively discontinuous below the ground water level, therefore; the potential for lateral spreading to affect the site is considered low.

4.5 SEISMIC SETTLEMENT/UNSATURATED SAND SHAKING

Loose, relatively clean unsaturated sandy soils can settle during strong seismic shaking. We evaluated the potential for seismic compaction of the loose to medium dense silty and clayey sand encountered within the upper 15 feet at the site based on the work by Pradell (1998). Based on laboratory data, unsaturated sands encountered had fine contents between 15 and 45 percent, and therefore it is unlikely that seismic dry sand settlement will affect the proposed development.

4.6 STATIC SETTLEMENT

As previously discussed, our recent exploration encountered low to moderately compressible, stiff to hard lean clay with sand between approximately 15 and 35 feet below the existing ground surface, and laboratory testing indicated these clay materials have modified compression indices ranging from approximately 0.1 to 0.14. Based on the anticipated building loads and proposed column spacing, we estimate shallow foundations could experience a total of approximately 1½ inches of static settlement. While our analysis indicates the majority of this settlement is likely to occur during construction of the proposed development, up to ½ inch of post-construction static settlement would likely occur following building completion. Based on our understanding of the anticipated foundation loads, it should be feasible to support the proposed building on shallow foundations provided they are designed to tolerate total and differential settlement due to static and seismic loading. Further discussion on building settlement is presented in the “Conclusions” section of this report.

4.7 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.

A tsunami or seiche originating in the Pacific Ocean would lose much of its energy passing through San Francisco Bay. Based on the study of tsunami inundation potential for the San Francisco Bay Area (Ritter and Dupre, 1972), areas most likely to be inundated are marshlands, tidal flats, and former bay margin lands that are now artificially filled, but are still at or below sea level, and are generally within 1½ miles of the shoreline. The site is approximately 2.3 miles inland from the San Francisco Bay shoreline, and is approximately 60 feet above mean sea level. Therefore, the potential for inundation due to tsunami or seiche is considered low.

4.8 FLOODING

The Federal Emergency Management Agency *Flood Insurance Rate Map* (FEMA, 2009) indicates that the site is located within Zone “X” described as: “Areas of minimal flood hazard”. We recommend the project civil engineer be retained to confirm this information and verify the base flood elevation, if appropriate.

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.

- Presence of undocumented fill
- Significant static and seismic settlement
- Presence of an existing basement

5.1.1 Undocumented fill

As discussed in Section 3, our explorations encountered about 1 to 2 feet of undocumented fill blanketing the site, which consisted of clayey sand and sandy clay. Undocumented fill may be highly variable following site demolition and may not uniformly support the proposed site developments. Therefore, we recommend that all undocumented fill materials present beneath the proposed building areas be over-excavated and re-compacted prior to foundation construction. Recommendations addressing this concern are presented in the "Earthwork" section of this report.

5.1.2 Significant Static and Seismic Settlement

As discussed in Section 4, our liquefaction analysis indicates that there is a potential for liquefaction of localized sand layers during a significant seismic event. Although the potential for liquefied sands to vent to the ground surface through cracks in the surficial soils is moderate, our analysis indicates that liquefaction-induced settlement on the order of ¼ to ½ inch could occur, resulting in differential settlement up to ½ inch.

The total estimated static settlement based on foundation loading provided by the structural engineer could range from approximately 1 to 1½ inches. However, our analysis indicates 50 to 70 percent of this settlement will occur during construction. Therefore, the estimated post-construction total settlement will be approximately ½ inch, with approximately ¼ inch of differential settlement between adjacent foundation elements. The combined static and seismic differential settlement is estimated to be about ¾ inch between adjacent foundation elements. Based on our review of the settlement data, the proposed building can likely be supported on a shallow foundation. Further discussion is presented in the "Foundations" section of this report.

5.1.3 Basement Backfill and Differential Movement at Fill Transitions

As discussed in Section 3, we understand that the existing retail building has an approximately 8 to 10-foot-deep basement. Both the basement and sump areas will need to be filled in as part of site grading. Material transitions occur when two or more materials with differing geotechnical characteristics interface in a small area, such as within a building footprint. The materials that comprise these transitions can include native surficial soils or engineered fill. Because the geotechnical characteristics of the materials are different, the long-term performance of the materials will also be different.

For instance, fill materials that will be required to backfill the existing basement, even if well compacted, can be more compressible than native materials and as a result, will usually experience a greater amount of settlement under the proposed loading conditions. The differences in the amount of settlement between fill materials and native soil can cause distress to building foundations and other site improvements. Such distress will often either add to the long-term maintenance costs or reduce the design life associated with the structure.

Although the plans indicate the new building foundation will be constructed at-grade, a portion of the building will straddle the existing basement, which will need to be filled. Deeper fill transitions should be over-excavated at an inclination of 3:1 or flatter and rebuilt with engineered fill to reduce the potential for differential movement beneath at-grade structures. Since

undocumented fill on the site will need to be over-excavated, this fill transition will be partially mitigated during site grading. Recommendations addressing these concerns are presented in the "Earthwork" section of this report.

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, which are currently present on the site, 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 that results from 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.

As an owner value-engineered option, existing slabs, foundations, and pavements that extend into planned flatwork, pavement, or landscape areas may be left in place provided there is at least 3 feet of engineered fill overlying the remaining materials, they are shown not to conflict with new utilities, and that asphalt and concrete more than 10 feet square is broken up to allow

subsurface drainage. Future distress and/or higher maintenance may result from leaving these prior improvements in place. A discussion of recycling existing improvements is provided later in this report.

Special care should be taken during the demolition and removal of existing floor slabs, foundations, utilities and pavements to minimize disturbance of the subgrade. Excessive disturbance of the subgrade, which includes either native or previously placed engineered fill, resulting from demolition activities can have serious detrimental effects on planned foundation and paving elements.

Existing foundations are typically mat-slabs, shallow footings, or piers/piles. If slab or shallow footings are encountered, they should be completely removed. If drilled piers are encountered, they should be cut off at an elevation at least 60 inches below proposed footings or the final subgrade elevation, whichever is deeper. The remainder of the drilled pier could remain in place. Foundation elements to remain in place should be surveyed and superimposed on the proposed development plans to determine the potential for conflicts or detrimental impacts to the planned construction. Following review, additional mitigation or planned foundation elements may need to be modified.

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 within the proposed development area. Demolition of existing improvements is discussed in detail below. A detailed discussion of removal of existing fills is provided later in this report. Surface vegetation and topsoil should be stripped to a sufficient depth to remove all material

greater than 3 percent organic content by weight. Based on our site observations, surficial stripping should extend up to 3 to 6 inches below existing grade in vegetated areas.

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 REMOVAL OF EXISTING FILLS AND LOOSE SOIL OVER-EXCAVATION

All existing undocumented fills should be completely removed from within the proposed building footprint and to a lateral distance of at least 5 feet beyond the building footprint or to a lateral distance equal to fill depth below the perimeter footing, whichever is greater. In addition, where loose native sand is encountered below undocumented fill, the upper 1 foot of the loose sand should be removed, and the exposed bottom scarified, moisture conditioned and re-compacted prior to replacing the excavated sand or undocumented fill. For preliminary budgeting purposes, we suggest an over-excavation depth of 3 feet below the bottom of the pavement section be considered. If a more accurate estimate of over-excavation depth is desired, we suggest performing additional potholes during demolition to document the thickness of fill and loose sands.

Provided excavated materials meet the "Material for Fill" requirements below, the materials may be reused when backfilling the excavations. Based on review of the samples collected from our borings, it appears that the fill and loose sand materials may be reused. If materials are encountered that do not meet the requirements, such as geotextile fabric, debris, wood, or trash, those materials should be screened out of the remaining material and be removed from the site. Backfill of excavations should be placed in lifts and compacted in accordance with the "Compaction" section below.

Where fill extends 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 18 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 Site 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, including the sides of the existing basement area beneath the retail building. Excavations extending more than 5 feet

below building subgrade and excavations in pavement and flatwork areas should be slope at a 1:1 inclination unless the OSHA soil classification indicates that slope should not exceed 1.5:1.

6.5 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 12 inches, moisture conditioned, and compacted in accordance with the "Compaction" section below.

6.6 SUBGRADE STABILIZATION MEASURES

Soil subgrade and fill materials, especially soils with high fines contents such as clayey 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 are 2 to 10 percent over the estimated laboratory optimum in the upper 10 feet of the soil profile. If wetter material is encountered in the surface soils or stockpiled soil at the site, the contractor should anticipate drying the soils prior to reusing them as fill.

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 particular site conditions.

6.6.1 Scarification and Drying

The subgrade may be scarified to a depth of 6 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 soil clods.

6.6.2 Removal and Replacement

As an alternative to scarification, the contractor may choose to over-excavate 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 geosynthethic stabilization fabric or geogrid is recommended, and what materials are recommended for backfill.

6.6.3 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 MATERIAL FOR FILL

6.7.1 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.

6.7.2 Re-Use of On-Site Site Improvements

We anticipate that some asphalt concrete (AC) grindings will be generated during site demolition. If the AC grindings are mixed with the underlying AB to meet Class 2 AB specifications, they may be reused within the new pavement and flatwork structural sections, outside the proposed building development as AC/AB grindings should not be re-used within the habitable at-grade building areas. Laboratory testing will be required to confirm the grindings meet project specifications.

If the existing Portland Cement Concrete building slabs and foundations are to be pulverized, and provided the pulverized PCC meets the “Material for Fill” requirements of this report, it may be used as general fill for the existing basement and as select fill within the building areas, excluding the capillary break layer. As pulverized PCC typically comes close to, or meets Class 2 AB specifications, the recycled PCC may likely be used within the pavement structural sections. PCC grindings also make good winter construction access roads, similar to a cement-treated base (CTB) section.

6.7.3 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 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 consolidated in place with vibratory equipment. Each lift of fill and 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 "Subgrade Stabilization Measures" section of this report.

Table 3: Compaction Requirements

Description	Material Description	Minimum Relative[1] Compaction (percent)	Moisture[2] Content (percent)
General Fill (within upper 5 feet)	On-Site Soils	90	>2
Existing Basement Backfill	On-Site or Imported Soil	95	>2[4]
Trench Backfill	On-Site Soils	90	>2
Trench Backfill (upper 6 inches of subgrade)	On-Site Soils	95	>2
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 Soils	90	>2
Flatwork Aggregate Base	Class 2 Aggregate Base[3]	90	Optimum
Pavement Subgrade	On-Site Soils	95	>2
Pavement Aggregate Base	Class 2 Aggregate Base[3]	95	Optimum
Asphalt Concrete	Asphalt Concrete	95	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)
4 - The moisture content of potential imported fill will depend on laboratory testing.

6.8 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 (⅜-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.

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.

6.9 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 to at least 10 feet from the structure. 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.

6.10 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.

- The near-surface soils at the site are clayey, and likely categorized as Hydrologic Soil Group C or D and are expected to have infiltration rates ranging from less than 0.2 inches per hour to localized areas ranging from 0.2 to 0.5 inches per hour. In our opinion, these clayey soils will significantly limit the infiltration of stormwater.

- In our opinion, infiltration locations within 10 feet of the buildings could create a geotechnical hazard.

6.10.1 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.

6.10.1.1 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.

6.10.1.2 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 required, infiltration (percolation) testing should be performed on representative samples of potential bioswale materials prior to construction to check for general conformance with the specified infiltration rates.

- It should be noted that multiple laboratory tests may be required to evaluate the properties of the bioswale materials, including percolation, landscape suitability and possibly environmental analytical testing depending on the source of the material. We recommend that the landscape architect provide input on the required landscape suitability tests if bioswales are to be planted.

- 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.

- If required by governing agencies, field infiltration testing should be specified on the grading and improvement plans. The appropriate infiltration test method, duration and frequency of testing should be specified in accordance with local requirements.

- 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.

6.10.1.3 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 vertical edge of a 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 vertical bioswale cut 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.

6.11 LANDSCAPE CONSIDERATIONS

We recommend greatly 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 existing 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: FOUNDATIONS

7.1 SUMMARY OF RECOMMENDATIONS

In our opinion, the proposed structure may be supported on shallow foundations provided the recommendations in the "Earthwork" section and the sections below are followed.

7.2 SEISMIC DESIGN CRITERIA

We understand that the project structural design will be based on the 2016 California Building Code (CBC), which provides criteria for the seismic design of buildings in Chapter 16. The "Seismic Coefficients" used to design buildings are established based on a series of tables and figures addressing different site factors, including the soil profile in the upper 100 feet below grade and mapped spectral acceleration parameters based on distance to the controlling seismic source/fault system. Based on our borings and review of local geology, the site is underlain by deep alluvial soils with typical SPT "N" values between 15 and 50 blows per foot. Therefore, we have classified the site as Soil Classification D. The mapped spectral acceleration parameters S_S and S_1 were calculated using the USGS web-based program *U.S. Seismic Design Maps* (http://geohazards.usgs.gov/designmaps/us/application.php), Revision dated March 19, 2018, based on the site coordinates presented below and the site classification. The table below lists the various factors used to determine the seismic coefficients and other parameters.

Table 4: CBC Site Categorization and Site Coefficients

Classification/Coefficient	Design Value
Site Class	D
Site Latitude	37.72614°
Site Longitude	-121.1566°
0.2-second Period Mapped Spectral Acceleration[1], S_S	2.196g
1-second Period Mapped Spectral Acceleration[1], S_1	0.907g
Short-Period Site Coefficient – Fa	1.0
Long-Period Site Coefficient – Fv	1.5
0.2-second Period, Maximum Considered Earthquake Spectral Response Acceleration Adjusted for Site Effects - S_{MS}	2.196g
1-second Period, Maximum Considered Earthquake Spectral Response Acceleration Adjusted for Site Effects – S_{M1}	1.361g
0.2-second Period, Design Earthquake Spectral Response Acceleration – S_{DS}	1.464g
1-second Period, Design Earthquake Spectral Response Acceleration – S_{D1}	0.907g

[1]For Site Class B, 5 percent damped.

7.3 SHALLOW FOUNDATIONS

7.3.1 Conventional Footings

Continuous and/or spread footings should bear entirely on natural, undisturbed soil or engineered fill, be at least 18 inches wide, and extend at least 24 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.

Footings 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. 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.

7.3.2 Footing Settlement

The typical structural loading presented in the following table was provided to us by Hohbach-Lewin, the project structural engineer.

Table 5: Assumed Structural Loading

Foundation Area	Range of Assumed Loads
Maximum Interior Isolated Column Footing	650 kips
Maximum Exterior Isolated Column Footing	450 kips
Shear Wall Footing	4 to 6 kips per lineal foot

Based on the above loading and the allowable bearing pressures presented above, we estimate that the total static footing settlement will be on the order of 1½ inches, which is due to both elastic (recompression) and consolidation of saturated clay layers. Approximately 50 to 70 percent of the settlement is anticipated to during construction; therefore, total post-construction settlement of approximately ½ inch is estimated. We estimate approximately ¼ inch of static, post-construction differential settlement will occur between adjacent foundation elements, spaced between 25 and 65 feet. We recommend that adjacent footings straddling the existing basement fill area be designed to tolerate an additional ¼ inch of post-construction differential static settlement. We recommend we be retained to review the final footing layout and loading, and verify the settlement estimates above.

In addition, as previously mentioned, we estimate seismic differential settlement on the order of ½ inch, resulting in combined static and seismic differential settlement of approximately ¾ to 1 inch between adjacent foundation estimates.

7.3.3 Lateral Loading for Footings

Lateral loads may be resisted by friction between the bottom of footings and the supporting subgrade, and also by passive pressures generated against footing edges. An ultimate frictional resistance of 0.45 applied to the footing dead load, and an ultimate passive pressure based on an equivalent fluid pressure of 450 pcf may be used in design. The structural engineer should apply an appropriate factor of safety (such as 1.5) to the ultimate values above. The upper 12 inches of soil should be neglected when determining passive pressure capacity unless the area is covered by pavement or flatwork.

7.3.4 Spread 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.

SECTION 8: CONCRETE SLABS AND PEDESTRIAN PAVEMENTS

8.1 INTERIOR SLABS-ON-GRADE

As the Plasticity Index (PI) of the surficial soils is 15 or less, any proposed slabs-on-grade in retail or other at-grade areas within the building area may be supported directly on subgrade prepared in accordance with the recommendations in the "Earthwork" section of this report. 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 slab-on-grade 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 to near optimum moisture content. Recommendations for slabs-on-grade in podium parking areas are presented below.

The structural engineer should determine the appropriate slab reinforcement for the loading requirements and considering the expansion potential of the underlying soils. 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.

8.2 PODIUM GARAGE SLABS-ON-GRADE

Garage slabs-on-grade should be at least 5 inches thick and if constructed with minimal reinforcement intended for shrinkage control only, should have a minimum compressive strength of 3,000 psi. If the slab will have heavier reinforcing because the slab will also serve as a structural diaphragm, the compressive strength may be reduced to 2,500 psi at the structural engineer's discretion. The garage slab should be supported on at least 4 inches of either Class 2 aggregate base or ¾-inch clean, crushed rock place and compacted in accordance with the "Compaction" section of this report. If there will be areas within the garage that are moisture sensitive, such as equipment and elevator rooms, the recommendations in the "Interior Slabs Moisture Protection Considerations" section below may be incorporated in the project design if desired. 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.

8.3 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 4 inches of Class 2 aggregate base overlying subgrade prepared in accordance with the "Earthwork" recommendations of this report. 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. Sidewalks to be constructed within public right-of-way areas should be constructed in accordance with City of San Leandro standard details and specifications.

SECTION 9: VEHICULAR PAVEMENTS

9.1 ASPHALT CONCRETE

The following asphalt concrete pavement recommendations tabulated below are based on the Caltrans Highway Design Manual (latest edition), estimated traffic indices for various pavement-loading conditions, and on an assumed design R-value of 10. The design R-value was chosen based on experience with similar near surface clay soils and engineering judgment considering the variable surface conditions.

Table 6: Asphalt Concrete Pavement Recommendations

Design Traffic Index (TI)	Asphalt Concrete (inches)	Class 2 Aggregate Base* (inches)	Total Pavement Section Thickness (inches)
5.0	3.0	9.0	12.0
6.0	3.0	12.0	15.0
7.0	3.5	15.0	18.5
8.0	5.0	16.0	21.0

*Caltrans Class 2 aggregate base; minimum R-value of 78

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 be use the pavements.

9.2 PORTLAND CEMENT CONCRETE

The exterior Portland Cement Concrete (PCC) pavement recommendations tabulated below are based on methods presented in the Portland Cement Association (PCA) design manual (PCA, 1984). We have provided a few pavement alternatives as an anticipated Average Daily Truck Traffic (ADTT) was not provided. An allowable ADTT should be chosen that is greater than what is expected for the development.

Table 7: PCC Pavement Recommendations

Allowable ADTT	Minimum PCC Thickness (inches)
13	5½
130	6

The PCC thicknesses above are based on a concrete compressive strength of at least 3,500 psi, supporting the PCC on at least 6 inches of Class 2 aggregate base compacted as

recommended in the “Earthwork” section, and laterally restraining the PCC with curbs or concrete shoulders. PCC approach slabs for trash enclosures should be at least 8 inches thick and underlain by at least 6 inches of Class 2 aggregate base.

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.

9.3 PAVEMENT CUTOFF

Surface water penetration into the pavement section can significantly reduce the pavement life. 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 10: LIMITATIONS

This report, an instrument of professional service, has been prepared for the sole use of Sansome Pacific Properties specifically to support the design of the mixed-use development located at 1188 East 14th Street in San Leandro, 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 ground water 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.

Sansome Pacific Properties may have provided Cornerstone with plans, reports and other documents prepared by others. Eden Rehab Corporation 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 11: REFERENCES

Association of Bay Area Governments (ABAG), 2015, Interactive Shaking Hazard Map: http://resilience.abag.ca.gov/earthquakes/

California Building Code, 2016, Structural Engineering Design Provisions, Vol. 2.

California Department of Conservation Division of Mines and Geology, 1998, Maps of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada, International Conference of Building Officials, February, 1998.

California Division of Mines and Geology (2008), "Guidelines for Evaluating and Mitigating Seismic Hazards in California, Special Publication 117A, September.

California Geological Survey, 2003, Seismic Hazard Zone Report for the San Leandro 7.5-Minute Quadrangle, Alameda County, California: Seismic Hazard Zone Report 093.

Cetin, K.O., Bilge, H.T., Wu, J., Kammerer, A.M., and Seed, R.B., Probablilistic Model for the Assessment of Cyclically Induced Reconsolidation (Volumetric) Settlements, ASCE Journal of Geotechnical and Geoenvironmental Engineering, Vo. 135, No. 3, March 1, 2009.

Federal Emergency Management Administration (FEMA), 2009, FIRM City of San Leandro, California, Community Panel #06085C0401, May 18, 2009.

Portland Cement Association, 1984, Thickness Design for Concrete Highway and Street Pavements: report.

Ritter, J.R., and Dupre, W.R., 1972, Map Showing Areas of Potential Inundation by Tsunamis in the San Francisco Bay Region, California: San Francisco Bay Region Environment and Resources Planning Study, USGS Basic Data Contribution 52, Misc. Field Studies Map MF-480.

Seed, H.B. and I.M. Idriss, 1971, A Simplified Procedure for Evaluation Soil Liquefaction Potential: JSMFC, ASCE, Vol. 97, No. SM 9, pp. 1249 – 1274.

State of California Department of Transportation, Highway Design Manual, Latest Edition.

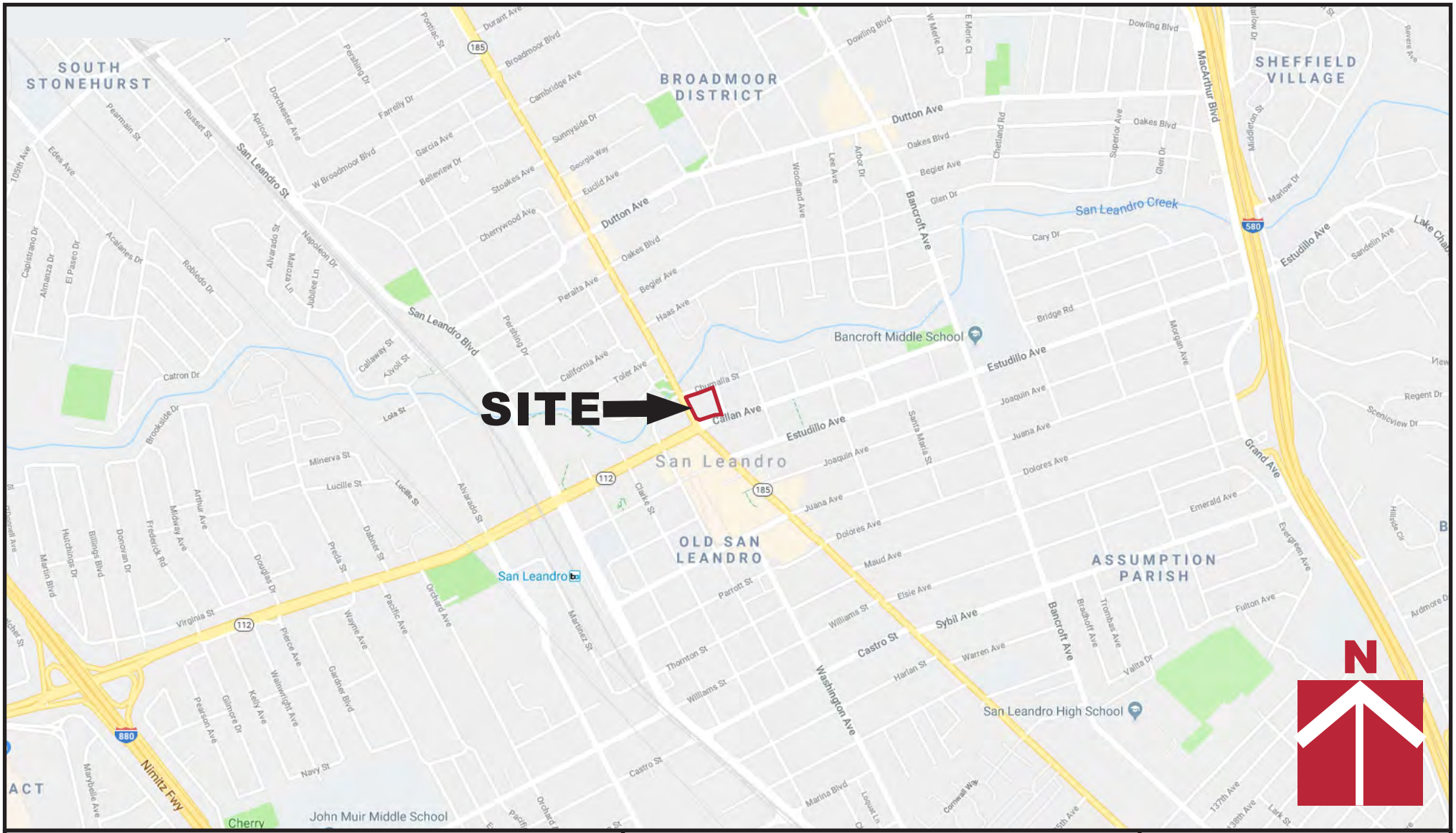
U.S. Geological Survey, Quaternary Faults in Google Earth, [http://earthquake.usgs.gov/hazards/qfaults/google.php], accessed May/1/2018

USGS, 2018, U.S. Seismic Design Maps, revision dated March 19, 2018 - A Web-Based Program for determining mapped ground motion parameters for use with IBC 2006 available at http://geohazards.usgs.gov/designmaps/us/application.php.

Working Group on California Earthquake Probabilities, 2015, The Third Uniform California Earthquake Rupture Forecast, Version 3 (UCERF), U.S. Geological Survey Open File Report 2013-1165 (CGS Special Report 228). KMZ files available at: www.scec.org/ucerf/images/ucerf3_timedep_30yr_probs.kmz

Yoshimine, M., Nishizaki, H., Amano, KI, and Hosono, Y., 2006, Flow Deformation of Liquefied Sand Under Constant Shear Load and Its Application to Analysis of Flow Slide in Infinite Slope, Soil Dynamics and Earthquake Eng. 26, 253-264.

Youd, T.L. and C.T. Garris, 1995, Liquefaction-Induced Ground-Surface Disruption: Journal of Geotechnical Engineering, Vol. 121, No. 11, pp. 805 - 809.



CORNERSTONE EARTH GROUP

Vicinity Map

1188 East 14th Street
San Leandro, CA

Project Number	444-3-1
Figure Number	Figure 1
Date	May 2018
Drawn By	RRN

Legend

Approximate location of exploratory boring (EB)

Approximate location of cone penetration test (CPT)

0 50 100

APPROXIMATE SCALE (FEET)

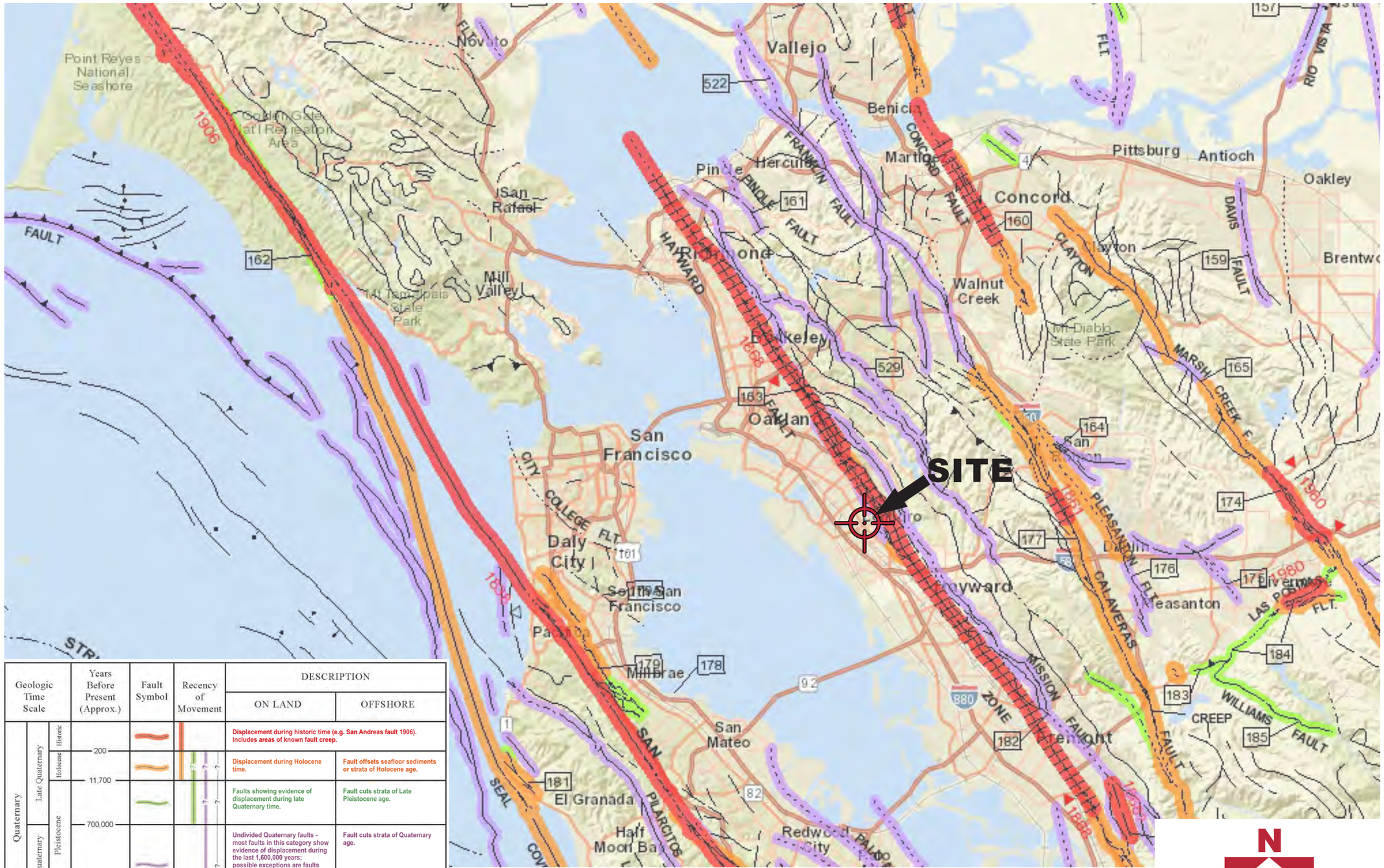
Base by Google Earth, dated 6/14/2017
Overlay by Lowney Architecture, Entry Level, dated 4/29/2016

Project Number	444-3-1
Figure Number	Figure 2
Date	May 2018
Drawn By	RRN

Site Plan

1188 East 14th Street
San Leandro, CA

CORNERSTONE EARTH GROUP



Geologic Time Scale			Years Before Present (Approx.)	Fault Symbol	Recency of Movement	DESCRIPTION: ON LAND	DESCRIPTION: OFFSHORE
Quaternary	Late Quaternary	Historic	200			Displacement during historic time (e.g. San Andreas fault 1906). Includes areas of known fault creep.	
		Holocene	11,700		? ? ?	Displacement during Holocene time.	Fault offsets seafloor sediments or strata of Holocene age.
	Early Quaternary	Pleistocene	700,000		? ?	Faults showing evidence of displacement during late Quaternary time.	Fault cuts strata of Late Pleistocene age.
			1,600,000		?	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 Pilo-Pleistocene age.	Fault cuts strata of Quaternary age.
Pre-Quaternary			4.5 billion (Age of Earth)			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.

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

Project Number: 444-3-1

Figure Number: Figure 3

Drawn By: RRN

Date: May 2018

Regional Fault Map

1188 East 14th Street
San Leandro, CA

CORNERSTONE EARTH GROUP

APPENDIX A: FIELD INVESTIGATION

The field investigation consisted of a surface reconnaissance and a subsurface exploration program using conventional truck-mounted, hollow-stem auger drilling equipment and 20-ton truck-mounted Cone Penetration Test equipment. Three (3) 8-inch-diameter exploratory borings were drilled on May 14, 2018 to depths of 26.5 to 40 feet. Five (5) CPT soundings were also performed in accordance with ASTM D 5778-95 (revised, 2002) on April 26. 2018, to depths of approximately 50 feet each. 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 and bedrock, are included as part of this appendix.

Boring and CPT locations were approximated using existing site boundaries, a hand held GPS unit, and other site features as references. Boring elevations were estimated based on Google Earth Elevation data using the WGS84 datum. The locations of the borings 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. 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.

Field tests included an evaluation of the unconfined compressive strength 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 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 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

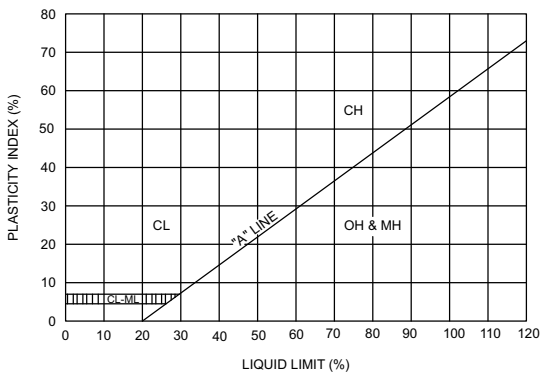
SAMPLER TYPES

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

LEGEND TO SOIL DESCRIPTIONS

Figure Number A-1

BORING NUMBER EB-1

CORNERSTONE EARTH GROUP

PROJECT NAME 1188 East 14th Street
PROJECT NUMBER 444-3-1
PROJECT LOCATION San Leandro, CA

DATE STARTED 5/14/18 **DATE COMPLETED** 5/14/18
GROUND ELEVATION _____ **BORING DEPTH** 40 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-56, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY OL
▽ **AT TIME OF DRILLING** 32 ft.
NOTES _____
▼ **AT END OF DRILLING** 32 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)	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
	0	**Sandy Lean Clay (CL) [Fill]** hard, moist, dark brown, fine to medium sand, some fine to coarse subangular to subrounded gravel, low plasticity	26	MC-1B	111	8		18	
		Silty Sand (SM) medium dense, moist, brown, fine to medium sand	13	MC-2B	91	11		34	
		Sandy Lean Clay (CL) stiff, moist, brown, fine to medium sand, low plasticity	15	MC-3B	89	9			
	5	**Silty Sand (SM)** medium dense, moist, brown, fine to medium sand	12	SPT-4		14			○
		Sandy Lean Clay (CL) very stiff, moist, brown, fine sand, low plasticity	16	SPT-5		11		42	
	10	**Clayey Sand (SC)** loose, moist, brown, fine to medium sand	21	SPT-6		22			>4.5 ○
		Lean Clay with Sand (CL) hard, moist, brown, fine sand, moderate plasticity	53	7A MC 7B	triax 102	26			○
	15	**Lean Clay (CL)** very stiff, moist, brown, some fine sand, moderate plasticity							
	20								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

Continued Next Page

CORNERSTONE EARTH GROUP2 - CORNERSTONE 0812.GDT - 5/23/18 07:22 - P:\DRAFTING\GINT FILES\444-3-1 14TH STREET.GPJ

BORING NUMBER EB-1

CORNERSTONE EARTH GROUP

PROJECT NAME 1188 East 14th Street

PROJECT NUMBER 444-3-1

PROJECT LOCATION San Leandro, 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)
			Lean Clay (CL) very stiff, moist, brown, some fine sand, moderate plasticity							
	25			20	MC					○ 4.0
			becomes stiff	24	MC					○ 2.0
	30		**Silty Sand (SM)** medium dense, moist, brown, fine to medium sand	7	SPT					○ 1.0
			Lean Clay (CL) medium stiff, moist, brown, some fine sand, moderate plasticity	19	MC-11B	92	29			○ 1.0
	35		**Lean Clay with Sand (CL)** very stiff, moist, brown, fine to medium sand, moderate plasticity	68	MC					○ 4.0
	40		Bottom of Boring at 40.0 feet.							
	45									

CORNERSTONE EARTH GROUP2 - CORNERSTONE 0812.GDT - 5/23/18 07:22 - P:\DRAFTING\GINT FILES\444-3-1 14TH STREET.GPJ

BORING NUMBER EB-2

CORNERSTONE EARTH GROUP

PROJECT NAME 1188 East 14th Street
PROJECT NUMBER 444-3-1
PROJECT LOCATION San Leandro, CA

DATE STARTED 5/14/18 **DATE COMPLETED** 5/14/18
GROUND ELEVATION _____ **BORING DEPTH** 26.5 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-56, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY OL
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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)
	0		3½ inches asphalt concrete over 6 inches aggregate base							
			Sandy Lean Clay (CL) [Fill] hard, moist, dark brown, fine to medium sand, some fine gravel, low plasticity Liquid Limit = 31, Plastic Limit = 18		1A	106	15	13		>4.5 ○
				31	MC					
					1B	106	11	5		
			Silty, Clayey Sand (SC-SM) medium dense, moist, brown, fine to coarse sand Liquid Limit = 25, Plastic Limit = 20		2A	93	14			
				23	MC					
					2B	103	13			
	5		**Lean Clay with Sand (CL)** medium stiff, moist, brown, fine sand, low plasticity	11	MC-3B	96	23			○
			Lean Clay (CL) stiff, moist, brown, some fine sand, low plasticity		4A	triax				
				17	MC					○
					4B	98	21			
	10			29	MC-5	97	23			○
			Lean Clay with Sand (CL) very stiff, moist, brown, fine sand, low to moderate plasticity	35	MC-6B	103	17			○
	15		**Lean Clay (CL)** hard, moist, brown, some fine sand, low to moderate plasticity							
				68	MC-7B	109	18			>4.5 ○
	20									

Continued Next Page

CORNERSTONE EARTH GROUP2 - CORNERSTONE 0812.GDT - 5/23/18 07:22 - P:\DRAFTING\GINT FILES\444-3-1 14TH STREET.GPJ

BORING NUMBER EB-2

CORNERSTONE EARTH GROUP

PROJECT NAME 1188 East 14th Street

PROJECT NUMBER 444-3-1

PROJECT LOCATION San Leandro, 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)
			Lean Clay (CL) hard, moist, brown, some fine sand, low to moderate plasticity	49	MC-8B	109	15			>4.5 ○
	25			35	SPT					>4.5 ○
			Bottom of Boring at 26.5 feet.							
	30									
	35									
	40									
	45									

CORNERSTONE EARTH GROUP2 - CORNERSTONE 0812.GDT - 5/23/18 07:22 - P:\DRAFTING\GINT FILES\444-3-1 14TH STREET.GPJ

BORING NUMBER EB-3

CORNERSTONE EARTH GROUP

PROJECT NAME 1188 East 14th Street
PROJECT NUMBER 444-3-1
PROJECT LOCATION San Leandro, CA

DATE STARTED 5/14/18 **DATE COMPLETED** 5/14/18
GROUND ELEVATION _____ **BORING DEPTH** 35 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-56, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY OL
▽ **AT TIME OF DRILLING** 30 ft.
NOTES _____
▼ **AT END OF DRILLING** 30 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 (○ HAND PENETROMETER, △ TORVANE, ● UNCONFINED COMPRESSION, ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL; 1.0 2.0 3.0 4.0)
	0		4 inches asphalt concrete over 2 inches aggregate base							
			Clayey Sand with Gravel (SC) [Fill] dense, moist, brown, fine to coarse sand, fine to coarse subangular gravel	58	MC-1B	117	14	11		>4.5 ○
			Lean Clay with Sand (CL) hard, moist, dark brown, fine to medium sand, low plasticity Liquid Limit = 29, Plastic Limit = 18	22	MC-2C	97	9		30	
	5		**Silty Sand (SM)** loose, moist, brown, fine to medium sand	10	MC-3B	87	14			
			Lean Clay with Sand (CL) hard, moist, brown, fine to medium sand, low plasticity	28	MC-4B	94	17		81	○
	10			15	SPT-5		18			
				24	MC-6	98	13			>4.5 ○
	15									
			Lean Clay (CL) hard, moist, brown, some fine sand, moderate plasticity	71	MC-7B	110	18			>4.5 ○
	20									

Continued Next Page

CORNERSTONE EARTH GROUP2 - CORNERSTONE 0812.GDT - 5/23/18 07:22 - P:\DRAFTING\GINT FILES\444-3-1 14TH STREET.GPJ

BORING NUMBER EB-3

CORNERSTONE EARTH GROUP

PROJECT NAME 1188 East 14th Street

PROJECT NUMBER 444-3-1

PROJECT LOCATION San Leandro, 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)
			Sandy Lean Clay (CL) very stiff, moist, brown, fine to medium sand, low plasticity		8A	102	18			○
				26	MC					
	25		**Clayey Sand (SC)** medium dense, moist, brown, fine to medium sand		8C	triax				
				14	SPT					○
			Lean Clay with Sand (CL) medium stiff, moist, brown, fine to medium sand, moderate plasticity		ST-10	103	22			○
	30		becomes stiff	23	MC-11B	88	26			○
				20	MC					○
	35		Bottom of Boring at 35.0 feet.							
	40									
	45									

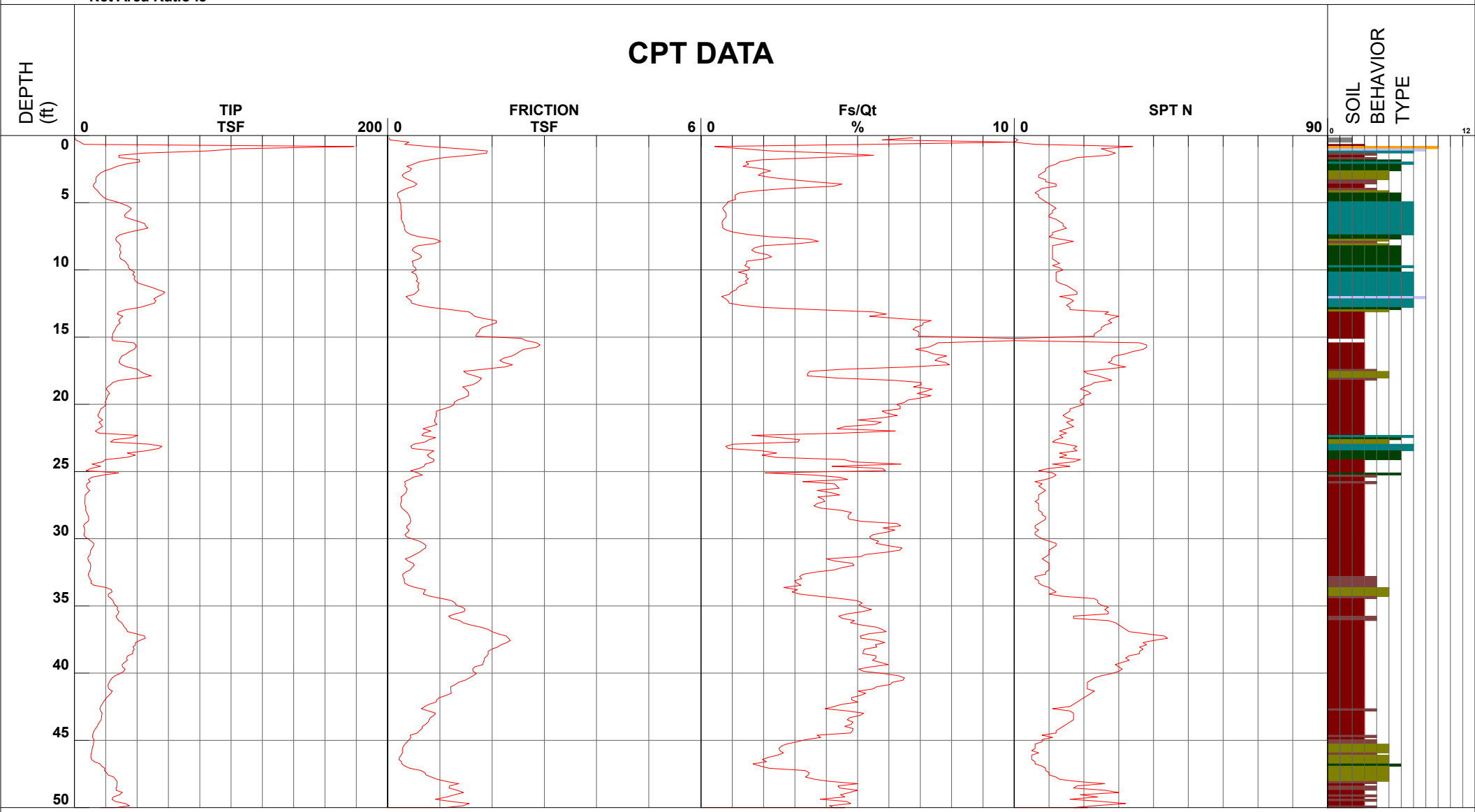
CORNERSTONE EARTH GROUP2 - CORNERSTONE 0812.GDT - 5/23/18 07:22 - P:\DRAFTING\GINT FILES\444-3-1 14TH STREET.GPJ

Cornerstone Earth Group

Project	1188 East 14th Street	Operator	RC AS	Filename	SDF(715).cpt
Job Number	400-3-1	Cone Number	DDG1379	GPS	
Hole Number	CPT-01	Date and Time	4/26/2018 12:32:21 PM	Maximum Depth	50.52 ft
EST GW Depth During Test		16.00 ft			

Net Area Ratio .8

CPT DATA



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

Cone Size 10cm squared

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

1188 East 14th Street

Project ID: Cornerstone Earth Group
Data File: SDF(715).cpt
CPT Date: 4/26/2018 12:32:21 PM
GW During Test: 16 ft

Sounding ID: CPT-01
Project No: 400-3-1
Cone/Rig: DDG1379

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	Ic SBT -	Nk Indx -
0.33	1.1	1.1	-	1.1	0.0	0.2	5.9	Organic SOILS - Peats	100	1.0	1	1	1	-	-	0.1	9.9	95	3.96	10
0.49	3.7	5.9	-	3.7	0.4	0.3	9.9	Organic SOILS - Peats	100	1.0	6	4	3	-	-	0.4	9.9	95	3.49	10
0.66	6.0	9.6	-	6.0	0.3	0.4	5.4	silty CLAY to CLAY	115	1.5	6	4	3	-	-	0.4	9.9	70	3.16	15
0.82	178.4	286.1	286.1	178.4	0.8	2.1	0.4	grvly SAND to dense SAND	130	6.0	48	30	45	95	48	-	-	5	1.33	16
0.98	104.6	167.7	189.4	104.6	1.4	2.4	1.3	clean SAND to silty SAND	125	5.0	34	21	31	84	48	-	-	9	1.83	16
1.15	85.1	136.4	189.5	85.1	1.9	2.6	2.2	silty SAND to sandy SILT	120	3.0	45	28	27	77	48	-	-	15	2.06	16
1.31	44.9	71.9	182.7	44.9	1.9	2.5	4.2	clayy SILT to silty CLAY	115	2.0	36	22	17	-	-	3.2	9.9	29	2.45	15
1.48	28.4	45.5	-	28.4	1.6	2.5	5.5	silty CLAY to CLAY	115	1.5	30	19	12	-	-	2.0	9.9	39	2.67	15
1.64	28.4	45.6	140.1	28.5	1.1	2.4	3.8	clayy SILT to silty CLAY	115	2.0	23	14	11	-	-	2.0	9.9	33	2.56	15
1.80	41.5	66.6	116.8	41.6	0.8	2.3	1.9	silty SAND to sandy SILT	120	3.0	22	14	14	54	47	-	-	20	2.23	16
1.97	41.6	66.7	103.3	41.6	0.6	2.1	1.4	silty SAND to sandy SILT	120	3.0	22	14	14	54	47	-	-	17	2.15	16
2.13	32.5	52.2	93.3	32.6	0.5	2.1	1.5	silty SAND to sandy SILT	120	3.0	17	11	11	46	45	-	-	21	2.25	16
2.30	27.3	43.8	81.9	27.3	0.4	2.1	1.4	silty SAND to sandy SILT	120	3.0	15	9	10	40	44	-	-	22	2.27	16
2.46	23.7	38.0	90.6	23.7	0.5	2.2	1.9	silty SAND to sandy SILT	120	3.0	13	8	9	35	43	-	-	27	2.42	16
2.62	19.3	30.9	90.2	19.3	0.4	2.2	2.2	clayy SILT to silty CLAY	115	2.0	15	10	8	-	-	1.4	9.9	32	2.53	15
2.79	16.6	26.7	80.5	16.7	0.3	2.1	2.0	clayy SILT to silty CLAY	115	2.0	13	8	7	-	-	1.2	9.9	33	2.55	15
2.95	15.1	24.3	75.7	15.2	0.3	1.8	1.8	clayy SILT to silty CLAY	115	2.0	12	8	6	-	-	1.1	9.9	34	2.56	15
3.12	13.8	22.1	-	13.8	0.3	1.8	2.2	clayy SILT to silty CLAY	115	2.0	11	7	6	-	-	1.0	9.9	38	2.65	15
3.28	13.7	22.0	-	13.7	0.4	1.8	2.9	clayy SILT to silty CLAY	115	2.0	11	7	6	-	-	1.0	9.9	42	2.72	15
3.45	13.8	22.1	-	13.8	0.5	1.7	3.6	clayy SILT to silty CLAY	115	2.0	11	7	6	-	-	1.0	9.9	45	2.78	15
3.61	12.4	19.9	-	12.4	0.6	1.7	4.6	silty CLAY to CLAY	115	1.5	13	8	6	-	-	0.9	9.9	51	2.88	15
3.77	12.0	19.3	-	12.0	0.5	1.7	4.3	silty CLAY to CLAY	115	1.5	13	8	6	-	-	0.8	9.9	50	2.87	15
3.94	13.1	21.0	-	13.1	0.4	1.5	2.9	clayy SILT to silty CLAY	115	2.0	11	7	6	-	-	0.9	9.9	42	2.73	15
4.10	14.7	23.5	75.6	14.7	0.3	1.5	1.9	clayy SILT to silty CLAY	115	2.0	12	7	6	-	-	1.0	9.9	34	2.58	15
4.27	15.7	25.2	64.7	15.7	0.2	1.3	1.3	silty SAND to sandy SILT	120	3.0	8	5	6	21	38	-	-	29	2.46	16
4.43	17.0	27.2	63.3	17.0	0.2	1.3	1.1	silty SAND to sandy SILT	120	3.0	9	6	6	24	38	-	-	27	2.40	16
4.59	18.4	29.6	64.7	18.4	0.2	0.9	1.1	silty SAND to sandy SILT	120	3.0	10	6	7	27	38	-	-	25	2.37	16
4.76	21.0	33.7	68.5	21.0	0.2	0.9	1.1	silty SAND to sandy SILT	120	3.0	11	7	8	31	39	-	-	23	2.33	16
4.92	26.7	42.8	68.9	26.7	0.2	0.9	0.9	silty SAND to sandy SILT	120	3.0	14	9	9	39	40	-	-	18	2.18	16
5.09	30.3	48.6	72.6	30.3	0.3	1.0	0.8	silty SAND to sandy SILT	120	3.0	16	10	10	43	41	-	-	16	2.12	16
5.25	34.0	54.6	75.2	34.0	0.3	1.0	0.8	clean SAND to silty SAND	125	5.0	11	7	11	47	41	-	-	14	2.05	16
5.41	36.4	58.3	76.7	36.4	0.3	1.0	0.7	clean SAND to silty SAND	125	5.0	12	7	11	49	41	-	-	13	2.01	16
5.58	35.3	56.6	76.3	35.3	0.3	1.0	0.7	clean SAND to silty SAND	125	5.0	11	7	11	48	41	-	-	14	2.04	16
5.74	33.4	53.6	75.7	33.5	0.3	0.9	0.8	silty SAND to sandy SILT	120	3.0	18	11	11	46	40	-	-	15	2.07	16
5.91	32.0	51.4	74.3	32.0	0.3	0.9	0.8	silty SAND to sandy SILT	120	3.0	17	11	10	45	40	-	-	16	2.10	16
6.07	32.3	51.8	74.6	32.3	0.3	0.9	0.8	silty SAND to sandy SILT	120	3.0	17	11	11	45	40	-	-	16	2.09	16
6.23	36.3	58.3	77.6	36.3	0.3	1.0	0.7	clean SAND to silty SAND	125	5.0	12	7	12	49	40	-	-	14	2.02	16
6.40	41.2	65.3	82.2	41.2	0.3	1.0	0.7	clean SAND to silty SAND	125	5.0	13	8	13	53	41	-	-	12	1.97	16
6.56	45.0	70.3	86.1	45.0	0.3	1.0	0.7	clean SAND to silty SAND	125	5.0	14	9	13	55	41	-	-	11	1.94	16
6.73	45.3	70.0	86.5	45.4	0.3	1.0	0.7	clean SAND to silty SAND	125	5.0	14	9	13	55	41	-	-	12	1.95	16
6.89	47.0	71.5	87.7	47.0	0.3	1.0	0.7	clean SAND to silty SAND	125	5.0	14	9	14	56	41	-	-	11	1.94	16
7.05	40.6	61.0	82.3	40.6	0.3	1.0	0.8	clean SAND to silty SAND	125	5.0	12	8	12	51	40	-	-	14	2.03	16
7.22	34.0	50.6	81.2	34.1	0.4	1.0	1.1	silty SAND to sandy SILT	120	3.0	17	11	11	45	39	-	-	18	2.17	16
7.38	29.2	42.9	87.3	29.2	0.5	1.0	1.6	silty SAND to sandy SILT	120	3.0	14	10	10	39	38	-	-	24	2.33	16
7.55	27.1	39.3	100.5	27.1	0.6	1.1	2.3	silty SAND to sandy SILT	120	3.0	13	9	9	36	38	-	-	29	2.46	16
7.71	26.3	37.8	124.6	26.3	0.9	1.2	3.5	clayy SILT to silty CLAY	115	2.0	19	13	10	-	-	1.8	9.9	35	2.59	15
7.87	27.0	43.2	137.7	27.0	1.0	1.3	3.8	clayy SILT to silty CLAY	115	2.0	22	13	11	-	-	1.9	9.9	34	2.58	15
8.04	28.7	40.4	121.1	28.7	0.9	1.2	3.2	clayy SILT to silty CLAY	115	2.0	20	14	10	-	-	2.0	9.9	33	2.54	15
8.20	29.3	40.9	96.0	29.4	0.6	1.2	2.0	silty SAND to sandy SILT	120	3.0	14	10	10	38	38	-	-	27	2.41	16
8.37	29.1	40.2	88.9	29.1	0.5	1.1	1.7	silty SAND to sandy SILT	120	3.0	13	10	9	37	38	-	-	25	2.37	16
8.53	29.0	39.6	86.3	29.0	0.5	1.0	1.6	silty SAND to sandy SILT	120	3.0	13	10	9	36	37	-	-	25	2.37	16
8.69	29.8	40.4	90.2	29.8	0.5	1.0	1.8	silty SAND to sandy SILT	120	3.0	13	10	9	37	37	-	-	26	2.38	16
8.86	29.0	38.9	97.6	29.0	0.6	1.0	2.2	silty SAND to sandy SILT	120	3.0	13	10	9	36	37	-	-	28	2.45	16
9.02	28.9	38.4	99.9	28.9	0.6	1.0	2.3	silty SAND to sandy SILT	120	3.0	13	10	9	35	37	-	-	29	2.47	16
9.19	29.5	38.9	94.9	29.5	0.6	1.0	2.0	silty SAND to sandy SILT	120	3.0	13	10	9	36	37	-	-	28	2.43	16
9.35	32.3	42.2	84.4	32.3	0.5	1.0	1.5	silty SAND to sandy SILT	120	3.0	14	11	9	38	37	-	-	23	2.32	16
9.51	33.3	43.1	85.3	33.3	0.5	0.9	1.5	silty SAND to sandy SILT	120	3.0	14	11	10	39	38	-	-	23	2.31	16
9.68	34.5	44.3	84.7	34.5	0.5	1.0	1.4	silty SAND to sandy SILT	120	3.0	15	12	10	40	38	-	-	22	2.29	16
9.84	34.5	43.9	88.2	34.5	0.5	1.1	1.6	silty SAND to sandy SILT	120	3.0	15	11	10	40	38	-	-	23	2.32	16
10.01	36.1	45.5	88.7	36.1	0.5	0.9	1.5	silty SAND to sandy SILT	120	3.0	15	12	10	41	38	-	-	23	2.30	16
10.17	38.3	47.9	82.3	38.3	0.5	1.0	1.2	silty SAND to sandy SILT	120	3.0	16	13	10	43	38	-	-	20	2.22	16
10.34	37.2	46.2	87.8	37.3	0.5	1.0	1.5	silty SAND to sandy SILT	120	3.0	15	12	10	42	38	-	-	22	2.28	16
10.50	38.7	47.6	88.2	38.7	0.6	1.0	1.5	silty SAND to sandy SILT	120	3.0	16	13	10	43	38	-	-	21	2.27	16
10.66	38.1	46.5	89.4	38.1	0.6	1.2	1.5	silty SAND to sandy SILT	120	3.0	15	13	10	42	38	-	-	22	2.29	16
10.83	38.8	47.0	87.3	38.8	0.5	1.2	1.4	silty SAND to sandy SILT	120	3.0	16	13	10	42	38	-	-	21	2.27	16
10.99	40.8	49.1	90.6	40.8	0.6	1.1	1.5	silty SAND to sandy SILT	120	3.0	16	14	11	44	38	-	-	21	2.27	16
11.16	45.4	54.3	89.5	45.5	0.6	1.2	1.3	silty SAND to sandy SILT	120	3.0	18	15	12	47	38	-	-	19	2.19	16
11.32	49.8	59.0	90.3	49.8	0.6	1.3	1.2	silty SAND to sandy SILT	120	3.0	20	17	12	50	39	-	-	17	2.14	16
11.48	53.5	63.0	92.3	53.6	0.6	1.3	1.1	silty SAND to sandy SILT	120	3.0	21	18	13	52	39	-	-	16	2.11	16
11.65	57.8	67.5	91.7	57.8	0.6	1.3	1.0	clean SAND to silty SAND	125	5.0	13	12	13	54	40	-	-	14	2.04	16
11.81	56.3	65.2	88.5	56.3	0.5	1.3	0.9	clean SAND to silty SAND	125	5.0	13	11	13	53	39	-	-	14	2.04	16
11.98	53.2	61.2	78.4	53.2	0.3	1.3	0.7	clean SAND to silty SAND	125	5.0	12	11	12	51	39	-	-	13	1.98	16
12.14	50.7	58.0	79.2	50.7	0.4	1.3	0.8	clean SAND to silty SAND	125	5.0	12	10	12	49	39	-	-	14	2.05	16
12.30	52.0	59.0	82.2	52.0	0.4	1.1	0.9	silty SAND to sandy SILT	120	3.0	20	17	12	50	39	-	-	15	2.06	16
12.47	51.1	57.6	81.9	51.1	0.5	1.1	0.9	silty SAND to sandy SILT	120	3.0	19	17	12	49	38	-	-	15	2.08	16
12.63	46.3	51.9	88.0	46.3	0.6	1.2	1.3	silty SAND to sandy SILT	120	3.0	17	15	11	45	38	-	-	19	2.21	16
12.80	41.7	46.4	101.4	41.7	0.8	1.1	2.0	silty SAND to sandy SILT	120	3.0	15	14	11	42	37	-	-	25	2.37	16
12.96	32.8	38.6	-	32.8	1.2	1.2	3.8	clayy SILT to silty CLAY	115	2.0	19	16	10	-	-	2.3	9.9	36	2.61	15
13.12	28.1	36.0	-	28.1	1.6	1.3	5.7	silty CLAY to CLAY	115	1.5	24	19	10	-	-	1.9	9.9	44	2.76	15
13.29	27.3	34.6	-	27.4	1.6	1.3	6.1	silty CLAY to CLAY	115	1.5	23	18	10	-	-	1.9	9.9	46	2.79	15
13.45	30.9	38.6	-	30.9	1.7	1.1	5.5	silty CLAY to CLAY	115	1.5	26	21	11	-	-	2.1	9.9	42	2.73	15
13.62	29.2	36.1	-	29.2	1.8	1.2	6.5	silty CLAY to CLAY	115	1.5	24	19	10	-	-	2.0	9.9	46	2.80	15
13.78	28.3	34.5	-	28.3	2.1	1.3	7.6	silty CLAY to CLAY	115	1.5	23	19	10	-	-	1.9	9.9	50	2.86	15
13.94	29.3	35.4	-	29.3	2.1	1.3	7.3	silty CLAY to CLAY	115	1.5	24	20	10	-	-	2.0	9.9	48	2.84	15
14.11	27.6	33.0	-	27.7	2.0	1.2	7.3	silty CLAY to CLAY	115	1.5	22	18	10	-	-	1.9	9.9	50	2.86	15
14.27	26.6	31.3	-	26.6	1.8	1.9	7.1	silty CLAY to CLAY	115	1.5	21	18	9	-	-	1.8	9.9	50	2.87	15
14.44	26.1	30.4	-	26.1	1.8	1.9	7.0	silty CLAY to CLAY	115	1.5	20	17	9	-	-	1.8	9.7	50	2.88	15
14.60	25.2	29.1	-	25.2	1.7	1.5	7.2	silty CLAY to CLAY	115	1.5	19	17	9	-	-	1.7	9.3	52	2.90	15
14.76	24.5	27.9	-	24.5	1.7	1.9	7.2	silty CLAY to CLAY	115	1.5	19	16	8	-	-	1.7	8.9	53	2.91	15
14.93	24.3	27.5	-	24.4	1.7	2.2	7.2	silty CLAY to CLAY	115	1.5	18	16	8	-	-	1.7	8.7	53	2.92	15
15.09	23.9	26.7	-	24.0	2.6	2.2	9.9	silty CLAY to CLAY	115	1.5	18	16	9	-	-	1.6	8.5	60	3.02	15
15.26	24.5	27.1	-	24.5	2.7	2.6	9.9	silty CLAY to CLAY	115	1.5	18	16	9	-	-	1.7	8.6	60	3.02	15
15.42	37.7	41.3	-	37.8	2.9	4.7	7.8	silty CLAY to CLAY	115	1.5	28	25	12	-	-	2.6	9.9	47	2.82	15

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

Middle Earth Geo Testing

Project ID: Cornerstone Earth Group
Data File: SDF(715).cpt
CPT Date: 4/26/2018 12:32:21 PM
GW During Test: 16 ft

Sounding ID: CPT-01
Project No: 400-3-1
Cone/Rig: DDG1379

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	Ic SBT Indx	Nk -
15.58	39.3	42.6	-	39.4	2.9	4.6	7.6	silty CLAY to CLAY	115	1.5	28	26	12	-	-	2.7	9.9	46	2.80	15
15.75	39.2	42.1	-	39.3	2.8	5.0	7.4	silty CLAY to CLAY	115	1.5	28	26	12	-	-	2.7	9.9	46	2.80	15
15.91	38.0	40.4	-	38.1	2.6	5.0	7.0	silty CLAY to CLAY	115	1.5	27	25	11	-	-	2.6	9.9	45	2.79	15
16.08	35.0	37.0	-	35.1	2.5	5.0	7.4	silty CLAY to CLAY	115	1.5	25	23	11	-	-	2.4	9.9	48	2.83	15
16.24	33.2	35.0	-	33.3	2.5	4.9	7.6	silty CLAY to CLAY	115	1.5	23	22	10	-	-	2.3	9.9	50	2.86	15
16.40	30.4	31.8	-	30.4	2.4	3.9	8.1	silty CLAY to CLAY	115	1.5	21	20	10	-	-	2.1	9.9	52	2.91	15
16.57	29.3	30.5	-	29.4	2.2	4.1	7.8	silty CLAY to CLAY	115	1.5	20	20	9	-	-	2.0	9.7	53	2.91	15
16.73	28.8	29.9	-	28.8	2.1	4.2	7.7	silty CLAY to CLAY	115	1.5	20	19	9	-	-	2.0	9.5	53	2.91	15
16.90	28.5	29.4	-	28.6	2.2	4.1	8.1	silty CLAY to CLAY	115	1.5	20	19	9	-	-	1.9	9.4	54	2.93	15
17.06	30.2	31.0	-	30.2	2.4	4.1	8.2	silty CLAY to CLAY	115	1.5	21	20	9	-	-	2.1	9.9	53	2.92	15
17.23	33.6	34.4	-	33.7	2.2	4.2	6.9	silty CLAY to CLAY	115	1.5	23	22	10	-	-	2.3	9.9	48	2.83	15
17.39	40.4	41.2	-	40.5	1.8	3.7	4.7	clayy SILT to silty CLAY	115	2.0	21	20	11	-	-	2.8	9.9	38	2.66	15
17.55	41.9	41.0	130.2	42.0	1.5	2.8	3.6	clayy SILT to silty CLAY	115	2.0	21	21	10	-	-	2.9	9.9	34	2.57	15
17.72	44.6	43.6	131.8	44.7	1.5	2.9	3.5	clayy SILT to silty CLAY	115	2.0	22	22	11	-	-	3.1	9.9	33	2.55	15
17.88	49.0	47.8	136.6	49.1	1.7	3.1	3.5	clayy SILT to silty CLAY	115	2.0	24	25	12	-	-	3.4	9.9	31	2.52	15
18.05	41.4	41.5	-	41.5	1.8	3.1	4.4	clayy SILT to silty CLAY	115	2.0	21	21	11	-	-	2.9	9.9	37	2.64	15
18.21	28.7	28.6	-	28.8	1.8	3.0	6.4	silty CLAY to CLAY	115	1.5	19	19	8	-	-	2.0	9.1	50	2.87	15
18.37	24.4	24.2	-	24.4	1.7	3.5	7.4	silty CLAY to CLAY	115	1.5	16	16	8	-	-	1.7	7.6	56	2.96	15
18.54	23.2	22.9	-	23.2	1.6	3.6	7.4	silty CLAY to CLAY	115	1.5	15	15	7	-	-	1.6	7.2	57	2.98	15
18.70	21.2	20.9	-	21.2	1.4	3.5	7.2	silty CLAY to CLAY	115	1.5	14	14	7	-	-	1.4	6.5	59	3.01	15
18.87	20.3	19.9	-	20.3	1.5	3.4	7.8	silty CLAY to CLAY	115	1.5	13	14	7	-	-	1.4	6.2	62	3.05	15
19.03	21.4	20.9	-	21.5	1.5	3.1	7.6	silty CLAY to CLAY	115	1.5	14	14	7	-	-	1.4	6.5	60	3.02	15
19.19	22.4	21.8	-	22.5	1.5	3.2	7.3	silty CLAY to CLAY	115	1.5	15	15	7	-	-	1.5	6.8	58	3.00	15
19.36	21.1	20.5	-	21.2	1.5	3.2	7.8	silty CLAY to CLAY	115	1.5	14	14	7	-	-	1.4	6.4	61	3.04	15
19.52	20.8	20.0	-	20.8	1.5	3.1	7.4	silty CLAY to CLAY	115	1.5	13	14	7	-	-	1.4	6.2	61	3.03	15
19.69	20.2	19.4	-	20.3	1.3	3.3	7.0	silty CLAY to CLAY	115	1.5	13	13	6	-	-	1.4	6.0	60	3.02	15
19.85	19.6	18.8	-	19.7	1.3	3.4	6.9	silty CLAY to CLAY	115	1.5	13	13	6	-	-	1.3	5.8	61	3.03	15
20.01	20.3	19.4	-	20.4	1.3	3.5	6.6	silty CLAY to CLAY	115	1.5	13	14	6	-	-	1.4	6.0	59	3.01	15
20.18	18.9	17.9	-	19.0	1.2	3.6	6.8	silty CLAY to CLAY	115	1.5	12	13	6	-	-	1.3	5.5	61	3.04	15
20.34	16.8	15.9	-	16.9	1.1	3.6	6.8	silty CLAY to CLAY	115	1.5	11	11	5	-	-	1.1	4.9	64	3.09	15
20.51	16.2	15.2	-	16.2	0.9	3.7	6.3	silty CLAY to CLAY	115	1.5	10	11	5	-	-	1.1	4.6	64	3.07	15
20.67	15.6	14.6	-	15.7	0.9	3.8	6.4	silty CLAY to CLAY	115	1.5	10	10	5	-	-	1.0	4.5	65	3.10	15
20.83	14.9	13.9	-	15.0	0.9	3.8	6.8	silty CLAY to CLAY	115	1.5	9	10	5	-	-	1.0	4.2	68	3.13	15
21.00	15.8	14.7	-	15.9	0.9	3.9	6.3	silty CLAY to CLAY	115	1.5	10	11	5	-	-	1.0	4.5	65	3.09	15
21.16	18.0	16.7	-	18.1	0.9	4.0	5.4	silty CLAY to CLAY	115	1.5	11	12	5	-	-	1.2	5.1	58	3.00	15
21.33	15.7	14.5	-	15.8	0.9	4.0	6.3	silty CLAY to CLAY	115	1.5	10	10	5	-	-	1.0	4.4	65	3.09	15
21.49	17.0	15.6	-	17.1	0.9	4.0	6.0	silty CLAY to CLAY	115	1.5	10	11	5	-	-	1.1	4.8	62	3.05	15
21.65	17.9	16.3	-	17.9	0.8	4.1	4.9	silty CLAY to CLAY	115	1.5	11	12	5	-	-	1.2	5.0	57	2.98	15
21.82	15.6	14.2	-	15.7	0.7	4.1	4.7	silty CLAY to CLAY	115	1.5	9	10	5	-	-	1.0	4.3	60	3.02	15
21.98	13.3	12.1	-	13.4	0.8	4.2	6.9	silty CLAY to CLAY	115	1.5	8	9	4	-	-	0.9	3.6	72	3.18	15
22.15	15.4	14.0	-	15.5	0.7	4.5	4.9	silty CLAY to CLAY	115	1.5	9	10	5	-	-	1.0	4.2	61	3.04	15
22.31	40.5	37.3	85.6	40.6	0.7	4.5	1.7	silty SAND to sandy SILT	120	3.0	12	13	9	34	35	-	-	26	2.40	16
22.47	36.5	33.6	102.5	36.6	0.9	4.1	2.6	clayy SILT to silty CLAY	115	2.0	17	18	8	-	-	2.5	9.9	33	2.55	15
22.64	25.1	22.4	-	25.2	0.8	3.7	3.3	clayy SILT to silty CLAY	115	2.0	11	13	6	-	-	1.7	7.0	44	2.76	15
22.80	23.1	20.6	-	23.2	0.7	3.9	3.3	clayy SILT to silty CLAY	115	2.0	10	12	6	-	-	1.6	6.4	45	2.79	15
22.97	48.0	43.9	75.8	48.1	0.5	3.7	1.1	silty SAND to sandy SILT	120	3.0	15	16	9	40	36	-	-	20	2.22	16
23.13	55.9	51.1	74.4	56.0	0.4	3.7	0.8	silty SAND to sandy SILT	120	3.0	17	19	10	45	37	-	-	16	2.10	16
23.30	53.7	48.9	75.1	53.8	0.5	3.6	0.9	silty SAND to sandy SILT	120	3.0	16	18	10	43	36	-	-	17	2.14	16
23.46	45.7	41.5	97.0	45.8	0.9	3.5	2.0	silty SAND to sandy SILT	120	3.0	14	15	10	38	35	-	-	27	2.41	16
23.62	33.8	30.7	97.5	33.9	0.8	3.5	2.5	clayy SILT to silty CLAY	115	2.0	15	17	8	-	-	2.3	9.3	34	2.57	15
23.79	38.9	35.2	91.8	39.0	0.8	3.9	2.0	silty SAND to sandy SILT	120	3.0	12	13	8	33	34	-	-	29	2.47	16
23.95	33.4	30.2	96.7	33.5	0.8	3.7	2.5	clayy SILT to silty CLAY	115	2.0	15	17	8	-	-	2.3	9.1	34	2.58	15
24.12	19.5	16.8	-	19.6	0.9	3.5	4.9	silty CLAY to CLAY	115	1.5	11	13	5	-	-	1.3	5.2	57	2.97	15
24.28	17.9	15.4	-	18.0	0.9	3.7	5.3	silty CLAY to CLAY	115	1.5	10	12	5	-	-	1.2	4.7	60	3.02	15
24.44	11.2	9.6	-	11.3	0.7	3.8	7.3	silty CLAY to CLAY	115	1.5	6	7	4	-	-	0.7	2.8	80	3.29	15
24.61	16.7	14.3	-	16.8	0.7	4.1	4.6	silty CLAY to CLAY	115	1.5	10	11	5	-	-	1.1	4.3	59	3.01	15
24.77	10.5	8.9	-	10.5	0.6	3.9	6.7	silty CLAY to CLAY	115	1.5	6	7	3	-	-	0.7	2.5	81	3.30	15
24.94	7.5	6.4	-	7.6	0.4	4.3	7.3	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.4	1.7	95	3.46	15
25.10	28.2	23.8	-	28.3	0.6	4.7	2.2	clayy SILT to silty CLAY	115	2.0	12	14	6	-	-	1.9	7.4	37	2.63	15
25.26	18.5	15.6	-	18.6	0.7	4.5	3.9	silty CLAY to CLAY	115	1.5	10	12	5	-	-	1.2	4.7	54	2.94	15
25.43	11.0	9.2	-	11.1	0.5	3.8	5.1	silty CLAY to CLAY	115	1.5	6	7	3	-	-	0.7	2.6	74	3.21	15
25.59	8.9	7.5	-	9.0	0.4	4.6	5.6	silty CLAY to CLAY	115	1.5	5	6	3	-	-	0.5	2.0	83	3.32	15
25.76	10.1	8.4	-	10.1	0.3	4.8	3.8	silty CLAY to CLAY	115	1.5	6	7	3	-	-	0.6	2.3	71	3.18	15
25.92	7.9	6.6	-	8.0	0.3	4.9	5.3	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.5	1.7	86	3.36	15
26.08	7.6	6.3	-	7.7	0.3	5.1	5.4	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.5	1.7	89	3.39	15
26.25	8.3	6.8	-	8.4	0.4	5.2	5.4	silty CLAY to CLAY	115	1.5	5	6	3	-	-	0.5	1.8	85	3.35	15
26.41	9.8	8.0	-	9.9	0.4	5.3	4.4	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	2.2	75	3.23	15
26.58	8.4	6.9	-	8.5	0.3	5.5	5.1	silty CLAY to CLAY	115	1.5	5	6	3	-	-	0.5	1.8	84	3.34	15
26.74	6.9	5.6	-	7.0	0.3	5.7	5.7	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.4	1.4	95	3.46	15
26.90	6.8	5.5	-	6.9	0.3	5.8	4.9	silty CLAY to CLAY	115	1.5	4	5	2	-	-	0.4	1.4	92	3.42	15
27.07	6.8	5.5	-	6.9	0.3	6.0	5.1	silty CLAY to CLAY	115	1.5	4	5	2	-	-	0.4	1.4	93	3.44	15
27.23	6.6	5.3	-	6.7	0.3	6.1	5.2	silty CLAY to CLAY	115	1.5	4	4	2	-	-	0.4	1.3	95	3.46	15
27.40	6.7	5.4	-	6.8	0.2	6.3	4.9	silty CLAY to CLAY	115	1.5	4	4	2	-	-	0.4	1.4	93	3.43	15
27.56	7.0	5.6	-	7.1	0.3	6.4	4.7	silty CLAY to CLAY	115	1.5	4	5	2	-	-	0.4	1.4	90	3.41	15
27.72	7.2	5.8	-	7.4	0.3	6.5	4.9	silty CLAY to CLAY	115	1.5	4	5	2	-	-	0.4	1.5	90	3.41	15
27.89	7.2	5.7	-	7.3	0.3	6.6	5.8	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.4	1.5	94	3.45	15
28.05	7.8	6.2	-	7.9	0.4	6.7	6.1	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.5	1.6	92	3.43	15
28.22	8.5	6.7	-	8.6	0.4	6.8	5.9	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.8	88	3.38	15
28.38	9.0	7.1	-	9.1	0.4	6.9	5.7	silty CLAY to CLAY	115	1.5	5	6	3	-	-	0.5	1.9	86	3.36	15
28.54	9.2	7.2	-	9.3	0.4	6.9	5.8	silty CLAY to CLAY	115	1.5	5	6	3	-	-	0.6	1.9	85	3.35	15
28.71	8.6	6.7	-	8.7	0.4	7.0	6.4	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.8	90	3.40	15
28.87	6.8	5.3	-	6.9	0.4	7.1	8.3	Organic SOILS - Peats	100	1.0	5	7	3	-	-	0.6	1.3	95	3.58	10
29.04	5.8	4.5	-	5.9	0.4	7.0	9.0	Organic SOILS - Peats	100	1.0	4	6	2	-	-	0.5	1.0	95	3.68	10
29.20	6.3	4.9	-	6.4	0.4	7.1	8.0	Organic SOILS - Peats	100	1.0	5	6	3	-	-	0.5	1.2	95	3.61	10
29.36	6.7	5.2	-	6.8	0.4	7.2	8.3	Organic SOILS - Peats	100	1.0	5	7	3	-	-	0.6	1.3	95	3.59	10
29.53	6.5	5.0	-	6.6	0.4	7.1	8.0	Organic SOILS - Peats	100	1.0	5	7	3	-	-	0.6	1.2	95	3.60	10
29.69	6.0	4.6	-	6.1	0.3	7.2	7.7	Organic SOILS - Peats	100	1.0	5	6	2	-	-	0.5	1.1	95	3.63	10
29.86	6.7	5.1	-	6.9	0.4	7.3	7.3	Organic SOILS - Peats	100	1.0	5	7	3	-	-	0.6	1.3	95	3.56	10
30.02	8.7	6.6	-	8.8	0.5	7.4	6.8	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.8	92	3.43	15
30.19	10.7	8.1	-	10.8	0.6	7.5	6.8	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.7	2.2	85	3.34	15
30.35	12.2	9.3	-	12.4	0.7	7.5	6.5	silty CLAY to CLAY	115	1.5	6	8	4	-	-	0.8	2.6	79	3.28	15
30.51	12.3	9.3	-	12.5	0.7	7.4	7.0	silty CLAY to CLAY	115	1.5	6	8	4	-	-	0.8	2.6	81	3.29	15
30.68	11.4	8.6	-	11.5	0.7	7.3	7.6	silty CLAY to CLAY	115	1.5	6	8	4	-	-	0.7	2.4	85	3.35	15
30.84	10.4	7.8	-	10.5	0.7	7.1	7.7	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	2.1	89	3.39	15

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

1188 East 14th Street

Project ID: Cornerstone Earth Group
Data File: SDF(715).cpt
CPT Date: 4/26/2018 12:32:21 PM
GW During Test: 16 ft

