ATTACHMENT 4

Copy of Project's Geotechnical Report

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August 26, 2021 CTE Job No. 60-0921G

Mr. Chris Pullara,
RM Southern CA Automotive Operations
Corporate Director Finance Operations
Cardinale Automotive Group

Subject: Geotechnical Engineering Investigation
San Bruno Genesis Hyundai
Commodore Drive
San Bruno, CA 94066

Mr. Chris Pullara:

As requested, CTE CAL Inc. has performed a preliminary soil investigation for the referenced project and project site. The attached report discusses the findings of our investigation activities and provides geotechnical recommendations for use during project design and construction. The project is considered feasible if the recommendations presented in this report are carried out.

If you have any questions regarding our findings or recommendations, please do not hesitate to contact this office. The opportunity to be of service is appreciated.

Respectfully Submitted,

CTE CAL Inc.

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GEOTECHNICAL ENGINEERING INVESTIGATION
SAN BRUNO GENESIS HYUNDAI
COMMODORE DRIVE
SAN BRUNO, CA 94066

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CTE JOB NO.: 60-0921G **AUGUST 26, 2021**

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1.0 INTRODUCTION AND SCOPE OF SERVICES

1.1 Introduction

This report presents the results of CTE's geotechnical engineering investigation and provides conclusions and design criteria for the proposed development consisting of the construction of a four-level cast-in-place concrete facility with a possible two-level basement. The project is to be constructed at Commodore Drive in San Bruno, California. The report provides conclusions and recommendations regarding the geotechnical design parameters and construction recommendations for the proposed development.

The investigation contained herein included surface and subsurface field explorations, laboratory testing of site soil deposits, geologic and seismic hazard evaluation of the project site, and engineering evaluation and analysis of the proposed project site and improvements. Based on the results of the investigation and analysis performed by CTE the project is considered feasible if the recommendations contained herein are incorporated into the design and construction of the project. References utilized in the investigation and analyses cited are presented in Appendix A.

1.2 Scope of Services

The scope of services provided for this preliminary investigation included:

- Review of readily available geologic reports and documents pertinent to the site area.
- Explorations to determine subsurface conditions to the depths influenced by the proposed construction.
- Laboratory testing of representative soil samples to provide data to evaluate the geotechnical design characteristics of the site foundation soils.
- Determination of the general geology and evaluation of potential geologic seismic hazards at the site.
- Preparation of this report describing the investigations performed and providing opinions/conclusions and geotechnical engineering recommendations for design and construction.

2.0 SITE LOCATION AND PROJECT DESCRIPTION

The project site is located at Commodore Drive in San Bruno, California. The site is positioned on two parcels (APN 020-013-250 and 020-013-0260) totaling approximately 1.5 acres. At the time of our investigation, the site was undeveloped and consisted of a fenced gravel parking lot as well as a fenced verdant field. The project site is bound by Interstate 380 onramp to the South and East, Commodore Drive to the West, and a restaurant and associated paved parking lot to the North.

The project is proposed to consist of designing and constructing a six-level cast-in-place concrete facility with a possible basement on the currently undeveloped site. Figure 1, Site Index Map, at the end of this report, shows the general location of the site. Figure 2, Exploration Map, shows the configuration of the proposed project.

3.0 FIELD AND LABORATORY INVESTIGATION

3.1 Field Investigations

The field exploration program included performing a site reconnaissance, excavating six exploratory borings. The field explorations were excavated to determine the geomorphological and geotechnical characteristics of subsurface deposits and to determine the subsurface suitability for storm water disposal at the site areas proposed for new construction. Representative samples of the soil deposits were obtained from the borings for use in laboratory testing to determine the geotechnical engineering properties and parameters recommended for design. The borings (designated B-1 through B-6), were excavated using a truck-mounted drill rig using four-inch outer diameter solid stem flight augers to the maximum depth drilled of approximately 50 feet below existing ground surface (bgs).

The field subsurface exploration program included performing Standard Penetration Tests (SPT) using a standard split barrel (1.4-inch inside diameter, 2-inch outside diameter) sampler which was operated in accordance with ASTM D-1586. The drive sampler was utilized to obtain samples of the subsurface soils at depth intervals of 2.5-ft, 5-ft, and every 5-ft to 50-ft by driving the sampler into the bottom of the borehole with successive blows of an automatically tripped 140-pound hammer

free-falling 30 inches. The number of blows required to drive the sampler each six-inch interval (three intervals for 18 inches in total) of sampler penetration was recorded and are shown on the test boring logs (attached as Appendix B). The results of the drive sampler testing are shown on the boring logs in the column labeled "Blows/ 6 Inches". The standard penetration blow counts (N) were corrected and used during the geotechnical engineering evaluation and analysis to correlate soil strength and structure bearing characteristics.

Cone Penetration Tests (CPT) were advanced in (4) locations to quantify subsurface soil characteristics and determine Soil Behavior Type (SBT) in accordance with Robertson (2016) guidelines. CPT testing measures tip resistance, skin friction, and pore water pressure and uses statistical and empirical correlation methods to quantify soil engineering characteristics.

The purpose of the CPT exploration program was to determine the extent of loose, saturated sands encountered during the SPT soil boring investigation. CPT soundings reached a depth of approximately 50 ft below grade and was used to evaluated the subsurface for geological hazards. The results of these evaluations are presented in the following sections.

Soils were logged in the field by a CTE Field Geologist and were classified according to the Unified Soil Classification System (ASTM D2487), sampler drive resistance, field testing, and visual observations. Exploration logs prepared for each of the borings provides soil descriptions, field in-situ test results, and blow count (N) data. The boring logs are included in Appendix B which contains the Boring Log Legend and Definition of Soil Terminology as shown on Plates BL1 and BL2, respectively. The locations of the test borings are shown on Figure 2 at the end of this report.

Relatively undisturbed soil samples were obtained from the drive sampler during exploration activities. The samples were collected in capped, stainless steel sample tubes or placed in zip lock plastic bags. Bulk soil samples were recovered directly from drill cuttings or were obtained from surface deposits and placed in sample bags. Upon completion of drilling, the borings were backfilled

and observed by a San Mateo County Inspector from final boring depth up to original ground surface.

Soil samples were then transported to CTE's laboratory for further testing. Field descriptions within the boring logs have been modified, where appropriate, to reflect laboratory test results. Upon completion of drilling, the borings were backfilled from final boring depth to original ground surface. Details of the soils encountered are shown on the Boring Logs which are presented in Appendix B.

3.2 Laboratory Investigations

Laboratory tests were conducted on representative soil samples for classification purposes and to evaluate their physical properties and engineering characteristics. Laboratory tests conducted on representative soil samples collected from the borings included in situ moisture content, dry density, relative fines content, expansion index, Atterberg Limits, and R-Value. Test method descriptions and laboratory test results are presented in Appendix C.

4.0 GEOLOGY

4.1 General Geologic Setting

The site is located on the southern end of San Francisco Peninsula, which is part of the Coast Ranges Province. The Coast Ranges Province are a series of parallel ranges running northwest to southeast. The Coast Ranges are relatively young formations dating from the Jurassic period through the Pleistocence epoch. They are dominated by northwest trending, sedimentary foundations. These foundations are a result of collisions between the North American plate and the Pacific Ocean plate, which formed mountains and valleys. Plate boundary fault movements in this area are mostly concentrated along the San Andreas, Hayward, and Calaveras faults, with the San Andreas fault lying due west of the site.

Based on geologic reconnaissance and observations made in the test borings, alluvial materials encountered during the investigation are considered consistent with Quaternary deposits as shown on

the California Geological Survey, Geologic Data Map, prepared by Charles W. Jennings (1977). The mapped area shows two surficial geological unit, Holocene Alluvium Deposits (Q) and Marine and non-marine sand deposits (Qs). Native soils, as encountered in our explorations and described below, are consistent with the alluvial fan deposits described on published geologic mapping.

4.2 Generalized Soil Conditions

Soil materials encountered in our site explorations are generally consistent with the above referenced published geologic mapping. The native alluvial deposits encountered generally consisted of interbedded medium to very dense clayey sands (SC), medium stiff to hard and low plastic sandy clay (CL) to the maximum depth explored of approximately 50.0 feet below existing ground surface.

Since the earth material profile described above is generalized, the reader is advised to consult the Test Boring Logs contained in Appendix B, if determination of the earth material conditions at a specific depth and location are desired. The boring logs contain a more detailed earth material description regarding color, earth material type, and Unified Soil Classification System (USCS) symbol. It should be noted that earth material conditions cannot be fully determined by test borings and earth material sampling and testing. Hence, unexpected earth material conditions might be encountered during construction. If soil deposits encountered during construction vary substantially from materials encountered during the investigation, appropriate recommendations will be made during construction.

No evidence of soil contamination was observed through visual field techniques during the time of investigation.

4.3 Groundwater Conditions

Observations of groundwater conditions were made in the test borings at the time of field exploration. Groundwater was observed in the borings at 35 feet bgs in B-4. Based on information contained on the California Department of Water Resources Sustainable Groundwater Management

Program site, ground water levels measured in monitoring wells at nearby sites are typically 28 feet below ground surface, (https://nwis.waterdata.usgs.gov/ca/nwis/gwlevels/?site_no=374004122092103). With proper drainage groundwater is not expected to affect the proposed development. However, excavations below groundwater level will be impacted by seepage; therefore, we recommend grading and utility excavations be performed during dry season when ground water levels are lowest.

If construction is undertaken during wet-season/heavy-rains, saturated soils will not be expected to be acceptable for grading or compaction and could hamper progress due to limited equipment mobility and/or inability to achieve appropriate moisture content to achieve required soil compaction. Saturated soils resulting from significant precipitation events may need to be dried by aeration or an additive, such as lime, cement, or kiln dust added to stabilize the working surface and allow for proper soil compaction. Moisture conditioning (drying or wetting) of the engineered fill will likely be needed for the project. Appropriate erosion control and permanent site surface drainage elements per the latest California Building Code should be designed and implemented as per the project civil engineer.

4.4 General Geologic Hazards Observation

Based on the investigation it appears that geologic hazards at the site are primarily limited to those caused by violent shaking from earthquake generated ground motions. The California Geological Survey regulatory zone map depicts areas for fault rupture, liquefaction, and seismic landslide hazards in California. At the time of the investigation the subject site was in an area that had not been evaluated for susceptibility to liquefactions or landslides induced by seismic activity. In addition, the subject site was not mapped in an Alquist-Priolo special studies zone either.

The project site is in close proximity to an active fault line and liquefaction zone. According to the California Division of Mines and Geology, a fault is active if it displays evidence of activity in the last 11,000 years (Hart and Bryant, revised 2007). The area for proposed improvements is approximately 2 miles away from the San Andreas fault, which has historic displacement in the past

200 years. In addition to this, the site is roughly 1 mile away from a mapped liquefaction zone. Therefore, the potential for displacement or fault movement and subsequent liquefaction are considered be potential hazards beneath the project site.

4.5 Local and Regional Faulting

The California Geological Survey (CGS) and the United States Geological Survey (USGS) broadly group faults as "Class A" or "Class B". Class A faults are identified based upon relatively well-defined paleoseismic activity, and a fault-slip rate of more than 5 millimeters per year (mm/yr). In contrast, Class B faults have comparatively less defined paleoseismic activity and typically have a fault-slip rate less than 5 mm/yr. The nearest known Class A fault is the San Andreas; SAP located approximately 2.07 miles from the site and the nearest known Class B fault is the Monte Vista-Shannon located 15.86 miles from the site (U.S. Geological Survey (CGS), 2006, Quaternary fault and fold database for the United States, accessed 7/22/19, from USGS web site: (https://earthquake.usgs.gov/cfusion/hazfaults_2008_search/query_results.cfm). Information for other principal regional faults is included in Table 4.5 below.

TABLE 4.5
NEAR SITE FAULT PARAMETERS

FAULT NAME	DISTANCE FROM SITE (MILES)	MAXIMUM EARTHQUAKE MAGNITUDE	CLASSIFICATION
N. San Andreas;SAP	2.07	7.23	A
San Gregorio Connected	7.84	7.5	A
N. San Andreas;SAN	14.15	7.51	A
Monte Vista-Shannon	15.86	6.5	B
Hayward-Rodgers Creek;RC+HN+HS	16.07	7.33	A

TABLE 4.5 NEAR SITE FAULT PARAMETERS			
FAULT NAME	DISTANCE FROM SITE (MILES)	MAXIMUM EARTHQUAKE MAGNITUDE	CLASSIFICATION
Hayward-Rodgers Creek;RC+HN	16.87	7.19	A
Calaveras;CN	24.9	6.87	A

4.6 Liquefaction, Lateral Spreading, and Seismic Settlement Evaluation

Liquefaction occurs when saturated fine-grained sands and/or silts lose their physical strength temporarily during earthquake induced shaking and behave as a liquid. This is due to loss of point-to-point grain contact and transfer of normal stress to the pore water. Liquefaction potential varies with water level, soil type, material gradation, relative density, and probable intensity and duration of ground shaking.

The California Geological Survey (CGS) has designated certain areas within California as potential liquefaction hazard zones. These are areas considered at risk of liquefaction-related ground failure during a seismic event. The project site is not currently mapped for potential liquefaction hazard by the CGS (refer to CGS website: (http://gmw.consrv.ca.gov/shmp/html/pdf_maps_no.html). This does not indicate that liquefaction is not a potential hazard, rather that the state has not provided information for the subject site.

Subsurface information obtained during our study extended to a depth of 50 ft. Within such depth, the site is predominately underlain by medium to very dense clayey sand (SC) and interbedded with stiff to very stiff, low plastic clay (CL). In addition, our explorations indicate free groundwater was encountered within 35± feet, and research indicates high groundwater in the vicinity of the site to be on the order of 28± feet below existing grade.

Bases on our evaluations using Youd (2001) liquefaction triggering methodology, along with Ishihara and Yoshimine (1992) and Tokimatsu and Seed (1987) a potentially liquefiable layer is present at approximately 40 feet bgs at the project site. The liquefiable layer is at a depth of roughly 37.5 to 42.5 feet bgs, indicating a 37.5 foot capping layer of non-liquefiable soils above. These nonliquefiable layers will provide a buffer between any potentially liquefiable layers below. Based on Ishihara (1985) with a site acceleration of 1.057g, a capping layer of 37.5 feet will be sufficient to reduce surface manifestation of liquefaction settlement at a site with flat-lying ground. However, due to the sloping ground at the subject site, liquefaction settlement and lateral spreading displacements are expected to occur. The magnitude of liquefaction settlement is estimated to be on the order of 1 inch. The lateral displacement magnitude is explored later in this section.

Dry sand settlement occurs when loose sands densify under seismic loading. Pradel (1998) provides a methodology for estimating the magnitude of settlement. Based on the site acceleration, characteristic earthquake magnitude, and estimated soil shear modulus, the total dry sand settlement is expected to be approximately 0.25 inches.

Lateral spreading occurs when liquefied soils deform due to shear stresses induced by sloping ground or a free face condition. Based on the site's proximity to active seismogenic sources, sloping ground, and soil conditions, the lateral spreading hazard is considered significant.

Lateral spreading was evaluated based on Youd, Hansen, and Bartlett (2002). The site lies on a slope of approximately 1% in magnitude. The three closest faults to the project site include: N. San Andreas;SAP 2.07 miles away, San Gregorio Connected 7.84 miles away, and N. San Andreas;SAN 14.15 miles away. The maximum characteristic magnitudes of these faults are 7.2, 7.5, and 7.5 respectively. The layer of soil contributing to the lateral spreading consisted of medium dense clayey sands with a thickness of 0.6 feet, 48.5% fines content, and mean particle size of 0.078mm.

According to Youd (2018) layers exhibiting a lateral spreading hazard in alluvial/fluvial deposits but are less than 0.3m (1 ft) thick pose a greatly reduced risk of displacement. CPT and SPT exploration data indicate that the layers are very thin and are not continuous throughout the project site, which are both prerequisites for significant lateral spreading displacements. Youd (2018) states that lateral spreading hazards are generally substantially overpredicted by the method when these site conditions are present. Further, the layers exhibiting potential for lateral spreading are 30 feet or more in depth. Therefore, the displacement caused by lateral spreading will be reduced at the surface by the capping layer.