Sounding ID: CPT-01
Project No: 400-3-1
Cone/Rig: DDG1379

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	Ic SBT Indx	Nk -
31.01	10.2	7.7	-	10.4	0.6	7.2	7.2	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	2.1	88	3.38	15
31.17	10.0	7.5	-	10.2	0.5	7.2	6.4	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	2.0	86	3.36	15
31.33	8.8	6.6	-	8.9	0.4	7.3	6.4	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.7	91	3.42	15
31.50	8.5	6.3	-	8.7	0.3	7.4	5.1	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.6	88	3.38	15
31.66	9.1	6.8	-	9.3	0.4	7.5	5.3	silty CLAY to CLAY	115	1.5	5	6	3	-	-	0.5	1.8	86	3.36	15
31.83	10.1	7.5	-	10.3	0.5	8.5	5.9	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	2.0	85	3.34	15
31.99	10.4	7.7	-	10.6	0.5	8.6	5.9	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	2.1	84	3.33	15
32.15	10.3	7.6	-	10.5	0.5	8.6	5.5	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	2.0	83	3.32	15
32.32	10.1	7.4	-	10.3	0.4	8.7	5.2	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	2.0	82	3.31	15
32.48	9.5	6.9	-	9.7	0.3	8.7	4.6	silty CLAY to CLAY	115	1.5	5	6	3	-	-	0.6	1.8	82	3.31	15
32.65	8.8	6.4	-	9.0	0.3	8.9	4.2	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.7	83	3.32	15
32.81	9.2	6.7	-	9.4	0.3	9.1	4.0	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.6	1.7	80	3.29	15
32.97	9.7	7.0	-	9.9	0.3	9.2	4.0	silty CLAY to CLAY	115	1.5	5	6	3	-	-	0.6	1.9	79	3.27	15
33.14	10.8	7.7	-	10.9	0.3	9.4	3.6	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.7	2.1	74	3.21	15
33.30	10.5	7.6	-	10.7	0.3	9.5	3.7	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	2.0	75	3.22	15
33.47	12.5	8.9	-	12.6	0.4	9.8	3.8	silty CLAY to CLAY	115	1.5	6	8	3	-	-	0.8	2.5	70	3.16	15
33.63	20.2	14.4	-	20.4	0.5	10.3	2.9	silty CLAY to CLAY	115	1.5	10	13	4	-	-	1.3	4.3	52	2.90	15
33.79	23.6	16.8	-	23.8	0.7	10.8	3.4	silty CLAY to CLAY	115	1.5	11	16	5	-	-	1.6	5.1	50	2.87	15
33.96	24.0	17.0	-	24.2	0.7	11.3	3.2	silty CLAY to CLAY	115	1.5	11	16	5	-	-	1.6	5.2	49	2.85	15
34.12	21.7	15.3	-	21.9	0.7	11.6	3.5	silty CLAY to CLAY	115	1.5	10	14	5	-	-	1.4	4.6	53	2.92	15
34.29	21.6	15.2	-	21.8	0.8	11.7	4.2	silty CLAY to CLAY	115	1.5	10	14	5	-	-	1.4	4.6	56	2.97	15
34.45	23.4	16.4	-	23.6	1.0	11.9	4.9	silty CLAY to CLAY	115	1.5	11	16	5	-	-	1.6	5.0	57	2.98	15
34.61	24.6	17.3	-	24.9	1.2	12.1	5.4	silty CLAY to CLAY	115	1.5	12	16	5	-	-	1.6	5.2	58	3.00	15
34.78	25.1	17.6	-	25.4	1.3	12.2	5.6	silty CLAY to CLAY	115	1.5	12	17	6	-	-	1.7	5.3	58	3.00	15
34.94	26.0	18.1	-	26.3	1.3	12.3	5.5	silty CLAY to CLAY	115	1.5	12	17	6	-	-	1.7	5.5	57	2.98	15
35.11	27.6	19.1	-	27.8	1.4	12.8	5.6	silty CLAY to CLAY	115	1.5	13	18	6	-	-	1.8	5.8	56	2.97	15
35.27	27.3	18.9	-	27.6	1.5	12.9	5.9	silty CLAY to CLAY	115	1.5	13	18	6	-	-	1.8	5.8	58	2.99	15
35.43	28.4	19.6	-	28.7	1.5	13.1	5.5	silty CLAY to CLAY	115	1.5	13	19	6	-	-	1.9	6.0	56	2.96	15
35.60	27.8	19.1	-	28.0	1.3	13.2	5.0	silty CLAY to CLAY	115	1.5	13	19	6	-	-	1.9	5.8	54	2.94	15
35.76	26.6	18.3	-	26.9	1.2	13.5	4.8	silty CLAY to CLAY	115	1.5	12	18	6	-	-	1.8	5.6	54	2.94	15
35.93	27.1	18.5	-	27.4	1.2	13.7	4.9	silty CLAY to CLAY	115	1.5	12	18	6	-	-	1.8	5.6	55	2.94	15
36.09	28.2	19.3	-	28.5	1.4	13.9	5.3	silty CLAY to CLAY	115	1.5	13	19	6	-	-	1.9	5.9	55	2.95	15
36.26	30.2	20.5	-	30.4	1.4	14.0	5.1	silty CLAY to CLAY	115	1.5	14	20	6	-	-	2.0	6.3	53	2.92	15
36.42	31.0	21.0	-	31.3	1.6	14.1	5.5	silty CLAY to CLAY	115	1.5	14	21	6	-	-	2.1	6.5	54	2.93	15
36.58	31.8	21.5	-	32.1	1.8	14.1	6.0	silty CLAY to CLAY	115	1.5	14	21	7	-	-	2.1	6.6	55	2.95	15
36.75	33.3	22.5	-	33.6	1.9	13.9	6.2	silty CLAY to CLAY	115	1.5	15	22	7	-	-	2.2	6.9	55	2.94	15
36.91	33.8	22.7	-	34.1	2.0	14.2	6.3	silty CLAY to CLAY	115	1.5	15	23	7	-	-	2.3	7.0	55	2.94	15
37.08	39.6	26.5	-	39.9	2.1	14.5	5.6	silty CLAY to CLAY	115	1.5	18	26	8	-	-	2.7	8.3	49	2.86	15
37.24	44.7	29.8	-	44.9	2.3	14.5	5.3	silty CLAY to CLAY	115	1.5	20	30	8	-	-	3.1	9.4	46	2.80	15
37.40	45.3	30.2	-	45.6	2.3	14.6	5.4	silty CLAY to CLAY	115	1.5	20	30	9	-	-	3.1	9.5	46	2.80	15
37.57	41.6	27.6	-	41.9	2.3	14.4	6.0	silty CLAY to CLAY	115	1.5	18	28	8	-	-	2.8	8.6	50	2.86	15
37.73	38.9	25.8	-	39.2	2.3	14.4	6.2	silty CLAY to CLAY	115	1.5	17	26	8	-	-	2.6	8.0	52	2.90	15
37.90	39.0	25.7	-	39.2	2.2	14.5	5.9	silty CLAY to CLAY	115	1.5	17	26	8	-	-	2.6	8.0	51	2.88	15
38.06	37.5	24.7	-	37.8	2.1	14.5	6.0	silty CLAY to CLAY	115	1.5	16	25	7	-	-	2.5	7.7	52	2.90	15
38.22	38.2	25.1	-	38.5	2.0	14.6	5.5	silty CLAY to CLAY	115	1.5	17	25	7	-	-	2.6	7.8	50	2.87	15
38.39	37.1	24.3	-	37.4	1.9	14.8	5.5	silty CLAY to CLAY	115	1.5	16	25	7	-	-	2.5	7.5	51	2.88	15
38.55	37.3	24.4	-	37.6	1.9	14.4	5.5	silty CLAY to CLAY	115	1.5	16	25	7	-	-	2.5	7.6	51	2.88	15
38.72	34.0	22.2	-	34.3	1.9	14.5	6.0	silty CLAY to CLAY	115	1.5	15	23	7	-	-	2.3	6.8	54	2.94	15
38.88	33.2	21.6	-	33.5	1.9	14.4	6.0	silty CLAY to CLAY	115	1.5	14	22	7	-	-	2.2	6.6	55	2.95	15
39.04	33.8	21.9	-	34.1	1.8	14.4	5.9	silty CLAY to CLAY	115	1.5	15	23	7	-	-	2.3	6.7	54	2.94	15
39.21	32.0	20.6	-	32.2	1.8	14.1	6.2	silty CLAY to CLAY	115	1.5	14	21	6	-	-	2.1	6.3	57	2.97	15
39.37	30.5	19.7	-	30.8	1.8	13.5	6.5	silty CLAY to CLAY	115	1.5	13	20	6	-	-	2.0	6.0	59	3.00	15
39.54	30.7	19.7	-	31.0	1.7	13.6	5.9	silty CLAY to CLAY	115	1.5	13	20	6	-	-	2.1	6.0	57	2.97	15
39.70	32.3	20.7	-	32.6	1.6	13.9	5.4	silty CLAY to CLAY	115	1.5	14	22	6	-	-	2.2	6.4	54	2.93	15
39.86	31.5	20.1	-	31.8	1.6	13.9	5.6	silty CLAY to CLAY	115	1.5	13	21	6	-	-	2.1	6.2	55	2.95	15
40.03	29.2	18.6	-	29.5	1.7	13.6	6.3	silty CLAY to CLAY	115	1.5	12	19	6	-	-	2.0	5.6	59	3.01	15
40.19	25.9	16.5	-	26.2	1.6	13.3	6.9	silty CLAY to CLAY	115	1.5	11	17	6	-	-	1.7	4.9	64	3.08	15
40.36	24.2	15.3	-	24.4	1.6	12.9	7.2	silty CLAY to CLAY	115	1.5	10	16	5	-	-	1.6	4.6	67	3.12	15
40.52	23.0	14.5	-	23.2	1.5	12.3	7.2	silty CLAY to CLAY	115	1.5	10	15	5	-	-	1.5	4.3	68	3.14	15
40.68	22.2	14.0	-	22.5	1.4	12.5	6.8	silty CLAY to CLAY	115	1.5	9	15	5	-	-	1.5	4.1	68	3.14	15
40.85	21.4	13.5	-	21.7	1.3	12.5	6.8	silty CLAY to CLAY	115	1.5	9	14	5	-	-	1.4	4.0	69	3.15	15
41.01	21.6	13.5	-	21.8	1.2	12.6	6.3	silty CLAY to CLAY	115	1.5	9	14	5	-	-	1.4	4.0	68	3.13	15
41.18	22.0	13.8	-	22.3	1.2	12.7	6.2	silty CLAY to CLAY	115	1.5	9	15	5	-	-	1.4	4.1	67	3.12	15
41.34	24.2	15.1	-	24.4	1.2	12.9	5.6	silty CLAY to CLAY	115	1.5	10	16	5	-	-	1.6	4.5	62	3.05	15
41.50	23.2	14.4	-	23.5	1.2	12.9	5.9	silty CLAY to CLAY	115	1.5	10	15	5	-	-	1.5	4.3	64	3.08	15
41.67	21.9	13.6	-	22.2	1.1	12.9	5.7	silty CLAY to CLAY	115	1.5	9	15	5	-	-	1.4	4.0	65	3.10	15
41.83	20.5	12.7	-	20.8	1.0	12.9	5.4	silty CLAY to CLAY	115	1.5	8	14	4	-	-	1.3	3.7	66	3.11	15
42.00	19.5	12.0	-	19.8	0.9	12.8	5.5	silty CLAY to CLAY	115	1.5	8	13	4	-	-	1.3	3.5	68	3.14	15
42.16	18.4	11.3	-	18.7	0.9	12.8	5.8	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.2	3.2	71	3.17	15
42.32	17.6	10.8	-	17.9	0.8	12.9	5.2	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.1	3.1	70	3.16	15
42.49	16.7	10.2	-	17.0	0.7	13.0	5.0	silty CLAY to CLAY	115	1.5	7	11	4	-	-	1.1	2.9	71	3.17	15
42.65	16.3	9.9	-	16.5	0.6	13.0	4.7	silty CLAY to CLAY	115	1.5	7	11	4	-	-	1.0	2.8	71	3.17	15
42.82	16.7	10.2	-	16.9	0.8	13.2	5.5	silty CLAY to CLAY	115	1.5	7	11	4	-	-	1.1	2.9	73	3.20	15
42.98	17.7	10.7	-	18.0	0.9	13.1	6.0	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.1	3.0	73	3.21	15
43.15	17.4	10.5	-	17.7	0.9	13.1	5.9	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.1	3.0	74	3.21	15
43.31	17.2	10.4	-	17.5	0.8	13.1	5.6	silty CLAY to CLAY	115	1.5	7	11	4	-	-	1.1	2.9	73	3.20	15
43.47	17.1	10.3	-	17.3	0.8	13.1	5.5	silty CLAY to CLAY	115	1.5	7	11	4	-	-	1.1	2.9	73	3.20	15
43.64	16.0	9.6	-	16.3	0.8	13.1	5.8	silty CLAY to CLAY	115	1.5	6	11	4	-	-	1.0	2.7	76	3.24	15
43.80	15.2	9.1	-	15.4	0.7	13.2	5.8	silty CLAY to CLAY	115	1.5	6	10	3	-	-	1.0	2.5	78	3.26	15
43.97	14.5	8.7	-	14.7	0.7	13.2	5.6	silty CLAY to CLAY	115	1.5	6	10	3	-	-	0.9	2.4	79	3.27	15
44.13	13.5	8.0	-	13.8	0.7	13.2	6.0	silty CLAY to CLAY	115	1.5	5	9	3	-	-	0.8	2.2	83	3.32	15
44.29	12.5	7.5	-	12.8	0.6	13.3	6.1	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.8	2.0	86	3.36	15
44.46	11.9	7.1	-	12.2	0.6	13.3	6.1	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	1.8	88	3.38	15
44.62	11.7	6.9	-	11.9	0.4	13.3	4.8	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	1.8	84	3.33	15
44.79	11.6	6.9	-	11.9	0.4	13.3	4.9	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	1.8	85	3.34	15
44.95	12.4	7.3	-	12.7	0.4	13.9	4.2	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.8	1.9	79	3.28	15
45.11	12.2	7.2	-	12.5	0.4	13.9	3.9	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	1.9	78	3.27	15
45.28	12.2	7.1	-	12.5	0.3	14.1	3.5	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	1.9	76	3.24	15
45.44	11.8	6.9	-	12.1	0.3	14.3	3.3	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	1.8	77	3.25	15
45.61	11.4	6.6	-	11.6	0.3	14.5	3.2	silty CLAY to CLAY	115	1.5	4	8	3	-	-	0.7	1.7	78	3.26	15
45.77	11.3	6.5	-	11.5	0.3	14.7	3.3	silty CLAY to CLAY	115	1.5	4	8	3	-	-	0.7	1.6	79	3.27	15
45.93	10.8	6.3	-	11.1	0.3	15.0	3.5	silty CLAY to CLAY	115	1.5	4	7	2	-	-	0.6	1.6	82	3.31	15
46.10	10.6	6.1	-	10.8	0.3	15.1	3.3	silty CLAY to CLAY	115	1.5	4	7	2	-	-	0.6	1.5	81	3.30	15
46.26	10.5	6.1	-	10.8	0.2	15.3	2.9	silty CLAY to CLAY	115	1.5	4	7	2	-	-	0.6	1.5	79	3.28	15

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

Project ID: Cornerstone Earth Group
Data File: SDF(715).cpt
CPT Date: 4/26/2018 12:32:21 PM
GW During Test: 16 ft

Sounding ID: CPT-01
Project No: 400-3-1
Cone/Rig: DDG1379

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	Ic SBT Indx	Nk -
46.43	11.0	6.3	-	11.3	0.2	15.5	2.6	silty CLAY to CLAY	115	1.5	4	7	2	-	-	0.7	1.6	76	3.23	15
46.59	12.7	7.3	-	13.0	0.3	15.8	2.6	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.8	1.9	71	3.17	15
46.75	16.4	9.4	-	16.7	0.3	16.2	2.0	silty CLAY to CLAY	115	1.5	6	11	3	-	-	1.0	2.6	58	2.99	15
46.92	17.3	9.9	-	17.7	0.3	16.7	2.3	silty CLAY to CLAY	115	1.5	7	12	3	-	-	1.1	2.8	58	2.99	15
47.08	19.5	11.1	-	19.8	0.4	17.0	2.5	silty CLAY to CLAY	115	1.5	7	13	3	-	-	1.3	3.1	57	2.97	15
47.25	19.2	10.9	-	19.5	0.6	17.4	3.9	silty CLAY to CLAY	115	1.5	7	13	4	-	-	1.2	3.1	64	3.09	15
47.41	20.6	11.7	-	20.9	0.7	17.8	4.0	silty CLAY to CLAY	115	1.5	8	14	4	-	-	1.3	3.3	63	3.06	15
47.57	21.4	12.1	-	21.7	0.7	18.2	3.9	silty CLAY to CLAY	115	1.5	8	14	4	-	-	1.4	3.5	62	3.05	15
47.74	25.2	14.2	-	25.5	0.8	18.8	3.7	silty CLAY to CLAY	115	1.5	9	17	4	-	-	1.7	4.2	57	2.97	15
47.90	26.1	14.7	-	26.5	0.9	19.5	4.1	silty CLAY to CLAY	115	1.5	10	17	5	-	-	1.7	4.3	57	2.98	15
48.07	27.3	15.3	-	27.7	1.1	20.1	4.6	silty CLAY to CLAY	115	1.5	10	18	5	-	-	1.8	4.5	58	3.00	15
48.23	27.2	15.2	-	27.6	1.4	20.2	5.6	silty CLAY to CLAY	115	1.5	10	18	5	-	-	1.8	4.5	62	3.05	15
48.39	27.2	15.2	-	27.6	1.2	20.5	4.9	silty CLAY to CLAY	115	1.5	10	18	5	-	-	1.8	4.5	60	3.02	15
48.56	26.6	14.8	-	27.0	1.2	21.9	5.0	silty CLAY to CLAY	115	1.5	10	18	5	-	-	1.7	4.4	61	3.03	15
48.72	26.7	14.8	-	27.1	1.3	22.2	5.6	silty CLAY to CLAY	115	1.5	10	18	5	-	-	1.8	4.4	63	3.06	15
48.89	30.6	17.0	-	31.0	1.4	22.4	5.2	silty CLAY to CLAY	115	1.5	11	20	5	-	-	2.0	5.1	58	2.99	15
49.05	28.8	16.0	-	29.3	1.3	22.3	4.9	silty CLAY to CLAY	115	1.5	11	19	5	-	-	1.9	4.7	59	3.00	15
49.22	24.7	13.7	-	25.2	1.1	22.6	5.2	silty CLAY to CLAY	115	1.5	9	16	5	-	-	1.6	4.0	64	3.07	15
49.38	24.0	13.2	-	24.4	0.9	23.1	4.3	silty CLAY to CLAY	115	1.5	9	16	4	-	-	1.6	3.8	61	3.04	15
49.54	26.0	14.3	-	26.5	1.2	24.0	5.2	silty CLAY to CLAY	115	1.5	10	17	5	-	-	1.7	4.2	62	3.06	15
49.71	32.7	17.9	-	33.2	1.6	24.6	5.2	silty CLAY to CLAY	115	1.5	12	22	6	-	-	2.2	5.4	57	2.98	15
49.87	35.0	19.2	-	35.5	1.4	24.5	4.5	silty CLAY to CLAY	115	1.5	13	23	6	-	-	2.3	5.8	52	2.91	15
50.04	26.1	14.3	-	26.6	1.1	24.5	4.8	silty CLAY to CLAY	115	1.5	10	17	5	-	-	1.7	4.2	61	3.03	15
50.20	21.4	11.6	-	21.9	1.0	24.8	5.3	silty CLAY to CLAY	115	1.5	8	14	4	-	-	1.4	3.3	69	3.14	15

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

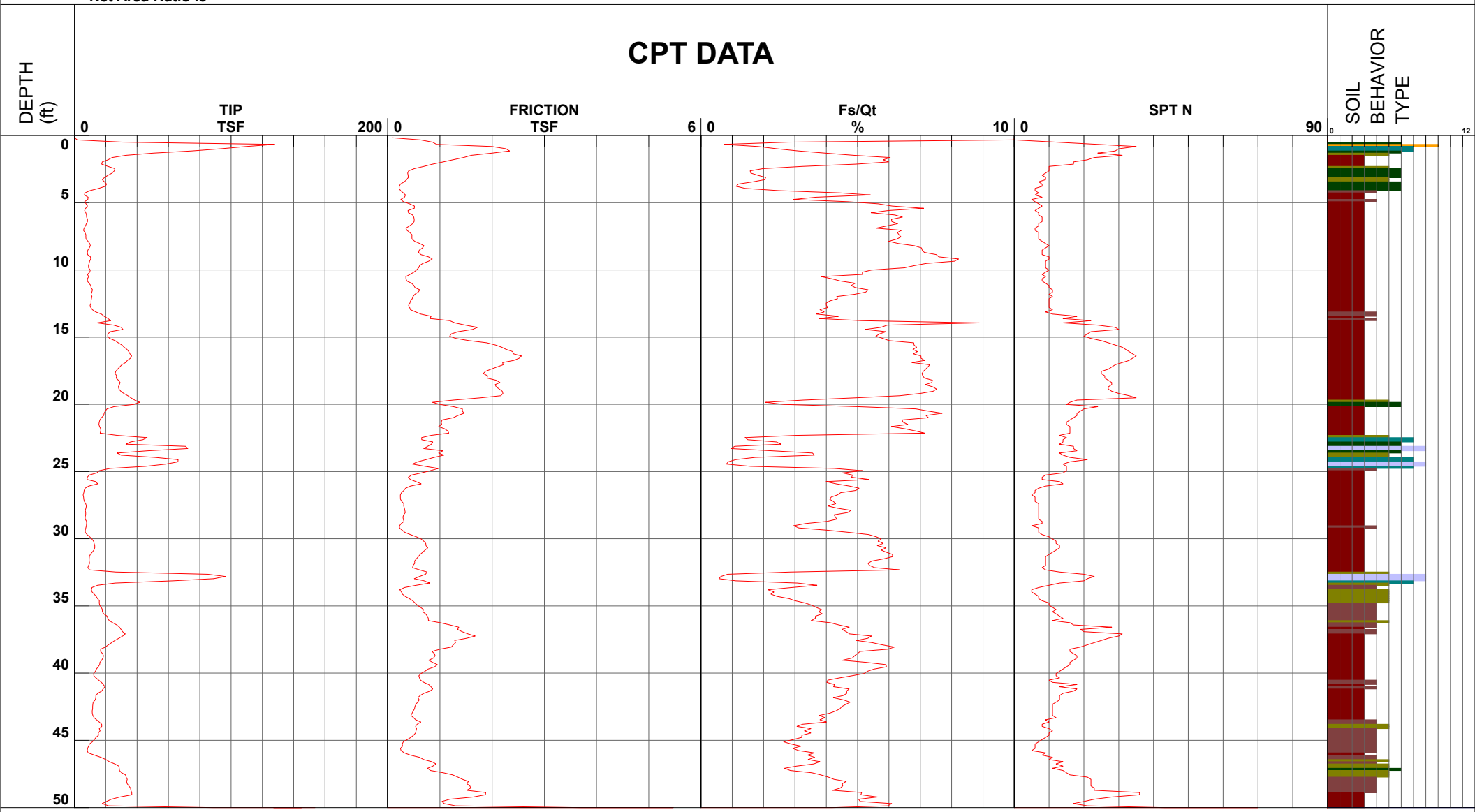
Middle Earth Geo Testing

Cornerstone Earth Group

Project	1188 East 14th Street	Operator	RC AS	Filename	SDF(714).cpt
Job Number	400-3-1	Cone Number	DDG1379	GPS	
Hole Number	CPT-02	Date and Time	4/26/2018 11:46:06 AM	Maximum Depth	50.52 ft
EST GW Depth During Test		16.30 ft			

Net Area Ratio .8

CPT DATA



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

Cone Size 10cm squared

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

1188 East 14th Street

Project ID: Cornerstone Earth Group
Data File: SDF(714).cpt
CPT Date: 4/26/2018 11:46:06 AM
GW During Test: 16 ft

Sounding ID: CPT-02
Project No: 400-3-1
Cone/Rig: DDG1379

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	Ic SBT	Nk -
0.33	1.8	2.9	-	1.8	0.6	0.0	9.9	Organic SOILS - Peats	100	1.0	3	2	2	-	-	0.2	9.9	95	3.74	10
0.49	30.8	49.4	121.6	30.8	0.9	0.6	2.8	clayy SILT to silty CLAY	115	2.0	25	15	12	-	-	2.2	9.9	28	2.44	15
0.66	127.9	205.1	205.1	127.9	0.9	1.7	0.7	clean SAND to silty SAND	125	5.0	41	26	35	91	48	-	-	5	1.59	16
0.82	109.6	175.8	212.7	109.6	2.0	2.1	1.8	clean SAND to silty SAND	125	5.0	35	22	34	86	48	-	-	11	1.92	16
0.98	93.7	150.3	208.5	93.7	2.3	1.4	2.4	silty SAND to sandy SILT	120	3.0	50	31	30	80	48	-	-	15	2.06	16
1.15	74.8	119.9	202.3	74.8	2.3	2.7	3.1	silty SAND to sandy SILT	120	3.0	40	25	26	73	48	-	-	19	2.21	16
1.31	50.6	81.1	186.5	50.6	2.0	3.1	4.0	clayy SILT to silty CLAY	115	2.0	41	25	19	-	-	3.6	9.9	26	2.40	15
1.48	32.8	52.6	172.0	32.8	1.6	2.8	4.9	clayy SILT to silty CLAY	115	2.0	26	16	13	-	-	2.3	9.9	35	2.59	15
1.64	24.0	38.5	-	24.1	1.4	2.8	6.1	silty CLAY to CLAY	115	1.5	26	16	11	-	-	1.7	9.9	43	2.75	15
1.80	21.4	34.4	-	21.5	1.2	2.8	5.8	silty CLAY to CLAY	115	1.5	23	14	10	-	-	1.5	9.9	45	2.77	15
1.97	17.7	28.5	-	17.8	1.1	2.9	6.0	silty CLAY to CLAY	115	1.5	19	12	8	-	-	1.2	9.9	48	2.84	15
2.13	17.4	27.9	-	17.5	0.9	3.0	5.0	silty CLAY to CLAY	115	1.5	19	12	8	-	-	1.2	9.9	45	2.79	15
2.30	21.4	34.3	114.0	21.5	0.7	2.9	3.3	clayy SILT to silty CLAY	115	2.0	17	11	9	-	-	1.5	9.9	35	2.60	15
2.46	25.8	41.4	95.1	25.8	0.5	2.6	2.0	silty SAND to sandy SILT	120	3.0	14	9	10	38	44	-	-	26	2.40	16
2.62	25.5	40.9	85.2	25.5	0.4	2.5	1.6	silty SAND to sandy SILT	120	3.0	14	8	9	37	43	-	-	24	2.34	16
2.79	24.1	38.6	83.8	24.1	0.4	2.4	1.6	silty SAND to sandy SILT	120	3.0	13	8	9	36	43	-	-	25	2.36	16
2.95	21.6	34.7	85.3	21.7	0.4	2.3	1.8	silty SAND to sandy SILT	120	3.0	12	7	8	32	42	-	-	28	2.44	16
3.12	19.2	30.8	87.2	19.3	0.4	2.3	2.1	clayy SILT to silty CLAY	115	2.0	15	10	8	-	-	1.3	9.9	31	2.51	15
3.28	17.9	28.6	84.4	17.9	0.4	2.3	2.1	clayy SILT to silty CLAY	115	2.0	14	9	7	-	-	1.2	9.9	32	2.53	15
3.45	19.2	30.7	78.8	19.2	0.3	2.2	1.7	silty SAND to sandy SILT	120	3.0	10	6	7	28	40	-	-	29	2.46	16
3.61	20.6	33.0	69.8	20.6	0.2	2.1	1.2	silty SAND to sandy SILT	120	3.0	11	7	7	30	40	-	-	24	2.35	16
3.77	19.7	31.6	67.1	19.8	0.2	2.0	1.1	silty SAND to sandy SILT	120	3.0	11	7	7	29	40	-	-	24	2.35	16
3.94	15.6	24.9	68.1	15.6	0.2	1.9	1.4	silty SAND to sandy SILT	120	3.0	8	5	6	21	38	-	-	30	2.49	16
4.10	10.0	16.0	-	10.0	0.2	1.8	2.5	clayy SILT to silty CLAY	115	2.0	8	5	5	-	-	0.7	9.9	46	2.80	15
4.27	6.8	10.9	-	6.8	0.3	1.7	4.6	silty CLAY to CLAY	115	1.5	7	5	4	-	-	0.5	8.7	65	3.09	15
4.43	6.3	10.2	-	6.4	0.3	1.7	5.6	silty CLAY to CLAY	115	1.5	7	4	4	-	-	0.4	7.8	71	3.17	15
4.59	8.8	14.2	-	8.9	0.3	1.9	3.8	silty CLAY to CLAY	115	1.5	9	6	4	-	-	0.6	9.9	55	2.94	15
4.76	8.5	13.7	-	8.6	0.3	1.7	3.1	silty CLAY to CLAY	115	1.5	9	6	4	-	-	0.6	9.9	52	2.90	15
4.92	6.5	10.4	-	6.5	0.3	1.6	4.9	silty CLAY to CLAY	115	1.5	7	4	4	-	-	0.4	7.1	67	3.13	15
5.09	7.4	11.9	-	7.5	0.4	3.0	5.9	silty CLAY to CLAY	115	1.5	8	5	4	-	-	0.5	7.9	67	3.13	15
5.25	8.4	13.5	-	8.4	0.5	2.2	6.3	silty CLAY to CLAY	115	1.5	9	6	5	-	-	0.6	8.8	66	3.10	15
5.41	7.2	11.5	-	7.2	0.5	2.1	7.4	silty CLAY to CLAY	115	1.5	8	5	4	-	-	0.5	7.2	73	3.20	15
5.58	6.5	10.4	-	6.6	0.4	2.9	6.3	silty CLAY to CLAY	115	1.5	7	4	4	-	-	0.4	6.3	72	3.19	15
5.74	7.3	11.7	-	7.4	0.4	3.3	5.7	silty CLAY to CLAY	115	1.5	8	5	4	-	-	0.5	6.9	67	3.12	15
5.91	7.7	12.4	-	7.8	0.5	2.9	6.5	silty CLAY to CLAY	115	1.5	8	5	4	-	-	0.5	7.1	69	3.14	15
6.07	7.8	12.5	-	7.9	0.5	2.9	6.7	silty CLAY to CLAY	115	1.5	8	5	4	-	-	0.5	7.0	69	3.15	15
6.23	8.4	13.4	-	8.4	0.5	3.6	6.4	silty CLAY to CLAY	115	1.5	9	6	5	-	-	0.6	7.3	66	3.11	15
6.40	8.3	13.3	-	8.4	0.5	3.5	6.4	silty CLAY to CLAY	115	1.5	9	6	5	-	-	0.6	7.1	66	3.11	15
6.56	7.6	12.2	-	7.7	0.5	3.1	6.6	silty CLAY to CLAY	115	1.5	8	5	4	-	-	0.5	6.3	69	3.15	15
6.73	7.0	11.3	-	7.1	0.4	3.9	6.3	silty CLAY to CLAY	115	1.5	8	5	4	-	-	0.5	5.6	71	3.17	15
6.89	6.2	10.0	-	6.3	0.3	4.0	6.0	silty CLAY to CLAY	115	1.5	7	4	4	-	-	0.4	4.8	73	3.20	15
7.05	5.8	9.3	-	5.9	0.4	4.2	6.9	silty CLAY to CLAY	115	1.5	6	4	4	-	-	0.4	4.3	78	3.27	15
7.22	6.7	10.8	-	6.8	0.4	4.4	6.7	silty CLAY to CLAY	115	1.5	7	4	4	-	-	0.4	5.0	73	3.20	15
7.38	7.4	11.8	-	7.5	0.5	4.5	6.7	silty CLAY to CLAY	115	1.5	8	5	4	-	-	0.5	5.4	71	3.17	15
7.55	7.3	11.7	-	7.3	0.5	4.1	6.8	silty CLAY to CLAY	115	1.5	8	5	4	-	-	0.5	5.2	72	3.18	15
7.71	7.4	11.9	-	7.5	0.5	5.0	6.6	silty CLAY to CLAY	115	1.5	8	5	4	-	-	0.5	5.2	70	3.17	15
7.87	8.7	13.9	-	8.8	0.5	5.1	6.3	silty CLAY to CLAY	115	1.5	9	6	5	-	-	0.6	5.9	66	3.10	15
8.04	9.8	15.7	-	9.9	0.6	5.1	6.6	silty CLAY to CLAY	115	1.5	10	7	5	-	-	0.7	6.6	63	3.07	15
8.20	10.2	16.4	-	10.3	0.7	4.6	7.1	silty CLAY to CLAY	115	1.5	11	7	6	-	-	0.7	6.8	64	3.08	15
8.37	9.5	15.2	-	9.6	0.7	4.3	7.4	silty CLAY to CLAY	115	1.5	10	6	5	-	-	0.6	6.1	67	3.12	15
8.53	8.6	13.7	-	8.7	0.6	4.8	7.5	silty CLAY to CLAY	115	1.5	9	6	5	-	-	0.6	5.4	69	3.15	15
8.69	8.3	13.3	-	8.4	0.6	5.6	7.6	silty CLAY to CLAY	115	1.5	9	6	5	-	-	0.6	5.1	71	3.17	15
8.86	8.5	13.6	-	8.6	0.6	5.6	8.0	silty CLAY to CLAY	115	1.5	9	6	5	-	-	0.6	5.1	71	3.18	15
9.02	10.3	16.5	-	10.4	0.8	5.1	8.0	silty CLAY to CLAY	115	1.5	11	7	6	-	-	0.7	6.2	66	3.11	15
9.19	10.4	16.7	-	10.5	0.9	3.5	8.7	silty CLAY to CLAY	115	1.5	11	7	6	-	-	0.7	6.1	68	3.13	15
9.35	9.7	15.5	-	9.8	0.8	4.7	8.6	silty CLAY to CLAY	115	1.5	10	6	5	-	-	0.6	5.6	69	3.15	15
9.51	9.3	15.0	-	9.5	0.7	5.3	7.6	silty CLAY to CLAY	115	1.5	10	6	5	-	-	0.6	5.3	68	3.13	15
9.68	9.0	14.4	-	9.1	0.6	5.6	7.3	silty CLAY to CLAY	115	1.5	10	6	5	-	-	0.6	5.0	68	3.13	15
9.84	9.1	14.6	-	9.2	0.6	5.5	6.9	silty CLAY to CLAY	115	1.5	10	6	5	-	-	0.6	5.0	66	3.11	15
10.01	10.1	16.2	-	10.2	0.6	5.9	5.8	silty CLAY to CLAY	115	1.5	11	7	5	-	-	0.7	5.4	60	3.02	15
10.17	9.7	15.6	-	9.9	0.5	6.3	5.5	silty CLAY to CLAY	115	1.5	10	6	5	-	-	0.6	5.1	60	3.02	15
10.34	8.3	13.3	-	8.4	0.4	6.9	5.5	silty CLAY to CLAY	115	1.5	9	6	4	-	-	0.5	4.3	64	3.08	15
10.50	9.0	14.5	-	9.2	0.3	7.6	4.1	silty CLAY to CLAY	115	1.5	10	6	5	-	-	0.6	4.6	57	2.97	15
10.66	8.4	13.4	-	8.5	0.3	7.8	4.5	silty CLAY to CLAY	115	1.5	9	6	4	-	-	0.5	4.2	60	3.02	15
10.83	8.2	13.2	-	8.4	0.4	8.3	4.8	silty CLAY to CLAY	115	1.5	9	5	4	-	-	0.5	4.0	62	3.05	15
10.99	9.3	14.6	-	9.5	0.5	8.7	5.3	silty CLAY to CLAY	115	1.5	10	6	5	-	-	0.6	4.5	61	3.04	15
11.16	10.5	16.3	-	10.7	0.5	8.8	5.1	silty CLAY to CLAY	115	1.5	11	7	5	-	-	0.7	5.0	58	2.99	15
11.32	10.6	16.3	-	10.8	0.5	9.0	5.2	silty CLAY to CLAY	115	1.5	11	7	5	-	-	0.7	5.0	58	3.00	15
11.48	11.5	17.4	-	11.7	0.6	9.1	5.7	silty CLAY to CLAY	115	1.5	12	8	6	-	-	0.8	5.4	58	3.00	15
11.65	11.1	16.5	-	11.2	0.6	5.9	5.6	silty CLAY to CLAY	115	1.5	11	7	5	-	-	0.7	5.1	59	3.01	15
11.81	10.6	15.6	-	10.8	0.5	6.6	5.2	silty CLAY to CLAY	115	1.5	10	7	5	-	-	0.7	4.8	59	3.01	15
11.98	11.2	16.2	-	11.3	0.5	6.8	4.6	silty CLAY to CLAY	115	1.5	11	7	5	-	-	0.7	5.0	56	2.97	15
12.14	10.8	15.4	-	10.9	0.5	7.0	4.7	silty CLAY to CLAY	115	1.5	10	7	5	-	-	0.7	4.8	57	2.98	15
12.30	10.7	15.0	-	10.8	0.4	7.2	4.4	silty CLAY to CLAY	115	1.5	10	7	5	-	-	0.7	4.6	57	2.98	15
12.47	10.6	14.8	-	10.8	0.4	7.4	4.3	silty CLAY to CLAY	115	1.5	10	7	5	-	-	0.7	4.5	57	2.98	15
12.63	10.0	13.7	-	10.1	0.4	7.5	4.3	silty CLAY to CLAY	115	1.5	9	7	4	-	-	0.7	4.2	59	3.01	15
12.80	10.4	14.1	-	10.5	0.4	7.4	4.4	silty CLAY to CLAY	115	1.5	9	7	4	-	-	0.7	4.3	58	3.00	15
12.96	11.5	15.4	-	11.7	0.4	7.9	4.1	silty CLAY to CLAY	115	1.5	10	8	5	-	-	0.8	4.7	55	2.95	15
13.12	13.6	18.0	-	13.8	0.5	8.3	4.2	silty CLAY to CLAY	115	1.5	12	9	5	-	-	0.9	5.6	52	2.90	15
13.29	17.2	22.4	-	17.4	0.6	8.6	3.9	silty CLAY to CLAY	115	1.5	15	11	6	-	-	1.2	7.1	46	2.80	15
13.45	18.9	24.4	-	19.1	0.8	8.6	4.6	silty CLAY to CLAY	115	1.5	16	13	7	-	-	1.3	7.7	47	2.82	15
13.62	21.4	27.2	-	21.6	0.8	9.0	3.9	clayy SILT to silty CLAY	115	2.0	14	11	7	-	-	1.5	8.7	43	2.74	15
13.78	23.2	29.1	-	23.3	1.2	8.5	5.3	silty CLAY to CLAY	115	1.5	19	15	8	-	-	1.6	9.3	46	2.80	15
13.94	14.5	18.0	-	14.7	1.3	8.6	9.4	silty CLAY to CLAY	115	1.5	12	10	6	-	-	1.0	5.6	68	3.13	15
14.11	25.0	30.8	-	25.2	1.5	8.8	6.1	silty CLAY to CLAY	115	1.5	21	17	9	-	-	1.7	9.8	48	2.83	15
14.27	29.9	36.3	-	30.1	1.7	8.8	5.9	silty CLAY to CLAY	115	1.5	24	20	10	-	-	2.1	9.9	44	2.77	15
14.44	31.0	37.2	-	31.2	1.6	8.1	5.4	silty CLAY to CLAY	115	1.5	25	21	10	-	-	2.1	9.9	42	2.73	15
14.60	22.9	27.1	-	23.0	1.4	7.9	6.1	silty CLAY to CLAY	115	1.5	18	15	8	-	-	1.6	8.6	50	2.87	15
14.76	21.3	25.0	-	21.5	1.2	8.0	5.9	silty CLAY to CLAY	115	1.5	17	14	7	-	-	1.4	7.9	51	2.89	15
14.93	21.3	24.7	-	21.4	1.2	8.7	5.8	silty CLAY to CLAY	115	1.5	16	14	7	-	-	1.4	7.8	51	2.89	15
15.09	22.5	25.8	-	22.6	1.3	8.9	6.0	silty CLAY to CLAY	115	1.5	17	15	8	-	-	1.5	8.2	51	2.88	15
15.26	26.0	29.5	-	26.2	1.6	9.0	6.2	silty CLAY to CLAY	115	1.5	20	17	9	-	-	1.8	9.4	49	2.85	15
15.42	27.9	31.4	-	28.1	1.9	9.1	7.0	silty CLAY to CLAY	115	1.5	21	19	9	-	-	1.9	9.9	50	2.87	15

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

Middle Earth Geo Testing

Project ID: Cornerstone Earth Group
Data File: SDF(714).cpt
CPT Date: 4/26/2018 11:46:06 AM
GW During Test: 16 ft

Sounding ID: CPT-02
Project No: 400-3-1
Cone/Rig: DDG1379

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	Ic SBT Indx	Nk -
15.58	30.3	33.7	-	30.5	2.1	9.0	7.0	silty CLAY to CLAY	115	1.5	22	20	10	-	-	2.1	9.9	49	2.84	15
15.75	31.7	34.9	-	31.9	2.2	9.1	7.1	silty CLAY to CLAY	115	1.5	23	21	10	-	-	2.2	9.9	48	2.84	15
15.91	33.5	36.5	-	33.7	2.3	9.3	7.0	silty CLAY to CLAY	115	1.5	24	22	10	-	-	2.3	9.9	47	2.82	15
16.08	34.6	37.6	-	34.8	2.4	9.5	7.1	silty CLAY to CLAY	115	1.5	25	23	11	-	-	2.4	9.9	47	2.82	15
16.24	35.5	38.3	-	35.7	2.4	9.6	7.0	silty CLAY to CLAY	115	1.5	26	24	11	-	-	2.4	9.9	46	2.80	15
16.40	36.5	39.2	-	36.7	2.6	9.7	7.2	silty CLAY to CLAY	115	1.5	26	24	11	-	-	2.5	9.9	46	2.81	15
16.57	35.9	38.3	-	36.1	2.5	9.7	7.2	silty CLAY to CLAY	115	1.5	26	24	11	-	-	2.5	9.9	47	2.81	15
16.73	33.8	36.0	-	34.0	2.4	9.7	7.3	silty CLAY to CLAY	115	1.5	24	23	10	-	-	2.3	9.9	48	2.84	15
16.90	32.7	34.6	-	32.9	2.2	9.9	6.9	silty CLAY to CLAY	115	1.5	23	22	10	-	-	2.2	9.9	48	2.83	15
17.06	30.3	31.9	-	30.5	2.2	10.1	7.5	silty CLAY to CLAY	115	1.5	21	20	10	-	-	2.1	9.9	51	2.88	15
17.23	28.9	30.3	-	29.1	2.1	10.0	7.5	silty CLAY to CLAY	115	1.5	20	19	9	-	-	2.0	9.7	52	2.90	15
17.39	27.6	28.8	-	27.8	2.0	10.1	7.4	silty CLAY to CLAY	115	1.5	19	18	9	-	-	1.9	9.2	53	2.91	15
17.55	26.4	27.4	-	26.6	1.9	10.0	7.4	silty CLAY to CLAY	115	1.5	18	18	8	-	-	1.8	8.7	54	2.93	15
17.72	26.0	26.9	-	26.2	1.8	10.0	7.3	silty CLAY to CLAY	115	1.5	18	17	8	-	-	1.8	8.5	54	2.93	15
17.88	27.0	27.9	-	27.2	1.9	10.0	7.4	silty CLAY to CLAY	115	1.5	19	18	8	-	-	1.8	8.8	53	2.92	15
18.05	26.6	27.3	-	26.8	1.9	10.0	7.4	silty CLAY to CLAY	115	1.5	18	18	8	-	-	1.8	8.7	54	2.93	15
18.21	28.1	28.7	-	28.3	2.1	10.0	7.7	silty CLAY to CLAY	115	1.5	19	19	9	-	-	1.9	9.1	53	2.92	15
18.37	29.2	29.7	-	29.4	2.2	9.8	7.6	silty CLAY to CLAY	115	1.5	20	19	9	-	-	2.0	9.4	53	2.91	15
18.54	28.7	29.1	-	28.9	2.1	9.7	7.4	silty CLAY to CLAY	115	1.5	19	19	9	-	-	2.0	9.2	53	2.91	15
18.70	28.1	28.3	-	28.3	2.1	9.8	7.7	silty CLAY to CLAY	115	1.5	19	19	9	-	-	1.9	9.0	54	2.93	15
18.87	28.5	28.6	-	28.6	2.1	9.7	7.8	silty CLAY to CLAY	115	1.5	19	19	9	-	-	1.9	9.1	54	2.93	15
19.03	29.6	29.6	-	29.8	2.2	9.7	7.7	silty CLAY to CLAY	115	1.5	20	20	9	-	-	2.0	9.4	53	2.92	15
19.19	31.5	31.4	-	31.7	2.2	9.7	7.2	silty CLAY to CLAY	115	1.5	21	21	9	-	-	2.2	9.9	51	2.88	15
19.36	34.1	33.8	-	34.3	2.2	9.7	6.6	silty CLAY to CLAY	115	1.5	23	23	10	-	-	2.3	9.9	47	2.82	15
19.52	36.1	35.6	-	36.3	1.8	9.3	5.1	silty CLAY to CLAY	115	1.5	24	24	10	-	-	2.5	9.9	42	2.73	15
19.69	38.5	37.0	121.5	38.6	1.3	8.6	3.4	clayy SILT to silty CLAY	115	2.0	19	19	9	-	-	2.6	9.9	35	2.59	15
19.85	41.7	40.1	98.4	41.9	0.9	7.8	2.1	silty SAND to sandy SILT	120	3.0	13	14	9	37	35	-	-	28	2.43	16
20.01	37.8	36.3	107.7	38.0	1.0	7.3	2.7	clayy SILT to silty CLAY	115	2.0	18	19	9	-	-	2.6	9.9	32	2.54	15
20.18	25.2	24.5	-	25.4	1.3	7.1	5.2	silty CLAY to CLAY	115	1.5	16	17	7	-	-	1.7	7.7	50	2.86	15
20.34	20.9	20.2	-	21.0	1.4	7.2	7.3	silty CLAY to CLAY	115	1.5	13	14	7	-	-	1.4	6.3	60	3.02	15
20.51	19.7	18.9	-	19.9	1.4	8.4	7.7	silty CLAY to CLAY	115	1.5	13	13	6	-	-	1.3	5.9	63	3.06	15
20.67	19.0	18.2	-	19.2	1.5	8.5	8.2	silty CLAY to CLAY	115	1.5	12	13	6	-	-	1.3	5.6	65	3.09	15
20.83	18.7	17.8	-	18.9	1.3	8.5	7.7	silty CLAY to CLAY	115	1.5	12	12	6	-	-	1.2	5.5	64	3.08	15
21.00	17.3	16.4	-	17.5	1.3	8.5	7.8	silty CLAY to CLAY	115	1.5	11	12	6	-	-	1.1	5.0	66	3.11	15
21.16	16.3	15.4	-	16.4	1.0	8.9	6.9	silty CLAY to CLAY	115	1.5	10	11	5	-	-	1.1	4.7	66	3.10	15
21.33	15.9	14.9	-	16.0	1.0	9.0	7.0	silty CLAY to CLAY	115	1.5	10	11	5	-	-	1.0	4.5	66	3.11	15
21.49	15.7	14.7	-	15.8	1.0	9.3	7.2	silty CLAY to CLAY	115	1.5	10	10	5	-	-	1.0	4.5	67	3.13	15
21.65	16.1	15.0	-	16.2	1.0	9.6	6.6	silty CLAY to CLAY	115	1.5	10	11	5	-	-	1.1	4.6	65	3.09	15
21.82	16.8	15.6	-	17.0	1.1	9.7	7.0	silty CLAY to CLAY	115	1.5	10	11	5	-	-	1.1	4.8	65	3.10	15
21.98	16.8	15.6	-	17.0	1.2	9.9	7.4	silty CLAY to CLAY	115	1.5	10	11	5	-	-	1.1	4.8	67	3.12	15
22.15	16.4	15.1	-	16.6	1.2	9.8	7.7	silty CLAY to CLAY	115	1.5	10	11	5	-	-	1.1	4.6	68	3.14	15
22.31	27.4	25.2	-	27.6	0.8	10.1	3.2	clayy SILT to silty CLAY	115	2.0	13	14	7	-	-	1.9	7.9	41	2.71	15
22.47	46.4	43.1	84.9	46.6	0.7	8.9	1.4	silty SAND to sandy SILT	120	3.0	14	15	10	39	36	-	-	23	2.31	16
22.64	43.7	40.5	85.1	43.8	0.7	7.7	1.5	silty SAND to sandy SILT	120	3.0	14	15	9	37	35	-	-	24	2.34	16
22.80	35.9	33.2	100.0	36.0	0.9	7.0	2.5	clayy SILT to silty CLAY	115	2.0	17	18	8	-	-	2.5	9.9	33	2.55	15
22.97	32.9	30.4	99.8	33.0	0.8	6.6	2.7	clayy SILT to silty CLAY	115	2.0	15	16	8	-	-	2.2	9.4	35	2.59	15
23.13	70.9	65.4	93.6	71.0	0.8	6.5	1.1	silty SAND to sandy SILT	120	3.0	22	24	13	53	38	-	-	15	2.09	16
23.30	72.4	66.7	91.2	72.6	0.7	5.8	1.0	clean SAND to silty SAND	125	5.0	13	14	13	54	38	-	-	14	2.05	16
23.46	46.8	43.0	106.2	46.9	1.1	5.4	2.3	silty SAND to sandy SILT	120	3.0	14	16	10	39	35	-	-	28	2.44	16
23.62	27.4	24.4	-	27.5	1.0	5.4	3.7	clayy SILT to silty CLAY	115	2.0	12	14	7	-	-	1.9	7.6	44	2.77	15
23.79	29.7	26.3	-	29.8	1.1	6.0	3.8	clayy SILT to silty CLAY	115	2.0	13	15	7	-	-	2.0	8.3	43	2.74	15
23.95	51.5	47.0	96.5	51.6	0.9	6.2	1.8	silty SAND to sandy SILT	120	3.0	16	17	11	42	36	-	-	24	2.33	16
24.12	66.2	60.3	90.4	66.4	0.7	6.1	1.1	silty SAND to sandy SILT	120	3.0	20	22	12	50	37	-	-	17	2.12	16
24.28	66.1	60.0	83.5	66.2	0.6	6.0	0.9	silty SAND to sandy SILT	120	3.0	20	22	12	50	37	-	-	15	2.06	16
24.44	58.4	53.0	76.5	58.5	0.5	5.8	0.8	silty SAND to sandy SILT	120	3.0	18	19	11	46	37	-	-	16	2.09	16
24.61	45.4	41.1	88.0	45.5	0.7	5.6	1.6	silty SAND to sandy SILT	120	3.0	14	15	9	38	35	-	-	25	2.36	16
24.77	22.7	19.7	-	22.8	1.0	5.1	4.5	silty CLAY to CLAY	115	1.5	13	15	6	-	-	1.5	6.1	52	2.90	15
24.94	15.9	13.7	-	16.0	0.8	5.1	5.7	silty CLAY to CLAY	115	1.5	9	11	5	-	-	1.0	4.1	65	3.09	15
25.10	14.3	12.3	-	14.4	0.6	5.6	5.0	silty CLAY to CLAY	115	1.5	8	10	4	-	-	0.9	3.6	65	3.10	15
25.26	9.5	8.1	-	9.6	0.5	5.8	5.7	silty CLAY to CLAY	115	1.5	5	6	3	-	-	0.6	2.3	80	3.29	15
25.43	8.2	7.0	-	8.3	0.4	6.1	5.9	silty CLAY to CLAY	115	1.5	5	5	3	-	-	0.5	1.9	86	3.36	15
25.59	8.1	6.9	-	8.2	0.4	6.3	6.6	silty CLAY to CLAY	115	1.5	5	5	3	-	-	0.5	1.8	90	3.40	15
25.76	13.6	11.5	-	13.7	0.5	6.5	4.5	silty CLAY to CLAY	115	1.5	8	9	4	-	-	0.9	3.4	65	3.09	15
25.92	14.9	12.5	-	15.0	0.6	6.4	4.8	silty CLAY to CLAY	115	1.5	8	10	4	-	-	1.0	3.7	64	3.08	15
26.08	9.2	7.7	-	9.3	0.4	6.4	5.7	silty CLAY to CLAY	115	1.5	5	6	3	-	-	0.6	2.1	82	3.31	15
26.25	6.8	5.7	-	7.0	0.3	7.3	6.5	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.4	1.5	95	3.48	15
26.41	6.3	5.2	-	6.4	0.3	7.4	6.5	silty CLAY to CLAY	115	1.5	3	4	2	-	-	0.4	1.3	95	3.52	15
26.58	6.0	5.0	-	6.1	0.3	7.6	6.0	silty CLAY to CLAY	115	1.5	3	4	2	-	-	0.3	1.2	95	3.52	15
26.74	5.6	4.6	-	5.7	0.2	7.7	6.0	silty CLAY to CLAY	115	1.5	3	4	2	-	-	0.3	1.1	95	3.56	15
26.90	5.8	4.8	-	6.0	0.2	7.8	5.7	silty CLAY to CLAY	115	1.5	3	4	2	-	-	0.3	1.2	95	3.53	15
27.07	6.0	4.9	-	6.2	0.2	7.9	5.6	silty CLAY to CLAY	115	1.5	3	4	2	-	-	0.3	1.2	95	3.51	15
27.23	6.4	5.2	-	6.5	0.3	8.1	5.6	silty CLAY to CLAY	115	1.5	3	4	2	-	-	0.4	1.3	95	3.48	15
27.40	7.2	5.9	-	7.4	0.3	8.2	5.5	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.4	1.5	92	3.43	15
27.56	7.6	6.2	-	7.7	0.3	8.4	5.1	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.4	1.6	88	3.39	15
27.72	7.4	6.0	-	7.5	0.3	8.5	5.6	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.4	1.5	92	3.42	15
27.89	6.9	5.6	-	7.1	0.3	8.6	6.2	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.4	1.4	95	3.48	15
28.05	7.2	5.8	-	7.4	0.3	8.7	6.0	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.4	1.5	95	3.46	15
28.22	7.2	5.8	-	7.4	0.3	8.8	5.5	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.4	1.5	93	3.43	15
28.38	6.8	5.5	-	7.0	0.3	8.9	5.6	silty CLAY to CLAY	115	1.5	4	5	2	-	-	0.4	1.4	95	3.47	15
28.54	6.9	5.5	-	7.1	0.3	9.0	5.7	silty CLAY to CLAY	115	1.5	4	5	2	-	-	0.4	1.4	95	3.47	15
28.71	7.8	6.2	-	8.0	0.3	9.2	5.1	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.5	1.6	88	3.38	15
28.87	7.8	6.2	-	8.0	0.3	9.3	4.3	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.5	1.6	85	3.34	15
29.04	7.7	6.0	-	7.9	0.2	9.5	3.8	silty CLAY to CLAY	115	1.5	4	5	2	-	-	0.5	1.6	83	3.32	15
29.20	7.2	5.7	-	7.4	0.2	9.7	4.1	silty CLAY to CLAY	115	1.5	4	5	2	-	-	0.4	1.4	87	3.37	15
29.36	6.9	5.4	-	7.1	0.3	9.9	5.3	silty CLAY to CLAY	115	1.5	4	5	2	-	-	0.4	1.3	95	3.46	15
29.53	7.0	5.4	-	7.2	0.3	10.1	6.2	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.4	1.4	95	3.49	15
29.69	8.1	6.3	-	8.3	0.4	10.2	6.8	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.5	1.6	94	3.45	15
29.86	9.8	7.6	-	10.0	0.5	10.3	6.8	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	2.1	87	3.37	15
30.02	11.1	8.6	-	11.3	0.6	10.3	6.8	silty CLAY to CLAY	115	1.5	6	7	3	-	-	0.7	2.4	83	3.32	15
30.19	12.2	9.4	-	12.4	0.7	10.2	6.6	silty CLAY to CLAY	115	1.5	6	8	4	-	-	0.8	2.7	79	3.28	15
30.35	12.5	9.6	-	12.7	0.7	10.2	6.8	silty CLAY to CLAY	115	1.5	6	8	4	-	-	0.8	2.7	79	3.27	15
30.51	13.0	10.0	-	13.2	0.7	10.2	6.5	silty CLAY to CLAY	115	1.5	7	9	4	-	-	0.8	2.8	77	3.25	15
30.68	13.0	9.9	-	13.2	0.8	10.3	6.8	silty CLAY to CLAY	115	1.5	7	9	4	-	-	0.8	2.8	78	3.26	15
30.84	12.5	9.5	-	12.6	0.7	10.1	6.7	silty CLAY to CLAY	115	1.5	6	8	4	-	-	0.8	2.7	79	3.28	15

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

Project ID: Cornerstone Earth Group
Data File: SDF(714).cpt
CPT Date: 4/26/2018 11:46:06 AM
GW During Test: 16 ft

Sounding ID: CPT-02
Project No: 400-3-1
Cone/Rig: DDG1379

Depth ft	qc PS tsf	qc1n * PS -	q1ncs PS -	qt * PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	Ic * SBT Indx	Nk -
31.01	11.3	8.6	-	11.5	0.7	10.0	7.0	silty CLAY to CLAY	115	1.5	6	8	3	-	-	0.7	2.4	84	3.33	15
31.17	10.2	7.7	-	10.4	0.6	10.2	7.4	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	2.1	89	3.39	15
31.33	9.6	7.2	-	9.8	0.6	10.2	7.5	silty CLAY to CLAY	115	1.5	5	6	3	-	-	0.6	1.9	92	3.42	15
31.50	9.4	7.1	-	9.6	0.6	10.2	7.2	silty CLAY to CLAY	115	1.5	5	6	3	-	-	0.6	1.9	91	3.42	15
31.66	9.5	7.1	-	9.7	0.5	10.2	6.8	silty CLAY to CLAY	115	1.5	5	6	3	-	-	0.6	1.9	90	3.40	15
31.83	9.7	7.2	-	9.9	0.5	10.3	6.6	silty CLAY to CLAY	115	1.5	5	6	3	-	-	0.6	1.9	88	3.38	15
31.99	9.1	6.7	-	9.3	0.5	10.4	6.8	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.8	92	3.42	15
32.15	8.6	6.4	-	8.8	0.5	10.4	7.1	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.6	95	3.46	15
32.32	9.7	7.1	-	9.9	0.6	10.5	7.8	silty CLAY to CLAY	115	1.5	5	6	3	-	-	0.6	1.9	93	3.44	15
32.48	26.4	19.4	-	26.6	0.8	11.0	3.1	clayy SILT to silty CLAY	115	2.0	10	13	5	-	-	1.8	6.0	46	2.80	15
32.65	85.1	70.8	92.1	85.3	0.7	8.6	0.9	clean SAND to silty SAND	125	5.0	14	17	14	56	38	-	-	13	2.00	16
32.81	96.5	80.1	93.9	96.6	0.6	6.5	0.6	clean SAND to silty SAND	125	5.0	16	19	15	60	39	-	-	10	1.88	16
32.97	88.9	73.7	87.0	89.1	0.5	6.2	0.6	clean SAND to silty SAND	125	5.0	15	18	14	57	38	-	-	10	1.89	16
33.14	63.0	52.1	84.5	63.1	0.7	5.6	1.1	silty SAND to sandy SILT	120	3.0	17	21	11	45	36	-	-	18	2.18	16
33.30	26.0	18.8	-	26.1	0.8	5.1	3.3	silty CLAY to CLAY	115	1.5	13	17	5	-	-	1.7	5.8	48	2.83	15
33.47	14.8	10.7	-	14.9	0.5	5.2	4.3	silty CLAY to CLAY	115	1.5	7	10	4	-	-	0.9	3.1	66	3.11	15
33.63	11.2	8.0	-	11.3	0.3	5.6	3.5	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.7	2.2	72	3.18	15
33.79	10.8	7.8	-	11.0	0.2	6.7	2.6	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.7	2.1	68	3.13	15
33.96	11.3	8.1	-	11.5	0.3	7.7	2.8	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	2.2	68	3.13	15
34.12	12.6	9.0	-	12.8	0.3	8.3	2.6	silty CLAY to CLAY	115	1.5	6	8	3	-	-	0.8	2.5	63	3.07	15
34.29	13.8	9.8	-	14.0	0.3	8.7	2.8	silty CLAY to CLAY	115	1.5	7	9	3	-	-	0.9	2.8	62	3.05	15
34.45	14.8	10.5	-	15.0	0.4	9.1	3.2	silty CLAY to CLAY	115	1.5	7	10	3	-	-	0.9	3.0	62	3.05	15
34.61	16.0	11.3	-	16.1	0.5	9.4	3.4	silty CLAY to CLAY	115	1.5	8	11	4	-	-	1.0	3.2	61	3.04	15
34.78	15.8	11.1	-	16.0	0.5	11.1	3.8	silty CLAY to CLAY	115	1.5	7	11	4	-	-	1.0	3.2	63	3.07	15
34.94	16.1	11.3	-	16.3	0.6	11.4	4.0	silty CLAY to CLAY	115	1.5	8	11	4	-	-	1.0	3.3	64	3.08	15
35.11	17.2	12.0	-	17.4	0.6	11.6	4.2	silty CLAY to CLAY	115	1.5	8	11	4	-	-	1.1	3.5	63	3.06	15
35.27	17.9	12.4	-	18.1	0.7	11.8	4.3	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.2	3.6	62	3.06	15
35.43	17.8	12.4	-	18.1	0.7	12.2	4.2	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.2	3.6	62	3.05	15
35.60	18.8	13.0	-	19.0	0.7	12.7	4.3	silty CLAY to CLAY	115	1.5	9	13	4	-	-	1.2	3.8	61	3.04	15
35.76	20.8	14.4	-	21.0	0.8	12.8	4.1	silty CLAY to CLAY	115	1.5	10	14	5	-	-	1.4	4.3	57	2.98	15
35.93	21.3	14.7	-	21.6	0.8	13.1	4.0	silty CLAY to CLAY	115	1.5	10	14	5	-	-	1.4	4.4	57	2.97	15
36.09	22.2	15.2	-	22.4	0.8	13.4	3.9	silty CLAY to CLAY	115	1.5	10	15	5	-	-	1.5	4.5	55	2.95	15
36.26	24.4	16.7	-	24.6	1.0	13.6	4.5	silty CLAY to CLAY	115	1.5	11	16	5	-	-	1.6	5.0	56	2.96	15
36.42	27.1	18.5	-	27.3	1.2	13.6	4.8	silty CLAY to CLAY	115	1.5	12	18	6	-	-	1.8	5.6	54	2.94	15
36.58	28.8	19.6	-	29.1	1.4	13.9	5.1	silty CLAY to CLAY	115	1.5	13	19	6	-	-	1.9	6.0	54	2.93	15
36.75	29.8	20.2	-	30.1	1.3	14.0	4.8	silty CLAY to CLAY	115	1.5	13	20	6	-	-	2.0	6.2	52	2.91	15
36.91	30.7	20.8	-	31.0	1.4	14.3	5.0	silty CLAY to CLAY	115	1.5	14	20	6	-	-	2.1	6.4	52	2.91	15
37.08	32.4	21.9	-	32.7	1.5	14.3	5.1	silty CLAY to CLAY	115	1.5	15	22	7	-	-	2.2	6.7	52	2.89	15
37.24	30.8	20.7	-	31.1	1.7	14.2	5.8	silty CLAY to CLAY	115	1.5	14	21	6	-	-	2.1	6.4	55	2.95	15
37.40	28.4	19.1	-	28.7	1.5	13.9	5.8	silty CLAY to CLAY	115	1.5	13	19	6	-	-	1.9	5.8	57	2.98	15
37.57	25.8	17.3	-	26.1	1.3	13.8	5.4	silty CLAY to CLAY	115	1.5	12	17	5	-	-	1.7	5.2	58	3.00	15
37.73	23.8	15.9	-	24.1	1.3	13.4	6.0	silty CLAY to CLAY	115	1.5	11	16	5	-	-	1.6	4.8	62	3.06	15
37.90	21.7	14.4	-	21.9	1.3	12.8	6.4	silty CLAY to CLAY	115	1.5	10	14	5	-	-	1.4	4.3	66	3.11	15
38.06	19.8	13.1	-	20.0	1.2	11.3	6.9	silty CLAY to CLAY	115	1.5	9	13	5	-	-	1.3	3.8	70	3.17	15
38.22	16.8	11.1	-	17.0	1.0	11.5	6.9	silty CLAY to CLAY	115	1.5	7	11	4	-	-	1.1	3.2	75	3.23	15
38.39	16.7	11.0	-	16.9	0.8	11.7	5.9	silty CLAY to CLAY	115	1.5	7	11	4	-	-	1.1	3.1	72	3.19	15
38.55	17.9	11.8	-	18.2	0.9	11.7	5.7	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.2	3.4	69	3.15	15
38.72	18.6	12.2	-	18.8	0.9	11.5	5.6	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.2	3.5	68	3.13	15
38.88	18.2	11.9	-	18.4	0.9	11.5	5.5	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.2	3.4	68	3.14	15
39.04	17.4	11.4	-	17.7	0.8	11.4	5.2	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.1	3.3	68	3.14	15
39.21	16.3	10.6	-	16.5	0.9	11.3	6.1	silty CLAY to CLAY	115	1.5	7	11	4	-	-	1.0	3.0	74	3.21	15
39.37	16.1	10.4	-	16.3	1.0	11.1	6.9	silty CLAY to CLAY	115	1.5	7	11	4	-	-	1.0	3.0	77	3.25	15
39.54	15.2	9.8	-	15.4	0.9	11.0	7.0	silty CLAY to CLAY	115	1.5	7	10	4	-	-	1.0	2.8	79	3.28	15
39.70	14.0	9.0	-	14.2	0.8	11.1	6.6	silty CLAY to CLAY	115	1.5	6	9	4	-	-	0.9	2.5	81	3.30	15
39.86	13.4	8.6	-	13.7	0.7	11.1	6.4	silty CLAY to CLAY	115	1.5	6	9	3	-	-	0.8	2.4	82	3.31	15
40.03	12.3	7.9	-	12.5	0.6	11.1	6.4	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.8	2.1	85	3.35	15
40.19	12.4	7.9	-	12.6	0.6	11.2	5.9	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.8	2.1	83	3.32	15
40.36	13.8	8.8	-	14.0	0.6	11.3	5.3	silty CLAY to CLAY	115	1.5	6	9	3	-	-	0.9	2.4	77	3.25	15
40.52	15.5	9.9	-	15.8	0.6	11.6	4.8	silty CLAY to CLAY	115	1.5	7	10	4	-	-	1.0	2.8	71	3.18	15
40.68	17.3	10.9	-	17.5	0.7	11.8	4.6	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.1	3.1	68	3.13	15
40.85	18.4	11.7	-	18.7	0.8	12.1	4.9	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.2	3.4	67	3.12	15
41.01	19.6	12.3	-	19.8	0.8	12.3	4.8	silty CLAY to CLAY	115	1.5	8	13	4	-	-	1.3	3.6	65	3.09	15
41.18	18.3	11.5	-	18.5	0.9	12.3	5.4	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.2	3.3	69	3.15	15
41.34	17.4	10.9	-	17.7	0.8	12.4	5.4	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.1	3.1	71	3.17	15
41.50	14.9	9.3	-	15.1	0.7	12.4	5.6	silty CLAY to CLAY	115	1.5	6	10	3	-	-	0.9	2.6	76	3.24	15
41.67	13.7	8.5	-	13.9	0.6	12.5	5.5	silty CLAY to CLAY	115	1.5	6	9	3	-	-	0.9	2.3	79	3.27	15
41.83	13.7	8.5	-	14.0	0.6	12.7	5.1	silty CLAY to CLAY	115	1.5	6	9	3	-	-	0.9	2.3	77	3.26	15
42.00	13.3	8.2	-	13.5	0.6	12.8	5.6	silty CLAY to CLAY	115	1.5	5	9	3	-	-	0.8	2.2	80	3.29	15
42.16	12.0	7.4	-	12.3	0.6	12.8	6.0	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	2.0	86	3.36	15
42.32	11.8	7.3	-	12.0	0.5	12.9	5.8	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	1.9	86	3.36	15
42.49	11.6	7.2	-	11.9	0.5	13.0	5.7	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	1.9	86	3.36	15
42.65	11.6	7.1	-	11.9	0.5	13.2	5.6	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	1.9	86	3.36	15
42.82	11.4	7.0	-	11.6	0.5	13.2	5.5	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	1.8	86	3.36	15
42.98	11.4	7.0	-	11.7	0.5	13.3	5.2	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	1.8	86	3.35	15
43.15	11.8	7.2	-	12.0	0.4	13.5	4.8	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	1.9	83	3.32	15
43.31	12.5	7.6	-	12.8	0.5	13.7	4.9	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.8	2.0	81	3.30	15
43.47	14.1	8.6	-	14.4	0.5	13.8	4.6	silty CLAY to CLAY	115	1.5	6	9	3	-	-	0.9	2.3	75	3.23	15
43.64	15.9	9.6	-	16.1	0.6	14.1	4.8	silty CLAY to CLAY	115	1.5	6	11	3	-	-	1.0	2.7	72	3.19	15
43.80	17.4	10.5	-	17.7	0.6	14.4	3.8	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.1	3.0	65	3.09	15
43.97	17.5	10.5	-	17.8	0.5	14.8	3.6	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.1	3.0	64	3.08	15
44.13	15.8	9.5	-	16.1	0.6	14.9	4.2	silty CLAY to CLAY	115	1.5	6	11	3	-	-	1.0	2.6	70	3.16	15
44.29	16.4	9.8	-	16.7	0.5	15.1	3.9	silty CLAY to CLAY	115	1.5	7	11	3	-	-	1.0	2.7	68	3.13	15
44.46	15.2	9.1	-	15.5	0.5	15.2	4.2	silty CLAY to CLAY	115	1.5	6	10	3	-	-	1.0	2.5	72	3.18	15
44.62	15.4	9.1	-	15.7	0.5	16.0	3.9	silty CLAY to CLAY	115	1.5	6	10	3	-	-	1.0	2.5	70	3.16	15
44.79	13.8	8.2	-	14.1	0.4	16.1	4.0	silty CLAY to CLAY	115	1.5	5	9	3	-	-	0.9	2.2	74	3.21	15
44.95	12.8	7.6	-	13.1	0.4	16.3	3.7	silty CLAY to CLAY	115	1.5	5	9	3	-	-	0.8	2.0	75	3.23	15
45.11	11.4	6.8	-	11.8	0.3	16.6	3.4	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	1.7	78	3.26	15
45.28	9.6	5.7	-	10.0	0.3	16.8	4.0	silty CLAY to CLAY	115	1.5	4	6	2	-	-	0.6	1.4	88	3.38	15
45.44	9.0	5.3	-	9.4	0.3	17.0	4.5	silty CLAY to CLAY	115	1.5	4	6	2	-	-	0.5	1.2	94	3.45	15
45.61	8.4	4.9	-	8.8	0.2	17.3	4.3	silty CLAY to CLAY	115	1.5	3	6	2	-	-	0.5	1.1	95	3.47	15
45.77	8.2	4.8	-	8.5	0.3	17.5	4.6	silty CLAY to CLAY	115	1.5	3	5	2	-	-	0.5	1.1	95	3.51	15
45.93	8.8	5.1	-	9.1	0.3	17.8	5.2	silty CLAY to CLAY	115	1.5	3	6	2	-	-	0.5	1.2	95	3.50	15
46.10	12.8	7.4	-	13.1	0.4	18.2	4.3	silty CLAY to CLAY	115	1.5	5	9	3	-	-	0.8	1.9	79	3.28	15
46.26	16.9	9.8	-	17.2	0.6	18.5	4.3	silty CLAY to CLAY	115	1.5	7	11	3	-	-	1.1	2.7	70	3.16	15

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

Project ID: Cornerstone Earth Group
Data File: SDF(714).cpt
CPT Date: 4/26/2018 11:46:06 AM
GW During Test: 16 ft

Sounding ID: CPT-02
Project No: 400-3-1
Cone/Rig: DDG1379

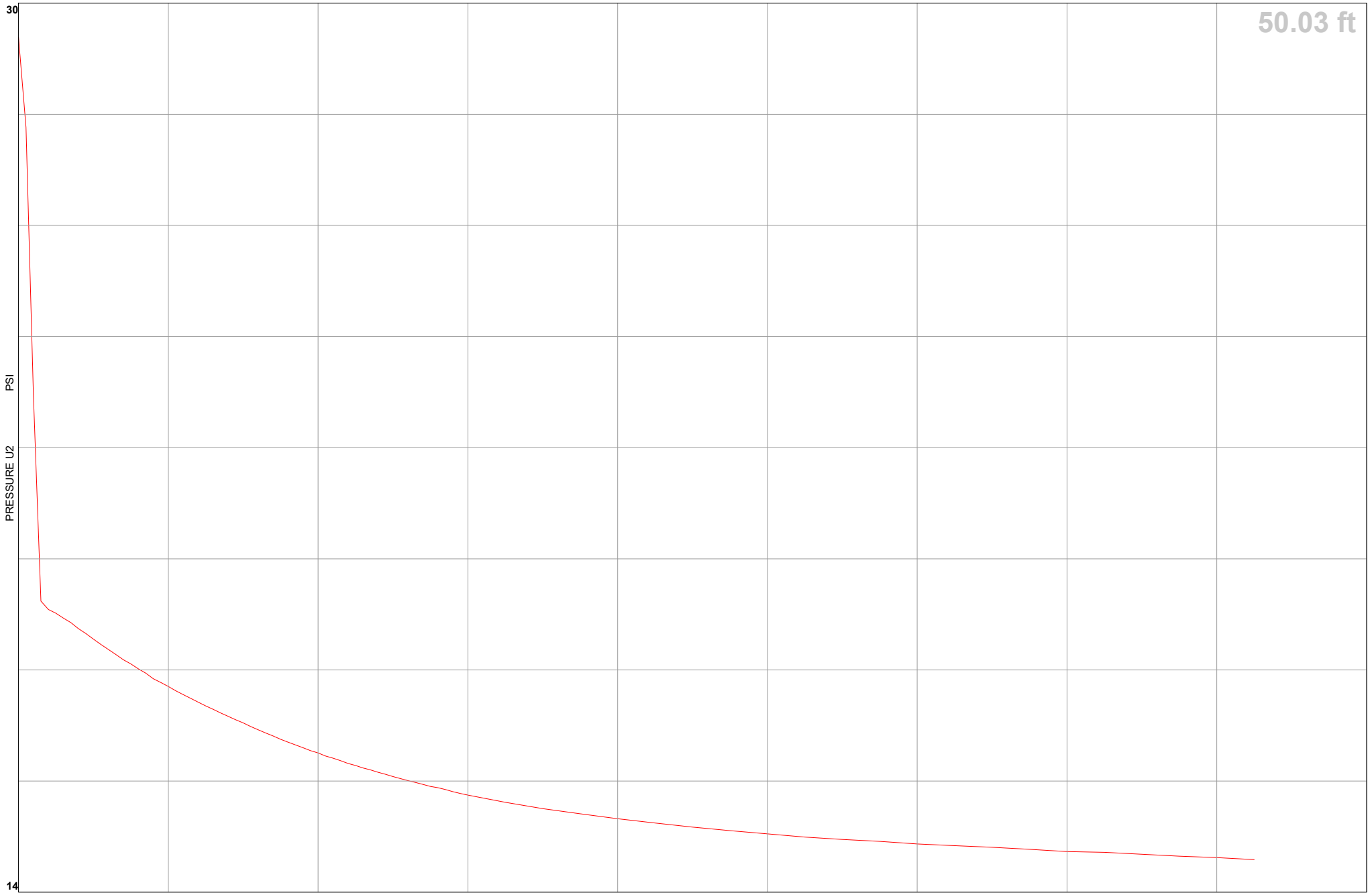
Depth ft	qc PS tsf	qc1n * PS -	q1ncs PS -	qt * PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	Ic * SBT Indx	Nk -
46.43	20.2	11.7	-	20.5	0.7	19.1	3.9	silty CLAY to CLAY	115	1.5	8	13	4	-	-	1.3	3.3	63	3.06	15
46.59	22.3	12.8	-	22.7	0.8	19.8	4.3	silty CLAY to CLAY	115	1.5	9	15	4	-	-	1.5	3.7	62	3.05	15
46.75	25.7	14.8	-	26.1	0.9	20.8	4.0	silty CLAY to CLAY	115	1.5	10	17	5	-	-	1.7	4.4	57	2.97	15
46.92	28.4	16.3	-	28.9	0.9	21.9	3.4	silty CLAY to CLAY	115	1.5	11	19	5	-	-	1.9	4.9	51	2.89	15
47.08	28.6	16.4	-	29.0	0.8	23.1	2.9	silty CLAY to CLAY	115	1.5	11	19	5	-	-	1.9	4.9	49	2.85	15
47.25	28.8	16.5	-	29.3	0.8	24.3	3.2	silty CLAY to CLAY	115	1.5	11	19	5	-	-	1.9	4.9	50	2.87	15
47.41	30.1	17.1	-	30.5	1.1	25.1	3.9	silty CLAY to CLAY	115	1.5	11	20	5	-	-	2.0	5.1	53	2.91	15
47.57	32.6	18.5	-	33.1	1.2	25.6	4.2	silty CLAY to CLAY	115	1.5	12	22	6	-	-	2.2	5.6	52	2.90	15
47.74	33.1	18.8	-	33.6	1.3	26.2	4.4	silty CLAY to CLAY	115	1.5	13	22	6	-	-	2.2	5.7	53	2.91	15
47.90	33.8	19.1	-	34.3	1.4	26.5	4.6	silty CLAY to CLAY	115	1.5	13	23	6	-	-	2.3	5.8	53	2.92	15
48.07	33.3	18.8	-	33.9	1.5	27.0	5.1	silty CLAY to CLAY	115	1.5	13	22	6	-	-	2.2	5.7	55	2.95	15
48.23	33.6	18.9	-	34.2	1.5	28.9	4.9	silty CLAY to CLAY	115	1.5	13	22	6	-	-	2.3	5.7	54	2.94	15
48.39	34.8	19.5	-	35.4	1.6	29.9	4.9	silty CLAY to CLAY	115	1.5	13	23	6	-	-	2.3	5.9	54	2.93	15
48.56	35.8	20.1	-	36.4	1.6	30.5	4.8	silty CLAY to CLAY	115	1.5	13	24	6	-	-	2.4	6.1	53	2.91	15
48.72	36.0	20.1	-	36.6	1.5	31.1	4.6	silty CLAY to CLAY	115	1.5	13	24	6	-	-	2.4	6.1	52	2.89	15
48.89	36.6	20.4	-	37.3	1.9	31.9	5.6	silty CLAY to CLAY	115	1.5	14	24	6	-	-	2.5	6.2	55	2.95	15
49.05	36.7	20.4	-	37.3	1.9	31.2	5.5	silty CLAY to CLAY	115	1.5	14	24	6	-	-	2.5	6.2	55	2.94	15
49.22	29.0	16.1	-	29.6	1.6	27.9	6.2	silty CLAY to CLAY	115	1.5	11	19	5	-	-	1.9	4.8	63	3.06	15
49.38	23.6	13.1	-	24.2	1.2	28.8	5.7	silty CLAY to CLAY	115	1.5	9	16	5	-	-	1.5	3.8	67	3.12	15
49.54	20.5	11.3	-	21.0	1.0	28.1	5.9	silty CLAY to CLAY	115	1.5	8	14	4	-	-	1.3	3.2	72	3.18	15
49.71	17.8	9.8	-	18.3	1.1	27.6	7.3	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.1	2.7	81	3.30	15
49.87	21.8	12.0	-	22.3	1.3	27.5	6.9	silty CLAY to CLAY	115	1.5	8	15	4	-	-	1.4	3.4	73	3.20	15
50.04	88.5	63.7	177.5	89.1	3.7	29.4	4.3	clayy SILT to silty CLAY	115	2.0	32	44	16	-	-	6.1	9.9	31	2.50	15
50.20	145.0	104.2	210.7	145.3	5.5	14.6	3.8	silty SAND to sandy SILT	120	3.0	35	48	23	68	39	-	-	23	2.32	16

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

Middle Earth Geo Testing

Cornerstone Earth Group

Location	1188 East 14th Street	Operator	RC AS	GPS
Job Number	400-3-1	Cone Number	DDG1379	
Hole Number	CPT-02	Date and Time	4/26/2018 11:46:06 AM	
Equilized Pressure	14.5	EST GW Depth During Test	16.3	

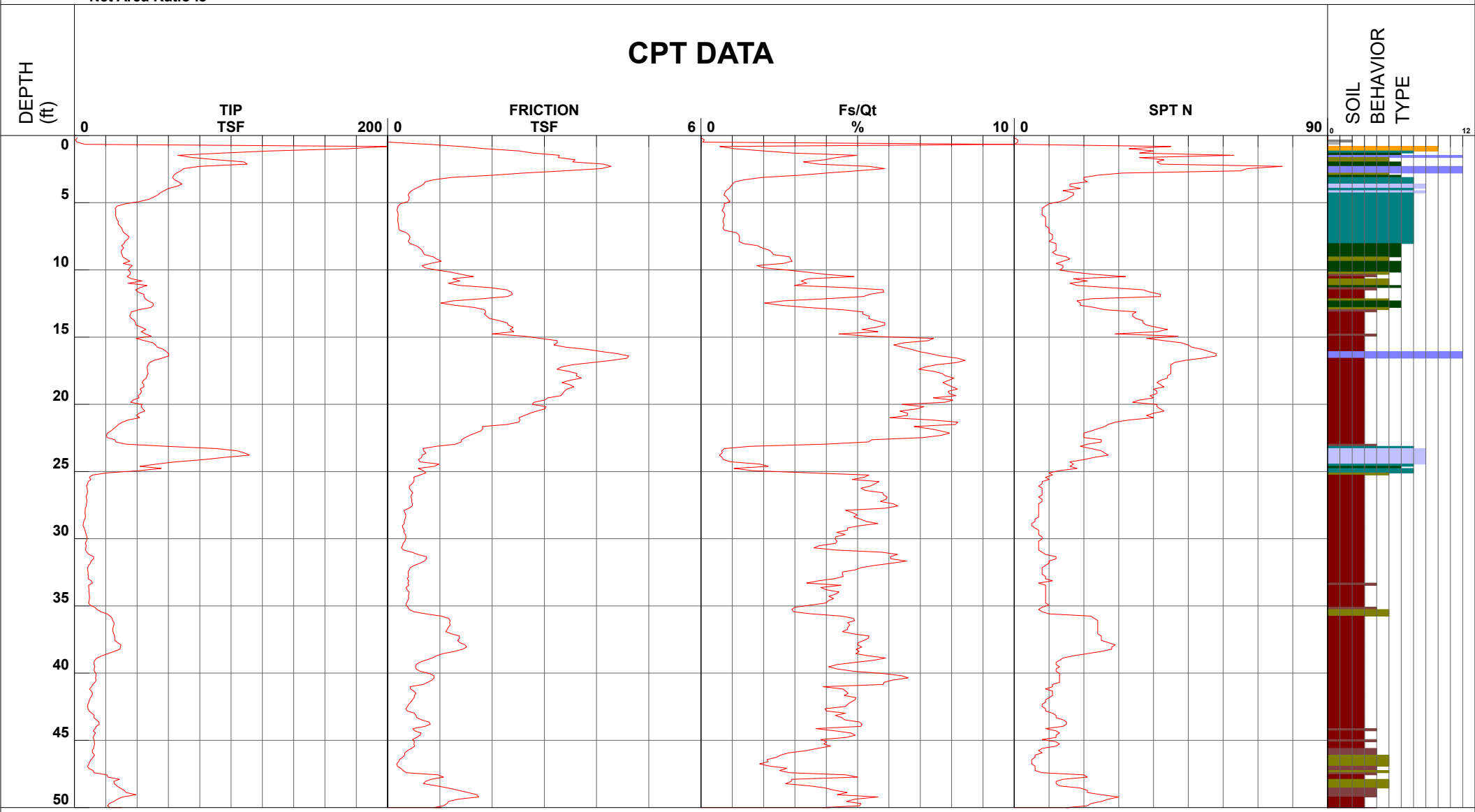


Cornerstone Earth Group

Project	1188 East 14th Street	Operator	RC AS	Filename	SDF(713).cpt
Job Number	400-3-1	Cone Number	DDG1379	GPS	
Hole Number	CPT-03	Date and Time	4/26/2018 10:21:04 AM	Maximum Depth	50.69 ft
EST GW Depth During Test		16.00 ft			

Net Area Ratio .8

CPT DATA



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

Cone Size 10cm squared

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

1188 East 14th Street

Project ID: Cornerstone Earth Group
Data File: SDF(713).cpt
CPT Date: 4/26/2018 10:21:04 AM
GW During Test: 16 ft

Sounding ID: CPT-03
Project No: 400-3-1
Cone/Rig: DDG1379

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	Ic SBT	Nk -
0.33	1.1	1.0	-	1.1	0.0	0.0	0.1	sensitive fine SOIL	115	2.0	1	1	0	-	-	0.1	9.9	95	3.47	15
0.49	1.6	2.5	-	1.6	0.0	0.0	0.1	sensitive fine SOIL	115	2.0	1	1	1	-	-	0.1	9.9	64	3.08	15
0.66	6.8	11.0	-	6.9	0.8	0.5	9.9	silty CLAY to CLAY	115	1.5	7	5	4	-	-	0.5	9.9	80	3.29	15
0.82	234.3	375.8	375.8	234.3	1.4	0.8	0.6	clean SAND to silty SAND	125	5.0	75	47	59	95	48	-	-	5	1.34	16
0.98	174.5	279.9	279.9	174.6	1.9	1.2	1.1	clean SAND to silty SAND	125	5.0	56	35	48	95	48	-	-	5	1.62	16
1.15	124.9	200.3	242.3	124.9	2.5	0.2	2.0	clean SAND to silty SAND	125	5.0	40	25	38	90	48	-	-	11	1.92	16
1.31	94.3	151.2	227.4	94.3	2.8	1.1	2.9	silty SAND to sandy SILT	120	3.0	50	31	31	81	48	-	-	17	2.13	16
1.48	66.0	105.9	245.6	66.1	3.3	2.0	5.0	very stiff fine SOIL	120	1.0	100	66	25	-	-	2.3	9.9	26	2.40	30
1.64	75.6	121.2	243.0	75.6	3.3	1.7	4.3	very stiff fine SOIL	120	1.0	100	76	27	-	-	2.7	9.9	23	2.32	30
1.80	90.8	145.6	257.3	90.8	3.6	0.7	4.0	stiff SAND to clayy SAND	115	5.0	29	18	31	79	48	-	-	20	2.24	16
1.97	108.2	173.6	261.6	108.3	3.5	1.4	3.3	stiff SAND to clayy SAND	115	5.0	35	22	36	85	48	-	-	17	2.13	16
2.13	110.3	176.9	283.0	110.3	4.1	1.5	3.8	stiff SAND to clayy SAND	115	5.0	35	22	37	86	48	-	-	18	2.17	16
2.30	79.9	128.1	285.4	79.9	4.3	2.5	5.4	very stiff fine SOIL	120	1.0	100	80	29	-	-	2.8	9.9	26	2.38	30
2.46	69.7	111.8	280.4	69.8	4.1	2.8	5.9	very stiff fine SOIL	120	1.0	100	70	26	-	-	2.5	9.9	28	2.45	30
2.62	67.9	108.9	249.5	68.0	3.4	2.7	5.0	very stiff fine SOIL	120	1.0	100	68	25	-	-	2.4	9.9	26	2.39	30
2.79	65.2	104.5	214.1	65.2	2.6	1.6	4.0	very stiff fine SOIL	120	1.0	100	65	24	-	-	2.3	9.9	24	2.33	30
2.95	63.5	101.8	186.3	63.5	2.0	1.4	3.2	silty SAND to sandy SILT	120	3.0	34	21	22	68	47	-	-	21	2.26	16
3.12	62.7	100.6	147.8	62.7	1.2	1.5	2.0	silty SAND to sandy SILT	120	3.0	34	21	21	67	46	-	-	16	2.11	16
3.28	63.8	102.3	133.2	63.8	0.9	1.5	1.4	clean SAND to silty SAND	125	5.0	20	13	20	68	46	-	-	13	2.00	16
3.45	66.4	106.5	128.0	66.4	0.7	0.8	1.1	clean SAND to silty SAND	125	5.0	21	13	20	69	46	-	-	11	1.91	16
3.61	68.6	110.1	129.1	68.7	0.7	0.7	1.0	clean SAND to silty SAND	125	5.0	22	14	21	70	46	-	-	10	1.88	16
3.77	65.6	105.3	123.4	65.7	0.6	0.6	1.0	clean SAND to silty SAND	125	5.0	21	13	20	69	46	-	-	10	1.88	16
3.94	60.1	96.4	114.2	60.1	0.5	0.4	0.9	clean SAND to silty SAND	125	5.0	19	12	18	66	45	-	-	10	1.90	16
4.10	57.4	92.1	107.9	57.4	0.5	0.3	0.8	clean SAND to silty SAND	125	5.0	18	11	17	64	45	-	-	10	1.88	16
4.27	54.8	87.9	103.2	54.8	0.4	0.3	0.8	clean SAND to silty SAND	125	5.0	18	11	17	63	44	-	-	10	1.88	16
4.43	53.1	85.2	100.3	53.1	0.4	0.2	0.7	clean SAND to silty SAND	125	5.0	17	11	16	62	44	-	-	10	1.89	16
4.59	50.5	81.0	99.0	50.5	0.4	0.1	0.8	clean SAND to silty SAND	125	5.0	16	10	16	60	44	-	-	11	1.93	16
4.76	47.3	75.9	95.8	47.3	0.4	0.1	0.9	clean SAND to silty SAND	125	5.0	15	9	15	58	43	-	-	12	1.97	16
4.92	41.3	66.2	89.3	41.3	0.4	0.0	0.9	clean SAND to silty SAND	125	5.0	13	8	13	53	42	-	-	14	2.04	16
5.09	32.6	52.3	73.2	32.6	0.2	-0.1	0.7	clean SAND to silty SAND	125	5.0	10	7	11	46	41	-	-	15	2.07	16
5.25	27.4	44.0	67.1	27.4	0.2	-0.2	0.8	silty SAND to sandy SILT	120	3.0	15	9	9	40	40	-	-	17	2.14	16
5.41	26.0	41.8	64.4	26.0	0.2	-0.4	0.7	silty SAND to sandy SILT	120	3.0	14	9	9	38	39	-	-	17	2.15	16
5.58	26.3	42.2	63.7	26.3	0.2	-0.4	0.7	silty SAND to sandy SILT	120	3.0	14	9	9	39	39	-	-	17	2.13	16
5.74	26.4	42.3	65.6	26.4	0.2	-0.4	0.7	silty SAND to sandy SILT	120	3.0	14	9	9	39	39	-	-	17	2.15	16
5.91	26.1	41.9	65.9	26.1	0.2	-0.4	0.8	silty SAND to sandy SILT	120	3.0	14	9	9	38	39	-	-	18	2.16	16
6.07	26.7	42.7	66.0	26.7	0.2	-0.4	0.8	silty SAND to sandy SILT	120	3.0	14	9	9	39	39	-	-	17	2.15	16
6.23	27.1	42.8	65.4	27.1	0.2	-0.5	0.7	silty SAND to sandy SILT	120	3.0	14	9	9	39	39	-	-	17	2.14	16
6.40	28.1	43.9	65.8	28.1	0.2	-0.5	0.7	silty SAND to sandy SILT	120	3.0	15	9	9	40	39	-	-	17	2.12	16
6.56	27.9	43.0	65.9	27.8	0.2	-0.5	0.7	silty SAND to sandy SILT	120	3.0	14	9	9	39	39	-	-	17	2.14	16
6.73	29.0	44.2	66.8	29.0	0.2	-0.5	0.7	silty SAND to sandy SILT	120	3.0	15	10	9	40	39	-	-	17	2.13	16
6.89	30.3	45.5	67.1	30.2	0.2	-0.5	0.7	silty SAND to sandy SILT	120	3.0	15	10	9	41	39	-	-	16	2.11	16
7.05	30.6	45.5	68.3	30.6	0.2	-0.5	0.8	silty SAND to sandy SILT	120	3.0	15	10	9	41	39	-	-	17	2.12	16
7.22	31.4	46.3	78.7	31.4	0.4	-0.5	1.1	silty SAND to sandy SILT	120	3.0	15	10	10	42	39	-	-	19	2.21	16
7.38	33.4	48.6	83.0	33.4	0.4	-0.5	1.2	silty SAND to sandy SILT	120	3.0	16	11	10	43	39	-	-	20	2.22	16
7.55	34.9	50.2	84.7	34.9	0.4	-0.4	1.2	silty SAND to sandy SILT	120	3.0	17	12	11	44	39	-	-	19	2.21	16
7.71	34.1	48.6	83.5	34.1	0.4	-0.5	1.2	silty SAND to sandy SILT	120	3.0	16	11	10	43	39	-	-	20	2.22	16
7.87	32.3	45.5	80.8	32.3	0.4	-0.5	1.2	silty SAND to sandy SILT	120	3.0	15	11	10	41	38	-	-	20	2.24	16
8.04	31.8	44.3	83.4	31.8	0.4	-0.4	1.4	silty SAND to sandy SILT	120	3.0	15	11	10	40	38	-	-	22	2.28	16
8.20	30.1	41.6	92.5	30.1	0.5	-0.5	1.8	silty SAND to sandy SILT	120	3.0	14	10	10	38	38	-	-	26	2.38	16
8.37	31.4	43.0	97.1	31.4	0.6	-0.5	2.0	silty SAND to sandy SILT	120	3.0	14	10	10	39	38	-	-	26	2.39	16
8.53	30.1	40.7	100.6	30.1	0.7	-0.1	2.2	silty SAND to sandy SILT	120	3.0	14	10	10	37	38	-	-	28	2.44	16
8.69	29.9	40.0	102.0	29.8	0.7	-0.1	2.3	silty SAND to sandy SILT	120	3.0	13	10	10	37	37	-	-	29	2.45	16
8.86	30.5	40.6	103.5	30.5	0.7	-0.1	2.4	silty SAND to sandy SILT	120	3.0	14	10	10	37	37	-	-	29	2.46	16
9.02	30.9	40.7	115.3	30.9	0.9	-0.1	2.9	clayy SILT to silty CLAY	115	2.0	20	15	10	-	-	2.1	9.9	31	2.51	15
9.19	32.9	42.9	118.2	32.9	0.9	0.0	2.9	clayy SILT to silty CLAY	115	2.0	21	16	10	-	-	2.3	9.9	31	2.50	15
9.35	35.4	45.8	122.4	35.4	1.0	0.1	2.9	clayy SILT to silty CLAY	115	2.0	23	18	11	-	-	2.5	9.9	30	2.48	15
9.51	31.2	40.0	110.2	31.2	0.8	-0.2	2.7	clayy SILT to silty CLAY	115	2.0	20	16	10	-	-	2.2	9.9	31	2.50	15
9.68	36.9	47.0	96.8	36.9	0.7	-0.2	1.8	silty SAND to sandy SILT	120	3.0	16	12	11	42	38	-	-	24	2.33	16
9.84	35.4	44.7	100.5	35.4	0.7	-0.1	2.0	silty SAND to sandy SILT	120	3.0	15	12	10	40	38	-	-	26	2.38	16
10.01	34.3	43.0	115.8	34.3	0.9	0.0	2.8	clayy SILT to silty CLAY	115	2.0	21	17	10	-	-	2.4	9.9	30	2.49	15
10.17	35.7	44.4	131.7	35.7	1.2	0.0	3.4	clayy SILT to silty CLAY	115	2.0	22	18	11	-	-	2.5	9.9	32	2.54	15
10.34	35.5	43.8	143.4	35.5	1.4	0.0	4.1	clayy SILT to silty CLAY	115	2.0	22	18	11	-	-	2.5	9.9	35	2.59	15
10.50	33.6	45.7	-	33.6	1.6	0.0	5.0	clayy SILT to silty CLAY	115	2.0	23	17	12	-	-	2.3	9.9	37	2.64	15
10.66	36.4	44.2	132.3	36.4	1.2	0.2	3.5	clayy SILT to silty CLAY	115	2.0	22	18	11	-	-	2.5	9.9	33	2.54	15
10.83	43.2	52.1	136.2	43.2	1.4	0.2	3.2	clayy SILT to silty CLAY	115	2.0	26	22	12	-	-	3.0	9.9	29	2.47	15
10.99	34.3	41.1	127.5	34.3	1.2	-0.1	3.4	clayy SILT to silty CLAY	115	2.0	21	17	10	-	-	2.4	9.9	34	2.56	15
11.16	46.3	55.0	134.3	46.3	1.4	0.0	3.0	clayy SILT to silty CLAY	115	2.0	28	23	13	-	-	3.2	9.9	28	2.43	15
11.32	42.1	49.7	165.0	42.1	2.0	0.3	4.7	clayy SILT to silty CLAY	115	2.0	25	21	13	-	-	2.9	9.9	35	2.60	15
11.48	39.1	57.0	-	39.1	2.3	0.3	5.9	silty CLAY to CLAY	115	1.5	38	26	15	-	-	2.7	9.9	37	2.63	15
11.65	40.5	58.3	-	40.5	2.4	0.2	5.9	silty CLAY to CLAY	115	1.5	39	27	15	-	-	2.8	9.9	37	2.63	15
11.81	44.4	55.7	-	44.4	2.4	0.2	5.5	clayy SILT to silty CLAY	115	2.0	28	22	14	-	-	3.1	9.9	36	2.61	15
11.98	44.3	55.1	-	44.3	2.3	0.3	5.3	clayy SILT to silty CLAY	115	2.0	28	22	14	-	-	3.1	9.9	36	2.60	15
12.14	45.2	51.6	153.8	45.2	1.8	0.3	4.1	clayy SILT to silty CLAY	115	2.0	26	23	13	-	-	3.1	9.9	33	2.54	15
12.30	47.3	53.6	124.4	47.3	1.2	-0.2	2.7	silty SAND to sandy SILT	120	3.0	18	16	12	46	38	-	-	26	2.40	16
12.47	50.1	56.5	111.7	50.1	1.0	-0.2	2.1	silty SAND to sandy SILT	120	3.0	19	17	13	48	38	-	-	23	2.31	16
12.63	50.5	56.5	125.4	50.5	1.3	0.1	2.6	silty SAND to sandy SILT	120	3.0	19	17	13	48	38	-	-	25	2.38	16
12.80	48.9	54.4	143.5	48.9	1.7	0.3	3.4	clayy SILT to silty CLAY	115	2.0	27	24	13	-	-	3.4	9.9	30	2.47	15
12.96	41.3	48.6	161.0	41.3	1.9	0.1	4.6	clayy SILT to silty CLAY	115	2.0	24	21	12	-	-	2.9	9.9	35	2.60	15
13.12	36.3	46.4	-	36.3	1.9	0.2	5.3	silty CLAY to CLAY	115	1.5	31	24	12	-	-	2.5	9.9	38	2.66	15
13.29	35.9	45.3	-	35.9	1.9	0.2	5.3	silty CLAY to CLAY	115	1.5	30	24	12	-	-	2.5	9.9	39	2.66	15
13.45	35.3	44.1	-	35.3	1.9	0.2	5.5	silty CLAY to CLAY	115	1.5	29	24	12	-	-	2.4	9.9	40	2.69	15
13.62	36.5	45.0	-	36.5	2.0	0.2	5.5	silty CLAY to CLAY	115	1.5	30	24	12	-	-	2.5	9.9	39	2.68	15
13.78	38.3	46.7	-	38.3	2.1	0.2	5.7	silty CLAY to CLAY	115	1.5	31	26	12	-	-	2.6	9.9	39	2.68	15
13.94	39.0	47.0	-	39.0	2.3	0.2	6.0	silty CLAY to CLAY	115	1.5	31	26	13	-	-	2.7	9.9	40	2.69	15
14.11	39.3	46.9	-	39.3	2.3	0.5	6.0	silty CLAY to CLAY	115	1.5	31	26	13	-	-	2.7	9.9	40	2.69	15
14.27	43.0	50.7	-	43.0	2.4	0.6	5.7	silty CLAY to CLAY	115	1.5	34	29	13	-	-	3.0	9.9	38	2.65	15
14.44	45.6	53.2	-	45.6	2.3	0.5	5.2	clayy SILT to silty CLAY	115	2.0	27	23	14	-	-	3.2	9.9	36	2.61	15
14.60	42.7	49.3	-	42.7	2.4	-0.2	5.8	silty CLAY to CLAY	115	1.5	33	28	13	-	-	3.0	9.9	39	2.67	15
14.76	45.4	48.9	159.5	45.3	2.0	-0.4	4.5	clayy SILT to silty CLAY	115	2.0	24	23	12	-	-	3.1	9.9	35	2.59	15
14.93	49.1	55.4	-	49.1	2.6	0.0	5.4	clayy SILT to silty CLAY	115	2.0	28	25	14	-	-	3.4	9.9	36	2.61	15
15.09	39.4	44.0	-	39.4	2.9	0.1	7.6	silty CLAY to CLAY	115	1.5	29	26	12	-	-	2.7	9.9	45	2.79	15
15.26	44.7	49.4	-	44.7	3.2	-0.4	7.4	silty CLAY to CLAY	115	1.5	33	30	14	-	-	3.1	9.9	43	2.75	15
15.42	50.2	54.9	-	50.2	3.2	-0.2	6.6	silty CLAY to CLAY	115	1.5	37	33	15	-	-	3.5	9.9	39	2.68	15

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

Middle Earth Geo Testing

Project ID: Cornerstone Earth Group
Data File: SDF(713).cpt
CPT Date: 4/26/2018 10:21:04 AM
GW During Test: 16 ft

Sounding ID: CPT-03
Project No: 400-3-1
Cone/Rig: DDG1379

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	Ic SBT Indx	Nk -
15.58	51.7	56.0	-	51.7	3.2	0.1	6.3	silty CLAY to CLAY	115	1.5	37	34	15	-	-	3.6	9.9	38	2.66	15
15.75	53.0	56.9	-	53.0	3.4	-0.1	6.6	silty CLAY to CLAY	115	1.5	38	35	15	-	-	3.7	9.9	39	2.67	15
15.91	56.8	60.3	-	56.8	3.8	-0.2	6.8	silty CLAY to CLAY	115	1.5	40	38	16	-	-	3.9	9.9	39	2.66	15
16.08	58.8	62.1	-	58.8	4.1	-0.3	7.1	very stiff fine SOIL	120	1.0	62	59	16	-	-	2.0	9.9	39	2.67	30
16.24	60.2	63.2	-	60.2	4.4	-0.2	7.5	very stiff fine SOIL	120	1.0	63	60	17	-	-	2.1	9.9	39	2.68	30
16.40	60.3	63.0	-	60.3	4.6	-0.1	7.8	very stiff fine SOIL	120	1.0	63	60	17	-	-	2.1	9.9	40	2.70	30
16.57	55.9	58.2	-	55.9	4.6	0.1	8.3	silty CLAY to CLAY	115	1.5	39	37	16	-	-	3.9	9.9	43	2.74	15
16.73	50.8	52.6	-	50.8	4.3	0.2	8.6	silty CLAY to CLAY	115	1.5	35	34	15	-	-	3.5	9.9	45	2.78	15
16.90	48.1	49.6	-	48.1	3.9	0.6	8.3	silty CLAY to CLAY	115	1.5	33	32	14	-	-	3.3	9.9	45	2.79	15
17.06	47.0	48.3	-	47.0	3.5	0.8	7.7	silty CLAY to CLAY	115	1.5	32	31	13	-	-	3.3	9.9	44	2.77	15
17.23	46.5	47.5	-	46.5	3.3	1.2	7.3	silty CLAY to CLAY	115	1.5	32	31	13	-	-	3.2	9.9	43	2.76	15
17.39	46.6	47.5	-	46.6	3.2	1.3	7.1	silty CLAY to CLAY	115	1.5	32	31	13	-	-	3.2	9.9	43	2.75	15
17.55	46.6	47.3	-	46.7	3.5	1.5	7.6	silty CLAY to CLAY	115	1.5	32	31	13	-	-	3.2	9.9	44	2.77	15
17.72	47.1	47.5	-	47.1	3.6	1.7	7.9	silty CLAY to CLAY	115	1.5	32	31	13	-	-	3.3	9.9	45	2.78	15
17.88	46.2	46.5	-	46.3	3.6	1.6	8.0	silty CLAY to CLAY	115	1.5	31	31	13	-	-	3.2	9.9	46	2.79	15
18.05	45.9	45.9	-	46.0	3.7	1.5	8.3	silty CLAY to CLAY	115	1.5	31	31	13	-	-	3.2	9.9	46	2.81	15
18.21	44.1	43.9	-	44.1	3.5	0.7	8.1	silty CLAY to CLAY	115	1.5	29	29	13	-	-	3.0	9.9	47	2.81	15
18.37	43.2	42.8	-	43.2	3.3	1.2	7.9	silty CLAY to CLAY	115	1.5	29	29	12	-	-	3.0	9.9	47	2.81	15
18.54	44.3	43.7	-	44.3	3.5	0.8	8.1	silty CLAY to CLAY	115	1.5	29	30	12	-	-	3.1	9.9	47	2.81	15
18.70	44.4	43.7	-	44.4	3.6	0.3	8.2	silty CLAY to CLAY	115	1.5	29	30	13	-	-	3.1	9.9	47	2.82	15
18.87	41.9	41.0	-	41.9	3.4	0.2	8.4	silty CLAY to CLAY	115	1.5	27	28	12	-	-	2.9	9.9	49	2.84	15
19.03	42.9	41.8	-	42.9	3.4	0.3	8.1	silty CLAY to CLAY	115	1.5	28	29	12	-	-	3.0	9.9	48	2.83	15
19.19	42.3	41.1	-	42.3	3.4	0.2	8.1	silty CLAY to CLAY	115	1.5	27	28	12	-	-	2.9	9.9	48	2.83	15
19.36	40.7	39.4	-	40.8	3.3	0.2	8.4	silty CLAY to CLAY	115	1.5	26	27	12	-	-	2.8	9.9	49	2.86	15
19.52	41.3	39.8	-	41.3	3.1	0.3	7.6	silty CLAY to CLAY	115	1.5	27	28	11	-	-	2.8	9.9	47	2.82	15
19.69	37.4	35.9	-	37.4	3.0	0.1	8.3	silty CLAY to CLAY	115	1.5	24	25	11	-	-	2.6	9.9	51	2.88	15
19.85	36.0	34.4	-	36.0	2.8	0.3	8.0	silty CLAY to CLAY	115	1.5	23	24	10	-	-	2.5	9.9	51	2.88	15
20.01	43.2	41.1	-	43.2	2.8	0.3	6.6	silty CLAY to CLAY	115	1.5	27	29	11	-	-	3.0	9.9	44	2.77	15
20.18	42.6	40.3	-	42.6	3.0	0.1	7.3	silty CLAY to CLAY	115	1.5	27	28	11	-	-	2.9	9.9	46	2.81	15
20.34	43.7	41.2	-	43.7	3.0	0.0	7.1	silty CLAY to CLAY	115	1.5	27	29	12	-	-	3.0	9.9	45	2.79	15
20.51	44.9	42.2	-	44.9	2.9	-0.2	6.5	silty CLAY to CLAY	115	1.5	28	30	12	-	-	3.1	9.9	43	2.75	15
20.67	41.3	38.7	-	41.3	2.7	-0.3	6.8	silty CLAY to CLAY	115	1.5	26	28	11	-	-	2.8	9.9	46	2.79	15
20.83	39.7	37.0	-	39.7	2.6	-0.3	6.8	silty CLAY to CLAY	115	1.5	25	26	11	-	-	2.7	9.9	46	2.81	15
21.00	41.7	38.7	-	41.6	2.5	-0.4	6.2	silty CLAY to CLAY	115	1.5	26	28	11	-	-	2.9	9.9	44	2.77	15
21.16	34.4	31.8	-	34.4	2.5	-0.3	7.6	silty CLAY to CLAY	115	1.5	21	23	10	-	-	2.4	9.9	51	2.89	15
21.33	30.6	28.2	-	30.6	2.5	-0.4	8.5	silty CLAY to CLAY	115	1.5	19	20	9	-	-	2.1	8.9	56	2.96	15
21.49	28.2	25.9	-	28.2	2.3	-0.4	8.5	silty CLAY to CLAY	115	1.5	17	19	8	-	-	1.9	8.2	58	2.99	15
21.65	26.7	24.4	-	26.7	1.8	-0.3	7.1	silty CLAY to CLAY	115	1.5	16	18	8	-	-	1.8	7.7	55	2.95	15
21.82	24.9	22.7	-	24.9	1.8	-0.3	7.7	silty CLAY to CLAY	115	1.5	15	17	7	-	-	1.7	7.1	59	3.00	15
21.98	23.2	21.1	-	23.2	1.8	-0.7	8.1	silty CLAY to CLAY	115	1.5	14	15	7	-	-	1.6	6.6	61	3.04	15
22.15	21.1	19.1	-	21.1	1.7	-0.8	8.5	silty CLAY to CLAY	115	1.5	13	14	6	-	-	1.4	5.9	65	3.09	15
22.31	20.5	18.4	-	20.5	1.6	-0.7	8.2	silty CLAY to CLAY	115	1.5	12	14	6	-	-	1.4	5.7	65	3.09	15
22.47	20.9	18.7	-	20.9	1.5	-0.6	7.6	silty CLAY to CLAY	115	1.5	12	14	6	-	-	1.4	5.8	63	3.06	15
22.64	25.9	23.1	-	25.9	1.4	-0.7	5.8	silty CLAY to CLAY	115	1.5	15	17	7	-	-	1.8	7.2	52	2.91	15
22.80	26.4	23.4	-	26.4	1.4	-0.9	5.6	silty CLAY to CLAY	115	1.5	16	18	7	-	-	1.8	7.3	52	2.90	15
22.97	33.1	29.3	-	33.1	1.3	-0.6	4.1	clayy SILT to silty CLAY	115	2.0	15	17	8	-	-	2.3	9.3	42	2.73	15
23.13	58.8	53.7	97.9	58.8	0.9	-0.8	1.6	silty SAND to sandy SILT	120	3.0	18	20	12	46	37	-	-	21	2.26	16
23.30	90.7	82.5	98.8	90.7	0.7	-0.7	0.8	clean SAND to silty SAND	125	5.0	17	18	16	61	39	-	-	11	1.91	16
23.46	103.8	94.3	106.6	103.8	0.7	-0.4	0.7	clean SAND to silty SAND	125	5.0	19	21	17	65	40	-	-	9	1.83	16
23.62	108.7	98.5	110.4	108.6	0.7	-0.4	0.7	clean SAND to silty SAND	125	5.0	20	22	18	66	40	-	-	9	1.82	16
23.79	111.8	101.1	110.3	111.8	0.7	-0.1	0.6	clean SAND to silty SAND	125	5.0	20	22	18	67	40	-	-	8	1.78	16
23.95	95.9	86.6	100.4	95.9	0.6	-0.5	0.7	clean SAND to silty SAND	125	5.0	17	19	16	62	39	-	-	10	1.87	16
24.12	82.6	74.4	91.1	82.6	0.6	-0.4	0.7	clean SAND to silty SAND	125	5.0	15	17	14	57	39	-	-	11	1.94	16
24.28	64.8	58.2	84.4	64.8	0.6	-0.5	1.0	silty SAND to sandy SILT	120	3.0	19	22	12	49	37	-	-	16	2.10	16
24.44	52.5	47.0	100.3	52.4	1.0	-0.6	1.9	silty SAND to sandy SILT	120	3.0	16	17	11	42	36	-	-	25	2.35	16
24.61	41.8	37.4	98.6	41.8	0.9	-0.4	2.2	silty SAND to sandy SILT	120	3.0	12	14	9	35	34	-	-	29	2.47	16
24.77	55.4	49.4	80.6	55.4	0.6	0.4	1.1	silty SAND to sandy SILT	120	3.0	16	18	10	44	36	-	-	18	2.18	16
24.94	41.5	37.0	86.4	41.5	0.7	-0.2	1.7	silty SAND to sandy SILT	120	3.0	12	14	9	34	34	-	-	27	2.41	16
25.10	20.9	17.5	-	20.9	0.7	-0.4	3.8	silty CLAY to CLAY	115	1.5	12	14	5	-	-	1.4	5.4	51	2.89	15
25.26	11.6	9.7	-	11.5	0.6	-0.4	6.2	silty CLAY to CLAY	115	1.5	6	8	4	-	-	0.7	2.8	76	3.24	15
25.43	9.6	8.0	-	9.6	0.5	-0.3	6.2	silty CLAY to CLAY	115	1.5	5	6	3	-	-	0.6	2.2	83	3.32	15
25.59	10.5	8.7	-	10.5	0.5	0.5	5.6	silty CLAY to CLAY	115	1.5	6	7	3	-	-	0.7	2.5	78	3.26	15
25.76	8.8	7.3	-	8.8	0.5	1.2	6.9	silty CLAY to CLAY	115	1.5	5	6	3	-	-	0.5	2.0	89	3.39	15
25.92	8.4	6.9	-	8.5	0.5	1.9	6.8	silty CLAY to CLAY	115	1.5	5	6	3	-	-	0.5	1.9	90	3.40	15
26.08	7.7	6.4	-	7.8	0.4	2.0	6.7	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.5	1.7	93	3.44	15
26.25	8.1	6.7	-	8.2	0.4	2.1	6.3	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.5	1.8	90	3.40	15
26.41	8.4	6.8	-	8.5	0.4	2.4	6.4	silty CLAY to CLAY	115	1.5	5	6	3	-	-	0.5	1.8	89	3.40	15
26.58	8.3	6.8	-	8.4	0.5	2.5	7.1	silty CLAY to CLAY	115	1.5	5	6	3	-	-	0.5	1.8	92	3.43	15
26.74	7.8	6.3	-	7.8	0.5	2.6	7.3	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.5	1.7	95	3.46	15
26.90	7.5	6.0	-	7.5	0.4	2.7	7.5	Organic SOILS - Peats	100	1.0	6	7	3	-	-	0.7	1.6	95	3.49	10
27.07	7.8	6.3	-	7.9	0.5	2.7	7.4	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.5	1.7	95	3.47	15
27.23	8.0	6.4	-	8.1	0.5	2.8	7.2	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.5	1.7	94	3.45	15
27.40	7.7	6.2	-	7.8	0.5	3.0	7.8	Organic SOILS - Peats	100	1.0	6	8	3	-	-	0.7	1.6	95	3.49	10
27.56	7.5	6.0	-	7.6	0.5	3.1	8.0	Organic SOILS - Peats	100	1.0	6	8	3	-	-	0.7	1.6	95	3.51	10
27.72	6.9	5.5	-	7.0	0.4	3.2	7.7	Organic SOILS - Peats	100	1.0	6	7	3	-	-	0.6	1.4	95	3.54	10
27.89	6.8	5.4	-	6.9	0.3	3.3	6.1	silty CLAY to CLAY	115	1.5	4	5	2	-	-	0.4	1.4	95	3.49	15
28.05	6.8	5.3	-	6.8	0.3	3.5	6.4	silty CLAY to CLAY	115	1.5	4	5	2	-	-	0.4	1.3	95	3.51	15
28.22	7.0	5.5	-	7.0	0.3	4.0	6.5	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.4	1.4	95	3.50	15
28.38	7.0	5.5	-	7.1	0.3	4.2	6.4	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.4	1.4	95	3.49	15
28.54	6.5	5.1	-	6.6	0.3	4.3	6.8	Organic SOILS - Peats	100	1.0	5	7	2	-	-	0.6	1.3	95	3.55	10
28.71	6.0	4.7	-	6.1	0.3	4.4	7.3	Organic SOILS - Peats	100	1.0	5	6	2	-	-	0.5	1.1	95	3.60	10
28.87	5.6	4.4	-	5.7	0.3	4.5	8.1	Organic SOILS - Peats	100	1.0	4	6	2	-	-	0.5	1.0	95	3.66	10
29.04	5.6	4.3	-	5.6	0.3	4.7	7.3	Organic SOILS - Peats	100	1.0	4	6	2	-	-	0.5	1.0	95	3.65	10
29.20	6.2	4.8	-	6.3	0.3	4.9	6.4	Organic SOILS - Peats	100	1.0	5	6	2	-	-	0.5	1.2	95	3.56	10
29.36	6.8	5.3	-	6.9	0.3	5.1	6.3	silty CLAY to CLAY	115	1.5	4	5	2	-	-	0.4	1.3	95	3.51	15
29.53	7.2	5.5	-	7.3	0.3	5.1	5.7	silty CLAY to CLAY	115	1.5	4	5	2	-	-	0.4	1.4	95	3.47	15
29.69	7.5	5.7	-	7.6	0.3	5.2	6.0	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.4	1.5	95	3.46	15
29.86	8.1	6.2	-	8.2	0.3	5.4	5.5	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.5	1.6	90	3.40	15
30.02	8.1	6.2	-	8.2	0.3	5.6	5.5	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.5	1.6	90	3.41	15
30.19	7.6	5.8	-	7.7	0.3	5.8	5.6	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.4	1.5	93	3.44	15
30.35	6.9	5.2	-	7.0	0.3	6.2	5.8	silty CLAY to CLAY	115	1.5	3	5	2	-	-	0.4	1.3	95	3.49	15
30.51	7.6	5.7	-	7.7	0.3	6.5	4.9	silty CLAY to CLAY	115	1.5	4	5	2	-	-	0.4	1.4	91	3.42	15
30.68	7.3	5.5	-	7.4	0.3	6.5	4.8	silty CLAY to CLAY	115	1.5	4	5	2	-	-	0.4	1.4	92	3.43	15
30.84	7.0	5.3	-	7.2	0.3	6.7	5.8	silty CLAY to CLAY	115	1.5	4	5	2	-	-	0.4	1.3	95	3.49	15

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

1188 East 14th Street

Project ID: Cornerstone Earth Group
Data File: SDF(713).cpt
CPT Date: 4/26/2018 10:21:04 AM
GW During Test: 16 ft

Sounding ID: CPT-03
Project No: 400-3-1
Cone/Rig: DDG1379

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	Ic SBT Indx	Nk -
31.01	8.0	6.0	-	8.2	0.5	6.8	7.5	Organic SOILS - Peats	100	1.0	6	8	3	-	-	0.7	1.5	95	3.50	10
31.17	9.2	6.9	-	9.3	0.6	6.8	7.8	silty CLAY to CLAY	115	1.5	5	6	3	-	-	0.6	1.8	94	3.45	15
31.33	12.3	9.1	-	12.4	0.7	8.2	7.1	silty CLAY to CLAY	115	1.5	6	8	4	-	-	0.8	2.6	82	3.31	15
31.50	12.3	9.1	-	12.5	0.7	8.0	7.1	silty CLAY to CLAY	115	1.5	6	8	4	-	-	0.8	2.6	82	3.31	15
31.66	10.7	7.9	-	10.9	0.7	7.5	7.9	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.7	2.2	89	3.40	15
31.83	10.2	7.5	-	10.3	0.6	7.5	7.4	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	2.0	90	3.40	15
31.99	9.2	6.7	-	9.3	0.5	7.5	7.0	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.6	1.8	92	3.43	15
32.15	8.5	6.2	-	8.6	0.4	7.4	6.6	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.6	94	3.45	15
32.32	8.4	6.1	-	8.6	0.4	7.9	6.3	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.6	94	3.45	15
32.48	8.7	6.3	-	8.8	0.4	8.1	5.8	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.6	91	3.41	15
32.65	8.7	6.3	-	8.9	0.4	8.2	5.8	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.6	91	3.41	15
32.81	8.8	6.4	-	9.0	0.4	8.3	5.8	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.7	90	3.41	15
32.97	8.8	6.4	-	9.0	0.4	8.4	5.4	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.6	89	3.39	15
33.14	10.9	7.8	-	11.0	0.4	8.7	4.6	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.7	2.1	78	3.26	15
33.30	11.5	8.2	-	11.6	0.4	8.6	4.1	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	2.2	74	3.21	15
33.47	9.1	6.5	-	9.3	0.4	8.8	5.7	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.7	89	3.40	15
33.63	9.2	6.5	-	9.3	0.4	9.0	4.9	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.7	86	3.36	15
33.79	9.3	6.6	-	9.5	0.4	9.0	5.1	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.6	1.7	86	3.36	15
33.96	9.4	6.6	-	9.5	0.4	9.0	5.6	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.6	1.7	88	3.38	15
34.12	9.4	6.6	-	9.6	0.4	9.1	5.4	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.6	1.7	87	3.37	15
34.29	9.7	6.8	-	9.9	0.4	9.3	5.1	silty CLAY to CLAY	115	1.5	5	6	3	-	-	0.6	1.8	85	3.35	15
34.45	9.6	6.7	-	9.7	0.4	9.5	5.4	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.6	1.7	87	3.37	15
34.61	9.4	6.6	-	9.6	0.4	9.9	5.2	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.6	1.7	87	3.37	15
34.78	9.0	6.3	-	9.2	0.4	10.1	5.2	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.6	88	3.39	15
34.94	10.0	6.9	-	10.2	0.3	10.5	4.4	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	1.8	81	3.30	15
35.11	13.1	9.1	-	13.3	0.4	10.8	3.5	silty CLAY to CLAY	115	1.5	6	9	3	-	-	0.8	2.5	68	3.13	15
35.27	14.4	9.9	-	14.6	0.4	11.1	3.4	silty CLAY to CLAY	115	1.5	7	10	3	-	-	0.9	2.8	64	3.08	15
35.43	17.0	11.7	-	17.2	0.5	11.8	3.4	silty CLAY to CLAY	115	1.5	8	11	4	-	-	1.1	3.4	60	3.02	15
35.60	20.9	14.3	-	21.1	0.7	12.4	3.9	silty CLAY to CLAY	115	1.5	10	14	5	-	-	1.4	4.3	57	2.98	15
35.76	22.9	15.7	-	23.2	1.0	12.9	4.9	silty CLAY to CLAY	115	1.5	10	15	5	-	-	1.5	4.7	59	3.00	15
35.93	24.0	16.4	-	24.3	1.2	13.1	5.3	silty CLAY to CLAY	115	1.5	11	16	5	-	-	1.6	4.9	59	3.01	15
36.09	24.4	16.6	-	24.6	1.2	13.2	5.4	silty CLAY to CLAY	115	1.5	11	16	5	-	-	1.6	5.0	59	3.01	15
36.26	25.3	17.2	-	25.6	1.2	13.5	5.1	silty CLAY to CLAY	115	1.5	11	17	5	-	-	1.7	5.2	57	2.98	15
36.42	25.3	17.1	-	25.5	1.2	13.6	5.2	silty CLAY to CLAY	115	1.5	11	17	5	-	-	1.7	5.2	58	2.99	15
36.58	24.8	16.7	-	25.1	1.2	13.8	5.1	silty CLAY to CLAY	115	1.5	11	17	5	-	-	1.6	5.0	58	2.99	15
36.75	24.4	16.4	-	24.7	1.1	14.1	5.1	silty CLAY to CLAY	115	1.5	11	16	5	-	-	1.6	4.9	58	3.00	15
36.91	24.6	16.5	-	24.9	1.1	14.2	4.9	silty CLAY to CLAY	115	1.5	11	16	5	-	-	1.6	5.0	58	2.99	15
37.08	25.2	16.9	-	25.5	1.2	14.3	5.3	silty CLAY to CLAY	115	1.5	11	17	5	-	-	1.7	5.1	58	3.00	15
37.24	25.6	17.1	-	25.9	1.4	14.4	5.9	silty CLAY to CLAY	115	1.5	11	17	6	-	-	1.7	5.2	60	3.02	15
37.40	25.7	17.1	-	26.0	1.4	14.4	5.8	silty CLAY to CLAY	115	1.5	11	17	6	-	-	1.7	5.2	60	3.02	15
37.57	25.8	17.1	-	26.1	1.3	14.5	5.7	silty CLAY to CLAY	115	1.5	11	17	5	-	-	1.7	5.2	59	3.01	15
37.73	27.5	18.2	-	27.8	1.4	14.8	5.5	silty CLAY to CLAY	115	1.5	12	18	6	-	-	1.8	5.5	57	2.98	15
37.90	29.7	19.6	-	30.0	1.5	15.1	5.4	silty CLAY to CLAY	115	1.5	13	20	6	-	-	2.0	6.0	55	2.95	15
38.06	29.4	19.3	-	29.7	1.5	15.2	5.6	silty CLAY to CLAY	115	1.5	13	20	6	-	-	2.0	5.9	56	2.96	15
38.22	29.0	19.0	-	29.3	1.4	15.3	5.4	silty CLAY to CLAY	115	1.5	13	19	6	-	-	1.9	5.8	56	2.96	15
38.39	25.4	16.6	-	25.7	1.3	15.3	5.5	silty CLAY to CLAY	115	1.5	11	17	5	-	-	1.7	5.0	60	3.02	15
38.55	21.4	13.9	-	21.7	1.1	15.1	5.5	silty CLAY to CLAY	115	1.5	9	14	5	-	-	1.4	4.1	64	3.08	15
38.72	17.6	11.5	-	17.9	0.9	15.1	6.1	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.1	3.3	72	3.18	15
38.88	14.5	9.4	-	14.8	0.9	14.5	7.0	silty CLAY to CLAY	115	1.5	6	10	4	-	-	0.9	2.6	81	3.30	15
39.04	13.1	8.5	-	13.4	0.7	14.4	6.7	silty CLAY to CLAY	115	1.5	6	9	3	-	-	0.8	2.3	83	3.33	15
39.21	12.4	8.0	-	12.7	0.6	14.3	6.0	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.8	2.2	83	3.32	15
39.37	12.6	8.1	-	12.9	0.5	14.5	5.3	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.8	2.2	80	3.29	15
39.54	13.1	8.4	-	13.4	0.5	14.6	4.9	silty CLAY to CLAY	115	1.5	6	9	3	-	-	0.8	2.3	77	3.25	15
39.70	12.5	8.0	-	12.8	0.5	14.5	5.4	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.8	2.2	80	3.29	15
39.86	12.7	8.1	-	13.0	0.6	14.4	6.0	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.8	2.2	82	3.32	15
40.03	13.8	8.8	-	14.1	0.8	13.8	7.0	silty CLAY to CLAY	115	1.5	6	9	4	-	-	0.9	2.4	83	3.33	15
40.19	13.8	8.8	-	14.1	0.9	12.2	7.7	silty CLAY to CLAY	115	1.5	6	9	4	-	-	0.9	2.4	86	3.35	15
40.36	13.5	8.5	-	13.7	0.9	12.6	8.0	silty CLAY to CLAY	115	1.5	6	9	4	-	-	0.8	2.3	87	3.37	15
40.52	13.9	8.8	-	14.1	0.8	12.6	7.4	silty CLAY to CLAY	115	1.5	6	9	4	-	-	0.9	2.4	84	3.34	15
40.68	13.1	8.2	-	13.3	0.8	12.6	7.1	silty CLAY to CLAY	115	1.5	5	9	3	-	-	0.8	2.2	86	3.36	15
40.85	11.7	7.3	-	11.9	0.7	12.7	7.3	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	1.9	91	3.41	15
41.01	11.0	6.9	-	11.2	0.4	12.8	5.0	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.7	1.8	85	3.34	15
41.18	9.6	6.0	-	9.8	0.4	12.7	6.0	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.6	1.5	95	3.46	15
41.34	10.8	6.7	-	11.1	0.5	13.6	5.9	silty CLAY to CLAY	115	1.5	4	7	3	-	-	0.7	1.7	89	3.40	15
41.50	11.5	7.2	-	11.8	0.5	13.6	5.9	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	1.9	87	3.37	15
41.67	11.2	7.0	-	11.5	0.5	13.3	5.8	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.7	1.8	88	3.38	15
41.83	10.2	6.3	-	10.5	0.5	12.6	6.5	silty CLAY to CLAY	115	1.5	4	7	3	-	-	0.6	1.6	94	3.45	15
42.00	9.6	5.9	-	9.9	0.5	12.0	6.6	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.6	1.5	95	3.48	15
42.16	9.2	5.7	-	9.5	0.4	12.1	6.5	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.4	95	3.50	15
42.32	8.6	5.3	-	8.8	0.4	11.9	6.6	Organic SOILS - Peats	100	1.0	5	9	3	-	-	0.7	1.2	95	3.54	10
42.49	8.2	5.0	-	8.5	0.4	12.0	6.6	Organic SOILS - Peats	100	1.0	5	8	2	-	-	0.7	1.2	95	3.56	10
42.65	8.8	5.3	-	9.0	0.3	12.0	5.5	silty CLAY to CLAY	115	1.5	4	6	2	-	-	0.5	1.3	95	3.49	15
42.82	9.3	5.7	-	9.6	0.4	12.4	5.4	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.4	95	3.46	15
42.98	11.1	6.7	-	11.4	0.5	12.8	5.9	silty CLAY to CLAY	115	1.5	4	7	3	-	-	0.7	1.7	90	3.40	15
43.15	12.6	7.6	-	12.8	0.5	13.0	5.4	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.8	2.0	83	3.32	15
43.31	12.4	7.5	-	12.7	0.6	13.6	5.6	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.8	2.0	84	3.34	15
43.47	14.0	8.4	-	14.3	0.6	13.8	5.6	silty CLAY to CLAY	115	1.5	6	9	3	-	-	0.9	2.3	80	3.28	15
43.64	15.7	9.4	-	15.9	0.8	13.8	6.0	silty CLAY to CLAY	115	1.5	6	10	4	-	-	1.0	2.6	78	3.26	15
43.80	15.9	9.5	-	16.2	0.8	13.9	6.1	silty CLAY to CLAY	115	1.5	6	11	4	-	-	1.0	2.6	78	3.26	15
43.97	14.0	8.4	-	14.2	0.7	13.7	6.2	silty CLAY to CLAY	115	1.5	6	9	3	-	-	0.9	2.3	83	3.32	15
44.13	13.2	7.9	-	13.5	0.5	14.0	4.5	silty CLAY to CLAY	115	1.5	5	9	3	-	-	0.8	2.1	78	3.26	15
44.29	12.1	7.2	-	12.4	0.5	14.1	5.4	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	1.9	85	3.35	15
44.46	13.4	8.0	-	13.7	0.6	16.4	5.9	silty CLAY to CLAY	115	1.5	5	9	3	-	-	0.8	2.1	83	3.33	15
44.62	12.6	7.5	-	13.0	0.6	16.3	6.2	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.8	2.0	86	3.36	15
44.79	11.9	7.0	-	12.2	0.6	16.4	5.9	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	1.8	88	3.38	15
44.95	12.5	7.3	-	12.8	0.5	16.6	4.8	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.8	1.9	82	3.31	15
45.11	12.7	7.5	-	13.0	0.5	16.9	5.1	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.8	2.0	82	3.31	15
45.28	12.9	7.5	-	13.2	0.5	17.3	4.9	silty CLAY to CLAY	115	1.5	5	9	3	-	-	0.8	2.0	81	3.30	15
45.44	12.5	7.3	-	12.8	0.5	17.3	5.2	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.8	1.9	84	3.33	15
45.61	12.2	7.1	-	12.5	0.5	17.5	4.7	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	1.8	83	3.32	15
45.77	11.3	6.6	-	11.7	0.4	18.0	4.4	silty CLAY to CLAY	115	1.5	4	8	3	-	-	0.7	1.7	84	3.34	15
45.93	11.7	6.8	-	12.0	0.3	18.0	3.6	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	1.7	79	3.28	15
46.10	12.8	7.4	-	13.2	0.3	18.1	3.2	silty CLAY to CLAY	115	1.5	5	9	3	-	-	0.8	1.9	73	3.21	15
46.26	11.9	6.9	-	12.3	0.3	18.2	3.1	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	1.8	76	3.23	15

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

Project ID: Cornerstone Earth Group
Data File: SDF(713).cpt
CPT Date: 4/26/2018 10:21:04 AM
GW During Test: 16 ft

Sounding ID: CPT-03
Project No: 400-3-1
Cone/Rig: DDG1379

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	Ic SBT Indx	Nk -
46.43	10.8	6.2	-	11.2	0.2	18.6	2.8	silty CLAY to CLAY	115	1.5	4	7	2	-	-	0.6	1.5	78	3.26	15
46.59	9.8	5.6	-	10.1	0.2	18.9	3.0	silty CLAY to CLAY	115	1.5	4	7	2	-	-	0.6	1.3	83	3.33	15
46.75	9.3	5.3	-	9.7	0.2	19.2	2.6	silty CLAY to CLAY	115	1.5	4	6	2	-	-	0.5	1.2	83	3.33	15
46.92	8.4	4.8	-	8.8	0.2	19.6	3.2	silty CLAY to CLAY	115	1.5	3	6	2	-	-	0.5	1.1	92	3.43	15
47.08	9.1	5.2	-	9.5	0.3	20.0	3.9	silty CLAY to CLAY	115	1.5	3	6	2	-	-	0.5	1.2	92	3.43	15
47.25	11.8	6.7	-	12.2	0.3	20.4	3.3	silty CLAY to CLAY	115	1.5	4	8	3	-	-	0.7	1.7	78	3.26	15
47.41	12.6	7.1	-	13.0	0.4	21.7	3.6	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.8	1.8	77	3.26	15
47.57	20.8	11.8	-	21.3	1.0	23.7	5.3	silty CLAY to CLAY	115	1.5	8	14	4	-	-	1.3	3.4	68	3.14	15
47.74	21.3	12.0	-	21.8	1.1	25.2	5.7	silty CLAY to CLAY	115	1.5	8	14	4	-	-	1.4	3.5	69	3.15	15
47.90	28.8	16.2	-	29.3	0.8	28.1	3.2	silty CLAY to CLAY	115	1.5	11	19	5	-	-	1.9	4.8	51	2.88	15
48.07	25.1	14.1	-	25.7	0.7	30.8	3.2	silty CLAY to CLAY	115	1.5	9	17	4	-	-	1.6	4.1	54	2.94	15
48.23	25.5	14.3	-	26.1	0.7	33.0	3.0	silty CLAY to CLAY	115	1.5	10	17	4	-	-	1.7	4.2	53	2.91	15
48.39	27.2	15.2	-	27.8	0.9	34.5	3.9	silty CLAY to CLAY	115	1.5	10	18	5	-	-	1.8	4.5	55	2.95	15
48.56	29.2	16.3	-	29.9	1.2	35.5	4.4	silty CLAY to CLAY	115	1.5	11	19	5	-	-	1.9	4.8	56	2.96	15
48.72	31.7	17.6	-	32.4	1.4	35.9	4.7	silty CLAY to CLAY	115	1.5	12	21	5	-	-	2.1	5.3	55	2.95	15
48.89	32.9	18.3	-	33.7	1.5	37.1	5.1	silty CLAY to CLAY	115	1.5	12	22	6	-	-	2.2	5.5	56	2.96	15
49.05	39.3	21.7	-	40.0	1.7	36.1	4.7	silty CLAY to CLAY	115	1.5	14	26	6	-	-	2.6	6.7	50	2.88	15
49.22	30.9	17.0	-	31.6	1.7	37.3	6.2	silty CLAY to CLAY	115	1.5	11	21	6	-	-	2.1	5.1	61	3.04	15
49.38	27.4	15.1	-	28.2	1.3	37.2	5.5	silty CLAY to CLAY	115	1.5	10	18	5	-	-	1.8	4.5	62	3.05	15
49.54	25.1	13.8	-	25.9	1.2	37.6	5.2	silty CLAY to CLAY	115	1.5	9	17	5	-	-	1.6	4.0	64	3.07	15
49.71	22.3	12.2	-	23.0	1.1	37.0	5.9	silty CLAY to CLAY	115	1.5	8	15	4	-	-	1.4	3.5	69	3.15	15
49.87	21.1	11.5	-	21.8	1.1	38.0	5.9	silty CLAY to CLAY	115	1.5	8	14	4	-	-	1.4	3.3	71	3.17	15
50.04	22.7	12.4	-	23.4	0.9	38.7	4.5	silty CLAY to CLAY	115	1.5	8	15	4	-	-	1.5	3.6	63	3.07	15
50.20	23.3	12.7	-	24.1	0.9	39.6	4.6	silty CLAY to CLAY	115	1.5	8	16	4	-	-	1.5	3.7	63	3.07	15
50.36	25.1	13.6	-	26.0	1.0	42.3	4.7	silty CLAY to CLAY	115	1.5	9	17	4	-	-	1.6	4.0	62	3.04	15

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

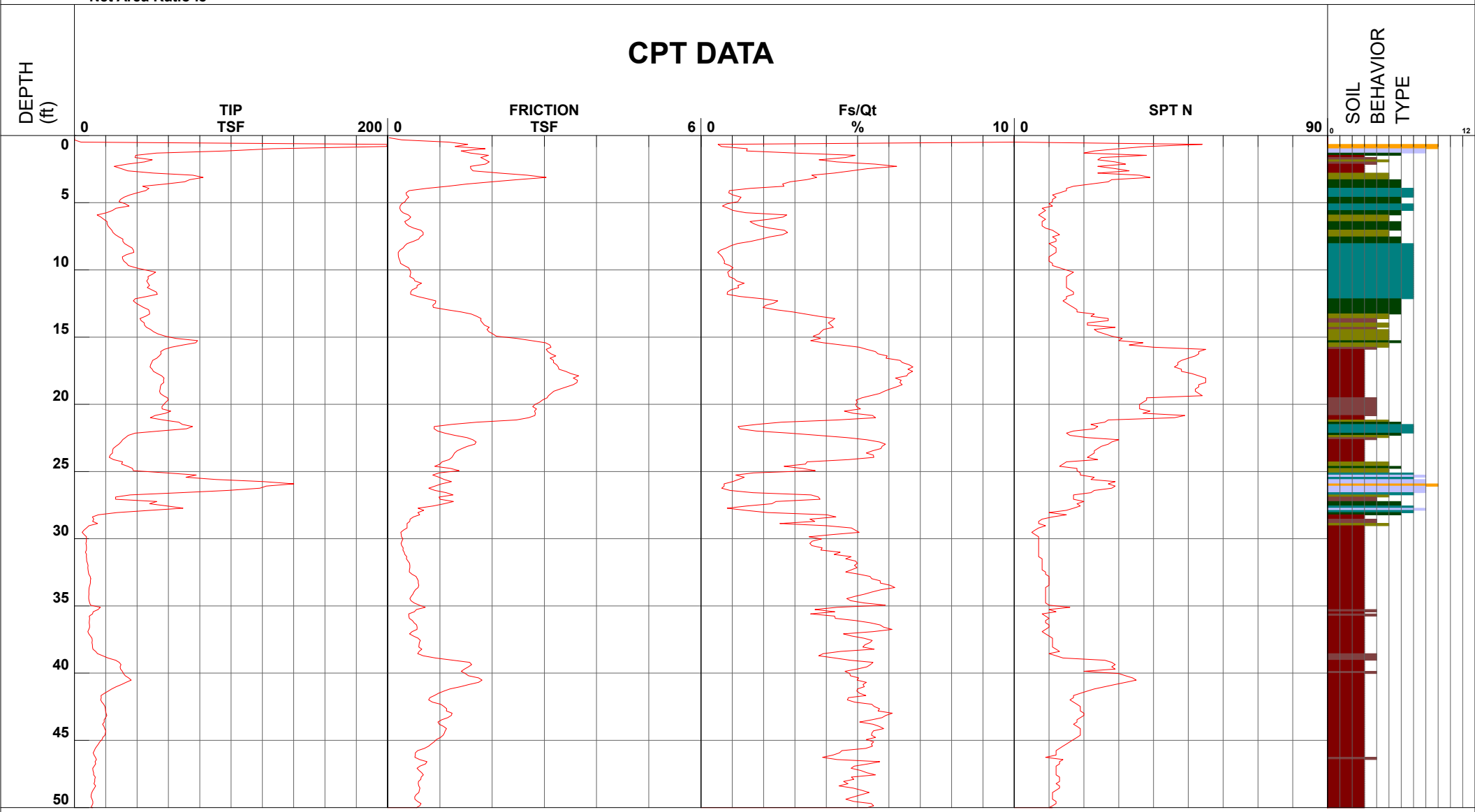
Middle Earth Geo Testing

Cornerstone Earth Group

Project	1188 East 14th Street	Operator	RC AS	Filename	SDF(711).cpt
Job Number	400-3-1	Cone Number	DDG1379	GPS	
Hole Number	CPT-04	Date and Time	4/26/2018 7:38:51 AM	Maximum Depth	50.52 ft
EST GW Depth During Test		16.00 ft			

Net Area Ratio .8

CPT DATA



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

Cone Size 10cm squared

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

1188 East 14th Street

Project ID: Cornerstone Earth Group
Data File: SDF(711).cpt
CPT Date: 4/26/2018 7:38:51 AM
GW During Test: 16 ft

Sounding ID: CPT-04
Project No: 400-3-1
Cone/Rig: DDG1379

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	Ic SBT -	Nk Indx -
0.33	1.1	0.0	-	1.1	0.3	0.2	9.9	Organic SOILS - Peats	100	1.0	0	1	1	-	-	0.1	9.9	95	5.95	10
0.49	4.2	6.7	-	4.2	1.2	2.7	9.9	Organic SOILS - Peats	100	1.0	7	4	3	-	-	0.4	9.9	94	3.45	10
0.66	281.9	452.1	452.1	281.9	1.5	1.2	0.5	grvly SAND to dense SAND	130	6.0	75	47	69	95	48	-	-	5	1.26	16
0.82	199.2	319.5	319.5	199.2	1.3	1.6	0.6	clean SAND to silty SAND	125	5.0	64	40	51	95	48	-	-	5	1.41	16
0.98	126.5	202.8	226.2	126.5	1.9	4.0	1.5	clean SAND to silty SAND	125	5.0	41	25	37	90	48	-	-	8	1.81	16
1.15	96.9	155.4	182.3	96.9	1.4	0.2	1.5	clean SAND to silty SAND	125	5.0	31	19	29	82	48	-	-	10	1.88	16
1.31	52.5	84.2	163.5	52.6	1.6	3.9	3.0	silty SAND to sandy SILT	120	3.0	28	18	19	61	48	-	-	22	2.30	16
1.48	39.2	62.8	187.7	39.2	1.9	2.6	4.9	clayy SILT to silty CLAY	115	2.0	31	20	16	-	-	2.8	9.9	33	2.54	15
1.64	38.7	62.0	179.4	38.7	1.8	2.8	4.6	clayy SILT to silty CLAY	115	2.0	31	19	15	-	-	2.7	9.9	32	2.52	15
1.80	49.7	79.7	179.8	49.9	1.9	11.2	3.8	clayy SILT to silty CLAY	115	2.0	40	25	18	-	-	3.5	9.9	26	2.39	15
1.97	44.8	71.9	185.7	44.8	1.9	-0.4	4.3	clayy SILT to silty CLAY	115	2.0	36	22	17	-	-	3.2	9.9	29	2.46	15
2.13	33.7	54.0	-	33.6	1.9	-1.8	5.6	clayy SILT to silty CLAY	115	2.0	27	17	14	-	-	2.4	9.9	37	2.63	15
2.30	25.4	40.7	-	25.3	1.6	-1.4	6.3	silty CLAY to CLAY	115	1.5	27	17	11	-	-	1.8	9.9	43	2.75	15
2.46	29.9	47.9	-	29.9	1.6	-0.9	5.4	silty CLAY to CLAY	115	1.5	32	20	13	-	-	2.1	9.9	38	2.65	15
2.62	34.1	54.6	173.5	34.0	1.6	-2.5	4.8	clayy SILT to silty CLAY	115	2.0	27	17	14	-	-	2.4	9.9	34	2.57	15
2.79	50.3	80.7	194.3	50.3	2.1	1.2	4.3	clayy SILT to silty CLAY	115	2.0	40	25	19	-	-	3.5	9.9	27	2.42	15
2.95	75.5	121.2	217.4	75.6	2.7	2.3	3.5	silty SAND to sandy SILT	120	3.0	40	25	26	73	48	-	-	21	2.25	16
3.12	82.2	131.9	233.9	82.2	3.0	0.7	3.7	stiff SAND to clayy SAND	115	5.0	26	16	29	76	48	-	-	20	2.24	16
3.28	73.6	118.0	208.9	73.6	2.5	-0.2	3.4	silty SAND to sandy SILT	120	3.0	39	25	26	72	47	-	-	20	2.24	16
3.45	70.4	112.9	186.9	70.3	2.0	-1.5	2.9	silty SAND to sandy SILT	120	3.0	38	23	24	71	47	-	-	19	2.20	16
3.61	58.2	93.3	160.7	58.2	1.5	-2.0	2.6	silty SAND to sandy SILT	120	3.0	31	19	20	65	46	-	-	20	2.22	16
3.77	43.6	69.9	139.5	43.6	1.2	0.0	2.7	silty SAND to sandy SILT	120	3.0	23	15	16	55	44	-	-	23	2.31	16
3.94	47.6	76.3	115.4	47.6	0.7	0.4	1.6	silty SAND to sandy SILT	120	3.0	25	16	16	58	44	-	-	17	2.13	16
4.10	45.6	73.1	94.4	45.6	0.4	0.6	0.9	clean SAND to silty SAND	125	5.0	15	9	14	57	44	-	-	13	1.99	16
4.27	40.0	64.1	86.5	40.0	0.4	0.6	0.9	clean SAND to silty SAND	125	5.0	13	8	13	52	43	-	-	14	2.04	16
4.43	35.3	56.7	84.1	35.3	0.4	0.3	1.0	silty SAND to sandy SILT	120	3.0	19	12	12	48	42	-	-	16	2.12	16
4.59	31.7	50.8	86.3	31.7	0.4	0.3	1.3	silty SAND to sandy SILT	120	3.0	17	11	11	45	41	-	-	19	2.21	16
4.76	29.4	47.1	81.8	29.4	0.4	0.2	1.2	silty SAND to sandy SILT	120	3.0	16	10	10	42	41	-	-	20	2.23	16
4.92	28.5	45.7	79.5	28.5	0.3	0.2	1.2	silty SAND to sandy SILT	120	3.0	15	9	10	41	40	-	-	20	2.23	16
5.09	32.5	52.1	75.4	32.5	0.3	-0.3	0.8	silty SAND to sandy SILT	120	3.0	17	11	11	45	41	-	-	16	2.10	16
5.25	34.9	55.9	74.7	34.9	0.2	-0.4	0.7	clean SAND to silty SAND	125	5.0	11	7	11	48	41	-	-	14	2.03	16
5.41	26.6	42.7	69.3	26.6	0.2	-0.4	0.9	silty SAND to sandy SILT	120	3.0	14	9	9	39	40	-	-	18	2.18	16
5.58	24.2	38.9	70.6	24.2	0.2	-0.5	1.0	silty SAND to sandy SILT	120	3.0	13	8	8	36	39	-	-	21	2.26	16
5.74	20.6	33.0	75.9	20.5	0.3	-0.5	1.5	silty SAND to sandy SILT	120	3.0	11	7	8	30	38	-	-	26	2.40	16
5.91	14.5	23.3	-	14.5	0.4	-0.6	2.8	clayy SILT to silty CLAY	115	2.0	12	7	6	-	-	1.0	9.9	40	2.69	15
6.07	16.9	27.1	-	16.9	0.4	-0.7	2.7	clayy SILT to silty CLAY	115	2.0	14	8	7	-	-	1.2	9.9	37	2.63	15
6.23	18.8	30.1	89.4	18.7	0.4	-1.0	2.2	clayy SILT to silty CLAY	115	2.0	15	9	7	-	-	1.3	9.9	32	2.54	15
6.40	20.8	33.0	79.2	20.8	0.3	-0.8	1.6	silty SAND to sandy SILT	120	3.0	11	7	8	30	37	-	-	27	2.42	16
6.56	20.8	32.6	81.6	20.8	0.4	-0.6	1.7	silty SAND to sandy SILT	120	3.0	11	7	8	30	37	-	-	28	2.44	16
6.73	21.5	33.1	86.2	21.5	0.4	-0.7	1.9	silty SAND to sandy SILT	120	3.0	11	7	8	31	37	-	-	29	2.47	16
6.89	22.7	34.6	94.8	22.7	0.5	-0.7	2.2	clayy SILT to silty CLAY	115	2.0	17	11	8	-	-	1.6	9.9	30	2.49	15
7.05	23.9	36.0	106.2	23.9	0.6	-0.9	2.7	clayy SILT to silty CLAY	115	2.0	18	12	9	-	-	1.7	9.9	32	2.53	15
7.22	24.6	36.6	109.0	24.6	0.7	-1.3	2.8	clayy SILT to silty CLAY	115	2.0	18	12	9	-	-	1.7	9.9	32	2.54	15
7.38	26.2	38.6	107.6	26.2	0.7	-1.1	2.6	clayy SILT to silty CLAY	115	2.0	19	13	9	-	-	1.8	9.9	31	2.50	15
7.55	28.3	41.2	101.4	28.3	0.6	-0.9	2.2	silty SAND to sandy SILT	120	3.0	14	9	10	38	38	-	-	28	2.43	16
7.71	31.0	44.7	97.9	31.0	0.6	-0.7	1.9	silty SAND to sandy SILT	120	3.0	15	10	10	40	38	-	-	25	2.37	16
7.87	30.9	44.1	89.5	30.9	0.5	-0.9	1.6	silty SAND to sandy SILT	120	3.0	15	10	10	40	38	-	-	23	2.32	16
8.04	32.1	45.3	79.3	32.1	0.4	-0.9	1.2	silty SAND to sandy SILT	120	3.0	15	11	10	41	38	-	-	20	2.23	16
8.20	34.3	47.9	75.8	34.2	0.3	-0.8	1.0	silty SAND to sandy SILT	120	3.0	16	11	10	43	39	-	-	18	2.16	16
8.37	36.7	50.8	74.2	36.7	0.3	-0.8	0.8	silty SAND to sandy SILT	120	3.0	17	12	10	45	39	-	-	16	2.10	16
8.53	37.7	51.6	69.8	37.7	0.2	-0.7	0.6	clean SAND to silty SAND	125	5.0	10	8	10	45	39	-	-	14	2.04	16
8.69	37.9	51.4	67.3	37.9	0.2	-0.7	0.5	clean SAND to silty SAND	125	5.0	10	8	10	45	39	-	-	13	2.01	16
8.86	33.3	44.7	64.2	33.3	0.2	-0.6	0.6	silty SAND to sandy SILT	120	3.0	15	11	9	40	38	-	-	15	2.09	16
9.02	30.6	40.7	63.0	30.6	0.2	-0.7	0.7	silty SAND to sandy SILT	120	3.0	14	10	8	37	37	-	-	17	2.15	16
9.19	30.8	40.6	63.8	30.8	0.2	-0.7	0.7	silty SAND to sandy SILT	120	3.0	14	10	8	37	37	-	-	18	2.16	16
9.35	31.6	41.3	65.4	31.6	0.2	-0.8	0.8	silty SAND to sandy SILT	120	3.0	14	11	9	38	37	-	-	18	2.16	16
9.51	33.4	43.3	66.6	33.4	0.2	-0.7	0.8	silty SAND to sandy SILT	120	3.0	14	11	9	39	38	-	-	17	2.14	16
9.68	34.5	44.3	72.1	34.5	0.3	-0.7	0.9	silty SAND to sandy SILT	120	3.0	15	12	9	40	38	-	-	18	2.18	16
9.84	39.2	49.9	79.2	39.2	0.4	-0.7	1.0	silty SAND to sandy SILT	120	3.0	17	13	10	44	38	-	-	18	2.17	16
10.01	45.6	57.5	82.8	45.6	0.4	-0.6	0.9	silty SAND to sandy SILT	120	3.0	19	15	12	49	39	-	-	16	2.09	16
10.17	51.9	64.9	86.6	51.8	0.4	-0.6	0.9	clean SAND to silty SAND	125	5.0	13	10	13	53	40	-	-	14	2.02	16
10.34	49.6	61.5	84.5	49.6	0.4	-0.7	0.9	clean SAND to silty SAND	125	5.0	12	10	12	51	39	-	-	14	2.05	16
10.50	47.0	57.8	82.1	47.0	0.4	-0.7	0.9	silty SAND to sandy SILT	120	3.0	19	16	12	49	39	-	-	15	2.08	16
10.66	47.1	57.6	86.3	47.1	0.5	-0.7	1.1	silty SAND to sandy SILT	120	3.0	19	16	12	49	39	-	-	17	2.12	16
10.83	46.1	55.9	87.0	46.1	0.5	-0.6	1.2	silty SAND to sandy SILT	120	3.0	19	15	12	48	39	-	-	17	2.15	16
10.99	47.0	56.6	94.2	47.0	0.6	-0.6	1.4	silty SAND to sandy SILT	120	3.0	19	16	12	48	39	-	-	19	2.20	16
11.16	47.9	57.2	89.2	47.9	0.6	-0.6	1.2	silty SAND to sandy SILT	120	3.0	19	16	12	49	39	-	-	17	2.15	16
11.32	46.6	55.2	88.3	46.6	0.6	-0.6	1.2	silty SAND to sandy SILT	120	3.0	18	16	12	47	38	-	-	18	2.17	16
11.48	49.3	58.0	83.8	49.3	0.5	-0.6	1.0	silty SAND to sandy SILT	120	3.0	19	16	12	49	39	-	-	16	2.09	16
11.65	52.3	61.1	83.3	52.3	0.4	-0.5	0.9	clean SAND to silty SAND	125	5.0	12	10	12	51	39	-	-	14	2.04	16
11.81	52.9	61.4	83.2	52.9	0.4	-0.5	0.8	clean SAND to silty SAND	125	5.0	12	11	12	51	39	-	-	14	2.04	16
11.98	46.2	53.2	87.9	46.2	0.6	-0.5	1.3	silty SAND to sandy SILT	120	3.0	18	15	11	46	38	-	-	19	2.19	16
12.14	38.8	44.4	99.0	38.8	0.8	-0.5	2.0	silty SAND to sandy SILT	120	3.0	15	13	10	40	37	-	-	26	2.38	16
12.30	37.6	42.7	109.2	37.6	0.9	-0.2	2.5	silty SAND to sandy SILT	120	3.0	14	13	10	39	37	-	-	29	2.46	16
12.47	39.3	44.3	107.8	39.3	0.9	-0.5	2.4	silty SAND to sandy SILT	120	3.0	15	13	10	40	37	-	-	28	2.43	16
12.63	41.7	46.8	103.9	41.7	0.9	-0.6	2.1	silty SAND to sandy SILT	120	3.0	16	14	11	42	37	-	-	26	2.38	16
12.80	44.2	49.2	103.9	44.2	0.9	-0.5	2.0	silty SAND to sandy SILT	120	3.0	16	15	11	44	37	-	-	24	2.35	16
12.96	47.4	52.4	116.8	47.4	1.1	-0.3	2.4	silty SAND to sandy SILT	120	3.0	17	16	12	46	38	-	-	26	2.38	16
13.12	48.0	52.7	130.7	48.0	1.4	-0.3	3.0	clayy SILT to silty CLAY	115	2.0	26	24	12	-	-	3.3	9.9	28	2.44	15
13.29	48.0	52.5	140.1	48.0	1.6	-0.7	3.4	clayy SILT to silty CLAY	115	2.0	26	24	13	-	-	3.3	9.9	30	2.48	15
13.45	45.4	49.3	146.0	45.4	1.7	-0.5	3.8	clayy SILT to silty CLAY	115	2.0	25	23	12	-	-	3.2	9.9	32	2.54	15
13.62	41.9	47.7	155.2	41.9	1.8	-0.5	4.4	clayy SILT to silty CLAY	115	2.0	24	21	12	-	-	2.9	9.9	35	2.59	15
13.78	42.6	45.7	150.4	42.6	1.8	-0.3	4.3	clayy SILT to silty CLAY	115	2.0	23	21	12	-	-	3.0	9.9	35	2.59	15
13.94	44.6	47.6	150.6	44.6	1.8	-0.4	4.1	clayy SILT to silty CLAY	115	2.0	24	22	12	-	-	3.1	9.9	34	2.57	15
14.11	44.7	47.4	152.0	44.7	1.9	-0.2	4.2	clayy SILT to silty CLAY	115	2.0	24	22	12	-	-	3.1	9.9	34	2.58	15
14.27	46.0	48.6	155.3	46.0	1.9	-0.2	4.3	clayy SILT to silty CLAY	115	2.0	24	23	12	-	-	3.2	9.9	34	2.58	15
14.44	48.6	51.0	151.7	48.6	1.9	-0.4	4.0	clayy SILT to silty CLAY	115	2.0	25	24	13	-	-	3.4	9.9	32	2.54	15
14.60	50.5	52.7	152.1	50.5	1.9	-0.4	3.9	clayy SILT to silty CLAY	115	2.0	26	25	13	-	-	3.5	9.9	32	2.52	15
14.76	53.4	55.4	154.0	53.4	2.0	-1.9	3.8	clayy SILT to silty CLAY	115	2.0	28	27	13	-	-	3.7	9.9	31	2.50	15
14.93	58.0	59.9	154.7	58.0	2.1	-1.1	3.6	clayy SILT to silty CLAY	115	2.0	30	29	14	-	-	4.0	9.9	29	2.46	15
15.09	64.7	66.5	168.0	64.7	2.5	0.3	3.9	clayy SILT to silty CLAY	115	2.0	33	32	16	-	-	4.5	9.9	28	2.45	15
15.26	78.7	80.4	174.9	78.6	2.8	-1.5	3.5	clayy SILT to silty CLAY	115	2.0	40	39	18	-	-	5.5	9.9	25	2.37	15
15.42	77.5	78.7	184.2	77.4	3.0	-1.4	3.9	clayy SILT to silty CLAY	115	2.0	39	39	18	-	-	5.4	9.9	27	2.41	15

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

Middle Earth Geo Testing

Project ID: Cornerstone Earth Group
Data File: SDF(711).cpt
CPT Date: 4/26/2018 7:38:51 AM
GW During Test: 16 ft