ASCE 7-16 Chapter 12 provides limits for lateral displacement tolerable by a shallow foundation system, which indicate that a risk category II structure can accommodate a maximum of 18 inches of lateral spreading Based on the above conditions lateral spreading displacement is expected to be less than 18 inches. However, the magnitude of lateral spreading is expected to exceed the allowable limit of 12 inches for Risk Category III structures per ASCE 7-16 Table 12.13-2. If the proposed structure has a nature of occupancy such that it falls into Risk Category III, ground improvements are required as described in Section 5.3 herein.

The results of the liquefaction and lateral spreading evaluations are presented in Appendix E.

4.7 Earthquake Induced Landsliding

Based on information available on the California Geological Survey (CGS) website (http://maps.conservation.ca.gov/cgs/lsi/) the subject site is not currently mapped within a State of California Seismic Hazard Zone for seismically induced landsliding. The site is on relatively flat lying terrain, therefore landsliding is not considered to be a significant hazard.

4.8 Tsunamis and Seiche Evaluation

Based on site location, elevation, and tsunami hazard mapping from the CGS website (http://maps.conservation.ca.gov/cgs/informationwarehouse/index.html?map=tsunami) the site is not

in a tsunami inundation hazard zone. In addition, oscillatory waves (seiches) are considered unlikely due to the absence of large confined bodies of water in the site area.

4.9 Compressible and Expansive Soils

Surficial materials encountered at the site are described as medium to very dense clayey sands and low plastic, medium stiff to hard sandy clay. Based on our evaluation these soil deposits are moderately susceptible to compression under anticipated loads. Static consolidation settlement on the order of 1 inch is expected.

The near surface soils encountered during our investigation exhibit low plasticity with a Liquid Limit (LL) between 24 to 27 and a Plasticity Index (PI) between 9 to 11 and are anticipated to have a low expansive potential. Therefore, the soils are not expected to be subjected to significant swelling and shrinkage upon wetting and drying.

4.10 Soil Corrosion Potential

Assessment for potential of soil corrosion on construction materials was not included as part of this investigation. We recommend your corrosion engineer determine the potential corrosive characteristics of the on-site soils with respect to contact with the various underground materials that will be used for project construction.

4.11 Flooding Hazard Potential

Based on FEMA flood zone maps for Stanislaus County Unincorporated Areas, California, Map No. 06081C0043F (2019) to assess the potential for flooding of the site. Based on a review of the noted map, the site is located in a designated zone, “Area of Minimal Flood Hazard – Zone X”. This indicates that flooding hazard potential at the site is considered negligible.

5.0 CONCLUSIONS AND RECOMMENDATIONS

We conclude that the proposed construction of a six-level cast-in-place concrete structure with a possible 2 level basement and associated improvements is feasible from a geotechnical standpoint

provided the recommendations in this report are incorporated into the design and construction of the project. The most significant geotechnical condition which could affect the proposed structures is site effects due to strong shaking from a potential earthquake. Recommendations have been provided below which should be utilized during earthwork operations. Specific recommendations for site grading, design and construction of the proposed facility and associated improvements are included below.

5.1 Site Preparation

Prior to earthwork, all areas to be improved should be stripped of surface obstructions and existing improvements and stripped of any vegetation and organic materials. The vegetation and / or the organic materials from the clearing operation should be removed from the site or processed for use in re-vegetation operations. Any unsuitable soil, fill, old foundations, root-balls, septic systems, underground utilities, and/or existing obstructions encountered or observed during grading that extend below the limits of proposed structure excavation should be entirely removed to competent material or as designated on the plans (whichever is deeper) and replaced with properly compacted engineered fill as described in Section 5.2. Utilities that extend into the construction area and are scheduled to be abandoned should be properly capped at the perimeter of the construction zone or moved as directed in the plans.

If accessory structures are constructed with the intent of no human occupancy, CTE recommends that overexcavation of site soils be performed to a minimum depth of one (1) foot below existing grade or to the depth of the proposed structure foundations, whichever is deeper. In surface improvement areas, the area should be excavated to the proposed improvement subgrade to provide uniform structure foundation support and reduce the potential for post construction movement and distress of structures and improvements. If ground improvements are utilized, no overexcavation is required beyond establishing subgrade elevation in those areas.

Upon the completion of overexcavation, the exposed subgrade should be verified by a CTE representative to consist of firm, "intact", relatively undisturbed native soils. If such soils are not available at this level, additional removals may be required.

5.2 Grading and Earthwork

CTE should continuously observe the grading and earthwork operations for this project. Such observations are essential to identify field conditions that differ from those predicted by this investigation, to adjust designs to actual field conditions, and to verify that the grading is in overall accordance with the recommendations presented in this report. The anticipated site excavations should generally be accomplished with heavy-duty construction equipment under normal conditions.

Areas to receive fill or improvements should be scarified, properly moisture conditioned and recompacted. The base of excavation as well as fill and backfill should be compacted to a minimum of 90% relative compaction at moisture content of at least 2% above optimum moisture content as evaluated by ASTM D1557. The optimum lift thickness for backfill soil will be dependent on the type of compaction equipment used. Generally, backfill should be placed in uniform lifts not exceeding eight inches in loose thickness. Backfill placement and compaction should be done in overall conformance with geotechnical recommendations and local ordinances.

Existing soils derived from on-site are considered suitable for reuse on the site provided they are screened of organic materials and materials greater than three inches in maximum dimension, moisture conditioned and compacted as indicated above

5.3 Ground Improvement Recommendations

If required by the limits for lateral displacement based on project Risk Category, installing Drilled Displacement Columns (DDC) under the building footprint is expected to substantially mitigate static and seismic settlements as well as lateral spreading potential. DDC elements are a rigid inclusion type ground improvement system that involves continuously advancing a drilling tooling

and injecting grout, inducing radial displacement of the soil. Such a process increases the relative density of loose sandy soils and provides a stiffened element to support structural loads.

The ground improvement DDC's should extend to a depth such that static and seismic surface settlements are reduced and a buttress against lateral spreading of the building pad is developed. Improving the subsurface to a depth of 45 feet is expected to reduce the total static and seismic surface settlement to approximately 1 inch and differential settlements to 0.5 inch over 30 feet. Surface capping layer effects per Ishihara (1985) or depth weighting factors from Cetin (2009) should be incorporated into the settlement estimate by the ground improvement contractor.

A cutoff wall constructed of DDC elements is recommended to mitigate the lateral spreading hazard. The cutoff wall should be composed of closely spaced DDC elements adjacent to the building footprint boundary closest to the free face of Tidal Canal to the Northeast. These ground improvement designs should reduce the lateral spreading to less than the limits established by ASCE 7-16 Chapter 12 foundation requirements. The spread footing foundation bearing on improved soils should be interconnected and designed in accordance with ASCE 7-16 Chapter 12.

The DDC ground improvement systems, as described above, should be designed and constructed by a design build specialty contractor experienced in the ground improvement treatment proposed above. We recommend that the ground improvement design include, but not be limited to: 1) drawings showing the ground improvement layout, spacing and diameter, 2) the foundation layout plan, 3) proposed ground improvement length, 4) top and bottom elevations 5) Ground improvement verification procedure, such as CPT soundings. CTE should review the ground improvement contractor's plan and settlement estimates prior to construction, and should review and confirm that the contractor's ground improvement design will satisfactorily meet the design criteria based on performance or verification testing.

Cast-in-drilled-hole (CIDH) deep foundation elements are considered less suitable for this project due to the presence of deep liquefiable layers at a depth of 40 ft and 50 ft below grade. The rigid

load transfer mechanism by which CIDH piers bypass unsuitable soils are unfavorable when deeper layers that would otherwise not contribute to surface liquefaction settlement manifestation are closer to the soil providing end bearing support for the pile system.

5.4 Structure Foundation Recommendations

Continuous and isolated spread footings are considered suitable for use at this site to support the proposed structures. CTE's geotechnical engineer or his representative should observe soil conditions exposed in structure foundation excavations. If the soil conditions encountered differ significantly from those presented in this report, supplemental recommendations will be required.

5.4.1 Shallow Foundations

If ground improvements are not utilized, foundation dimensions and reinforcement should be based on allowable bearing values of 2,000 psf for spread footings of at least 12-inches in width penetrating into and embedded below rough pad soil grade at least 18 inches deep below the lowest adjacent subgrade. An increase of 250 psf in allowable bearing capacity per foot of embedment beyond the minimum 18" is considered appropriate, up to a maximum of 4,000 psf.

Allowable bearing pressures on the order of 4,000 pounds per square foot (psf) for combined dead plus live loads would be feasible for shallow footings constructed over properly installed DDC ground improvement elements. The allowable foundation bearing pressures apply to dead loads plus design live load conditions. The design bearing pressure may be increased by one-third when considering total loads that include short duration wind or seismic conditions. The weight of the foundation concrete below grade may be neglected in dead load computations.

We recommend that all footings be reinforced as required by the structural designer to provide structural continuity, to permit strong spanning of local irregularities, and to be rigid enough to accommodate potential differential movements estimated in Section 5.3.

5.4.2 Mat Foundations

Structural mat foundations are suitable to support the six-level cast-in-place concrete facility with a possible 2 level basement structure. The structural foundation system for the proposed multi story structure should be constructed into competent undocumented fill and may be designed for a maximum allowable bearing pressure beneath the foundation system slab of 1,200 psf. A one-third increase may be used for wind or seismic loads. Additionally, an increase to 1,800 psf may be applied in regions surrounding localized weak spots. Mat slabs supported by regularly spaced ground improvement elements may be designed with a bearing capacity of 2,000 psf. A coefficient of subgrade reaction (uncorrected for mat size) of 100 pounds per square inch per inch (pci) may be used in the design of the foundation system, or 200 pci for mats on improved ground. However, the uncorrected coefficient of subgrade reaction should be reduced to approximately 90 pci beneath highly loaded foundation elements during evaluation of short-term loads such as seismic or wind. We recommend that CTE review the design of the mat foundation and the resulting pressure distributions.

Mat slab foundation systems for the building shall also be structurally designed assuming up to 10 feet of the base of these foundations could be subject to decreased soil/bearing support. As such, continuous positive and negative bending moments shall be accommodated. These localized “soft spots” can be assumed to have a reduced modulus equal to 50 pci. Similar design shall be performed for the corner foundations; however, these areas need only assume a 5-foot long area (each both directions from the corner) of reduced soil bearing. The design dead plus live, and seismic loads (if applicable) above the foundations shall be

accommodated by the structural design for the reduced soil bearing conditions indicated above.

Estimated total static settlements for the proposed structure supported on a structural mat foundation are estimated to be approximately 1.5 inches if ground improvements are not used. This value is reduced to 1 inch for improved ground. We anticipated approximately 1/4 to 1/3 of the estimated settlement value to occur during construction. Approximately 50% of the total settlements will manifest as differential settlement across the slab span.

5.4.3 General Foundation Recommendations

The foundation excavations should be clean (i.e., free of all loose slough) and dry prior to placing steel and concrete. Foundation excavations should be moisture conditioned to 2% over optimum moisture content prior to foundation and slab concrete placement. The concrete for the foundation should not be placed against a dry excavation surface. Concrete should be pumped or placed by means of a tremie or elephant's trunk to avoid aggregate segregation and earth contamination. Concrete should not be chuted against the excavation sidewalls for excavations over five feet deep.

Rebar reinforcement should be properly supported with proper clearances maintained during concrete placement. The concrete should be properly vibrated to mitigate formation of voids and to promote bonding of the concrete to steel reinforcing. These recommendations are predicated upon CTE's representative observing the bearing materials as well as the manner of concrete placement.

5.5 Lateral Load Resistance

Shallow footings may be designed to resist lateral loads using a coefficient of friction of 0.30 (total frictional resistance equals the coefficient of friction times the dead load). A design passive resistance value of 250 pounds per square foot per foot of depth may be used. The allowable lateral

resistance can be taken as the sum of the frictional resistance and the passive resistance, provided the passive resistance does not exceed two-thirds of the total allowable resistance.

5.6 Foundation Setback

The bottoms of utility trenches placed along the perimeter of the foundation should be above an imaginary plane that projects at a 45 degree angle down from the lowest outermost edge of the foundation. Where trenches pass through the plane the trench should be installed perpendicular to the face of the foundation for a distance of at least the depth of the foundation. Deepening of affected foundation is considered an effective means of attaining the prescribed setbacks.

5.7 Concrete Slabs-On-Grade

Lightly loaded concrete slabs-on-ground placed beneath the structures should be designed for the anticipated loadings, but measure at least 4 inches in thickness. Slab-on-grade reinforcement should consist of # 4 reinforcing bars placed on 18-inch centers, each way, at or above mid-slab height, but with proper cover. Control joints at appropriate spacing i.e., 12 feet each way should be saw-cut into the slab after concrete placement in accordance with ACI Design Manual, Section 302.1R-37 8.3.12 (tooled control joints are not recommended). All interior concrete slab on grade shall be underlain by a 4 inch thick capillary moisture break consisting of ¾ inch crushed rock or Class 2 Base.

All interior slab on grade located in moisture sensitive areas should be directly underlain by a minimum 15-mil thickness vapor retarder with all laps or penetrations sealed or taped. The vapor retarder should be installed above the 4" thick capillary moisture break which in turn overlies the compacted building pad. The use of sand above the vapor retarder is not recommended. The concrete to be placed into the conventional slab on grade shall have a water to cement ratio w/c $\leq$ 0.45 and be placed at a maximum slump of 4" +/-.

The structural engineer/architect and slab installation contractor should refer to ACI 302 and ACI 360 for procedures and cautions regarding the use and placement of a vapor barrier. In areas of exposed concrete, control joints should be saw-cut into the slab after concrete placement in

accordance with ACI Design Manual, Section 302.1R-37 8.3.12 (tooled control joints are not recommended). To control the width of cracking, continuous slab reinforcement should be considered in exposed concrete slabs. Other design and construction considerations, as outlined in the ACI Design Manual, Section 302.1R are recommended. The moisture content of the slab subgrade materials should be verified to be 2% above optimum moisture content by a geotechnical representative from CTE within 24 hours of slab concrete placement.

5.8 Earth Pressures and Retaining Walls

Although not anticipated to be constructed at this site free draining retaining walls backfilled using generally select granular soils, may be designed using the equivalent fluid weights given in the table below.

TABLE 5.8
EQUIVALENT FLUID UNIT WEIGHTS (pounds per cubic foot)

WALL TYPE	LEVEL BACKFILL	SLOPE BACKFILL 2:1 (HORIZONTAL: VERTICAL)
CANTILEVER WALL (YIELDING)	40	60
RESTRAINED WALL	60	80

Traffic surcharges on retaining walls should generally be equal to 1/3 of the vertical load of the traffic located within ten lateral feet of wall. Lateral pressures on cantilever retaining walls (yielding walls) due to earthquake motions may be calculated based on work by Seed and Whitman (1970). The total lateral thrust against a properly drained and backfilled cantilever retaining wall above the groundwater level can be expressed as:

$$P_{AE} = P_A + \Delta P_{AE}$$

For non-yielding (or "restrained") walls, the total lateral thrust may be similarly calculated based on work by Wood (1973):

$P_{KE} = P_K + \Delta P_{KE}$

Where P_A = Static Active Thrust (given previously Table 5.8)

P_K = Static Restrained Wall Thrust (given previously Table 5.8)

ΔP_{AE} = Dynamic Active Thrust Increment = $(3/8)\ k_h\ \gamma H^2$

ΔP_{KE} = Dynamic Restrained Thrust Increment = $k_h\ \gamma H^2$

k_h = ½ Peak Ground Acceleration = ½ (S_{DS}/2.5)

H = Total Height of the Wall

γ = Total Unit Weight of Soil ≈ 125 pounds per cubic foot

The increment of dynamic thrust in both cases should be based on a trapezoidal distribution (essentially an inverted triangle), with a line of action located at 0.6H above the bottom of the wall. The values above assume non-expansive backfill and free-draining conditions. Measures should be taken to prevent moisture buildup behind all retaining walls. Drainage measures should include free-draining backfill materials and sloped, perforated drains. These drains should discharge to an appropriate off-site location. Waterproofing should be as specified by the project architect.