Sounding ID: CPT-04
Project No: 400-3-1
Cone/Rig: DDG1379

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	Ic SBT Indx	Nk -
15.58	69.3	70.1	189.3	69.3	3.1	-1.0	4.5	clayy SILT to silty CLAY	115	2.0	35	35	17	-	-	4.8	9.9	30	2.49	15
15.75	61.9	62.3	192.6	61.9	3.1	-0.4	5.1	clayy SILT to silty CLAY	115	2.0	31	31	16	-	-	4.3	9.9	33	2.56	15
15.91	57.4	57.5	190.9	57.4	3.0	-0.2	5.4	clayy SILT to silty CLAY	115	2.0	29	29	15	-	-	4.0	9.9	35	2.60	15
16.08	55.1	58.3	-	55.2	3.1	0.8	5.7	clayy SILT to silty CLAY	115	2.0	29	28	15	-	-	3.8	9.9	36	2.61	15
16.24	55.4	58.3	-	55.4	3.1	1.1	5.7	clayy SILT to silty CLAY	115	2.0	29	28	15	-	-	3.8	9.9	36	2.62	15
16.40	54.2	56.8	-	54.2	3.2	0.9	6.1	silty CLAY to CLAY	115	1.5	38	36	15	-	-	3.8	9.9	37	2.64	15
16.57	52.6	54.9	-	52.7	3.1	1.1	6.0	silty CLAY to CLAY	115	1.5	37	35	14	-	-	3.7	9.9	38	2.65	15
16.73	50.0	51.9	-	50.0	3.2	1.4	6.5	silty CLAY to CLAY	115	1.5	35	33	14	-	-	3.5	9.9	40	2.69	15
16.90	49.4	51.1	-	49.4	3.2	1.2	6.6	silty CLAY to CLAY	115	1.5	34	33	14	-	-	3.4	9.9	40	2.70	15
17.06	48.7	50.1	-	48.7	3.2	1.1	6.8	silty CLAY to CLAY	115	1.5	33	32	14	-	-	3.4	9.9	41	2.72	15
17.23	48.3	49.5	-	48.3	3.3	1.5	6.9	silty CLAY to CLAY	115	1.5	33	32	13	-	-	3.3	9.9	42	2.73	15
17.39	49.6	50.7	-	49.7	3.3	1.0	6.7	silty CLAY to CLAY	115	1.5	34	33	14	-	-	3.4	9.9	41	2.71	15
17.55	50.4	51.2	-	50.5	3.4	1.2	6.9	silty CLAY to CLAY	115	1.5	34	34	14	-	-	3.5	9.9	41	2.71	15
17.72	53.0	53.6	-	53.1	3.5	2.0	6.8	silty CLAY to CLAY	115	1.5	36	35	14	-	-	3.7	9.9	40	2.69	15
17.88	55.7	56.1	-	55.7	3.7	1.9	6.7	silty CLAY to CLAY	115	1.5	37	37	15	-	-	3.9	9.9	39	2.68	15
18.05	57.3	57.4	-	57.3	3.6	1.5	6.3	silty CLAY to CLAY	115	1.5	38	38	15	-	-	4.0	9.9	38	2.65	15
18.21	56.9	56.8	-	56.9	3.6	1.8	6.5	silty CLAY to CLAY	115	1.5	38	38	15	-	-	3.9	9.9	39	2.67	15
18.37	57.1	56.7	-	57.1	3.6	0.8	6.5	silty CLAY to CLAY	115	1.5	38	38	15	-	-	4.0	9.9	39	2.66	15
18.54	55.4	54.8	-	55.4	3.6	1.1	6.6	silty CLAY to CLAY	115	1.5	37	37	15	-	-	3.8	9.9	39	2.68	15
18.70	54.9	54.1	-	54.9	3.4	1.1	6.4	silty CLAY to CLAY	115	1.5	36	37	14	-	-	3.8	9.9	39	2.67	15
18.87	54.7	53.7	-	54.7	3.3	0.9	6.2	silty CLAY to CLAY	115	1.5	36	36	14	-	-	3.8	9.9	39	2.66	15
19.03	54.3	53.1	-	54.3	3.2	0.4	6.0	silty CLAY to CLAY	115	1.5	35	36	14	-	-	3.8	9.9	38	2.66	15
19.19	54.9	53.4	-	54.9	3.1	-0.1	5.8	silty CLAY to CLAY	115	1.5	36	37	14	-	-	3.8	9.9	38	2.65	15
19.36	56.9	55.1	-	56.9	3.1	-0.7	5.5	clayy SILT to silty CLAY	115	2.0	28	28	14	-	-	3.9	9.9	36	2.62	15
19.52	59.5	56.7	187.0	59.4	3.1	-1.0	5.2	clayy SILT to silty CLAY	115	2.0	28	30	14	-	-	4.1	9.9	35	2.59	15
19.69	59.9	57.0	183.4	59.8	3.0	-2.3	5.0	clayy SILT to silty CLAY	115	2.0	28	30	14	-	-	4.2	9.9	34	2.58	15
19.85	58.3	55.4	181.9	58.2	2.9	-3.6	5.1	clayy SILT to silty CLAY	115	2.0	28	29	14	-	-	4.0	9.9	35	2.59	15
20.01	57.1	54.1	179.1	57.0	2.8	-4.1	5.0	clayy SILT to silty CLAY	115	2.0	27	29	14	-	-	4.0	9.9	35	2.60	15
20.18	55.9	53.1	-	55.8	2.8	-4.1	5.1	clayy SILT to silty CLAY	115	2.0	27	28	14	-	-	3.9	9.9	36	2.61	15
20.34	56.0	52.9	-	55.9	2.8	-1.7	5.2	clayy SILT to silty CLAY	115	2.0	26	28	14	-	-	3.9	9.9	36	2.61	15
20.51	61.5	58.0	176.4	61.5	2.8	-1.1	4.7	clayy SILT to silty CLAY	115	2.0	29	31	14	-	-	4.3	9.9	33	2.55	15
20.67	58.2	54.8	178.3	58.2	2.8	-1.0	5.0	clayy SILT to silty CLAY	115	2.0	27	29	14	-	-	4.0	9.9	35	2.59	15
20.83	51.5	48.1	-	51.4	2.8	-0.9	5.6	silty CLAY to CLAY	115	1.5	32	34	13	-	-	3.6	9.9	39	2.67	15
21.00	48.5	45.1	-	48.4	2.7	-0.7	5.7	silty CLAY to CLAY	115	1.5	30	32	12	-	-	3.3	9.9	40	2.69	15
21.16	56.6	52.9	164.8	56.6	2.5	-0.8	4.5	clayy SILT to silty CLAY	115	2.0	26	28	13	-	-	3.9	9.9	34	2.56	15
21.33	66.7	62.2	131.7	66.6	1.7	-0.7	2.6	silty SAND to sandy SILT	120	3.0	21	22	14	51	38	-	-	24	2.35	16
21.49	68.9	64.2	112.0	68.9	1.2	-0.8	1.8	silty SAND to sandy SILT	120	3.0	21	23	14	52	38	-	-	20	2.23	16
21.65	75.4	70.1	100.3	75.4	0.9	-1.0	1.2	silty SAND to sandy SILT	120	3.0	23	25	14	55	38	-	-	15	2.09	16
21.82	71.6	66.3	98.9	71.5	0.9	-0.9	1.3	silty SAND to sandy SILT	120	3.0	22	24	14	53	38	-	-	16	2.12	16
21.98	54.3	50.2	99.8	54.3	1.0	-0.9	1.8	silty SAND to sandy SILT	120	3.0	17	18	11	44	36	-	-	23	2.31	16
22.15	38.8	35.8	111.3	38.8	1.1	-1.0	2.9	clayy SILT to silty CLAY	115	2.0	18	19	9	-	-	2.7	9.9	34	2.56	15
22.31	34.3	30.9	-	34.3	1.3	-1.1	3.9	clayy SILT to silty CLAY	115	2.0	15	17	8	-	-	2.3	9.8	40	2.70	15
22.47	32.6	29.2	-	32.5	1.5	-0.9	4.8	silty CLAY to CLAY	115	1.5	19	22	8	-	-	2.2	9.2	45	2.78	15
22.64	30.8	27.5	-	30.8	1.6	-0.8	5.5	silty CLAY to CLAY	115	1.5	18	21	8	-	-	2.1	8.7	48	2.84	15
22.80	29.7	26.5	-	29.7	1.7	-0.8	6.0	silty CLAY to CLAY	115	1.5	18	20	8	-	-	2.0	8.3	50	2.87	15
22.97	28.3	25.1	-	28.3	1.7	-0.6	6.2	silty CLAY to CLAY	115	1.5	17	19	8	-	-	1.9	7.9	52	2.90	15
23.13	26.4	23.3	-	26.4	1.5	-0.6	6.1	silty CLAY to CLAY	115	1.5	16	18	7	-	-	1.8	7.3	53	2.92	15
23.30	24.7	21.8	-	24.7	1.4	-0.7	6.1	silty CLAY to CLAY	115	1.5	15	16	7	-	-	1.7	6.8	55	2.94	15
23.46	24.3	21.3	-	24.3	1.3	-0.5	5.8	silty CLAY to CLAY	115	1.5	14	16	7	-	-	1.6	6.6	54	2.94	15
23.62	24.3	21.2	-	24.3	1.3	-0.2	5.6	silty CLAY to CLAY	115	1.5	14	16	6	-	-	1.6	6.6	54	2.93	15
23.79	22.9	19.9	-	22.9	1.3	0.0	5.9	silty CLAY to CLAY	115	1.5	13	15	6	-	-	1.5	6.2	56	2.96	15
23.95	22.3	19.3	-	22.3	1.2	-0.8	5.9	silty CLAY to CLAY	115	1.5	13	15	6	-	-	1.5	6.0	57	2.98	15
24.12	25.0	21.6	-	25.0	1.2	-1.0	5.0	silty CLAY to CLAY	115	1.5	14	17	6	-	-	1.7	6.7	51	2.89	15
24.28	30.8	26.4	-	30.9	1.0	6.3	3.6	clayy SILT to silty CLAY	115	2.0	13	15	7	-	-	2.1	8.3	42	2.72	15
24.44	30.1	25.7	-	30.1	1.0	-0.5	3.5	clayy SILT to silty CLAY	115	2.0	13	15	7	-	-	2.0	8.1	42	2.73	15
24.61	34.1	29.1	-	34.0	0.9	-1.3	2.8	clayy SILT to silty CLAY	115	2.0	15	17	7	-	-	2.3	9.2	36	2.62	15
24.77	37.1	31.5	-	37.1	1.2	-0.9	3.4	clayy SILT to silty CLAY	115	2.0	16	19	8	-	-	2.5	9.9	38	2.65	15
24.94	37.6	31.8	-	37.5	1.4	-0.8	3.8	clayy SILT to silty CLAY	115	2.0	16	19	8	-	-	2.6	9.9	39	2.68	15
25.10	58.8	52.5	99.7	58.8	1.0	-0.7	1.7	silty SAND to sandy SILT	120	3.0	17	20	12	46	37	-	-	22	2.28	16
25.26	77.8	69.3	97.8	77.8	0.9	-1.1	1.1	silty SAND to sandy SILT	120	3.0	23	26	14	55	38	-	-	15	2.07	16
25.43	71.2	63.3	100.5	71.2	1.0	-0.8	1.4	silty SAND to sandy SILT	120	3.0	21	24	13	52	38	-	-	18	2.17	16
25.59	90.4	80.2	109.2	90.4	1.1	-0.3	1.2	silty SAND to sandy SILT	120	3.0	27	30	16	60	39	-	-	14	2.04	16
25.76	120.9	107.0	127.1	120.9	1.2	-0.4	1.0	clean SAND to silty SAND	125	5.0	21	24	20	69	41	-	-	10	1.90	16
25.92	140.1	123.8	133.6	140.1	1.0	-0.5	0.7	clean SAND to silty SAND	125	5.0	25	28	22	74	41	-	-	7	1.76	16
26.08	122.6	108.0	120.4	122.5	0.9	-0.6	0.7	clean SAND to silty SAND	125	5.0	22	25	20	70	41	-	-	8	1.81	16
26.25	118.4	104.2	114.9	118.4	0.8	-0.5	0.7	clean SAND to silty SAND	125	5.0	21	24	19	68	40	-	-	8	1.80	16
26.41	97.9	85.9	106.5	97.9	0.9	-0.1	0.9	clean SAND to silty SAND	125	5.0	17	20	17	62	39	-	-	12	1.95	16
26.58	67.9	59.5	104.9	67.9	1.1	-0.3	1.7	silty SAND to sandy SILT	120	3.0	20	23	13	50	37	-	-	20	2.24	16
26.74	35.6	28.9	-	35.6	1.3	0.1	3.7	clayy SILT to silty CLAY	115	2.0	14	18	8	-	-	2.4	9.1	41	2.70	15
26.90	26.3	21.2	-	26.3	1.0	0.5	4.0	silty CLAY to CLAY	115	1.5	14	18	6	-	-	1.8	6.6	48	2.83	15
27.07	26.3	21.2	-	26.4	1.0	0.5	4.0	silty CLAY to CLAY	115	1.5	14	18	6	-	-	1.8	6.6	48	2.84	15
27.23	52.6	45.8	112.4	52.7	1.3	1.8	2.5	silty SAND to sandy SILT	120	3.0	15	18	11	41	36	-	-	28	2.43	16
27.40	47.9	41.6	105.3	47.9	1.1	0.4	2.3	silty SAND to sandy SILT	120	3.0	14	16	10	38	35	-	-	29	2.45	16
27.56	59.2	51.3	93.4	59.2	0.9	1.9	1.5	silty SAND to sandy SILT	120	3.0	17	20	11	45	36	-	-	21	2.26	16
27.72	69.4	60.0	82.9	69.4	0.6	0.4	0.9	clean SAND to silty SAND	125	5.0	12	14	12	50	37	-	-	15	2.06	16
27.89	48.5	41.9	84.8	48.5	0.7	-0.1	1.5	silty SAND to sandy SILT	120	3.0	14	16	9	38	35	-	-	23	2.32	16
28.05	27.4	21.5	-	27.4	0.6	0.0	2.3	clayy SILT to silty CLAY	115	2.0	11	14	6	-	-	1.8	6.7	39	2.68	15
28.22	15.3	12.0	-	15.3	0.6	-0.1	4.5	silty CLAY to CLAY	115	1.5	8	10	4	-	-	1.0	3.5	64	3.08	15
28.38	11.5	9.0	-	11.5	0.5	1.3	5.0	silty CLAY to CLAY	115	1.5	6	8	3	-	-	0.7	2.5	75	3.22	15
28.54	12.4	9.6	-	12.4	0.4	2.9	4.0	silty CLAY to CLAY	115	1.5	6	8	3	-	-	0.8	2.7	68	3.14	15
28.71	11.6	9.0	-	11.7	0.4	4.2	4.3	silty CLAY to CLAY	115	1.5	6	8	3	-	-	0.7	2.5	71	3.18	15
28.87	14.7	11.4	-	14.8	0.4	4.3	2.8	silty CLAY to CLAY	115	1.5	8	10	4	-	-	0.9	3.3	57	2.98	15
29.04	9.3	7.2	-	9.4	0.4	3.6	4.9	silty CLAY to CLAY	115	1.5	5	6	3	-	-	0.6	1.9	82	3.31	15
29.20	7.7	5.9	-	7.8	0.4	4.8	6.2	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.5	1.5	94	3.45	15
29.36	6.1	4.7	-	6.2	0.3	5.3	6.8	Organic SOILS - Peats	100	1.0	5	6	2	-	-	0.5	1.1	95	3.59	10
29.53	5.0	3.8	-	5.1	0.3	5.1	7.8	Organic SOILS - Peats	100	1.0	4	5	2	-	-	0.4	0.8	95	3.73	10
29.69	6.2	4.7	-	6.3	0.3	6.1	5.8	silty CLAY to CLAY	115	1.5	3	4	2	-	-	0.3	1.1	95	3.55	15
29.86	7.7	5.9	-	7.8	0.3	6.6	4.5	silty CLAY to CLAY	115	1.5	4	5	2	-	-	0.5	1.5	88	3.38	15
30.02	7.6	5.7	-	7.7	0.3	6.8	5.0	silty CLAY to CLAY	115	1.5	4	5	2	-	-	0.4	1.5	91	3.42	15
30.19	7.7	5.8	-	7.8	0.3	6.8	4.6	silty CLAY to CLAY	115	1.5	4	5	2	-	-	0.5	1.5	89	3.39	15
30.35	7.4	5.5	-	7.5	0.3	7.3	4.6	silty CLAY to CLAY	115	1.5	4	5	2	-	-	0.4	1.4	91	3.41	15
30.51	7.6	5.7	-	7.8	0.3	7.5	4.6	silty CLAY to CLAY	115	1.5	4	5	2	-	-	0.4	1.4	90	3.40	15
30.68	7.7	5.8	-	7.9	0.3	7.9	5.0	silty CLAY to CLAY	115	1.5	4	5	2	-	-	0.4	1.5	91	3.42	15
30.84	7.7	5.7	-	7.8	0.3	8.2	5.0	silty CLAY to CLAY	115	1.5	4	5	2	-	-	0.4	1.4	91	3.42	15

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

1188 East 14th Street

Project ID: Cornerstone Earth Group
Data File: SDF(711).cpt
CPT Date: 4/26/2018 7:38:51 AM
GW During Test: 16 ft

Sounding ID: CPT-04
Project No: 400-3-1
Cone/Rig: DDG1379

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	Ic SBT Indx	Nk -
31.01	7.1	5.3	-	7.3	0.3	8.3	6.0	silty CLAY to CLAY	115	1.5	4	5	2	-	-	0.4	1.3	95	3.50	15
31.17	7.7	5.7	-	7.9	0.3	8.3	5.6	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.4	1.4	94	3.45	15
31.33	7.6	5.6	-	7.8	0.4	8.5	6.3	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.4	1.4	95	3.49	15
31.50	7.8	5.7	-	8.0	0.4	8.9	6.1	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.5	1.4	95	3.47	15
31.66	7.9	5.8	-	8.1	0.4	9.9	6.5	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.5	1.5	95	3.48	15
31.83	8.4	6.1	-	8.6	0.4	9.7	6.4	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.6	94	3.45	15
31.99	8.7	6.3	-	8.9	0.4	9.9	6.2	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.6	92	3.43	15
32.15	8.5	6.2	-	8.7	0.4	10.1	6.4	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.6	94	3.44	15
32.32	8.7	6.3	-	8.9	0.4	10.5	6.1	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.6	92	3.43	15
32.48	8.9	6.5	-	9.2	0.4	11.0	5.9	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.7	90	3.40	15
32.65	9.2	6.6	-	9.4	0.5	10.7	6.4	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.6	1.7	91	3.41	15
32.81	10.0	7.2	-	10.2	0.5	10.4	6.7	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	1.9	89	3.39	15
32.97	10.4	7.4	-	10.6	0.6	10.2	6.7	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	2.0	88	3.38	15
33.14	10.2	7.3	-	10.4	0.6	10.0	7.1	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	1.9	90	3.40	15
33.30	10.2	7.3	-	10.4	0.6	9.8	7.1	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	1.9	90	3.40	15
33.47	9.9	7.0	-	10.0	0.6	9.8	7.5	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	1.8	93	3.44	15
33.63	9.4	6.7	-	9.6	0.6	9.3	7.8	Organic SOILS - Peats	100	1.0	7	9	3	-	-	0.8	1.7	95	3.47	10
33.79	9.3	6.5	-	9.4	0.5	9.4	7.3	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.6	1.7	95	3.46	15
33.96	9.2	6.5	-	9.4	0.5	9.7	7.0	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.7	94	3.45	15
34.12	9.2	6.5	-	9.4	0.5	9.9	6.7	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.6	1.7	93	3.44	15
34.29	9.2	6.4	-	9.4	0.5	10.2	6.3	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.6	92	3.43	15
34.45	9.2	6.4	-	9.4	0.4	10.6	6.0	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.6	91	3.42	15
34.61	9.4	6.5	-	9.6	0.4	11.1	6.1	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.6	1.7	91	3.41	15
34.78	9.7	6.7	-	10.0	0.5	11.7	6.6	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.6	1.8	91	3.42	15
34.94	10.3	7.1	-	10.5	0.6	12.4	7.3	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	1.9	92	3.42	15
35.11	16.6	11.4	-	16.9	0.7	14.0	5.0	silty CLAY to CLAY	115	1.5	8	11	4	-	-	1.1	3.3	67	3.13	15
35.27	15.1	10.4	-	15.4	0.6	15.4	4.2	silty CLAY to CLAY	115	1.5	7	10	4	-	-	1.0	3.0	67	3.12	15
35.43	12.0	8.2	-	12.3	0.5	18.4	5.2	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	2.2	79	3.27	15
35.60	11.5	7.9	-	11.9	0.4	18.9	4.3	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	2.1	76	3.24	15
35.76	9.5	6.5	-	9.9	0.4	19.9	5.5	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.6	1.7	89	3.39	15
35.93	9.7	6.6	-	10.1	0.4	21.1	5.5	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.6	1.7	88	3.38	15
36.09	9.6	6.5	-	10.0	0.5	21.4	6.3	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.6	1.7	92	3.43	15
36.26	9.4	6.3	-	9.8	0.5	21.5	7.0	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.6	1.6	95	3.46	15
36.42	9.7	6.5	-	10.1	0.6	21.4	7.3	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.6	1.7	95	3.46	15
36.58	9.7	6.5	-	10.1	0.6	21.0	7.5	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.6	1.7	95	3.47	15
36.75	9.2	6.2	-	9.6	0.6	20.6	8.0	Organic SOILS - Peats	100	1.0	6	9	3	-	-	0.8	1.6	95	3.51	10
36.91	8.5	5.7	-	8.9	0.5	20.7	7.3	Organic SOILS - Peats	100	1.0	6	9	3	-	-	0.7	1.4	95	3.52	10
37.08	9.2	6.1	-	9.7	0.4	21.4	5.9	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.6	93	3.44	15
37.24	10.2	6.8	-	10.7	0.5	22.1	6.1	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	1.8	89	3.40	15
37.40	11.2	7.4	-	11.7	0.6	23.0	6.5	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.7	2.0	87	3.37	15
37.57	11.4	7.6	-	11.9	0.6	22.9	6.8	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	2.0	88	3.38	15
37.73	11.2	7.4	-	11.7	0.6	23.2	6.7	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.7	2.0	88	3.38	15
37.90	11.5	7.5	-	12.0	0.6	23.2	6.5	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	2.0	87	3.37	15
38.06	11.6	7.6	-	12.0	0.6	23.5	6.4	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	2.0	86	3.36	15
38.22	11.9	7.7	-	12.3	0.7	24.4	6.8	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	2.1	87	3.37	15
38.39	13.6	8.8	-	14.0	0.6	24.7	5.3	silty CLAY to CLAY	115	1.5	6	9	3	-	-	0.8	2.4	77	3.25	15
38.55	14.8	9.6	-	15.3	0.6	26.3	4.6	silty CLAY to CLAY	115	1.5	6	10	3	-	-	0.9	2.7	71	3.18	15
38.72	18.1	11.7	-	18.6	0.7	28.0	4.3	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.2	3.4	64	3.08	15
38.88	21.4	13.8	-	22.0	0.9	30.9	4.8	silty CLAY to CLAY	115	1.5	9	14	5	-	-	1.4	4.1	61	3.04	15
39.04	26.3	16.9	-	27.0	1.3	32.7	5.2	silty CLAY to CLAY	115	1.5	11	18	5	-	-	1.8	5.1	58	2.99	15
39.21	28.6	18.3	-	29.1	1.6	29.0	6.0	silty CLAY to CLAY	115	1.5	12	19	6	-	-	1.9	5.6	59	3.00	15
39.37	29.7	19.0	-	30.3	1.6	29.6	5.9	silty CLAY to CLAY	115	1.5	13	20	6	-	-	2.0	5.8	57	2.98	15
39.54	29.2	18.6	-	29.8	1.5	30.9	5.7	silty CLAY to CLAY	115	1.5	12	19	6	-	-	2.0	5.7	58	2.99	15
39.70	29.5	18.8	-	30.1	1.5	32.2	5.4	silty CLAY to CLAY	115	1.5	13	20	6	-	-	2.0	5.7	56	2.97	15
39.86	30.6	19.4	-	31.3	1.4	33.3	5.0	silty CLAY to CLAY	115	1.5	13	20	6	-	-	2.1	5.9	54	2.93	15
40.03	31.3	19.8	-	32.0	1.5	34.4	5.1	silty CLAY to CLAY	115	1.5	13	21	6	-	-	2.1	6.1	54	2.93	15
40.19	32.4	20.5	-	33.1	1.5	34.9	5.1	silty CLAY to CLAY	115	1.5	14	22	6	-	-	2.2	6.3	53	2.92	15
40.36	34.6	21.8	-	35.3	1.7	35.6	5.4	silty CLAY to CLAY	115	1.5	15	23	7	-	-	2.3	6.7	53	2.91	15
40.52	36.3	22.8	-	37.0	1.8	35.0	5.3	silty CLAY to CLAY	115	1.5	15	24	7	-	-	2.5	7.0	52	2.89	15
40.68	32.9	20.6	-	33.6	1.7	33.1	5.7	silty CLAY to CLAY	115	1.5	14	22	6	-	-	2.2	6.3	55	2.95	15
40.85	30.1	18.8	-	30.7	1.6	30.6	5.6	silty CLAY to CLAY	115	1.5	13	20	6	-	-	2.0	5.7	57	2.98	15
41.01	26.7	16.6	-	27.3	1.4	29.3	5.7	silty CLAY to CLAY	115	1.5	11	18	5	-	-	1.8	5.0	60	3.03	15
41.18	23.9	14.8	-	24.4	1.2	28.6	5.5	silty CLAY to CLAY	115	1.5	10	16	5	-	-	1.6	4.4	63	3.06	15
41.34	21.7	13.4	-	22.2	1.1	27.7	5.6	silty CLAY to CLAY	115	1.5	9	14	5	-	-	1.4	3.9	65	3.10	15
41.50	19.2	11.9	-	19.7	1.0	26.6	5.8	silty CLAY to CLAY	115	1.5	8	13	4	-	-	1.2	3.4	70	3.16	15
41.67	17.0	10.5	-	17.5	0.9	26.6	6.1	silty CLAY to CLAY	115	1.5	7	11	4	-	-	1.1	3.0	75	3.22	15
41.83	17.2	10.5	-	17.7	0.8	27.0	5.5	silty CLAY to CLAY	115	1.5	7	11	4	-	-	1.1	3.0	72	3.19	15
42.00	16.8	10.3	-	17.3	0.8	27.7	5.5	silty CLAY to CLAY	115	1.5	7	11	4	-	-	1.1	2.9	73	3.20	15
42.16	17.5	10.7	-	18.1	0.9	27.8	5.7	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.1	3.0	72	3.19	15
42.32	18.7	11.4	-	19.2	1.0	25.6	6.3	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.2	3.3	72	3.19	15
42.49	19.5	11.8	-	19.9	1.1	23.2	6.3	silty CLAY to CLAY	115	1.5	8	13	4	-	-	1.3	3.4	72	3.18	15
42.65	19.8	12.0	-	20.2	1.1	20.0	6.5	silty CLAY to CLAY	115	1.5	8	13	4	-	-	1.3	3.5	72	3.18	15
42.82	19.9	12.0	-	20.3	1.1	18.6	6.5	silty CLAY to CLAY	115	1.5	8	13	4	-	-	1.3	3.5	71	3.18	15
42.98	20.2	12.2	-	20.5	1.2	17.3	7.0	silty CLAY to CLAY	115	1.5	8	13	4	-	-	1.3	3.5	73	3.20	15
43.15	20.7	12.4	-	21.0	1.2	16.4	6.7	silty CLAY to CLAY	115	1.5	8	14	4	-	-	1.3	3.6	71	3.18	15
43.31	19.9	11.9	-	20.2	1.1	15.7	6.6	silty CLAY to CLAY	115	1.5	8	13	4	-	-	1.3	3.4	72	3.19	15
43.47	19.0	11.3	-	19.3	1.0	15.9	6.3	silty CLAY to CLAY	115	1.5	8	13	4	-	-	1.2	3.2	73	3.20	15
43.64	19.0	11.3	-	19.3	1.0	16.4	5.8	silty CLAY to CLAY	115	1.5	8	13	4	-	-	1.2	3.2	71	3.18	15
43.80	18.0	10.7	-	18.3	1.0	17.0	6.4	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.2	3.0	75	3.22	15
43.97	18.8	11.2	-	19.2	1.1	17.2	6.6	silty CLAY to CLAY	115	1.5	7	13	4	-	-	1.2	3.2	74	3.21	15
44.13	19.3	11.4	-	19.7	1.1	17.4	6.7	silty CLAY to CLAY	115	1.5	8	13	4	-	-	1.2	3.3	74	3.21	15
44.29	20.0	11.8	-	20.4	1.1	17.7	6.3	silty CLAY to CLAY	115	1.5	8	13	4	-	-	1.3	3.4	72	3.18	15
44.46	19.9	11.7	-	20.2	1.1	17.7	6.3	silty CLAY to CLAY	115	1.5	8	13	4	-	-	1.3	3.4	72	3.18	15
44.62	19.5	11.5	-	19.9	1.1	17.7	6.3	silty CLAY to CLAY	115	1.5	8	13	4	-	-	1.3	3.3	72	3.19	15
44.79	18.2	10.6	-	18.5	1.0	18.7	6.5	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.2	3.0	75	3.23	15
44.95	17.7	10.3	-	18.1	0.9	19.0	6.2	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.1	2.9	75	3.23	15
45.11	16.2	9.4	-	16.5	0.9	19.0	6.6	silty CLAY to CLAY	115	1.5	6	11	4	-	-	1.0	2.6	80	3.28	15
45.28	15.3	8.9	-	15.7	0.8	19.1	6.6	silty CLAY to CLAY	115	1.5	6	10	4	-	-	1.0	2.4	81	3.30	15
45.44	14.3	8.3	-	14.7	0.8	19.0	6.7	silty CLAY to CLAY	115	1.5	6	10	3	-	-	0.9	2.2	84	3.34	15
45.61	13.4	7.7	-	13.8	0.7	19.1	6.6	silty CLAY to CLAY	115	1.5	5	9	3	-	-	0.8	2.1	86	3.36	15
45.77	12.7	7.4	-	13.1	0.6	19.4	5.7	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.8	1.9	85	3.35	15
45.93	12.0	6.9	-	12.4	0.5	19.8	5.7	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	1.8	88	3.38	15
46.10	12.5	7.2	-	12.9	0.5	20.1	5.4	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.8	1.9	85	3.34	15
46.26	13.5	7.7	-	13.9	0.5	20.4	4.8	silty CLAY to CLAY	115	1.5	5	9	3	-	-	0.8	2.0	80	3.29	15

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

Project ID: Cornerstone Earth Group
Data File: SDF(711).cpt
CPT Date: 4/26/2018 7:38:51 AM
GW During Test: 16 ft

Sounding ID: CPT-04
Project No: 400-3-1
Cone/Rig: DDG1379

Depth ft	qc PS tsf	qc1n * PS -	q1ncs PS -	qt * PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	Ic SBT Indx	Nk -
46.43	14.1	8.0	-	14.5	0.6	22.6	5.4	silty CLAY to CLAY	115	1.5	5	9	3	-	-	0.9	2.1	81	3.30	15
46.59	13.2	7.5	-	13.6	0.8	22.7	7.2	silty CLAY to CLAY	115	1.5	5	9	3	-	-	0.8	2.0	90	3.40	15
46.75	13.6	7.7	-	14.0	0.7	22.2	6.7	silty CLAY to CLAY	115	1.5	5	9	3	-	-	0.8	2.0	87	3.37	15
46.92	12.7	7.2	-	13.1	0.6	23.0	6.2	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.8	1.9	88	3.38	15
47.08	11.7	6.6	-	12.2	0.6	23.4	6.3	silty CLAY to CLAY	115	1.5	4	8	3	-	-	0.7	1.7	92	3.42	15
47.25	11.8	6.7	-	12.3	0.6	23.6	6.6	silty CLAY to CLAY	115	1.5	4	8	3	-	-	0.7	1.7	93	3.43	15
47.41	12.3	6.9	-	12.8	0.7	23.9	6.8	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	1.8	92	3.42	15
47.57	12.3	6.9	-	12.8	0.7	24.0	7.2	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	1.8	93	3.44	15
47.74	13.4	7.5	-	13.8	0.6	24.3	6.1	silty CLAY to CLAY	115	1.5	5	9	3	-	-	0.8	2.0	86	3.36	15
47.90	13.0	7.3	-	13.5	0.6	24.3	6.2	silty CLAY to CLAY	115	1.5	5	9	3	-	-	0.8	1.9	88	3.38	15
48.07	13.0	7.2	-	13.5	0.6	26.9	5.8	silty CLAY to CLAY	115	1.5	5	9	3	-	-	0.8	1.9	86	3.36	15
48.23	12.5	7.0	-	13.0	0.6	27.3	6.1	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.8	1.8	89	3.39	15
48.39	13.5	7.5	-	14.1	0.6	28.0	5.6	silty CLAY to CLAY	115	1.5	5	9	3	-	-	0.8	2.0	84	3.33	15
48.56	12.8	7.1	-	13.3	0.6	28.2	6.2	silty CLAY to CLAY	115	1.5	5	9	3	-	-	0.8	1.8	89	3.39	15
48.72	11.8	6.5	-	12.4	0.6	28.8	6.7	silty CLAY to CLAY	115	1.5	4	8	3	-	-	0.7	1.6	94	3.45	15
48.89	11.1	6.1	-	11.7	0.6	28.9	7.2	Organic SOILS - Peats	100	1.0	6	11	3	-	-	1.0	1.5	95	3.49	10
49.05	10.7	5.9	-	11.3	0.5	28.9	7.0	Organic SOILS - Peats	100	1.0	6	11	3	-	-	0.9	1.4	95	3.51	10
49.22	10.6	5.9	-	11.2	0.5	29.2	6.6	silty CLAY to CLAY	115	1.5	4	7	3	-	-	0.6	1.4	95	3.50	15
49.38	11.3	6.2	-	11.9	0.5	29.9	6.2	silty CLAY to CLAY	115	1.5	4	8	3	-	-	0.7	1.5	94	3.45	15
49.54	11.7	6.4	-	12.3	0.6	30.9	6.5	silty CLAY to CLAY	115	1.5	4	8	3	-	-	0.7	1.6	94	3.45	15
49.71	11.8	6.4	-	12.4	0.6	31.2	7.2	silty CLAY to CLAY	115	1.5	4	8	3	-	-	0.7	1.6	95	3.47	15
49.87	11.1	6.1	-	11.7	0.6	31.1	7.4	Organic SOILS - Peats	100	1.0	6	11	3	-	-	1.0	1.5	95	3.51	10
50.04	10.4	5.7	-	11.1	0.6	32.1	7.4	Organic SOILS - Peats	100	1.0	6	10	3	-	-	0.9	1.4	95	3.54	10
50.20	10.9	5.9	-	11.5	0.6	32.6	7.0	Organic SOILS - Peats	100	1.0	6	11	3	-	-	1.0	1.4	95	3.51	10

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

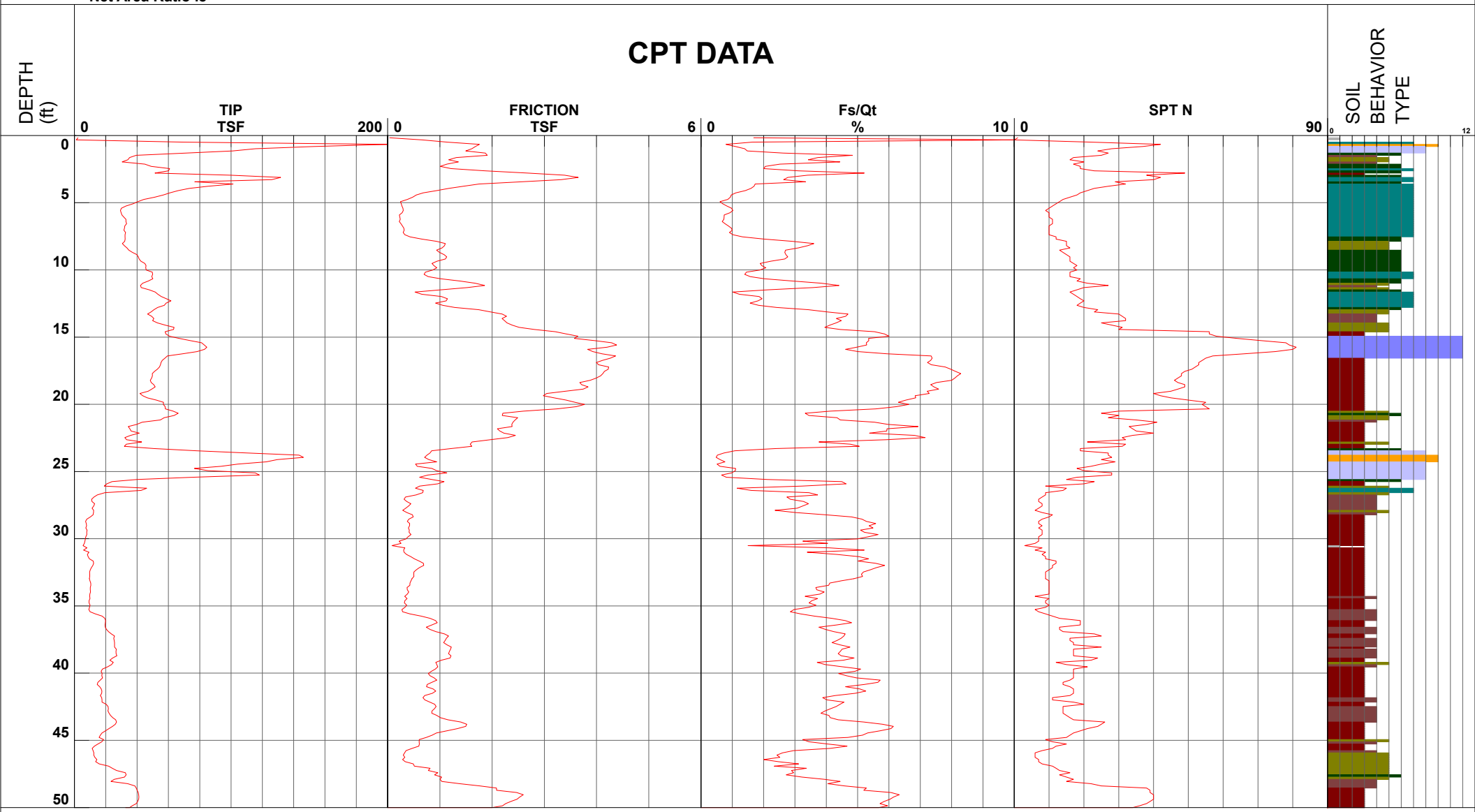
Middle Earth Geo Testing

Cornerstone Earth Group

Project	1188 East 14th Street	Operator	RC AS	Filename	SDF(712).cpt
Job Number	400-3-1	Cone Number	DDG1379	GPS	
Hole Number	CPT-05	Date and Time	4/26/2018 8:47:29 AM	Maximum Depth	50.36 ft
EST GW Depth During Test		16.00 ft			

Net Area Ratio .8

CPT DATA



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

Cone Size 10cm squared

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

1188 East 14th Street

Project ID: Cornerstone Earth Group
Data File: SDF(712).cpt
CPT Date: 4/26/2018 8:47:29 AM
GW During Test: 16 ft

Sounding ID: CPT-05
Project No: 400-3-1
Cone/Rig: DDG1379

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	Ic SBT Indx	Nk -
0.33	1.2	1.9	-	1.2	0.7	-0.1	9.9	Organic SOILS - Peats	100	1.0	2	1	1	-	-	0.1	9.9	95	3.89	10
0.49	69.6	111.6	148.0	69.6	1.1	0.1	1.6	silty SAND to sandy SILT	120	3.0	37	23	22	71	48	-	-	13	2.02	16
0.66	220.6	353.8	353.8	220.6	1.8	1.1	0.8	clean SAND to silty SAND	125	5.0	71	44	57	95	48	-	-	5	1.45	16
0.82	153.4	246.1	248.4	153.4	1.7	0.9	1.1	clean SAND to silty SAND	125	5.0	49	31	43	95	48	-	-	5	1.66	16
0.98	115.6	185.5	207.8	115.6	1.6	0.4	1.4	clean SAND to silty SAND	125	5.0	37	23	34	87	48	-	-	9	1.82	16
1.15	101.0	161.9	189.1	101.0	1.5	1.1	1.5	clean SAND to silty SAND	125	5.0	32	20	30	83	48	-	-	10	1.88	16
1.31	71.2	114.2	180.8	71.2	1.9	1.1	2.6	silty SAND to sandy SILT	120	3.0	38	24	24	71	48	-	-	18	2.16	16
1.48	39.5	63.3	186.3	39.5	1.9	0.5	4.8	clayy SILT to silty CLAY	115	2.0	32	20	16	-	-	2.8	9.9	32	2.53	15
1.64	35.3	56.6	152.0	35.3	1.3	0.2	3.7	clayy SILT to silty CLAY	115	2.0	28	18	14	-	-	2.5	9.9	30	2.48	15
1.80	34.1	54.8	142.8	34.1	1.2	0.0	3.4	clayy SILT to silty CLAY	115	2.0	27	17	13	-	-	2.4	9.9	29	2.47	15
1.97	30.5	49.0	157.5	30.5	1.4	0.7	4.4	clayy SILT to silty CLAY	115	2.0	24	15	12	-	-	2.1	9.9	34	2.58	15
2.13	45.0	72.1	137.9	45.0	1.1	0.9	2.5	silty SAND to sandy SILT	120	3.0	24	15	16	56	47	-	-	22	2.29	16
2.30	49.0	78.6	130.9	49.0	1.0	1.4	2.1	silty SAND to sandy SILT	120	3.0	26	16	17	59	47	-	-	19	2.20	16
2.46	60.8	97.5	146.3	60.8	1.2	1.6	2.0	silty SAND to sandy SILT	120	3.0	33	20	20	66	47	-	-	17	2.12	16
2.62	60.1	96.3	178.5	60.1	1.9	1.2	3.1	silty SAND to sandy SILT	120	3.0	32	20	21	66	47	-	-	21	2.27	16
2.79	51.4	82.5	222.2	51.5	2.7	2.0	5.2	very stiff fine SOIL	120	1.0	82	51	20	-	-	1.8	9.9	30	2.48	30
2.95	99.6	159.7	252.3	99.7	3.4	4.0	3.4	stiff SAND to clayy SAND	115	5.0	32	20	33	82	48	-	-	18	2.16	16
3.12	131.7	211.2	280.2	131.8	3.7	3.1	2.8	stiff SAND to clayy SAND	115	5.0	42	26	42	92	48	-	-	13	2.02	16
3.28	125.9	202.0	266.2	126.0	3.3	2.9	2.6	silty SAND to sandy SILT	120	3.0	67	42	40	90	48	-	-	13	2.01	16
3.45	76.8	123.2	213.1	76.9	2.6	2.6	3.3	silty SAND to sandy SILT	120	3.0	41	26	26	74	47	-	-	20	2.22	16
3.61	101.3	162.5	197.5	101.4	1.7	2.5	1.7	clean SAND to silty SAND	125	5.0	33	20	31	83	48	-	-	11	1.93	16
3.77	85.4	137.0	173.2	85.5	1.4	2.4	1.7	clean SAND to silty SAND	125	5.0	27	17	27	77	47	-	-	12	1.97	16
3.94	73.4	117.7	152.7	73.4	1.2	2.1	1.6	clean SAND to silty SAND	125	5.0	24	15	23	72	46	-	-	13	2.00	16
4.10	66.3	106.3	137.2	66.3	0.9	2.1	1.4	clean SAND to silty SAND	125	5.0	21	13	21	69	45	-	-	13	1.99	16
4.27	61.0	97.8	121.4	61.0	0.7	1.7	1.1	clean SAND to silty SAND	125	5.0	20	12	19	66	45	-	-	12	1.95	16
4.43	56.8	91.1	111.5	56.8	0.5	1.6	1.0	clean SAND to silty SAND	125	5.0	18	11	17	64	44	-	-	11	1.94	16
4.59	51.2	82.2	103.0	51.3	0.5	1.5	0.9	clean SAND to silty SAND	125	5.0	16	10	16	61	44	-	-	12	1.96	16
4.76	44.3	71.0	91.4	44.3	0.4	1.4	0.9	clean SAND to silty SAND	125	5.0	14	9	14	56	43	-	-	13	1.99	16
4.92	40.6	65.1	80.0	40.6	0.2	1.2	0.6	clean SAND to silty SAND	125	5.0	13	8	12	53	42	-	-	11	1.94	16
5.09	37.4	60.0	78.2	37.4	0.3	1.0	0.7	clean SAND to silty SAND	125	5.0	12	7	12	50	42	-	-	13	2.00	16
5.25	32.9	52.8	75.9	32.9	0.3	0.3	0.8	silty SAND to sandy SILT	120	3.0	18	11	11	46	41	-	-	16	2.09	16
5.41	30.0	48.1	76.2	30.0	0.3	0.1	1.0	silty SAND to sandy SILT	120	3.0	16	10	10	43	40	-	-	18	2.17	16
5.58	29.3	47.1	76.6	29.3	0.3	0.1	1.0	silty SAND to sandy SILT	120	3.0	16	10	10	42	40	-	-	18	2.18	16
5.74	29.9	47.9	74.9	29.9	0.3	0.1	0.9	silty SAND to sandy SILT	120	3.0	16	10	10	43	40	-	-	18	2.16	16
5.91	30.3	48.6	70.4	30.3	0.2	0.0	0.7	silty SAND to sandy SILT	120	3.0	16	10	10	43	40	-	-	16	2.10	16
6.07	31.6	50.7	71.9	31.6	0.2	-0.1	0.7	silty SAND to sandy SILT	120	3.0	17	11	10	45	40	-	-	15	2.08	16
6.23	32.9	52.3	73.1	32.9	0.2	-0.1	0.7	clean SAND to silty SAND	125	5.0	10	7	11	46	40	-	-	15	2.07	16
6.40	32.9	51.6	71.1	32.9	0.2	-0.1	0.7	clean SAND to silty SAND	125	5.0	10	7	10	45	40	-	-	14	2.06	16
6.56	33.3	51.6	73.5	33.3	0.3	-0.2	0.8	silty SAND to sandy SILT	120	3.0	17	11	10	45	40	-	-	15	2.08	16
6.73	32.2	49.2	74.5	32.2	0.3	-0.2	0.9	silty SAND to sandy SILT	120	3.0	16	11	10	44	39	-	-	17	2.13	16
6.89	32.0	48.3	76.3	32.0	0.3	-0.2	1.0	silty SAND to sandy SILT	120	3.0	16	11	10	43	39	-	-	18	2.16	16
7.05	31.6	47.2	76.3	31.6	0.3	-0.3	1.0	silty SAND to sandy SILT	120	3.0	16	11	10	42	39	-	-	18	2.18	16
7.22	32.7	48.2	74.6	32.7	0.3	-0.3	0.9	silty SAND to sandy SILT	120	3.0	16	11	10	43	39	-	-	17	2.15	16
7.38	32.3	47.1	76.8	32.3	0.3	-0.3	1.0	silty SAND to sandy SILT	120	3.0	16	11	10	42	39	-	-	18	2.18	16
7.55	32.3	46.6	84.6	32.3	0.4	-0.3	1.3	silty SAND to sandy SILT	120	3.0	16	11	10	42	39	-	-	21	2.26	16
7.71	32.4	46.2	101.8	32.4	0.7	-0.3	2.0	silty SAND to sandy SILT	120	3.0	15	11	11	42	39	-	-	25	2.37	16
7.87	32.1	45.3	121.9	32.1	0.9	-0.1	3.0	clayy SILT to silty CLAY	115	2.0	23	16	11	-	-	2.2	9.9	30	2.48	15
8.04	30.6	42.8	133.9	30.6	1.1	-0.2	3.7	clayy SILT to silty CLAY	115	2.0	21	15	11	-	-	2.1	9.9	34	2.57	15
8.20	31.9	44.2	131.5	31.9	1.1	-0.3	3.5	clayy SILT to silty CLAY	115	2.0	22	16	11	-	-	2.2	9.9	32	2.54	15
8.37	33.5	46.0	127.0	33.5	1.0	-0.3	3.2	clayy SILT to silty CLAY	115	2.0	23	17	11	-	-	2.3	9.9	31	2.50	15
8.53	34.7	47.2	119.1	34.7	0.9	-0.3	2.7	clayy SILT to silty CLAY	115	2.0	24	17	11	-	-	2.4	9.9	28	2.45	15
8.69	37.0	49.9	121.3	37.0	1.0	-0.2	2.7	silty SAND to sandy SILT	120	3.0	17	12	12	44	39	-	-	28	2.43	16
8.86	39.9	53.2	125.5	39.9	1.1	-0.4	2.7	silty SAND to sandy SILT	120	3.0	18	13	12	46	39	-	-	27	2.41	16
9.02	40.8	54.0	127.8	40.8	1.1	-0.4	2.8	silty SAND to sandy SILT	120	3.0	18	14	13	47	39	-	-	27	2.41	16
9.19	41.3	54.1	125.6	41.3	1.1	-0.3	2.7	silty SAND to sandy SILT	120	3.0	18	14	13	47	39	-	-	26	2.40	16
9.35	42.4	55.1	115.3	42.4	0.9	-0.3	2.3	silty SAND to sandy SILT	120	3.0	18	14	12	47	39	-	-	24	2.34	16
9.51	44.9	57.9	108.8	44.9	0.8	-0.4	1.9	silty SAND to sandy SILT	120	3.0	19	15	13	49	39	-	-	22	2.28	16
9.68	45.7	58.4	110.6	45.7	0.9	-0.4	2.0	silty SAND to sandy SILT	120	3.0	19	15	13	49	39	-	-	22	2.28	16
9.84	45.5	57.6	113.4	45.5	0.9	0.0	2.1	silty SAND to sandy SILT	120	3.0	19	15	13	49	39	-	-	23	2.31	16
10.01	45.9	57.6	108.3	45.9	0.9	-0.2	1.9	silty SAND to sandy SILT	120	3.0	19	15	13	49	39	-	-	22	2.28	16
10.17	49.7	61.9	100.4	49.7	0.7	-0.3	1.5	silty SAND to sandy SILT	120	3.0	21	17	13	51	39	-	-	18	2.18	16
10.34	49.9	61.7	98.8	49.9	0.7	-0.2	1.4	silty SAND to sandy SILT	120	3.0	21	17	13	51	39	-	-	18	2.17	16
10.50	49.4	60.5	102.6	49.4	0.8	-0.2	1.6	silty SAND to sandy SILT	120	3.0	20	16	13	50	39	-	-	19	2.21	16
10.66	50.1	60.9	115.0	50.1	1.0	-0.3	2.0	silty SAND to sandy SILT	120	3.0	20	17	13	51	39	-	-	22	2.28	16
10.83	47.3	57.0	134.5	47.3	1.4	-0.1	3.0	clayy SILT to silty CLAY	115	2.0	29	24	13	-	-	3.3	9.9	27	2.41	15
10.99	43.6	52.2	151.2	43.6	1.7	0.1	3.9	clayy SILT to silty CLAY	115	2.0	26	22	13	-	-	3.0	9.9	32	2.52	15
11.16	42.2	50.1	160.8	42.2	1.9	0.0	4.5	clayy SILT to silty CLAY	115	2.0	25	21	13	-	-	2.9	9.9	34	2.58	15
11.32	42.7	50.4	143.1	42.7	1.5	-0.1	3.6	clayy SILT to silty CLAY	115	2.0	25	21	12	-	-	3.0	9.9	31	2.51	15
11.48	47.7	56.0	114.0	47.7	1.0	-0.1	2.2	silty SAND to sandy SILT	120	3.0	19	16	13	48	39	-	-	24	2.33	16
11.65	51.6	60.1	87.2	51.6	0.5	-0.2	1.0	silty SAND to sandy SILT	120	3.0	20	17	12	50	39	-	-	16	2.10	16
11.81	53.3	61.6	94.1	53.3	0.7	-0.1	1.2	silty SAND to sandy SILT	120	3.0	21	18	13	51	39	-	-	17	2.14	16
11.98	55.4	63.7	113.1	55.4	1.0	-0.3	1.9	silty SAND to sandy SILT	120	3.0	21	18	14	52	39	-	-	20	2.24	16
12.14	58.7	67.0	118.5	58.7	1.1	-0.1	2.0	silty SAND to sandy SILT	120	3.0	22	20	14	54	39	-	-	20	2.24	16
12.30	61.7	69.9	117.4	61.7	1.1	-0.1	1.8	silty SAND to sandy SILT	120	3.0	23	21	15	55	40	-	-	19	2.21	16
12.47	58.6	65.9	107.1	58.6	0.9	-0.3	1.6	silty SAND to sandy SILT	120	3.0	22	20	14	53	39	-	-	18	2.18	16
12.63	57.4	64.2	113.1	57.4	1.1	-0.2	1.9	silty SAND to sandy SILT	120	3.0	21	19	14	52	39	-	-	20	2.24	16
12.80	53.2	59.1	124.0	53.2	1.3	0.1	2.4	silty SAND to sandy SILT	120	3.0	20	18	13	50	39	-	-	24	2.34	16
12.96	50.9	56.1	146.4	50.9	1.7	0.1	3.5	clayy SILT to silty CLAY	115	2.0	28	25	13	-	-	3.5	9.9	29	2.47	15
13.12	48.9	53.7	157.5	48.9	2.0	0.1	4.1	clayy SILT to silty CLAY	115	2.0	27	24	13	-	-	3.4	9.9	32	2.53	15
13.29	46.7	51.0	168.3	46.7	2.2	0.0	4.8	clayy SILT to silty CLAY	115	2.0	25	23	13	-	-	3.2	9.9	35	2.60	15
13.45	49.3	53.4	170.2	49.3	2.3	0.0	4.7	clayy SILT to silty CLAY	115	2.0	27	25	13	-	-	3.4	9.9	34	2.58	15
13.62	50.7	54.6	165.3	50.7	2.2	0.1	4.4	clayy SILT to silty CLAY	115	2.0	27	25	14	-	-	3.5	9.9	33	2.55	15
13.78	50.0	53.5	167.4	50.0	2.2	0.0	4.6	clayy SILT to silty CLAY	115	2.0	27	25	13	-	-	3.5	9.9	34	2.57	15
13.94	52.9	56.4	167.5	52.9	2.3	0.2	4.4	clayy SILT to silty CLAY	115	2.0	28	26	14	-	-	3.7	9.9	32	2.54	15
14.11	57.9	61.4	169.2	57.9	2.4	0.3	4.2	clayy SILT to silty CLAY	115	2.0	31	29	15	-	-	4.0	9.9	31	2.50	15
14.27	63.7	67.1	172.1	63.7	2.5	0.4	4.0	clayy SILT to silty CLAY	115	2.0	34	32	16	-	-	4.4	9.9	29	2.46	15
14.44	63.3	66.3	183.2	63.3	2.8	0.4	4.5	clayy SILT to silty CLAY	115	2.0	33	32	16	-	-	4.4	9.9	31	2.50	15
14.60	58.0	60.4	200.6	58.0	3.2	0.3	5.6	clayy SILT to silty CLAY	115	2.0	30	29	15	-	-	4.0	9.9	35	2.60	15
14.76	58.4	62.8	-	58.4	3.4	0.5	5.9	clayy SILT to silty CLAY	115	2.0	31	29	16	-	-	4.1	9.9	36	2.61	15
14.93	60.7	64.8	-	60.7	3.6	0.7	6.1	very stiff fine SOIL	120	1.0	65	61	17	-	-	2.1	9.9	36	2.61	30
15.09	66.8	68.5	208.4	66.8	3.6	0.8	5.4	clayy SILT to silty CLAY	115	2.0	34	33	17	-	-	4.7	9.9	33	2.55	15
15.26	74.1	75.5	218.5	74.1	4.0	0.6	5.4	very stiff fine SOIL	120	1.0	76	74	19	-	-	2.6	9.9	32	2.52	30
15.42	81.2	82.4	225.8	81.2	4.3	0.2	5.3	very stiff fine SOIL	120	1.0	82	81	20	-	-	2.8	9.9	30	2.49	30

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

Middle Earth Geo Testing

Project ID: Cornerstone Earth Group
Data File: SDF(712).cpt
CPT Date: 4/26/2018 8:47:29 AM
GW During Test: 16 ft

Sounding ID: CPT-05
Project No: 400-3-1
Cone/Rig: DDG1379

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	Ic SBT Indx	Nk -
15.58	82.9	83.6	227.8	82.9	4.4	0.3	5.3	very stiff fine SOIL	120	1.0	84	83	20	-	-	2.9	9.9	30	2.49	30
15.75	84.6	84.9	220.8	84.6	4.2	0.2	5.0	very stiff fine SOIL	120	1.0	85	85	20	-	-	3.0	9.9	29	2.47	30
15.91	83.0	82.9	208.7	83.0	3.8	0.2	4.7	clayy SILT to silty CLAY	115	2.0	41	42	20	-	-	5.8	9.9	28	2.45	15
16.08	78.4	78.1	213.2	78.4	3.9	0.3	5.1	clayy SILT to silty CLAY	115	2.0	39	39	19	-	-	5.5	9.9	30	2.49	15
16.24	69.0	68.6	222.7	69.0	4.1	0.2	6.0	very stiff fine SOIL	120	1.0	69	69	17	-	-	2.4	9.9	35	2.59	30
16.40	59.4	61.9	-	59.4	4.4	0.3	7.5	very stiff fine SOIL	120	1.0	62	59	17	-	-	2.1	9.9	40	2.69	30
16.57	57.8	59.9	-	57.8	4.3	0.5	7.5	silty CLAY to CLAY	115	1.5	40	39	16	-	-	4.0	9.9	40	2.70	15
16.73	56.1	57.9	-	56.1	4.1	0.7	7.5	silty CLAY to CLAY	115	1.5	39	37	16	-	-	3.9	9.9	41	2.71	15
16.90	55.3	56.8	-	55.3	4.0	1.0	7.4	silty CLAY to CLAY	115	1.5	38	37	15	-	-	3.8	9.9	41	2.71	15
17.06	54.9	56.2	-	54.9	4.0	1.2	7.5	silty CLAY to CLAY	115	1.5	37	37	15	-	-	3.8	9.9	41	2.72	15
17.23	54.3	55.3	-	54.3	4.2	1.1	7.9	silty CLAY to CLAY	115	1.5	37	36	15	-	-	3.8	9.9	43	2.74	15
17.39	53.0	53.7	-	53.0	4.2	1.1	8.1	silty CLAY to CLAY	115	1.5	36	35	15	-	-	3.7	9.9	43	2.76	15
17.55	51.1	51.6	-	51.1	4.2	1.1	8.3	silty CLAY to CLAY	115	1.5	34	34	14	-	-	3.5	9.9	44	2.77	15
17.72	49.7	50.0	-	49.7	4.1	1.1	8.5	silty CLAY to CLAY	115	1.5	33	33	14	-	-	3.4	9.9	45	2.79	15
17.88	49.8	49.9	-	49.8	4.1	1.0	8.4	silty CLAY to CLAY	115	1.5	33	33	14	-	-	3.5	9.9	45	2.79	15
18.05	49.3	49.2	-	49.3	4.0	1.1	8.3	silty CLAY to CLAY	115	1.5	33	33	14	-	-	3.4	9.9	45	2.79	15
18.21	48.5	48.1	-	48.5	3.9	1.0	8.2	silty CLAY to CLAY	115	1.5	32	32	14	-	-	3.4	9.9	45	2.79	15
18.37	49.0	48.4	-	49.0	3.7	1.0	7.7	silty CLAY to CLAY	115	1.5	32	33	13	-	-	3.4	9.9	44	2.77	15
18.54	50.7	49.9	-	50.7	3.7	0.8	7.5	silty CLAY to CLAY	115	1.5	33	34	14	-	-	3.5	9.9	43	2.75	15
18.70	51.6	50.6	-	51.6	3.8	-0.2	7.6	silty CLAY to CLAY	115	1.5	34	34	14	-	-	3.6	9.9	43	2.75	15
18.87	49.4	48.2	-	49.4	3.7	-0.1	7.8	silty CLAY to CLAY	115	1.5	32	33	13	-	-	3.4	9.9	44	2.77	15
19.03	47.1	45.8	-	47.1	3.4	-0.2	7.4	silty CLAY to CLAY	115	1.5	31	31	13	-	-	3.3	9.9	44	2.77	15
19.19	41.8	40.4	-	41.8	3.0	-0.5	7.5	silty CLAY to CLAY	115	1.5	27	28	12	-	-	2.9	9.9	47	2.81	15
19.36	43.6	42.0	-	43.6	3.0	-0.5	7.0	silty CLAY to CLAY	115	1.5	28	29	12	-	-	3.0	9.9	45	2.78	15
19.52	46.5	44.6	-	46.5	3.2	-0.6	7.0	silty CLAY to CLAY	115	1.5	30	31	12	-	-	3.2	9.9	44	2.76	15
19.69	52.2	49.9	-	52.2	3.4	-0.8	6.7	silty CLAY to CLAY	115	1.5	33	35	13	-	-	3.6	9.9	41	2.71	15
19.85	56.9	54.2	-	56.9	3.6	-1.1	6.4	silty CLAY to CLAY	115	1.5	36	38	14	-	-	3.9	9.9	39	2.68	15
20.01	56.8	53.9	-	56.8	3.8	-1.1	6.8	silty CLAY to CLAY	115	1.5	36	38	14	-	-	3.9	9.9	40	2.69	15
20.18	57.9	54.7	-	57.9	3.6	-1.2	6.4	silty CLAY to CLAY	115	1.5	36	39	14	-	-	4.0	9.9	39	2.67	15
20.34	58.1	54.6	-	58.0	3.2	-1.1	5.7	silty CLAY to CLAY	115	1.5	36	39	14	-	-	4.0	9.9	37	2.63	15
20.51	63.0	59.3	167.8	63.0	2.6	-1.0	4.2	clayy SILT to silty CLAY	115	2.0	30	32	14	-	-	4.4	9.9	31	2.51	15
20.67	66.3	62.2	151.4	66.3	2.2	-1.1	3.4	clayy SILT to silty CLAY	115	2.0	31	33	15	-	-	4.6	9.9	28	2.43	15
20.83	63.7	59.6	151.6	63.7	2.2	-1.0	3.5	clayy SILT to silty CLAY	115	2.0	30	32	14	-	-	4.4	9.9	29	2.45	15
21.00	57.3	53.6	165.4	57.3	2.5	-0.9	4.4	clayy SILT to silty CLAY	115	2.0	27	29	13	-	-	4.0	9.9	33	2.56	15
21.16	54.9	51.2	164.5	54.9	2.4	-0.8	4.6	clayy SILT to silty CLAY	115	2.0	26	27	13	-	-	3.8	9.9	34	2.58	15
21.33	43.3	39.8	-	43.3	2.4	-1.1	5.7	silty CLAY to CLAY	115	1.5	27	29	11	-	-	3.0	9.9	42	2.73	15
21.49	39.8	36.4	-	39.8	2.4	-1.0	6.2	silty CLAY to CLAY	115	1.5	24	27	10	-	-	2.7	9.9	45	2.78	15
21.65	34.4	31.3	-	34.4	2.4	-1.1	7.2	silty CLAY to CLAY	115	1.5	21	23	9	-	-	2.4	9.9	51	2.88	15
21.82	35.4	32.1	-	35.4	2.1	-1.1	6.2	silty CLAY to CLAY	115	1.5	21	24	9	-	-	2.4	9.9	47	2.82	15
21.98	36.2	32.7	-	36.2	2.1	-1.1	6.2	silty CLAY to CLAY	115	1.5	22	24	9	-	-	2.5	9.9	47	2.81	15
22.15	41.4	37.3	-	41.4	2.2	-1.6	5.6	silty CLAY to CLAY	115	1.5	25	28	10	-	-	2.8	9.9	43	2.74	15
22.31	35.9	32.2	-	35.9	2.4	-1.2	7.1	silty CLAY to CLAY	115	1.5	21	24	9	-	-	2.5	9.9	50	2.86	15
22.47	32.1	28.7	-	32.1	2.3	-1.2	7.5	silty CLAY to CLAY	115	1.5	19	21	9	-	-	2.2	9.1	53	2.92	15
22.64	33.3	29.6	-	33.3	2.0	-1.0	6.2	silty CLAY to CLAY	115	1.5	20	22	9	-	-	2.3	9.4	49	2.85	15
22.80	42.9	38.1	-	42.9	1.6	-1.2	3.9	clayy SILT to silty CLAY	115	2.0	19	21	10	-	-	3.0	9.9	37	2.63	15
22.97	33.2	29.3	-	33.1	1.6	-1.3	5.0	silty CLAY to CLAY	115	1.5	20	22	8	-	-	2.3	9.3	45	2.79	15
23.13	31.9	28.0	-	31.9	1.6	-0.8	5.3	silty CLAY to CLAY	115	1.5	19	21	8	-	-	2.2	8.9	47	2.82	15
23.30	50.8	46.2	112.4	50.8	1.2	-0.7	2.5	silty SAND to sandy SILT	120	3.0	15	17	11	42	36	-	-	28	2.43	16
23.46	77.9	70.7	98.0	77.9	0.8	-0.7	1.1	silty SAND to sandy SILT	120	3.0	24	26	14	56	38	-	-	15	2.06	16
23.62	110.8	100.3	113.6	110.8	0.8	-0.6	0.7	clean SAND to silty SAND	125	5.0	20	22	19	67	40	-	-	9	1.83	16
23.79	143.5	129.6	130.7	143.5	0.8	-0.2	0.5	clean SAND to silty SAND	125	5.0	26	29	22	76	42	-	-	5	1.66	16
23.95	146.2	131.8	131.8	146.2	0.7	-0.4	0.5	clean SAND to silty SAND	125	5.0	26	29	23	76	42	-	-	5	1.63	16
24.12	129.5	116.5	123.5	129.5	0.8	-0.4	0.6	clean SAND to silty SAND	125	5.0	23	26	21	72	41	-	-	7	1.73	16
24.28	122.5	109.9	122.7	122.5	0.9	-0.5	0.8	clean SAND to silty SAND	125	5.0	22	24	20	70	41	-	-	8	1.81	16
24.44	104.5	93.6	101.7	104.5	0.5	-0.5	0.5	clean SAND to silty SAND	125	5.0	19	21	17	65	40	-	-	8	1.77	16
24.61	93.6	83.6	96.0	93.6	0.6	-0.6	0.6	clean SAND to silty SAND	125	5.0	17	19	16	61	39	-	-	9	1.85	16
24.77	76.6	68.3	96.8	76.6	0.8	-0.5	1.1	silty SAND to sandy SILT	120	3.0	23	26	14	54	38	-	-	15	2.08	16
24.94	85.3	75.9	102.9	85.3	0.9	-0.5	1.1	clean SAND to silty SAND	125	5.0	15	17	15	58	39	-	-	14	2.04	16
25.10	115.5	102.6	122.4	115.5	1.1	0.4	1.0	clean SAND to silty SAND	125	5.0	21	23	19	68	40	-	-	11	1.90	16
25.26	118.1	104.6	115.0	118.1	0.8	0.0	0.7	clean SAND to silty SAND	125	5.0	21	24	19	68	40	-	-	8	1.79	16
25.43	75.5	66.8	87.5	75.5	0.6	-0.6	0.8	clean SAND to silty SAND	125	5.0	13	15	13	54	38	-	-	13	2.01	16
25.59	39.9	35.2	95.9	39.9	0.8	-0.8	2.2	clayy SILT to silty CLAY	115	2.0	18	20	9	-	-	2.7	9.9	30	2.49	15
25.76	24.1	19.8	-	24.0	1.1	-0.4	4.8	silty CLAY to CLAY	115	1.5	13	16	6	-	-	1.6	6.1	53	2.91	15
25.92	20.7	16.9	-	20.7	1.0	-0.2	5.0	silty CLAY to CLAY	115	1.5	11	14	5	-	-	1.4	5.2	57	2.98	15
26.08	19.0	15.5	-	19.0	0.6	0.4	3.5	silty CLAY to CLAY	115	1.5	10	13	5	-	-	1.3	4.7	53	2.91	15
26.25	46.2	40.4	76.6	46.2	0.5	1.2	1.2	silty SAND to sandy SILT	120	3.0	13	15	9	37	35	-	-	22	2.28	16
26.41	42.5	37.2	85.6	42.5	0.7	0.2	1.7	silty SAND to sandy SILT	120	3.0	12	14	9	34	34	-	-	26	2.40	16
26.58	19.5	15.7	-	19.5	0.7	0.0	3.7	silty CLAY to CLAY	115	1.5	10	13	5	-	-	1.3	4.8	54	2.92	15
26.74	14.6	11.8	-	14.6	0.5	0.0	4.2	silty CLAY to CLAY	115	1.5	8	10	4	-	-	0.9	3.5	63	3.06	15
26.90	12.5	10.0	-	12.5	0.3	0.1	3.1	silty CLAY to CLAY	115	1.5	7	8	3	-	-	0.8	2.9	62	3.06	15
27.07	11.0	8.8	-	11.1	0.3	1.7	3.3	silty CLAY to CLAY	115	1.5	6	7	3	-	-	0.7	2.5	67	3.12	15
27.23	11.1	8.9	-	11.2	0.4	2.7	3.8	silty CLAY to CLAY	115	1.5	6	7	3	-	-	0.7	2.5	70	3.16	15
27.40	12.9	10.3	-	13.0	0.4	3.6	3.9	silty CLAY to CLAY	115	1.5	7	9	3	-	-	0.8	3.0	66	3.10	15
27.56	12.3	9.8	-	12.4	0.4	3.0	3.7	silty CLAY to CLAY	115	1.5	7	8	3	-	-	0.8	2.8	66	3.11	15
27.72	11.3	8.9	-	11.3	0.3	2.9	3.6	silty CLAY to CLAY	115	1.5	6	8	3	-	-	0.7	2.5	68	3.14	15
27.89	12.2	9.6	-	12.3	0.3	2.9	2.7	silty CLAY to CLAY	115	1.5	6	8	3	-	-	0.8	2.7	61	3.04	15
28.05	12.2	9.5	-	12.2	0.4	2.9	3.5	silty CLAY to CLAY	115	1.5	6	8	3	-	-	0.8	2.7	66	3.10	15
28.22	11.9	9.3	-	12.0	0.5	3.3	4.6	silty CLAY to CLAY	115	1.5	6	8	3	-	-	0.8	2.6	72	3.18	15
28.38	10.2	7.9	-	10.3	0.5	3.7	5.7	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	2.2	82	3.31	15
28.54	7.9	6.1	-	8.0	0.4	3.9	6.5	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.5	1.6	94	3.45	15
28.71	7.1	5.5	-	7.2	0.4	4.5	6.9	Organic SOILS - Peats	100	1.0	6	7	3	-	-	0.6	1.4	95	3.51	10
28.87	7.5	5.8	-	7.6	0.4	4.8	7.2	Organic SOILS - Peats	100	1.0	6	8	3	-	-	0.7	1.5	95	3.50	10
29.04	7.8	6.0	-	7.9	0.4	5.3	6.9	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.5	1.5	95	3.47	15
29.20	7.2	5.6	-	7.4	0.4	5.9	7.2	Organic SOILS - Peats	100	1.0	6	7	3	-	-	0.6	1.4	95	3.52	10
29.36	8.1	6.2	-	8.2	0.4	6.3	6.5	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.5	1.6	94	3.44	15
29.53	7.9	6.0	-	8.0	0.4	6.5	6.7	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.5	1.5	95	3.47	15
29.69	7.9	6.0	-	8.0	0.4	6.7	7.3	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.5	1.5	95	3.49	15
29.86	7.3	5.5	-	7.5	0.4	6.7	7.0	Organic SOILS - Peats	100	1.0	6	7	3	-	-	0.6	1.4	95	3.52	10
30.02	7.0	5.3	-	7.2	0.4	7.0	6.7	Organic SOILS - Peats	100	1.0	5	7	3	-	-	0.6	1.3	95	3.52	10
30.19	6.7	5.1	-	6.9	0.2	7.1	4.4	silty CLAY to CLAY	115	1.5	3	4	2	-	-	0.4	1.2	94	3.45	15
30.35	6.4	4.8	-	6.5	0.3	7.2	5.6	silty CLAY to CLAY	115	1.5	3	4	2	-	-	0.4	1.1	95	3.53	15
30.51	5.5	4.1	-	5.7	0.1	7.6	2.2	silty CLAY to CLAY	115	1.5	3	4	2	-	-	0.3	0.9	90	3.40	15
30.68	8.0	6.0	-	8.2	0.3	7.9	5.3	silty CLAY to CLAY	115	1.5	4	5	3	-	-	0.5	1.5	91	3.41	15
30.84	5.9	4.4	-	6.0	0.3	8.8	7.5	Organic SOILS - Peats	100	1.0	4	6	2	-	-	0.5	1.0	95	3.65	10

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

1188 East 14th Street

Project ID: Cornerstone Earth Group
Data File: SDF(712).cpt
CPT Date: 4/26/2018 8:47:29 AM
GW During Test: 16 ft

Sounding ID: CPT-05
Project No: 400-3-1
Cone/Rig: DDG1379

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	Ic SBT Indx	Nk -
31.01	9.3	6.9	-	9.5	0.3	9.2	4.2	silty CLAY to CLAY	115	1.5	5	6	3	-	-	0.6	1.8	80	3.29	15
31.17	8.3	6.1	-	8.5	0.4	9.6	5.6	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.6	91	3.41	15
31.33	8.8	6.5	-	9.0	0.4	9.7	6.4	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.7	92	3.42	15
31.50	9.6	7.0	-	9.8	0.5	9.6	6.6	silty CLAY to CLAY	115	1.5	5	6	3	-	-	0.6	1.9	89	3.40	15
31.66	12.0	8.8	-	12.2	0.6	9.8	5.9	silty CLAY to CLAY	115	1.5	6	8	3	-	-	0.8	2.5	79	3.27	15
31.83	12.3	9.0	-	12.5	0.7	9.6	6.6	silty CLAY to CLAY	115	1.5	6	8	4	-	-	0.8	2.5	81	3.29	15
31.99	11.8	8.6	-	11.9	0.7	9.4	7.0	silty CLAY to CLAY	115	1.5	6	8	3	-	-	0.7	2.4	84	3.33	15
32.15	10.8	7.9	-	11.0	0.6	9.4	6.8	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.7	2.1	86	3.36	15
32.32	10.1	7.3	-	10.3	0.5	9.3	6.6	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	2.0	88	3.38	15
32.48	9.7	7.0	-	9.9	0.5	9.4	6.5	silty CLAY to CLAY	115	1.5	5	6	3	-	-	0.6	1.9	89	3.39	15
32.65	9.8	7.0	-	9.9	0.5	9.5	6.4	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	1.9	89	3.39	15
32.81	9.8	7.0	-	9.9	0.5	9.6	6.4	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	1.9	89	3.39	15
32.97	9.5	6.8	-	9.7	0.5	9.7	6.1	silty CLAY to CLAY	115	1.5	5	6	3	-	-	0.6	1.8	89	3.39	15
33.14	9.9	7.1	-	10.1	0.4	9.9	5.6	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	1.9	85	3.35	15
33.30	10.4	7.4	-	10.6	0.4	10.0	5.1	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	2.0	82	3.31	15
33.47	10.5	7.4	-	10.7	0.4	10.2	5.0	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	2.0	82	3.31	15
33.63	10.1	7.2	-	10.4	0.4	10.4	4.5	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	1.9	81	3.30	15
33.79	10.2	7.2	-	10.4	0.4	10.5	4.6	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	1.9	81	3.30	15
33.96	10.3	7.2	-	10.5	0.4	10.8	4.9	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	1.9	82	3.31	15
34.12	9.9	6.9	-	10.1	0.4	10.9	4.8	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	1.8	83	3.32	15
34.29	9.8	6.8	-	10.0	0.3	11.0	4.2	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	1.8	81	3.30	15
34.45	9.9	6.9	-	10.2	0.4	11.1	4.7	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	1.8	83	3.32	15
34.61	9.3	6.5	-	9.5	0.3	11.2	4.5	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.6	1.7	85	3.34	15
34.78	9.3	6.4	-	9.5	0.3	11.4	4.4	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.6	1.7	84	3.34	15
34.94	10.0	6.9	-	10.2	0.4	11.6	4.6	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	1.8	83	3.32	15
35.11	9.6	6.6	-	9.9	0.3	12.4	4.4	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.6	1.7	83	3.32	15
35.27	9.2	6.3	-	9.4	0.3	12.6	3.8	silty CLAY to CLAY	115	1.5	4	6	3	-	-	0.5	1.6	82	3.31	15
35.43	10.0	6.8	-	10.3	0.3	13.1	3.6	silty CLAY to CLAY	115	1.5	5	7	3	-	-	0.6	1.8	78	3.26	15
35.60	13.4	9.1	-	13.7	0.4	13.9	3.8	silty CLAY to CLAY	115	1.5	6	9	3	-	-	0.8	2.5	69	3.15	15
35.76	17.7	12.0	-	18.0	0.6	14.5	4.1	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.1	3.5	62	3.05	15
35.93	19.5	13.2	-	19.8	0.8	15.1	4.7	silty CLAY to CLAY	115	1.5	9	13	4	-	-	1.3	3.9	62	3.06	15
36.09	19.9	13.4	-	20.2	0.9	15.4	5.2	silty CLAY to CLAY	115	1.5	9	13	4	-	-	1.3	4.0	64	3.07	15
36.26	19.8	13.3	-	20.1	1.0	15.6	5.4	silty CLAY to CLAY	115	1.5	9	13	5	-	-	1.3	3.9	65	3.09	15
36.42	19.6	13.1	-	19.9	0.8	16.0	4.9	silty CLAY to CLAY	115	1.5	9	13	4	-	-	1.3	3.9	63	3.07	15
36.58	19.7	13.2	-	20.0	0.7	16.3	4.2	silty CLAY to CLAY	115	1.5	9	13	4	-	-	1.3	3.9	60	3.03	15
36.75	20.4	13.6	-	20.8	0.8	16.6	4.4	silty CLAY to CLAY	115	1.5	9	14	4	-	-	1.3	4.0	60	3.03	15
36.91	21.8	14.5	-	22.1	0.9	16.9	4.7	silty CLAY to CLAY	115	1.5	10	15	5	-	-	1.4	4.3	60	3.02	15
37.08	23.6	15.6	-	23.9	1.1	17.2	5.1	silty CLAY to CLAY	115	1.5	10	16	5	-	-	1.6	4.7	59	3.01	15
37.24	25.6	16.9	-	25.9	1.2	17.3	5.0	silty CLAY to CLAY	115	1.5	11	17	5	-	-	1.7	5.1	57	2.98	15
37.40	25.2	16.6	-	25.5	1.1	17.5	4.9	silty CLAY to CLAY	115	1.5	11	17	5	-	-	1.7	5.0	57	2.98	15
37.57	25.4	16.7	-	25.7	1.1	17.8	4.8	silty CLAY to CLAY	115	1.5	11	17	5	-	-	1.7	5.0	57	2.97	15
37.73	25.6	16.8	-	26.0	1.1	18.0	4.6	silty CLAY to CLAY	115	1.5	11	17	5	-	-	1.7	5.1	56	2.96	15
37.90	25.6	16.8	-	26.0	1.1	18.3	4.8	silty CLAY to CLAY	115	1.5	11	17	5	-	-	1.7	5.1	57	2.98	15
38.06	25.6	16.7	-	26.0	1.2	18.3	5.2	silty CLAY to CLAY	115	1.5	11	17	5	-	-	1.7	5.0	58	3.00	15
38.22	26.7	17.4	-	27.1	1.2	17.9	4.9	silty CLAY to CLAY	115	1.5	12	18	5	-	-	1.8	5.3	56	2.97	15
38.39	26.6	17.2	-	26.9	1.2	18.3	4.9	silty CLAY to CLAY	115	1.5	11	18	5	-	-	1.8	5.2	56	2.97	15
38.55	26.6	17.2	-	27.0	1.2	18.3	4.8	silty CLAY to CLAY	115	1.5	11	18	5	-	-	1.8	5.2	56	2.96	15
38.72	27.1	17.5	-	27.4	1.2	18.3	4.9	silty CLAY to CLAY	115	1.5	12	18	5	-	-	1.8	5.3	56	2.96	15
38.88	24.4	15.7	-	24.8	1.2	18.2	5.4	silty CLAY to CLAY	115	1.5	10	16	5	-	-	1.6	4.7	60	3.03	15
39.04	22.6	14.5	-	23.0	1.0	18.7	5.0	silty CLAY to CLAY	115	1.5	10	15	5	-	-	1.5	4.3	61	3.04	15
39.21	24.9	15.9	-	25.2	0.9	19.4	4.1	silty CLAY to CLAY	115	1.5	11	17	5	-	-	1.6	4.8	55	2.95	15
39.37	23.7	15.1	-	24.1	0.9	18.6	4.4	silty CLAY to CLAY	115	1.5	10	16	5	-	-	1.6	4.5	58	2.99	15
39.54	21.2	13.5	-	21.6	1.0	18.3	5.1	silty CLAY to CLAY	115	1.5	9	14	4	-	-	1.4	4.0	63	3.07	15
39.70	17.9	11.4	-	18.3	0.9	17.5	5.9	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.2	3.3	71	3.17	15
39.86	17.0	10.8	-	17.4	0.8	17.2	5.7	silty CLAY to CLAY	115	1.5	7	11	4	-	-	1.1	3.1	72	3.19	15
40.03	17.7	11.2	-	18.0	0.8	17.1	5.1	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.1	3.2	69	3.14	15
40.19	17.5	11.0	-	17.8	0.8	17.0	5.4	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.1	3.1	70	3.16	15
40.36	17.9	11.3	-	18.2	0.9	15.3	5.7	silty CLAY to CLAY	115	1.5	8	12	4	-	-	1.2	3.2	71	3.17	15
40.52	16.5	10.3	-	16.7	0.9	12.7	6.7	silty CLAY to CLAY	115	1.5	7	11	4	-	-	1.0	2.9	77	3.25	15
40.68	15.0	9.3	-	15.2	0.8	11.3	6.7	silty CLAY to CLAY	115	1.5	6	10	4	-	-	0.9	2.6	80	3.29	15
40.85	14.6	9.1	-	14.8	0.8	12.0	6.2	silty CLAY to CLAY	115	1.5	6	10	4	-	-	0.9	2.5	80	3.28	15
41.01	16.1	10.0	-	16.3	0.7	12.3	5.4	silty CLAY to CLAY	115	1.5	7	11	4	-	-	1.0	2.8	73	3.20	15
41.18	17.1	10.6	-	17.4	0.9	10.9	5.9	silty CLAY to CLAY	115	1.5	7	11	4	-	-	1.1	3.0	73	3.20	15
41.34	17.5	10.8	-	17.7	0.9	10.7	6.1	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.1	3.1	73	3.20	15
41.50	17.4	10.7	-	17.6	0.9	10.8	5.7	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.1	3.0	72	3.19	15
41.67	16.6	10.2	-	16.8	0.7	11.6	5.0	silty CLAY to CLAY	115	1.5	7	11	4	-	-	1.1	2.9	71	3.18	15
41.83	17.4	10.7	-	17.6	0.7	12.0	4.5	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.1	3.0	68	3.13	15
42.00	17.7	10.8	-	17.9	0.7	12.0	4.7	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.1	3.1	68	3.13	15
42.16	17.7	10.8	-	17.9	0.8	12.1	5.3	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.1	3.1	71	3.17	15
42.32	20.3	12.3	-	20.5	0.9	12.3	5.1	silty CLAY to CLAY	115	1.5	8	14	4	-	-	1.3	3.6	66	3.10	15
42.49	21.5	13.0	-	21.7	0.9	12.3	4.9	silty CLAY to CLAY	115	1.5	9	14	4	-	-	1.4	3.8	64	3.07	15
42.65	21.7	13.1	-	21.9	0.9	12.6	4.7	silty CLAY to CLAY	115	1.5	9	14	4	-	-	1.4	3.8	63	3.06	15
42.82	21.4	12.9	-	21.7	0.8	12.8	4.5	silty CLAY to CLAY	115	1.5	9	14	4	-	-	1.4	3.8	62	3.05	15
42.98	22.1	13.3	-	22.3	0.8	13.0	4.3	silty CLAY to CLAY	115	1.5	9	15	4	-	-	1.4	3.9	61	3.03	15
43.15	23.0	13.8	-	23.3	0.9	13.4	4.6	silty CLAY to CLAY	115	1.5	9	15	5	-	-	1.5	4.1	61	3.03	15
43.31	24.5	14.6	-	24.7	1.0	13.5	4.6	silty CLAY to CLAY	115	1.5	10	16	5	-	-	1.6	4.3	59	3.01	15
43.47	26.3	15.7	-	26.6	1.2	14.0	4.8	silty CLAY to CLAY	115	1.5	10	18	5	-	-	1.7	4.7	59	3.00	15
43.64	26.9	16.0	-	27.2	1.4	14.0	5.7	silty CLAY to CLAY	115	1.5	11	18	5	-	-	1.8	4.8	61	3.04	15
43.80	26.1	15.5	-	26.4	1.5	13.8	6.4	silty CLAY to CLAY	115	1.5	10	17	5	-	-	1.7	4.6	64	3.08	15
43.97	24.3	14.4	-	24.6	1.5	13.5	6.9	silty CLAY to CLAY	115	1.5	10	16	5	-	-	1.6	4.3	68	3.13	15
44.13	22.1	13.0	-	22.3	1.3	13.3	6.9	silty CLAY to CLAY	115	1.5	9	15	5	-	-	1.4	3.8	70	3.17	15
44.29	19.8	11.7	-	20.1	1.1	13.1	6.6	silty CLAY to CLAY	115	1.5	8	13	4	-	-	1.3	3.4	73	3.20	15
44.46	17.6	10.3	-	17.8	0.9	13.2	6.2	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.1	2.9	75	3.23	15
44.62	16.5	9.7	-	16.8	0.9	13.3	6.1	silty CLAY to CLAY	115	1.5	6	11	4	-	-	1.0	2.7	77	3.25	15
44.79	15.8	9.2	-	16.0	0.7	13.4	5.6	silty CLAY to CLAY	115	1.5	6	11	3	-	-	1.0	2.5	77	3.25	15
44.95	18.6	10.8	-	18.9	0.6	14.8	3.8	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.2	3.1	64	3.08	15
45.11	17.5	10.2	-	17.8	0.6	15.0	4.1	silty CLAY to CLAY	115	1.5	7	12	4	-	-	1.1	2.8	67	3.12	15
45.28	15.0	8.7	-	15.3	0.6	14.9	4.9	silty CLAY to CLAY	115	1.5	6	10	3	-	-	0.9	2.4	76	3.24	15
45.44	12.8	7.4	-	13.1	0.6	14.5	5.9	silty CLAY to CLAY	115	1.5	5	9	3	-	-	0.8	1.9	86	3.35	15
45.61	11.4	6.6	-	11.7	0.5	14.7	5.4	silty CLAY to CLAY	115	1.5	4	8	3	-	-	0.7	1.7	89	3.39	15
45.77	11.9	6.9	-	12.2	0.4	15.1	3.8	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	1.8	79	3.28	15
45.93	12.4	7.2	-	12.7	0.3	15.3	3.3	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.8	1.9	75	3.23	15
46.10	12.4	7.1	-	12.7	0.3	15.5	3.1	silty CLAY to CLAY	115	1.5	5	8	3	-	-	0.7	1.8	74	3.22	15
46.26	13.1	7.5	-	13.4	0.3	15.8	3.2	silty CLAY to CLAY	115	1.5	5	9	3	-	-	0.8	2.0	73	3.20	15

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

Project ID: Cornerstone Earth Group
Data File: SDF(712).cpt
CPT Date: 4/26/2018 8:47:29 AM
GW During Test: 16 ft

Sounding ID: CPT-05
Project No: 400-3-1
Cone/Rig: DDG1379

Depth ft	qc PS tsf	* qc1n PS -	q1ncs PS -	* qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	* Material Behavior Description	Unit Wght pcf	Qc to N	* SPT R-N1 60%	SPT R-N 60%	* SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	* Fin Ic %	* Ic SBT Indx	* Nk -
46.43	14.3	8.2	-	14.6	0.3	16.0	2.5	silty CLAY to CLAY	115	1.5	5	10	3	-	-	0.9	2.2	66	3.10	15
46.59	13.6	7.7	-	13.9	0.3	16.5	3.1	silty CLAY to CLAY	115	1.5	5	9	3	-	-	0.8	2.0	71	3.18	15
46.75	15.8	9.0	-	16.1	0.5	17.2	3.8	silty CLAY to CLAY	115	1.5	6	11	3	-	-	1.0	2.4	70	3.16	15
46.92	21.8	12.4	-	22.2	0.5	18.0	2.7	silty CLAY to CLAY	115	1.5	8	15	4	-	-	1.4	3.6	55	2.94	15
47.08	24.2	13.7	-	24.6	0.8	19.1	3.8	silty CLAY to CLAY	115	1.5	9	16	4	-	-	1.6	4.0	58	2.99	15
47.25	26.9	15.2	-	27.3	0.8	20.4	3.2	silty CLAY to CLAY	115	1.5	10	18	5	-	-	1.8	4.5	52	2.90	15
47.41	32.5	18.3	-	33.0	1.0	24.0	3.2	silty CLAY to CLAY	115	1.5	12	22	5	-	-	2.2	5.5	48	2.84	15
47.57	33.1	18.5	-	33.6	0.9	25.5	3.0	clayy SILT to silty CLAY	115	2.0	9	17	5	-	-	2.2	5.6	46	2.81	15
47.74	32.0	17.9	-	32.5	1.0	25.5	3.5	silty CLAY to CLAY	115	1.5	12	21	5	-	-	2.1	5.4	50	2.87	15
47.90	25.5	14.2	-	26.0	1.0	25.5	4.4	silty CLAY to CLAY	115	1.5	9	17	5	-	-	1.7	4.2	59	3.01	15
48.07	23.4	13.0	-	23.9	1.0	26.8	5.1	silty CLAY to CLAY	115	1.5	9	16	4	-	-	1.5	3.8	64	3.08	15
48.23	34.1	18.9	-	34.6	1.4	27.2	4.4	silty CLAY to CLAY	115	1.5	13	23	6	-	-	2.3	5.7	52	2.91	15
48.39	38.6	21.4	-	39.1	1.8	27.7	4.9	silty CLAY to CLAY	115	1.5	14	26	6	-	-	2.6	6.5	52	2.90	15
48.56	39.5	21.8	-	40.0	2.1	27.9	5.7	silty CLAY to CLAY	115	1.5	15	26	7	-	-	2.7	6.7	54	2.93	15
48.72	40.2	22.1	-	40.7	2.1	28.5	5.6	silty CLAY to CLAY	115	1.5	15	27	7	-	-	2.7	6.8	53	2.92	15
48.89	40.7	22.4	-	41.3	2.5	28.6	6.5	silty CLAY to CLAY	115	1.5	15	27	7	-	-	2.7	6.9	56	2.96	15
49.05	41.0	22.5	-	41.6	2.6	28.6	6.8	silty CLAY to CLAY	115	1.5	15	27	7	-	-	2.8	6.9	57	2.97	15
49.22	41.1	22.5	-	41.7	2.5	28.8	6.6	silty CLAY to CLAY	115	1.5	15	27	7	-	-	2.8	6.9	56	2.96	15
49.38	41.0	22.4	-	41.6	2.5	29.4	6.5	silty CLAY to CLAY	115	1.5	15	27	7	-	-	2.8	6.9	56	2.96	15
49.54	40.3	22.0	-	40.9	2.4	29.7	6.3	silty CLAY to CLAY	115	1.5	15	27	7	-	-	2.7	6.7	56	2.96	15
49.71	39.6	21.5	-	40.1	2.3	29.8	6.2	silty CLAY to CLAY	115	1.5	14	26	7	-	-	2.7	6.6	56	2.96	15
49.87	36.9	20.0	-	37.5	2.2	30.1	6.5	silty CLAY to CLAY	115	1.5	13	25	6	-	-	2.5	6.1	58	3.00	15
50.04	35.2	19.1	-	35.8	2.0	29.6	6.2	silty CLAY to CLAY	115	1.5	13	23	6	-	-	2.4	5.8	59	3.00	15

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

Middle Earth Geo Testing

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 31 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 27 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.