5.9 Seismic Design Criteria

In general accordance with the 2016 CBC, Table 1613.3.5. CBC Site Class is based on the average characteristics of the upper 100 feet of the subsurface profile. The 2016 CBC requires a site soil profile determination extending to a depth of 100 feet for seismic site classification. Borings for this study extended to a maximum depth of 50 feet, and therefore the seismic site class definition considers soils below 50 feet in depth to be consistent with the very stiff to hard and medium dense to dense soils encountered at shallower depths.

Therefore, soils that underlie the site are considered to be consistent with Site Class D materials. Site ground motions with 2% probability of exceedance in 50 years are presented in Table 5.9, below. The table is based on information from the "ATC Hazards by Location" webpage (online https://hazards.atcouncil.org) for the site coordinates 37.6334 N latitude and -122.4202°W longitude.

The referenced design maps are based on seismic ground motion values determined using the ATC Ground Motion Parameter Calculator which is based on the 2016 California Building Code (CBC) and design code reference document, ASCE 7-16 Standard. Hazard loads are provided by the U.S. Geological Survey Seismic Design Web Services.

TABLE 5.9
SEISMIC GROUND MOTION VALUES

PARAMETER	VALUE	CBC REFERENCE (2019)
Risk Category[1]	II	Table 1604.5
Site Class[2]	D	ASCE 7, Chapter 20
Mapped Spectral Response Acceleration Parameter, S_S	2.245g	Figure 1613.2.1 (1)
Mapped Spectral Response Acceleration Parameter, S_1	0.936g	Figure 1613.2.1 (2)
Seismic Coefficient, F_a	1.000	Table 1613.2.3 (1)
Seismic Coefficient, F_v[3]	1.700	Table 1613.2.3 (2) ASCE 7 Section 11.4.8
MCE Spectral Response Acceleration Parameter, S_{MS}	2.245g	Section 1613.2.3
MCE Spectral Response Acceleration Parameter, S_{M1}[4]	1.591g	Section 1613.2.3
Design Spectral Response Acceleration Parameter, S_{DS}	1.497g	Section 1613.2.5 (1)
Design Spectral Response Acceleration Parameter, S_{D1}[5]	1.061g	Section 1613.2.5 (2) ASCE 7 Section 11.4.8
Mapped MCE Geometric Peak Ground Acceleration, PGA	0.961g	ASCE 7, Chapter 21
Mapped MCE Geometric Peak Ground Acceleration Adjusted for Site Class Effects, PGA_m	1.057g	ASCE 7, Chapter 11

TABLE 5.9 **SEISMIC GROUND MOTION VALUES**		
PARAMETER	**VALUE**	**CBC REFERENCE (2019)**
Seismic Design Category	E	ASCE 7, Chapter 11

[1] Risk Category is based on CTE Cal's understanding of the project's nature of occupancy at the time of investigation. The Risk Category is determined by others based on occupancy and use per CBC requirements.
[2] The 2019 CBC requires a site soil profile determination extending to a depth of 100 feet for seismic site classification. Borings for this study extended to a maximum depth of 50± feet, and this seismic site class definition considers soils below 50 feet in depth to be consistent with the stiff soils encountered at shallower depths.
[3] F_v is calculated in accordance with ASCE 7-16 Table 11.4-2 assuming that the exception for Site Class D with S_1 greater than or equal to 0.2 will be applied.
[4] S_{M1} is calculated in accordance with ASCE 7-16 Section 11.4.4
[5] S_{D1} is calculated in accordance with ASCE 7-16 Section 11.4.5

Per ASCE 7-16 Section 11.4.8, a site-specific ground motion procedure would be required for the structure since the site falls under Class D, and the S_1 parameter is greater than or equal to 0.2. However, Exception (2) permits the use of the Code-Based ground motion values if the seismic response coefficient C_s is amplified by 1.5 times for the period range $T \geq 1.5T_s$ using equations 12.8-3 and 12.8-4 in ASCE 7-16. If the proposed developments have a period in the range exceeding $1.5T_s$, then the base shear coefficient must be increased as required by ASCE 7-16.

Due to the liquefaction hazard the site would fall under Site Class F, which would typically require a site response analysis. However, if the ground improvements are installed as proposed in this report, then Site Class D is considered appropriate. Further, ASCE 7-16 allows the use of seismic parameters as determined by a default site class for structures with a period of less than 0.5 second. If neither of these conditions are applicable, a site response analysis will be required, but is considered outside the scope of this report at this time.

5.10 Exterior Flatwork

To reduce the potential for distress to exterior flatwork caused by minor settlement of foundation and improvement supporting soils, we recommend that such flatwork be installed with crack-control joints at appropriate spacing as designed by the project architect. Flatwork, which should be

installed with crack control joints, includes driveways, sidewalks, and architectural features. All subgrade should be prepared according to the earthwork recommendations previously given before placing concrete. Positive drainage should be established and maintained adjacent to all flatwork.

5.11 Drainage

Foundation and concrete-slab-on grade performance depends greatly on how well the runoff waters drain from the site. This is true both during construction and over the entire life of the structure. The ground surface around structures should be graded so that water flows rapidly away from the structures without ponding. The surface gradient needed to do this depends on the landscaping type. In general, the pavements and flowerbeds within five feet of buildings should slope away at gradients of at least two percent. Densely vegetated areas should have minimum gradients of five percent away from buildings if doing so is practical.

Planters should be constructed so that water from them will not seep into the foundation areas or beneath slabs and pavement. In any event, the site maintenance personnel should be instructed to limit irrigation to the minimum actually necessary to sustain the landscaping plants properly. Should excessive irrigation, waterline breaks, or unusually high rainfall occur, saturated zones and groundwater may develop. Consequently, the site should be graded so that water drains away readily without saturating the foundation or landscaped areas or cascading over slope faces.

A potential source of water, such as water pipes, drains, and the like should be frequently examined for signs of leakage or damage. Any such leakage or damage should be repaired promptly. The project Civil Engineers should thoroughly evaluate the on-site drainage and make provisions as necessary to keep surface waters from affecting the site.

Generally, CTE recommends against allowing water to infiltrate building pads or adjacent to slopes. We understand that some agencies are encouraging the use of storm-water cleansing devices. Use of such devices tends to increase the possibility of high groundwater and slope instability. If storm-

water cleansing devices must be used, then we recommend that they be underlain by an impervious barrier and the infiltrate be collected via subsurface piping and discharged off site.

Utility trenches are a common source of water infiltration and migration. All utility trenches that penetrate beneath the building perimeter should be effectively sealed to restrict water intrusion and flow through the trenches that could migrate below the building. We recommend constructing an effective "trench plug" that extends at least 2 feet out from the face of the building exterior and beneath the perimeter footing.

Utility plug material should consist of concrete or low plastic clay (Plasticity Index <15) compacted to 90 percent relative compaction (per ASTM D 1557) at a water content at slightly above the soil's optimum water content. The concrete or the clay fill should be placed to completely surround the utility line; and, if used, the clay should be placed and compacted in accordance with recommendations in this report.

5.12 Vehicular Pavements and Site Improvements

Recommended pavement sections for auto drive/parking, truck drive/loading and city street areas are presented in the table below. Two options are presented below. Option 1 is for construction of asphaltic concrete pavements and Option 2 is for construction of full-depth concrete pavements. The preliminary pavement sections presented are based on a Resistance "R"- Values obtained from a sample of site soils and our experience with the soil types in the vicinity of the site.

All Class II aggregate base should meet or exceed Caltrans Standard Specifications (including Minimum R-Value=78). For onsite design it is assumed that the upper 12 inches of subgrade and all base materials are properly compacted to 95% relative compaction at above optimum moisture content. For city streets designed based on Caltrans Standard Specifications, structural section materials (AC, AB & subgrade) should be properly compacted to 95% relative compaction.

TABLE 5.12 RECOMMENDED PAVEMENT THICKNESS						
Traffic Area	Assumed Traffic Index	Subgrade "R"-Value	Option 1: Asphalt Pavements		Option 2: PCC Concrete Pavements	
			AC Thickness (inches)	Class II AB Thickness (inches)	PCC Thickness (inches)	Class II AB Thickness (inches)
Auto Drive /Parking	5.0	25	3.0	7.0	6.0	4.0
Truck Drive & Loading	6.0	25	4.0	8.0	7.0	5.0

* Caltrans Class 2 Aggregate Base ** Concrete should have a modulus of rupture of at least 600 psi

Please note that these pavement sections may not be acceptable for city or public street repair or improvements. The Traffic Indexes (TI's) used in the calculations of pavement sections were assumed. Alternate pavement sections and sections for other TI's can be provided if requested.

5.13 Construction Observation

The recommendations provided in this report are based limited subsurface information observed, at locations, and within, exploratory borings performed for this project and preliminary concept design proposed construction as of the date of publication. The interpolated subsurface conditions, on which this report relies, should be checked in the field during construction to verify conditions described herein are as anticipated. Any changes which occur to preliminary information provided to this office as of the date of this publication, this office should be notified and afforded an opportunity to update information provided in this report.

Recommendations provided in this report are based on the understanding and assumption that CTE will provide the observation and testing services for the project. All earthworks should be observed and tested to verify that grading activity has been performed according to the recommendations contained within this report. The project engineer should evaluate all footing excavations before reinforcing steel placement. To assure that the recommendations contained within this report are

adhered to the following minimum inspection and testing services should be performed with regard to the geotechnical design of the project.

1. Continuous observation and testing during mass grading.
2. Footing excavation inspection and testing for moisture prior to reinforcing steel installation.
3. Continuous inspection of deep foundation excavations.
4. Periodic Utility trench backfill testing for moisture and relative compaction.
5. Slab subgrade inspection and testing within 24 hours of capillary moisture break material installation for moisture and relative compaction.
6. Pavement subgrade preparation inspection and testing for moisture and relative compaction prior to placement of Class II base.
7. Class II Base inspection and testing prior to the placement of asphalt or concrete pavement.
8. Asphalt relative compaction testing during pavement placement.

5.14 Plan Review

CTE should review project grading and foundation plans before the start of earthworks to identify potential conflicts and to verify that the recommendations contained in the report are to be implemented.

6.0 LIMITATIONS OF INVESTIGATION

As indicated, the recommendations presented herein are based on the field exploration, laboratory testing and our geologic and engineering analysis. Following completion of testing, these recommendations will be confirmed and or modified, if necessary, based on the materials exposed and re-worked during grading.

The field evaluation, laboratory testing and geotechnical analysis presented in this report have been conducted according to current engineering practice and the standard of care exercised by reputable geotechnical consultants performing similar tasks in this area. No other warranty, expressed or implied, is made regarding the conclusions, recommendations and opinions expressed in this report.

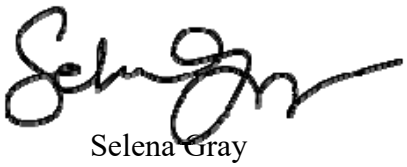
Variations may exist and conditions not observed or described in this report may be encountered during construction.

Our conclusions and recommendations are based on an analysis of the observed conditions. If conditions different from those described in this report are encountered, our office should be notified and additional recommendations, if required, will be provided upon request. We appreciate this opportunity to be of service on this project. If you have any questions regarding this report, please do not hesitate to contact the undersigned.

We appreciate the opportunity to be of service on this project. Should you have any questions or need further information please do not hesitate to contact this office.

Respectfully Submitted

CTE CAL Inc.



Michael Kennedy PE 88971
Project Engineer

Selena Gray
Staff Engineer

QUADRANGLE LOCATION

KEY MAP

N

NOTES:
Location of site is approximate. Base map from Map Data ©2020 Google Earth.

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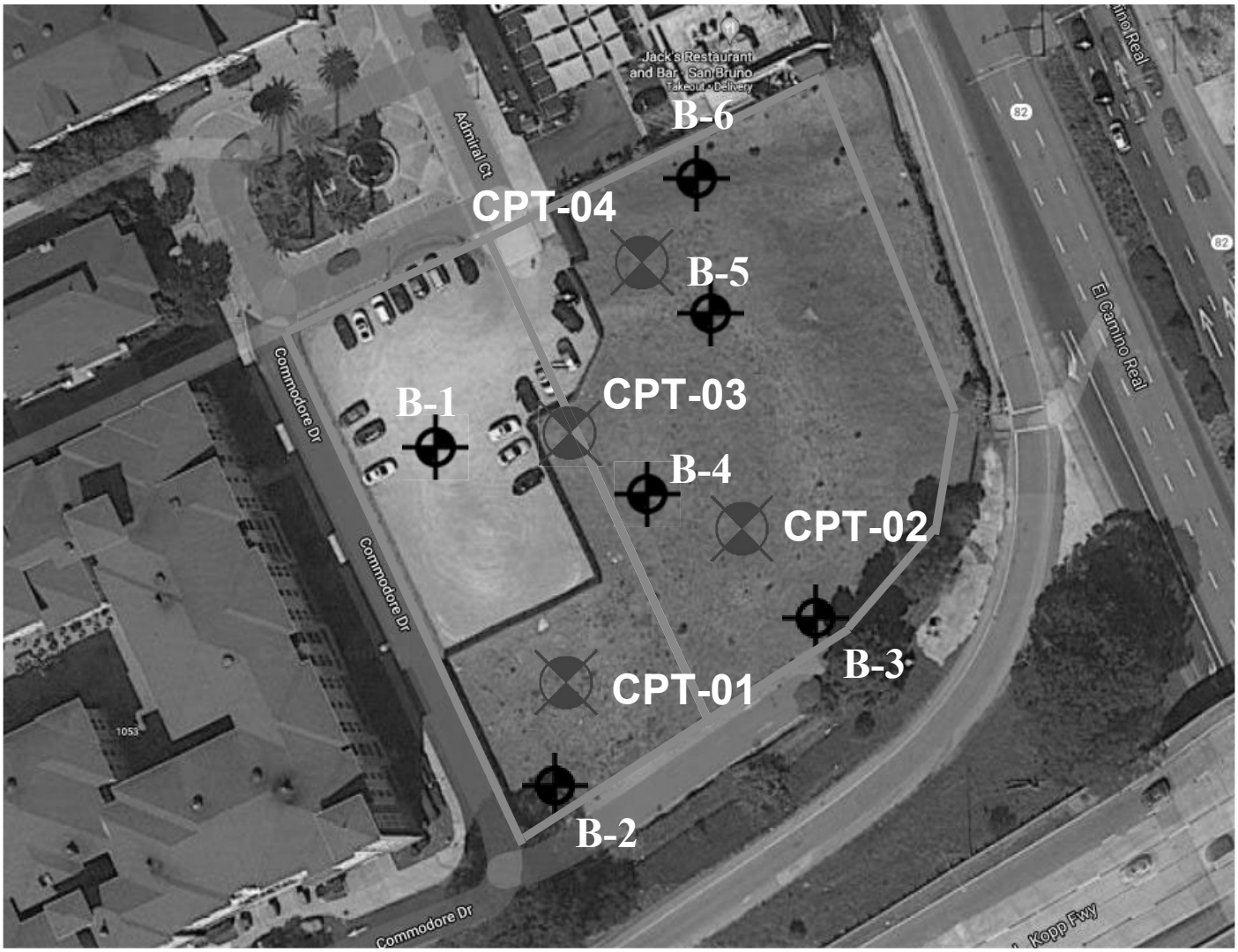
SITE LOCATION MAP

Geotechnical Investigation –
Commodore Drive
San Bruno, California 94066

CTE JOB NO.	
60-0921G	
SCALE	
N.T.S.	
DATE	FIGURE
8/26/2021	1



QUADRANGLE LOCATION

KEY MAP

SPT Exploration Locations

CPT Exploration Locations

N

NOTES:

Location of site is approximate. Base map from Map Data ©2021 Google Earth.