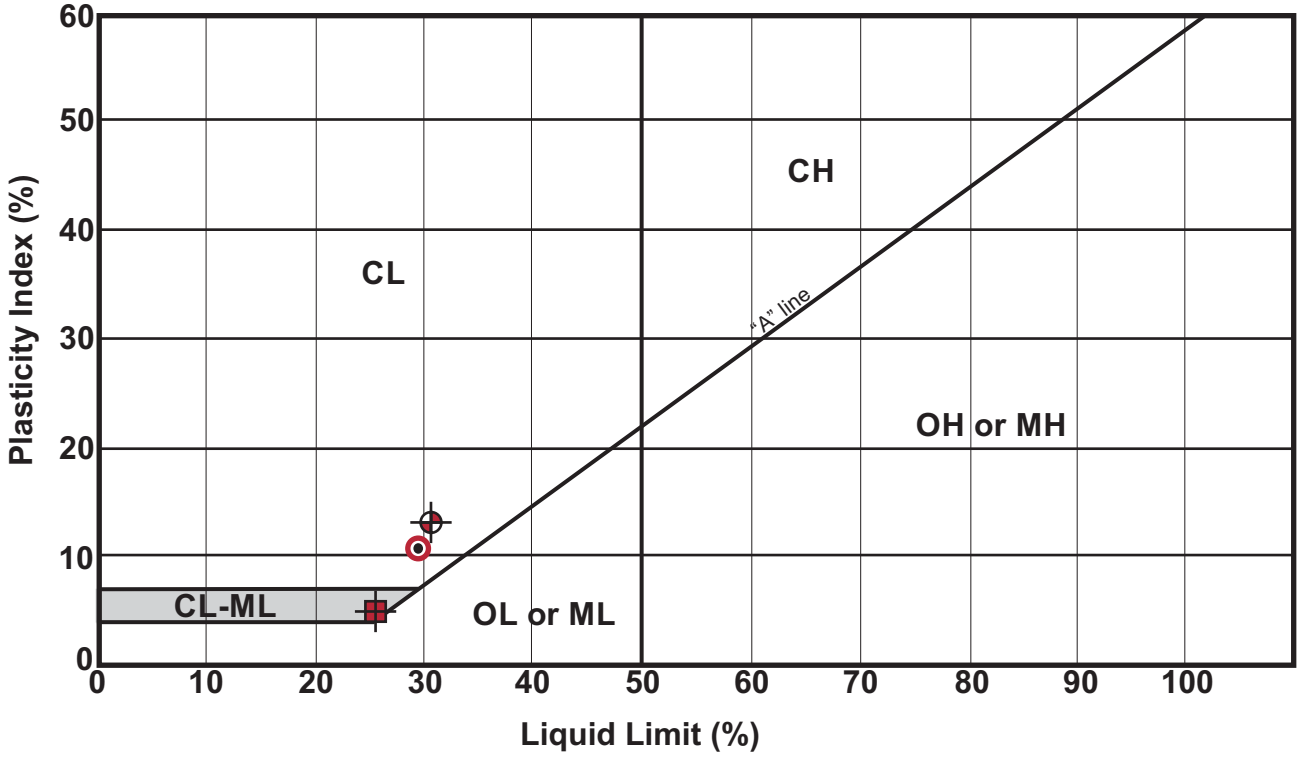
Washed Sieve Analyses: The percent soil fraction passing the No. 200 sieve (ASTM D1140) was determined on five samples of the subsurface soils to aid in the classification of these soils. Results of these tests are shown on the boring logs at the appropriate sample depths.

Plasticity Index: Plasticity Index determination (ASTM D4318) was performed on three samples of the subsurface soil to measure the range of water contents over which this material exhibits plasticity. The Plasticity Indices were used to classify the soil in accordance with the Unified Soil Classification System and to evaluate the soil expansion potential. Results of this test are shown on the boring log at the appropriate sample depth.

Undrained-Unconsolidated Triaxial Shear Strength: The undrained shear strength was determined on three relatively undisturbed samples by unconsolidated-undrained triaxial shear strength testing (ASTM D2850). The results of this test are included as part of this appendix.

Consolidation: one 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 test is presented graphically in 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-2	1.3	15	31	18	13	—	Sandy Lean Clay (CL) [Fill]
■	EB-2	3.5	14	25	20	5	—	Silty, Clayey Sand (SC-SM)(CL-ML fines)
◉	EB-3	2.3	14	29	18	11	—	Lean Clay with Sand (CL)

CORNERSTONE EARTH GROUP

Plasticity Index Testing Summary

1188 East 14th Street
San Leandro, CA

Project Number: 444-3-1

Figure Number: Figure B1

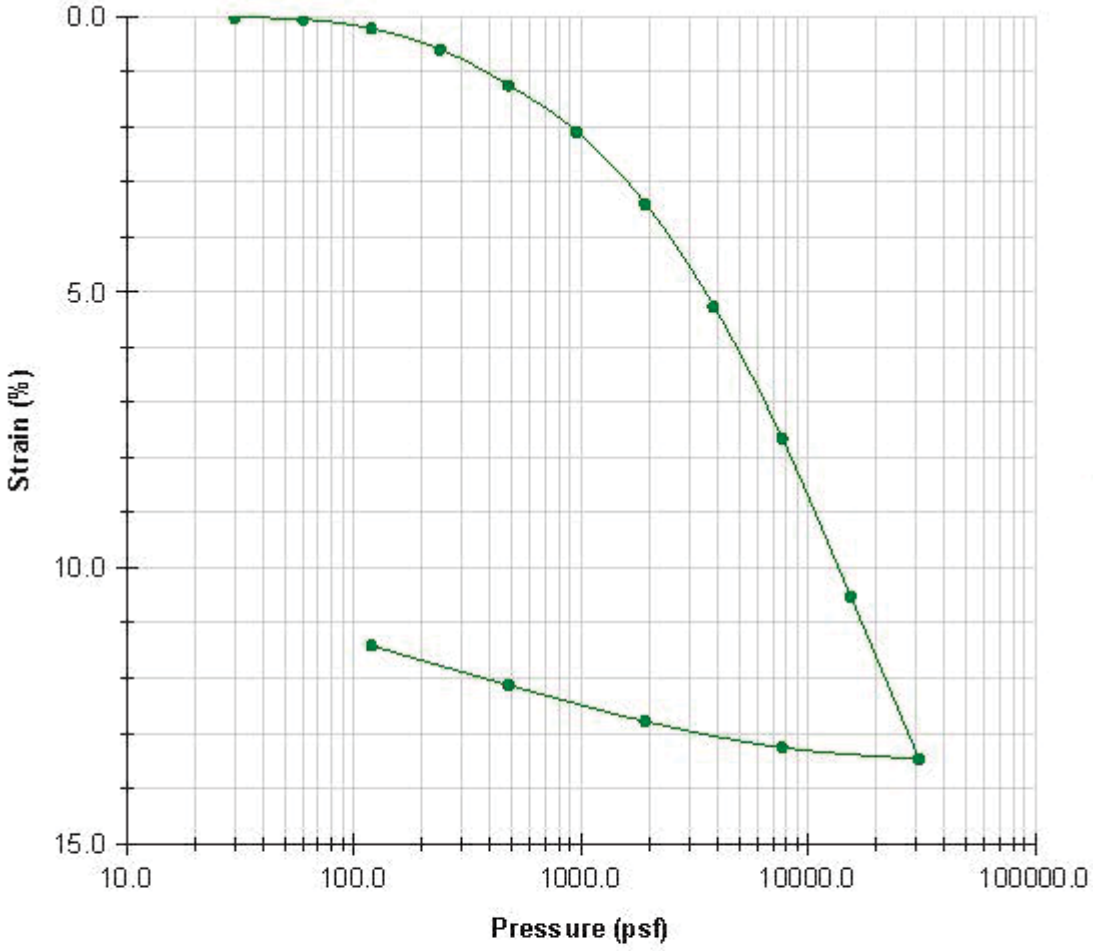
Date: May 2018

Drawn By: FLL

Consolidation Test ASTM D2435

Boring: EB-1 **Sample:** 10 **Depth:** 29.0'

Desription: Lean Clay with Sand (CL)



	BEFORE	AFTER
Moisture (%)	22.3	17.9
Dry Density (pcf)	103.1	114.2
Saturation (%)	98.7	100.0
Void Ratio	0.65	0.49

(A) Stress Strain Curve

CORNERSTONE EARTH GROUP

Strain-Log Curve - EB-1 @ 29.0'

1188 East 14th Street
San Leandro, CA

Project Number: 444-3-1

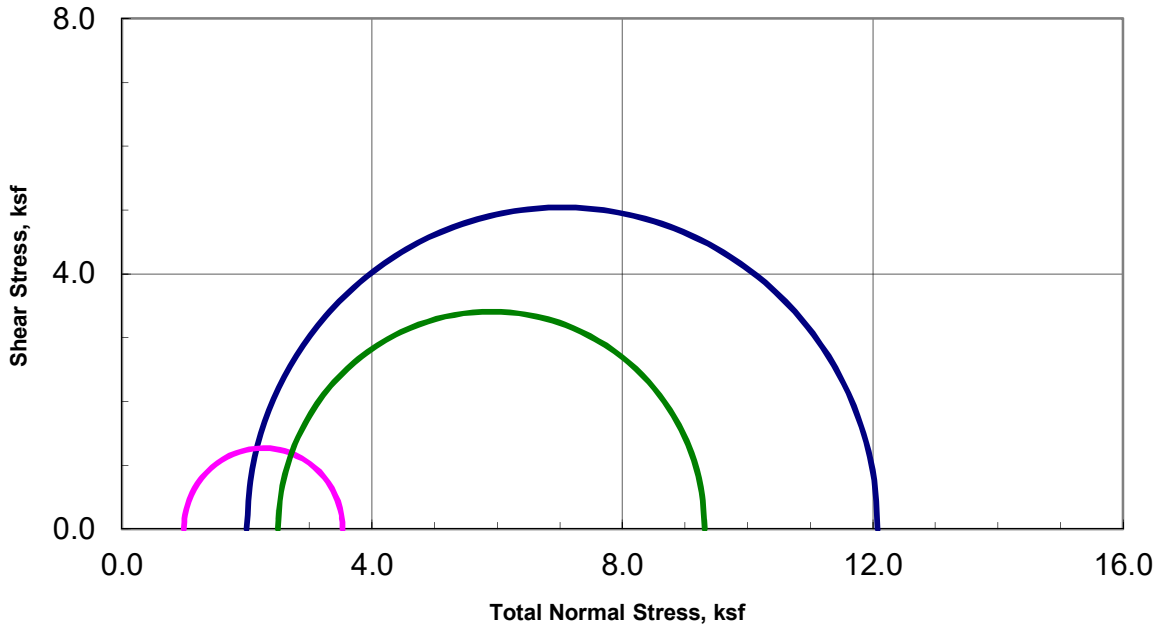
Figure Number:

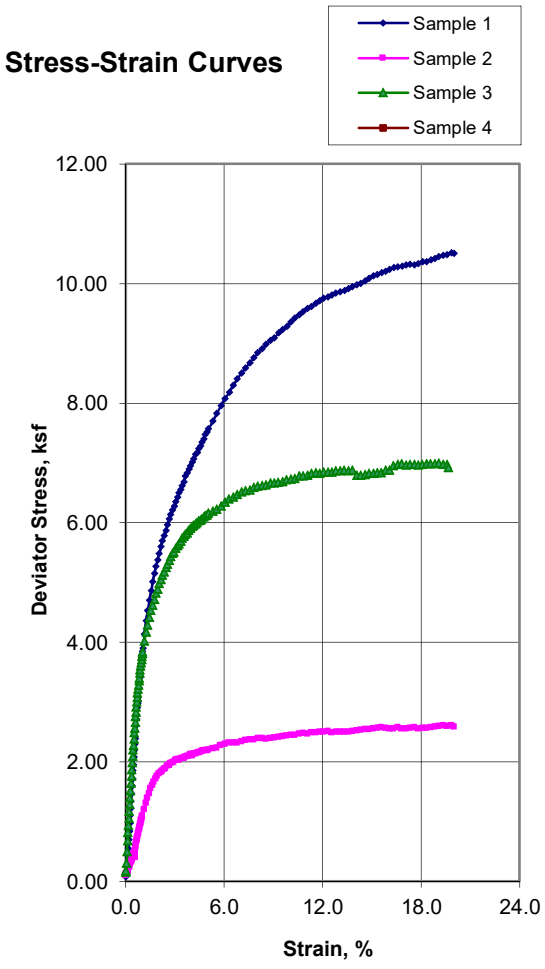
Date: June 2018

Drawn By: FLL

Cooper Testing Labs, Inc.
937 Commercial Street
Palo Alto, CA 94303

Unconsolidated-Undrained Triaxial Test
ASTM D2850





Sample Data				
	1	2	3	4
Moisture %	20.2	22.2	12.1	
Dry Den,pcf	108.8	96.2	108.4	
Void Ratio	0.549	0.752	0.555	
Saturation %	99.4	79.6	58.9	
Height in	5.02	4.97	5.00	
Diameter in	2.40	2.43	2.41	
Cell psi	13.9	6.9	17.4	
Strain %	15.00	15.00	15.00	
Deviator, ksf	10.085	2.537	6.819	
Rate %/min	1.00	1.00	1.00	
in/min	0.050	0.050	0.050	
Job No.:	640-1225			
Client:	Cornerstone Earth Group			
Project:	1188 East 14th Street - 444-3-			
Boring:	EB-1	EB-2	EB-3	
Sample:	7A	84A	8A	
Depth ft:	19.0	8.0	23.5	

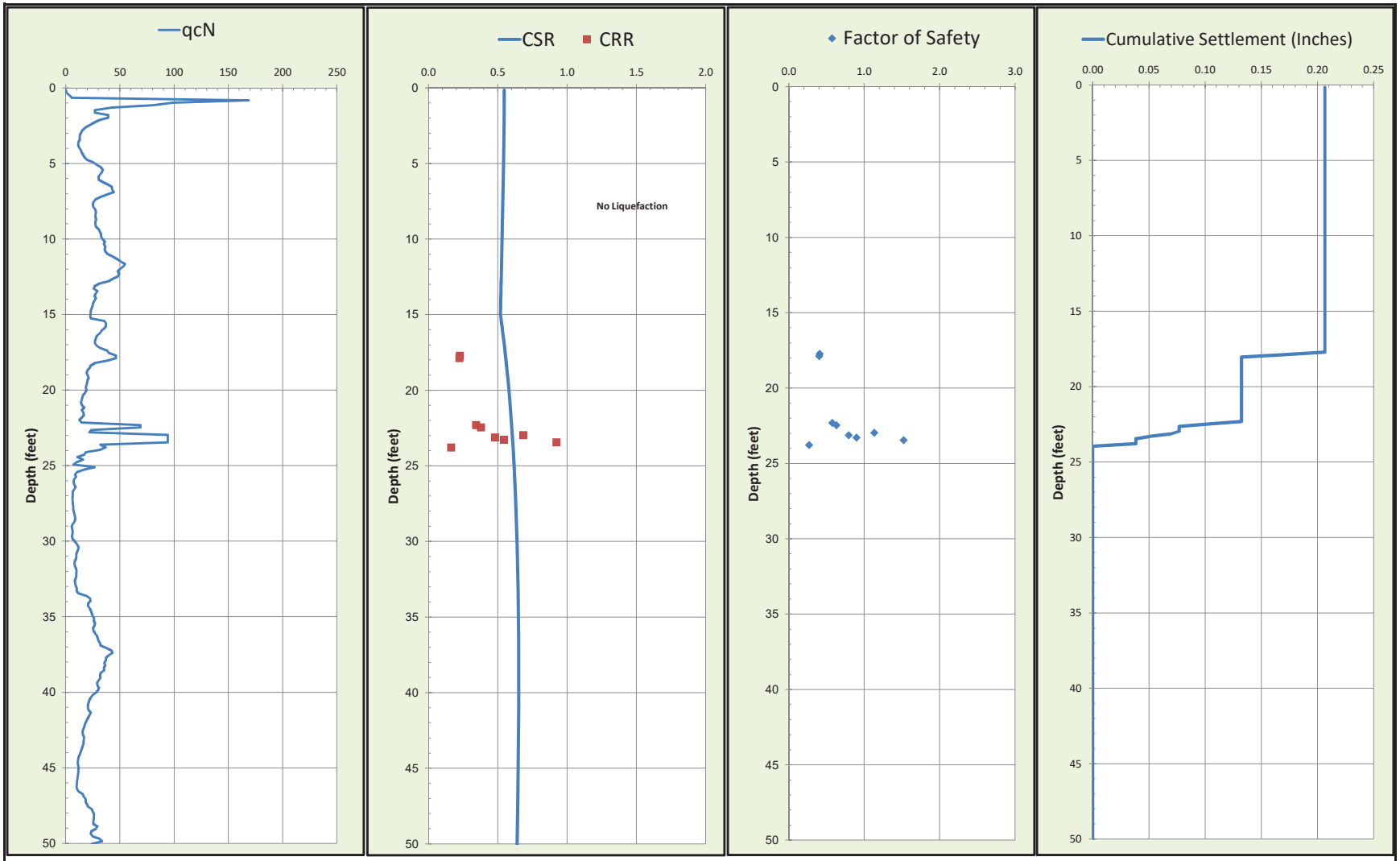
Visual Soil Description	
Sample #	
1	Dark Olive Brown CLAY w/ Sand
2	Dark Yellowish Brown Sandy CLAY
3	Yellowish Brown Clayey SAND w/ Gravel
4	

Remarks:

Note: Strengths are picked at the peak deviator stress or 15% strain which ever occurs first per ASTM D2850.

CORNERSTONE EARTH GROUP

APPENDIX C: RESULTS OF LIQUEFACTION ANALYSIS



CORNERSTONE EARTH GROUP

Liquefaction Analysis Summary

1188 East 14th Street
San Leandro, California

Project Number: 444-3-1

Figure Number: Figure C-1

6/5/2018

CPT No. 1

CORNERSTONE EARTH GROUP

CPT No. 1

PGA (A_{max}) 0.84

Total Settlement: 0.21 (Inches)

© 2014 Cornerstone Earth Group, Inc.

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_H)	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)
0.160	0.410	0.028	19.2	19.2	41.708	6.968	2.77		Unsaturated	84.7			0.39	1.70	0.66	53.41	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.330	0.720	0.041	39.6	39.6	35.364	5.913	2.77		Unsaturated	84.4			0.68	1.70	1.16	54.03	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.490	3.690	0.407	58.8	58.8	124.510	11.107	2.65		Unsaturated	75.0			3.49	1.70	5.93	59.05	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.660	6.020	0.324	79.2	79.2	56.363	5.423	2.60		Unsaturated	71.2			5.69	1.70	9.67	63.31	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.820	178.400	0.777	98.4	98.4	781.717	0.436	1.03		Unsaturated	0.0			168.62	1.70	286.65	286.65	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.980	104.590	1.382	117.6	117.6	419.097	1.322	1.59		Unsaturated	0.0			98.86	1.70	168.06	168.06	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.150	85.100	1.906	138.0	138.0	314.710	2.242	1.85		Unsaturated	18.0			80.43	1.70	136.74	172.82	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.310	44.890	1.896	157.2	157.2	155.394	4.230	2.25		Unsaturated	18.0			42.43	1.70	72.13	100.71	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.480	28.420	1.565	177.6	177.6	92.431	5.524	2.47		Unsaturated	18.0			26.86	1.70	45.67	71.17	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.640	28.450	1.086	196.8	196.8	87.869	3.829	2.36		Unsaturated	18.0			26.89	1.70	45.71	71.22	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.800	41.540	0.806	216.0	216.0	122.569	1.944	2.05		Unsaturated	18.0			39.26	1.70	66.75	94.70	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.970	41.630	0.598	236.4	236.4	117.387	1.440	1.96		Unsaturated	18.0			39.35	1.70	66.89	94.86	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.130	32.550	0.495	255.6	255.6	88.173	1.525	2.07		Unsaturated	18.0			30.77	1.70	52.30	78.57	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.300	27.330	0.367	276.0	276.0	71.164	1.349	2.11		Unsaturated	18.0			25.83	1.70	43.91	69.21	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.460	23.710	0.452	295.2	295.2	59.626	1.920	2.27		Unsaturated	18.0			22.41	1.70	38.10	62.72	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.620	19.290	0.427	314.4	314.4	46.915	2.233	2.39		Unsaturated	53.9			18.23	1.70	31.00	86.61	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.790	16.660	0.325	334.8	334.8	39.189	1.968	2.41		Unsaturated	55.9			15.75	1.70	26.77	81.85	1.00	0.545	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.950	15.170	0.277	354.0	354.0	34.646	1.848	2.44		Unsaturated	57.9			14.34	1.70	24.38	79.37	1.00	0.545	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.120	13.810	0.305	374.4	374.4	30.611	2.237	2.53		Unsaturated	65.4			13.05	1.70	22.19	78.37	1.00	0.545	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.280	13.740	0.396	393.6	393.6	41.549	2.926	2.50		Unsaturated	63.3			12.99	1.70	22.08	77.78	1.00	0.544	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.440	13.810	0.494	412.8	412.8	40.366	3.634	2.58		Unsaturated	69.2			13.05	1.70	22.19	79.13	1.00	0.544	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.610	12.420	0.558	433.2	433.2	35.009	4.575	2.69		Unsaturated	78.3			11.74	1.70	19.96	77.72	1.00	0.544	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.770	12.040	0.508	452.4	452.4	32.878	4.297	2.69		Unsaturated	78.4			11.38	1.70	19.35	76.93	1.00	0.544	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.940	13.130	0.368	472.8	472.8	34.792	2.850	2.55		Unsaturated	67.3			12.41	1.70	21.10	77.36	0.99	0.543	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.100	14.700	0.271	492.0	492.0	28.332	1.872	2.51		Unsaturated	34.0			13.89	1.70	23.62	67.19	0.99	0.543	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.270	15.700	0.194	512.4	512.4	29.663	1.253	2.39		Unsaturated	34.0			14.84	1.70	25.23	69.15	0.99	0.543	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.430	17.010	0.187	531.6	531.6	31.575	1.114	2.34		Unsaturated	34.0			16.08	1.70	27.33	71.72	0.99	0.542	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.590	18.440	0.200	550.8	550.8	33.651	1.098	2.32		Unsaturated	34.0			17.43	1.70	29.63	74.53	0.99	0.542	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.760	21.030	0.233	571.2	571.2	37.738	1.121	2.28		Unsaturated	34.0			19.88	1.70	33.79	79.61	0.99	0.542	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.920	26.700	0.228	590.4	590.4	47.248	0.862	2.14		Unsaturated	34.0			25.24	1.70	42.90	90.73	0.99	0.541	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.090	30.330	0.250	610.8	610.8	52.820	0.833	2.09		Unsaturated	34.0			28.67	1.70	48.73	97.85	0.99	0.541	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.250	34.040	0.254	630.0	630.0	58.419	0.752	2.03		Unsaturated	34.0			32.17	1.70	54.70	105.13	0.99	0.541	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.410	36.360	0.251	649.2	649.2	61.491	0.696	1.99		Unsaturated	34.0			34.37	1.70	58.42	109.68	0.99	0.540	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.580	35.300	0.257	669.6	669.6	58.749	0.735	2.02		Unsaturated	34.0			33.36	1.70	56.72	107.60	0.99	0.540	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.740	33.450	0.265	688.8	688.8	54.844	0.799	2.06		Unsaturated	34.0			31.62	1.70	53.75	103.97	0.99	0.540	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.910	32.040	0.258	709.2	709.2	51.731	0.815	2.09		Unsaturated	34.0			30.28	1.70	51.48	101.20	0.99	0.539	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.070	32.340	0.259	728.4	728.4	51.512	0.811	2.09		Unsaturated	34.0			30.57	1.69	51.80	101.59	0.99	0.539	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.230	36.330	0.262	747.6	747.6	57.176	0.729	2.03		Unsaturated	34.0			34.34	1.65	56.69	107.56	0.99	0.539	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.400	41.200	0.280	768.0	768.0	64.036	0.686	1.97		Unsaturated	34.0			38.94	1.61	62.53	114.69	0.99	0.538	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.560	44.970	0.301	787.2	787.2	69.077	0.676	1.94		Unsaturated	34.0			42.50	1.57	66.78	119.88	0.99	0.538	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.730	45.360	0.315	807.6	807.6	68.780	0.701	1.95		Unsaturated	34.0			42.87	1.55	66.61	119.67	0.99	0.538	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.890	46.970	0.325	826.8	826.8	70.397	0.698	1.94		Unsaturated	34.0			44.40	1.53	68.02	121.39	0.98	0.537	1.100	n.a.	n.a.	n.a.	0.00	0.00
7.050	40.570	0.330	846.0	846.0	60.012	0.821	2.04		Unsaturated	34.0			38.35	1.55	59.28	110.73	0.98	0.537	1.100	n.a.	n.a.	n.a.	0.00	0.00
7.220	34.050	0.369	866.4	866.4	49.656	1.098	2.18		Unsaturated	37.1			32.18	1.55	50.02	101.97	0.98	0.537	1.096	n.a.	n.a.	n.a.	0.00	0.00
7.380	29.200	0.454	885.6	885.6	42.015	1.578	2.33		Unsaturated	49.3			27.60	1.54	42.62	99.62	0.98	0.536	1.092	n.a.	n.a.	n.a.	0.00	0.00
7.550	27.090	0.606	906.0	906.0	38.476	2.274	2.46		Unsaturated	59.6			25.60	1.53	39.16	98.74	0.98	0.536	1.089	n.a.	n.a.	n.a.	0.00	0.00
7.710	26.340	0.911	925.2	925.2	36.989	3.521	2.60		Unsaturated	70.7			24.90	1.51	37.64	99.35	0.98	0.536	1.088	n.a.	n.a.	n.a.	0.00	0.00
7.870	26.980	1.011	944.4	944.4	44.070	3.815	2.56		Unsaturated	68.2			25.50	1.50	38.15	99.51	0.98	0.535	1.085	n.a.	n.a.	n.a.	0.00	0.00
8.040	28.700	0.899	964.8	964.8	39.498	3.185	2.55		Unsaturated	66.6			27.13	1.47	40.01	101.57	0.98	0.535	1.085	n.a.	n.a.	n.a.	0.00	0.00
8.200	29.360	0.580	984.0	984.0	40.012	2.010	2.41		Unsaturated	55.8			27.75	1.47	40.67	99.54	0.98	0.535	1.081	n.a.	n.a.	n.a.	0.00	0.00
8.370	29.140	0.496	1004.4	1004.4	39.288	1.732	2.38		Unsaturated	53.1			27.54	1.45	40.07	97.85	0.98	0.534	1.078	n.a.	n.a.	n.a.	0.00	0.00
8.530	28.970	0.468	1023.6	1023.6	38.674	1.646	2.37		Unsaturated	52.4			27.38	1.44	39.51	96.92	0.98	0.534	1.075	n.a.	n.a.	n.a.	0.00	0.00
8.690	29.820	0.522	1042.8	1042.8	39.447	1.781	2.38		Unsaturated	53.6			28.19	1.43	40.21	98.21	0.98	0.534	1.074	n.a.	n.a.	n.a.	0.00	0.00
8.860	28.980	0.615	1063.2	1063.2	37.933	2.162	2.45		Unsaturated	58.8			27.39	1.41	38.71	97.96	0.98	0.533	1.072	n.a.	n.a.	n.a.	0.00	0.00
9.020	28.930	0.649	1082.4	1082.4	37.517	2.287	2.47		Unsaturated	60.4			27.34	1.40	38.31	97.87	0.98	0.533	1.070	n.a.	n.a.	n.a.	0.00	0.00
9.190	29.540	0.592	1102.8	1102.8	37.953	2.042	2.43		Unsaturated	57.6			27.92	1.39	38.76	97.65	0.98	0.533	1.068	n.a.	n.a.	n.a.	0.00	0.00
9.350	32.310	0.470	1122.0	1122.0	41.210	1.480	2.32		Unsaturated	48.4			30.54	1.37	41.98	98.46	0.97	0.532	1.067	n.a.	n.a.	n.a.	0.00	0.00
9.510	33.290	0.486	1141.2	1141.2	42.111	1.484	2.31		Unsaturated	47.9			31.47	1.36	42.84	99.30	0.97	0.532	1.065	n.a.	n.a.	n.a.	0.00	0.00
9.680	34.520	0.483	1161.6	1161.6	43.296	1.423	2.29		Unsaturated	46.3			32.63	1.35	43.99	99.99	0.97	0.532	1.064	n.a.	n.a.	n.a.	0.00	0.00
9.840	34.500	0.534	1180.8	1180.8	42.905	1.574	2.32		Unsaturated	48.6			32.61	1.34	43.57	100.55	0.97	0.531	1.062	n.a.	n.a.	n.a.	0.00	0.00
10.010	36.110	0.547	1201.3	1200.6	44.557	1.540	2.30		Unsaturated	47.1			34.13	1.32	45.16	101.87	0.97	0.531	1.061	n.a.	n.a.	n.a.	0.00	0.00
10.170	38.300	0.458	1221.3	1210.6	47.096	1.216	2.22		Unsaturated	40.7			36.20	1.32	47.72	101.58	0.97	0.530	1.060	n.a.	n.a.	n.a.	0.00	0.00
10.330	37.250	0.543	1241.3	1220.7	45.583	1.483	2.28		Unsaturated	45.7			35.21	1.31	46.17	102.46	0.97	0.530	1.060	n.a.	n.a.	n.a.	0.00	0.00
10.500	38.710	0.553	1262.5	1231.3	47.182	1.452	2.27		Unsaturated	44.3			36.59	1.30	47.71	103.67	0.97	0.530	1.059	n.a.	n.a.	n.a.	0.00	0.00
10.660	38.080	0.575	1282.5	1241.3	46.201	1.535	2.29		Unsaturated	46.1			35.99	1.30	46.76	103.38	0.97	0.529	1.058	n.a.	n.a.	n.a.	0.00	0.00
10.830	38.820	0.547	1303.8	1252.0	46.901	1.434	2.27		Unsaturated	44.2			36.69	1.29	47.47	103.33	0.97	0.529	1.057	n.a.	n.a.	n.a.	0.00	0.00
10.990	40.820	0.602	1323.8	1262.0	49.150	1.499	2.26		Unsaturated	43.9			38.58	1.29	49.59	105.79	0.97	0.529	1.058	n.a.	n.a.	n.a.	0.00	0.00

CORNERSTONE EARTH GROUP

CPT No. 1

PGA (A_{max}) 0.84

Total Settlement: 0.21 (Inches)

© 2014 Cornerstone Earth Group, Inc.

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_H)	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)
11.150	45.460	0.579	1343.8	1272.0	54.600	1.293	2.19		Unsaturated	37.8			42.97	1.28	54.86	108.48	0.97	0.528	1.058	n.a.	n.a.	n.a.	0.00	0.00
11.320	49.780	0.580	1365.0	1282.6	59.605	1.182	2.13		Unsaturated	33.5			47.05	1.27	59.69	110.76	0.97	0.528	1.058	n.a.	n.a.	n.a.	0.00	0.00
11.480	53.550	0.600	1385.0	1292.6	63.920	1.136	2.10		Unsaturated	30.7			50.61	1.26	63.83	112.90	0.97	0.527	1.058	n.a.	n.a.	n.a.	0.00	0.00
11.650	57.770	0.556	1406.3	1303.3	68.728	0.974	2.03		Unsaturated	25.5			54.60	1.26	68.68	111.71	0.97	0.527	1.056	n.a.	n.a.	n.a.	0.00	0.00
11.810	56.280	0.512	1426.3	1313.3	66.666	0.921	2.03		Unsaturated	25.2			53.19	1.26	66.84	109.09	0.96	0.527	1.054	n.a.	n.a.	n.a.	0.00	0.00
11.980	53.200	0.349	1447.5	1323.9	62.705	0.665	1.97		Unsaturated	20.7			50.28	1.27	63.70	97.24	0.96	0.526	1.049	n.a.	n.a.	n.a.	0.00	0.00
12.140	50.730	0.397	1467.5	1334.0	59.517	0.793	2.03		Unsaturated	25.5			47.95	1.26	60.23	101.77	0.96	0.526	1.050	n.a.	n.a.	n.a.	0.00	0.00
12.300	52.000	0.449	1487.5	1344.0	60.789	0.876	2.05		Unsaturated	26.8			49.15	1.25	61.32	104.97	0.96	0.525	1.050	n.a.	n.a.	n.a.	0.00	0.00
12.470	51.110	0.458	1508.8	1354.6	59.485	0.909	2.07		Unsaturated	28.2			48.31	1.24	60.02	105.26	0.96	0.525	1.049	n.a.	n.a.	n.a.	0.00	0.00
12.630	46.330	0.597	1528.8	1364.6	53.629	1.310	2.20		Unsaturated	38.6			43.79	1.23	54.07	108.08	0.96	0.525	1.050	n.a.	n.a.	n.a.	0.00	0.00
12.800	41.710	0.826	1550.0	1375.3	47.992	2.019	2.35		Unsaturated	51.1			39.42	1.23	48.51	107.80	0.96	0.524	1.049	n.a.	n.a.	n.a.	0.00	0.00
12.960	32.770	1.207	1570.0	1385.3	40.667	3.772	2.59		Unsaturated	69.9			30.97	1.23	38.25	100.00	0.96	0.524	1.045	n.a.	n.a.	n.a.	0.00	0.00
13.120	28.140	1.555	1590.0	1395.3	39.196	5.686	2.72		Unsaturated	80.9			26.60	1.24	32.89	94.89	0.96	0.523	1.043	n.a.	n.a.	n.a.	0.00	0.00
13.290	27.370	1.617	1611.3	1406.0	37.788	6.087	2.76		Unsaturated	83.5			25.87	1.23	31.89	93.94	0.96	0.523	1.041	n.a.	n.a.	n.a.	0.00	0.00
13.450	30.890	1.661	1631.3	1416.0	42.479	5.524	2.69		Unsaturated	78.3			29.20	1.22	35.72	98.18	0.96	0.523	1.042	n.a.	n.a.	n.a.	0.00	0.00
13.620	29.230	1.838	1652.5	1426.6	39.820	6.472	2.76		Unsaturated	83.9			27.63	1.22	33.73	96.38	0.96	0.522	1.041	n.a.	n.a.	n.a.	0.00	0.00
13.780	28.280	2.078	1672.5	1436.6	38.206	7.570	2.82		Unsaturated	88.9			26.73	1.22	32.55	95.45	0.96	0.522	1.040	n.a.	n.a.	n.a.	0.00	0.00
13.940	29.340	2.078	1692.5	1446.6	39.393	7.294	2.80		Unsaturated	87.2			27.73	1.21	33.61	96.64	0.96	0.521	1.039	n.a.	n.a.	n.a.	0.00	0.00
14.110	27.650	1.955	1713.8	1457.3	36.771	7.296	2.82		Unsaturated	88.8			26.13	1.21	31.62	94.24	0.95	0.521	1.038	n.a.	n.a.	n.a.	0.00	0.00
14.270	26.580	1.818	1733.8	1467.3	35.048	7.072	2.83		Unsaturated	89.1			25.12	1.21	30.34	92.60	0.95	0.521	1.037	n.a.	n.a.	n.a.	0.00	0.00
14.440	26.090	1.765	1755.0	1477.9	34.118	6.999	2.83		Unsaturated	89.5			24.66	1.20	29.69	91.79	0.95	0.520	1.036	n.a.	n.a.	n.a.	0.00	0.00
14.600	25.190	1.749	1775.0	1488.0	32.666	7.195	2.85		Unsaturated	91.2			23.81	1.20	28.59	90.55	0.95	0.520	1.035	n.a.	n.a.	n.a.	0.00	0.00
14.760	24.480	1.703	1795.0	1498.0	31.486	7.221	2.87		Unsaturated	92.2			23.14	1.20	27.71	89.51	0.95	0.519	1.034	n.a.	n.a.	n.a.	0.00	0.00
14.930	24.360	1.687	1816.3	1508.6	31.091	7.192	2.87		Unsaturated	92.4			23.02	1.19	27.48	89.23	0.95	0.519	1.033	n.a.	n.a.	n.a.	0.00	0.00
15.090	23.960	2.560	1836.3	1518.6	30.346	11.111	3.01		Clay	100.0			22.65	1.09	n.a.	n.a.	0.95	0.520	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.260	24.510	2.650	1857.5	1529.3	30.840	11.238	3.01		Clay	100.0			23.17	1.09	n.a.	n.a.	0.95	0.523	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.420	37.760	2.851	1877.5	1539.3	47.842	7.743	2.77		Clay	84.3			35.69	1.09	n.a.	n.a.	0.95	0.525	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.580	39.370	2.920	1897.5	1549.3	49.598	7.599	2.75		Clay	83.0			37.21	1.09	n.a.	n.a.	0.95	0.528	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.750	39.280	2.848	1918.8	1560.0	49.131	7.431	2.75		Clay	82.6			37.13	1.08	n.a.	n.a.	0.95	0.530	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.910	38.110	2.605	1938.8	1570.0	47.314	7.014	2.74		Clay	81.9			36.02	1.08	n.a.	n.a.	0.95	0.532	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.080	35.080	2.526	1960.0	1580.6	43.148	7.409	2.78		Clay	85.5			33.16	1.08	n.a.	n.a.	0.95	0.535	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.240	33.320	2.461	1980.0	1590.6	40.651	7.611	2.81		Clay	87.6			31.49	1.08	n.a.	n.a.	0.94	0.537	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.400	30.420	2.381	2000.0	1600.6	36.760	8.092	2.86		Clay	91.5			28.75	1.08	n.a.	n.a.	0.94	0.539	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.570	29.340	2.220	2021.3	1611.3	35.164	7.835	2.86		Clay	91.7			27.73	1.07	n.a.	n.a.	0.94	0.541	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.730	28.810	2.149	2041.3	1621.3	34.280	7.731	2.86		Clay	91.9			27.23	1.07	n.a.	n.a.	0.94	0.543	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.900	28.530	2.221	2062.5	1631.9	33.701	8.075	2.88		Clay	93.4			26.97	1.07	n.a.	n.a.	0.94	0.546	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.060	30.210	2.392	2082.5	1642.0	35.529	8.200	2.87		Clay	92.6			28.55	1.07	n.a.	n.a.	0.94	0.548	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.220	33.670	2.238	2102.5	1652.0	39.491	6.862	2.78		Clay	85.6			31.82	1.07	n.a.	n.a.	0.94	0.550	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.390	40.440	1.834	2123.8	1662.6	47.369	4.657	2.60		Clay	71.4			38.22	1.07	n.a.	n.a.	0.94	0.552	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.550	41.960	1.455	2143.8	1672.6	43.468	3.559	2.55	plastic	Clay	66.9			39.66	1.06	n.a.	n.a.	0.94	0.554	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.720	44.660	1.518	2165.0	1683.3	46.180	3.483	2.52		Sand	64.8	46.39		46.39	1.11	51.59	116.06	0.94	0.556	1.028	0.163	0.227	0.41	0.03	0.04
17.880	49.080	1.664	2185.0	1693.3	50.703	3.467	2.49		Sand	62.4			46.39	1.11	51.47	115.28	0.94	0.558	1.027	0.161	0.224	0.40	0.03	0.04
18.040	41.490	1.796	2205.0	1703.3	44.434	4.446	2.61	plastic	Clay	71.8			39.22	1.06	n.a.	n.a.	0.94	0.560	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.210	28.740	1.766	2226.3	1713.9	32.238	6.392	2.82		Clay	88.6			27.16	1.06	n.a.	n.a.	0.93	0.562	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.370	24.410	1.712	2246.3	1724.0	27.016	7.351	2.92		Clay	96.3			23.07	1.06	n.a.	n.a.	0.93	0.563	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.540	23.230	1.630	2267.5	1734.6	25.477	7.377	2.94		Clay	97.9			21.96	1.05	n.a.	n.a.	0.93	0.565	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.700	21.210	1.437	2287.5	1744.6	23.004	7.159	2.96		Clay	99.6			20.05	1.05	n.a.	n.a.	0.93	0.567	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.860	20.330	1.496	2307.5	1754.6	21.858	7.801	3.00		Clay	100.0			19.22	1.05	n.a.	n.a.	0.93	0.569	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.030	21.450	1.536	2328.8	1765.3	22.983	7.574	2.98		Clay	100.0			20.27	1.05	n.a.	n.a.	0.93	0.570	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.190	22.480	1.550	2348.8	1775.3	24.002	7.273	2.95		Clay	99.0			21.25	1.05	n.a.	n.a.	0.93	0.572	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.360	21.160	1.549	2370.0	1785.9	22.369	7.755	2.99		Clay	100.0			20.00	1.05	n.a.	n.a.	0.93	0.574	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.520	20.800	1.459	2390.0	1796.0	21.832	7.442	2.99		Clay	100.0			19.66	1.04	n.a.	n.a.	0.93	0.575	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.690	20.260	1.334	2411.3	1806.6	21.094	6.999	2.98		Clay	100.0			19.15	1.04	n.a.	n.a.	0.93	0.577	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.850	19.690	1.276	2431.3	1816.6	20.339	6.907	2.99		Clay	100.0			18.61	1.04	n.a.	n.a.	0.93	0.579	n.a.	n.a.	n.a.	n.a.	0.00	0.00
20.010	20.360	1.270	2451.3	1826.6	20.951	6.638	2.96		Clay	100.0			19.24	1.04	n.a.	n.a.	0.93	0.580	n.a.	n.a.	n.a.	n.a.	0.00	0.00
20.180	18.960	1.204	2472.5	1837.3	19.294	6.794	3.00		Clay	100.0			17.92	1.04	n.a.	n.a.	0.92	0.582	n.a.	n.a.	n.a.	n.a.	0.00	0.00
20.340	16.850	1.066	2492.5	1847.3	16.894	6.834	3.04		Clay	100.0			15.93	1.04	n.a.	n.a.	0.92	0.583	n.a.	n.a.	n.a.	n.a.	0.00	0.00
20.510	16.220	0.935	2513.8	1857.9	16.107	6.248	3.03		Clay	100.0			15.33	1.03	n.a.	n.a.	0.92	0.585	n.a.	n.a.	n.a.	n.a.	0.00	0.00
20.670	15.680	0.927	2533.8	1867.9	15.432	6.428	3.05		Clay	100.0			14.82	1.03	n.a.	n.a.	0.92	0.586	n.a.	n.a.	n.a.	n.a.	0.00	0.00
20.830	14.950	0.933	2553.8	1878.0	14.562	6.821	3.09		Clay	100.0			14.13	1.03	n.a.	n.a.	0.92	0.588	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.000	15.870	0.919	2575.0	1888.6	15.443	6.302	3.05		Clay	100.0			15.00	1.03	n.a.	n.a.	0.92	0.589	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.160	18.060	0.900	2595.0	1898.6	17.658	5.370	2.96		Clay	99.6			17.07	1.03	n.a.	n.a.	0.92	0.591	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.330	15.740	0.903	2616.3	1909.3	15.118	6.254	3.05		Clay	100.0			14.88	1.03	n.a.	n.a.	0.92	0.592	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.490	17.060	0.944	2636.3	1919.3	16.404	5.995	3.01		Clay	100.0			16.12	1.03	n.a.	n.a.	0.92	0.593	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.650	17.920	0.821	2656.3	1929.3	17.200	4.945	2.94	plastic	Clay	98.4			16.94	1.02	n.a.	n.a.	0.92	0.595	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.820	15.630	0.677	2677.5	1939.9	14.734	4.736	2.98		Clay	100.0			14.77	1.02	n.a.	n.a.	0.92	0.596	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.980	13.390	0.827	2697.5	1949.9	12.350	6.864	3.14		Clay	100.0			12.66	1.02	n.a.	n.a.	0.92	0.597	n.a.	n.a.	n.a.	n.a.	0.00	0.00

CORNERSTONE EARTH GROUP

CPT No. 1

PGA (A_{max}) 0.84

Total Settlement: 0.21 (Inches)

© 2014 Cornerstone Earth Group, Inc.

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_H)	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)
22.150	15.500	0.693	2718.8	1960.6	14.425	4.904	3.00		Clay	100.0			14.65	1.02	n.a.	n.a.	0.91	0.599	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.310	40.550	0.655	2738.8	1970.6	38.375	1.670	2.37		Sand	53.0		1.8	68.99	1.03	71.11	137.23	0.91	0.600	1.010	0.223	0.345	0.58	0.02	0.03
22.470	36.560	0.917	2758.8	1980.6	34.370	2.607	2.53		Sand	65.6	38.33	1.8	68.99	1.03	70.93	141.15	0.91	0.601	1.010	0.240	0.380	0.63	0.02	0.03
22.640	25.140	0.788	2780.0	1991.3	23.854	3.319	2.72		Clay	80.8			23.76	1.02	n.a.	n.a.	0.91	0.602	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.800	23.190	0.718	2800.0	2001.3	21.776	3.293	2.75		Clay	83.0			21.92	1.01	n.a.	n.a.	0.91	0.603	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.970	48.030	0.498	2821.3	2011.9	45.189	1.068	2.20		Sand	39.2	52.93	1.78	94.22	1.02	96.07	160.56	0.91	0.605	1.009	0.377	0.685	1.13	0.01	0.01
23.130	56.000	0.441	2841.3	2021.9	52.774	0.808	2.08		Sand	29.4		1.78	94.22	1.02	95.96	149.84	0.91	0.606	1.007	0.288	0.483	0.80	0.01	0.02
23.290	53.740	0.471	2861.3	2032.0	50.454	0.900	2.12		Sand	32.7	52.93	1.78	94.22	1.02	95.74	153.83	0.91	0.607	1.007	0.316	0.545	0.90	0.01	0.01
23.460	45.750	0.883	2882.5	2042.6	42.626	1.994	2.39		Sand	53.9	52.93	1.78	94.22	1.01	95.47	168.60	0.91	0.608	1.007	0.481	0.925	1.52	0.00	0.00
23.620	33.890	0.816	2902.5	2052.6	31.130	2.514	2.56	plastic	Clay	67.5			32.03	1.01	n.a.	n.a.	0.91	0.609	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.790	38.930	0.757	2923.8	2063.3	35.864	2.019	2.45		Sand	58.9			36.80	1.01	37.27	96.12	0.91	0.610	1.003	0.132	0.165	0.27	0.03	0.04
23.950	33.480	0.801	2943.8	2073.3	30.564	2.502	2.56	plastic	Clay	67.9			31.64	1.01	n.a.	n.a.	0.91	0.611	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.110	19.580	0.892	2963.8	2083.3	17.375	4.926	2.94		Clay	98.0			18.51	1.00	n.a.	n.a.	0.90	0.612	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.280	17.990	0.870	2985.0	2093.9	15.757	5.274	2.99		Clay	100.0			17.00	1.00	n.a.	n.a.	0.90	0.613	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.440	11.280	0.717	3005.0	2103.9	9.294	7.331	3.26		Clay	100.0			10.66	1.00	n.a.	n.a.	0.90	0.614	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.610	16.790	0.700	3026.3	2114.6	14.449	4.580	2.98		Clay	100.0			15.87	1.00	n.a.	n.a.	0.90	0.615	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.770	10.510	0.605	3046.3	2124.6	8.460	6.733	3.26		Clay	100.0			9.93	1.00	n.a.	n.a.	0.90	0.616	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.930	7.580	0.442	3066.3	2134.6	5.666	7.316	3.42		Clay	100.0			7.16	1.00	n.a.	n.a.	0.90	0.617	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.100	28.250	0.576	3087.5	2145.3	25.069	2.156	2.59	plastic	Clay	70.1			26.70	1.00	n.a.	n.a.	0.90	0.618	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.260	18.570	0.662	3107.5	2155.3	15.790	3.888	2.90		Clay	95.3			17.55	1.00	n.a.	n.a.	0.90	0.619	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.430	11.100	0.487	3128.8	2165.9	8.805	5.108	3.18		Clay	100.0			10.49	0.99	n.a.	n.a.	0.90	0.620	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.590	9.000	0.418	3148.8	2175.9	6.825	5.633	3.29		Clay	100.0			8.51	0.99	n.a.	n.a.	0.90	0.621	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.750	10.120	0.327	3168.8	2186.0	7.810	3.826	3.15		Clay	100.0			9.57	0.99	n.a.	n.a.	0.90	0.622	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.920	7.990	0.338	3190.0	2196.6	5.823	5.278	3.33		Clay	100.0			7.55	0.99	n.a.	n.a.	0.89	0.622	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.080	7.660	0.329	3210.0	2206.6	5.488	5.432	3.36		Clay	100.0			7.24	0.99	n.a.	n.a.	0.89	0.623	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.250	8.400	0.367	3231.3	2217.3	6.120	5.409	3.32		Clay	100.0			7.94	0.99	n.a.	n.a.	0.89	0.624	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.410	9.890	0.364	3251.3	2227.3	7.421	4.398	3.20		Clay	100.0			9.35	0.99	n.a.	n.a.	0.89	0.625	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.570	8.470	0.348	3271.3	2237.3	6.110	5.096	3.30		Clay	100.0			8.01	0.99	n.a.	n.a.	0.89	0.626	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.740	6.970	0.305	3292.5	2247.9	4.737	5.727	3.42		Clay	100.0			6.59	0.98	n.a.	n.a.	0.89	0.626	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.900	6.880	0.254	3312.5	2257.9	4.627	4.855	3.39		Clay	100.0			6.50	0.98	n.a.	n.a.	0.89	0.627	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.070	6.850	0.264	3333.8	2268.6	4.569	5.086	3.41		Clay	100.0			6.47	0.98	n.a.	n.a.	0.89	0.628	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.230	6.710	0.261	3353.8	2278.6	4.418	5.192	3.42		Clay	100.0			6.34	0.98	n.a.	n.a.	0.89	0.629	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.400	6.810	0.249	3375.0	2289.2	4.475	4.851	3.40		Clay	100.0			6.44	0.98	n.a.	n.a.	0.89	0.629	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.560	7.090	0.252	3395.0	2299.3	4.691	4.679	3.38		Clay	100.0			6.70	0.98	n.a.	n.a.	0.89	0.630	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.720	7.330	0.277	3415.0	2309.3	4.869	4.928	3.38		Clay	100.0			6.93	0.98	n.a.	n.a.	0.88	0.631	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.890	7.300	0.322	3436.3	2319.9	4.812	5.770	3.42		Clay	100.0			6.90	0.98	n.a.	n.a.	0.88	0.631	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.050	7.870	0.373	3456.3	2329.9	5.272	6.078	3.40		Clay	100.0			7.44	0.97	n.a.	n.a.	0.88	0.632	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.220	8.590	0.401	3477.5	2340.6	5.854	5.847	3.35		Clay	100.0			8.12	0.97	n.a.	n.a.	0.88	0.633	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.380	9.100	0.422	3497.5	2350.6	6.255	5.739	3.33		Clay	100.0			8.60	0.97	n.a.	n.a.	0.88	0.633	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.540	9.290	0.434	3517.5	2360.6	6.381	5.760	3.32		Clay	100.0			8.78	0.97	n.a.	n.a.	0.88	0.634	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.710	8.700	0.441	3538.8	2371.2	5.846	6.365	3.38		Clay	100.0			8.22	0.97	n.a.	n.a.	0.88	0.635	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.870	6.880	0.424	3558.8	2381.3	4.284	8.315	3.55		Clay	100.0			6.50	0.97	n.a.	n.a.	0.88	0.635	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.040	5.880	0.368	3580.0	2391.9	3.420	8.998	3.65		Clay	100.0			5.56	0.97	n.a.	n.a.	0.88	0.636	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.200	6.410	0.366	3600.0	2401.9	3.839	7.946	3.58		Clay	100.0			6.06	0.97	n.a.	n.a.	0.88	0.636	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.360	6.790	0.414	3620.0	2411.9	4.129	8.303	3.57		Clay	100.0			6.42	0.97	n.a.	n.a.	0.88	0.637	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.530	6.610	0.384	3641.3	2422.6	3.954	8.022	3.57		Clay	100.0			6.25	0.96	n.a.	n.a.	0.87	0.637	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.690	6.110	0.330	3661.3	2432.6	3.518	7.711	3.60		Clay	100.0			5.78	0.96	n.a.	n.a.	0.87	0.638	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.860	6.810	0.361	3682.5	2443.2	4.067	7.267	3.54		Clay	100.0			6.44	0.96	n.a.	n.a.	0.87	0.638	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.020	8.790	0.472	3702.5	2453.3	5.657	6.795	3.41		Clay	100.0			8.31	0.96	n.a.	n.a.	0.87	0.639	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.180	10.780	0.605	3722.5	2463.3	7.241	6.779	3.32		Clay	100.0			10.19	0.96	n.a.	n.a.	0.87	0.639	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.350	12.350	0.685	3743.8	2473.9	8.471	6.534	3.26		Clay	100.0			11.67	0.96	n.a.	n.a.	0.87	0.640	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.510	12.440	0.737	3763.8	2483.9	8.501	6.980	3.27		Clay	100.0			11.76	0.96	n.a.	n.a.	0.87	0.640	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.680	11.460	0.728	3785.0	2494.6	7.671	7.607	3.33		Clay	100.0			10.83	0.96	n.a.	n.a.	0.87	0.641	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.840	10.480	0.659	3805.0	2504.6	6.849	7.686	3.37		Clay	100.0			9.91	0.96	n.a.	n.a.	0.87	0.641	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.000	10.350	0.606	3825.0	2514.6	6.711	7.185	3.36		Clay	100.0			9.78	0.96	n.a.	n.a.	0.87	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.170	10.110	0.527	3846.3	2525.2	6.484	6.431	3.34		Clay	100.0			9.56	0.95	n.a.	n.a.	0.87	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.330	8.900	0.447	3866.3	2535.3	5.496	6.416	3.40		Clay	100.0			8.41	0.95	n.a.	n.a.	0.86	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.500	8.640	0.341	3887.5	2545.9	5.260	5.094	3.36		Clay	100.0			8.17	0.95	n.a.	n.a.	0.86	0.643	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.660	9.230	0.389	3907.5	2555.9	5.694	5.352	3.34		Clay	100.0			8.72	0.95	n.a.	n.a.	0.86	0.643	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.820	10.220	0.487	3927.5	2565.9	6.435	5.902	3.32		Clay	100.0			9.66	0.95	n.a.	n.a.	0.86	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.990	10.530	0.508	3948.8	2576.6	6.641	5.932	3.31		Clay	100.0			9.95	0.95	n.a.	n.a.	0.86	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.150	10.440	0.464	3968.8	2586.6	6.538	5.490	3.30		Clay	100.0			9.87	0.95	n.a.	n.a.	0.86	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.320	10.260	0.431	3990.0	2597.2	6.364	5.216	3.30		Clay	100.0			9.70	0.95	n.a.	n.a.	0.86	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.480	9.610	0.348	4010.0	2607.2	5.834	4.581	3.29		Clay	100.0			9.08	0.95	n.a.	n.a.	0.86	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.640	8.970	0.289	4030.0	2617.3	5.315	4.152	3.30		Clay	100.0			8.48	0.95	n.a.	n.a.	0.86	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.810	9.350	0.290	4051.3	2627.9	5.574	3.961	3.27		Clay	100.0			8.84	0.94	n.a.	n.a.	0.86	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.970	9.870	0.313	4071.3	2637.9	5.940	3.995	3.25		Clay	100.0			9.33	0.94	n.a.	n.a.	0.86	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00

CORNERSTONE EARTH GROUP

CPT No. 1

PGA (A_{max}) 0.84

Total Settlement: 0.21 (Inches)

© 2014 Cornerstone Earth Group, Inc.

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_H)	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)
33.140	10.890	0.321	4092.5	2648.6	6.678	3.634	3.19		Clay	100.0			10.29	0.94	n.a.	n.a.	0.85	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.300	10.680	0.322	4112.5	2658.6	6.487	3.734	3.21		Clay	100.0			10.09	0.94	n.a.	n.a.	0.85	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.460	12.590	0.397	4132.5	2668.6	7.887	3.772	3.14		Clay	100.0			11.90	0.94	n.a.	n.a.	0.85	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.630	20.340	0.534	4153.8	2679.2	13.633	2.921	2.88		Clay	93.4			19.22	0.94	n.a.	n.a.	0.85	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.790	23.760	0.726	4173.8	2689.3	16.118	3.348	2.86		Clay	91.6			22.46	0.94	n.a.	n.a.	0.85	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.960	24.140	0.698	4195.0	2699.9	16.328	3.165	2.84		Clay	90.0			22.82	0.94	n.a.	n.a.	0.85	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.120	21.820	0.683	4215.0	2709.9	14.548	3.464	2.90		Clay	95.1			20.62	0.94	n.a.	n.a.	0.85	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.280	21.770	0.818	4235.0	2719.9	14.451	4.163	2.95		Clay	99.2			20.58	0.94	n.a.	n.a.	0.85	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.450	23.550	1.041	4256.3	2730.6	15.690	4.860	2.97		Clay	100.0			22.26	0.93	n.a.	n.a.	0.85	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.610	24.810	1.227	4276.3	2740.6	16.545	5.412	2.98		Clay	100.0			23.45	0.93	n.a.	n.a.	0.85	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.780	25.320	1.293	4297.5	2751.2	16.844	5.581	2.98		Clay	100.0			23.93	0.93	n.a.	n.a.	0.84	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.940	26.190	1.310	4317.5	2761.2	17.406	5.453	2.97		Clay	100.0			24.75	0.93	n.a.	n.a.	0.84	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.100	27.740	1.436	4337.5	2771.3	18.455	5.614	2.96		Clay	99.4			26.22	0.93	n.a.	n.a.	0.84	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.270	27.490	1.485	4358.8	2781.9	18.197	5.865	2.97		Clay	100.0			25.98	0.93	n.a.	n.a.	0.84	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.430	28.610	1.459	4378.8	2791.9	18.927	5.521	2.94		Clay	98.4			27.04	0.93	n.a.	n.a.	0.84	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.600	27.950	1.296	4400.0	2802.6	18.376	5.033	2.93		Clay	97.0			26.42	0.93	n.a.	n.a.	0.84	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.760	26.800	1.169	4420.0	2812.6	17.486	4.752	2.93		Clay	97.0			25.33	0.93	n.a.	n.a.	0.84	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.930	27.280	1.220	4441.3	2823.2	17.752	4.868	2.93		Clay	97.2			25.78	0.93	n.a.	n.a.	0.84	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.090	28.440	1.382	4461.3	2833.2	18.501	5.272	2.94		Clay	97.9			26.88	0.93	n.a.	n.a.	0.84	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.250	30.360	1.439	4481.3	2843.3	19.780	5.116	2.91		Clay	95.5			28.70	0.93	n.a.	n.a.	0.84	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.420	31.220	1.583	4502.5	2853.9	20.301	5.465	2.92		Clay	96.4			29.51	0.92	n.a.	n.a.	0.84	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.580	32.050	1.784	4522.5	2863.9	20.803	5.989	2.94		Clay	97.9			30.29	0.92	n.a.	n.a.	0.83	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.750	33.520	1.926	4543.8	2874.6	21.741	6.164	2.93		Clay	97.4			31.68	0.92	n.a.	n.a.	0.83	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.910	34.010	1.996	4563.8	2884.6	21.999	6.291	2.93		Clay	97.6			32.15	0.92	n.a.	n.a.	0.83	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.070	39.810	2.115	4583.8	2894.6	25.923	5.637	2.85		Clay	90.9			37.63	0.92	n.a.	n.a.	0.83	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.240	44.870	2.270	4605.0	2905.2	29.304	5.333	2.79		Clay	86.5			42.41	0.92	n.a.	n.a.	0.83	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.400	45.500	2.313	4625.0	2915.2	29.629	5.355	2.79		Clay	86.3			43.01	0.92	n.a.	n.a.	0.83	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.570	41.820	2.347	4646.3	2925.9	26.998	5.942	2.85		Clay	91.1			39.53	0.92	n.a.	n.a.	0.83	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.730	39.140	2.281	4666.3	2935.9	25.074	6.197	2.89		Clay	94.0			36.99	0.92	n.a.	n.a.	0.83	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.890	39.160	2.168	4686.3	2945.9	24.995	5.889	2.87		Clay	92.8			37.01	0.92	n.a.	n.a.	0.83	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.060	37.690	2.102	4707.5	2956.6	23.904	5.949	2.89		Clay	94.2			35.62	0.92	n.a.	n.a.	0.83	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.220	38.450	1.994	4727.5	2966.6	24.329	5.526	2.86		Clay	92.0			36.34	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.390	37.360	1.923	4748.8	2977.2	23.502	5.496	2.87		Clay	92.7			35.31	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.550	37.500	1.927	4768.8	2987.2	23.510	5.487	2.87		Clay	92.7			35.44	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.710	34.240	1.901	4788.8	2997.2	21.250	5.969	2.93		Clay	97.3			32.36	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.880	33.420	1.854	4810.0	3007.9	20.622	5.977	2.94		Clay	98.1			31.59	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.040	34.030	1.850	4830.0	3017.9	20.952	5.851	2.93		Clay	97.1			32.16	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.210	32.160	1.829	4851.3	3028.5	19.636	6.151	2.96		Clay	100.0			30.40	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.370	30.720	1.825	4871.3	3038.6	18.617	6.451	2.99		Clay	100.0			29.04	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.530	30.900	1.665	4891.3	3048.6	18.667	5.853	2.96		Clay	100.0			29.21	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.700	32.550	1.628	4912.5	3059.2	19.674	5.409	2.92		Clay	96.9			30.77	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.860	31.740	1.635	4932.5	3069.2	19.076	5.585	2.94		Clay	98.5			30.00	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.030	29.390	1.701	4953.8	3079.9	17.477	6.320	3.01		Clay	100.0			27.78	0.91	n.a.	n.a.	0.81	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.190	26.120	1.635	4973.8	3089.9	15.297	6.917	3.08		Clay	100.0			24.69	0.90	n.a.	n.a.	0.81	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.350	24.350	1.567	4993.8	3099.9	14.099	7.171	3.11		Clay	100.0			23.02	0.90	n.a.	n.a.	0.81	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.520	23.170	1.483	5015.0	3110.6	13.285	7.176	3.13		Clay	100.0			21.90	0.90	n.a.	n.a.	0.81	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.680	22.420	1.356	5035.0	3120.6	12.756	6.815	3.13		Clay	100.0			21.19	0.90	n.a.	n.a.	0.81	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.850	21.630	1.297	5056.3	3131.2	12.201	6.789	3.15		Clay	100.0			20.44	0.90	n.a.	n.a.	0.81	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.010	21.760	1.210	5076.3	3141.2	12.238	6.293	3.12		Clay	100.0			20.57	0.90	n.a.	n.a.	0.81	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.170	22.230	1.210	5096.3	3151.2	12.492	6.145	3.11		Clay	100.0			21.01	0.90	n.a.	n.a.	0.81	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.340	24.350	1.213	5117.5	3161.9	13.784	5.565	3.05		Clay	100.0			23.02	0.90	n.a.	n.a.	0.81	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.500	23.380	1.219	5137.5	3171.9	13.122	5.855	3.08		Clay	100.0			22.10	0.90	n.a.	n.a.	0.81	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.670	22.090	1.111	5158.8	3182.5	12.261	5.693	3.09		Clay	100.0			20.88	0.90	n.a.	n.a.	0.80	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.830	20.700	0.986	5178.8	3192.6	11.346	5.442	3.11		Clay	100.0			19.57	0.90	n.a.	n.a.	0.80	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.990	19.690	0.939	5198.8	3202.6	10.673	5.494	3.13		Clay	100.0			18.61	0.90	n.a.	n.a.	0.80	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.160	18.590	0.921	5220.0	3213.2	9.946	5.765	3.17		Clay	100.0			17.57	0.90	n.a.	n.a.	0.80	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.320	17.810	0.794	5240.0	3223.2	9.425	5.226	3.16		Clay	100.0			16.83	0.89	n.a.	n.a.	0.80	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.490	16.890	0.710	5261.3	3233.9	8.819	4.981	3.17		Clay	100.0			15.96	0.89	n.a.	n.a.	0.80	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.650	16.480	0.646	5281.3	3243.9	8.533	4.664	3.16		Clay	100.0			15.58	0.89	n.a.	n.a.	0.80	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.810	16.870	0.781	5301.3	3253.9	8.740	5.489	3.20		Clay	100.0			15.95	0.89	n.a.	n.a.	0.80	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.980	17.890	0.919	5322.5	3264.5	9.330	6.034	3.20		Clay	100.0			16.91	0.89	n.a.	n.a.	0.80	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.140	17.590	0.883	5342.5	3274.6	9.112	5.919	3.20		Clay	100.0			16.63	0.89	n.a.	n.a.	0.80	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.310	17.400	0.817	5363.8	3285.2	8.960	5.552	3.19		Clay	100.0			16.45	0.89	n.a.	n.a.	0.80	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.470	17.240	0.795	5383.8	3295.2	8.830	5.467	3.19		Clay	100.0			16.29	0.89	n.a.	n.a.	0.79	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.640	16.210	0.776	5405.0	3305.9	8.172	5.748	3.23		Clay	100.0			15.32	0.89	n.a.	n.a.	0.79	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.800	15.370	0.728	5425.0	3315.9	7.634	5.751	3.26		Clay	100.0			14.53	0.89	n.a.	n.a.	0.79	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.960	14.670	0.665	5445.0	3325.9	7.185	5.563	3.27		Clay	100.0			13.87	0.89	n.a.	n.a.	0.79	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00

CORNERSTONE EARTH GROUP

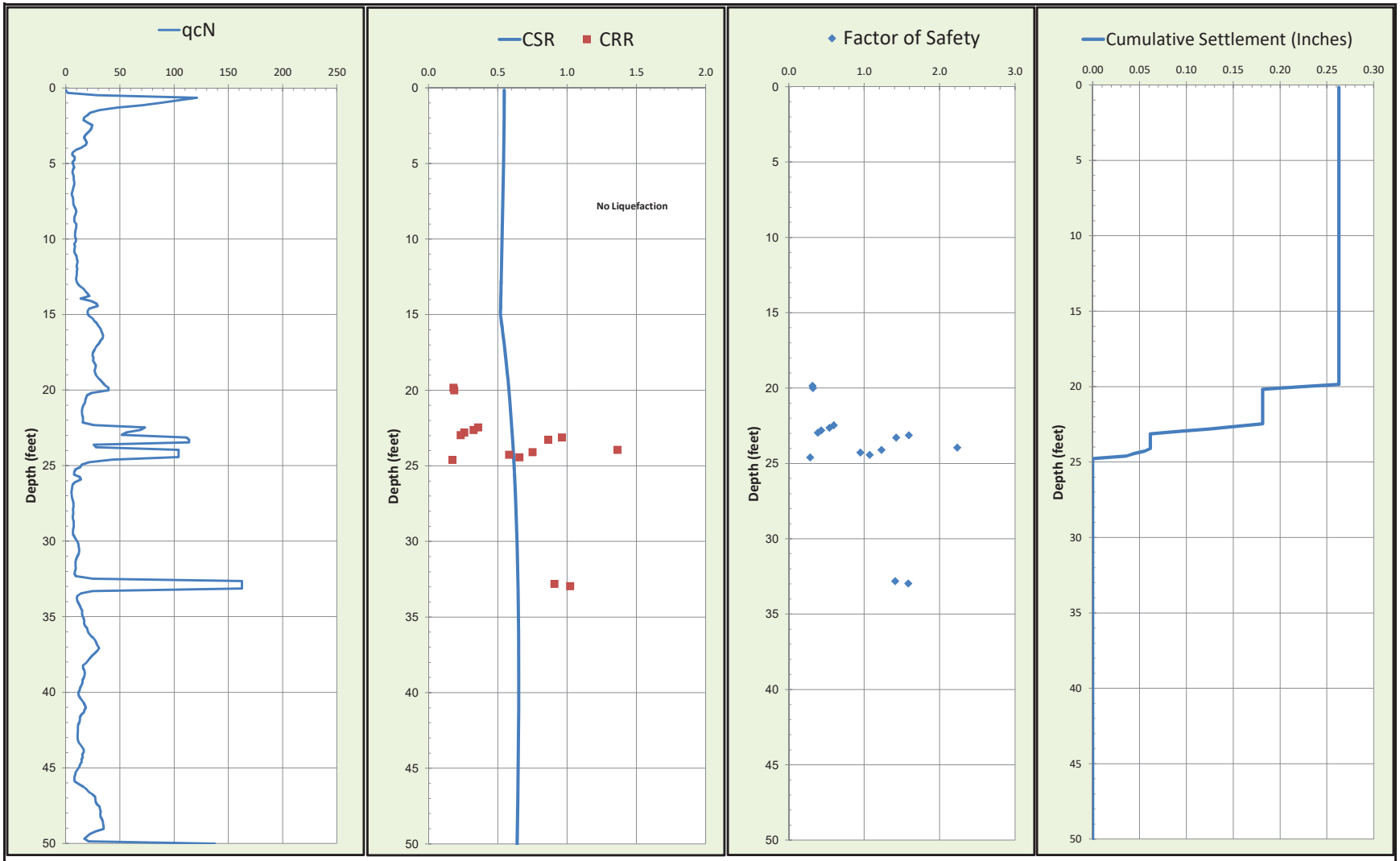
CPT No. 1

PGA (A_{max}) 0.84

Total Settlement: 0.21 (Inches)

© 2014 Cornerstone Earth Group, Inc.

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_H)	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)
44.130	13.690	0.656	5466.3	3336.5	6.568	5.987	3.32		Clay	100.0			12.94	0.89	n.a.	n.a.	0.79	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.290	12.730	0.606	5486.3	3346.6	5.968	6.071	3.36		Clay	100.0			12.03	0.89	n.a.	n.a.	0.79	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.460	12.100	0.568	5507.5	3357.2	5.568	6.077	3.38		Clay	100.0			11.44	0.89	n.a.	n.a.	0.79	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.620	11.850	0.432	5527.5	3367.2	5.397	4.758	3.33		Clay	100.0			11.20	0.88	n.a.	n.a.	0.79	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.780	11.820	0.444	5547.5	3377.2	5.357	4.904	3.34		Clay	100.0			11.17	0.88	n.a.	n.a.	0.79	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.950	12.610	0.416	5568.8	3387.9	5.800	4.233	3.28		Clay	100.0			11.92	0.88	n.a.	n.a.	0.79	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.110	12.390	0.374	5588.8	3397.9	5.648	3.897	3.27		Clay	100.0			11.71	0.88	n.a.	n.a.	0.78	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.280	12.410	0.333	5610.0	3408.5	5.636	3.471	3.24		Clay	100.0			11.73	0.88	n.a.	n.a.	0.78	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.440	12.010	0.302	5630.0	3418.5	5.379	3.287	3.24		Clay	100.0			11.35	0.88	n.a.	n.a.	0.78	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.600	11.570	0.283	5650.0	3428.6	5.101	3.234	3.26		Clay	100.0			10.94	0.88	n.a.	n.a.	0.78	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.770	11.460	0.283	5671.3	3439.2	5.015	3.284	3.27		Clay	100.0			10.83	0.88	n.a.	n.a.	0.78	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.930	11.010	0.284	5691.3	3449.2	4.734	3.477	3.30		Clay	100.0			10.41	0.88	n.a.	n.a.	0.78	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.100	10.770	0.259	5712.5	3459.9	4.575	3.275	3.30		Clay	100.0			10.18	0.88	n.a.	n.a.	0.78	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.260	10.740	0.226	5732.5	3469.9	4.538	2.869	3.28		Clay	100.0			10.15	0.88	n.a.	n.a.	0.78	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.420	11.220	0.216	5752.5	3479.9	4.795	2.584	3.23		Clay	100.0			10.60	0.88	n.a.	n.a.	0.78	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.590	12.950	0.265	5773.8	3490.5	5.766	2.634	3.17		Clay	100.0			12.24	0.88	n.a.	n.a.	0.78	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.750	16.610	0.271	5793.8	3500.6	7.835	1.979	2.99		Clay	100.0			15.70	0.88	n.a.	n.a.	0.78	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.920	17.570	0.329	5815.0	3511.2	8.352	2.244	2.99		Clay	100.0			16.61	0.87	n.a.	n.a.	0.77	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.080	19.700	0.423	5835.0	3521.2	9.532	2.521	2.97		Clay	100.0			18.62	0.87	n.a.	n.a.	0.77	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.240	19.410	0.635	5855.0	3531.2	9.335	3.855	3.08		Clay	100.0			18.35	0.87	n.a.	n.a.	0.77	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.410	20.850	0.711	5876.3	3541.9	10.114	3.969	3.06		Clay	100.0			19.71	0.87	n.a.	n.a.	0.77	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.570	21.630	0.731	5896.3	3551.9	10.519	3.913	3.05		Clay	100.0			20.44	0.87	n.a.	n.a.	0.77	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.740	25.440	0.839	5917.5	3562.5	12.621	3.732	2.97		Clay	100.0			24.05	0.87	n.a.	n.a.	0.77	0.643	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.900	26.380	0.949	5937.5	3572.5	13.106	4.051	2.98		Clay	100.0			24.93	0.87	n.a.	n.a.	0.77	0.643	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.060	27.580	1.126	5957.5	3582.6	13.734	4.575	3.00		Clay	100.0			26.07	0.87	n.a.	n.a.	0.77	0.643	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.230	27.450	1.359	5978.8	3593.2	13.615	5.554	3.05		Clay	100.0			25.95	0.87	n.a.	n.a.	0.77	0.643	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.390	27.460	1.187	5998.8	3603.2	13.577	4.854	3.02		Clay	100.0			25.95	0.87	n.a.	n.a.	0.77	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.560	26.870	1.175	6020.0	3613.9	13.205	4.926	3.03		Clay	100.0			25.40	0.87	n.a.	n.a.	0.77	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.720	26.990	1.332	6040.0	3623.9	13.229	5.555	3.06		Clay	100.0			25.51	0.87	n.a.	n.a.	0.76	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.880	30.880	1.450	6060.0	3633.9	15.328	5.206	2.99		Clay	100.0			29.19	0.87	n.a.	n.a.	0.76	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.050	29.160	1.284	6081.3	3644.5	14.333	4.916	3.00		Clay	100.0			27.56	0.87	n.a.	n.a.	0.76	0.641	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.210	25.060	1.136	6101.3	3654.5	12.045	5.159	3.07		Clay	100.0			23.69	0.87	n.a.	n.a.	0.76	0.641	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.380	24.310	0.912	6122.5	3665.2	11.595	4.292	3.04		Clay	100.0			22.98	0.87	n.a.	n.a.	0.76	0.641	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.540	26.350	1.206	6142.5	3675.2	12.668	5.180	3.06		Clay	100.0			24.91	0.86	n.a.	n.a.	0.76	0.640	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.700	33.050	1.563	6162.5	3685.2	16.264	5.214	2.98		Clay	100.0			31.24	0.86	n.a.	n.a.	0.76	0.640	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.870	35.390	1.438	6183.8	3695.9	17.478	4.451	2.91		Clay	95.6			33.45	0.86	n.a.	n.a.	0.76	0.640	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.030	26.490	1.106	6203.8	3705.9	12.622	4.728	3.03		Clay	100.0			25.04	0.86	n.a.	n.a.	0.76	0.640	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.200	21.740	0.982	6225.0	3716.5	10.024	5.269	3.14		Clay	100.0			20.55	0.86	n.a.	n.a.	0.76	0.639	n.a.	n.a.	n.a.	n.a.	0.00	0.00



CORNERSTONE EARTH GROUP

Liquefaction Analysis Summary

1188 East 14th Street
San Leandro, California

Project Number: 444-3-1

Figure Number: Figure C-2

6/5/2018

CPT No. 2

CORNERSTONE EARTH GROUP

CPT No. 2

PGA (A_{max}) 0.84

Total Settlement: 0.26 (Inches)

© 2014 Cornerstone Earth Group, Inc.

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_H)	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)
0.160	0.210	0.094	19.2	19.2	20.875	47.056	3.60		Unsaturated	100.0			0.20	1.70	0.34	54.38	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.330	1.790	0.629	39.6	39.6	89.404	35.516	3.16		Unsaturated	100.0			1.69	1.70	2.88	57.70	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.490	30.780	0.859	58.8	58.8	174.356	2.792	2.07		Unsaturated	28.6			29.09	1.70	49.46	93.13	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.660	127.890	0.936	79.2	79.2	624.614	0.732	1.28		Unsaturated	0.0			120.88	1.70	205.49	205.49	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.820	109.620	1.996	98.4	98.4	480.252	1.821	1.68		Unsaturated	0.0			103.61	1.70	176.14	176.14	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.980	93.740	2.266	117.6	117.6	375.596	2.418	1.84		Unsaturated	9.9			88.60	1.70	150.62	159.49	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.150	74.800	2.334	138.0	138.0	276.588	3.123	2.00		Unsaturated	22.9			70.70	1.70	120.19	167.04	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.310	50.610	2.002	157.2	157.2	175.230	3.961	2.19		Unsaturated	38.4			47.84	1.70	81.32	141.64	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.480	32.830	1.602	177.6	177.6	106.818	4.894	2.39		Unsaturated	54.4			31.03	1.70	52.75	114.45	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.640	24.040	1.450	196.8	196.8	74.202	6.056	2.56		Unsaturated	68.0			22.72	1.70	38.63	100.09	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.800	21.480	1.248	216.0	216.0	63.225	5.838	2.59		Unsaturated	70.6			20.30	1.70	34.51	95.29	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.970	17.790	1.062	236.4	236.4	77.465	6.012	2.55		Unsaturated	66.9			16.81	1.70	28.59	86.91	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.130	17.470	0.860	255.6	255.6	71.976	4.957	2.50		Unsaturated	63.3			16.51	1.70	28.07	85.47	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.300	21.460	0.694	276.0	276.0	55.801	3.253	2.44		Unsaturated	58.5			20.28	1.70	34.48	92.45	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.460	25.830	0.508	295.2	295.2	64.990	1.978	2.25		Unsaturated	42.7			24.41	1.70	41.50	95.04	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.620	25.530	0.400	314.4	314.4	62.216	1.578	2.20		Unsaturated	38.6			24.13	1.70	41.02	91.96	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.790	24.100	0.383	334.8	334.8	56.868	1.599	2.23		Unsaturated	41.3			22.78	1.70	38.72	90.79	1.00	0.545	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.950	21.640	0.391	354.0	354.0	49.598	1.819	2.31		Unsaturated	47.9			20.45	1.70	34.77	89.11	1.00	0.545	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.120	19.250	0.397	374.4	374.4	42.834	2.080	2.40		Unsaturated	54.7			18.19	1.70	30.93	86.79	1.00	0.545	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.280	17.890	0.363	393.6	393.6	38.775	2.053	2.43		Unsaturated	57.1			16.91	1.70	28.75	84.73	1.00	0.544	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.440	19.190	0.319	412.8	412.8	40.624	1.681	2.36		Unsaturated	51.5			18.14	1.70	30.83	85.58	1.00	0.544	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.610	20.590	0.245	433.2	433.2	42.559	1.205	2.25		Unsaturated	43.3			19.46	1.70	33.08	84.86	1.00	0.544	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.770	19.750	0.221	452.4	452.4	39.909	1.133	2.26		Unsaturated	44.0			18.67	1.70	31.73	83.49	1.00	0.544	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.940	15.580	0.219	472.8	472.8	30.680	1.425	2.41		Unsaturated	56.0			14.73	1.70	25.03	79.67	0.99	0.543	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.100	9.990	0.247	492.0	492.0	25.570	2.537	2.63		Unsaturated	73.0			9.44	1.70	16.05	71.85	0.99	0.543	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.270	6.830	0.300	512.4	512.4	25.659	4.568	2.79		Unsaturated	86.1			6.46	1.70	10.97	67.01	0.99	0.543	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.430	6.370	0.343	531.6	531.6	22.965	5.621	2.89		Unsaturated	93.9			6.02	1.70	10.24	66.82	0.99	0.542	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.590	8.860	0.324	550.8	550.8	31.171	3.768	2.67		Unsaturated	76.6			8.37	1.70	14.24	70.05	0.99	0.542	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.760	8.570	0.252	571.2	571.2	29.007	3.044	2.63		Unsaturated	73.6			8.10	1.70	13.77	69.00	0.99	0.542	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.920	6.480	0.302	590.4	590.4	20.951	4.885	2.87		Unsaturated	92.9			6.12	1.70	10.41	66.97	0.99	0.541	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.090	7.460	0.420	610.8	610.8	23.427	5.866	2.89		Unsaturated	94.4			7.05	1.70	11.99	69.16	0.99	0.541	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.250	8.440	0.513	630.0	630.0	25.794	6.310	2.88		Unsaturated	93.7			7.98	1.70	13.56	71.16	0.99	0.541	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.410	7.200	0.510	649.2	649.2	21.181	7.410	2.99		Unsaturated	100.0			6.81	1.70	11.57	69.09	0.99	0.540	1.098	n.a.	n.a.	n.a.	0.00	0.00
5.580	6.550	0.389	669.6	669.6	18.564	6.265	2.99		Unsaturated	100.0			6.19	1.70	10.52	67.72	0.99	0.540	1.095	n.a.	n.a.	n.a.	0.00	0.00
5.740	7.370	0.398	688.8	688.8	20.400	5.662	2.93		Unsaturated	97.1			6.97	1.70	11.84	69.21	0.99	0.540	1.094	n.a.	n.a.	n.a.	0.00	0.00
5.910	7.750	0.477	709.2	709.2	20.856	6.447	2.96		Unsaturated	99.6			7.33	1.70	12.45	70.22	0.99	0.539	1.092	n.a.	n.a.	n.a.	0.00	0.00
6.070	7.840	0.502	728.4	728.4	20.527	6.710	2.97		Unsaturated	100.0			7.41	1.70	12.60	70.44	0.99	0.539	1.090	n.a.	n.a.	n.a.	0.00	0.00
6.230	8.420	0.509	747.6	747.6	21.525	6.325	2.94		Unsaturated	98.3			7.96	1.70	13.53	71.52	0.99	0.539	1.088	n.a.	n.a.	n.a.	0.00	0.00
6.400	8.370	0.507	768.0	768.0	20.797	6.347	2.95		Unsaturated	99.3			7.91	1.70	13.45	71.50	0.99	0.538	1.086	n.a.	n.a.	n.a.	0.00	0.00
6.560	7.670	0.478	787.2	787.2	18.487	6.572	3.00		Unsaturated	100.0			7.25	1.70	12.32	70.08	0.99	0.538	1.083	n.a.	n.a.	n.a.	0.00	0.00
6.730	7.100	0.418	807.6	807.6	16.583	6.247	3.02		Unsaturated	100.0			6.71	1.70	11.41	68.88	0.99	0.538	1.080	n.a.	n.a.	n.a.	0.00	0.00
6.890	6.280	0.348	826.8	826.8	14.191	5.932	3.06		Unsaturated	100.0			5.94	1.70	10.09	67.16	0.98	0.537	1.077	n.a.	n.a.	n.a.	0.00	0.00
7.050	5.830	0.369	846.0	846.0	12.783	6.830	3.13		Unsaturated	100.0			5.51	1.70	9.37	66.21	0.98	0.537	1.075	n.a.	n.a.	n.a.	0.00	0.00
7.220	6.810	0.423	866.4	866.4	14.720	6.629	3.08		Unsaturated	100.0			6.44	1.68	10.80	68.08	0.98	0.537	1.074	n.a.	n.a.	n.a.	0.00	0.00
7.380	7.430	0.465	885.6	885.6	15.780	6.659	3.06		Unsaturated	100.0			7.02	1.65	11.60	69.13	0.98	0.536	1.073	n.a.	n.a.	n.a.	0.00	0.00
7.550	7.330	0.464	906.0	906.0	15.181	6.746	3.07		Unsaturated	100.0			6.93	1.63	11.31	68.75	0.98	0.536	1.070	n.a.	n.a.	n.a.	0.00	0.00
7.710	7.510	0.465	925.2	925.2	15.234	6.598	3.06		Unsaturated	100.0			7.10	1.61	11.44	68.92	0.98	0.536	1.069	n.a.	n.a.	n.a.	0.00	0.00
7.870	8.730	0.518	944.4	944.4	17.488	6.276	3.01		Unsaturated	100.0			8.25	1.58	13.07	71.07	0.98	0.535	1.068	n.a.	n.a.	n.a.	0.00	0.00
8.040	9.890	0.619	964.8	964.8	19.502	6.582	2.98		Unsaturated	100.0			9.35	1.56	14.57	73.03	0.98	0.535	1.068	n.a.	n.a.	n.a.	0.00	0.00
8.200	10.290	0.696	984.0	984.0	19.915	7.100	3.00		Unsaturated	100.0			9.73	1.54	14.97	73.56	0.98	0.535	1.066	n.a.	n.a.	n.a.	0.00	0.00
8.370	9.550	0.668	1004.4	1004.4	18.016	7.380	3.04		Unsaturated	100.0			9.03	1.53	13.78	71.99	0.98	0.534	1.064	n.a.	n.a.	n.a.	0.00	0.00
8.530	8.630	0.604	1023.6	1023.6	15.862	7.445	3.09		Unsaturated	100.0			8.16	1.52	12.37	70.14	0.98	0.534	1.061	n.a.	n.a.	n.a.	0.00	0.00
8.690	8.370	0.591	1042.8	1042.8	15.053	7.533	3.11		Unsaturated	100.0			7.91	1.50	11.88	69.51	0.98	0.534	1.059	n.a.	n.a.	n.a.	0.00	0.00
8.860	8.550	0.636	1063.2	1063.2	15.084	7.935	3.12		Unsaturated	100.0			8.08	1.49	12.00	69.66	0.98	0.533	1.058	n.a.	n.a.	n.a.	0.00	0.00
9.020	10.380	0.782	1082.4	1082.4	18.180	7.952	3.06		Unsaturated	100.0			9.81	1.46	14.34	72.72	0.98	0.533	1.058	n.a.	n.a.	n.a.	0.00	0.00
9.190	10.440	0.854	1102.8	1102.8	17.934	8.634	3.09		Unsaturated	100.0			9.87	1.45	14.27	72.63	0.98	0.533	1.056	n.a.	n.a.	n.a.	0.00	0.00
9.350	9.760	0.784	1122.0	1122.0	16.398	8.523	3.12		Unsaturated	100.0			9.22	1.44	13.24	71.29	0.97	0.532	1.054	n.a.	n.a.	n.a.	0.00	0.00
9.510	9.420	0.672	1141.2	1141.2	15.509	7.595	3.10		Unsaturated	100.0			8.90	1.42	12.68	70.54	0.97	0.532	1.052	n.a.	n.a.	n.a.	0.00	0.00
9.680	9.050	0.611	1161.6	1161.6	14.582	7.212	3.10		Unsaturated	100.0			8.55	1.41	12.07	69.75	0.97	0.532	1.050	n.a.	n.a.	n.a.	0.00	0.00
9.840	9.200	0.592	1180.8	1180.8	14.583	6.877	3.09		Unsaturated	100.0			8.70	1.40	12.15	69.86	0.97	0.531	1.049	n.a.	n.a.	n.a.	0.00	0.00
10.010	10.210	0.551	1201.3	1200.6	16.007	5.735	3.01		Unsaturated	100.0			9.65	1.38	13.33	71.40	0.97	0.531	1.048	n.a.	n.a.	n.a.	0.00	0.00
10.170	9.840	0.503	1221.3	1210.6	15.247	5.445	3.01		Unsaturated	100.0			9.30	1.38	12.80	70.70	0.97	0.530	1.047	n.a.	n.a.	n.a.	0.00	0.00
10.330	8.410	0.428	1241.3	1220.7	12.763	5.491	3.07		Unsaturated	100.0			7.95	1.37	10.93	68.25	0.97	0.530	1.046	n.a.	n.a.	n.a.	0.00	0.00
10.500	9.130	0.347	1262.5	1231.3	13.805	4.083	2.96		Unsaturated	100.0			8.63	1.37	11.78	69.38	0.97	0.530	1.045	n.a.	n.a.	n.a.	0.00	0.00
10.660	8.490	0.350	1282.5	1241.3	12.646	4.453	3.02		Unsaturated	100.0			8.02	1.36	10.93	68.25	0.97	0.529	1.044	n.a.	n.a.	n.a.	0.00	0.00
10.830	8.360	0.367	1303.8	1252.0	12.314	4.756	3.04		Unsaturated	100.0			7.90	1.36	10.71	67.97	0.97	0.529	1.043	n.a.	n.a.	n.a.	0.00	0.00
10.990	9.420	0.458	1323.8	1262.0	13.880	5.225	3.03		Unsaturated	100.0			8.90	1.35	11.98	69.64	0.97	0.529	1.043	n.a.	n.a.	n.a.	0.00	0.00

CORNERSTONE EARTH GROUP

CPT No. 2

PGA (A_{max}) 0.84

Total Settlement: 0.26 (Inches)

© 2014 Cornerstone Earth Group, Inc.

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_H)	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)
11.150	10.620	0.503	1343.8	1272.0	15.642	5.057	2.98		Unsaturated	100.0			10.04	1.34	13.41	71.51	0.97	0.528	1.043	n.a.	n.a.	n.a.	0.00	0.00
11.320	10.770	0.524	1365.0	1282.6	15.729	5.194	2.99		Unsaturated	100.0			10.18	1.33	13.53	71.67	0.97	0.528	1.043	n.a.	n.a.	n.a.	0.00	0.00
11.480	11.650	0.615	1385.0	1292.6	16.954	5.608	2.98		Unsaturated	100.0			11.01	1.32	14.55	73.00	0.97	0.527	1.042	n.a.	n.a.	n.a.	0.00	0.00
11.650	11.210	0.585	1406.3	1303.3	16.124	5.570	3.00		Unsaturated	100.0			10.60	1.32	13.95	72.21	0.97	0.527	1.041	n.a.	n.a.	n.a.	0.00	0.00
11.810	10.740	0.523	1426.3	1313.3	15.270	5.211	3.00		Unsaturated	100.0			10.15	1.31	13.32	71.39	0.96	0.527	1.040	n.a.	n.a.	n.a.	0.00	0.00
11.980	11.280	0.484	1447.5	1323.9	15.947	4.587	2.95		Unsaturated	98.7			10.66	1.31	13.91	72.06	0.96	0.526	1.040	n.a.	n.a.	n.a.	0.00	0.00
12.140	10.910	0.471	1467.5	1334.0	15.257	4.630	2.96		Unsaturated	100.0			10.31	1.30	13.41	71.51	0.96	0.526	1.039	n.a.	n.a.	n.a.	0.00	0.00
12.300	10.760	0.439	1487.5	1344.0	14.905	4.382	2.96		Unsaturated	99.5			10.17	1.30	13.17	71.16	0.96	0.525	1.038	n.a.	n.a.	n.a.	0.00	0.00
12.470	10.730	0.425	1508.8	1354.6	14.728	4.259	2.95		Unsaturated	99.2			10.14	1.29	13.08	71.01	0.96	0.525	1.038	n.a.	n.a.	n.a.	0.00	0.00
12.630	10.080	0.399	1528.8	1364.6	13.653	4.286	2.98		Unsaturated	100.0			9.53	1.29	12.25	69.99	0.96	0.525	1.037	n.a.	n.a.	n.a.	0.00	0.00
12.800	10.500	0.421	1550.0	1375.3	14.143	4.328	2.97		Unsaturated	100.0			9.92	1.28	12.70	70.57	0.96	0.524	1.036	n.a.	n.a.	n.a.	0.00	0.00
12.960	11.610	0.437	1570.0	1385.3	15.628	4.036	2.92		Unsaturated	96.4			10.97	1.27	13.96	71.92	0.96	0.524	1.036	n.a.	n.a.	n.a.	0.00	0.00
13.120	13.760	0.536	1590.0	1395.3	18.584	4.136	2.87		Unsaturated	92.3			13.01	1.26	16.42	74.76	0.96	0.523	1.036	n.a.	n.a.	n.a.	0.00	0.00
13.290	17.310	0.635	1611.3	1406.0	23.478	3.847	2.77		Unsaturated	84.5			16.36	1.25	20.47	79.20	0.96	0.523	1.037	n.a.	n.a.	n.a.	0.00	0.00
13.450	19.070	0.831	1631.3	1416.0	25.784	4.552	2.79		Unsaturated	85.9			18.02	1.24	22.40	81.88	0.96	0.523	1.037	n.a.	n.a.	n.a.	0.00	0.00
13.620	21.530	0.809	1652.5	1426.6	29.025	3.907	2.70		Unsaturated	79.3			20.35	1.23	25.12	84.57	0.96	0.522	1.037	n.a.	n.a.	n.a.	0.00	0.00
13.780	23.290	1.187	1672.5	1436.6	31.259	5.287	2.77		Unsaturated	84.7			22.01	1.23	26.99	87.71	0.96	0.522	1.037	n.a.	n.a.	n.a.	0.00	0.00
13.940	14.610	1.288	1692.5	1446.6	19.029	9.355	3.10		Unsaturated	100.0			13.81	1.24	17.06	76.29	0.96	0.521	1.034	n.a.	n.a.	n.a.	0.00	0.00
14.110	25.170	1.490	1713.8	1457.3	33.368	6.126	2.80		Unsaturated	86.7			23.79	1.21	28.88	90.42	0.95	0.521	1.037	n.a.	n.a.	n.a.	0.00	0.00
14.270	30.010	1.716	1733.8	1467.3	39.723	5.890	2.73		Unsaturated	81.5			28.36	1.20	34.14	96.59	0.95	0.521	1.038	n.a.	n.a.	n.a.	0.00	0.00
14.440	31.120	1.625	1755.0	1477.9	40.925	5.374	2.69		Unsaturated	78.5			29.41	1.20	35.24	97.58	0.95	0.520	1.037	n.a.	n.a.	n.a.	0.00	0.00
14.600	22.990	1.350	1775.0	1488.0	29.708	6.108	2.83		Unsaturated	89.4			21.73	1.20	26.17	87.20	0.95	0.520	1.034	n.a.	n.a.	n.a.	0.00	0.00
14.760	21.460	1.216	1795.0	1498.0	27.454	5.916	2.85		Unsaturated	90.6			20.28	1.20	24.39	84.99	0.95	0.519	1.033	n.a.	n.a.	n.a.	0.00	0.00
14.930	21.400	1.187	1816.3	1508.6	27.166	5.794	2.84		Unsaturated	90.4			20.23	1.20	24.23	84.77	0.95	0.519	1.032	n.a.	n.a.	n.a.	0.00	0.00
15.090	22.590	1.304	1836.3	1518.6	28.541	6.017	2.84		Clay	90.1			21.35	1.09	n.a.	n.a.	0.95	0.520	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.260	26.110	1.561	1857.5	1529.3	32.932	6.198	2.80		Clay	87.3			24.68	1.09	n.a.	n.a.	0.95	0.523	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.420	28.050	1.896	1877.5	1539.3	35.226	6.992	2.82		Clay	88.7			26.51	1.09	n.a.	n.a.	0.95	0.525	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.580	30.480	2.064	1897.5	1549.3	38.122	6.991	2.80		Clay	86.9			28.81	1.09	n.a.	n.a.	0.95	0.528	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.750	31.870	2.185	1918.8	1560.0	39.630	7.069	2.79		Clay	86.2			30.12	1.08	n.a.	n.a.	0.95	0.530	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.910	33.650	2.268	1938.8	1570.0	41.632	6.940	2.77		Clay	84.6			31.81	1.08	n.a.	n.a.	0.95	0.532	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.080	34.780	2.393	1960.0	1580.6	42.768	7.081	2.77		Clay	84.5			32.87	1.08	n.a.	n.a.	0.95	0.535	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.240	35.650	2.408	1980.0	1590.6	43.580	6.948	2.76		Clay	83.6			33.70	1.08	n.a.	n.a.	0.94	0.537	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.400	36.620	2.561	2000.0	1600.6	44.507	7.190	2.76		Clay	84.0			34.61	1.08	n.a.	n.a.	0.94	0.539	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.570	36.010	2.519	2021.3	1611.3	43.443	7.196	2.77		Clay	84.6			34.04	1.07	n.a.	n.a.	0.94	0.541	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.730	33.980	2.415	2041.3	1621.3	40.658	7.327	2.79		Clay	86.6			32.12	1.07	n.a.	n.a.	0.94	0.543	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.900	32.830	2.200	2062.5	1631.9	38.970	6.920	2.79		Clay	86.1			31.03	1.07	n.a.	n.a.	0.94	0.546	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.060	30.420	2.211	2082.5	1642.0	35.785	7.526	2.84		Clay	90.2			28.75	1.07	n.a.	n.a.	0.94	0.548	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.220	29.010	2.091	2102.5	1652.0	33.849	7.478	2.85		Clay	91.4			27.42	1.07	n.a.	n.a.	0.94	0.550	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.390	27.700	1.976	2123.8	1662.6	32.044	7.419	2.87		Clay	92.5			26.18	1.07	n.a.	n.a.	0.94	0.552	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.550	26.530	1.873	2143.8	1672.6	30.441	7.355	2.88		Clay	93.5			25.08	1.06	n.a.	n.a.	0.94	0.554	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.720	26.100	1.831	2165.0	1683.3	29.725	7.319	2.89		Clay	93.9			24.67	1.06	n.a.	n.a.	0.94	0.556	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.880	27.190	1.915	2185.0	1693.3	30.825	7.338	2.88		Clay	93.1			25.70	1.06	n.a.	n.a.	0.94	0.558	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.040	26.790	1.900	2205.0	1703.3	30.162	7.398	2.89		Clay	93.8			25.32	1.06	n.a.	n.a.	0.94	0.560	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.210	28.270	2.079	2226.3	1713.9	31.689	7.656	2.88		Clay	93.5			26.72	1.06	n.a.	n.a.	0.93	0.562	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.370	29.350	2.151	2246.3	1724.0	32.747	7.619	2.87		Clay	92.6			27.74	1.06	n.a.	n.a.	0.93	0.563	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.540	28.880	2.058	2267.5	1734.6	31.991	7.418	2.87		Clay	92.5			27.30	1.05	n.a.	n.a.	0.93	0.565	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.700	28.230	2.079	2287.5	1744.6	31.051	7.675	2.89		Clay	94.1			26.68	1.05	n.a.	n.a.	0.93	0.567	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.860	28.600	2.140	2307.5	1754.6	31.284	7.798	2.89		Clay	94.3			27.03	1.05	n.a.	n.a.	0.93	0.569	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.030	29.740	2.194	2328.8	1765.3	32.375	7.678	2.88		Clay	93.1			28.11	1.05	n.a.	n.a.	0.93	0.570	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.190	31.690	2.207	2348.8	1775.3	34.378	7.231	2.84		Clay	90.2			29.95	1.05	n.a.	n.a.	0.93	0.572	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.360	34.280	2.165	2370.0	1785.9	37.062	6.540	2.79		Clay	85.8			32.40	1.05	n.a.	n.a.	0.93	0.574	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.520	36.230	1.774	2390.0	1796.0	39.016	5.063	2.69		Clay	78.2			34.24	1.04	n.a.	n.a.	0.93	0.575	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.690	38.590	1.259	2411.3	1806.6	38.241	3.368	2.57	plastic	Clay	68.8			36.47	1.04	n.a.	n.a.	0.93	0.577	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.850	41.850	0.861	2431.3	1816.6	41.451	2.118	2.41		Sand	56.0			39.56	1.08	42.65	102.13	0.93	0.579	1.016	0.140	0.181	0.31	0.03	0.04
20.010	37.930	1.001	2451.3	1826.6	37.339	2.727	2.52		Sand	64.5	39.56		39.56	1.07	42.51	104.30	0.93	0.580	1.016	0.143	0.187	0.32	0.03	0.04
20.180	25.330	1.262	2472.5	1837.3	26.228	5.240	2.82		Clay	88.8			23.94	1.04	n.a.	n.a.	0.92	0.582	n.a.	n.a.	n.a.	n.a.	0.00	0.00
20.340	20.970	1.431	2492.5	1847.3	21.354	7.254	2.99		Clay	100.0			19.82	1.04	n.a.	n.a.	0.92	0.583	n.a.	n.a.	n.a.	n.a.	0.00	0.00
20.510	19.810	1.430	2513.8	1857.9	19.972	7.707	3.02		Clay	100.0			18.72	1.03	n.a.	n.a.	0.92	0.585	n.a.	n.a.	n.a.	n.a.	0.00	0.00
20.670	19.110	1.462	2533.8	1867.9	19.105	8.193	3.06		Clay	100.0			18.06	1.03	n.a.	n.a.	0.92	0.586	n.a.	n.a.	n.a.	n.a.	0.00	0.00
20.830	18.830	1.344	2553.8	1878.0	18.694	7.656	3.04		Clay	100.0			17.80	1.03	n.a.	n.a.	0.92	0.588	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.000	17.420	1.255	2575.0	1888.6	17.084	7.781	3.08		Clay	100.0			16.47	1.03	n.a.	n.a.	0.92	0.589	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.160	16.390	1.044	2595.0	1898.6	15.898	6.916	3.06		Clay	100.0			15.49	1.03	n.a.	n.a.	0.92	0.591	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.330	15.990	1.023	2616.3	1909.3	15.380	6.966	3.08		Clay	100.0			15.11	1.03	n.a.	n.a.	0.92	0.592	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.490	15.790	1.034	2636.3	1919.3	15.081	7.143	3.09		Clay	100.0			14.92	1.03	n.a.	n.a.	0.92	0.593	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.650	16.200	0.976	2656.3	1929.3	15.417	6.561	3.06	plastic	Clay	100.0			15.31	1.02	n.a.	n.a.	0.92	0.595	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.820	16.910	1.091	2677.5	1939.9	16.053	7.008	3.07		Clay	100.0			15.98	1.02	n.a.	n.a.	0.92	0.596	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.980	16.950	1.153	2697.5	1949.9	16.002	7.387	3.08		Clay	100.0			16.02	1.02	n.a.	n.a.	0.92	0.597	n.a.	n.a.	n.a.	n.a.	0.00	0.00

CORNERSTONE EARTH GROUP

CPT No. 2

PGA (A_{max}) 0.84

Total Settlement: 0.26 (Inches)

© 2014 Cornerstone Earth Group, Inc.

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_H)	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)
22.150	16.540	1.169	2718.8	1960.6	15.486	7.702	3.10		Clay	100.0			15.63	1.02	n.a.	n.a.	0.91	0.599	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.310	27.510	0.831	2738.8	1970.6	26.531	3.180	2.67		Clay	77.0			26.00	1.02	n.a.	n.a.	0.91	0.600	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.470	46.530	0.651	2758.8	1980.6	44.110	1.443	2.29		Sand	46.0		1.66	73.01	1.03	75.07	138.94	0.91	0.601	1.010	0.230	0.360	0.60	0.02	0.03
22.640	43.780	0.652	2780.0	1991.3	41.302	1.539	2.33		Sand	49.2		1.66	68.69	1.03	70.51	134.82	0.91	0.602	1.009	0.214	0.325	0.54	0.02	0.03
22.800	35.980	0.866	2800.0	2001.3	33.608	2.503	2.53		Sand	65.3		1.66	56.45	1.03	57.88	124.28	0.91	0.603	1.007	0.181	0.259	0.43	0.03	0.03
22.970	32.990	0.838	2821.3	2011.9	30.610	2.654	2.58		Sand	69.1		1.66	51.76	1.02	52.97	118.84	0.91	0.605	1.006	0.169	0.234	0.39	0.03	0.03
23.130	71.000	0.766	2841.3	2021.9	67.277	1.100	2.07		Sand	28.7		1.66	111.40	1.02	113.30	169.57	0.91	0.606	1.009	0.496	0.964	1.59	0.00	0.00
23.290	72.520	0.690	2861.3	2032.0	68.568	0.971	2.03		Sand	25.5		1.66	113.78	1.02	115.53	166.85	0.91	0.607	1.008	0.455	0.864	1.42	0.00	0.00
23.460	46.880	1.060	2882.5	2042.6	43.713	2.332	2.42		Sand	56.8	68.54	1.66	113.78	1.01	115.14	194.86	0.91	0.608	1.009	1.432	3.177	5.23	0.00	0.00
23.620	27.480	0.975	2902.5	2052.6	25.362	3.746	2.74	plastic	Clay	81.9			25.97	1.01	n.a.	n.a.	0.91	0.609	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.790	29.790	1.075	2923.8	2063.3	27.460	3.796	2.71		Clay	80.1			28.16	1.01	n.a.	n.a.	0.91	0.610	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.950	51.550	0.890	2943.8	2073.3	47.818	1.777	2.32		Sand	48.3	62.68	1.66	104.05	1.01	104.82	177.66	0.91	0.611	1.004	0.663	1.365	2.23	0.00	0.00
24.110	66.320	0.734	2963.8	2083.3	61.763	1.132	2.11		Sand	31.6		1.66	104.06	1.01	104.68	163.33	0.90	0.612	1.003	0.408	0.752	1.23	0.01	0.01
24.280	66.150	0.573	2985.0	2093.9	61.434	0.885	2.05		Sand	26.8	62.68	1.66	104.05	1.00	104.48	156.00	0.90	0.613	1.002	0.334	0.582	0.95	0.01	0.01
24.440	58.510	0.474	3005.0	2103.9	54.036	0.832	2.08		Sand	29.2	62.68	1.66	104.05	1.00	104.28	159.63	0.90	0.614	1.001	0.368	0.658	1.07	0.01	0.01
24.610	45.510	0.718	3026.3	2114.6	41.599	1.632	2.34		Sand	50.3			43.02	1.00	43.03	100.53	0.90	0.615	1.000	0.138	0.174	0.28	0.03	0.04
24.770	22.810	0.968	3046.3	2124.6	20.038	4.549	2.87		Clay	92.5			21.56	1.00	n.a.	n.a.	0.90	0.616	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.930	15.950	0.817	3066.3	2134.6	13.508	5.666	3.06		Clay	100.0			15.08	1.00	n.a.	n.a.	0.90	0.617	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.100	14.380	0.646	3087.5	2145.3	11.967	5.036	3.07		Clay	100.0			13.59	1.00	n.a.	n.a.	0.90	0.618	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.260	9.600	0.460	3107.5	2155.3	7.467	5.714	3.26		Clay	100.0			9.07	1.00	n.a.	n.a.	0.90	0.619	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.430	8.320	0.396	3128.8	2165.9	6.238	5.859	3.33		Clay	100.0			7.86	0.99	n.a.	n.a.	0.90	0.620	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.590	8.170	0.434	3148.8	2175.9	6.062	6.573	3.37		Clay	100.0			7.72	0.99	n.a.	n.a.	0.90	0.621	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.750	13.710	0.543	3168.8	2186.0	11.094	4.481	3.06		Clay	100.0			12.96	0.99	n.a.	n.a.	0.90	0.622	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.920	14.970	0.642	3190.0	2196.6	12.178	4.797	3.05		Clay	100.0			14.15	0.99	n.a.	n.a.	0.89	0.622	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.080	9.260	0.435	3210.0	2206.6	6.938	5.679	3.29		Clay	100.0			8.75	0.99	n.a.	n.a.	0.89	0.623	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.250	6.940	0.345	3231.3	2217.3	4.803	6.480	3.45		Clay	100.0			6.56	0.99	n.a.	n.a.	0.89	0.624	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.410	6.360	0.310	3251.3	2227.3	4.251	6.537	3.50		Clay	100.0			6.01	0.99	n.a.	n.a.	0.89	0.625	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.570	6.090	0.266	3271.3	2237.3	3.982	5.978	3.50		Clay	100.0			5.76	0.99	n.a.	n.a.	0.89	0.626	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.740	5.690	0.243	3292.5	2247.9	3.598	6.014	3.53		Clay	100.0			5.38	0.98	n.a.	n.a.	0.89	0.626	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.900	5.920	0.242	3312.5	2257.9	3.777	5.666	3.50		Clay	100.0			5.60	0.98	n.a.	n.a.	0.89	0.627	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.070	6.110	0.246	3333.8	2268.6	3.917	5.546	3.48		Clay	100.0			5.78	0.98	n.a.	n.a.	0.89	0.628	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.230	6.500	0.270	3353.8	2278.6	4.233	5.602	3.46		Clay	100.0			6.14	0.98	n.a.	n.a.	0.89	0.629	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.400	7.310	0.310	3375.0	2289.2	4.912	5.505	3.40		Clay	100.0			6.91	0.98	n.a.	n.a.	0.89	0.629	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.560	7.700	0.307	3395.0	2299.3	5.221	5.118	3.36		Clay	100.0			7.28	0.98	n.a.	n.a.	0.89	0.630	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.720	7.480	0.320	3415.0	2309.3	4.999	5.550	3.40		Clay	100.0			7.07	0.98	n.a.	n.a.	0.88	0.631	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.890	7.010	0.330	3436.3	2319.9	4.562	6.228	3.46		Clay	100.0			6.63	0.98	n.a.	n.a.	0.88	0.631	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.050	7.330	0.337	3456.3	2329.9	4.809	6.023	3.43		Clay	100.0			6.93	0.97	n.a.	n.a.	0.88	0.632	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.220	7.340	0.306	3477.5	2340.6	4.786	5.465	3.41		Clay	100.0			6.94	0.97	n.a.	n.a.	0.88	0.633	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.380	6.950	0.293	3497.5	2350.6	4.425	5.626	3.44		Clay	100.0			6.57	0.97	n.a.	n.a.	0.88	0.633	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.540	7.050	0.300	3517.5	2360.6	4.483	5.664	3.44		Clay	100.0			6.66	0.97	n.a.	n.a.	0.88	0.634	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.710	7.940	0.314	3538.8	2371.2	5.205	5.095	3.36		Clay	100.0			7.50	0.97	n.a.	n.a.	0.88	0.635	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.870	7.930	0.260	3558.8	2381.3	5.166	4.234	3.32		Clay	100.0			7.50	0.97	n.a.	n.a.	0.88	0.635	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.040	7.810	0.227	3580.0	2391.9	5.034	3.771	3.30		Clay	100.0			7.38	0.97	n.a.	n.a.	0.88	0.636	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.200	7.380	0.226	3600.0	2401.9	4.646	4.056	3.35		Clay	100.0			6.98	0.97	n.a.	n.a.	0.88	0.636	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.360	7.040	0.275	3620.0	2411.9	4.337	5.266	3.43		Clay	100.0			6.65	0.97	n.a.	n.a.	0.88	0.637	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.530	7.130	0.329	3641.3	2422.6	4.383	6.187	3.47		Clay	100.0			6.74	0.96	n.a.	n.a.	0.87	0.637	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.690	8.230	0.433	3661.3	2432.6	5.261	6.763	3.43		Clay	100.0			7.78	0.96	n.a.	n.a.	0.87	0.638	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.860	9.970	0.550	3682.5	2443.2	6.654	6.761	3.35		Clay	100.0			9.42	0.96	n.a.	n.a.	0.87	0.638	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.020	11.260	0.639	3702.5	2453.3	7.670	6.790	3.30		Clay	100.0			10.64	0.96	n.a.	n.a.	0.87	0.639	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.180	12.350	0.690	3722.5	2463.3	8.516	6.578	3.26		Clay	100.0			11.67	0.96	n.a.	n.a.	0.87	0.639	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.350	12.690	0.729	3743.8	2473.9	8.746	6.742	3.25		Clay	100.0			11.99	0.96	n.a.	n.a.	0.87	0.640	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.510	13.170	0.733	3763.8	2483.9	9.089	6.490	3.23		Clay	100.0			12.45	0.96	n.a.	n.a.	0.87	0.640	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.680	13.150	0.768	3785.0	2494.6	9.026	6.823	3.25		Clay	100.0			12.43	0.96	n.a.	n.a.	0.87	0.641	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.840	12.600	0.717	3805.0	2504.6	8.542	6.698	3.26		Clay	100.0			11.91	0.96	n.a.	n.a.	0.87	0.641	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.000	11.490	0.671	3825.0	2514.6	7.618	7.005	3.31		Clay	100.0			10.86	0.96	n.a.	n.a.	0.87	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.170	10.310	0.622	3846.3	2525.2	6.642	7.414	3.37		Clay	100.0			9.74	0.95	n.a.	n.a.	0.87	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.330	9.720	0.585	3866.3	2535.3	6.143	7.513	3.40		Clay	100.0			9.19	0.95	n.a.	n.a.	0.86	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.500	9.560	0.550	3887.5	2545.9	5.983	7.224	3.40		Clay	100.0			9.04	0.95	n.a.	n.a.	0.86	0.643	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.660	9.600	0.515	3907.5	2555.9	5.983	6.741	3.38		Clay	100.0			9.07	0.95	n.a.	n.a.	0.86	0.643	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.820	9.870	0.518	3927.5	2565.9	6.162	6.553	3.37		Clay	100.0			9.33	0.95	n.a.	n.a.	0.86	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.990	9.200	0.487	3948.8	2576.6	5.609	6.736	3.41		Clay	100.0			8.70	0.95	n.a.	n.a.	0.86	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.150	8.730	0.476	3968.8	2586.6	5.216	7.052	3.44		Clay	100.0			8.25	0.95	n.a.	n.a.	0.86	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.320	9.820	0.612	3990.0	2597.2	6.026	7.825	3.42		Clay	100.0			9.28	0.95	n.a.	n.a.	0.86	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.480	26.570	0.754	4010.0	2607.2	18.844	3.070	2.78		Clay	85.4			25.11	0.95	n.a.	n.a.	0.86	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.640	85.260	0.724	4030.0	2617.3	70.747	0.869	1.99		Sand	22.4	91.27	1.78	162.46	0.93	151.56	202.02	0.86	0.645	0.943	2.122	4.401	6.82	0.00	0.00
32.810	96.560	0.610	4051.3	2627.9	80.178	0.645	1.87		Sand	12.9		1.78	162.45	0.92	149.85	169.38	0.86	0.646	0.959	0.493	0.909	1.41	0.00	0.00
32.970	89.020	0.512	4071.3	2637.9	73.635	0.588	1.88		Sand	13.7	91.27	1.78	162.46	0.92	149.78	172.25	0.86	0.646	0.957	0.544	1.023	1.58	0.00	0.00

CORNERSTONE EARTH GROUP

CPT No. 2

PGA (A_{max}) 0.84

Total Settlement: 0.26 (Inches)

© 2014 Cornerstone Earth Group, Inc.

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_H)	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)
33.140	63.030	0.700	4092.5	2648.6	51.521	1.147	2.17		Sand	37.0	91.27	1.78	162.46	0.94	152.06	227.54	0.85	0.646	0.933	13.214	27.113	41.96	0.00	0.00
33.300	26.110	0.802	4112.5	2658.6	18.095	3.334	2.82		Clay	88.3			24.68	0.94	n.a.	n.a.	0.85	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.460	14.890	0.548	4132.5	2668.6	9.611	4.274	3.10		Clay	100.0			14.07	0.94	n.a.	n.a.	0.85	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.630	11.280	0.324	4153.8	2679.2	6.870	3.515	3.17		Clay	100.0			10.66	0.94	n.a.	n.a.	0.85	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.790	10.920	0.232	4173.8	2689.3	6.569	2.631	3.12		Clay	100.0			10.32	0.94	n.a.	n.a.	0.85	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.960	11.430	0.264	4195.0	2699.9	6.913	2.825	3.12		Clay	100.0			10.80	0.94	n.a.	n.a.	0.85	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.120	12.710	0.281	4215.0	2709.9	7.825	2.650	3.06		Clay	100.0			12.01	0.94	n.a.	n.a.	0.85	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.280	13.960	0.335	4235.0	2719.9	8.708	2.831	3.03		Clay	100.0			13.19	0.94	n.a.	n.a.	0.85	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.450	14.950	0.416	4256.3	2730.6	9.391	3.246	3.04		Clay	100.0			14.13	0.93	n.a.	n.a.	0.85	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.610	16.090	0.479	4276.3	2740.6	10.182	3.433	3.02		Clay	100.0			15.21	0.93	n.a.	n.a.	0.85	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.780	15.950	0.524	4297.5	2751.2	10.033	3.797	3.05		Clay	100.0			15.08	0.93	n.a.	n.a.	0.84	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.940	16.270	0.569	4317.5	2761.2	10.221	4.034	3.06		Clay	100.0			15.38	0.93	n.a.	n.a.	0.84	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.100	17.320	0.630	4337.5	2771.3	10.935	4.157	3.05		Clay	100.0			16.37	0.93	n.a.	n.a.	0.84	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.270	18.030	0.687	4358.8	2781.9	11.396	4.334	3.04		Clay	100.0			17.04	0.93	n.a.	n.a.	0.84	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.430	17.990	0.670	4378.8	2791.9	11.319	4.240	3.04		Clay	100.0			17.00	0.93	n.a.	n.a.	0.84	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.600	18.980	0.728	4400.0	2802.6	11.975	4.339	3.03		Clay	100.0			17.94	0.93	n.a.	n.a.	0.84	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.760	20.970	0.759	4420.0	2812.6	13.340	4.048	2.97		Clay	100.0			19.82	0.93	n.a.	n.a.	0.84	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.930	21.530	0.778	4441.3	2823.2	13.679	4.031	2.96		Clay	100.0			20.35	0.93	n.a.	n.a.	0.84	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.090	22.360	0.780	4461.3	2833.2	14.209	3.875	2.94		Clay	98.2			21.13	0.93	n.a.	n.a.	0.84	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.250	24.560	1.005	4481.3	2843.3	15.700	4.505	2.95		Clay	98.7			23.21	0.93	n.a.	n.a.	0.84	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.420	27.260	1.193	4502.5	2853.9	17.526	4.769	2.93		Clay	97.1			25.77	0.92	n.a.	n.a.	0.84	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.580	28.990	1.363	4522.5	2863.9	18.666	5.099	2.92		Clay	96.9			27.40	0.92	n.a.	n.a.	0.83	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.750	29.980	1.340	4543.8	2874.6	19.278	4.835	2.90		Clay	94.9			28.34	0.92	n.a.	n.a.	0.83	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.910	30.940	1.424	4563.8	2884.6	19.870	4.969	2.90		Clay	94.7			29.24	0.92	n.a.	n.a.	0.83	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.070	32.650	1.539	4583.8	2894.6	20.976	5.069	2.88		Clay	93.8			30.86	0.92	n.a.	n.a.	0.83	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.240	31.010	1.675	4605.0	2905.2	19.763	5.834	2.94		Clay	98.6			29.31	0.92	n.a.	n.a.	0.83	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.400	28.610	1.514	4625.0	2915.2	18.041	5.756	2.97		Clay	100.0			27.04	0.92	n.a.	n.a.	0.83	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.570	26.040	1.284	4646.3	2925.9	16.212	5.413	2.99		Clay	100.0			24.61	0.92	n.a.	n.a.	0.83	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.730	24.010	1.301	4666.3	2935.9	14.767	6.000	3.05		Clay	100.0			22.69	0.92	n.a.	n.a.	0.83	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.890	21.860	1.255	4686.3	2945.9	13.250	6.429	3.10		Clay	100.0			20.66	0.92	n.a.	n.a.	0.83	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.060	19.920	1.219	4707.5	2956.6	11.883	6.939	3.16		Clay	100.0			18.83	0.92	n.a.	n.a.	0.83	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.220	16.950	1.001	4727.5	2966.6	9.834	6.865	3.22		Clay	100.0			16.02	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.390	16.850	0.848	4748.8	2977.2	9.724	5.857	3.18		Clay	100.0			15.93	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.550	18.120	0.897	4768.8	2987.2	10.535	5.698	3.15		Clay	100.0			17.13	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.710	18.720	0.909	4788.8	2997.2	10.894	5.569	3.13		Clay	100.0			17.69	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.880	18.330	0.877	4810.0	3007.9	10.589	5.506	3.13		Clay	100.0			17.33	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.040	17.610	0.787	4830.0	3017.9	10.070	5.178	3.13		Clay	100.0			16.64	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.210	16.440	0.860	4851.3	3028.5	9.255	6.138	3.21		Clay	100.0			15.54	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.370	16.280	0.952	4871.3	3038.6	9.112	6.878	3.25		Clay	100.0			15.39	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.530	15.340	0.899	4891.3	3048.6	8.459	6.969	3.27		Clay	100.0			14.50	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.700	14.170	0.774	4912.5	3059.2	7.658	6.611	3.29		Clay	100.0			13.39	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.860	13.600	0.715	4932.5	3069.2	7.255	6.419	3.30		Clay	100.0			12.85	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.030	12.430	0.639	4953.8	3079.9	6.463	6.421	3.34		Clay	100.0			11.75	0.91	n.a.	n.a.	0.81	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.190	12.580	0.598	4973.8	3089.9	6.533	5.926	3.32		Clay	100.0			11.89	0.90	n.a.	n.a.	0.81	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.350	13.940	0.609	4993.8	3099.9	7.383	5.325	3.25		Clay	100.0			13.18	0.90	n.a.	n.a.	0.81	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.520	15.700	0.628	5015.0	3110.6	8.482	4.763	3.17		Clay	100.0			14.84	0.90	n.a.	n.a.	0.81	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.680	17.430	0.693	5035.0	3120.6	9.558	4.648	3.12		Clay	100.0			16.47	0.90	n.a.	n.a.	0.81	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.850	18.610	0.785	5056.3	3131.2	10.272	4.880	3.11		Clay	100.0			17.59	0.90	n.a.	n.a.	0.81	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.010	19.770	0.829	5076.3	3141.2	10.971	4.811	3.09		Clay	100.0			18.69	0.90	n.a.	n.a.	0.81	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.170	18.430	0.863	5096.3	3151.2	10.080	5.434	3.15		Clay	100.0			17.42	0.90	n.a.	n.a.	0.81	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.340	17.600	0.810	5117.5	3161.9	9.514	5.383	3.16		Clay	100.0			16.64	0.90	n.a.	n.a.	0.81	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.500	15.070	0.694	5137.5	3171.9	7.882	5.551	3.24		Clay	100.0			14.24	0.90	n.a.	n.a.	0.81	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.670	13.870	0.621	5158.8	3182.5	7.095	5.501	3.27		Clay	100.0			13.11	0.90	n.a.	n.a.	0.80	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.830	13.900	0.579	5178.8	3192.6	7.086	5.123	3.25		Clay	100.0			13.14	0.90	n.a.	n.a.	0.80	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.990	13.460	0.604	5198.8	3202.6	6.782	5.559	3.29		Clay	100.0			12.72	0.90	n.a.	n.a.	0.80	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.160	12.190	0.572	5220.0	3213.2	5.963	5.967	3.35		Clay	100.0			11.52	0.90	n.a.	n.a.	0.80	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.320	11.950	0.545	5240.0	3223.2	5.789	5.836	3.36		Clay	100.0			11.29	0.89	n.a.	n.a.	0.80	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.490	11.810	0.523	5261.3	3233.9	5.677	5.694	3.36		Clay	100.0			11.16	0.89	n.a.	n.a.	0.80	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.650	11.820	0.516	5281.3	3243.9	5.659	5.621	3.36		Clay	100.0			11.17	0.89	n.a.	n.a.	0.80	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.810	11.570	0.490	5301.3	3253.9	5.482	5.493	3.36		Clay	100.0			10.94	0.89	n.a.	n.a.	0.80	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.980	11.580	0.468	5322.5	3264.5	5.464	5.243	3.35		Clay	100.0			10.95	0.89	n.a.	n.a.	0.80	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.140	11.950	0.444	5342.5	3274.6	5.667	4.788	3.32		Clay	100.0			11.29	0.89	n.a.	n.a.	0.80	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.310	12.740	0.496	5363.8	3285.2	6.123	4.929	3.30		Clay	100.0			12.04	0.89	n.a.	n.a.	0.80	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.470	14.340	0.537	5383.8	3295.2	7.070	4.608	3.23		Clay	100.0			13.55	0.89	n.a.	n.a.	0.79	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.640	16.060	0.635	5405.0	3305.9	8.081	4.755	3.19		Clay	100.0			15.18	0.89	n.a.	n.a.	0.79	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.800	17.600	0.564	5425.0	3315.9	8.980	3.785	3.09		Clay	100.0			16.64	0.89	n.a.	n.a.	0.79	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.960	17.690	0.535	5445.0	3325.9	9.001	3.574	3.08		Clay	100.0			16.72	0.89	n.a.	n.a.	0.79	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00

CORNERSTONE EARTH GROUP

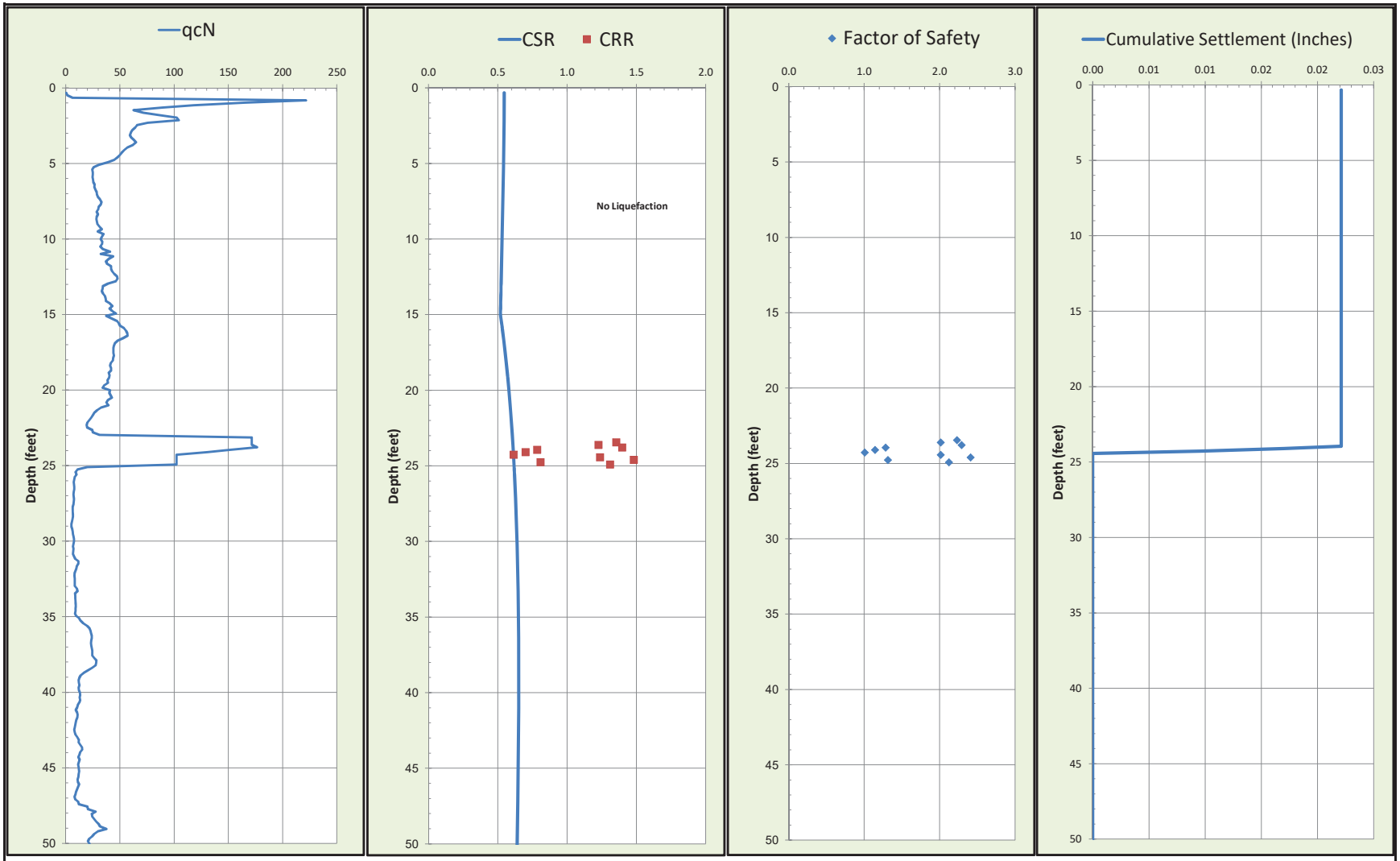
CPT No. 2

PGA (A_{max}) 0.84

Total Settlement: 0.26 (Inches)

© 2014 Cornerstone Earth Group, Inc.

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_H)	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)
44.130	16.040	0.555	5466.3	3336.5	7.976	4.172	3.16		Clay	100.0			15.16	0.89	n.a.	n.a.	0.79	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.290	16.640	0.542	5486.3	3346.6	8.305	3.901	3.13		Clay	100.0			15.73	0.89	n.a.	n.a.	0.79	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.460	15.470	0.534	5507.5	3357.2	7.576	4.202	3.18		Clay	100.0			14.62	0.89	n.a.	n.a.	0.79	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.620	15.610	0.496	5527.5	3367.2	7.630	3.858	3.16		Clay	100.0			14.75	0.88	n.a.	n.a.	0.79	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.780	14.010	0.442	5547.5	3377.2	6.654	3.935	3.21		Clay	100.0			13.24	0.88	n.a.	n.a.	0.79	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.950	13.020	0.376	5568.8	3387.9	6.043	3.674	3.23		Clay	100.0			12.31	0.88	n.a.	n.a.	0.79	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.110	11.680	0.302	5588.8	3397.9	5.230	3.395	3.26		Clay	100.0			11.04	0.88	n.a.	n.a.	0.78	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.280	9.890	0.278	5610.0	3408.5	4.157	3.922	3.38		Clay	100.0			9.35	0.88	n.a.	n.a.	0.78	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.440	9.270	0.288	5630.0	3418.5	3.776	4.460	3.44		Clay	100.0			8.76	0.88	n.a.	n.a.	0.78	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.600	8.660	0.247	5650.0	3428.6	3.404	4.228	3.47		Clay	100.0			8.19	0.88	n.a.	n.a.	0.78	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.770	8.460	0.256	5671.3	3439.2	3.271	4.552	3.50		Clay	100.0			8.00	0.88	n.a.	n.a.	0.78	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.930	9.050	0.318	5691.3	3449.2	3.598	5.121	3.49		Clay	100.0			8.55	0.88	n.a.	n.a.	0.78	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.100	13.020	0.434	5712.5	3459.9	5.875	4.269	3.27		Clay	100.0			12.31	0.88	n.a.	n.a.	0.78	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.260	17.140	0.612	5732.5	3469.9	8.227	4.287	3.16		Clay	100.0			16.20	0.88	n.a.	n.a.	0.78	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.420	20.440	0.689	5752.5	3479.9	10.094	3.924	3.06		Clay	100.0			19.32	0.88	n.a.	n.a.	0.78	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.590	22.550	0.846	5773.8	3490.5	11.267	4.301	3.05		Clay	100.0			21.31	0.88	n.a.	n.a.	0.78	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.750	26.030	0.926	5793.8	3500.6	13.217	4.004	2.97		Clay	100.0			24.60	0.88	n.a.	n.a.	0.78	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.920	28.760	0.865	5815.0	3511.2	14.726	3.345	2.89		Clay	94.1			27.18	0.87	n.a.	n.a.	0.77	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.080	28.930	0.763	5835.0	3521.2	14.775	2.932	2.85		Clay	91.2			27.34	0.87	n.a.	n.a.	0.77	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.240	29.140	0.821	5855.0	3531.2	14.846	3.132	2.87		Clay	92.5			27.54	0.87	n.a.	n.a.	0.77	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.410	30.420	1.064	5876.3	3541.9	15.518	3.870	2.91		Clay	95.7			28.75	0.87	n.a.	n.a.	0.77	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.570	32.970	1.245	5896.3	3551.9	16.905	4.148	2.90		Clay	94.9			31.16	0.87	n.a.	n.a.	0.77	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.740	33.460	1.343	5917.5	3562.5	17.123	4.404	2.91		Clay	95.9			31.63	0.87	n.a.	n.a.	0.77	0.643	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.900	34.130	1.434	5937.5	3572.5	17.445	4.601	2.92		Clay	96.4			32.26	0.87	n.a.	n.a.	0.77	0.643	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.060	33.740	1.546	5957.5	3582.6	17.173	5.027	2.95		Clay	98.8			31.89	0.87	n.a.	n.a.	0.77	0.643	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.230	34.040	1.516	5978.8	3593.2	17.283	4.883	2.94		Clay	98.0			32.17	0.87	n.a.	n.a.	0.77	0.643	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.390	35.210	1.574	5998.8	3603.2	17.879	4.886	2.93		Clay	97.1			33.28	0.87	n.a.	n.a.	0.77	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.560	36.250	1.593	6020.0	3613.9	18.396	4.792	2.91		Clay	95.9			34.26	0.87	n.a.	n.a.	0.77	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.720	36.450	1.514	6040.0	3623.9	18.450	4.527	2.89		Clay	94.5			34.45	0.87	n.a.	n.a.	0.76	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.880	37.090	1.878	6060.0	3633.9	18.746	5.514	2.95		Clay	98.6			35.06	0.87	n.a.	n.a.	0.76	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.050	37.120	1.872	6081.3	3644.5	18.702	5.492	2.94		Clay	98.6			35.09	0.87	n.a.	n.a.	0.76	0.641	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.210	29.450	1.638	6101.3	3654.5	14.447	6.204	3.06		Clay	100.0			27.84	0.87	n.a.	n.a.	0.76	0.641	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.380	24.030	1.189	6122.5	3665.2	11.442	5.670	3.12		Clay	100.0			22.71	0.87	n.a.	n.a.	0.76	0.641	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.540	20.860	1.040	6142.5	3675.2	9.680	5.846	3.18		Clay	100.0			19.72	0.86	n.a.	n.a.	0.76	0.640	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.700	18.180	1.082	6162.5	3685.2	8.194	7.167	3.29		Clay	100.0			17.18	0.86	n.a.	n.a.	0.76	0.640	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.870	22.150	1.298	6183.8	3695.9	10.313	6.808	3.20		Clay	100.0			20.94	0.86	n.a.	n.a.	0.76	0.640	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.030	88.920	3.704	6203.8	3705.9	61.292	4.316	2.50		Sand	63.4	137.25		137.25	0.83	113.72	195.50	0.76	0.640	0.860	1.480	2.800	4.38	0.00	0.00
50.200	145.210	5.469	6225.0	3716.5	101.342	3.848	2.32		Sand	49.0			137.25	0.82	112.99	188.34	0.76	0.639	0.870	1.040	1.991	3.11	0.00	0.00



CORNERSTONE EARTH GROUP

Liquefaction Analysis Summary

1188 East 14th Street
San Leandro, California

Project Number	444-3-1
Figure Number	Figure C-3
6/5/2018	CPT No. 3

CORNERSTONE EARTH GROUP

CPT No. 3

PGA (A_{max}) 0.84

Total Settlement: 0.02 (Inches)

© 2014 Cornerstone Earth Group, Inc.

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_H)	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)
0.330	0.650	0.001	39.6	39.6	9.649	0.111	2.50		Unsaturated	63.0			0.61	1.70	1.04	50.69	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.490	1.580	0.001	58.8	58.8	8.792	0.058	2.53		Unsaturated	65.1			1.49	1.70	2.54	53.02	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.660	6.850	0.794	79.2	79.2	64.186	11.659	2.83		Unsaturated	89.2			6.47	1.70	11.01	67.38	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.820	234.330	1.405	98.4	98.4	1026.860	0.600	1.10		Unsaturated	0.0			221.48	1.70	376.52	376.52	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.980	174.560	1.872	117.6	117.6	699.628	1.073	1.40		Unsaturated	0.0			164.99	1.70	280.48	280.48	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.150	124.910	2.521	138.0	138.0	462.051	2.019	1.72		Unsaturated	1.0			118.06	1.70	200.71	200.71	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.310	94.270	2.776	157.2	157.2	326.631	2.947	1.94		Unsaturated	18.3			89.10	1.70	151.47	190.20	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.480	66.060	3.288	177.6	177.6	215.231	4.984	2.23		Unsaturated	41.4			62.44	1.70	106.15	174.76	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.640	75.600	3.266	196.8	196.8	234.000	4.326	2.16		Unsaturated	35.6			71.46	1.70	121.47	188.49	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.800	90.810	3.588	216.0	216.0	268.326	3.955	2.09		Unsaturated	30.6			85.83	1.70	145.91	211.65	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.970	108.270	3.543	236.4	236.4	305.831	3.276	2.00		Unsaturated	22.6			102.33	1.70	173.97	228.54	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.130	110.320	4.136	255.6	255.6	299.670	3.753	2.05		Unsaturated	27.1			104.27	1.70	177.26	242.94	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.300	79.890	4.278	276.0	276.0	208.718	5.364	2.26		Unsaturated	44.1			75.51	1.70	128.37	204.56	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.460	69.740	4.091	295.2	295.2	176.107	5.878	2.34		Unsaturated	49.9			65.92	1.70	112.06	187.67	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.620	67.960	3.380	314.4	314.4	166.256	4.985	2.29		Unsaturated	46.1			64.23	1.70	109.20	181.87	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.790	65.200	2.601	334.8	334.8	154.529	3.999	2.23		Unsaturated	41.2			61.63	1.70	104.76	172.90	1.00	0.545	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.950	63.520	2.019	354.0	354.0	146.376	3.187	2.16		Unsaturated	35.9			60.04	1.70	102.06	164.95	1.00	0.545	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.120	62.730	1.225	374.4	374.4	140.534	1.958	2.01		Unsaturated	23.7			59.29	1.70	100.79	146.05	1.00	0.545	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.280	63.820	0.894	393.6	393.6	139.431	1.406	1.90		Unsaturated	15.4			60.32	1.70	102.55	127.01	1.00	0.544	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.440	66.410	0.719	412.8	412.8	141.672	1.086	1.82		Unsaturated	8.7			62.77	1.70	106.71	111.28	1.00	0.544	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.610	68.650	0.691	433.2	433.2	142.954	1.010	1.80		Unsaturated	6.7			64.89	1.70	110.31	111.58	1.00	0.544	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.770	65.660	0.626	452.4	452.4	133.756	0.956	1.80		Unsaturated	7.1			62.06	1.70	105.50	107.28	1.00	0.544	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.940	60.080	0.541	472.8	472.8	119.661	0.904	1.82		Unsaturated	8.8			56.79	1.70	96.54	101.16	0.99	0.543	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.100	57.410	0.460	492.0	492.0	112.050	0.804	1.81		Unsaturated	8.0			54.26	1.70	92.25	95.20	0.99	0.543	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.270	54.800	0.416	512.4	512.4	104.764	0.763	1.82		Unsaturated	8.7			51.80	1.70	88.05	92.34	0.99	0.543	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.430	53.120	0.391	531.6	531.6	99.669	0.739	1.83		Unsaturated	9.4			50.21	1.70	85.35	91.26	0.99	0.542	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.590	50.510	0.415	550.8	550.8	93.063	0.827	1.88		Unsaturated	13.7			47.74	1.70	81.16	98.74	0.99	0.542	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.760	47.320	0.409	571.2	571.2	85.565	0.870	1.93		Unsaturated	17.1			44.73	1.70	76.03	102.69	0.99	0.542	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.920	41.250	0.381	590.4	590.4	73.283	0.931	2.00		Unsaturated	22.8			38.99	1.70	66.28	104.27	0.99	0.541	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.090	32.600	0.241	610.8	610.8	56.814	0.745	2.03		Unsaturated	25.7			30.81	1.70	52.38	92.76	0.99	0.541	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.250	27.420	0.206	630.0	630.0	46.952	0.759	2.11		Unsaturated	31.7			25.92	1.70	44.06	89.97	0.99	0.541	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.410	26.030	0.186	649.2	649.2	43.864	0.722	2.12		Unsaturated	32.8			24.60	1.70	41.83	88.33	0.99	0.540	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.580	26.330	0.177	669.6	669.6	43.677	0.679	2.11		Unsaturated	31.9			24.89	1.70	42.31	88.04	0.99	0.540	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.740	26.400	0.195	688.8	688.8	43.164	0.750	2.14		Unsaturated	33.9			24.95	1.70	42.42	90.08	0.99	0.540	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.910	26.100	0.199	709.2	709.2	42.033	0.774	2.15		Unsaturated	35.3			24.67	1.70	41.94	90.63	0.99	0.539	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.070	26.650	0.198	728.4	728.4	42.346	0.751	2.14		Unsaturated	34.5			25.19	1.70	42.82	91.10	0.99	0.539	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.230	27.060	0.193	747.6	747.6	42.435	0.724	2.14		Unsaturated	33.8			25.58	1.70	43.48	91.29	0.99	0.539	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.400	28.080	0.196	768.0	768.0	43.452	0.709	2.12		Unsaturated	32.8			26.54	1.69	44.80	91.93	0.99	0.538	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.560	27.850	0.203	787.2	787.2	42.547	0.739	2.14		Unsaturated	34.1			26.32	1.67	43.87	91.99	0.99	0.538	1.099	n.a.	n.a.	n.a.	0.00	0.00
6.730	28.990	0.212	807.6	807.6	43.735	0.741	2.13		Unsaturated	33.3			27.40	1.64	44.99	92.68	0.99	0.538	1.097	n.a.	n.a.	n.a.	0.00	0.00
6.890	30.250	0.212	826.8	826.8	45.115	0.710	2.11		Unsaturated	31.6			28.59	1.62	46.37	92.77	0.98	0.537	1.094	n.a.	n.a.	n.a.	0.00	0.00
7.050	30.590	0.229	846.0	846.0	45.094	0.758	2.12		Unsaturated	32.8			28.91	1.60	46.25	93.75	0.98	0.537	1.093	n.a.	n.a.	n.a.	0.00	0.00
7.220	31.440	0.350	866.4	866.4	45.800	1.129	2.21		Unsaturated	40.0			29.72	1.56	46.41	99.51	0.98	0.537	1.095	n.a.	n.a.	n.a.	0.00	0.00
7.380	33.430	0.404	885.6	885.6	48.195	1.224	2.21		Unsaturated	40.2			31.60	1.54	48.55	102.29	0.98	0.536	1.094	n.a.	n.a.	n.a.	0.00	0.00
7.550	34.870	0.427	906.0	906.0	49.714	1.242	2.21		Unsaturated	39.6			32.96	1.52	49.95	103.65	0.98	0.536	1.093	n.a.	n.a.	n.a.	0.00	0.00
7.710	34.130	0.419	925.2	925.2	48.124	1.245	2.22		Unsaturated	40.6			32.26	1.50	48.49	102.47	0.98	0.536	1.090	n.a.	n.a.	n.a.	0.00	0.00
7.870	32.290	0.393	944.4	944.4	45.016	1.234	2.24		Unsaturated	42.2			30.52	1.49	45.62	99.92	0.98	0.535	1.086	n.a.	n.a.	n.a.	0.00	0.00
8.040	31.760	0.430	964.8	964.8	43.781	1.374	2.28		Unsaturated	45.2			30.02	1.48	44.39	99.99	0.98	0.535	1.083	n.a.	n.a.	n.a.	0.00	0.00
8.200	30.110	0.544	984.0	984.0	41.052	1.837	2.38		Unsaturated	53.2			28.46	1.46	41.68	99.92	0.98	0.535	1.081	n.a.	n.a.	n.a.	0.00	0.00
8.370	31.420	0.611	1004.4	1004.4	42.416	1.976	2.39		Unsaturated	53.9			29.70	1.45	42.92	101.76	0.98	0.534	1.080	n.a.	n.a.	n.a.	0.00	0.00
8.530	30.090	0.656	1023.6	1023.6	40.196	2.216	2.44		Unsaturated	57.9			28.44	1.44	40.81	100.35	0.98	0.534	1.077	n.a.	n.a.	n.a.	0.00	0.00
8.690	29.850	0.677	1042.8	1042.8	39.488	2.308	2.45		Unsaturated	59.2			28.21	1.42	40.14	99.90	0.98	0.534	1.075	n.a.	n.a.	n.a.	0.00	0.00
8.860	30.530	0.705	1063.2	1063.2	40.000	2.351	2.45		Unsaturated	59.3			28.86	1.41	40.62	100.54	0.98	0.533	1.073	n.a.	n.a.	n.a.	0.00	0.00
9.020	30.900	0.876	1082.4	1082.4	40.120	2.887	2.51		Unsaturated	63.9			29.21	1.39	40.68	101.81	0.98	0.533	1.072	n.a.	n.a.	n.a.	0.00	0.00
9.190	32.880	0.939	1102.8	1102.8	42.326	2.905	2.50		Unsaturated	62.7			31.08	1.38	42.74	104.16	0.98	0.533	1.072	n.a.	n.a.	n.a.	0.00	0.00
9.350	35.360	1.027	1122.0	1122.0	45.169	2.950	2.48		Unsaturated	61.4			33.42	1.36	45.39	107.22	0.97	0.532	1.071	n.a.	n.a.	n.a.	0.00	0.00
9.510	31.170	0.820	1141.2	1141.2	39.383	2.679	2.50		Unsaturated	62.7			29.46	1.36	40.03	100.68	0.97	0.532	1.066	n.a.	n.a.	n.a.	0.00	0.00
9.680	36.910	0.659	1161.6	1161.6	46.345	1.814	2.33		Unsaturated	49.6			34.89	1.34	46.73	104.95	0.97	0.532	1.066	n.a.	n.a.	n.a.	0.00	0.00
9.840	35.430	0.714	1180.8	1180.8	44.082	2.049	2.38		Unsaturated	53.6			33.49	1.33	44.57	103.77	0.97	0.531	1.064	n.a.	n.a.	n.a.	0.00	0.00
10.010	34.320	0.941	1201.3	1200.6	42.310	2.792	2.48		Unsaturated	61.8			32.44	1.32	42.81	104.00	0.97	0.531	1.062	n.a.	n.a.	n.a.	0.00	0.00
10.170	35.750	1.212	1221.3	1210.6	43.909	3.448	2.54		Unsaturated	65.8			33.79	1.31	44.26	106.87	0.97	0.530	1.063	n.a.	n.a.	n.a.	0.00	0.00
10.330	35.540	1.416	1241.3	1220.7	43.455	4.056	2.59		Unsaturated	70.0			33.59	1.30	43.81	107.19	0.97	0.530	1.062	n.a.	n.a.	n.a.	0.00	0.00
10.500	33.640	1.642	1262.5	1231.3	45.577	4.973	2.64		Unsaturated	74.0			31.80	1.30	41.40	104.83	0.97	0.530	1.060	n.a.	n.a.	n.a.	0.00	0.00
10.660	36.370	1.247	1282.5	1241.3	44.091	3.489	2.54		Unsaturated	66.0			34.38	1.29	44.47	107.18	0.97	0.529	1.060	n.a.	n.a.	n.a.	0.00	0.00
10.830	43.210	1.381	1303.8	1252.0	52.295	3.245	2.46		Unsaturated	60.0			40.84	1.28	52.15	115.49	0.97	0.529	1.063	n.a.	n.a.	n.a.	0.00	0.00
10.990	34.310	1.159	1323.8	1262.0	41.182	3.445	2.56		Unsaturated	67.4			32.43	1.29	41.76	104.01	0.97	0.529	1.057	n.a.	n.a.	n.a.	0.00	0.00
11.150	46.290	1.382	1343.8	1272.0	55.612	3.030	2.42		Unsaturated	56.8			43.75	1.26	55.28	118.51	0.97	0.528	1.063	n.a.	n.a.	n.a.	0.00	0.00

CORNERSTONE EARTH GROUP

CPT No. 3

PGA (A_{max}) 0.84

Total Settlement: 0.02 (Inches)

© 2014 Cornerstone Earth Group, Inc.