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BORING LOCATION MAP

Geotechnical Investigation
Commodore Drive
San Bruno, CA 94066

CTE JOB NO.	
60-0921G	
SCALE	
N.T.S.	
DATE	FIGURE
8/26/2021	2

APPENDIX A

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APPENDIX B

FIELD EXPLORATION METHODS, BORING LOGS &

CPT EXPLORATION DATA

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Modesto, CA 95356
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DEFINITION OF TERMS

PRIMARY DIVISIONS			SYMBOLS	SECONDARY DIVISIONS
COARSE GRAINED SOILS MORE THAN HALF OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	**GRAVELS** MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS < 5% FINES	GW	WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES LITTLE OR NO FINES
			GP	POORLY GRADED GRAVELS OR GRAVEL SAND MIXTURES, LITTLE OF NO FINES
		GRAVELS WITH FINES	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES, NON-PLASTIC FINES
			GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES, PLASTIC FINES
	SANDS MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS < 5% FINES	SW	WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
			SP	POORLY GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES	SM	SILTY SANDS, SAND-SILT MIXTURES, NON-PLASTIC FINES
			SC	CLAYEY SANDS, SAND-CLAY MIXTURES, PLASTIC FINES
FINE GRAINED SOILS MORE THAN HALF OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	**SILTS AND CLAYS** LIQUID LIMIT IS LESS THAN 50		ML	INORGANIC SILTS, VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, SLIGHTLY PLASTIC CLAYEY SILTS
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY, SANDY, SILTS OR LEAN CLAYS
			OL	ORGANIC SILTS AND ORGANIC CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT IS GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTY CLAYS
HIGHLY ORGANIC SOILS			PT	PEAT AND OTHER HIGHLY ORGANIC SOILS

GRAIN SIZES

BOULDERS	COBBLES	GRAVEL		SAND			SILTS AND CLAYS
		COARSE	FINE	COARSE	MEDIUM	FINE	

12" 3" 3/4" 4 10 40 200

CLEAR SQUARE SIEVE OPENING U.S. STANDARD SIEVE SIZE

PENETRATION RESISTANCE AND PROPERTIES BASED ON THE SPT (PECK ET AL.)

	SPT (N) Blows/ft	Relative Density		SPT (N) Blows/ft	Consistency
Sands	0-4	Very Loose	Clays	<2	Very Soft
	4-10	Loose		2-4	Soft
	10-30	Medium		4-8	Medium
	30-50	Dense		8-15	Stiff
	Over 50	Very Dense		15-30	Very Stiff
				Over 30	Hard

ADDITIONAL TESTS

(OTHER THAN TEST PIT AND BORING LOG COLUMN HEADINGS)

MAX- Maximum Dry Density	PM- Permeability	PP- Pocket Penetrometer
GS- Grain Size Distribution	SG- Specific Gravity	WA- Wash Analysis
SE- Sand Equivalent	HA- Hydrometer Analysis	DS- Direct Shear
EI- Expansion Index	AL- Atterberg Limits	UC- Unconfined Compression
CHM- Sulfate & Chloride, pH, Resistivity	RV- R-Value	MD- Moisture/Density
COR - Corrosivity	CN- Consolidation	M- Moisture
SD- Sample Disturbed	CP- Collapse Potential	SC- Swell Compression
REM- Remolded	HC- Hydrocollapse	OI- Organic Impurities

FIGURE: BL1

3628 Madison Avenue, Suite 22 | Sacramento, CA 95660 | 916.331.6030 | Fax 916.331.6037

PROJECT: DRILLER: SHEET: of
CTE JOB NO: DRILL METHOD: DRILLING DATE:
LOGGED BY: SAMPLE METHOD: ELEVATION:

BORING LEGEND

Depth (Feet) | Bulk Sample | Driven Type | Blows/Foot | Dry Density (pcf) | Moisture (%) | U.S.C.S. Symbol | Graphic Log | DESCRIPTION | Laboratory Tests

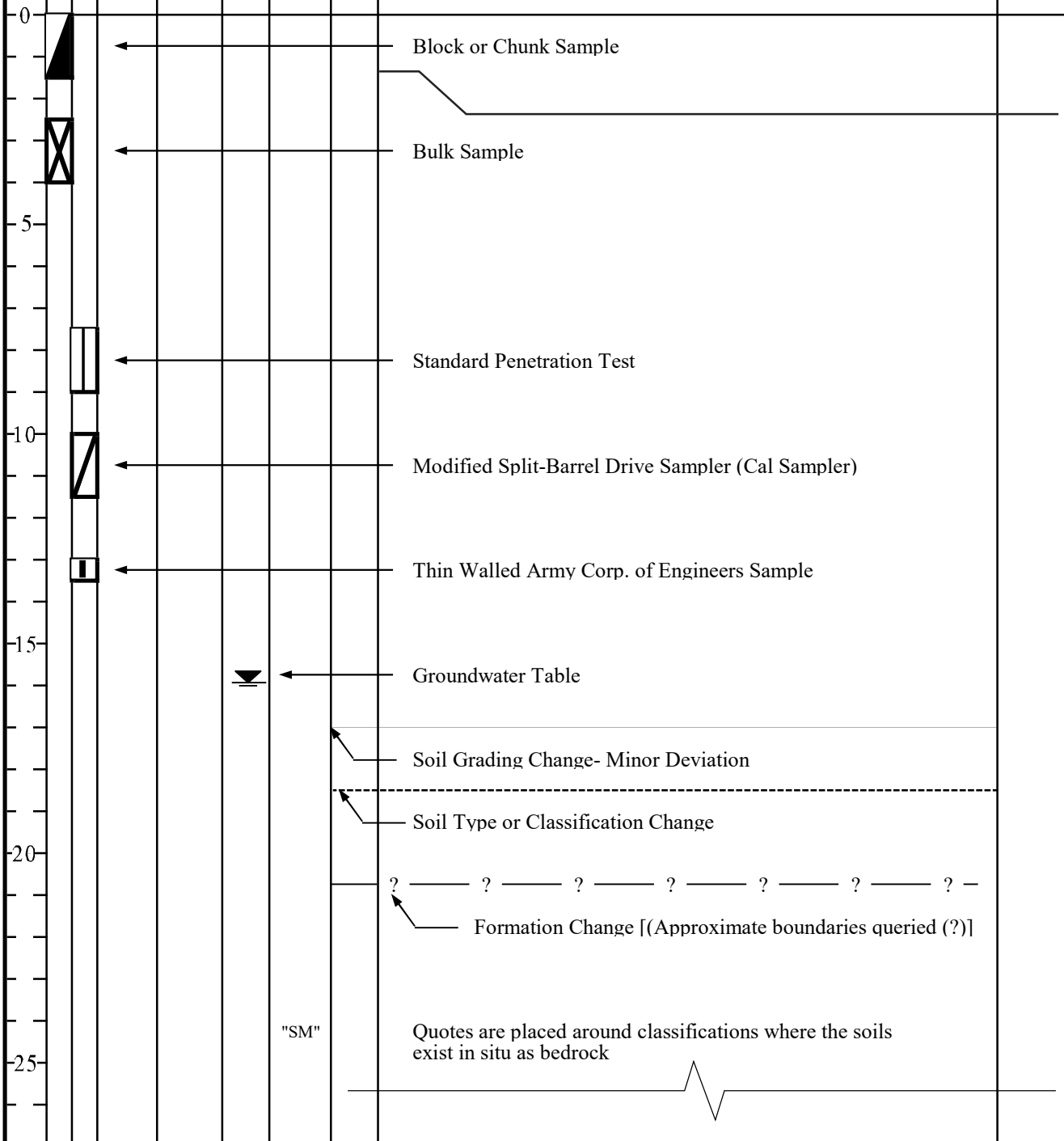

FIGURE: BL2

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PROJECT:	San Bruno Genesis Hyundai			DRILLER:	Exploration Geoservices	SHEET:	1	of	1
CTE JOB NO:	60-0921G			DRILL METHOD:	Hollow Stem Auger	DRILL DATE:		5/24/2021	
LOGGED BY:	MK			SAMPLE METHOD:	SPT	ELEVATION:		EGS	

BORING B-1

Depth (Feet)	Bulk Sample	Driven Type	Blows/ 6 Inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
0								Aggregate Base Parking Lot 6"	
2.5	X		8 9 12			SC		Dry, dark brown, medium dense, clayey SAND with trace organics and calcification, 50% recovery	
5			10 9 12			SC		As above, 60% recovery	
10			13 25 28			SC		Dry, tan, dense, fine clayey SAND, 75% recovery	
15			7 9 14			SC		Moist, tan, medium dense, fine clayey SAND, 80% recovery	
20			12 12 10			SC		As above, 60% recovery	FC=23.5%
25			19 20 49			SP-SC		Moist, reddish brown, very dense, medium grained SAND with clay and gravel, 50% recovery	

Terminated at 25 ft, no ground water encountered, backfilled with clean cement 5/24/21

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PROJECT:	San Bruno Genesis Hyundai			DRILLER:	Exploration Geoservices	SHEET:	1	of	1
CTE JOB NO:	60-0921G			DRILL METHOD:	Hollow Stem Auger	DRILL DATE:		5/24/2021	
LOGGED BY:	MK			SAMPLE METHOD:	SPT	ELEVATION:		EGS	

BORING B-2

Depth (Feet)	Bulk Sample	Driven Type	Blows/ 6 Inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
0								Top soil with weeds and vegetation	
2.5			9 9 8			SP-SM		Dry, brown-tan mottled, medium dense, poorly graded SAND with silt, 70% recovery	
5			8 6 12			SP-SC		Moist, dark brown, medium dense, poorly graded SAND with clay, 30% recovery	
10			8 7 18			SC		Moist, brown, medium dense, clayey SAND with minor cementation, 100% recovery	
15			10 18 23			SC		Moist, brown, mottled, clayey SAND, moderate cementation, 20% recovery	FC=18.4%

Terminated at 15ft
No groundwater encountered
Backfilled with clean cement 5/24/21

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PROJECT:	San Bruno Genesis Hyundai	DRILLER:	Exploration Geoservices	SHEET:	1	of	2
CTE JOB NO:	60-0921G	DRILL METHOD:	Hollow Stem Auger	DRILL DATE:	5/24/2021		
LOGGED BY:	SG	SAMPLE METHOD:	SPT	ELEVATION:	EGS		

BORING B-3

Depth (Feet)	Bulk Sample	Driven Type	Blows/ 6 Inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
0								Top soil with weeds and vegetation	
2.5			3 4 5			SP-SM		Dry, brown, loose, poorly graded, SAND with silt and gravel, 70% recovery (fill)	200 wash
5			13 19 20			CL		Dry, brown, hard, low plastic, CLAY with sand, some cementation, 40% recovery	LL=27 PL=16 PI=11
10			17 35 22			SP-SC		Dry, brown, very dense, SAND with clay, 30% recovery	200 wash
15			24 30 31			SP-SC		Dry, brown, very dense, SAND with clay and gravel, 100% recovery	
20			15 30 41			SP-SC		Dry, brown, very dense, SAND with clay, moderate cementation, 50% recovery	
25			31 50/5"			SP-SC		Dry, brown, very dense, SAND with clay, 30% recovery	

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PROJECT:	San Bruno Genesis Hyundai	DRILLER:	Exploration Geoservices	SHEET:	2	of	2
CTE JOB NO:	60-0921G	DRILL METHOD:	Hollow Stem Auger	DRILL DATE:	5/24/2021		
LOGGED BY:	SG	SAMPLE METHOD:	SPT	ELEVATION:	EGS		

BORING B-3 Continued

Depth (Feet)	Bulk Sample	Driven Type	Blows/ 6 Inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
30			5 5 6			CL		Moist, gray/tan, low plastic, stiff, sandy CLAY with cementation, 95% recovery	FC=66.7%

Terminated at 30ft
No groundwater encountered
Backfilled with clean cement 5/24/21

CTE CAL,INC. 46716 Fremont Blvd. | Fremont, CA 94538 | Ph: (510) 573-6362 | Fax: (510) 573-6684

PROJECT:	San Bruno Genesis Hyundai	DRILLER:	Exploration Geoservices	SHEET:	1	of	2
CTE JOB NO:	60-0921G	DRILL METHOD:	Hollow Stem Auger	DRILL DATE:			5/24/2021
LOGGED BY:	SG	SAMPLE METHOD:	SPT	ELEVATION:			EGS

BORING B-4

Depth (Feet)	Bulk Sample	Driven Type	Blows/ 6 Inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
0								Top soil with weeds and vegetation	
2.5	X		7 33 28			SC		Dry, brown, very dense, clayey SAND with calcification (fill)	MD
5			4 4 6	115.5	17	CL		Dry, dark brown, low plastic, stiff, CLAY with sand	PP = 2.5 LL=24 PL=15 PI=9
7.5			5 7 9			CL		Dry, light brown, low plastic, very stiff, sandy CLAY	MD 200 wash
10			4 8 9			CL		As above	MD
15			9 20 28	121.6	11	SP-SM		Dry, grayish brown, dense, poorly graded SAND with silt and pebbles	PP > 5
20			15 20 33	141.3	9	SP-SC		Dry, brown, very dense, poorly graded SAND with clay, 60% recovery	
25			10 17 20	118.4	19	SC		Dry, light gray/brown, dense, low plastic, clayey SAND, 50% recovery	FC=45.1%

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PROJECT:	San Bruno Genesis Hyundai	DRILLER:	Exploration Geoservices	SHEET:	2	of	2
CTE JOB NO:	60-0921G	DRILL METHOD:	Hollow Stem Auger	DRILL DATE:			5/24/2021
LOGGED BY:	SG	SAMPLE METHOD:	SPT	ELEVATION:			EGS

BORING B-4 Continued

Depth (Feet)	Bulk Sample	Driven Type	Blows/ 6 Inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
30			20 46 32	137.5	12	SP-SC		Dry, orange/light brown, very dense, poorly graded SAND with clay, 75% recovery	
35			11 16 35	107.6	24	SC		Wet, tan, very dense, fine clayey SAND, 90% recovery	FC=42.3%
40			9 10 11	120.4	20	SC		Wet, tan, medium dense, fine clayey SAND, 95% recovery	FC=48.5%
45			22 50/5"	126.8	16	SC		Wet, tan, very dense, clayey SAND, 95% recovery	FC=34.9%
50			8 9 14	108.1	24	CL		Wet, tan, very stiff, sandy CLAY, 100% recovery	FC=76.8%
								Terminated at 50ft Groundwater at 35ft Backfilled with clean cement 5/24/21	

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PROJECT:	San Bruno Genesis Hyundai			DRILLER:	Exploration Geoservices	SHEET:	1	of	2
CTE JOB NO:	60-0921G			DRILL METHOD:	Hollow Stem Auger	DRILL DATE:		5/24/2021	
LOGGED BY:	SG			SAMPLE METHOD:	SPT	ELEVATION:		EGS	

BORING B-5

Depth (Feet)	Bulk Sample	Driven Type	Blows/ 6 Inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
0								Top soil with weeds and vegetation	
2.5	X		4 4 3			CL		Dry, dark brown, low plastic, medium stiff, sandy CLAY, 10% recovery (fill)	
5			4 13 14			CL		Dry, black/olive mottled, low plastic, very stiff, CLAY with sand and organics, 50% recovery (fill)	
10			5 7 8			CL		Dry, dark brown, low plastic, stiff, CLAY with sand, 50% recovery	LL=27 PL=16 PI=11
15			8 8 9			CL		Dry, tanish brown, low plastic, very stiff, CLAY with sand, 100% recovery	PP = 4 LL=33 PL=18 PI=15
20			15 20 34			SP-SC		Dry, tan, very dense, fine SAND with clay, 70% recovery	
25			23 24 30			SM		Dry, brown, very dense, silty SAND with gravel, 65% recovery	

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PROJECT:	San Bruno Genesis Hyundai	DRILLER:	Exploration Geoservices	SHEET:	2	of	2
CTE JOB NO:	60-0921G	DRILL METHOD:	Hollow Stem Auger	DRILL DATE:	5/24/2021		
LOGGED BY:	SG	SAMPLE METHOD:	SPT	ELEVATION:	EGS		

BORING B-3 Continued

Depth (Feet)	Bulk Sample	Driven Type	Blows/ 6 Inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
30			8 9 11			SC		Moist, tan, medium dense, clayey SAND	FC=46.9%

Terminated at 30ft
No groundwater encountered
Backfilled with clean cement 5/24/21

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PROJECT:	San Bruno Genesis Hyundai			DRILLER:	Exploration Geoservices	SHEET:	1	of	1
CTE JOB NO:	60-0921G			DRILL METHOD:	Hollow Stem Auger	DRILL DATE:		5/24/2021	
LOGGED BY:	SG			SAMPLE METHOD:	SPT	ELEVATION:		EGS	