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_H)	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)
11.320	42.090	1.951	1365.0	1282.6	50.269	4.713	2.59		Unsaturated	70.3			39.78	1.26	50.22	115.53	0.97	0.528	1.060	n.a.	n.a.	n.a.	0.00	0.00
11.480	39.140	2.276	1385.0	1292.6	59.486	5.920	2.62		Unsaturated	72.3			36.99	1.26	46.73	111.41	0.97	0.527	1.057	n.a.	n.a.	n.a.	0.00	0.00
11.650	40.550	2.366	1406.3	1303.3	61.148	5.938	2.61		Unsaturated	71.8			38.33	1.26	48.14	113.13	0.97	0.527	1.057	n.a.	n.a.	n.a.	0.00	0.00
11.810	44.360	2.389	1426.3	1313.3	57.607	5.473	2.60		Unsaturated	71.0			41.93	1.25	52.22	118.25	0.96	0.527	1.059	n.a.	n.a.	n.a.	0.00	0.00
11.980	44.330	2.300	1447.5	1323.9	57.229	5.274	2.59		Unsaturated	70.1			41.90	1.24	52.01	117.81	0.96	0.526	1.057	n.a.	n.a.	n.a.	0.00	0.00
12.140	45.250	1.804	1467.5	1334.0	52.993	4.052	2.53		Unsaturated	65.2			42.77	1.24	52.90	117.84	0.96	0.526	1.056	n.a.	n.a.	n.a.	0.00	0.00
12.300	47.290	1.246	1487.5	1344.0	55.203	2.677	2.39		Unsaturated	54.0			44.70	1.23	55.12	117.33	0.96	0.525	1.055	n.a.	n.a.	n.a.	0.00	0.00
12.470	50.140	1.020	1508.8	1354.6	58.340	2.065	2.29		Unsaturated	46.5			47.39	1.23	58.20	117.97	0.96	0.525	1.055	n.a.	n.a.	n.a.	0.00	0.00
12.630	50.510	1.296	1528.8	1364.6	58.549	2.604	2.36		Unsaturated	51.9			47.74	1.22	58.30	120.54	0.96	0.525	1.055	n.a.	n.a.	n.a.	0.00	0.00
12.800	48.890	1.658	1550.0	1375.3	56.410	3.446	2.46		Unsaturated	59.6			46.21	1.22	56.23	120.61	0.96	0.524	1.054	n.a.	n.a.	n.a.	0.00	0.00
12.960	41.280	1.857	1570.0	1385.3	51.487	4.585	2.58		Unsaturated	69.0			39.02	1.22	47.67	111.96	0.96	0.524	1.049	n.a.	n.a.	n.a.	0.00	0.00
13.120	36.300	1.879	1590.0	1395.3	50.892	5.291	2.62		Unsaturated	72.9			34.31	1.22	42.01	105.43	0.96	0.523	1.046	n.a.	n.a.	n.a.	0.00	0.00
13.290	35.880	1.853	1611.3	1406.0	49.894	5.284	2.63		Unsaturated	73.4			33.91	1.22	41.40	104.72	0.96	0.523	1.045	n.a.	n.a.	n.a.	0.00	0.00
13.450	35.290	1.898	1631.3	1416.0	48.694	5.505	2.65		Unsaturated	75.0			33.36	1.22	40.60	103.97	0.96	0.523	1.044	n.a.	n.a.	n.a.	0.00	0.00
13.620	36.490	1.953	1652.5	1426.6	49.998	5.477	2.64		Unsaturated	74.2			34.49	1.21	41.78	105.37	0.96	0.522	1.044	n.a.	n.a.	n.a.	0.00	0.00
13.780	38.270	2.133	1672.5	1436.6	52.113	5.698	2.64		Unsaturated	74.3			36.17	1.20	43.59	107.72	0.96	0.522	1.044	n.a.	n.a.	n.a.	0.00	0.00
13.940	39.010	2.290	1692.5	1446.6	52.762	6.000	2.65		Unsaturated	75.4			36.87	1.20	44.24	108.76	0.96	0.521	1.043	n.a.	n.a.	n.a.	0.00	0.00
14.110	39.330	2.307	1713.8	1457.3	52.801	5.997	2.65		Unsaturated	75.3			37.17	1.20	44.44	109.01	0.95	0.521	1.043	n.a.	n.a.	n.a.	0.00	0.00
14.270	43.040	2.401	1733.8	1467.3	57.484	5.693	2.61		Unsaturated	72.0			40.68	1.19	48.31	113.41	0.95	0.521	1.043	n.a.	n.a.	n.a.	0.00	0.00
14.440	45.630	2.346	1755.0	1477.9	54.379	5.242	2.60		Unsaturated	71.2			43.13	1.18	50.93	116.62	0.95	0.520	1.043	n.a.	n.a.	n.a.	0.00	0.00
14.600	42.730	2.414	1775.0	1488.0	56.241	5.768	2.62		Unsaturated	72.9			40.39	1.18	47.68	112.75	0.95	0.520	1.041	n.a.	n.a.	n.a.	0.00	0.00
14.760	45.350	1.996	1795.0	1498.0	49.936	4.491	2.58		Unsaturated	69.2			42.86	1.17	50.34	115.46	0.95	0.519	1.041	n.a.	n.a.	n.a.	0.00	0.00
14.930	49.060	2.618	1816.3	1508.6	57.674	5.436	2.60		Unsaturated	70.8			46.37	1.17	54.10	120.63	0.95	0.519	1.042	n.a.	n.a.	n.a.	0.00	0.00
15.090	39.400	2.926	1836.3	1518.6	50.680	7.603	2.74		Clay	82.5			37.24	1.09	n.a.	n.a.	0.95	0.520	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.260	44.730	3.245	1857.5	1529.3	57.284	7.408	2.70		Clay	79.1			42.28	1.09	n.a.	n.a.	0.95	0.523	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.420	50.160	3.250	1877.5	1539.3	63.953	6.602	2.63		Clay	73.6			47.41	1.09	n.a.	n.a.	0.95	0.525	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.580	51.740	3.182	1897.5	1549.3	65.566	6.265	2.61		Clay	71.6			48.90	1.09	n.a.	n.a.	0.95	0.528	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.750	53.050	3.417	1918.8	1560.0	66.785	6.560	2.62		Clay	72.5			50.14	1.08	n.a.	n.a.	0.95	0.530	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.910	56.810	3.818	1938.8	1570.0	71.136	6.837	2.62		Clay	72.2			53.70	1.08	n.a.	n.a.	0.95	0.532	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.080	58.800	4.098	1960.0	1580.6	73.162	7.088	2.62		Clay	72.6			55.58	1.08	n.a.	n.a.	0.95	0.535	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.240	60.160	4.415	1980.0	1590.6	74.398	7.462	2.63		Clay	73.7			56.86	1.08	n.a.	n.a.	0.94	0.537	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.400	60.250	4.614	2000.0	1600.6	74.033	7.787	2.65		Clay	75.0			56.95	1.08	n.a.	n.a.	0.94	0.539	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.570	55.920	4.582	2021.3	1611.3	68.156	8.344	2.70		Clay	78.6			52.85	1.07	n.a.	n.a.	0.94	0.541	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.730	50.800	4.281	2041.3	1621.3	61.407	8.601	2.73		Clay	81.7			48.02	1.07	n.a.	n.a.	0.94	0.543	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.900	48.070	3.922	2062.5	1631.9	57.648	8.338	2.74		Clay	82.2			45.43	1.07	n.a.	n.a.	0.94	0.546	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.060	47.030	3.532	2082.5	1642.0	56.017	7.679	2.72		Clay	80.6			44.45	1.07	n.a.	n.a.	0.94	0.548	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.220	46.490	3.323	2102.5	1652.0	55.012	7.313	2.71		Clay	79.7			43.94	1.07	n.a.	n.a.	0.94	0.550	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.390	46.640	3.243	2123.8	1662.6	54.827	7.115	2.70		Clay	79.0			44.08	1.07	n.a.	n.a.	0.94	0.552	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.550	46.660	3.465	2143.8	1672.6	54.511	7.600	2.72		Clay	80.9			44.10	1.06	n.a.	n.a.	0.94	0.554	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.720	47.130	3.627	2165.0	1683.3	54.712	7.877	2.73		Clay	81.8			44.55	1.06	n.a.	n.a.	0.94	0.556	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.880	46.270	3.612	2185.0	1693.3	53.361	7.996	2.75		Clay	82.7			43.73	1.06	n.a.	n.a.	0.94	0.558	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.040	45.960	3.709	2205.0	1703.3	52.671	8.268	2.76		Clay	83.9			43.44	1.06	n.a.	n.a.	0.94	0.560	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.210	44.140	3.491	2226.3	1713.9	50.208	8.114	2.77		Clay	84.5			41.72	1.06	n.a.	n.a.	0.93	0.562	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.370	43.230	3.338	2246.3	1724.0	48.849	7.926	2.77		Clay	84.5			40.86	1.06	n.a.	n.a.	0.93	0.563	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.540	44.280	3.482	2267.5	1734.6	49.748	8.069	2.77		Clay	84.5			41.85	1.05	n.a.	n.a.	0.93	0.565	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.700	44.410	3.566	2287.5	1744.6	49.600	8.242	2.78		Clay	85.2			41.98	1.05	n.a.	n.a.	0.93	0.567	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.860	41.900	3.430	2307.5	1754.6	46.444	8.419	2.80		Clay	87.2			39.60	1.05	n.a.	n.a.	0.93	0.569	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.030	42.890	3.384	2328.8	1765.3	47.274	8.110	2.78		Clay	85.8			40.54	1.05	n.a.	n.a.	0.93	0.570	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.190	42.310	3.353	2348.8	1775.3	46.342	8.150	2.79		Clay	86.4			39.99	1.05	n.a.	n.a.	0.93	0.572	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.360	40.750	3.315	2370.0	1785.9	44.307	8.378	2.81		Clay	88.1			38.52	1.05	n.a.	n.a.	0.93	0.574	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.520	41.340	3.068	2390.0	1796.0	44.706	7.642	2.78		Clay	85.5			39.07	1.04	n.a.	n.a.	0.93	0.575	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.690	37.390	3.005	2411.3	1806.6	40.058	8.306	2.84		Clay	90.2			35.34	1.04	n.a.	n.a.	0.93	0.577	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.850	35.990	2.800	2431.3	1816.6	38.285	8.053	2.84		Clay	90.4			34.02	1.04	n.a.	n.a.	0.93	0.579	n.a.	n.a.	n.a.	n.a.	0.00	0.00
20.010	43.190	2.771	2451.3	1826.6	45.947	6.604	2.73		Clay	81.0			40.82	1.04	n.a.	n.a.	0.93	0.580	n.a.	n.a.	n.a.	n.a.	0.00	0.00
20.180	42.590	3.032	2472.5	1837.3	45.017	7.333	2.77		Clay	84.2			40.26	1.04	n.a.	n.a.	0.92	0.582	n.a.	n.a.	n.a.	n.a.	0.00	0.00
20.340	43.700	3.009	2492.5	1847.3	45.963	7.088	2.75		Clay	82.9			41.30	1.04	n.a.	n.a.	0.92	0.583	n.a.	n.a.	n.a.	n.a.	0.00	0.00
20.510	44.920	2.855	2513.8	1857.9	47.002	6.538	2.72		Clay	80.3			42.46	1.03	n.a.	n.a.	0.92	0.585	n.a.	n.a.	n.a.	n.a.	0.00	0.00
20.670	41.340	2.727	2533.8	1867.9	42.906	6.806	2.76		Clay	83.4			39.07	1.03	n.a.	n.a.	0.92	0.586	n.a.	n.a.	n.a.	n.a.	0.00	0.00
20.830	39.740	2.618	2553.8	1878.0	40.963	6.807	2.77		Clay	84.5			37.56	1.03	n.a.	n.a.	0.92	0.588	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.000	41.650	2.514	2575.0	1888.6	42.743	6.228	2.73		Clay	81.2			39.37	1.03	n.a.	n.a.	0.92	0.589	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.160	34.440	2.534	2595.0	1898.6	34.912	7.646	2.85		Clay	91.2			32.55	1.03	n.a.	n.a.	0.92	0.591	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.330	30.620	2.511	2616.3	1909.3	30.705	8.565	2.93		Clay	97.1			28.94	1.03	n.a.	n.a.	0.92	0.592	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.490	28.200	2.291	2636.3	1919.3	28.013	8.522	2.95		Clay	99.2			26.65	1.03	n.a.	n.a.	0.92	0.593	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.650	26.680	1.816	2656.3	1929.3	26.281	7.162	2.92		Clay	96.4			25.22	1.02	n.a.	n.a.	0.92	0.595	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.820	24.940	1.822	2677.5	1939.9	24.332	7.722	2.96		Clay	100.0			23.57	1.02	n.a.	n.a.	0.92	0.596	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.980	23.220	1.783	2697.5	1949.9	22.433	8.151	3.01		Clay	100.0			21.95	1.02	n.a.	n.a.	0.92	0.597	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.150	21.100	1.675	2718.8	1960.6	20.137	8.487	3.05		Clay	100.0			19.94	1.02	n.a.	n.a.	0.91	0.599	n.a.	n.a.	n.a.	n.a.	0.00	0.00

CORNERSTONE EARTH GROUP

CPT No.	3

PGA (A_{max})	0.84

Total Settlement:	0.02	(Inches)

© 2014 Cornerstone Earth Group, Inc.

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_H)	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)
22.310	20.460	1.570	2738.8	1970.6	19.375	8.223	3.05		Clay	100.0			19.34	1.02	n.a.	n.a.	0.91	0.600	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.470	20.900	1.483	2758.8	1980.6	19.712	7.597	3.02		Clay	100.0			19.75	1.02	n.a.	n.a.	0.91	0.601	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.640	25.910	1.416	2780.0	1991.3	24.628	5.774	2.87		Clay	92.7			24.49	1.02	n.a.	n.a.	0.91	0.602	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.800	26.360	1.407	2800.0	2001.3	24.944	5.638	2.86		Clay	91.8			24.91	1.01	n.a.	n.a.	0.91	0.603	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.970	33.100	1.301	2821.3	2011.9	31.502	4.104	2.69		Clay	78.4			31.29	1.01	n.a.	n.a.	0.91	0.605	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.130	58.820	0.927	2841.3	2021.9	55.500	1.615	2.24		Sand	42.2	102.69	1.67	171.49	1.01	173.56	259.50	0.91	0.606	1.014	431.571	962.409	1588.76	0.00	0.00
23.290	90.660	0.677	2861.3	2032.0	86.064	0.758	1.89		Sand	14.1	102.69	1.67	171.49	1.01	173.80	199.42	0.91	0.607	1.011	1.829	4.066	6.70	0.00	0.00
23.460	103.800	0.691	2882.5	2042.6	98.470	0.675	1.81		Sand	7.9	102.69	1.67	171.49	1.01	173.69	177.44	0.91	0.608	1.007	0.657	1.355	2.23	0.00	0.00
23.620	108.650	0.733	2902.5	2052.6	102.875	0.684	1.80		Sand	6.9	102.69	1.67	171.50	1.01	173.41	175.29	0.91	0.609	1.006	0.606	1.228	2.02	0.00	0.00
23.790	111.840	0.661	2923.8	2063.3	105.652	0.599	1.76		Sand	3.5	105.71	1.67	176.54	1.01	178.15	178.15	0.91	0.610	1.005	0.675	1.398	2.29	0.00	0.00
23.950	95.940	0.650	2943.8	2073.3	90.205	0.688	1.85		Sand	10.8	90.68	1.67	151.44	1.01	152.62	164.44	0.91	0.611	1.004	0.422	0.785	1.28	0.00	0.01
24.110	82.590	0.591	2963.8	2083.3	77.261	0.729	1.92		Sand	16.4	78.06	1.67	130.36	1.01	131.15	161.39	0.90	0.612	1.003	0.386	0.701	1.15	0.01	0.01
24.280	64.800	0.616	2985.0	2093.9	60.151	0.973	2.08		Sand	29.2	61.25	1.67	102.29	1.00	102.71	157.74	0.90	0.613	1.002	0.349	0.617	1.01	0.01	0.01
24.440	52.450	0.983	3005.0	2103.9	48.292	1.929	2.34		Sand	49.9	61.25	1.67	102.29	1.00	102.50	175.58	0.90	0.614	1.001	0.613	1.238	2.02	0.00	0.00
24.610	41.830	0.900	3026.3	2114.6	38.119	2.231	2.46		Sand	59.4	61.25	1.67	102.29	1.00	102.31	179.50	0.90	0.615	1.000	0.712	1.482	2.41	0.00	0.00
24.770	55.360	0.585	3046.3	2124.6	50.782	1.087	2.17		Sand	36.3	61.25	1.67	102.29	1.00	102.13	165.38	0.90	0.616	0.999	0.434	0.810	1.31	0.00	0.00
24.930	41.490	0.685	3066.3	2134.6	37.601	1.713	2.39		Sand	54.1	61.25	1.67	102.29	1.00	101.96	176.92	0.90	0.617	0.998	0.644	1.311	2.12	0.00	0.00
25.100	20.880	0.730	3087.5	2145.3	18.027	3.775	2.85		Clay	91.1			19.74	1.00	n.a.	n.a.	0.90	0.618	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.260	11.550	0.619	3107.5	2155.3	9.276	6.195	3.21		Clay	100.0			10.92	1.00	n.a.	n.a.	0.90	0.619	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.430	9.560	0.499	3128.8	2165.9	7.383	6.237	3.29		Clay	100.0			9.04	0.99	n.a.	n.a.	0.90	0.620	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.590	10.500	0.506	3148.8	2175.9	8.204	5.670	3.23		Clay	100.0			9.92	0.99	n.a.	n.a.	0.90	0.621	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.750	8.800	0.499	3168.8	2186.0	6.602	6.916	3.36		Clay	100.0			8.32	0.99	n.a.	n.a.	0.90	0.622	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.920	8.460	0.468	3190.0	2196.6	6.251	6.814	3.37		Clay	100.0			8.00	0.99	n.a.	n.a.	0.89	0.622	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.080	7.770	0.418	3210.0	2206.6	5.588	6.780	3.41		Clay	100.0			7.34	0.99	n.a.	n.a.	0.89	0.623	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.250	8.170	0.416	3231.3	2217.3	5.912	6.342	3.37		Clay	100.0			7.72	0.99	n.a.	n.a.	0.89	0.624	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.410	8.440	0.441	3251.3	2227.3	6.119	6.477	3.37		Clay	100.0			7.98	0.99	n.a.	n.a.	0.89	0.625	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.570	8.370	0.483	3271.3	2237.3	6.020	7.177	3.40		Clay	100.0			7.91	0.99	n.a.	n.a.	0.89	0.626	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.740	7.840	0.455	3292.5	2247.9	5.511	7.340	3.43		Clay	100.0			7.41	0.98	n.a.	n.a.	0.89	0.626	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.900	7.530	0.445	3312.5	2257.9	5.203	7.576	3.46		Clay	100.0			7.12	0.98	n.a.	n.a.	0.89	0.627	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.070	7.880	0.463	3333.8	2268.6	5.478	7.458	3.44		Clay	100.0			7.45	0.98	n.a.	n.a.	0.89	0.628	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.230	8.060	0.460	3353.8	2278.6	5.603	7.199	3.42		Clay	100.0			7.62	0.98	n.a.	n.a.	0.89	0.629	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.400	7.740	0.472	3375.0	2289.2	5.288	7.798	3.46		Clay	100.0			7.32	0.98	n.a.	n.a.	0.89	0.629	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.560	7.570	0.473	3395.0	2299.3	5.108	8.053	3.49		Clay	100.0			7.16	0.98	n.a.	n.a.	0.89	0.630	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.720	6.970	0.408	3415.0	2309.3	4.558	7.745	3.51		Clay	100.0			6.59	0.98	n.a.	n.a.	0.88	0.631	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.890	6.860	0.315	3436.3	2319.9	4.433	6.120	3.46		Clay	100.0			6.48	0.98	n.a.	n.a.	0.88	0.631	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.050	6.800	0.326	3456.3	2329.9	4.354	6.426	3.48		Clay	100.0			6.43	0.97	n.a.	n.a.	0.88	0.632	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.220	7.020	0.347	3477.5	2340.6	4.513	6.570	3.48		Clay	100.0			6.64	0.97	n.a.	n.a.	0.88	0.633	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.380	7.110	0.344	3497.5	2350.6	4.562	6.415	3.47		Clay	100.0			6.72	0.97	n.a.	n.a.	0.88	0.633	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.540	6.600	0.333	3517.5	2360.6	4.102	6.876	3.52		Clay	100.0			6.24	0.97	n.a.	n.a.	0.88	0.634	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.710	6.090	0.318	3538.8	2371.2	3.644	7.351	3.58		Clay	100.0			5.76	0.97	n.a.	n.a.	0.88	0.635	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.870	5.690	0.317	3558.8	2381.3	3.284	8.114	3.64		Clay	100.0			5.38	0.97	n.a.	n.a.	0.88	0.635	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.040	5.620	0.281	3580.0	2391.9	3.202	7.339	3.62		Clay	100.0			5.31	0.97	n.a.	n.a.	0.88	0.636	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.200	6.270	0.290	3600.0	2401.9	3.722	6.483	3.54		Clay	100.0			5.93	0.97	n.a.	n.a.	0.88	0.636	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.360	6.870	0.318	3620.0	2411.9	4.196	6.291	3.49		Clay	100.0			6.49	0.97	n.a.	n.a.	0.88	0.637	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.530	7.220	0.310	3641.3	2422.6	4.458	5.732	3.45		Clay	100.0			6.82	0.96	n.a.	n.a.	0.87	0.637	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.690	7.560	0.345	3661.3	2432.6	4.711	6.015	3.44		Clay	100.0			7.15	0.96	n.a.	n.a.	0.87	0.638	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.860	8.150	0.347	3682.5	2443.2	5.164	5.507	3.38		Clay	100.0			7.70	0.96	n.a.	n.a.	0.87	0.638	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.020	8.150	0.345	3702.5	2453.3	5.135	5.476	3.38		Clay	100.0			7.70	0.96	n.a.	n.a.	0.87	0.639	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.180	7.710	0.331	3722.5	2463.3	4.749	5.656	3.42		Clay	100.0			7.29	0.96	n.a.	n.a.	0.87	0.639	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.350	7.010	0.297	3743.8	2473.9	4.154	5.786	3.47		Clay	100.0			6.63	0.96	n.a.	n.a.	0.87	0.640	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.510	7.650	0.285	3763.8	2483.9	4.644	4.948	3.39		Clay	100.0			7.23	0.96	n.a.	n.a.	0.87	0.640	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.680	7.370	0.262	3785.0	2494.6	4.392	4.787	3.41		Clay	100.0			6.97	0.96	n.a.	n.a.	0.87	0.641	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.840	7.130	0.305	3805.0	2504.6	4.174	5.836	3.47		Clay	100.0			6.74	0.96	n.a.	n.a.	0.87	0.641	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.000	8.140	0.465	3825.0	2514.6	4.953	7.459	3.48		Clay	100.0			7.69	0.96	n.a.	n.a.	0.87	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.170	9.310	0.578	3846.3	2525.2	5.850	7.818	3.43		Clay	100.0			8.80	0.95	n.a.	n.a.	0.87	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.330	12.400	0.743	3866.3	2535.3	8.257	7.095	3.29		Clay	100.0			11.72	0.95	n.a.	n.a.	0.86	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.500	12.440	0.747	3887.5	2545.9	8.246	7.116	3.29		Clay	100.0			11.76	0.95	n.a.	n.a.	0.86	0.643	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.660	10.830	0.704	3907.5	2555.9	6.946	7.931	3.38		Clay	100.0			10.24	0.95	n.a.	n.a.	0.86	0.643	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.820	10.270	0.618	3927.5	2565.9	6.474	7.435	3.38		Clay	100.0			9.71	0.95	n.a.	n.a.	0.86	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.990	9.280	0.508	3948.8	2576.6	5.671	6.958	3.41		Clay	100.0			8.77	0.95	n.a.	n.a.	0.86	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.150	8.580	0.433	3968.8	2586.6	5.100	6.562	3.43		Clay	100.0			8.11	0.95	n.a.	n.a.	0.86	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.320	8.530	0.415	3990.0	2597.2	5.032	6.344	3.43		Clay	100.0			8.06	0.95	n.a.	n.a.	0.86	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.480	8.780	0.391	4010.0	2607.2	5.197	5.776	3.39		Clay	100.0			8.30	0.95	n.a.	n.a.	0.86	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.640	8.820	0.392	4030.0	2617.3	5.200	5.765	3.39		Clay	100.0			8.34	0.95	n.a.	n.a.	0.86	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.810	8.960	0.401	4051.3	2627.9	5.277	5.789	3.39		Clay	100.0			8.47	0.94	n.a.	n.a.	0.86	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.970	8.940	0.375	4071.3	2637.9	5.235	5.437	3.38		Clay	100.0			8.45	0.94	n.a.	n.a.	0.86	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.140	10.980	0.407	4092.5	2648.6	6.746	4.554	3.24		Clay	100.0			10.38	0.94	n.a.	n.a.	0.85	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00

CORNERSTONE EARTH GROUP

CPT No. 3

PGA (A_{max}) 0.84

Total Settlement: 0.02 (Inches)

© 2014 Cornerstone Earth Group, Inc.

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_H)	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)
33.300	11.580	0.387	4112.5	2658.6	7.165	4.062	3.19		Clay	100.0			10.95	0.94	n.a.	n.a.	0.85	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.460	9.210	0.406	4132.5	2668.6	5.354	5.683	3.38		Clay	100.0			8.71	0.94	n.a.	n.a.	0.85	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.630	9.280	0.350	4153.8	2679.2	5.377	4.860	3.34		Clay	100.0			8.77	0.94	n.a.	n.a.	0.85	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.790	9.440	0.372	4173.8	2689.3	5.469	5.065	3.34		Clay	100.0			8.92	0.94	n.a.	n.a.	0.85	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.960	9.490	0.413	4195.0	2699.9	5.476	5.581	3.37		Clay	100.0			8.97	0.94	n.a.	n.a.	0.85	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.120	9.550	0.405	4215.0	2709.9	5.493	5.443	3.36		Clay	100.0			9.03	0.94	n.a.	n.a.	0.85	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.280	9.820	0.396	4235.0	2719.9	5.664	5.135	3.33		Clay	100.0			9.28	0.94	n.a.	n.a.	0.85	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.450	9.690	0.405	4256.3	2730.6	5.539	5.356	3.35		Clay	100.0			9.16	0.93	n.a.	n.a.	0.85	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.610	9.560	0.383	4276.3	2740.6	5.416	5.154	3.35		Clay	100.0			9.04	0.93	n.a.	n.a.	0.85	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.780	9.180	0.361	4297.5	2751.2	5.111	5.137	3.37		Clay	100.0			8.68	0.93	n.a.	n.a.	0.84	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.940	10.150	0.349	4317.5	2761.2	5.788	4.366	3.28		Clay	100.0			9.59	0.93	n.a.	n.a.	0.84	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.100	13.220	0.391	4337.5	2771.3	7.976	3.538	3.12		Clay	100.0			12.50	0.93	n.a.	n.a.	0.84	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.270	14.520	0.416	4358.8	2781.9	8.872	3.373	3.07		Clay	100.0			13.72	0.93	n.a.	n.a.	0.84	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.430	17.140	0.502	4378.8	2791.9	10.710	3.360	3.00		Clay	100.0			16.20	0.93	n.a.	n.a.	0.84	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.600	21.040	0.737	4400.0	2802.6	13.445	3.913	2.96		Clay	99.9			19.89	0.93	n.a.	n.a.	0.84	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.760	23.090	1.029	4420.0	2812.6	14.848	4.928	2.99		Clay	100.0			21.82	0.93	n.a.	n.a.	0.84	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.930	24.220	1.168	4441.3	2823.2	15.585	5.308	2.99		Clay	100.0			22.89	0.93	n.a.	n.a.	0.84	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.090	24.570	1.196	4461.3	2833.2	15.770	5.354	2.99		Clay	100.0			23.22	0.93	n.a.	n.a.	0.84	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.250	25.510	1.185	4481.3	2843.3	16.368	5.093	2.97		Clay	100.0			24.11	0.93	n.a.	n.a.	0.84	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.420	25.460	1.200	4502.5	2853.9	16.265	5.170	2.97		Clay	100.0			24.06	0.92	n.a.	n.a.	0.84	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.580	24.990	1.162	4522.5	2863.9	15.873	5.112	2.98		Clay	100.0			23.62	0.92	n.a.	n.a.	0.83	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.750	24.600	1.139	4543.8	2874.6	15.535	5.102	2.98		Clay	100.0			23.25	0.92	n.a.	n.a.	0.83	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.910	24.850	1.113	4563.8	2884.6	15.648	4.931	2.97		Clay	100.0			23.49	0.92	n.a.	n.a.	0.83	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.070	25.420	1.229	4583.8	2894.6	15.980	5.314	2.99		Clay	100.0			24.03	0.92	n.a.	n.a.	0.83	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.240	25.820	1.374	4605.0	2905.2	16.190	5.840	3.01		Clay	100.0			24.40	0.92	n.a.	n.a.	0.83	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.400	25.950	1.375	4625.0	2915.2	16.217	5.818	3.01		Clay	100.0			24.53	0.92	n.a.	n.a.	0.83	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.570	25.980	1.341	4646.3	2925.9	16.171	5.669	3.00		Clay	100.0			24.56	0.92	n.a.	n.a.	0.83	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.730	27.720	1.381	4666.3	2935.9	17.294	5.440	2.97		Clay	100.0			26.20	0.92	n.a.	n.a.	0.83	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.890	29.890	1.483	4686.3	2945.9	18.702	5.382	2.94		Clay	98.1			28.25	0.92	n.a.	n.a.	0.83	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.060	29.630	1.511	4707.5	2956.6	18.451	5.541	2.95		Clay	99.1			28.01	0.92	n.a.	n.a.	0.83	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.220	29.250	1.438	4727.5	2966.6	18.126	5.348	2.95		Clay	98.8			27.65	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.390	25.620	1.282	4748.8	2977.2	15.616	5.515	3.00		Clay	100.0			24.22	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.550	21.600	1.057	4768.8	2987.2	12.865	5.498	3.07		Clay	100.0			20.42	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.710	17.850	0.939	4788.8	2997.2	10.313	6.077	3.17		Clay	100.0			16.87	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.880	14.680	0.853	4810.0	3007.9	8.162	6.951	3.29		Clay	100.0			13.88	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.040	13.310	0.723	4830.0	3017.9	7.220	6.639	3.32		Clay	100.0			12.58	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.210	12.640	0.612	4851.3	3028.5	6.745	5.991	3.31		Clay	100.0			11.95	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.370	12.790	0.546	4871.3	3038.6	6.815	5.272	3.27		Clay	100.0			12.09	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.530	13.280	0.533	4891.3	3048.6	7.108	4.919	3.24		Clay	100.0			12.55	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.700	12.740	0.548	4912.5	3059.2	6.723	5.327	3.28		Clay	100.0			12.04	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.860	12.930	0.621	4932.5	3069.2	6.818	5.937	3.31		Clay	100.0			12.22	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.030	13.980	0.802	4953.8	3079.9	7.470	6.973	3.32		Clay	100.0			13.21	0.91	n.a.	n.a.	0.81	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.190	14.010	0.887	4973.8	3089.9	7.459	7.698	3.34		Clay	100.0			13.24	0.90	n.a.	n.a.	0.81	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.350	13.640	0.890	4993.8	3099.9	7.189	7.989	3.37		Clay	100.0			12.89	0.90	n.a.	n.a.	0.81	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.520	14.060	0.848	5015.0	3110.6	7.428	7.341	3.33		Clay	100.0			13.29	0.90	n.a.	n.a.	0.81	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.680	13.280	0.765	5035.0	3120.6	6.898	7.109	3.35		Clay	100.0			12.55	0.90	n.a.	n.a.	0.81	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.850	11.860	0.679	5056.3	3131.2	5.961	7.273	3.41		Clay	100.0			11.21	0.90	n.a.	n.a.	0.81	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.010	11.160	0.427	5076.3	3141.2	5.489	4.956	3.34		Clay	100.0			10.55	0.90	n.a.	n.a.	0.81	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.170	9.780	0.434	5096.3	3151.2	4.590	6.004	3.45		Clay	100.0			9.24	0.90	n.a.	n.a.	0.81	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.340	11.040	0.501	5117.5	3161.9	5.365	5.911	3.39		Clay	100.0			10.43	0.90	n.a.	n.a.	0.81	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.500	11.730	0.541	5137.5	3171.9	5.777	5.910	3.36		Clay	100.0			11.09	0.90	n.a.	n.a.	0.81	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.670	11.440	0.514	5158.8	3182.5	5.568	5.802	3.37		Clay	100.0			10.81	0.90	n.a.	n.a.	0.80	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.830	10.390	0.505	5178.8	3192.6	4.887	6.474	3.44		Clay	100.0			9.82	0.90	n.a.	n.a.	0.80	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.990	9.790	0.473	5198.8	3202.6	4.491	6.574	3.48		Clay	100.0			9.25	0.90	n.a.	n.a.	0.80	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.160	9.420	0.442	5220.0	3213.2	4.239	6.490	3.49		Clay	100.0			8.90	0.90	n.a.	n.a.	0.80	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.320	8.780	0.403	5240.0	3223.2	3.822	6.544	3.53		Clay	100.0			8.30	0.89	n.a.	n.a.	0.80	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.490	8.420	0.380	5261.3	3233.9	3.580	6.562	3.56		Clay	100.0			7.96	0.89	n.a.	n.a.	0.80	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.650	8.930	0.347	5281.3	3243.9	3.878	5.509	3.49		Clay	100.0			8.44	0.89	n.a.	n.a.	0.80	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.810	9.520	0.374	5301.3	3253.9	4.222	5.443	3.45		Clay	100.0			9.00	0.89	n.a.	n.a.	0.80	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.980	11.280	0.512	5322.5	3264.5	5.280	5.942	3.39		Clay	100.0			10.66	0.89	n.a.	n.a.	0.80	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.140	12.780	0.540	5342.5	3274.6	6.174	5.342	3.31		Clay	100.0			12.08	0.89	n.a.	n.a.	0.80	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.310	12.610	0.559	5363.8	3285.2	6.044	5.625	3.33		Clay	100.0			11.92	0.89	n.a.	n.a.	0.80	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.470	14.230	0.643	5383.8	3295.2	7.003	5.569	3.28		Clay	100.0			13.45	0.89	n.a.	n.a.	0.79	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.640	15.860	0.792	5405.0	3305.9	7.960	6.019	3.26		Clay	100.0			14.99	0.89	n.a.	n.a.	0.79	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.800	16.090	0.817	5425.0	3315.9	8.069	6.109	3.25		Clay	100.0			15.21	0.89	n.a.	n.a.	0.79	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.960	14.180	0.714	5445.0	3325.9	6.890	6.231	3.31		Clay	100.0			13.40	0.89	n.a.	n.a.	0.79	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.130	13.400	0.483	5466.3	3336.5	6.394	4.532	3.26		Clay	100.0			12.67	0.89	n.a.	n.a.	0.79	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00

CORNERSTONE EARTH GROUP

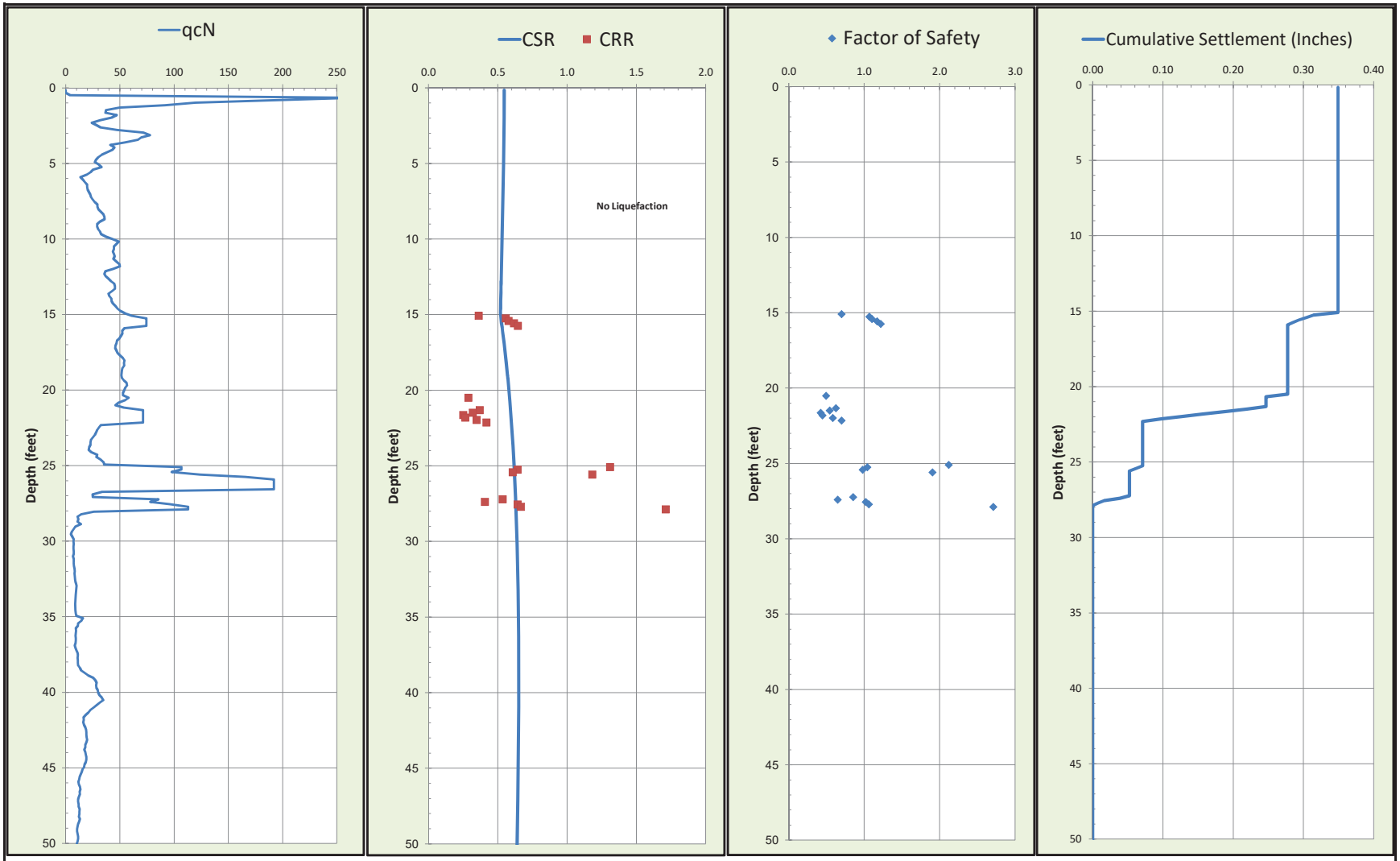
CPT No. 3

PGA (A_{max}) 0.84

Total Settlement: 0.02 (Inches)

© 2014 Cornerstone Earth Group, Inc.

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_H)	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)
44.290	12.280	0.516	5486.3	3346.6	5.700	5.412	3.34		Clay	100.0			11.61	0.89	n.a.	n.a.	0.79	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.460	13.660	0.642	5507.5	3357.2	6.497	5.889	3.32		Clay	100.0			12.91	0.89	n.a.	n.a.	0.79	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.620	12.880	0.622	5527.5	3367.2	6.009	6.147	3.36		Clay	100.0			12.17	0.88	n.a.	n.a.	0.79	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.780	12.130	0.552	5547.5	3377.2	5.541	5.903	3.38		Clay	100.0			11.47	0.88	n.a.	n.a.	0.79	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.950	12.730	0.478	5568.8	3387.9	5.871	4.810	3.30		Clay	100.0			12.03	0.88	n.a.	n.a.	0.79	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.110	12.940	0.511	5588.8	3397.9	5.972	5.032	3.31		Clay	100.0			12.23	0.88	n.a.	n.a.	0.78	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.280	13.140	0.505	5610.0	3408.5	6.064	4.883	3.30		Clay	100.0			12.42	0.88	n.a.	n.a.	0.78	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.440	12.730	0.517	5630.0	3418.5	5.801	5.210	3.33		Clay	100.0			12.03	0.88	n.a.	n.a.	0.78	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.600	12.420	0.452	5650.0	3428.6	5.597	4.713	3.32		Clay	100.0			11.74	0.88	n.a.	n.a.	0.78	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.770	11.590	0.382	5671.3	3439.2	5.091	4.360	3.33		Clay	100.0			10.95	0.88	n.a.	n.a.	0.78	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.930	11.940	0.327	5691.3	3449.2	5.273	3.597	3.27		Clay	100.0			11.29	0.88	n.a.	n.a.	0.78	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.100	13.100	0.327	5712.5	3459.9	5.921	3.188	3.20		Clay	100.0			12.38	0.88	n.a.	n.a.	0.78	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.260	12.200	0.288	5732.5	3469.9	5.380	3.081	3.23		Clay	100.0			11.53	0.88	n.a.	n.a.	0.78	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.420	11.060	0.228	5752.5	3479.9	4.703	2.787	3.26		Clay	100.0			10.45	0.88	n.a.	n.a.	0.78	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.590	10.020	0.209	5773.8	3490.5	4.087	2.926	3.32		Clay	100.0			9.47	0.88	n.a.	n.a.	0.78	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.750	9.570	0.174	5793.8	3500.6	3.813	2.603	3.32		Clay	100.0			9.05	0.88	n.a.	n.a.	0.78	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.920	8.710	0.185	5815.0	3511.2	3.305	3.183	3.42		Clay	100.0			8.23	0.87	n.a.	n.a.	0.77	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.080	9.400	0.250	5835.0	3521.2	3.682	3.860	3.42		Clay	100.0			8.88	0.87	n.a.	n.a.	0.77	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.240	12.090	0.295	5855.0	3531.2	5.189	3.224	3.25		Clay	100.0			11.43	0.87	n.a.	n.a.	0.77	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.410	12.870	0.357	5876.3	3541.9	5.608	3.589	3.25		Clay	100.0			12.16	0.87	n.a.	n.a.	0.77	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.570	21.180	0.965	5896.3	3551.9	10.266	5.291	3.13		Clay	100.0			20.02	0.87	n.a.	n.a.	0.77	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.740	21.690	1.066	5917.5	3562.5	10.516	5.692	3.15		Clay	100.0			20.50	0.87	n.a.	n.a.	0.77	0.643	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.900	29.200	0.833	5937.5	3572.5	14.685	3.177	2.88		Clay	93.1			27.60	0.87	n.a.	n.a.	0.77	0.643	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.060	25.550	0.723	5957.5	3582.6	12.601	3.204	2.93		Clay	97.5			24.15	0.87	n.a.	n.a.	0.77	0.643	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.230	25.930	0.687	5978.8	3593.2	12.769	2.994	2.91		Clay	95.8			24.51	0.87	n.a.	n.a.	0.77	0.643	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.390	27.660	0.945	5998.8	3603.2	13.688	3.831	2.95		Clay	98.9			26.14	0.87	n.a.	n.a.	0.77	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.560	29.690	1.162	6020.0	3613.9	14.765	4.356	2.96		Clay	99.6			28.06	0.87	n.a.	n.a.	0.77	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.720	32.220	1.351	6040.0	3623.9	16.115	4.626	2.95		Clay	98.6			30.45	0.87	n.a.	n.a.	0.76	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.880	33.460	1.535	6060.0	3633.9	16.748	5.046	2.96		Clay	99.5			31.63	0.87	n.a.	n.a.	0.76	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.050	39.810	1.710	6081.3	3644.5	20.178	4.651	2.87		Clay	92.8			37.63	0.87	n.a.	n.a.	0.76	0.641	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.210	31.410	1.744	6101.3	3654.5	15.520	6.150	3.04		Clay	100.0			29.69	0.87	n.a.	n.a.	0.76	0.641	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.380	27.970	1.346	6122.5	3665.2	13.592	5.405	3.05		Clay	100.0			26.44	0.87	n.a.	n.a.	0.76	0.641	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.540	25.670	1.167	6142.5	3675.2	12.298	5.165	3.07		Clay	100.0			24.26	0.86	n.a.	n.a.	0.76	0.640	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.700	22.820	1.137	6162.5	3685.2	10.712	5.762	3.14		Clay	100.0			21.57	0.86	n.a.	n.a.	0.76	0.640	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.870	21.620	1.068	6183.8	3695.9	10.026	5.764	3.17		Clay	100.0			20.43	0.86	n.a.	n.a.	0.76	0.640	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.030	23.250	0.882	6203.8	3705.9	10.874	4.379	3.06		Clay	100.0			21.98	0.86	n.a.	n.a.	0.76	0.640	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.200	23.880	0.940	6225.0	3716.5	11.176	4.525	3.06		Clay	100.0			22.57	0.86	n.a.	n.a.	0.76	0.639	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.360	25.760	1.036	6245.0	3726.5	12.149	4.578	3.04		Clay	100.0			24.35	0.86	n.a.	n.a.	0.76	0.639	n.a.	n.a.	n.a.	n.a.	0.00	0.00



CORNERSTONE EARTH GROUP

Liquefaction Analysis Summary

1188 East 14th Street
San Leandro, California

Project Number: 444-3-1

Figure Number: Figure C-4

6/5/2018

CPT No. 4

CORNERSTONE EARTH GROUP

CPT No. 4

PGA (A_{max}) 0.84

Total Settlement: 0.35 (Inches)

© 2014 Cornerstone Earth Group, Inc.

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_H)	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)
0.160	0.180	0.029	19.2	19.2	17.750	16.960	3.31		Unsaturated	100.0			0.17	1.70	0.29	54.31	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.330	0.030	0.272	39.6	39.6	0.515	2666.667	5.98		Unsaturated	100.0			0.03	1.70	0.05	54.00	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.490	4.240	1.171	58.8	58.8	143.218	27.820	2.97		Unsaturated	100.0			4.01	1.70	6.81	62.86	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.660	281.940	1.534	79.2	79.2	1377.226	0.544	1.01		Unsaturated	0.0			266.48	1.70	453.02	453.02	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.820	199.220	1.293	98.4	98.4	872.972	0.649	1.16		Unsaturated	0.0			188.30	1.70	320.11	320.11	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.980	126.520	1.867	117.6	117.6	507.021	1.476	1.59		Unsaturated	0.0			119.58	1.70	203.29	203.29	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.150	96.870	1.407	138.0	138.0	358.272	1.454	1.66		Unsaturated	0.0			91.56	1.70	155.65	155.65	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.310	52.560	1.586	157.2	157.2	181.992	3.021	2.09		Unsaturated	29.9			49.68	1.70	84.45	136.78	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.480	39.190	1.929	177.6	177.6	127.568	4.933	2.35		Unsaturated	51.0			37.04	1.70	62.97	126.08	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.640	38.720	1.783	196.8	196.8	119.699	4.617	2.34		Unsaturated	50.4			36.60	1.70	62.22	124.88	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.800	49.840	1.873	216.0	216.0	147.123	3.765	2.22		Unsaturated	40.5			47.11	1.70	80.08	141.67	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.970	44.840	1.946	236.4	236.4	126.464	4.350	2.31		Unsaturated	47.6			42.38	1.70	72.05	135.98	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.130	33.620	1.872	255.6	255.6	91.083	5.589	2.48		Unsaturated	61.4			31.78	1.70	54.02	118.29	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.300	25.340	1.584	276.0	276.0	99.123	6.286	2.50		Unsaturated	62.9			23.95	1.70	40.72	101.62	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.460	29.870	1.592	295.2	295.2	75.214	5.357	2.52		Unsaturated	64.4			28.23	1.70	48.00	111.33	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.620	34.030	1.634	314.4	314.4	83.058	4.824	2.46		Unsaturated	59.4			32.16	1.70	54.68	118.55	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.790	50.310	2.140	334.8	334.8	119.148	4.267	2.32		Unsaturated	48.3			47.55	1.70	80.84	147.42	1.00	0.545	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.950	75.570	2.671	354.0	354.0	174.221	3.543	2.15		Unsaturated	35.3			71.43	1.70	121.43	188.11	1.00	0.545	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.120	82.230	3.037	374.4	374.4	184.351	3.702	2.16		Unsaturated	35.5			77.72	1.70	132.13	201.40	1.00	0.545	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.280	73.580	2.482	393.6	393.6	160.820	3.383	2.16		Unsaturated	35.6			69.55	1.70	118.23	184.51	1.00	0.544	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.440	70.350	2.005	412.8	412.8	150.103	2.858	2.12		Unsaturated	32.4			66.49	1.70	113.04	174.41	1.00	0.544	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.610	58.160	1.518	433.2	433.2	121.041	2.619	2.15		Unsaturated	34.7			54.97	1.70	93.45	153.19	1.00	0.544	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.770	43.590	1.154	452.4	452.4	88.642	2.661	2.24		Unsaturated	42.3			41.20	1.70	70.04	130.43	1.00	0.544	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.940	47.610	0.748	472.8	472.8	94.726	1.578	2.06		Unsaturated	27.8			45.00	1.70	76.50	124.31	0.99	0.543	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.100	45.570	0.412	492.0	492.0	88.842	0.909	1.92		Unsaturated	17.0			43.07	1.70	73.22	99.29	0.99	0.543	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.270	40.000	0.354	512.4	512.4	76.337	0.890	1.97		Unsaturated	20.7			37.81	1.70	64.27	97.97	0.99	0.543	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.430	35.340	0.360	531.6	531.6	66.140	1.027	2.06		Unsaturated	27.7			33.40	1.70	56.78	100.73	0.99	0.542	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.590	31.700	0.405	550.8	550.8	58.216	1.290	2.16		Unsaturated	36.0			29.96	1.70	50.94	102.25	0.99	0.542	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.760	29.370	0.359	571.2	571.2	52.910	1.233	2.18		Unsaturated	37.7			27.76	1.70	47.19	98.92	0.99	0.542	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.920	28.470	0.334	590.4	590.4	50.415	1.186	2.19		Unsaturated	38.2			26.91	1.70	45.75	97.53	0.99	0.541	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.090	32.460	0.269	610.8	610.8	56.567	0.836	2.06		Unsaturated	28.0			30.68	1.70	52.16	95.63	0.99	0.541	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.250	34.880	0.239	630.0	630.0	59.874	0.692	2.00		Unsaturated	22.8			32.97	1.70	56.05	92.41	0.99	0.541	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.410	26.600	0.232	649.2	649.2	44.837	0.881	2.16		Unsaturated	35.8			25.14	1.70	42.74	91.99	0.99	0.540	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.580	24.240	0.250	669.6	669.6	40.166	1.045	2.24		Unsaturated	42.2			22.91	1.70	38.95	91.57	0.99	0.540	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.740	20.550	0.294	688.8	688.8	33.473	1.454	2.39		Unsaturated	53.9			19.42	1.70	33.02	89.18	0.99	0.540	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.910	14.500	0.397	709.2	709.2	28.738	2.808	2.61		Unsaturated	72.1			13.71	1.70	23.30	81.07	0.99	0.539	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.070	16.900	0.442	728.4	728.4	32.972	2.674	2.55		Unsaturated	67.3			15.97	1.70	27.16	85.16	0.99	0.539	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.230	18.750	0.405	747.6	747.6	29.221	2.204	2.54		Unsaturated	66.4			17.72	1.70	30.13	88.79	0.99	0.539	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.400	20.840	0.326	768.0	768.0	32.093	1.592	2.42		Unsaturated	57.0			19.70	1.69	33.36	90.57	0.99	0.538	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.560	20.830	0.351	787.2	787.2	31.669	1.715	2.45		Unsaturated	58.9			19.69	1.67	32.92	90.55	0.99	0.538	1.098	n.a.	n.a.	n.a.	0.00	0.00
6.730	21.460	0.401	807.6	807.6	32.215	1.905	2.47		Unsaturated	60.6			20.28	1.65	33.39	91.61	0.99	0.538	1.096	n.a.	n.a.	n.a.	0.00	0.00
6.890	22.700	0.499	826.8	826.8	33.699	2.238	2.50		Unsaturated	62.8			21.46	1.62	34.71	93.88	0.98	0.537	1.095	n.a.	n.a.	n.a.	0.00	0.00
7.050	23.890	0.637	846.0	846.0	35.079	2.714	2.54		Unsaturated	66.0			22.58	1.59	35.93	96.19	0.98	0.537	1.095	n.a.	n.a.	n.a.	0.00	0.00
7.220	24.570	0.680	866.4	866.4	35.653	2.818	2.54		Unsaturated	66.4			23.22	1.57	36.45	96.96	0.98	0.537	1.093	n.a.	n.a.	n.a.	0.00	0.00
7.380	26.160	0.680	885.6	885.6	37.573	2.643	2.51		Unsaturated	63.6			24.73	1.55	38.26	98.63	0.98	0.536	1.092	n.a.	n.a.	n.a.	0.00	0.00
7.550	28.270	0.622	906.0	906.0	40.181	2.236	2.44		Unsaturated	58.1			26.72	1.52	40.75	100.33	0.98	0.536	1.090	n.a.	n.a.	n.a.	0.00	0.00
7.710	30.980	0.595	925.2	925.2	43.622	1.948	2.37		Unsaturated	52.8			29.28	1.50	44.00	102.74	0.98	0.536	1.090	n.a.	n.a.	n.a.	0.00	0.00
7.870	30.900	0.494	944.4	944.4	43.049	1.624	2.33		Unsaturated	49.2			29.21	1.49	43.59	100.81	0.98	0.535	1.086	n.a.	n.a.	n.a.	0.00	0.00
8.040	32.060	0.374	964.8	964.8	44.201	1.183	2.24		Unsaturated	41.9			30.30	1.48	44.90	98.83	0.98	0.535	1.083	n.a.	n.a.	n.a.	0.00	0.00
8.200	34.240	0.328	984.0	984.0	46.776	0.972	2.17		Unsaturated	36.4			32.36	1.47	47.52	98.36	0.98	0.535	1.080	n.a.	n.a.	n.a.	0.00	0.00
8.370	36.720	0.298	1004.4	1004.4	49.687	0.823	2.11		Unsaturated	31.5			34.71	1.46	50.51	97.59	0.98	0.534	1.078	n.a.	n.a.	n.a.	0.00	0.00
8.530	37.680	0.235	1023.6	1023.6	50.510	0.633	2.04		Unsaturated	26.2			35.61	1.45	51.75	92.79	0.98	0.534	1.073	n.a.	n.a.	n.a.	0.00	0.00
8.690	37.920	0.203	1042.8	1042.8	50.353	0.544	2.01		Unsaturated	23.8			35.84	1.45	51.89	89.23	0.98	0.534	1.069	n.a.	n.a.	n.a.	0.00	0.00
8.860	33.280	0.204	1063.2	1063.2	43.667	0.623	2.09		Unsaturated	30.4			31.46	1.43	45.04	89.84	0.98	0.533	1.068	n.a.	n.a.	n.a.	0.00	0.00
9.020	30.620	0.207	1082.4	1082.4	39.750	0.689	2.15		Unsaturated	34.9			28.94	1.42	41.09	89.30	0.98	0.533	1.066	n.a.	n.a.	n.a.	0.00	0.00
9.190	30.770	0.219	1102.8	1102.8	39.564	0.724	2.16		Unsaturated	35.9			29.08	1.40	40.86	89.81	0.98	0.533	1.064	n.a.	n.a.	n.a.	0.00	0.00
9.350	31.630	0.238	1122.0	1122.0	40.328	0.766	2.17		Unsaturated	36.3			29.90	1.39	41.55	90.97	0.97	0.532	1.063	n.a.	n.a.	n.a.	0.00	0.00
9.510	33.410	0.247	1141.2	1141.2	42.266	0.753	2.15		Unsaturated	34.6			31.58	1.38	43.44	91.94	0.97	0.532	1.062	n.a.	n.a.	n.a.	0.00	0.00
9.680	34.500	0.317	1161.6	1161.6	43.270	0.933	2.19		Unsaturated	37.9			32.61	1.36	44.24	95.41	0.97	0.532	1.062	n.a.	n.a.	n.a.	0.00	0.00
9.840	39.220	0.401	1180.8	1180.8	48.877	1.038	2.17		Unsaturated	36.4			37.07	1.34	49.52	100.84	0.97	0.531	1.062	n.a.	n.a.	n.a.	0.00	0.00
10.010	45.580	0.426	1201.3	1200.6	56.439	0.948	2.09		Unsaturated	30.5			43.08	1.32	56.84	104.22	0.97	0.531	1.062	n.a.	n.a.	n.a.	0.00	0.00
10.170	51.850	0.441	1221.3	1210.6	64.028	0.861	2.03		Unsaturated	25.0			49.01	1.31	64.27	105.75	0.97	0.530	1.062	n.a.	n.a.	n.a.	0.00	0.00
10.330	49.580	0.435	1241.3	1220.7	60.927	0.888	2.05		Unsaturated	27.0			46.86	1.31	61.26	105.17	0.97	0.530	1.061	n.a.	n.a.	n.a.	0.00	0.00
10.500	46.980	0.422	1262.5	1231.3	57.429	0.910	2.08		Unsaturated	29.2			44.40	1.30	57.88	103.98	0.97	0.530	1.059	n.a.	n.a.	n.a.	0.00	0.00
10.660	47.140	0.500	1282.5	1241.3	57.382	1.075	2.12		Unsaturated	32.6			44.56	1.29	57.63	107.36	0.97	0.529	1.060	n.a.	n.a.	n.a.	0.00	0.00
10.830	46.120	0.523	1303.8	1252.0	55.871	1.151	2.15		Unsaturated	34.7			43.59	1.29	56.13	107.55	0.97	0.529	1.059	n.a.	n.a.	n.a.	0.00	0.00
10.990	47.020	0.649	1323.8	1262.0	56.738	1.400	2.19		Unsaturated	38.5			44.44	1.28	56.78	111.34	0.97	0.529	1.060	n.a.	n.a.	n.a.	0.00	0.00

CORNERSTONE EARTH GROUP

CPT No. 4

PGA (A_{max}) 0.84

Total Settlement: 0.35 (Inches)

© 2014 Cornerstone Earth Group, Inc.

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_H)	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)
11.150	47.890	0.563	1343.8	1272.0	57.562	1.193	2.15		Unsaturated	34.7			45.26	1.28	57.73	109.44	0.97	0.528	1.058	n.a.	n.a.	n.a.	0.00	0.00
11.320	46.570	0.560	1365.0	1282.6	55.708	1.221	2.16		Unsaturated	36.1			44.02	1.27	55.97	108.47	0.97	0.528	1.057	n.a.	n.a.	n.a.	0.00	0.00
11.480	49.320	0.471	1385.0	1292.6	58.805	0.968	2.08		Unsaturated	29.8			46.62	1.27	59.19	106.20	0.97	0.527	1.055	n.a.	n.a.	n.a.	0.00	0.00
11.650	52.330	0.441	1406.3	1303.3	62.177	0.855	2.03		Unsaturated	25.7			49.46	1.27	62.64	104.89	0.97	0.527	1.054	n.a.	n.a.	n.a.	0.00	0.00
11.810	52.900	0.441	1426.3	1313.3	62.611	0.844	2.03		Unsaturated	25.3			50.00	1.26	63.10	104.75	0.96	0.527	1.053	n.a.	n.a.	n.a.	0.00	0.00
11.980	46.170	0.577	1447.5	1323.9	54.304	1.269	2.18		Unsaturated	37.6			43.64	1.25	54.67	108.07	0.96	0.526	1.053	n.a.	n.a.	n.a.	0.00	0.00
12.140	38.830	0.759	1467.5	1334.0	45.351	1.993	2.37		Unsaturated	52.3			36.70	1.25	45.95	105.03	0.96	0.526	1.051	n.a.	n.a.	n.a.	0.00	0.00
12.300	37.640	0.922	1487.5	1344.0	43.758	2.500	2.44		Unsaturated	58.3			35.58	1.25	44.38	105.06	0.96	0.525	1.050	n.a.	n.a.	n.a.	0.00	0.00
12.470	39.290	0.914	1508.8	1354.6	45.522	2.372	2.41		Unsaturated	56.1			37.14	1.24	46.08	106.54	0.96	0.525	1.050	n.a.	n.a.	n.a.	0.00	0.00
12.630	41.720	0.864	1528.8	1364.6	48.203	2.108	2.36		Unsaturated	51.9			39.43	1.23	48.68	108.35	0.96	0.525	1.050	n.a.	n.a.	n.a.	0.00	0.00
12.800	44.180	0.876	1550.0	1375.3	50.888	2.018	2.33		Unsaturated	49.5			41.76	1.23	51.25	110.62	0.96	0.524	1.050	n.a.	n.a.	n.a.	0.00	0.00
12.960	47.390	1.126	1570.0	1385.3	54.442	2.417	2.36		Unsaturated	51.9			44.79	1.22	54.54	115.79	0.96	0.524	1.051	n.a.	n.a.	n.a.	0.00	0.00
13.120	47.970	1.405	1590.0	1395.3	54.910	2.978	2.42		Unsaturated	56.7			45.34	1.21	54.93	118.02	0.96	0.523	1.051	n.a.	n.a.	n.a.	0.00	0.00
13.290	48.030	1.601	1611.3	1406.0	54.759	3.390	2.46		Unsaturated	60.0			45.40	1.21	54.77	118.83	0.96	0.523	1.050	n.a.	n.a.	n.a.	0.00	0.00
13.450	45.370	1.705	1631.3	1416.0	51.480	3.826	2.52		Unsaturated	64.5			42.88	1.21	51.68	116.08	0.96	0.523	1.048	n.a.	n.a.	n.a.	0.00	0.00
13.620	41.870	1.789	1652.5	1426.6	47.246	4.359	2.58		Unsaturated	69.8			39.57	1.20	47.68	112.14	0.96	0.522	1.046	n.a.	n.a.	n.a.	0.00	0.00
13.780	42.570	1.781	1672.5	1436.6	47.873	4.268	2.57		Unsaturated	68.9			40.24	1.20	48.29	112.75	0.96	0.522	1.046	n.a.	n.a.	n.a.	0.00	0.00
13.940	44.600	1.814	1692.5	1446.6	50.016	4.147	2.55		Unsaturated	67.2			42.16	1.19	50.34	115.00	0.96	0.521	1.046	n.a.	n.a.	n.a.	0.00	0.00
14.110	44.680	1.853	1713.8	1457.3	49.912	4.227	2.56		Unsaturated	67.7			42.23	1.19	50.26	115.02	0.95	0.521	1.045	n.a.	n.a.	n.a.	0.00	0.00
14.270	46.020	1.946	1733.8	1467.3	51.251	4.309	2.56		Unsaturated	67.5			43.50	1.18	51.54	116.63	0.95	0.521	1.044	n.a.	n.a.	n.a.	0.00	0.00
14.440	48.560	1.901	1755.0	1477.9	53.926	3.988	2.52		Unsaturated	64.4			45.90	1.18	54.10	119.18	0.95	0.520	1.044	n.a.	n.a.	n.a.	0.00	0.00
14.600	50.510	1.938	1775.0	1488.0	55.931	3.905	2.50		Unsaturated	63.0			47.74	1.17	56.02	121.28	0.95	0.520	1.044	n.a.	n.a.	n.a.	0.00	0.00
14.760	53.370	2.015	1795.0	1498.0	58.946	3.840	2.48		Unsaturated	61.3			50.44	1.17	58.89	124.49	0.95	0.519	1.045	n.a.	n.a.	n.a.	0.00	0.00
14.930	58.000	2.080	1816.3	1508.6	63.908	3.643	2.44		Unsaturated	58.0			54.82	1.16	63.59	129.52	0.95	0.519	1.046	n.a.	n.a.	n.a.	0.00	0.00
15.090	64.750	2.469	1836.3	1518.6	71.217	3.868	2.43		Sand	57.0			61.20	1.15	70.44	137.92	0.95	0.520	1.048	0.226	0.364	0.70	0.02	0.03
15.260	78.640	2.754	1857.5	1529.3	86.400	3.544	2.34		Sand	50.3			74.33	1.14	84.59	153.15	0.95	0.523	1.053	0.311	0.559	1.07	0.01	0.01
15.420	77.430	3.021	1877.5	1539.3	84.766	3.950	2.38		Sand	53.6	74.33		74.33	1.13	84.32	154.29	0.95	0.525	1.053	0.320	0.579	1.10	0.01	0.01
15.580	69.280	3.106	1897.5	1549.3	75.478	4.546	2.46		Sand	59.9	74.33		74.33	1.13	84.02	156.27	0.95	0.528	1.053	0.336	0.617	1.17	0.01	0.01
15.750	61.900	3.128	1918.8	1560.0	67.085	5.133	2.54		Sand	65.8	74.33		74.33	1.13	83.74	157.68	0.95	0.530	1.052	0.349	0.646	1.22	0.01	0.01
15.910	57.390	3.036	1938.8	1570.0	61.911	5.381	2.57	plastic	Clay	68.9			54.24	1.08	n.a.	n.a.	0.95	0.532	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.080	55.150	3.070	1960.0	1580.6	62.800	5.666	2.59	plastic	Clay	69.9			52.13	1.08	n.a.	n.a.	0.95	0.535	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.240	55.390	3.128	1980.0	1590.6	62.788	5.751	2.59	plastic	Clay	70.3			52.35	1.08	n.a.	n.a.	0.94	0.537	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.400	54.180	3.220	2000.0	1600.6	61.111	6.055	2.62	plastic	Clay	72.3			51.21	1.08	n.a.	n.a.	0.94	0.539	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.570	52.660	3.109	2021.3	1611.3	64.110	6.020	2.60		Clay	71.1			49.77	1.07	n.a.	n.a.	0.94	0.541	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.730	49.980	3.176	2041.3	1621.3	60.395	6.486	2.64		Clay	74.4			47.24	1.07	n.a.	n.a.	0.94	0.543	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.900	49.440	3.176	2062.5	1631.9	59.327	6.560	2.65		Clay	75.1			46.73	1.07	n.a.	n.a.	0.94	0.546	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.060	48.680	3.234	2082.5	1642.0	58.027	6.788	2.67		Clay	76.5			46.01	1.07	n.a.	n.a.	0.94	0.548	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.220	48.320	3.267	2102.5	1652.0	57.227	6.912	2.68		Clay	77.3			45.67	1.07	n.a.	n.a.	0.94	0.550	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.390	49.660	3.279	2123.8	1662.6	58.460	6.747	2.66		Clay	76.2			46.94	1.07	n.a.	n.a.	0.94	0.552	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.550	50.460	3.407	2143.8	1672.6	59.054	6.899	2.67		Clay	76.5			47.69	1.06	n.a.	n.a.	0.94	0.554	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.720	53.060	3.510	2165.0	1683.3	61.758	6.753	2.65		Clay	75.0			50.15	1.06	n.a.	n.a.	0.94	0.556	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.880	55.720	3.658	2185.0	1693.3	64.522	6.697	2.63		Clay	73.8			52.67	1.06	n.a.	n.a.	0.94	0.558	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.040	57.300	3.553	2205.0	1703.3	65.986	6.322	2.61		Clay	71.7			54.16	1.06	n.a.	n.a.	0.94	0.560	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.210	56.900	3.635	2226.3	1713.9	65.098	6.516	2.62		Clay	72.9			53.78	1.06	n.a.	n.a.	0.93	0.562	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.370	57.090	3.624	2246.3	1724.0	64.928	6.475	2.62		Clay	72.7			53.96	1.06	n.a.	n.a.	0.93	0.563	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.540	55.370	3.555	2267.5	1734.6	62.534	6.555	2.64		Clay	73.9			52.33	1.05	n.a.	n.a.	0.93	0.565	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.700	54.890	3.425	2287.5	1744.6	61.614	6.372	2.63		Clay	73.5			51.88	1.05	n.a.	n.a.	0.93	0.567	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.860	54.690	3.297	2307.5	1754.6	61.023	6.158	2.62		Clay	72.8			51.69	1.05	n.a.	n.a.	0.93	0.569	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.030	54.330	3.180	2328.8	1765.3	60.235	5.982	2.62		Clay	72.3			51.35	1.05	n.a.	n.a.	0.93	0.570	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.190	54.900	3.130	2348.8	1775.3	60.526	5.825	2.61		Clay	71.5			51.89	1.05	n.a.	n.a.	0.93	0.572	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.360	56.870	3.077	2370.0	1785.9	59.266	5.525	2.59	plastic	Clay	70.6			53.75	1.05	n.a.	n.a.	0.93	0.574	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.520	59.450	3.053	2390.0	1796.0	59.767	5.240	2.57	plastic	Clay	69.0			56.19	1.04	n.a.	n.a.	0.93	0.575	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.690	59.820	2.963	2411.3	1806.6	59.958	5.055	2.56	plastic	Clay	68.0			56.54	1.04	n.a.	n.a.	0.93	0.577	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.850	58.210	2.907	2431.3	1816.6	58.140	5.100	2.57	plastic	Clay	68.9			55.02	1.04	n.a.	n.a.	0.93	0.579	n.a.	n.a.	n.a.	n.a.	0.00	0.00
20.010	57.010	2.820	2451.3	1826.6	56.749	5.056	2.58	plastic	Clay	69.2			53.88	1.04	n.a.	n.a.	0.93	0.580	n.a.	n.a.	n.a.	n.a.	0.00	0.00
20.180	55.830	2.776	2472.5	1837.3	55.377	5.085	2.59	plastic	Clay	70.0			52.77	1.04	n.a.	n.a.	0.92	0.582	n.a.	n.a.	n.a.	n.a.	0.00	0.00
20.340	55.950	2.850	2492.5	1847.3	55.338	5.210	2.59	plastic	Clay	70.6			52.88	1.04	n.a.	n.a.	0.92	0.583	n.a.	n.a.	n.a.	n.a.	0.00	0.00
20.510	61.490	2.814	2513.8	1857.9	60.757	4.672	2.53		Sand	65.6			58.12	1.06	61.54	129.06	0.92	0.585	1.017	0.195	0.289	0.49	0.02	0.03
20.670	58.220	2.827	2533.8	1867.9	57.294	4.964	2.57	plastic	Clay	68.5			55.03	1.03	n.a.	n.a.	0.92	0.586	n.a.	n.a.	n.a.	n.a.	0.00	0.00
20.830	51.450	2.819	2553.8	1878.0	53.434	5.618	2.63		Clay	73.4			48.63	1.03	n.a.	n.a.	0.92	0.588	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.000	48.450	2.699	2575.0	1888.6	49.944	5.723	2.66		Clay	75.4			45.79	1.03	n.a.	n.a.	0.92	0.589	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.160	56.570	2.465	2595.0	1898.6	55.152	4.460	2.55	plastic	Clay	66.7			53.47	1.03	n.a.	n.a.	0.92	0.591	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.330	66.640	1.711	2616.3	1909.3	65.008	2.619	2.33		Sand	49.4	71.29		71.29	1.04	74.44	139.88	0.92	0.592	1.015	0.234	0.370	0.63	0.02	0.03
21.490	68.910	1.225	2636.3	1919.3	67.081	1.812	2.21		Sand	39.8	71.29		71.29	1.04	74.35	134.09	0.92	0.593	1.014	0.211	0.321	0.54	0.02	0.03
21.650	75.430	0.892	2656.3	1929.3	73.350	1.203	2.07		Sand	28.2			71.29	1.04	74.34	122.38	0.92	0.595	1.012	0.177	0.251	0.42	0.03	0.03
21.820	71.550	0.890	2677.5	1939.9	69.308	1.267	2.10		Sand	30.9	71.29		71.29	1.04	74.11	125.48	0.92	0.596	1.011	0.185	0.267	0.45	0.03	0.03
21.980	54.280	0.955	2697.5	1949.9	52.116	1.804	2.29		Sand	46.3	71.29		71.29	1.04	73.81	137.53	0.92	0.597	1.012	0.224	0.348	0.58	0.02	0.03

CORNERSTONE EARTH GROUP

CPT No. 4

PGA (A_{max}) 0.84

Total Settlement: 0.35 (Inches)

© 2014 Cornerstone Earth Group, Inc.

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_H)	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)
22.150	38.820	1.096	2718.8	1960.6	36.784	2.925	2.54		Sand	66.5	71.29		71.29	1.03	73.57	144.76	0.91	0.599	1.012	0.257	0.419	0.70	0.02	0.03
22.310	34.330	1.285	2738.8	1970.6	33.452	3.900	2.66		Clay	75.6			32.45	1.02	n.a.	n.a.	0.91	0.600	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.470	32.540	1.515	2758.8	1980.6	31.465	4.861	2.74		Clay	82.5			30.76	1.02	n.a.	n.a.	0.91	0.601	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.640	30.810	1.629	2780.0	1991.3	29.549	5.538	2.80		Clay	87.2			29.12	1.02	n.a.	n.a.	0.91	0.602	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.800	29.730	1.694	2800.0	2001.3	28.312	5.980	2.84		Clay	90.1			28.10	1.01	n.a.	n.a.	0.91	0.603	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.970	28.340	1.669	2821.3	2011.9	26.770	6.199	2.87		Clay	92.4			26.79	1.01	n.a.	n.a.	0.91	0.605	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.130	26.430	1.528	2841.3	2021.9	24.738	6.111	2.89		Clay	94.0			24.98	1.01	n.a.	n.a.	0.91	0.606	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.290	24.730	1.422	2861.3	2032.0	22.933	6.104	2.91		Clay	95.9			23.37	1.01	n.a.	n.a.	0.91	0.607	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.460	24.280	1.330	2882.5	2042.6	22.362	5.825	2.90		Clay	95.4			22.95	1.01	n.a.	n.a.	0.91	0.608	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.620	24.300	1.283	2902.5	2052.6	22.263	5.613	2.90		Clay	94.6			22.97	1.01	n.a.	n.a.	0.91	0.609	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.790	22.860	1.258	2923.8	2063.3	20.742	5.877	2.93		Clay	97.5			21.61	1.01	n.a.	n.a.	0.91	0.610	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.950	22.300	1.231	2943.8	2073.3	20.092	5.910	2.94		Clay	98.5			21.08	1.01	n.a.	n.a.	0.91	0.611	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.110	24.980	1.178	2963.8	2083.3	22.559	5.011	2.86		Clay	91.6			23.61	1.00	n.a.	n.a.	0.90	0.612	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.280	30.840	1.041	2985.0	2093.9	28.031	3.548	2.69		Clay	78.0			29.15	1.00	n.a.	n.a.	0.90	0.613	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.440	30.050	1.003	3005.0	2103.9	27.137	3.514	2.70		Clay	78.6			28.40	1.00	n.a.	n.a.	0.90	0.614	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.610	34.040	0.903	3026.3	2114.6	30.754	2.776	2.59	plastic	Clay	70.0			32.17	1.00	n.a.	n.a.	0.90	0.615	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.770	37.080	1.204	3046.3	2124.6	33.472	3.387	2.62		Clay	72.3			35.05	1.00	n.a.	n.a.	0.90	0.616	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.930	37.540	1.370	3066.3	2134.6	33.736	3.805	2.65		Clay	74.8			35.48	1.00	n.a.	n.a.	0.90	0.617	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.100	58.810	0.984	3087.5	2145.3	53.756	1.719	2.27		Sand	44.4	73.55	1.45	106.65	1.00	106.12	176.94	0.90	0.618	0.997	0.644	1.311	2.12	0.00	0.00
25.260	77.820	0.865	3107.5	2155.3	71.425	1.134	2.06		Sand	27.7	73.55	1.45	106.65	0.99	105.89	159.16	0.90	0.619	0.997	0.363	0.644	1.04	0.01	0.01
25.430	71.230	0.985	3128.8	2165.9	65.083	1.414	2.15		Sand	35.0		1.45	97.62	0.99	96.74	157.49	0.90	0.620	0.996	0.347	0.608	0.98	0.01	0.01
25.590	90.400	1.082	3148.8	2175.9	82.792	1.218	2.03		Sand	25.2		1.45	123.89	0.99	122.64	174.71	0.90	0.621	0.994	0.593	1.182	1.90	0.00	0.00
25.750	120.880	1.221	3168.8	2186.0	110.937	1.024	1.88		Sand	13.6		1.45	165.67	0.99	163.81	186.82	0.90	0.622	0.993	0.970	2.119	3.41	0.00	0.00
25.920	140.100	1.033	3190.0	2196.6	128.488	0.746	1.75		Sand	2.6		1.45	192.01	0.99	189.56	189.56	0.89	0.622	0.991	1.101	2.401	3.86	0.00	0.00
26.080	122.550	0.907	3210.0	2206.6	111.943	0.750	1.79		Sand	6.5	132.42	1.45	192.01	0.99	189.27	190.64	0.89	0.623	0.990	1.160	2.526	4.05	0.00	0.00
26.250	118.420	0.786	3231.3	2217.3	107.851	0.672	1.78		Sand	5.3	132.42	1.45	192.01	0.98	188.95	189.27	0.89	0.624	0.989	1.086	2.363	3.79	0.00	0.00
26.410	97.850	0.905	3251.3	2227.3	88.648	0.941	1.93		Sand	17.8	132.42	1.45	192.01	0.99	189.17	230.43	0.89	0.625	0.985	17.067	36.970	59.16	0.00	0.00
26.570	67.890	1.122	3271.3	2237.3	60.901	1.693	2.22		Sand	40.8	132.42	1.45	192.01	0.99	189.21	277.62	0.89	0.626	0.983	6625.001	14331.304	22906.53	0.00	0.00
26.740	35.610	1.251	3292.5	2247.9	30.218	3.684	2.67		Clay	76.9			33.66	0.98	n.a.	n.a.	0.89	0.626	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.900	26.260	0.984	3312.5	2257.9	21.793	3.999	2.80		Clay	87.3			24.82	0.98	n.a.	n.a.	0.89	0.627	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.070	26.350	1.002	3333.8	2268.6	21.761	4.058	2.81		Clay	87.7			24.91	0.98	n.a.	n.a.	0.89	0.628	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.230	52.660	1.260	3353.8	2278.6	46.437	2.472	2.42		Sand	56.5	49.77	1.72	85.61	0.97	83.13	153.94	0.89	0.629	0.988	0.317	0.537	0.85	0.01	0.01
27.400	47.930	1.082	3375.0	2289.2	42.021	2.340	2.44		Sand	57.9	45.3	1.72	77.92	0.97	75.43	144.60	0.89	0.629	0.988	0.257	0.408	0.65	0.02	0.02
27.560	59.190	0.871	3395.0	2299.3	52.130	1.515	2.24		Sand	42.5	55.95	1.72	96.23	0.97	93.18	159.43	0.89	0.630	0.986	0.365	0.643	1.02	0.01	0.01
27.720	69.400	0.582	3415.0	2309.3	61.246	0.859	2.04		Sand	26.2	65.6	1.72	112.83	0.97	109.09	160.58	0.88	0.631	0.985	0.377	0.669	1.06	0.01	0.01
27.890	48.500	0.690	3436.3	2319.9	42.229	1.475	2.31		Sand	47.7	65.6	1.72	112.83	0.97	109.23	182.87	0.88	0.631	0.980	0.817	1.712	2.71	0.00	0.00
28.050	27.360	0.579	3456.3	2329.9	22.002	2.260	2.65		Clay	74.7			25.86	0.97	n.a.	n.a.	0.88	0.632	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.220	15.250	0.613	3477.5	2340.6	11.545	4.536	3.05		Clay	100.0			14.41	0.97	n.a.	n.a.	0.88	0.633	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.380	11.500	0.495	3497.5	2350.6	8.297	5.072	3.20		Clay	100.0			10.87	0.97	n.a.	n.a.	0.88	0.633	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.540	12.400	0.430	3517.5	2360.6	9.016	4.040	3.11		Clay	100.0			11.72	0.97	n.a.	n.a.	0.88	0.634	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.710	11.700	0.423	3538.8	2371.2	8.376	4.258	3.15		Clay	100.0			11.06	0.97	n.a.	n.a.	0.88	0.635	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.870	14.780	0.371	3558.8	2381.3	10.919	2.850	2.95		Clay	99.2			13.97	0.97	n.a.	n.a.	0.88	0.635	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.040	9.330	0.373	3580.0	2391.9	6.305	4.952	3.29		Clay	100.0			8.82	0.97	n.a.	n.a.	0.88	0.636	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.200	7.790	0.371	3600.0	2401.9	4.988	6.190	3.43		Clay	100.0			7.36	0.97	n.a.	n.a.	0.88	0.636	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.360	6.210	0.302	3620.0	2411.9	3.649	6.868	3.56		Clay	100.0			5.87	0.97	n.a.	n.a.	0.88	0.637	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.530	5.040	0.251	3641.3	2422.6	2.658	7.784	3.71		Clay	100.0			4.76	0.96	n.a.	n.a.	0.87	0.637	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.690	6.290	0.260	3661.3	2432.6	3.666	5.835	3.52		Clay	100.0			5.95	0.96	n.a.	n.a.	0.87	0.638	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.860	7.790	0.266	3682.5	2443.2	4.870	4.468	3.35		Clay	100.0			7.36	0.96	n.a.	n.a.	0.87	0.638	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.020	7.680	0.292	3702.5	2453.3	4.752	5.003	3.39		Clay	100.0			7.26	0.96	n.a.	n.a.	0.87	0.639	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.180	7.790	0.273	3722.5	2463.3	4.814	4.610	3.36		Clay	100.0			7.36	0.96	n.a.	n.a.	0.87	0.639	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.350	7.480	0.256	3743.8	2473.9	4.534	4.567	3.38		Clay	100.0			7.07	0.96	n.a.	n.a.	0.87	0.640	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.510	7.720	0.269	3763.8	2483.9	4.701	4.614	3.37		Clay	100.0			7.30	0.96	n.a.	n.a.	0.87	0.640	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.680	7.820	0.298	3785.0	2494.6	4.752	5.029	3.39		Clay	100.0			7.39	0.96	n.a.	n.a.	0.87	0.641	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.840	7.780	0.293	3805.0	2504.6	4.693	4.990	3.39		Clay	100.0			7.35	0.96	n.a.	n.a.	0.87	0.641	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.000	7.220	0.315	3825.0	2514.6	4.221	5.943	3.47		Clay	100.0			6.82	0.96	n.a.	n.a.	0.87	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.170	7.820	0.327	3846.3	2525.2	4.670	5.552	3.42		Clay	100.0			7.39	0.95	n.a.	n.a.	0.87	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.330	7.740	0.365	3866.3	2535.3	4.581	6.287	3.46		Clay	100.0			7.32	0.95	n.a.	n.a.	0.86	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.500	7.910	0.359	3887.5	2545.9	4.687	6.021	3.44		Clay	100.0			7.48	0.95	n.a.	n.a.	0.86	0.643	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.660	8.010	0.388	3907.5	2555.9	4.739	6.407	3.45		Clay	100.0			7.57	0.95	n.a.	n.a.	0.86	0.643	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.820	8.530	0.419	3927.5	2565.9	5.118	6.380	3.42		Clay	100.0			8.06	0.95	n.a.	n.a.	0.86	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.990	8.840	0.426	3948.8	2576.6	5.329	6.206	3.40		Clay	100.0			8.36	0.95	n.a.	n.a.	0.86	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.150	8.690	0.426	3968.8	2586.6	5.185	6.350	3.42		Clay	100.0			8.21	0.95	n.a.	n.a.	0.86	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.320	8.860	0.418	3990.0	2597.2	5.286	6.084	3.40		Clay	100.0			8.37	0.95	n.a.	n.a.	0.86	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.480	9.100	0.413	4010.0	2607.2	5.443	5.818	3.38		Clay	100.0			8.60	0.95	n.a.	n.a.	0.86	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.640	9.370	0.465	4030.0	2617.3	5.620	6.322	3.39		Clay	100.0			8.86	0.95	n.a.	n.a.	0.86	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.810	10.190	0.542	4051.3	2627.9	6.214	6.640	3.37		Clay	100.0			9.63	0.94	n.a.	n.a.	0.86	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.970	10.560	0.568	4071.3	2637.9	6.463	6.661	3.35		Clay	100.0			9.98	0.94	n.a.	n.a.	0.86	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00

CORNERSTONE EARTH GROUP

CPT No. 4

PGA (A_{max}) 0.84

Total Settlement: 0.35 (Inches)

© 2014 Cornerstone Earth Group, Inc.

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_H)	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)
33.140	10.370	0.585	4092.5	2648.6	6.285	7.024	3.38		Clay	100.0			9.80	0.94	n.a.	n.a.	0.85	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.300	10.390	0.587	4112.5	2658.6	6.269	7.042	3.38		Clay	100.0			9.82	0.94	n.a.	n.a.	0.85	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.460	10.000	0.595	4132.5	2668.6	5.946	7.501	3.41		Clay	100.0			9.45	0.94	n.a.	n.a.	0.85	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.630	9.560	0.583	4153.8	2679.2	5.586	7.795	3.45		Clay	100.0			9.04	0.94	n.a.	n.a.	0.85	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.790	9.400	0.532	4173.8	2689.3	5.439	7.277	3.44		Clay	100.0			8.88	0.94	n.a.	n.a.	0.85	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.960	9.340	0.502	4195.0	2699.9	5.365	6.935	3.43		Clay	100.0			8.83	0.94	n.a.	n.a.	0.85	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.120	9.390	0.483	4215.0	2709.9	5.375	6.632	3.42		Clay	100.0			8.88	0.94	n.a.	n.a.	0.85	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.280	9.300	0.450	4235.0	2719.9	5.281	6.268	3.41		Clay	100.0			8.79	0.94	n.a.	n.a.	0.85	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.450	9.320	0.427	4256.3	2730.6	5.268	5.932	3.40		Clay	100.0			8.81	0.93	n.a.	n.a.	0.85	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.610	9.520	0.447	4276.3	2740.6	5.387	6.061	3.39		Clay	100.0			9.00	0.93	n.a.	n.a.	0.85	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.780	9.900	0.507	4297.5	2751.2	5.635	6.534	3.40		Clay	100.0			9.36	0.93	n.a.	n.a.	0.84	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.940	10.470	0.606	4317.5	2761.2	6.020	7.290	3.40		Clay	100.0			9.90	0.93	n.a.	n.a.	0.84	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.100	16.780	0.721	4337.5	2771.3	10.545	4.931	3.11		Clay	100.0			15.86	0.93	n.a.	n.a.	0.84	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.270	15.360	0.551	4358.8	2781.9	9.476	4.182	3.10		Clay	100.0			14.52	0.93	n.a.	n.a.	0.84	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.430	12.240	0.512	4378.8	2791.9	7.200	5.090	3.25		Clay	100.0			11.57	0.93	n.a.	n.a.	0.84	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.600	11.800	0.404	4400.0	2802.6	6.851	4.203	3.22		Clay	100.0			11.15	0.93	n.a.	n.a.	0.84	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.760	9.830	0.407	4420.0	2812.6	5.419	5.340	3.36		Clay	100.0			9.29	0.93	n.a.	n.a.	0.84	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.930	10.010	0.416	4441.3	2823.2	5.518	5.339	3.35		Clay	100.0			9.46	0.93	n.a.	n.a.	0.84	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.090	9.900	0.474	4461.3	2833.2	5.414	6.178	3.40		Clay	100.0			9.36	0.93	n.a.	n.a.	0.84	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.250	9.690	0.506	4481.3	2843.3	5.240	6.786	3.43		Clay	100.0			9.16	0.93	n.a.	n.a.	0.84	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.420	9.960	0.552	4502.5	2853.9	5.402	7.159	3.43		Clay	100.0			9.41	0.92	n.a.	n.a.	0.84	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.580	9.970	0.564	4522.5	2863.9	5.383	7.311	3.44		Clay	100.0			9.42	0.92	n.a.	n.a.	0.83	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.750	9.500	0.561	4543.8	2874.6	5.029	7.765	3.48		Clay	100.0			8.98	0.92	n.a.	n.a.	0.83	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.910	8.840	0.469	4563.8	2884.6	4.547	7.151	3.49		Clay	100.0			8.36	0.92	n.a.	n.a.	0.83	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.070	9.540	0.420	4583.8	2894.6	5.008	5.792	3.41		Clay	100.0			9.02	0.92	n.a.	n.a.	0.83	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.240	10.540	0.491	4605.0	2905.2	5.671	5.965	3.37		Clay	100.0			9.96	0.92	n.a.	n.a.	0.83	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.400	11.550	0.583	4625.0	2915.2	6.337	6.316	3.35		Clay	100.0			10.92	0.92	n.a.	n.a.	0.83	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.570	11.770	0.625	4646.3	2925.9	6.457	6.620	3.35		Clay	100.0			11.12	0.92	n.a.	n.a.	0.83	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.730	11.580	0.606	4666.3	2935.9	6.299	6.557	3.36		Clay	100.0			10.95	0.92	n.a.	n.a.	0.83	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.890	11.830	0.602	4686.3	2945.9	6.441	6.340	3.34		Clay	100.0			11.18	0.92	n.a.	n.a.	0.83	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.060	11.890	0.597	4707.5	2956.6	6.451	6.258	3.34		Clay	100.0			11.24	0.92	n.a.	n.a.	0.83	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.220	12.200	0.655	4727.5	2966.6	6.631	6.661	3.35		Clay	100.0			11.53	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.390	13.910	0.604	4748.8	2977.2	7.749	5.232	3.23		Clay	100.0			13.15	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.550	15.150	0.576	4768.8	2987.2	8.547	4.513	3.16		Clay	100.0			14.32	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.710	18.490	0.680	4788.8	2997.2	10.740	4.222	3.06		Clay	100.0			17.48	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.880	21.860	0.915	4810.0	3007.9	12.936	4.701	3.02		Clay	100.0			20.66	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.040	26.800	1.254	4830.0	3017.9	16.160	5.141	2.97		Clay	100.0			25.33	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.210	28.990	1.568	4851.3	3028.5	17.543	5.904	2.99		Clay	100.0			27.40	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.370	30.150	1.608	4871.3	3038.6	18.242	5.802	2.97		Clay	100.0			28.50	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.530	29.630	1.545	4891.3	3048.6	17.834	5.683	2.97		Clay	100.0			28.01	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.700	29.970	1.471	4912.5	3059.2	17.987	5.345	2.95		Clay	99.0			28.33	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.860	31.120	1.408	4932.5	3069.2	18.672	4.915	2.91		Clay	96.1			29.41	0.91	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.030	31.820	1.487	4953.8	3079.9	19.055	5.069	2.92		Clay	96.3			30.08	0.91	n.a.	n.a.	0.81	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.190	32.950	1.548	4973.8	3089.9	19.718	5.080	2.91		Clay	95.4			31.14	0.90	n.a.	n.a.	0.81	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.350	35.120	1.741	4993.8	3099.9	21.048	5.337	2.90		Clay	94.9			33.19	0.90	n.a.	n.a.	0.81	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.520	36.790	1.809	5015.0	3110.6	22.043	5.275	2.88		Clay	93.4			34.77	0.90	n.a.	n.a.	0.81	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.680	33.390	1.738	5035.0	3120.6	19.786	5.630	2.93		Clay	97.7			31.56	0.90	n.a.	n.a.	0.81	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.850	30.590	1.559	5056.3	3131.2	17.924	5.554	2.96		Clay	100.0			28.91	0.90	n.a.	n.a.	0.81	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.010	27.130	1.392	5076.3	3141.2	15.658	5.662	3.01		Clay	100.0			25.64	0.90	n.a.	n.a.	0.81	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.170	24.280	1.191	5096.3	3151.2	13.793	5.481	3.04		Clay	100.0			22.95	0.90	n.a.	n.a.	0.81	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.340	22.050	1.077	5117.5	3161.9	12.329	5.524	3.08		Clay	100.0			20.84	0.90	n.a.	n.a.	0.81	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.500	19.580	0.973	5137.5	3171.9	10.726	5.720	3.14		Clay	100.0			18.51	0.90	n.a.	n.a.	0.81	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.670	17.360	0.894	5158.8	3182.5	9.289	6.047	3.20		Clay	100.0			16.41	0.90	n.a.	n.a.	0.80	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.830	17.540	0.808	5178.8	3192.6	9.366	5.402	3.17		Clay	100.0			16.58	0.90	n.a.	n.a.	0.80	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.990	17.190	0.785	5198.8	3202.6	9.112	5.377	3.18		Clay	100.0			16.25	0.90	n.a.	n.a.	0.80	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.160	17.910	0.859	5220.0	3213.2	9.523	5.611	3.18		Clay	100.0			16.93	0.90	n.a.	n.a.	0.80	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.320	19.040	1.017	5240.0	3223.2	10.189	6.194	3.18		Clay	100.0			18.00	0.89	n.a.	n.a.	0.80	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.490	19.810	1.077	5261.3	3233.9	10.625	6.271	3.17		Clay	100.0			18.72	0.89	n.a.	n.a.	0.80	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.650	20.080	1.128	5281.3	3243.9	10.752	6.468	3.17		Clay	100.0			18.98	0.89	n.a.	n.a.	0.80	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.810	20.180	1.125	5301.3	3253.9	10.774	6.420	3.17		Clay	100.0			19.07	0.89	n.a.	n.a.	0.80	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.980	20.450	1.235	5322.5	3264.5	10.898	6.940	3.19		Clay	100.0			19.33	0.89	n.a.	n.a.	0.80	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.140	20.900	1.219	5342.5	3274.6	11.134	6.689	3.17		Clay	100.0			19.75	0.89	n.a.	n.a.	0.80	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.310	20.120	1.149	5363.8	3285.2	10.616	6.591	3.18		Clay	100.0			19.02	0.89	n.a.	n.a.	0.80	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.470	19.180	1.034	5383.8	3295.2	10.007	6.271	3.19		Clay	100.0			18.13	0.89	n.a.	n.a.	0.79	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.640	19.240	0.962	5405.0	3305.9	10.005	5.819	3.17		Clay	100.0			18.19	0.89	n.a.	n.a.	0.79	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.800	18.230	0.988	5425.0	3315.9	9.360	6.364	3.22		Clay	100.0			17.23	0.89	n.a.	n.a.	0.79	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.960	19.070	1.070	5445.0	3325.9	9.830	6.545	3.21		Clay	100.0			18.02	0.89	n.a.	n.a.	0.79	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00

CORNERSTONE EARTH GROUP

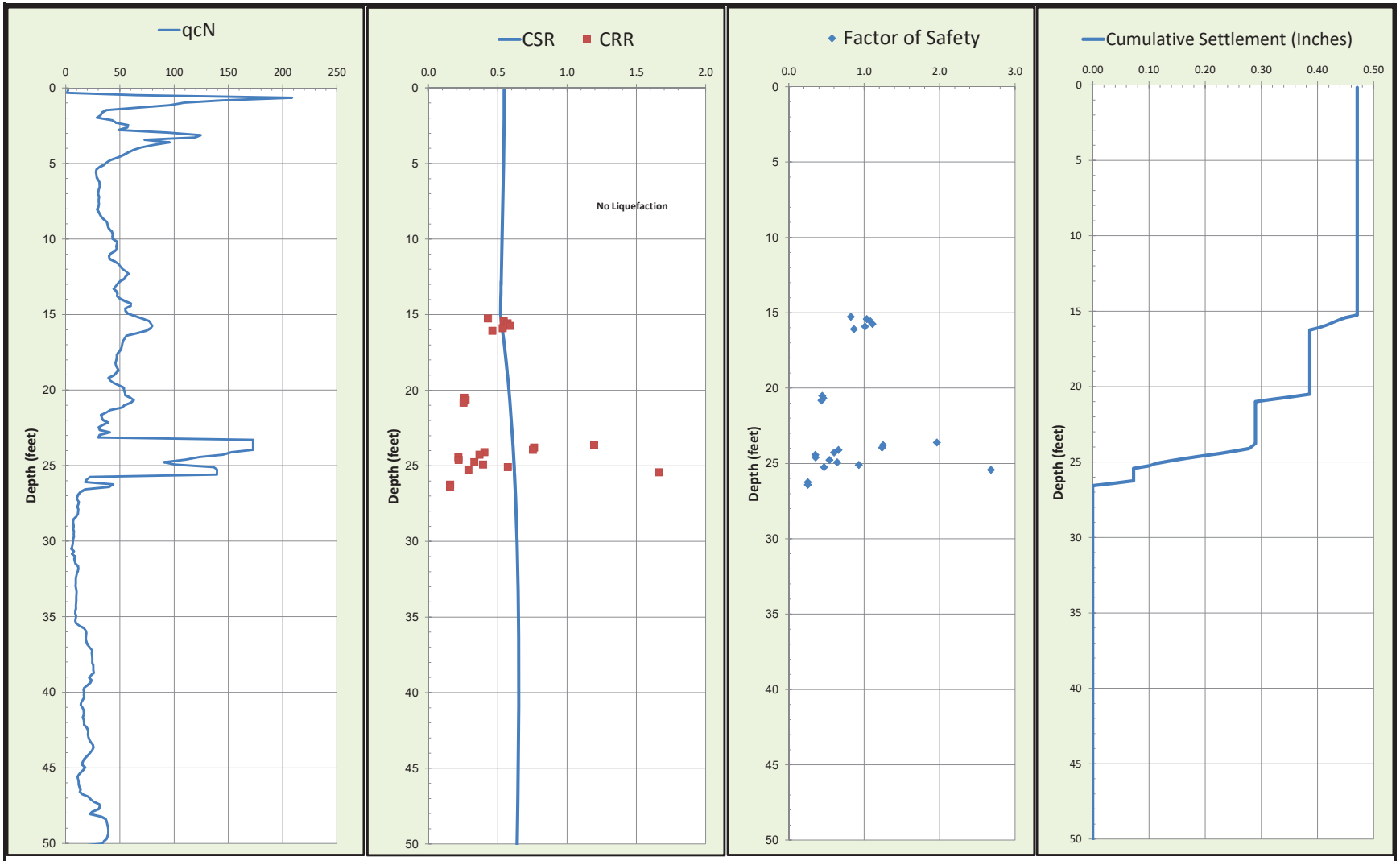
CPT No. 4

PGA (A_{max}) 0.84

Total Settlement: 0.35 (Inches)

© 2014 Cornerstone Earth Group, Inc.

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_H)	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)
44.130	19.570	1.126	5466.3	3336.5	10.092	6.689	3.20		Clay	100.0			18.50	0.89	n.a.	n.a.	0.79	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.290	20.280	1.103	5486.3	3346.6	10.481	6.287	3.17		Clay	100.0			19.17	0.89	n.a.	n.a.	0.79	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.460	20.140	1.085	5507.5	3357.2	10.358	6.241	3.18		Clay	100.0			19.04	0.89	n.a.	n.a.	0.79	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.620	19.780	1.062	5527.5	3367.2	10.107	6.242	3.18		Clay	100.0			18.70	0.88	n.a.	n.a.	0.79	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.780	18.420	1.011	5547.5	3377.2	9.266	6.464	3.22		Clay	100.0			17.41	0.88	n.a.	n.a.	0.79	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.950	17.960	0.933	5568.8	3387.9	8.959	6.151	3.22		Clay	100.0			16.98	0.88	n.a.	n.a.	0.79	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.110	16.430	0.891	5588.8	3397.9	8.026	6.532	3.27		Clay	100.0			15.53	0.88	n.a.	n.a.	0.78	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.280	15.610	0.834	5610.0	3408.5	7.514	6.511	3.30		Clay	100.0			14.75	0.88	n.a.	n.a.	0.78	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.440	14.610	0.785	5630.0	3418.5	6.901	6.653	3.33		Clay	100.0			13.81	0.88	n.a.	n.a.	0.78	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.600	13.660	0.704	5650.0	3428.6	6.320	6.494	3.35		Clay	100.0			12.91	0.88	n.a.	n.a.	0.78	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.770	13.030	0.574	5671.3	3439.2	5.928	5.628	3.34		Clay	100.0			12.32	0.88	n.a.	n.a.	0.78	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.930	12.270	0.530	5691.3	3449.2	5.465	5.619	3.37		Clay	100.0			11.60	0.88	n.a.	n.a.	0.78	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.100	12.830	0.528	5712.5	3459.9	5.765	5.298	3.33		Clay	100.0			12.13	0.88	n.a.	n.a.	0.78	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.260	13.760	0.522	5732.5	3469.9	6.279	4.794	3.28		Clay	100.0			13.01	0.88	n.a.	n.a.	0.78	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.420	14.390	0.611	5752.5	3479.9	6.617	5.305	3.29		Clay	100.0			13.60	0.88	n.a.	n.a.	0.78	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.590	13.530	0.753	5773.8	3490.5	6.098	7.076	3.39		Clay	100.0			12.79	0.88	n.a.	n.a.	0.78	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.750	13.880	0.723	5793.8	3500.6	6.275	6.585	3.36		Clay	100.0			13.12	0.88	n.a.	n.a.	0.78	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.920	12.990	0.619	5815.0	3511.2	5.743	6.141	3.37		Clay	100.0			12.28	0.87	n.a.	n.a.	0.77	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.080	12.060	0.562	5835.0	3521.2	5.193	6.145	3.41		Clay	100.0			11.40	0.87	n.a.	n.a.	0.77	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.240	12.150	0.602	5855.0	3531.2	5.223	6.528	3.42		Clay	100.0			11.48	0.87	n.a.	n.a.	0.77	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.410	12.660	0.653	5876.3	3541.9	5.490	6.713	3.41		Clay	100.0			11.97	0.87	n.a.	n.a.	0.77	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.570	12.650	0.685	5896.3	3551.9	5.463	7.062	3.43		Clay	100.0			11.96	0.87	n.a.	n.a.	0.77	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.740	13.720	0.642	5917.5	3562.5	6.041	5.963	3.35		Clay	100.0			12.97	0.87	n.a.	n.a.	0.77	0.643	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.900	13.350	0.634	5937.5	3572.5	5.812	6.109	3.37		Clay	100.0			12.62	0.87	n.a.	n.a.	0.77	0.643	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.060	13.360	0.590	5957.5	3582.6	5.795	5.686	3.35		Clay	100.0			12.63	0.87	n.a.	n.a.	0.77	0.643	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.230	12.880	0.586	5978.8	3593.2	5.505	5.927	3.38		Clay	100.0			12.17	0.87	n.a.	n.a.	0.77	0.643	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.390	13.940	0.596	5998.8	3603.2	6.073	5.449	3.32		Clay	100.0			13.18	0.87	n.a.	n.a.	0.77	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.560	13.170	0.619	6020.0	3613.9	5.623	6.094	3.38		Clay	100.0			12.45	0.87	n.a.	n.a.	0.77	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.720	12.240	0.606	6040.0	3623.9	5.088	6.577	3.43		Clay	100.0			11.57	0.87	n.a.	n.a.	0.76	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.880	11.550	0.597	6060.0	3633.9	4.689	7.012	3.48		Clay	100.0			10.92	0.87	n.a.	n.a.	0.76	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.050	11.100	0.546	6081.3	3644.5	4.423	6.775	3.49		Clay	100.0			10.49	0.87	n.a.	n.a.	0.76	0.641	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.210	11.060	0.518	6101.3	3654.5	4.383	6.461	3.48		Clay	100.0			10.45	0.87	n.a.	n.a.	0.76	0.641	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.380	11.730	0.522	6122.5	3665.2	4.730	6.025	3.44		Clay	100.0			11.09	0.87	n.a.	n.a.	0.76	0.641	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.540	12.190	0.572	6142.5	3675.2	4.962	6.276	3.43		Clay	100.0			11.52	0.86	n.a.	n.a.	0.76	0.640	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.700	12.220	0.640	6162.5	3685.2	4.960	7.008	3.46		Clay	100.0			11.55	0.86	n.a.	n.a.	0.76	0.640	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.870	11.580	0.613	6183.8	3695.9	4.593	7.225	3.49		Clay	100.0			10.95	0.86	n.a.	n.a.	0.76	0.640	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.030	10.910	0.555	6203.8	3705.9	4.214	7.105	3.52		Clay	100.0			10.31	0.86	n.a.	n.a.	0.76	0.640	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.200	11.380	0.559	6225.0	3716.5	4.449	6.766	3.49		Clay	100.0			10.76	0.86	n.a.	n.a.	0.76	0.639	n.a.	n.a.	n.a.	n.a.	0.00	0.00



CORNERSTONE EARTH GROUP

Liquefaction Analysis Summary

1188 East 14th Street
San Leandro, California

Project Number: 444-3-1

Figure Number: Figure C-5

6/5/2018

CPT No. 5

CORNERSTONE EARTH GROUP

CPT No. 5

PGA (A_{max}) 0.84

Total Settlement: 0.47 (Inches)

© 2014 Cornerstone Earth Group, Inc.

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_H)	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)
0.160	2.270	0.038	19.2	19.2	22.429	1.690	2.57		Unsaturated	68.3			2.15	1.70	3.65	55.04	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.330	1.190	0.659	39.6	39.6	59.101	56.281	3.42		Unsaturated	100.0			1.12	1.70	1.91	56.44	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.490	69.560	1.138	58.8	58.8	394.239	1.636	1.68		Unsaturated	0.0			65.75	1.70	111.77	111.77	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.660	220.630	1.757	79.2	79.2	1077.696	0.796	1.20		Unsaturated	0.0			208.53	1.70	354.51	354.51	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.820	153.440	1.681	98.4	98.4	672.317	1.096	1.41		Unsaturated	0.0			145.03	1.70	246.55	246.55	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.980	115.640	1.612	117.6	117.6	463.400	1.395	1.58		Unsaturated	0.0			109.30	1.70	185.81	185.81	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.150	100.970	1.494	138.0	138.0	373.446	1.480	1.65		Unsaturated	0.0			95.43	1.70	162.24	162.24	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.310	71.210	1.868	157.2	157.2	246.665	2.626	1.96		Unsaturated	20.0			67.31	1.70	114.42	153.25	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.480	39.470	1.908	177.6	177.6	128.481	4.845	2.34		Unsaturated	50.3			37.31	1.70	63.42	126.37	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.640	35.280	1.316	196.8	196.8	109.037	3.741	2.29		Unsaturated	46.6			33.35	1.70	56.69	116.13	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.800	34.140	1.170	216.0	216.0	100.678	3.437	2.29		Unsaturated	46.1			32.27	1.70	54.86	113.56	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.970	30.540	1.353	236.4	236.4	86.027	4.446	2.42		Unsaturated	56.4			28.87	1.70	49.07	110.46	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.130	44.980	1.134	255.6	255.6	121.976	2.528	2.13		Unsaturated	33.6			42.51	1.70	72.27	126.20	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.300	49.030	1.008	276.0	276.0	127.954	2.061	2.05		Unsaturated	27.2			46.34	1.70	78.78	126.16	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.460	60.820	1.215	295.2	295.2	153.534	2.003	1.99		Unsaturated	22.3			57.49	1.70	97.73	139.59	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.620	60.070	1.866	314.4	314.4	146.910	3.115	2.15		Unsaturated	35.2			56.78	1.70	96.52	157.44	1.00	0.546	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.790	51.470	2.680	334.8	334.8	121.904	5.224	2.38		Unsaturated	53.5			48.65	1.70	82.70	152.19	1.00	0.545	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.950	99.650	3.386	354.0	354.0	229.867	3.403	2.07		Unsaturated	28.9			94.19	1.70	160.07	225.85	1.00	0.545	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.120	131.740	3.650	374.4	374.4	295.600	2.775	1.94		Unsaturated	18.2			124.52	1.61	200.30	244.61	1.00	0.545	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.280	125.970	3.322	393.6	393.6	275.634	2.641	1.94		Unsaturated	18.0			119.06	1.62	192.45	235.14	1.00	0.544	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.440	76.870	2.564	412.8	412.8	164.056	3.344	2.15		Unsaturated	34.9			72.66	1.70	123.52	190.19	1.00	0.544	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.610	101.360	1.749	433.2	433.2	211.283	1.729	1.85		Unsaturated	11.3			95.80	1.70	162.87	176.97	1.00	0.544	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.770	85.470	1.449	452.4	452.4	174.250	1.700	1.90		Unsaturated	15.1			80.78	1.70	137.33	163.79	1.00	0.544	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.940	73.440	1.172	472.8	472.8	146.375	1.601	1.93		Unsaturated	17.5			69.41	1.70	118.00	150.49	0.99	0.543	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.100	66.340	0.937	492.0	492.0	129.554	1.418	1.93		Unsaturated	17.4			62.70	1.70	106.60	137.46	0.99	0.543	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.270	61.020	0.680	512.4	512.4	116.711	1.120	1.89		Unsaturated	14.3			57.67	1.70	98.05	118.90	0.99	0.543	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.430	56.820	0.549	531.6	531.6	106.646	0.971	1.88		Unsaturated	13.5			53.71	1.70	91.30	108.94	0.99	0.542	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.590	51.250	0.479	550.8	550.8	94.434	0.940	1.91		Unsaturated	16.0			48.44	1.70	82.35	106.77	0.99	0.542	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.760	44.310	0.378	571.2	571.2	80.089	0.858	1.95		Unsaturated	18.6			41.88	1.70	71.20	101.15	0.99	0.542	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.920	40.580	0.246	590.4	590.4	72.084	0.611	1.90		Unsaturated	15.0			38.36	1.70	65.20	85.40	0.99	0.541	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.090	37.400	0.261	610.8	610.8	65.258	0.702	1.97		Unsaturated	20.5			35.35	1.70	60.09	92.81	0.99	0.541	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.250	32.910	0.272	630.0	630.0	56.462	0.835	2.06		Unsaturated	28.0			31.11	1.70	52.88	96.52	0.99	0.541	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.410	29.980	0.292	649.2	649.2	50.604	0.986	2.14		Unsaturated	34.4			28.34	1.70	48.17	97.53	0.99	0.540	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.580	29.340	0.299	669.6	669.6	48.735	1.031	2.17		Unsaturated	36.4			27.73	1.70	47.14	97.87	0.99	0.540	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.740	29.870	0.277	688.8	688.8	48.913	0.940	2.14		Unsaturated	34.5			28.23	1.70	48.00	97.35	0.99	0.540	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.910	30.330	0.224	709.2	709.2	48.939	0.749	2.09		Unsaturated	30.2			28.67	1.70	48.73	94.08	0.99	0.539	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.070	31.580	0.233	728.4	728.4	50.288	0.745	2.08		Unsaturated	29.3			29.85	1.70	50.74	95.50	0.99	0.539	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.230	32.890	0.241	747.6	747.6	51.706	0.741	2.07		Unsaturated	28.4			31.09	1.69	52.61	96.62	0.99	0.539	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.400	32.900	0.223	768.0	768.0	51.014	0.687	2.05		Unsaturated	27.4			31.10	1.68	52.14	94.81	0.99	0.538	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.560	33.320	0.255	787.2	787.2	51.024	0.775	2.08		Unsaturated	29.6			31.49	1.65	51.86	97.18	0.99	0.538	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.730	32.180	0.281	807.6	807.6	48.616	0.885	2.13		Unsaturated	33.5			30.42	1.62	49.34	98.13	0.99	0.538	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.890	31.970	0.309	826.8	826.8	47.716	0.980	2.16		Unsaturated	36.0			30.22	1.60	48.35	99.06	0.98	0.537	1.099	n.a.	n.a.	n.a.	0.00	0.00
7.050	31.600	0.316	846.0	846.0	46.604	1.012	2.18		Unsaturated	37.3			29.87	1.58	47.28	98.74	0.98	0.537	1.097	n.a.	n.a.	n.a.	0.00	0.00
7.220	32.670	0.296	866.4	866.4	47.617	0.918	2.15		Unsaturated	34.8			30.88	1.57	48.36	98.07	0.98	0.537	1.094	n.a.	n.a.	n.a.	0.00	0.00
7.380	32.310	0.329	885.6	885.6	46.558	1.033	2.18		Unsaturated	37.7			30.54	1.55	47.22	98.98	0.98	0.536	1.092	n.a.	n.a.	n.a.	0.00	0.00
7.550	32.330	0.429	906.0	906.0	46.045	1.345	2.25		Unsaturated	43.4			30.56	1.52	46.48	101.64	0.98	0.536	1.091	n.a.	n.a.	n.a.	0.00	0.00
7.710	32.380	0.654	925.2	925.2	45.623	2.048	2.37		Unsaturated	52.7			30.60	1.50	45.80	105.00	0.98	0.536	1.091	n.a.	n.a.	n.a.	0.00	0.00
7.870	32.080	0.934	944.4	944.4	44.719	2.956	2.48		Unsaturated	61.7			30.32	1.48	44.80	106.55	0.98	0.535	1.090	n.a.	n.a.	n.a.	0.00	0.00
8.040	30.630	1.104	964.8	964.8	42.199	3.662	2.57		Unsaturated	68.3			28.95	1.47	42.44	105.07	0.98	0.535	1.087	n.a.	n.a.	n.a.	0.00	0.00
8.200	31.910	1.088	984.0	984.0	43.546	3.462	2.54		Unsaturated	66.1			30.16	1.45	43.71	106.23	0.98	0.535	1.085	n.a.	n.a.	n.a.	0.00	0.00
8.370	33.510	1.041	1004.4	1004.4	45.283	3.153	2.50		Unsaturated	62.9			31.67	1.43	45.35	107.57	0.98	0.534	1.084	n.a.	n.a.	n.a.	0.00	0.00
8.530	34.720	0.937	1023.6	1023.6	46.488	2.739	2.45		Unsaturated	58.9			32.82	1.42	46.54	107.98	0.98	0.534	1.082	n.a.	n.a.	n.a.	0.00	0.00
8.690	37.040	0.991	1042.8	1042.8	49.168	2.713	2.43		Unsaturated	57.3			35.01	1.40	49.01	110.64	0.98	0.534	1.082	n.a.	n.a.	n.a.	0.00	0.00
8.860	39.900	1.081	1063.2	1063.2	52.494	2.745	2.41		Unsaturated	55.9			37.71	1.38	52.06	114.08	0.98	0.533	1.082	n.a.	n.a.	n.a.	0.00	0.00
9.020	40.830	1.132	1082.4	1082.4	53.243	2.809	2.41		Unsaturated	56.1			38.59	1.37	52.76	115.04	0.98	0.533	1.080	n.a.	n.a.	n.a.	0.00	0.00
9.190	41.310	1.106	1102.8	1102.8	53.363	2.713	2.40		Unsaturated	55.2			39.05	1.36	52.92	114.94	0.98	0.533	1.078	n.a.	n.a.	n.a.	0.00	0.00
9.350	42.440	0.946	1122.0	1122.0	54.359	2.258	2.34		Unsaturated	50.4			40.11	1.35	53.97	114.43	0.97	0.532	1.076	n.a.	n.a.	n.a.	0.00	0.00
9.510	44.940	0.849	1141.2	1141.2	57.105	1.914	2.28		Unsaturated	45.3			42.48	1.33	56.63	115.38	0.97	0.532	1.074	n.a.	n.a.	n.a.	0.00	0.00
9.680	45.740	0.886	1161.6	1161.6	57.609	1.962	2.28		Unsaturated	45.6			43.23	1.32	57.11	116.16	0.97	0.532	1.072	n.a.	n.a.	n.a.	0.00	0.00
9.840	45.520	0.942	1180.8	1180.8	56.848	2.097	2.31		Unsaturated	47.5			43.02	1.31	56.40	116.21	0.97	0.531	1.070	n.a.	n.a.	n.a.	0.00	0.00
10.010	45.880	0.862	1201.2	1201.2	56.802	1.903	2.28		Unsaturated	45.3			43.36	1.30	56.47	115.17	0.97	0.531	1.068	n.a.	n.a.	n.a.	0.00	0.00
10.170	49.740	0.721	1220.4	1220.4	61.146	1.468	2.18		Unsaturated	37.5			47.01	1.29	60.74	115.50	0.97	0.530	1.066	n.a.	n.a.	n.a.	0.00	0.00
10.330	49.940	0.697	1239.6	1239.6	60.905	1.414	2.17		Unsaturated	36.8			47.20	1.28	60.60	114.74	0.97	0.530	1.064	n.a.	n.a.	n.a.	0.00	0.00
10.500	49.360	0.777	1260.0	1260.0	59.687	1.593	2.21		Unsaturated	40.0			46.65	1.27	59.38	115.61	0.97	0.530	1.062	n.a.	n.a.	n.a.	0.00	0.00
10.660	50.090	1.011	1279.2	1279.2	60.114	2.043	2.28		Unsaturated	45.5			47.34	1.26	59.62	119.23	0.97	0.529	1.062	n.a.	n.a.	n.a.	0.00	0.00
10.830	47.250	1.376	1299.6	1299.6	56.202	2.952	2.41		Unsaturated	55.9			44.66	1.25	55.85	118.93	0.97	0.529	1.060	n.a.	n.a.	n.a.	0.00	0.00
10.990	43.600	1.674	1318.8	1318.8	51.410	3.899	2.52		Unsaturated	65.0			41.21	1.25	51.34	115.78	0.97	0.529	1.057	n.a.	n.a.	n.a.	0.00	0.00

CORNERSTONE EARTH GROUP

CPT No. 5

PGA (A_{max}) 0.84

Total Settlement: 0.47 (Inches)

© 2014 Cornerstone Earth Group, Inc.

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_H)	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)
11.150	42.160	1.857	1338.0	1338.0	49.317	4.475	2.58		Unsaturated	69.4			39.85	1.24	49.38	114.27	0.97	0.528	1.055	n.a.	n.a.	n.a.	0.00	0.00
11.320	42.680	1.527	1358.4	1358.4	49.547	3.637	2.51		Unsaturated	64.1			40.34	1.23	49.68	113.43	0.97	0.528	1.052	n.a.	n.a.	n.a.	0.00	0.00
11.480	47.720	1.023	1377.6	1377.6	55.093	2.176	2.33		Unsaturated	49.2			45.10	1.22	55.09	115.32	0.97	0.527	1.051	n.a.	n.a.	n.a.	0.00	0.00
11.650	51.610	0.525	1398.0	1398.0	59.201	1.031	2.10		Unsaturated	30.9			48.78	1.22	59.55	107.86	0.97	0.527	1.047	n.a.	n.a.	n.a.	0.00	0.00
11.810	53.300	0.654	1417.2	1417.2	60.740	1.243	2.14		Unsaturated	34.1			50.38	1.21	60.85	112.69	0.96	0.527	1.047	n.a.	n.a.	n.a.	0.00	0.00
11.980	55.440	1.029	1437.6	1437.6	62.749	1.881	2.24		Unsaturated	42.4			52.40	1.19	62.47	121.05	0.96	0.526	1.049	n.a.	n.a.	n.a.	0.00	0.00
12.140	58.710	1.145	1456.8	1456.8	66.048	1.974	2.24		Unsaturated	42.2			55.49	1.18	65.58	124.81	0.96	0.526	1.048	n.a.	n.a.	n.a.	0.00	0.00
12.300	61.650	1.121	1476.0	1476.0	68.934	1.841	2.21		Unsaturated	39.5			58.27	1.17	68.39	126.45	0.96	0.525	1.047	n.a.	n.a.	n.a.	0.00	0.00
12.470	58.560	0.919	1496.4	1496.4	64.978	1.589	2.18		Unsaturated	37.6			55.35	1.17	64.81	120.63	0.96	0.525	1.043	n.a.	n.a.	n.a.	0.00	0.00
12.630	57.380	1.056	1515.6	1515.6	63.236	1.866	2.24		Unsaturated	42.0			54.23	1.16	63.10	121.59	0.96	0.525	1.042	n.a.	n.a.	n.a.	0.00	0.00
12.800	53.160	1.283	1536.0	1536.0	58.122	2.449	2.34		Unsaturated	50.6			50.25	1.16	58.17	119.83	0.96	0.524	1.040	n.a.	n.a.	n.a.	0.00	0.00
12.960	50.860	1.744	1555.2	1555.2	55.216	3.481	2.47		Unsaturated	60.4			48.07	1.15	55.34	119.69	0.96	0.524	1.038	n.a.	n.a.	n.a.	0.00	0.00
13.120	48.920	1.971	1574.4	1574.4	52.742	4.095	2.53		Unsaturated	65.6			46.24	1.15	52.98	118.04	0.96	0.523	1.036	n.a.	n.a.	n.a.	0.00	0.00
13.290	46.740	2.194	1594.8	1594.8	50.019	4.775	2.60		Unsaturated	70.7			44.18	1.14	50.39	115.83	0.96	0.523	1.034	n.a.	n.a.	n.a.	0.00	0.00
13.450	49.270	2.276	1614.0	1614.0	52.448	4.696	2.58		Unsaturated	69.2			46.57	1.13	52.74	118.55	0.96	0.523	1.033	n.a.	n.a.	n.a.	0.00	0.00
13.620	50.690	2.190	1634.4	1634.4	53.636	4.392	2.55		Unsaturated	66.9			47.91	1.13	53.92	119.57	0.96	0.522	1.032	n.a.	n.a.	n.a.	0.00	0.00
13.780	49.960	2.238	1653.6	1653.6	52.533	4.555	2.57		Unsaturated	68.4			47.22	1.12	52.89	118.56	0.96	0.522	1.030	n.a.	n.a.	n.a.	0.00	0.00
13.940	52.940	2.284	1672.8	1672.8	55.388	4.383	2.54		Unsaturated	66.1			50.04	1.11	55.67	121.62	0.96	0.521	1.030	n.a.	n.a.	n.a.	0.00	0.00
14.110	57.940	2.383	1693.2	1693.2	60.326	4.174	2.50		Unsaturated	62.9			54.76	1.10	60.46	126.94	0.95	0.521	1.029	n.a.	n.a.	n.a.	0.00	0.00
14.270	63.710	2.516	1712.4	1712.4	66.039	4.003	2.46		Unsaturated	59.7			60.22	1.10	65.99	133.10	0.95	0.521	1.029	n.a.	n.a.	n.a.	0.00	0.00
14.440	63.280	2.808	1732.8	1732.8	65.189	4.499	2.50		Unsaturated	63.0			59.81	1.09	65.21	133.08	0.95	0.520	1.028	n.a.	n.a.	n.a.	0.00	0.00
14.600	57.980	3.210	1752.0	1752.0	59.316	5.621	2.60		Unsaturated	71.0			54.80	1.09	59.57	127.75	0.95	0.520	1.025	n.a.	n.a.	n.a.	0.00	0.00
14.760	58.400	3.419	1771.2	1771.2	61.569	5.944	2.61		Unsaturated	71.6			55.20	1.08	59.71	128.06	0.95	0.519	1.024	n.a.	n.a.	n.a.	0.00	0.00
14.930	60.670	3.641	1791.6	1791.6	63.478	6.091	2.61		Unsaturated	71.6			57.34	1.08	61.67	130.59	0.95	0.519	1.023	n.a.	n.a.	n.a.	0.00	0.00
15.090	66.840	3.575	1810.8	1810.8	67.367	5.423	2.55	plastic	Clay	67.2			63.18	1.04	n.a.	n.a.	0.95	0.520	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.260	74.070	3.966	1831.2	1831.2	74.327	5.422	2.52		Sand	65.0			70.01	1.06	74.30	145.31	0.95	0.523	1.022	0.260	0.430	0.82	0.01	0.02
15.420	81.220	4.286	1850.4	1850.4	81.157	5.337	2.50		Sand	62.6			76.77	1.05	80.98	153.22	0.95	0.525	1.022	0.311	0.543	1.03	0.01	0.01
15.580	82.900	4.383	1869.6	1869.6	82.419	5.347	2.49		Sand	62.4			78.36	1.05	82.29	154.82	0.95	0.528	1.021	0.324	0.571	1.08	0.01	0.01
15.750	84.570	4.199	1890.0	1890.0	83.633	5.022	2.47		Sand	60.3			79.93	1.05	83.57	155.83	0.95	0.530	1.019	0.332	0.589	1.11	0.01	0.01
15.910	83.030	3.830	1909.2	1909.2	81.669	4.667	2.45		Sand	58.9			78.48	1.04	81.76	153.02	0.95	0.532	1.017	0.310	0.537	1.01	0.01	0.01
16.080	78.390	3.928	1930.0	1925.0	76.725	5.073	2.49		Sand	62.5			74.09	1.04	77.00	148.07	0.95	0.535	1.015	0.276	0.462	0.86	0.01	0.02
16.240	69.010	4.105	1950.0	1935.0	67.245	6.034	2.59	plastic	Clay	70.1			65.23	1.02	n.a.	n.a.	0.94	0.537	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.400	59.410	4.365	1970.0	1945.0	60.076	7.472	2.69		Clay	78.3			56.15	1.02	n.a.	n.a.	0.94	0.539	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.570	57.790	4.263	1991.3	1955.7	58.081	7.506	2.70		Clay	79.2			54.62	1.02	n.a.	n.a.	0.94	0.541	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.730	56.080	4.113	2011.3	1965.7	56.035	7.467	2.71		Clay	79.8			53.01	1.02	n.a.	n.a.	0.94	0.543	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.900	55.280	3.996	2032.5	1976.3	54.913	7.363	2.71		Clay	79.9			52.25	1.02	n.a.	n.a.	0.94	0.546	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.060	54.940	4.039	2052.5	1986.4	54.284	7.491	2.72		Clay	80.6			51.93	1.02	n.a.	n.a.	0.94	0.548	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.220	54.270	4.231	2072.5	1996.4	53.330	7.947	2.74		Clay	82.6			51.29	1.02	n.a.	n.a.	0.94	0.550	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.390	52.990	4.224	2093.8	2007.0	51.762	8.132	2.76		Clay	83.9			50.09	1.01	n.a.	n.a.	0.94	0.552	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.550	51.120	4.150	2113.8	2017.0	49.640	8.290	2.78		Clay	85.3			48.32	1.01	n.a.	n.a.	0.94	0.554	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.720	49.720	4.121	2135.0	2027.7	47.989	8.469	2.80		Clay	86.6			46.99	1.01	n.a.	n.a.	0.94	0.556	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.880	49.840	4.078	2155.0	2037.7	47.861	8.362	2.79		Clay	86.3			47.11	1.01	n.a.	n.a.	0.94	0.558	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.040	49.320	3.995	2175.0	2047.7	47.109	8.283	2.79		Clay	86.4			46.62	1.01	n.a.	n.a.	0.94	0.560	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.210	48.480	3.878	2196.3	2058.3	46.039	8.184	2.80		Clay	86.6			45.82	1.01	n.a.	n.a.	0.93	0.562	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.370	48.980	3.681	2216.3	2068.4	46.290	7.689	2.77		Clay	84.9			46.29	1.01	n.a.	n.a.	0.93	0.563	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.540	50.670	3.715	2237.5	2079.0	47.668	7.497	2.76		Clay	83.5			47.89	1.00	n.a.	n.a.	0.93	0.565	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.700	51.620	3.838	2257.5	2089.0	48.340	7.602	2.76		Clay	83.6			48.79	1.00	n.a.	n.a.	0.93	0.567	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.860	49.370	3.745	2277.5	2099.0	45.956	7.764	2.78		Clay	85.3			46.66	1.00	n.a.	n.a.	0.93	0.569	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.030	47.100	3.403	2298.8	2109.7	43.562	7.405	2.78		Clay	85.3			44.52	1.00	n.a.	n.a.	0.93	0.570	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.190	41.790	3.045	2318.8	2119.7	38.336	7.494	2.82		Clay	88.5			39.50	1.00	n.a.	n.a.	0.93	0.572	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.360	43.580	2.980	2340.0	2130.3	39.815	7.026	2.79		Clay	86.0			41.19	1.00	n.a.	n.a.	0.93	0.574	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.520	46.460	3.186	2360.0	2140.4	42.311	7.036	2.77		Clay	84.6			43.91	1.00	n.a.	n.a.	0.93	0.575	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.690	52.160	3.414	2381.3	2151.0	47.391	6.698	2.72		Clay	80.7			49.30	1.00	n.a.	n.a.	0.93	0.577	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.850	56.910	3.588	2401.3	2161.0	51.559	6.440	2.68		Clay	77.8			53.79	0.99	n.a.	n.a.	0.93	0.579	n.a.	n.a.	n.a.	n.a.	0.00	0.00
20.010	56.790	3.769	2421.3	2171.0	51.201	6.782	2.70		Clay	79.3			53.68	0.99	n.a.	n.a.	0.93	0.580	n.a.	n.a.	n.a.	n.a.	0.00	0.00
20.180	57.910	3.613	2442.5	2181.7	51.968	6.373	2.68		Clay	77.3			54.74	0.99	n.a.	n.a.	0.92	0.582	n.a.	n.a.	n.a.	n.a.	0.00	0.00
20.340	58.050	3.238	2462.5	2191.7	51.849	5.698	2.64		Clay	74.4			54.87	0.99	n.a.	n.a.	0.92	0.583	n.a.	n.a.	n.a.	n.a.	0.00	0.00
20.510	63.030	2.604	2483.8	2202.3	57.245	4.215	2.52		Sand	64.4			59.57	0.98	58.52	124.85	0.92	0.585	0.995	0.183	0.259	0.44	0.03	0.03
20.670	66.290	2.206	2503.8	2212.3	60.119	3.392	2.43		Sand	57.7			62.66	0.98	61.43	126.64	0.92	0.586	0.994	0.188	0.268	0.46	0.03	0.03
20.830	63.660	2.195	2523.8	2222.4	57.549	3.517	2.46		Sand	59.7			60.17	0.98	58.86	123.98	0.92	0.588	0.994	0.181	0.254	0.43	0.03	0.03
21.000	57.330	2.490	2545.0	2233.0	51.578	4.442	2.56	plastic	Clay	68.2			54.19	0.99	n.a.	n.a.	0.92	0.589	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.160	54.870	2.440	2565.0	2243.0	49.195	4.554	2.59	plastic	Clay	69.9			51.86	0.98	n.a.	n.a.	0.92	0.591	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.330	43.320	2.400	2586.3	2253.7	37.297	5.710	2.74		Clay	82.2			40.95	0.98	n.a.	n.a.	0.92	0.592	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.490	39.770	2.376	2606.3	2263.7	33.986	6.177	2.79		Clay	86.5			37.59	0.98	n.a.	n.a.	0.92	0.593	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.650	34.390	2.384	2626.3	2273.7	29.095	7.207	2.89		Clay	94.1			32.50	0.98	n.a.	n.a.	0.92	0.595	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.820	35.360	2.100	2647.5	2284.3	29.800	6.171	2.83		Clay	89.6			33.42	0.98	n.a.	n.a.	0.92	0.596	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.980	36.170	2.146	2667.5	2294.3	30.367	6.161	2.83		Clay	89.1			34.19	0.98	n.a.	n.a.	0.92	0.597	n.a.	n.a.	n.a.	n.a.	0.00	0.00

CORNERSTONE EARTH GROUP

CPT No. 5

PGA (A_{max}) 0.84

Total Settlement: 0.47 (Inches)

© 2014 Cornerstone Earth Group, Inc.

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_H)	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)
22.150	41.370	2.226	2688.8	2305.0	34.730	5.561	2.75		Clay	83.3			39.10	0.98	n.a.	n.a.	0.91	0.599	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.310	35.880	2.448	2708.8	2315.0	29.828	7.089	2.88		Clay	93.0			33.91	0.98	n.a.	n.a.	0.91	0.600	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.470	32.130	2.300	2728.8	2325.0	26.465	7.477	2.93		Clay	97.3			30.37	0.98	n.a.	n.a.	0.91	0.601	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.640	33.260	1.967	2750.0	2335.7	27.303	6.169	2.86		Clay	91.8			31.44	0.97	n.a.	n.a.	0.91	0.602	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.800	42.920	1.618	2770.0	2345.7	35.414	3.895	2.64		Clay	74.2			40.57	0.97	n.a.	n.a.	0.91	0.603	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.970	33.160	1.582	2791.3	2356.3	26.961	4.980	2.80		Clay	86.9			31.34	0.97	n.a.	n.a.	0.91	0.605	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.130	31.870	1.611	2811.3	2366.3	25.748	5.287	2.83		Clay	89.5			30.12	0.97	n.a.	n.a.	0.91	0.606	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.290	50.810	1.218	2831.3	2376.4	44.055	2.465	2.44		Sand	57.9	138.16	1.25	172.70	0.97	167.49	262.19	0.91	0.607	0.965	623.359	1323.648	2181.14	0.00	0.00
23.460	77.880	0.841	2852.5	2387.0	68.037	1.100	2.07		Sand	28.4	138.16	1.25	172.70	0.97	166.81	232.99	0.91	0.608	0.964	21.575	45.750	75.25	0.00	0.00
23.620	110.810	0.812	2872.5	2397.0	97.129	0.742	1.84		Sand	10.2	138.16	1.25	172.70	0.96	165.04	175.41	0.91	0.609	0.975	0.609	1.196	1.96	0.00	0.00
23.790	143.460	0.752	2893.8	2407.7	125.836	0.530	1.66		Sand	0.0	138.16	1.25	172.70	0.95	164.42	164.42	0.91	0.610	0.976	0.422	0.763	1.25	0.00	0.01
23.950	146.170	0.708	2913.8	2417.7	127.962	0.489	1.64		Sand	0.0	138.16	1.25	172.70	0.95	164.16	164.16	0.91	0.611	0.976	0.418	0.755	1.23	0.01	0.01
24.110	129.470	0.790	2933.8	2427.7	112.953	0.617	1.74		Sand	2.2	122.37	1.25	152.97	0.94	144.54	144.54	0.90	0.612	0.979	0.256	0.403	0.66	0.02	0.03
24.280	122.490	0.938	2955.0	2438.3	106.551	0.775	1.82		Sand	8.6	115.78	1.25	144.73	0.94	136.40	141.20	0.90	0.613	0.979	0.240	0.369	0.60	0.02	0.03
24.440	104.470	0.536	2975.0	2448.3	90.490	0.520	1.78		Sand	5.4	98.74	1.25	123.43	0.93	115.33	115.61	0.90	0.614	0.982	0.162	0.216	0.35	0.03	0.03
24.610	93.580	0.566	2996.3	2459.0	80.736	0.615	1.86		Sand	11.8	88.45	1.25	110.56	0.93	103.12	116.32	0.90	0.615	0.982	0.163	0.218	0.35	0.03	0.03
24.770	76.600	0.847	3016.3	2469.0	65.706	1.128	2.09		Sand	29.8	72.4	1.25	90.50	0.94	84.75	137.00	0.90	0.616	0.978	0.222	0.332	0.54	0.02	0.03
24.930	85.310	0.936	3036.3	2479.0	73.170	1.117	2.05		Sand	26.7	80.63	1.25	100.79	0.94	94.41	143.94	0.90	0.617	0.976	0.253	0.396	0.64	0.02	0.03
25.100	115.490	1.134	3057.5	2489.7	99.302	0.995	1.91		Sand	15.9	109.16	1.25	136.45	0.94	128.01	156.43	0.90	0.618	0.972	0.337	0.573	0.93	0.01	0.01
25.260	118.060	0.771	3077.5	2499.7	101.329	0.662	1.80		Sand	6.7	111.59	1.25	139.49	0.93	129.71	131.08	0.90	0.619	0.977	0.201	0.290	0.47	0.02	0.03
25.430	75.520	0.612	3098.8	2510.3	64.190	0.827	2.01		Sand	24.2	111.59	1.25	139.49	0.94	131.31	182.63	0.90	0.620	0.963	0.809	1.662	2.68	0.00	0.00
25.590	39.920	0.846	3118.8	2520.3	33.222	2.204	2.50		Sand	62.8	111.59	1.25	139.49	0.95	132.24	219.11	0.90	0.621	0.948	6.660	13.883	22.37	0.00	0.00
25.750	24.050	1.081	3138.8	2530.4	17.769	4.807	2.92		Clay	96.9			22.73	0.95	n.a.	n.a.	0.90	0.622	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.920	20.670	0.958	3160.0	2541.0	15.026	5.017	2.99		Clay	100.0			19.54	0.95	n.a.	n.a.	0.89	0.622	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.080	19.040	0.614	3180.0	2551.0	13.681	3.520	2.93		Clay	97.2			18.00	0.95	n.a.	n.a.	0.89	0.623	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.250	46.180	0.533	3201.3	2561.7	38.295	1.195	2.29		Sand	46.2			43.65	0.91	39.59	94.43	0.89	0.624	0.981	0.130	0.158	0.25	0.03	0.04
26.410	42.540	0.682	3221.3	2571.7	35.091	1.665	2.40		Sand	55.4			40.21	0.90	36.39	93.94	0.89	0.625	0.980	0.130	0.157	0.25	0.03	0.04
26.570	19.480	0.671	3241.3	2581.7	13.835	3.758	2.94		Clay	98.2			18.41	0.95	n.a.	n.a.	0.89	0.626	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.740	14.640	0.545	3262.5	2592.3	10.036	4.189	3.08		Clay	100.0			13.84	0.95	n.a.	n.a.	0.89	0.626	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.900	12.460	0.342	3282.5	2602.3	8.315	3.157	3.08		Clay	100.0			11.78	0.95	n.a.	n.a.	0.89	0.627	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.070	11.050	0.314	3303.8	2613.0	7.193	3.345	3.14		Clay	100.0			10.44	0.95	n.a.	n.a.	0.89	0.628	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.230	11.190	0.365	3323.8	2623.0	7.265	3.832	3.17		Clay	100.0			10.58	0.94	n.a.	n.a.	0.89	0.629	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.400	12.980	0.443	3345.0	2633.6	8.587	3.920	3.12		Clay	100.0			12.27	0.94	n.a.	n.a.	0.89	0.629	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.560	12.380	0.401	3365.0	2643.7	8.093	3.749	3.13		Clay	100.0			11.70	0.94	n.a.	n.a.	0.89	0.630	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.720	11.330	0.346	3385.0	2653.7	7.264	3.594	3.16		Clay	100.0			10.71	0.94	n.a.	n.a.	0.88	0.631	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.890	12.270	0.289	3406.3	2664.3	7.932	2.733	3.06		Clay	100.0			11.60	0.94	n.a.	n.a.	0.88	0.631	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.050	12.200	0.368	3426.3	2674.3	7.843	3.506	3.12		Clay	100.0			11.53	0.94	n.a.	n.a.	0.88	0.632	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.220	11.960	0.474	3447.5	2685.0	7.625	4.629	3.20		Clay	100.0			11.30	0.94	n.a.	n.a.	0.88	0.633	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.380	10.270	0.491	3467.5	2695.0	6.335	5.753	3.32		Clay	100.0			9.71	0.94	n.a.	n.a.	0.88	0.633	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.540	7.970	0.407	3487.5	2705.0	4.604	6.530	3.47		Clay	100.0			7.53	0.94	n.a.	n.a.	0.88	0.634	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.710	7.190	0.376	3508.8	2715.6	4.003	6.917	3.53		Clay	100.0			6.80	0.94	n.a.	n.a.	0.88	0.635	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.870	7.620	0.421	3528.8	2725.7	4.297	7.191	3.52		Clay	100.0			7.20	0.94	n.a.	n.a.	0.88	0.635	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.040	7.880	0.419	3550.0	2736.3	4.462	6.860	3.49		Clay	100.0			7.45	0.93	n.a.	n.a.	0.88	0.636	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.200	7.330	0.398	3570.0	2746.3	4.038	7.178	3.54		Clay	100.0			6.93	0.93	n.a.	n.a.	0.88	0.636	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.360	8.200	0.413	3590.0	2756.3	4.647	6.451	3.46		Clay	100.0			7.75	0.93	n.a.	n.a.	0.88	0.637	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.530	7.960	0.411	3611.3	2767.0	4.448	6.677	3.48		Clay	100.0			7.52	0.93	n.a.	n.a.	0.87	0.637	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.690	7.980	0.446	3631.3	2777.0	4.440	7.227	3.51		Clay	100.0			7.54	0.93	n.a.	n.a.	0.87	0.638	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.860	7.420	0.391	3652.5	2787.6	4.013	6.990	3.53		Clay	100.0			7.01	0.93	n.a.	n.a.	0.87	0.638	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.020	7.130	0.351	3672.5	2797.7	3.784	6.623	3.54		Clay	100.0			6.74	0.93	n.a.	n.a.	0.87	0.639	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.180	6.840	0.219	3692.5	2807.7	3.557	4.387	3.46		Clay	100.0			6.47	0.93	n.a.	n.a.	0.87	0.639	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.350	6.470	0.257	3713.8	2818.3	3.274	5.578	3.55		Clay	100.0			6.12	0.93	n.a.	n.a.	0.87	0.640	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.510	5.640	0.083	3733.8	2828.3	2.668	2.202	3.42		Clay	100.0			5.33	0.93	n.a.	n.a.	0.87	0.640	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.680	8.130	0.329	3755.0	2839.0	4.405	5.259	3.43		Clay	100.0			7.68	0.93	n.a.	n.a.	0.87	0.641	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.840	5.990	0.306	3775.0	2849.0	2.880	7.449	3.67		Clay	100.0			5.66	0.92	n.a.	n.a.	0.87	0.641	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.000	9.410	0.315	3795.0	2859.0	5.255	4.189	3.31		Clay	100.0			8.89	0.92	n.a.	n.a.	0.87	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.170	8.430	0.360	3816.3	2869.6	4.545	5.524	3.43		Clay	100.0			7.97	0.92	n.a.	n.a.	0.87	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.330	8.950	0.444	3836.3	2879.7	4.884	6.318	3.44		Clay	100.0			8.46	0.92	n.a.	n.a.	0.86	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.500	9.710	0.513	3857.5	2890.3	5.384	6.586	3.41		Clay	100.0			9.18	0.92	n.a.	n.a.	0.86	0.643	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.660	12.150	0.602	3877.5	2900.3	7.041	5.897	3.29		Clay	100.0			11.48	0.92	n.a.	n.a.	0.86	0.643	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.820	12.420	0.684	3897.5	2910.3	7.196	6.533	3.31		Clay	100.0			11.74	0.92	n.a.	n.a.	0.86	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.990	11.900	0.689	3918.8	2921.0	6.806	6.935	3.35		Clay	100.0			11.25	0.92	n.a.	n.a.	0.86	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.150	10.980	0.607	3938.8	2931.0	6.149	6.738	3.37		Clay	100.0			10.38	0.92	n.a.	n.a.	0.86	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.320	10.280	0.548	3960.0	2941.6	5.643	6.596	3.40		Clay	100.0			9.72	0.92	n.a.	n.a.	0.86	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.480	9.820	0.502	3980.0	2951.6	5.306	6.416	3.41		Clay	100.0			9.28	0.92	n.a.	n.a.	0.86	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.640	9.890	0.500	4000.0	2961.7	5.328	6.331	3.41		Clay	100.0			9.35	0.92	n.a.	n.a.	0.86	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.810	9.890	0.503	4021.3	2972.3	5.302	6.385	3.41		Clay	100.0			9.35	0.91	n.a.	n.a.	0.86	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.970	9.690	0.466	4041.3	2982.3	5.143	6.079	3.41		Clay	100.0			9.16	0.91	n.a.	n.a.	0.86	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00

CORNERSTONE EARTH GROUP

CPT No. 5

PGA (A_{max}) 0.84

Total Settlement: 0.47 (Inches)

© 2014 Cornerstone Earth Group, Inc.

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_H)	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)
33.140	10.090	0.446	4062.5	2993.0	5.385	5.532	3.37		Clay	100.0			9.54	0.91	n.a.	n.a.	0.85	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.300	10.550	0.428	4082.5	3003.0	5.667	5.029	3.33		Clay	100.0			9.97	0.91	n.a.	n.a.	0.85	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.460	10.600	0.426	4102.5	3013.0	5.675	4.982	3.32		Clay	100.0			10.02	0.91	n.a.	n.a.	0.85	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.630	10.300	0.372	4123.8	3023.6	5.449	4.513	3.31		Clay	100.0			9.74	0.91	n.a.	n.a.	0.85	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.790	10.330	0.376	4143.8	3033.7	5.444	4.556	3.32		Clay	100.0			9.76	0.91	n.a.	n.a.	0.85	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.960	10.410	0.404	4165.0	3044.3	5.471	4.845	3.33		Clay	100.0			9.84	0.91	n.a.	n.a.	0.85	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.120	10.060	0.375	4185.0	3054.3	5.217	4.712	3.34		Clay	100.0			9.51	0.91	n.a.	n.a.	0.85	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.280	9.960	0.326	4205.0	3064.3	5.128	4.148	3.32		Clay	100.0			9.41	0.91	n.a.	n.a.	0.85	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.450	10.110	0.370	4226.3	3075.0	5.201	4.629	3.34		Clay	100.0			9.56	0.91	n.a.	n.a.	0.85	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.610	9.470	0.329	4246.3	3085.0	4.763	4.478	3.36		Clay	100.0			8.95	0.91	n.a.	n.a.	0.85	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.780	9.470	0.321	4267.5	3095.6	4.740	4.374	3.36		Clay	100.0			8.95	0.90	n.a.	n.a.	0.84	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.940	10.140	0.366	4287.5	3105.6	5.149	4.576	3.34		Clay	100.0			9.58	0.90	n.a.	n.a.	0.84	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.100	9.800	0.331	4307.5	3115.7	4.908	4.329	3.34		Clay	100.0			9.26	0.90	n.a.	n.a.	0.84	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.270	9.370	0.273	4328.8	3126.3	4.610	3.787	3.33		Clay	100.0			8.86	0.90	n.a.	n.a.	0.84	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.430	10.190	0.285	4348.8	3136.3	5.111	3.557	3.28		Clay	100.0			9.63	0.90	n.a.	n.a.	0.84	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.600	13.600	0.426	4370.0	3147.0	7.255	3.728	3.17		Clay	100.0			12.85	0.90	n.a.	n.a.	0.84	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.760	17.940	0.641	4390.0	3157.0	9.975	4.074	3.07		Clay	100.0			16.96	0.90	n.a.	n.a.	0.84	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.930	19.670	0.813	4411.3	3167.6	11.027	4.656	3.08		Clay	100.0			18.59	0.90	n.a.	n.a.	0.84	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.090	20.150	0.918	4431.3	3177.6	11.288	5.116	3.09		Clay	100.0			19.05	0.90	n.a.	n.a.	0.84	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.250	20.010	0.951	4451.3	3187.7	11.158	5.348	3.11		Clay	100.0			18.91	0.90	n.a.	n.a.	0.84	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.420	19.780	0.848	4472.5	3198.3	10.971	4.831	3.09		Clay	100.0			18.70	0.90	n.a.	n.a.	0.84	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.580	19.900	0.741	4492.5	3208.3	11.005	4.195	3.05		Clay	100.0			18.81	0.90	n.a.	n.a.	0.83	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.750	20.670	0.812	4513.8	3219.0	11.440	4.407	3.05		Clay	100.0			19.54	0.90	n.a.	n.a.	0.83	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.910	22.030	0.924	4533.8	3229.0	12.241	4.673	3.04		Clay	100.0			20.82	0.89	n.a.	n.a.	0.83	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.070	23.820	1.085	4553.8	3239.0	13.302	5.038	3.03		Clay	100.0			22.51	0.89	n.a.	n.a.	0.83	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.240	25.840	1.167	4575.0	3249.6	14.496	4.954	3.00		Clay	100.0			24.42	0.89	n.a.	n.a.	0.83	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.400	25.410	1.126	4595.0	3259.6	14.181	4.871	3.00		Clay	100.0			24.02	0.89	n.a.	n.a.	0.83	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.570	25.660	1.103	4616.3	3270.3	14.281	4.723	2.99		Clay	100.0			24.25	0.89	n.a.	n.a.	0.83	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.730	25.900	1.072	4636.3	3280.3	14.378	4.547	2.98		Clay	100.0			24.48	0.89	n.a.	n.a.	0.83	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.890	25.900	1.136	4656.3	3290.3	14.328	4.819	3.00		Clay	100.0			24.48	0.89	n.a.	n.a.	0.83	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.060	25.910	1.220	4677.5	3301.0	14.281	5.176	3.02		Clay	100.0			24.49	0.89	n.a.	n.a.	0.83	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.220	27.000	1.204	4697.5	3311.0	14.891	4.884	2.99		Clay	100.0			25.52	0.89	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.390	26.830	1.182	4718.8	3321.6	14.734	4.828	2.99		Clay	100.0			25.36	0.89	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.550	26.870	1.165	4738.8	3331.6	14.708	4.756	2.98		Clay	100.0			25.40	0.89	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.710	27.350	1.212	4758.8	3341.6	14.945	4.855	2.98		Clay	100.0			25.85	0.89	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.880	24.710	1.195	4780.0	3352.3	13.316	5.356	3.05		Clay	100.0			23.36	0.89	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.040	22.900	1.027	4800.0	3362.3	12.194	5.010	3.06		Clay	100.0			21.64	0.88	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.210	25.140	0.922	4821.3	3372.9	13.477	4.054	2.97		Clay	100.0			23.76	0.88	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.370	23.980	0.941	4841.3	3383.0	12.746	4.365	3.01		Clay	100.0			22.67	0.88	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.530	21.460	0.960	4861.3	3393.0	11.217	5.045	3.09		Clay	100.0			20.28	0.88	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.700	18.160	0.913	4882.5	3403.6	9.236	5.806	3.20		Clay	100.0			17.16	0.88	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.860	17.290	0.838	4902.5	3413.6	8.694	5.646	3.21		Clay	100.0			16.34	0.88	n.a.	n.a.	0.82	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.030	17.940	0.777	4923.8	3424.3	9.040	5.022	3.16		Clay	100.0			16.96	0.88	n.a.	n.a.	0.81	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.190	17.750	0.814	4943.8	3434.3	8.897	5.327	3.18		Clay	100.0			16.78	0.88	n.a.	n.a.	0.81	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.350	18.160	0.890	4963.8	3444.3	9.104	5.677	3.19		Clay	100.0			17.16	0.88	n.a.	n.a.	0.81	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.520	16.640	0.941	4985.0	3455.0	8.190	6.651	3.27		Clay	100.0			15.73	0.88	n.a.	n.a.	0.81	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.680	15.130	0.845	5005.0	3465.0	7.289	6.689	3.31		Clay	100.0			14.30	0.88	n.a.	n.a.	0.81	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.850	14.730	0.758	5026.3	3475.6	7.030	6.206	3.31		Clay	100.0			13.92	0.88	n.a.	n.a.	0.81	0.651	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.010	16.280	0.743	5046.3	3485.6	7.893	5.399	3.23		Clay	100.0			15.39	0.88	n.a.	n.a.	0.81	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.170	17.300	0.869	5066.3	3495.6	8.449	5.888	3.23		Clay	100.0			16.35	0.88	n.a.	n.a.	0.81	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.340	17.690	0.923	5087.5	3506.3	8.639	6.091	3.23		Clay	100.0			16.72	0.88	n.a.	n.a.	0.81	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.500	17.550	0.856	5107.5	3516.3	8.530	5.711	3.22		Clay	100.0			16.59	0.87	n.a.	n.a.	0.81	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.670	16.730	0.710	5128.8	3526.9	8.033	5.010	3.20		Clay	100.0			15.81	0.87	n.a.	n.a.	0.80	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.830	17.590	0.676	5148.8	3537.0	8.491	4.502	3.16		Clay	100.0			16.63	0.87	n.a.	n.a.	0.80	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.990	17.850	0.711	5168.8	3547.0	8.608	4.658	3.16		Clay	100.0			16.87	0.87	n.a.	n.a.	0.80	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.160	17.850	0.807	5190.0	3557.6	8.576	5.289	3.20		Clay	100.0			16.87	0.87	n.a.	n.a.	0.80	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.320	20.470	0.901	5210.0	3567.6	10.015	5.041	3.13		Clay	100.0			19.35	0.87	n.a.	n.a.	0.80	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.490	21.630	0.926	5231.3	3578.3	10.628	4.872	3.10		Clay	100.0			20.44	0.87	n.a.	n.a.	0.80	0.650	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.650	21.870	0.897	5251.3	3588.3	10.726	4.663	3.09		Clay	100.0			20.67	0.87	n.a.	n.a.	0.80	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.810	21.600	0.848	5271.3	3598.3	10.541	4.472	3.08		Clay	100.0			20.42	0.87	n.a.	n.a.	0.80	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.980	22.280	0.846	5292.5	3608.9	10.881	4.308	3.06		Clay	100.0			21.06	0.87	n.a.	n.a.	0.80	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.140	23.230	0.941	5312.5	3619.0	11.370	4.572	3.06		Clay	100.0			21.96	0.87	n.a.	n.a.	0.80	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.310	24.660	1.009	5333.8	3629.6	12.119	4.589	3.04		Clay	100.0			23.31	0.87	n.a.	n.a.	0.80	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.470	26.520	1.153	5353.8	3639.6	13.102	4.835	3.03		Clay	100.0			25.07	0.87	n.a.	n.a.	0.79	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.640	27.080	1.397	5375.0	3650.3	13.365	5.727	3.07		Clay	100.0			25.60	0.87	n.a.	n.a.	0.79	0.649	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.800	26.310	1.513	5395.0	3660.3	12.902	6.408	3.11		Clay	100.0			24.87	0.87	n.a.	n.a.	0.79	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.960	24.540	1.495	5415.0	3670.3	11.897	6.849	3.16		Clay	100.0			23.19	0.86	n.a.	n.a.	0.79	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00

CORNERSTONE EARTH GROUP

CPT No. 5

PGA (A_{max}) 0.84

Total Settlement: 0.47 (Inches)

© 2014 Cornerstone Earth Group, Inc.

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_H)	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)
44.130	22.270	1.338	5436.3	3680.9	10.623	6.844	3.19		Clay	100.0			21.05	0.86	n.a.	n.a.	0.79	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.290	20.020	1.133	5456.3	3691.0	9.370	6.552	3.22		Clay	100.0			18.92	0.86	n.a.	n.a.	0.79	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.460	17.760	0.935	5477.5	3701.6	8.116	6.221	3.26		Clay	100.0			16.79	0.86	n.a.	n.a.	0.79	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.620	16.690	0.850	5497.5	3711.6	7.512	6.098	3.28		Clay	100.0			15.78	0.86	n.a.	n.a.	0.79	0.648	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.780	15.950	0.739	5517.5	3721.6	7.089	5.604	3.28		Clay	100.0			15.08	0.86	n.a.	n.a.	0.79	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.950	18.810	0.604	5538.8	3732.3	8.596	3.768	3.11		Clay	100.0			17.78	0.86	n.a.	n.a.	0.79	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.110	17.690	0.603	5558.8	3742.3	7.969	4.042	3.15		Clay	100.0			16.72	0.86	n.a.	n.a.	0.78	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.280	15.200	0.607	5580.0	3752.9	6.614	4.891	3.27		Clay	100.0			14.37	0.86	n.a.	n.a.	0.78	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.440	13.010	0.597	5600.0	3762.9	5.427	5.849	3.38		Clay	100.0			12.30	0.86	n.a.	n.a.	0.78	0.647	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.600	11.580	0.469	5620.0	3773.0	4.649	5.347	3.41		Clay	100.0			10.95	0.86	n.a.	n.a.	0.78	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.770	12.160	0.353	5641.3	3783.6	4.937	3.779	3.31		Clay	100.0			11.49	0.86	n.a.	n.a.	0.78	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.930	12.660	0.324	5661.3	3793.6	5.182	3.297	3.26		Clay	100.0			11.97	0.86	n.a.	n.a.	0.78	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.100	12.580	0.300	5682.5	3804.3	5.120	3.077	3.25		Clay	100.0			11.89	0.86	n.a.	n.a.	0.78	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.260	13.330	0.330	5702.5	3814.3	5.494	3.147	3.23		Clay	100.0			12.60	0.86	n.a.	n.a.	0.78	0.646	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.420	14.540	0.287	5722.5	3824.3	6.108	2.453	3.13		Clay	100.0			13.74	0.86	n.a.	n.a.	0.78	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.590	13.800	0.335	5743.8	3834.9	5.699	3.063	3.21		Clay	100.0			13.04	0.85	n.a.	n.a.	0.78	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.750	16.050	0.493	5763.8	3845.0	6.850	3.740	3.19		Clay	100.0			15.17	0.85	n.a.	n.a.	0.78	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.920	22.100	0.511	5785.0	3855.6	9.963	2.661	2.97		Clay	100.0			20.89	0.85	n.a.	n.a.	0.77	0.645	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.080	24.480	0.814	5805.0	3865.6	11.164	3.771	3.02		Clay	100.0			23.14	0.85	n.a.	n.a.	0.77	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.240	27.240	0.778	5825.0	3875.6	12.554	3.198	2.93		Clay	97.6			25.75	0.85	n.a.	n.a.	0.77	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.410	32.850	0.961	5846.3	3886.3	15.401	3.210	2.86		Clay	92.0			31.05	0.85	n.a.	n.a.	0.77	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.570	33.420	0.899	5866.3	3896.3	15.649	2.950	2.83		Clay	89.7			31.59	0.85	n.a.	n.a.	0.77	0.644	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.740	32.350	1.033	5887.5	3906.9	15.053	3.512	2.89		Clay	94.5			30.58	0.85	n.a.	n.a.	0.77	0.643	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.900	25.860	1.004	5907.5	3916.9	11.696	4.385	3.04		Clay	100.0			24.44	0.85	n.a.	n.a.	0.77	0.643	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.060	23.750	1.039	5927.5	3927.0	10.586	4.996	3.11		Clay	100.0			22.45	0.85	n.a.	n.a.	0.77	0.643	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.230	34.470	1.379	5948.8	3937.6	15.997	4.377	2.93		Clay	97.6			32.58	0.85	n.a.	n.a.	0.77	0.643	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.390	38.960	1.766	5968.8	3947.6	18.227	4.908	2.92		Clay	96.7			36.82	0.85	n.a.	n.a.	0.77	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.560	39.900	2.084	5990.0	3958.3	18.647	5.647	2.95		Clay	99.3			37.71	0.85	n.a.	n.a.	0.77	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.720	40.570	2.087	6010.0	3968.3	18.933	5.555	2.94		Clay	98.5			38.35	0.85	n.a.	n.a.	0.76	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.880	41.130	2.468	6030.0	3978.3	19.162	6.475	2.99		Clay	100.0			38.88	0.85	n.a.	n.a.	0.76	0.642	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.050	41.460	2.597	6051.3	3988.9	19.271	6.757	3.00		Clay	100.0			39.19	0.85	n.a.	n.a.	0.76	0.641	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.210	41.550	2.530	6071.3	3998.9	19.262	6.568	2.99		Clay	100.0			39.27	0.85	n.a.	n.a.	0.76	0.641	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.380	41.450	2.476	6092.5	4009.6	19.156	6.448	2.98		Clay	100.0			39.18	0.84	n.a.	n.a.	0.76	0.641	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.540	40.780	2.359	6112.5	4019.6	18.770	6.253	2.98		Clay	100.0			38.54	0.84	n.a.	n.a.	0.76	0.640	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.700	39.980	2.260	6132.5	4029.6	18.321	6.123	2.98		Clay	100.0			37.79	0.84	n.a.	n.a.	0.76	0.640	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.870	37.340	2.199	6153.8	4040.3	16.961	6.417	3.02		Clay	100.0			35.29	0.84	n.a.	n.a.	0.76	0.640	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.030	35.670	2.000	6173.8	4050.3	16.089	6.139	3.03		Clay	100.0			33.71	0.84	n.a.	n.a.	0.76	0.640	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.200	11.380	0.559	6195.0	4060.9	4.079	6.754	3.52		Clay	100.0			10.76	0.84	n.a.	n.a.	0.76	0.639	n.a.	n.a.	n.a.	n.a.	0.00	0.00