BORING B-6

Depth (Feet)	Bulk Sample	Driven Type	Blows/ 6 Inches	Dry Density (pcf)	Moisture (%)	U.S.C.S. Symbol	Graphic Log	DESCRIPTION	Laboratory Tests
0								Top soil with weeds and vegetation	
2.5			5 8 9			SP-SC		Dry, brown/black, medium dense, SAND with clay, 65% recovery	
5			3 3 19			SC		Dry, black, medium dense, clayey SAND, 50% recovery (fill)	
10			4 4 6			CL-ML		Dry, dark brown, low plastic, stiff, sandy silty CLAY, 65% recovery	FC=70.4% LL=22 PL=15 PI=7

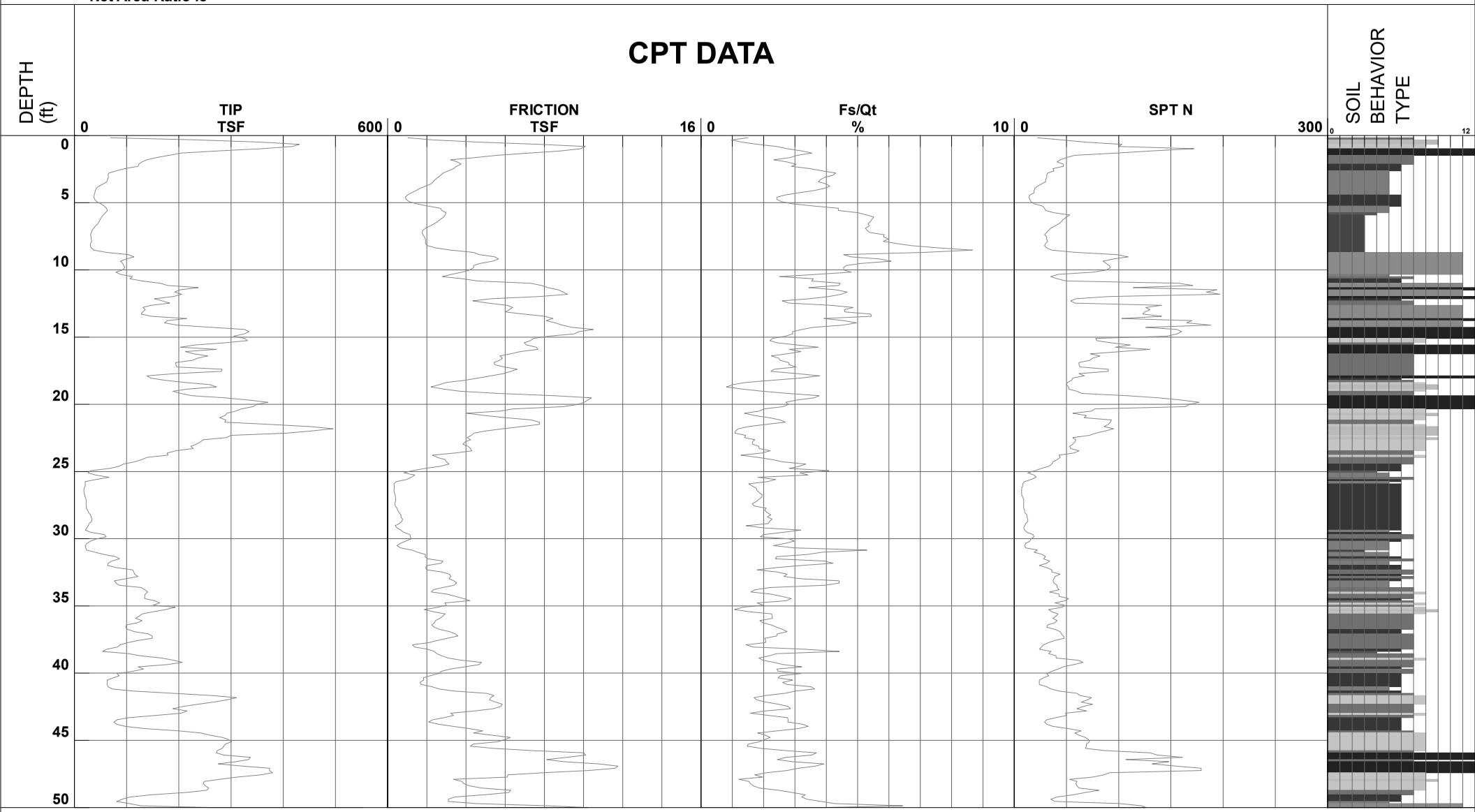
Terminated at 10ft
No groundwater encountered
Backfilled with clean cement 5/24/21

CTE Cal

Project	San Bruno Genesis & Hyundai	Operator	AJ-OO	Filename	SDF(714).cpt
Job Number	60-0921G	Cone Number	DDG1587	GPS	
Hole Number	CPT-01	Date and Time	6/30/2021 8:17:44 AM	Maximum Depth	50.52 ft
EST GW Depth During Test		35.00 ft			

Net Area Ratio .8

CPT DATA



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

Cone Size 15cm squared

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

San Bruno Genesis & Hyundai

Project ID: CTE Cal
Data File: SDF(714).cpt
CPT Date: 6/30/2021 8:17:44 AM
GW During Test: 35 ft

Sounding ID: CPT-01
Project No: 60-0921G
Cone/Rig: DDG1587

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
0.33	235.1	377.0	377.0	235.1	2.3	0.3	1.0	6	clean SAND to silty SAND	125	5.0	75	47	62	95	48	-	-	5	0.350	1.50	16
0.49	356.5	571.8	571.8	356.6	4.6	2.0	1.3	6	clean SAND to silty SAND	125	5.0	100	71	95	95	48	-	-	5	0.350	1.51	16
0.66	430.9	691.0	691.0	430.9	7.8	0.9	1.8	8	stiff SAND to clayy SAND	115	5.0	100	86	100	95	48	-	-	5	0.250	1.61	16
0.82	417.3	669.3	707.4	417.3	10.1	0.5	2.4	8	stiff SAND to clayy SAND	115	5.0	100	83	100	95	48	-	-	7	0.250	1.73	16
0.98	358.6	575.2	638.5	358.6	9.9	-0.5	2.7	8	stiff SAND to clayy SAND	115	5.0	100	72	100	95	48	-	-	8	0.250	1.80	16
1.15	274.0	439.5	529.3	274.0	8.8	-1.5	3.2	8	stiff SAND to clayy SAND	115	5.0	88	55	84	95	48	-	-	11	0.250	1.92	16
1.31	204.5	327.9	430.6	204.5	7.2	-1.0	3.5	8	stiff SAND to clayy SAND	115	5.0	66	41	65	95	48	-	-	13	0.250	2.01	16
1.48	182.1	292.0	372.4	182.1	5.6	-0.4	3.1	8	stiff SAND to clayy SAND	115	5.0	58	36	57	95	48	-	-	12	0.250	1.98	16
1.64	157.4	252.4	323.8	157.4	4.5	-0.4	2.9	8	stiff SAND to clayy SAND	115	5.0	50	31	49	95	48	-	-	13	0.250	1.99	16
1.80	138.4	221.9	273.8	138.4	3.2	-0.9	2.3	6	clean SAND to silty SAND	125	5.0	44	28	43	93	48	-	-	11	0.350	1.94	16
1.97	129.5	207.7	275.6	129.5	3.6	-0.3	2.7	5	silty SAND to sandy SILT	120	3.0	69	43	41	91	48	-	-	13	0.200	2.02	16
2.13	123.6	198.2	277.1	123.6	3.7	1.3	3.0	8	stiff SAND to clayy SAND	115	5.0	40	25	40	90	48	-	-	15	0.250	2.07	16
2.30	121.6	195.0	268.7	121.6	3.5	1.7	2.9	5	silty SAND to sandy SILT	120	3.0	65	41	39	89	48	-	-	14	0.200	2.05	16
2.46	96.8	155.3	250.5	96.8	3.4	1.6	3.5	8	stiff SAND to clayy SAND	115	5.0	31	19	33	82	48	-	-	18	0.250	2.18	16
2.62	80.2	128.6	236.4	80.2	3.1	1.7	3.9	8	stiff SAND to clayy SAND	115	5.0	26	16	28	75	48	-	-	21	0.250	2.26	16
2.79	65.8	105.5	224.7	65.8	2.8	1.3	4.3	9	very stiff fine SOIL	120	1.0	100	66	24	-	-	2.3	9.9	25	0.250	2.35	30
2.95	64.4	103.3	219.7	64.4	2.7	1.7	4.2	9	very stiff fine SOIL	120	1.0	100	64	23	-	-	2.3	9.9	24	0.250	2.35	30
3.12	65.2	104.6	212.5	65.3	2.6	3.1	3.9	9	very stiff fine SOIL	120	1.0	100	65	23	-	-	2.3	9.9	23	0.250	2.33	30
3.28	63.3	101.5	205.5	63.3	2.4	2.3	3.8	5	silty SAND to sandy SILT	120	3.0	34	21	23	67	46	-	-	23	0.200	2.32	16
3.45	62.1	99.5	201.2	62.1	2.3	1.0	3.8	5	silty SAND to sandy SILT	120	3.0	33	21	22	67	46	-	-	23	0.200	2.32	16
3.61	55.1	88.4	196.6	55.1	2.2	-1.3	4.0	4	clayy SILT to silty CLAY	115	2.0	44	28	20	-	-	3.9	9.9	26	0.070	2.38	15
3.77	46.6	74.8	183.8	46.6	1.9	-0.7	4.1	4	clayy SILT to silty CLAY	115	2.0	37	23	18	-	-	3.3	9.9	28	0.070	2.43	15
3.94	42.1	67.5	170.6	42.1	1.7	-1.0	4.0	4	clayy SILT to silty CLAY	115	2.0	34	21	16	-	-	3.0	9.9	28	0.070	2.45	15
4.10	40.0	64.2	158.6	40.0	1.4	-1.0	3.6	4	clayy SILT to silty CLAY	115	2.0	32	20	15	-	-	2.8	9.9	28	0.070	2.44	15
4.27	39.2	62.9	144.7	39.2	1.2	-0.4	3.1	4	clayy SILT to silty CLAY	115	2.0	31	20	15	-	-	2.8	9.9	26	0.070	2.40	15
4.43	37.9	60.7	131.7	37.9	1.0	-0.1	2.7	5	silty SAND to sandy SILT	120	3.0	20	13	14	51	42	-	-	25	0.200	2.36	16
4.59	37.2	59.7	123.9	37.2	0.9	0.0	2.4	5	silty SAND to sandy SILT	120	3.0	20	12	13	50	42	-	-	24	0.200	2.34	16
4.76	38.9	62.4	126.4	38.9	0.9	0.1	2.4	5	silty SAND to sandy SILT	120	3.0	21	13	14	51	42	-	-	23	0.200	2.32	16
4.92	42.7	68.5	136.3	42.7	1.1	0.3	2.6	5	silty SAND to sandy SILT	120	3.0	23	14	15	55	43	-	-	23	0.200	2.31	16
5.09	50.5	81.0	157.6	50.5	1.5	0.2	2.9	5	silty SAND to sandy SILT	120	3.0	27	17	18	60	43	-	-	22	0.200	2.30	16
5.25	56.9	91.2	188.3	56.9	2.0	0.2	3.6	5	silty SAND to sandy SILT	120	3.0	30	19	21	64	44	-	-	24	0.200	2.33	16
5.41	61.6	98.7	220.1	61.6	2.7	0.3	4.4	9	very stiff fine SOIL	120	1.0	99	62	23	-	-	2.2	9.9	26	0.250	2.38	30
5.58	63.2	101.3	223.0	63.1	2.8	-1.1	4.4	9	very stiff fine SOIL	120	1.0	100	63	23	-	-	2.2	9.9	25	0.250	2.37	30
5.74	59.6	95.5	234.7	59.5	3.0	-1.6	5.0	9	very stiff fine SOIL	120	1.0	96	60	23	-	-	2.1	9.9	28	0.250	2.43	30
5.91	55.4	88.8	233.7	55.3	2.9	-1.4	5.3	9	very stiff fine SOIL	120	1.0	89	55	21	-	-	1.9	9.9	29	0.250	2.47	30
6.07	51.9	83.3	232.2	51.9	2.9	-1.9	5.6	9	very stiff fine SOIL	120	1.0	83	52	20	-	-	1.8	9.9	31	0.250	2.50	30
6.23	49.4	78.9	224.6	49.3	2.7	-1.1	5.5	9	very stiff fine SOIL	120	1.0	79	49	19	-	-	1.7	9.9	31	0.250	2.52	30
6.40	47.2	74.5	217.3	47.2	2.6	-0.6	5.5	4	clayy SILT to silty CLAY	115	2.0	37	24	18	-	-	3.3	9.9	32	0.070	2.53	15
6.56	44.9	69.9	208.9	44.8	2.4	-1.2	5.4	4	clayy SILT to silty CLAY	115	2.0	35	22	17	-	-	3.1	9.9	33	0.070	2.54	15
6.73	40.4	62.1	198.6	40.3	2.2	-1.6	5.4	4	clayy SILT to silty CLAY	115	2.0	31	20	16	-	-	2.8	9.9	34	0.070	2.58	15
6.89	37.1	56.4	187.2	37.0	1.9	-2.0	5.3	4	clayy SILT to silty CLAY	115	2.0	28	19	14	-	-	2.6	9.9	35	0.070	2.60	15
7.05	34.0	54.5	-	34.0	1.8	-2.2	5.4	4	clayy SILT to silty CLAY	115	2.0	27	17	14	-	-	2.4	9.9	36	0.070	2.61	15
7.22	32.6	52.2	-	32.5	1.8	-2.0	5.5	4	clayy SILT to silty CLAY	115	2.0	26	16	14	-	-	2.3	9.9	37	0.070	2.63	15
7.38	30.8	49.4	-	30.7	1.8	-2.3	5.9	3	silty CLAY to CLAY	115	1.5	33	21	13	-	-	2.1	9.9	39	0.005	2.67	15
7.55	32.0	51.4	-	32.0	1.9	-2.3	5.9	3	silty CLAY to CLAY	115	1.5	34	21	14	-	-	2.2	9.9	38	0.005	2.66	15
7.71	32.1	51.5	-	32.1	1.9	-2.4	6.1	3	silty CLAY to CLAY	115	1.5	34	21	14	-	-	2.2	9.9	39	0.005	2.67	15
7.87	33.2	53.2	-	33.2	1.9	-2.2	5.9	3	silty CLAY to CLAY	115	1.5	35	22	14	-	-	2.3	9.9	38	0.005	2.65	15
8.04	30.9	49.5	-	30.9	1.9	-2.2	6.3	3	silty CLAY to CLAY	115	1.5	33	21	13	-	-	2.1	9.9	40	0.005	2.70	15
8.20	30.5	48.8	-	30.4	2.0	-2.5	6.8	3	silty CLAY to CLAY	115	1.5	33	20	13	-	-	2.1	9.9	42	0.005	2.72	15
8.37	32.1	51.6	-	32.1	2.4	-2.1	7.7	3	silty CLAY to CLAY	115	1.5	34	21	14	-	-	2.2	9.9	43	0.005	2.75	15
8.53	37.4	60.0	-	37.4	3.2	-1.3	8.8	9	very stiff fine SOIL	120	1.0	60	37	17	-	-	1.3	9.9	43	0.250	2.75	30
8.69	61.4	83.4	273.5	61.4	4.4	0.2	7.2	9	very stiff fine SOIL	120	1.0	83	61	21	-	-	2.2	9.9	35	0.250	2.59	30
8.86	102.9	138.4	271.4	102.8	4.7	-2.9	4.6	9	very stiff fine SOIL	120	1.0	100	100	31	-	-	3.6	9.9	23	0.250	2.30	30
9.02	114.2	152.2	295.8	114.2	5.5	-2.8	4.8	9	very stiff fine SOIL	120	1.0	100	100	34	-	-	4.0	9.9	22	0.250	2.30	30
9.19	99.2	130.9	302.1	99.1	5.7	-2.8	5.7	9	very stiff fine SOIL	120	1.0	100	99	30	-	-	3.5	9.9	26	0.250	2.40	30
9.35	88.4	115.6	293.3	88.3	5.4	-3.0	6.1	9	very stiff fine SOIL	120	1.0	100	88	27	-	-	3.1	9.9	29	0.250	2.45	30
9.51	92.3	119.7	268.1	92.3	4.7	0.1	5.1	9	very stiff fine SOIL	120	1.0	100	92	28	-	-	3.2	9.9	26	0.250	2.38	30
9.68	94.6	121.7	255.0	94.6	4.4	-1.2	4.7	9	very stiff fine SOIL	120	1.0	100	95	28	-	-	3.3	9.9	24	0.250	2.34	30
9.84	96.5	123.0	253.8	96.4	4.4	-2.0	4.6	9	very stiff fine SOIL	120	1.0	100	96	28	-	-	3.4	9.9	24	0.250	2.33	30
10.01	91.6	115.8	245.8	91.6	4.2	-1.4	4.6	9	very stiff fine SOIL	120	1.0	100	92	26	-	-	3.2	9.9	24	0.250	2.35	30
10.17	79.4	99.6	233.8	79.4	3.8	-1.3	4.8	9	very stiff fine SOIL	120	1.0	100	79	23	-	-	2.8	9.9	27	0.250	2.41	30
10.34	88.4	109.9	211.2	88.4	3.3	-0.9	3.7	5	silty SAND to sandy SILT	120	3.0	37	29	24	70	42	-	-	22	0.200	2.29	16
10.50	111.1	137.1	199.9	111.1	2.8	-1.7	2.5	5	silty SAND to sandy SILT	120	3.0	46	37	28	77	44	-	-	16	0.200	2.10	16
10.66	106.5	130.4	229.6	106.5	3.8	-0.5	3.6	5	silty SAND to sandy SILT	120	3.0	43	36	28	76	43	-	-	20	0.200	2.24	16
10.83	129.9	157.8	255.9	129.9	4.6	-0.4	3.6	8	stiff SAND to clayy SAND	115	5.0	32	26	33	82	44	-	-	18	0.250	2.18	16
10.99	164.1	197.8	333.6	164.1	7.3	-0.2	4.5	9	very stiff fine SOIL	120	1.0	100	100	42	-	-	5.8	9.9	19	0.250	2.21	30
11.16	178.3	213.4	349.3	178.3	7.9	0.9	4.4	9	very stiff fine SOIL	120	1.0	100	100	45	-	-	6.3	9.9	19	0.250	2.19	30
11.32	237.2	281.8	379.2	237.2	8.2	0.3	3.5	8	stiff SAND to clayy SAND	115	5.0	56	47	56	95	47	-	-	14	0.250	2.03	16
11.48	202.3	238.6	372.3	202.3	8.7	0.3	4.3	9	very stiff fine SOIL	120	1.0	100	100	50	-	-	7.1	9.9	17	0.250	2.15	30
11.65	192.1	225.0	373.4	192.1	9.0	1.3	4.7	9	very stiff fine SOIL	120	1.0	100	100	48	-	-	6.8	9.9	19	0.250	2.20	30
11.81	205.4	238.9	380.3	205.4	9.2	0.9	4.5	9	very stiff fine SOIL	120	1.0	100	100	50	-	-	7.2	9.9	18	0.250	2.17	30
11.98	189.7	219.1	342.0	189.8	7.8	2.3	4.1	8	stiff SAND to clayy SAND	115	5.0	44	38	46	93	45	-	-	17	0.250	2.15	16
12.14	153.3	175.8	271.3	153.3	5.3	2.3	3.5	8	stiff SAND to clayy SAND	115	5.0	35	31	37	86	44	-	-	17	0.250	2.15	16
12.30	167.8	191.2	254.5	167.8	4.3	3.1	2.6	5	silty SAND to sandy SILT	120	3.0	64	56	38	88	45	-	-	14	0.200	2.02	16
12.47	182.4	206.5	277.5	182.5	5.1	2.2	2.8	8	stiff SAND to clayy SAND	115	5.0	41	36	41	91	45	-	-	14	0.250	2.03	16
12.63	146.7	165.0	286.6	146.7	6.1	1.4	4.2	9	very stiff fine SOIL	120	1.0	100	100	36	-	-	5.2	9.9	20	0.250	2.23	30
12.80	131.3	146.7	292.2	131.3	6.4	1.7	4.9	9	very stiff fine SOIL	120	1.0	100	100	33	-	-	4.6	9.9	23	0.250	2.31	30
12.96	136.0	151.0	286.7	136.0	6.2	1.2	4.6	9	very stiff fine SOIL	120	1.0	100	100	33	-	-	4.8	9.9	22	0.250	2.28	30
13.12	130.7	144.2	279.7	130.8	6.0	2.0	4.6	9	very stiff fine SOIL	120	1.0	100	100	32	-	-	4.6	9.9	22	0.250	2.30	30
13.29	127.9	140.2	304.1	127.9	6.9	2.9	5.4	9	very stiff fine SOIL	120	1.0	100	100	32	-	-	4.5	9.9	25	0.250	2.36	30
13.45	147.2	160.4	329.9	147.3	8.0	5.8	5.5	9	very stiff fine SOIL	120	1.0	100	100	36	-	-	5.2	9.9	24	0.250	2.33	30
13.62	214.9	232.7	349.7	215.0	8.4	1.3	3.9	8	stiff SAND to clayy SAND	115	5.0	47	43	48	95	45	-	-	17	0.250	2.13	16
13.78	177.6	191.2	331.3	177.7	8.1	4.2	4.6	9	very stiff fine SOIL	120	1.0	100	100	41	-	-	6.2	9.9	20	0.250	2.23	30
13.94	172.4	184.5	340.1	172.4	8.6	2.0	5.0	9	very stiff fine SOIL	120	1.0	100	100	40	-	-	6.1	9.9	21	0.250	2.27	30
14.11	196.6	209.1	350.0	196.6	8.9	3.0	4.6	9	very stiff fine SOIL	120	1.0	100	100	45	-	-	6.9	9.9	19	0.250	2.20	30
14.27	262.9	278.0	381.9	263.0	9.4	2.2	3.6	8	stiff SAND to clayy SAND	115	5.0	56	53	56	95	46	-	-	14	0.250	2.05	16
14.44	326.1	343.0	431.4	326.2	10.5	5.2	3.2	8	stiff SAND to clayy SAND	115	5.0	69	65	66	95	47	-	-	12	0.250	1.97	16
14.60	334.3	349.6	424.1	334.4	9.8	5.0	2.9	8	stiff SAND to clayy SAND	115	5.0	70	67	67	95	47	-	-	11	0.250	1.92	16
14.76	325.3	338.4	413.2	325.4	9.5	6.9	2.9	8	stiff SAND to clayy SAND	115	5.0	68	65	65	95	47	-	-	11	0.250	1.93	16
14.93	305.1	315.6	380.3	305.3	8.2	11.4	2.7	8	stiff SAND to clayy SAND	115	5.0	63	61	60	95	47	-	-	11	0.250	1.92	16
15.09	326.1	335.6	382.0	326.2	7.5	6.3	2.3	6	clean SAND to silty SAND	125	5.0	67	65	62	95	47	-	-	9	0.350	1.84	16
15.26	331.3	339.0	381.5	331.4	7.3	5.3	2.2	6	clean SAND to silty SAND	125	5.0	68	66	62	95	47	-	-	9	0.350	1.82	16
15.42	288.9	293.9	347.3	289.0	7.0	7.4	2.4	8	stiff SAND to clayy SAND	115	5.0	59	58	55	95	46	-	-	10	0.250	1.89	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

Project ID: CTE Cal
Data File: SDF(714).cpt
CPT Date: 6/30/2021 8:17:44 AM
GW During Test: 35 ft

Sounding ID: CPT-01
Project No: 60-0921G
Cone/Rig: DDG1587

Depth ft	qc PS tsf	qc1n PS - *	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
15.58	230.6	233.4	314.7	230.8	7.1	7.4	3.1	8	stiff SAND to clayy SAND	115	5.0	47	46	46	95	45	-	-	14	0.250	2.03	16
15.75	203.0	204.4	312.4	203.1	7.6	6.3	3.8	8	stiff SAND to clayy SAND	115	5.0	41	41	42	91	44	-	-	17	0.250	2.14	16
15.91	272.4	273.0	343.4	272.5	7.7	3.0	2.8	8	stiff SAND to clayy SAND	115	5.0	55	54	53	95	46	-	-	12	0.250	1.97	16
16.08	212.2	211.6	297.6	212.3	6.8	2.2	3.2	8	stiff SAND to clayy SAND	115	5.0	42	42	43	92	45	-	-	15	0.250	2.07	16
16.24	229.1	227.3	295.3	229.1	6.3	3.8	2.8	8	stiff SAND to clayy SAND	115	5.0	45	46	45	94	45	-	-	13	0.250	2.00	16
16.40	255.4	252.1	300.3	255.5	5.7	4.2	2.3	6	clean SAND to silty SAND	125	5.0	50	51	48	95	45	-	-	10	0.350	1.90	16
16.57	235.9	231.7	289.7	236.0	5.9	3.9	2.5	6	clean SAND to silty SAND	125	5.0	46	47	45	95	45	-	-	12	0.350	1.96	16
16.73	225.5	220.3	280.3	225.6	5.7	6.3	2.5	5	silty SAND to sandy SILT	120	3.0	73	75	43	93	45	-	-	12	0.200	1.98	16
16.90	194.3	188.9	259.9	194.3	5.4	3.3	2.8	5	silty SAND to sandy SILT	120	3.0	63	65	38	88	44	-	-	14	0.200	2.05	16
17.06	194.4	188.0	259.8	194.4	5.5	2.6	2.8	5	silty SAND to sandy SILT	120	3.0	63	65	38	88	44	-	-	15	0.200	2.06	16
17.23	196.3	189.0	269.2	196.4	6.0	3.2	3.1	8	stiff SAND to clayy SAND	115	5.0	38	39	38	88	44	-	-	15	0.250	2.08	16
17.39	283.1	271.3	322.2	283.2	6.6	5.9	2.3	6	clean SAND to silty SAND	125	5.0	54	57	51	95	46	-	-	10	0.350	1.90	16
17.55	281.7	268.6	315.6	281.8	6.3	4.5	2.2	6	clean SAND to silty SAND	125	5.0	54	56	51	95	45	-	-	10	0.350	1.88	16
17.72	193.4	183.5	264.5	193.5	5.9	5.3	3.1	8	stiff SAND to clayy SAND	115	5.0	37	39	37	87	44	-	-	16	0.250	2.09	16
17.88	139.2	131.5	237.8	139.3	5.3	7.9	3.8	8	stiff SAND to clayy SAND	115	5.0	26	28	29	76	42	-	-	21	0.250	2.25	16
18.05	145.7	137.0	222.6	145.8	4.6	7.8	3.2	5	silty SAND to sandy SILT	120	3.0	46	49	29	77	42	-	-	18	0.200	2.18	16
18.21	173.5	162.4	215.7	173.6	3.9	5.4	2.3	5	silty SAND to sandy SILT	120	3.0	54	58	32	83	43	-	-	14	0.200	2.02	16
18.37	212.6	198.1	220.0	212.6	3.0	4.0	1.4	6	clean SAND to silty SAND	125	5.0	40	43	36	90	44	-	-	8	0.350	1.81	16
18.54	259.3	240.5	240.4	259.5	2.6	6.3	1.0	6	clean SAND to silty SAND	125	5.0	48	52	42	95	45	-	-	5	0.350	1.64	16
18.70	271.8	250.9	250.9	271.9	2.2	4.7	0.8	6	clean SAND to silty SAND	125	5.0	50	54	42	95	45	-	-	5	0.350	1.56	16
18.87	215.8	198.3	217.4	215.8	2.9	0.7	1.3	6	clean SAND to silty SAND	125	5.0	40	43	36	90	44	-	-	8	0.350	1.79	16
19.03	188.8	172.7	214.9	188.9	3.7	2.3	2.0	6	clean SAND to silty SAND	125	5.0	35	38	33	85	43	-	-	12	0.350	1.95	16
19.19	204.1	185.9	257.1	204.2	5.7	2.8	2.8	5	silty SAND to sandy SILT	120	3.0	62	68	37	87	44	-	-	15	0.200	2.06	16
19.36	225.5	204.5	313.8	225.5	8.5	0.8	3.8	8	stiff SAND to clayy SAND	115	5.0	41	45	42	91	44	-	-	17	0.250	2.14	16
19.52	288.3	260.3	364.8	288.3	10.4	1.0	3.6	8	stiff SAND to clayy SAND	115	5.0	52	58	53	95	45	-	-	15	0.250	2.07	16
19.69	334.3	300.6	381.4	334.3	10.2	1.2	3.1	8	stiff SAND to clayy SAND	115	5.0	60	67	58	95	46	-	-	12	0.250	1.98	16
19.85	370.5	331.9	396.9	370.5	10.0	0.7	2.7	8	stiff SAND to clayy SAND	115	5.0	66	74	63	95	46	-	-	11	0.250	1.91	16
20.01	348.4	310.9	379.8	348.4	9.7	-0.1	2.8	8	stiff SAND to clayy SAND	115	5.0	62	70	60	95	46	-	-	11	0.250	1.93	16
20.18	342.2	304.1	366.0	342.3	9.0	7.3	2.6	8	stiff SAND to clayy SAND	115	5.0	61	68	58	95	46	-	-	11	0.250	1.92	16
20.34	319.6	282.9	320.4	319.7	6.4	3.0	2.0	6	clean SAND to silty SAND	125	5.0	57	64	52	95	45	-	-	9	0.350	1.83	16
20.51	309.0	272.3	304.3	309.1	5.7	7.7	1.9	6	clean SAND to silty SAND	125	5.0	54	62	50	95	45	-	-	8	0.350	1.81	16
20.67	291.8	256.1	270.8	291.8	4.0	2.4	1.4	6	clean SAND to silty SAND	125	5.0	51	58	46	95	45	-	-	7	0.350	1.73	16
20.83	288.7	252.4	280.3	288.8	4.9	3.5	1.7	6	clean SAND to silty SAND	125	5.0	50	58	46	95	45	-	-	8	0.350	1.81	16
21.00	278.2	242.2	288.2	278.3	6.0	3.2	2.2	6	clean SAND to silty SAND	125	5.0	48	56	46	95	45	-	-	10	0.350	1.90	16
21.16	290.0	251.4	310.8	290.1	7.3	3.8	2.5	8	stiff SAND to clayy SAND	115	5.0	50	58	48	95	45	-	-	12	0.250	1.95	16
21.33	287.8	248.6	314.3	287.9	7.7	3.6	2.7	8	stiff SAND to clayy SAND	115	5.0	50	58	48	95	45	-	-	12	0.250	1.97	16
21.49	374.8	322.5	360.1	374.9	7.7	5.8	2.1	6	clean SAND to silty SAND	125	5.0	65	75	59	95	46	-	-	8	0.350	1.81	16
21.65	450.5	386.1	389.8	450.6	6.9	3.1	1.5	6	clean SAND to silty SAND	125	5.0	77	90	67	95	47	-	-	5	0.350	1.66	16
21.82	495.3	422.8	422.8	495.4	5.9	6.6	1.2	6	clean SAND to silty SAND	125	5.0	85	99	71	95	47	-	-	5	0.350	1.55	16
21.98	452.8	385.0	385.0	452.8	5.0	1.2	1.1	6	clean SAND to silty SAND	125	5.0	77	91	64	95	47	-	-	5	0.350	1.54	16
22.15	407.2	344.9	344.9	407.2	4.4	2.5	1.1	6	clean SAND to silty SAND	125	5.0	69	81	58	95	46	-	-	5	0.350	1.57	16
22.31	299.5	252.7	269.5	299.5	4.3	-1.6	1.4	6	clean SAND to silty SAND	125	5.0	51	60	45	95	45	-	-	7	0.350	1.74	16
22.47	291.6	245.1	261.4	291.6	4.1	-0.5	1.4	6	clean SAND to silty SAND	125	5.0	49	58	44	95	44	-	-	7	0.350	1.74	16
22.64	247.1	206.9	238.6	247.2	4.2	2.6	1.7	6	clean SAND to silty SAND	125	5.0	41	49	39	91	44	-	-	9	0.350	1.86	16
22.80	241.0	201.0	230.6	241.1	3.9	1.1	1.6	6	clean SAND to silty SAND	125	5.0	40	48	37	90	43	-	-	9	0.350	1.85	16
22.97	233.9	194.4	224.6	233.9	3.8	-1.2	1.7	6	clean SAND to silty SAND	125	5.0	39	47	36	89	43	-	-	10	0.350	1.86	16
23.13	223.0	184.6	222.2	223.0	4.1	-1.0	1.9	6	clean SAND to silty SAND	125	5.0	37	45	35	87	43	-	-	11	0.350	1.92	16
23.30	227.2	187.4	225.5	227.2	4.2	-1.0	1.9	6	clean SAND to silty SAND	125	5.0	37	45	36	88	43	-	-	11	0.350	1.92	16
23.46	194.3	159.7	211.4	194.4	4.3	1.8	2.2	5	silty SAND to sandy SILT	120	3.0	53	65	32	82	42	-	-	13	0.200	2.02	16
23.62	177.6	145.4	189.2	177.6	3.4	-1.4	2.0	5	silty SAND to sandy SILT	120	3.0	48	59	29	79	42	-	-	13	0.200	2.00	16
23.79	179.2	146.2	169.3	179.2	2.3	-0.8	1.3	6	clean SAND to silty SAND	125	5.0	29	36	27	80	42	-	-	10	0.350	1.87	16
23.95	139.1	113.1	155.6	139.0	2.5	-3.1	1.8	5	silty SAND to sandy SILT	120	3.0	38	46	23	71	40	-	-	14	0.200	2.05	16
24.12	128.6	104.2	162.1	128.5	2.9	-1.7	2.3	5	silty SAND to sandy SILT	120	3.0	35	43	22	68	40	-	-	17	0.200	2.15	16
24.28	115.3	93.1	161.7	115.2	3.0	-3.0	2.6	5	silty SAND to sandy SILT	120	3.0	31	38	20	65	39	-	-	20	0.200	2.23	16
24.44	93.9	75.6	166.1	93.9	3.1	-2.6	3.4	4	clayy SILT to silty CLAY	115	2.0	38	47	17	-	-	6.5	9.9	25	0.070	2.37	15
24.61	85.5	68.5	153.2	85.4	2.7	-1.6	3.2	4	clayy SILT to silty CLAY	115	2.0	34	43	16	-	-	5.9	9.9	26	0.070	2.38	15
24.77	67.6	54.1	130.4	67.6	1.9	-4.0	2.9	4	clayy SILT to silty CLAY	115	2.0	27	34	13	-	-	4.7	9.9	27	0.070	2.42	15
24.94	30.8	20.8	-	30.8	1.3	-1.4	4.3	3	silty CLAY to CLAY	115	1.5	14	21	6	-	-	2.1	6.5	49	0.005	2.86	15
25.10	26.1	17.5	-	26.1	0.8	0.1	3.4	3	silty CLAY to CLAY	115	1.5	12	17	5	-	-	1.7	5.4	49	0.005	2.85	15
25.26	40.5	26.9	-	40.5	1.4	1.5	3.6	4	clayy SILT to silty CLAY	115	2.0	13	20	7	-	-	2.8	8.6	41	0.070	2.71	15
25.43	66.4	52.4	103.2	66.4	1.2	-3.3	1.9	5	silty SAND to sandy SILT	120	3.0	17	22	12	46	36	-	-	23	0.200	2.31	16
25.59	41.0	26.9	-	40.9	1.0	-3.5	2.5	4	clayy SILT to silty CLAY	115	2.0	13	20	7	-	-	2.8	8.6	36	0.070	2.61	15
25.76	20.6	13.5	-	20.6	0.4	0.1	2.3	4	clayy SILT to silty CLAY	115	2.0	7	10	4	-	-	1.3	4.1	49	0.070	2.85	15
25.92	20.9	13.5	-	20.9	0.3	-1.0	1.6	4	clayy SILT to silty CLAY	115	2.0	7	10	4	-	-	1.4	4.1	44	0.070	2.77	15
26.08	20.6	13.3	-	20.6	0.3	-1.2	1.8	4	clayy SILT to silty CLAY	115	2.0	7	10	4	-	-	1.3	4.0	46	0.070	2.80	15
26.25	18.7	12.0	-	18.7	0.3	-1.4	1.9	4	clayy SILT to silty CLAY	115	2.0	6	9	4	-	-	1.2	3.6	49	0.070	2.86	15
26.41	18.2	11.6	-	18.1	0.3	-1.5	2.0	4	clayy SILT to silty CLAY	115	2.0	6	9	3	-	-	1.2	3.5	50	0.070	2.88	15
26.58	18.3	11.6	-	18.3	0.3	-1.3	2.0	4	clayy SILT to silty CLAY	115	2.0	6	9	3	-	-	1.2	3.5	51	0.070	2.88	15
26.74	19.4	12.2	-	19.4	0.4	-1.6	2.1	4	clayy SILT to silty CLAY	115	2.0	6	10	4	-	-	1.3	3.7	50	0.070	2.87	15
26.90	20.7	12.9	-	20.7	0.4	-1.7	2.1	4	clayy SILT to silty CLAY	115	2.0	6	10	4	-	-	1.3	3.9	49	0.070	2.85	15
27.07	22.2	13.8	-	22.2	0.4	-1.8	2.0	4	clayy SILT to silty CLAY	115	2.0	7	11	4	-	-	1.5	4.2	46	0.070	2.81	15
27.23	22.6	14.0	-	22.6	0.4	-0.8	1.9	4	clayy SILT to silty CLAY	115	2.0	7	11	4	-	-	1.5	4.3	46	0.070	2.79	15
27.40	22.3	13.7	-	22.3	0.4	-1.5	1.8	4	clayy SILT to silty CLAY	115	2.0	7	11	4	-	-	1.5	4.2	45	0.070	2.78	15
27.56	23.0	14.1	-	23.0	0.4	-0.9	1.8	4	clayy SILT to silty CLAY	115	2.0	7	12	4	-	-	1.5	4.3	45	0.070	2.78	15
27.72	23.0	14.0	-	23.0	0.5	-0.7	2.2	4	clayy SILT to silty CLAY	115	2.0	7	12	4	-	-	1.5	4.3	48	0.070	2.83	15
27.89	25.3	15.3	-	25.3	0.5	-1.2	2.2	4	clayy SILT to silty CLAY	115	2.0	8	13	4	-	-	1.7	4.7	45	0.070	2.79	15
28.05	27.3	16.4	-	27.3	0.6	-1.1	2.3	4	clayy SILT to silty CLAY	115	2.0	8	14	5	-	-	1.8	5.1	44	0.070	2.77	15
28.22	30.6	18.3	-	30.6	0.7	-0.9	2.4	4	clayy SILT to silty CLAY	115	2.0	9	15	5	-	-	2.0	5.7	43	0.070	2.74	15
28.38	32.1	19.1	-	32.1	0.7	-0.6	2.2	4	clayy SILT to silty CLAY	115	2.0	10	16	5	-	-	2.2	6.0	41	0.070	2.71	15
28.54	33.6	19.9	-	33.6	0.8	-0.5	2.4	4	clayy SILT to silty CLAY	115	2.0	10	17	5	-	-	2.3	6.2	41	0.070	2.71	15
28.71	33.0	19.4	-	33.0	0.7	-1.4	2.3	4	clayy SILT to silty CLAY	115	2.0	10	16	5	-	-	2.2	6.1	41	0.070	2.71	15
28.87	28.1	16.4	-	28.1	0.6	-2.3	2.3	4	clayy SILT to silty CLAY	115	2.0	8	14	5	-	-	1.9	5.1	45	0.070	2.78	15
29.04	26.6	15.5	-	26.6	0.4	-1.8	1.5	4	clayy SILT to silty CLAY	115	2.0	8	13	4	-	-	1.8	4.8	41	0.070	2.70	15
29.20	23.7	13.7	-	23.6	0.5	-1.8	2.2	4	clayy SILT to silty CLAY	115	2.0	7	12	4	-	-	1.6	4.2	48	0.070	2.84	15
29.36	21.1	12.1	-	21.0	0.7	-1.6	3.5	3	silty CLAY to CLAY	115	1.5	8	14	4	-	-	1.4	3.7	58	0.005	3.00	15
29.53	31.2	17.8	-	31.2	0.8	-1.0	2.8	4	clayy SILT to silty CLAY	115	2.0	9	16	5	-	-	2.1	5.6	46	0.070	2.79	15
29.69	56.8	41.6	98.9	56.8	1.1	-2.0	2.1	5	silty SAND to sandy SILT	120	3.0	14	19	10	38	34	-	-	27	0.200	2.42	16
29.86	61.0	44.5	98.7	60.9	1.2	-5.1	1.9	5	silty SAND to sandy SILT	120	3.0	15	20	10	40	34	-	-	25	0.200	2.38	16
30.02	42.4	23.8	-	42.3	1.2	-5.0	3.0	4	clayy SILT to silty CLAY	115	2.0	12	21	6	-	-	2.9	7.5	41	0.070	2.71	15
30.19	30.9	17.3	-	30.8	0.9	-3.2	3.2	3	silty CLAY to CLAY	115	1.5	12	21	5	-	-	2.1	5.4	48	0.005	2.84	15
30.35	24.0	13.3	-	23.9	0.6	-3.3	2.9	3	silty CLAY to CLAY	115	1.5	9	16	4	-	-	1.6	4.1	53	0.005	2.91	15
30.51	20.6	11.4	-	20.6	0.5	-2.9	2.5	3	silty CLAY to CLAY	115	1.5	8	14	4	-	-	1.3	3.4	55	0.005	2.94	15
30.68	22.0	12.1	-	21.9	0.7	-2.5	3.2	3	silty CLAY to CLAY	115	1.5	8	15	4	-	-	1.4	3.7	57	0.005	2.98	15
30.84	23.4	12.8	-	23.3	1.2	-2.6	5.7	3	silty CLAY to CLAY	115	1.5	9	16	4	-	-	1.5	3.9	66	0.005	3.11	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: CTE Cal
Data File: SDF(714).cpt
CPT Date: 6/30/2021 8:17:44 AM
GW During Test: 35 ft

Sounding ID: CPT-01
Project No: 60-0921G
Cone/Rig: DDG1587

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR - -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
31.01	39.4	21.4	-	39.3	1.5	-1.6	4.1	3	silty CLAY to CLAY	115	1.5	14	26	6	-	-	2.7	6.7	48	0.005	2.83	15
31.17	56.8	30.8	-	56.8	1.9	-2.1	3.5	4	clayy SILT to silty CLAY	115	2.0	15	28	8	-	-	3.9	9.8	39	0.070	2.66	15
31.33	79.2	56.5	122.7	79.1	1.9	-2.1	2.5	5	silty SAND to sandy SILT	120	3.0	19	26	13	48	36	-	-	25	0.200	2.36	16
31.50	86.3	61.4	126.2	86.2	2.1	-3.6	2.4	5	silty SAND to sandy SILT	120	3.0	20	29	14	51	36	-	-	24	0.200	2.33	16
31.66	71.7	38.3	-	71.6	2.8	-3.7	4.0	4	clayy SILT to silty CLAY	115	2.0	19	36	10	-	-	4.9	9.9	37	0.070	2.63	15
31.83	64.8	34.4	-	64.8	2.7	-3.0	4.3	4	clayy SILT to silty CLAY	115	2.0	17	32	9	-	-	4.4	9.9	40	0.070	2.69	15
31.99	63.3	33.5	-	63.2	2.0	-5.2	3.3	4	clayy SILT to silty CLAY	115	2.0	17	32	9	-	-	4.3	9.9	36	0.070	2.62	15
32.15	80.5	56.7	122.5	80.5	1.9	-0.1	2.5	5	silty SAND to sandy SILT	120	3.0	19	27	13	48	36	-	-	25	0.200	2.36	16
32.32	111.9	78.6	125.1	111.8	2.0	-4.7	1.8	5	silty SAND to sandy SILT	120	3.0	26	37	16	59	38	-	-	18	0.200	2.17	16
32.48	113.8	79.8	144.6	113.8	2.8	-3.6	2.5	5	silty SAND to sandy SILT	120	3.0	27	38	17	60	38	-	-	21	0.200	2.26	16
32.65	115.1	80.5	154.3	115.1	3.2	-3.4	2.8	5	silty SAND to sandy SILT	120	3.0	27	38	18	60	38	-	-	22	0.200	2.29	16
32.81	121.7	84.8	155.6	121.6	3.2	-5.5	2.7	5	silty SAND to sandy SILT	120	3.0	28	41	19	62	38	-	-	21	0.200	2.26	16
32.97	99.1	68.9	154.7	99.0	3.1	-4.6	3.2	4	clayy SILT to silty CLAY	115	2.0	34	50	16	-	-	6.9	9.9	26	0.070	2.38	15
33.14	76.7	39.1	-	76.6	3.4	-4.0	4.5	4	clayy SILT to silty CLAY	115	2.0	20	38	10	-	-	5.3	9.9	38	0.070	2.66	15
33.30	79.8	40.5	-	79.7	3.5	-5.0	4.5	4	clayy SILT to silty CLAY	115	2.0	20	40	11	-	-	5.5	9.9	38	0.070	2.65	15
33.47	85.8	59.2	164.0	85.7	3.4	-4.4	4.0	4	clayy SILT to silty CLAY	115	2.0	30	43	14	-	-	5.9	9.9	31	0.070	2.50	15
33.63	127.6	87.9	145.2	127.5	2.8	-3.6	2.2	5	silty SAND to sandy SILT	120	3.0	29	43	19	63	38	-	-	19	0.200	2.19	16
33.79	134.8	92.6	135.1	134.7	2.3	-4.2	1.8	5	silty SAND to sandy SILT	120	3.0	31	45	19	64	38	-	-	16	0.200	2.10	16
33.96	140.3	96.1	134.4	140.2	2.2	-4.6	1.6	5	silty SAND to sandy SILT	120	3.0	32	47	19	66	39	-	-	15	0.200	2.07	16
34.12	135.7	92.8	150.5	135.6	3.0	-4.7	2.3	5	silty SAND to sandy SILT	120	3.0	31	45	20	65	38	-	-	18	0.200	2.18	16
34.29	134.4	91.7	159.8	134.3	3.5	-4.7	2.6	5	silty SAND to sandy SILT	120	3.0	31	45	20	64	38	-	-	20	0.200	2.23	16
34.45	134.6	91.6	169.0	134.5	3.9	-4.2	2.9	5	silty SAND to sandy SILT	120	3.0	31	45	20	64	38	-	-	21	0.200	2.27	16
34.61	153.7	104.3	176.5	153.6	4.2	-3.9	2.8	5	silty SAND to sandy SILT	120	3.0	35	51	22	68	39	-	-	19	0.200	2.21	16
34.78	163.2	110.5	152.9	163.1	2.9	-4.8	1.8	5	silty SAND to sandy SILT	120	3.0	37	54	22	70	39	-	-	15	0.200	2.06	16
34.94	151.1	102.1	151.1	151.1	3.0	-4.7	2.0	5	silty SAND to sandy SILT	120	3.0	34	50	21	68	39	-	-	16	0.200	2.11	16
35.11	193.4	130.5	157.0	193.3	2.6	-3.6	1.3	6	clean SAND to silty SAND	125	5.0	26	39	25	76	40	-	-	11	0.350	1.91	16
35.27	174.9	117.8	138.3	174.7	1.9	-5.5	1.1	6	clean SAND to silty SAND	125	5.0	24	35	22	72	40	-	-	10	0.350	1.88	16
35.43	151.0	101.6	137.8	150.9	2.3	-4.8	1.6	5	silty SAND to sandy SILT	120	3.0	34	50	20	68	39	-	-	14	0.200	2.04	16
35.60	130.2	87.5	146.5	130.1	2.9	-5.2	2.3	5	silty SAND to sandy SILT	120	3.0	29	43	19	63	38	-	-	19	0.200	2.20	16
35.76	124.0	83.3	143.3	123.9	2.8	-5.6	2.3	5	silty SAND to sandy SILT	120	3.0	28	41	18	61	38	-	-	20	0.200	2.22	16
35.93	116.9	78.4	139.2	116.8	2.7	-5.5	2.3	5	silty SAND to sandy SILT	120	3.0	26	39	17	59	37	-	-	20	0.200	2.24	16
36.09	129.5	86.8	134.7	129.4	2.4	-5.4	1.9	5	silty SAND to sandy SILT	120	3.0	29	43	18	62	38	-	-	17	0.200	2.15	16
36.26	121.3	81.2	132.7	121.2	2.4	-5.8	2.0	5	silty SAND to sandy SILT	120	3.0	27	40	17	60	37	-	-	19	0.200	2.19	16
36.42	100.1	66.9	127.8	100.0	2.2	-5.4	2.3	5	silty SAND to sandy SILT	120	3.0	22	33	15	54	36	-	-	22	0.200	2.29	16
36.58	98.3	65.7	131.4	98.2	2.4	-5.3	2.5	5	silty SAND to sandy SILT	120	3.0	22	33	15	53	36	-	-	23	0.200	2.32	16
36.75	102.1	68.1	139.0	102.0	2.7	-5.3	2.7	5	silty SAND to sandy SILT	120	3.0	23	34	15	54	36	-	-	24	0.200	2.33	16
36.91	115.0	76.6	151.0	114.9	3.2	-5.2	2.8	5	silty SAND to sandy SILT	120	3.0	26	38	17	58	37	-	-	23	0.200	2.31	16
37.08	141.9	94.4	158.2	141.8	3.4	-5.2	2.5	5	silty SAND to sandy SILT	120	3.0	31	47	20	65	38	-	-	19	0.200	2.20	16
37.24	148.7	98.8	161.7	148.6	3.6	-5.3	2.4	5	silty SAND to sandy SILT	120	3.0	33	50	21	67	39	-	-	19	0.200	2.19	16
37.40	149.4	99.2	150.4	149.3	3.0	-5.2	2.1	5	silty SAND to sandy SILT	120	3.0	33	50	21	67	39	-	-	17	0.200	2.13	16
37.57	122.7	81.4	135.4	122.6	2.5	-4.5	2.1	5	silty SAND to sandy SILT	120	3.0	27	41	17	60	37	-	-	19	0.200	2.20	16
37.73	102.7	68.0	123.7	102.6	2.1	-4.3	2.1	5	silty SAND to sandy SILT	120	3.0	23	34	15	54	36	-	-	21	0.200	2.26	16
37.90	87.6	58.0	98.0	87.5	1.3	-3.6	1.5	5	silty SAND to sandy SILT	120	3.0	19	29	12	49	35	-	-	19	0.200	2.21	16
38.06	82.4	54.5	101.5	82.4	1.4	-3.9	1.7	5	silty SAND to sandy SILT	120	3.0	18	27	12	47	35	-	-	22	0.200	2.27	16
38.22	62.0	28.7	-	61.9	2.0	-4.1	3.4	4	clayy SILT to silty CLAY	115	2.0	14	31	8	-	-	4.2	9.1	39	0.070	2.68	15
38.39	54.1	25.0	-	54.1	2.4	-2.0	4.6	3	silty CLAY to CLAY	115	1.5	17	36	7	-	-	3.7	7.9	47	0.005	2.81	15
38.55	104.0	68.5	134.0	103.9	2.5	-4.5	2.5	5	silty SAND to sandy SILT	120	3.0	23	35	15	55	36	-	-	23	0.200	2.30	16
38.72	126.2	83.1	140.7	126.1	2.8	-3.2	2.2	5	silty SAND to sandy SILT	120	3.0	28	42	18	61	37	-	-	19	0.200	2.21	16
38.88	167.0	109.8	154.2	166.9	3.1	-4.1	1.9	5	silty SAND to sandy SILT	120	3.0	37	56	22	70	39	-	-	15	0.200	2.07	16
39.04	189.8	124.7	171.8	189.8	3.8	-3.4	2.0	5	silty SAND to sandy SILT	120	3.0	42	63	25	74	40	-	-	14	0.200	2.05	16
39.21	206.7	135.6	192.8	206.6	4.8	-4.5	2.3	5	silty SAND to sandy SILT	120	3.0	45	69	27	77	40	-	-	15	0.200	2.08	16
39.37	177.6	116.4	185.1	177.5	4.7	-4.6	2.7	5	silty SAND to sandy SILT	120	3.0	39	59	24	72	39	-	-	18	0.200	2.17	16
39.54	122.0	79.9	167.7	121.9	3.9	-3.7	3.3	5	silty SAND to sandy SILT	120	3.0	27	41	18	60	37	-	-	24	0.200	2.34	16
39.70	132.3	86.6	150.9	132.3	3.2	-0.1	2.5	5	silty SAND to sandy SILT	120	3.0	29	44	19	62	38	-	-	20	0.200	2.23	16
39.86	111.6	72.9	139.4	111.6	2.7	-3.0	2.5	5	silty SAND to sandy SILT	120	3.0	24	37	16	57	37	-	-	22	0.200	2.29	16
40.03	81.5	53.2	139.8	81.5	2.6	-2.0	3.3	4	clayy SILT to silty CLAY	115	2.0	27	41	13	-	-	5.6	9.9	29	0.070	2.47	15
40.19	85.5	55.8	125.7	85.5	2.2	-0.5	2.6	5	silty SAND to sandy SILT	120	3.0	19	29	13	48	35	-	-	26	0.200	2.39	16
40.36	74.2	48.3	116.9	74.1	1.8	-2.7	2.5	5	silty SAND to sandy SILT	120	3.0	16	25	11	43	34	-	-	27	0.200	2.43	16
40.52	62.8	28.2	-	62.7	1.8	-2.6	3.0	4	clayy SILT to silty CLAY	115	2.0	14	31	7	-	-	4.3	8.9	38	0.070	2.66	15
40.68	63.2	28.3	-	63.2	1.6	-2.3	2.7	4	clayy SILT to silty CLAY	115	2.0	14	32	7	-	-	4.3	9.0	36	0.070	2.62	15
40.85	62.5	27.9	-	62.5	1.7	-2.4	2.9	4	clayy SILT to silty CLAY	115	2.0	14	31	7	-	-	4.3	8.9	37	0.070	2.64	15
41.01	64.3	28.7	-	64.3	2.3	-2.4	3.7	4	clayy SILT to silty CLAY	115	2.0	14	32	8	-	-	4.4	9.1	40	0.070	2.70	15
41.18	72.4	32.2	-	72.4	2.6	-2.1	3.8	4	clayy SILT to silty CLAY	115	2.0	16	36	9	-	-	5.0	9.9	39	0.070	2.67	15
41.34	113.0	73.2	155.5	113.0	3.4	-1.8	3.1	5	silty SAND to sandy SILT	120	3.0	24	38	17	57	37	-	-	24	0.200	2.35	16
41.50	188.8	122.2	192.0	188.8	5.0	-1.0	2.7	5	silty SAND to sandy SILT	120	3.0	41	63	26	74	40	-	-	18	0.200	2.16	16
41.67	263.4	170.2	216.5	263.4	5.4	-1.5	2.1	5	silty SAND to sandy SILT	120	3.0	57	88	33	85	41	-	-	12	0.200	1.98	16
41.83	310.5	200.4	232.2	310.4	5.3	-3.0	1.7	6	clean SAND to silty SAND	125	5.0	40	62	37	90	42	-	-	10	0.350	1.87	16
42.00	291.8	188.2	223.8	291.8	5.2	-2.6	1.8	6	clean SAND to silty SAND	125	5.0	38	58	36	88	42	-	-	10	0.350	1.90	16
42.16	265.7	171.1	218.0	265.7	5.5	-3.0	2.1	5	silty SAND to sandy SILT	120	3.0	57	89	33	85	41	-	-	12	0.200	1.98	16
42.32	236.5	152.2	213.7	236.4	5.9	-3.5	2.5	5	silty SAND to sandy SILT	120	3.0	51	79	31	81	41	-	-	15	0.200	2.07	16
42.49	207.4	133.3	206.3	207.4	5.8	-2.8	2.8	5	silty SAND to sandy SILT	120	3.0	44	69	28	76	40	-	-	17	0.200	2.15	16
42.65	188.9	121.3	197.3	188.8	5.4	-2.4	2.9	5	silty SAND to sandy SILT	120	3.0	40	63	26	73	39	-	-	18	0.200	2.18	16
42.82	216.0	138.6	186.9	216.0	4.4	-1.0	2.1	5	silty SAND to sandy SILT	120	3.0	46	72	28	78	40	-	-	14	0.200	2.04	16
42.98	204.5	131.0	165.0	204.4	3.2	-2.7	1.6	6	clean SAND to silty SAND	125	5.0	26	41	25	76	40	-	-	12	0.350	1.97	16
43.15	155.8	99.7	154.8	155.8	3.4	-3.0	2.2	5	silty SAND to sandy SILT	120	3.0	33	52	21	67	38	-	-	17	0.200	2.15	16
43.31	104.5	66.8	142.4	104.4	2.9	-3.3	2.8	5	silty SAND to sandy SILT	120	3.0	22	35	15	54	36	-	-	25	0.200	2.35	16
43.47	82.0	52.4	129.1	82.0	2.3	-1.9	2.9	4	clayy SILT to silty CLAY	115	2.0	26	41	12	-	-	5.6	9.9	28	0.070	2.44	15
43.64	75.5	48.2	124.5	75.5	2.1	-1.6	2.9	4	clayy SILT to silty CLAY	115	2.0	24	38	12	-	-	5.2	9.9	29	0.070	2.46	15
43.80	80.6	34.7	-	80.6	2.6	-1.3	3.4	4	clayy SILT to silty CLAY	115	2.0	17	40	9	-	-	5.5	9.9	36	0.070	2.61	15
43.97	97.8	62.3	155.4	97.8	3.3	-0.9	3.5	4	clayy SILT to silty CLAY	115	2.0	31	49	15	-	-	6.7	9.9	28	0.070	2.44	15
44.13	134.8	85.8	170.6	134.8	4.2	-1.1	3.2	5	silty SAND to sandy SILT	120	3.0	29	45	19	62	37	-	-	23	0.200	2.31	16
44.29	199.2	126.6	188.5	199.2	4.9	-1.0	2.5	5	silty SAND to sandy SILT	120	3.0	42	66	26	75	40	-	-	16	0.200	2.12	16
44.46	242.1	153.8	193.0	242.1	4.4	-1.3	1.8	6	clean SAND to silty SAND	125	5.0	31	48	30	81	41	-	-	12	0.350	1.96	16
44.62	259.5	164.6	211.2	259.4	5.3	-1.5	2.1	5	silty SAND to sandy SILT	120	3.0	55	86	32	83	41	-	-	13	0.200	1.99	16
44.79	283.7	179.8	230.5	283.7	6.3	-1.2	2.2	5	silty SAND to sandy SILT	120	3.0	60	95	35	86	42	-	-	13	0.200	1.99	16
44.95	295.4	187.1	231.2	295.4	6.0	-2.3	2.0	6	clean SAND to silty SAND	125	5.0	37	59	36	88	42	-	-	12	0.350	1.95	16
45.11	300.8	190.3	228.6	300.8	5.6	-1.5	1.9	6	clean SAND to silty SAND	125	5.0	38	60	36	88	42	-	-	11	0.350	1.91	16
45.28	289.0	182.6	209.9	289.0	4.4	-1.9	1.5	6	clean SAND to silty SAND	125	5.0	37	58	34	87	42	-	-	9	0.350	1.86	16
45.44	286.1	180.6	206.8	286.1	4.2	-2.2	1.5	6	clean SAND to silty SAND	125	5.0	36	57	34	87	42	-	-	9	0.350	1.85	16
45.61	282.8	178.3	219.0	282.8	5.4	-2.3	1.9	6	clean SAND to silty SAND	125	5.0	36	57	34	86	41	-	-	11	0.350	1.94	16
45.77	273.9	172.4	241.5	273.8	7.4	-1.4	2.7	5	silty SAND to sandy SILT	120	3.0	57	91	35	85	41	-	-	15	0.200	2.07	16
45.93	271.8	171.0	276.5	271.8	10.0	-0.5	3.7	8	stiff SAND to clayy SAND	115	5.0	34	54	36	85	41	-	-	18	0.250	2.18	16
46.10	286.3	180.0	279.7	286.3	10.1	0.1	3.6	8	stiff SAND to clayy SAND	115	5.0	36	57	38	86	41	-	-	17	0.250	2.15	16
46.26	336.9	211.5	279.7	336.9	9.2	0.1	2.7	5	silty SAND to sandy SILT	120	3.0	71	100	42	92	42	-	-	13	0.200	2.02	16

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

Project ID: CTE Cal
Data File: SDF(714).cpt
CPT Date: 6/30/2021 8:17:44 AM
GW During Test: 35 ft

Sounding ID: CPT-01
Project No: 60-0921G
Cone/Rig: DDG1587

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR - -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
46.43	333.6	209.3	266.8	333.6	8.1	-2.0	2.5	5	silty SAND to sandy SILT	120	3.0	70	100	41	91	42	-	-	12	0.200	1.98	16
46.59	309.3	193.8	269.5	309.3	9.0	-1.7	2.9	5	silty SAND to sandy SILT	120	3.0	65	100	39	89	42	-	-	15	0.200	2.06	16
46.75	275.3	172.4	287.0	275.3	10.8	-1.0	4.0	8	stiff SAND to clayy SAND	115	5.0	34	55	37	85	41	-	-	19	0.250	2.20	16
46.92	322.8	201.9	306.7	322.8	11.8	0.2	3.7	8	stiff SAND to clayy SAND	115	5.0	40	65	42	90	42	-	-	17	0.250	2.13	16
47.08	373.8	233.6	317.0	373.8	11.6	0.9	3.1	8	stiff SAND to clayy SAND	115	5.0	47	75	47	95	43	-	-	14	0.250	2.04	16
47.25	373.7	233.3	302.0	373.7	10.3	0.9	2.8	8	stiff SAND to clayy SAND	115	5.0	47	75	46	95	43	-	-	13	0.250	2.00	16
47.41	379.6	236.8	280.4	379.6	7.9	1.2	2.1	6	clean SAND to silty SAND	125	5.0	47	76	45	95	43	-	-	10	0.350	1.89	16
47.57	357.0	222.5	253.5	357.1	6.1	0.6	1.7	6	clean SAND to silty SAND	125	5.0	45	71	41	93	43	-	-	9	0.350	1.84	16
47.74	311.5	193.9	235.3	311.5	6.1	-1.4	2.0	6	clean SAND to silty SAND	125	5.0	39	62	37	89	42	-	-	11	0.350	1.93	16
47.90	278.3	173.0	191.3	278.2	3.4	-1.4	1.2	6	clean SAND to silty SAND	125	5.0	35	56	32	85	41	-	-	8	0.350	1.80	16
48.07	248.5	154.4	184.7	248.5	3.8	0.4	1.5	6	clean SAND to silty SAND	125	5.0	31	50	29	81	41	-	-	11	0.350	1.91	16
48.23	246.8	153.2	185.2	246.8	3.9	0.3	1.6	6	clean SAND to silty SAND	125	5.0	31	49	29	81	41	-	-	11	0.350	1.92	16
48.39	251.1	155.7	190.5	251.1	4.2	-0.8	1.7	6	clean SAND to silty SAND	125	5.0	31	50	30	82	41	-	-	11	0.350	1.94	16
48.56	257.2	159.2	200.0	257.1	4.8	-1.0	1.9	6	clean SAND to silty SAND	125	5.0	32	51	31	82	41	-	-	12	0.350	1.96	16
48.72	253.3	156.7	218.4	253.3	6.3	-1.4	2.5	5	silty SAND to sandy SILT	120	3.0	52	84	32	82	41	-	-	15	0.200	2.06	16
48.89	212.7	131.5	209.1	212.7	6.2	-1.9	2.9	5	silty SAND to sandy SILT	120	3.0	44	71	28	76	40	-	-	18	0.200	2.17	16
49.05	148.8	91.9	183.7	148.8	5.0	-1.5	3.4	5	silty SAND to sandy SILT	120	3.0	31	50	21	64	38	-	-	23	0.200	2.32	16
49.22	106.8	65.9	154.2	106.8	3.4	1.4	3.3	4	clayy SILT to silty CLAY	115	2.0	33	53	15	-	-	7.4	9.9	27	0.070	2.41	15
49.38	91.4	36.8	-	91.4	3.1	1.2	3.5	4	clayy SILT to silty CLAY	115	2.0	18	46	9	-	-	6.3	9.9	36	0.070	2.61	15
49.54	81.0	32.6	-	81.0	3.1	0.5	4.0	4	clayy SILT to silty CLAY	115	2.0	16	40	9	-	-	5.5	9.9	40	0.070	2.68	15
49.71	105.3	42.3	-	105.3	4.5	1.0	4.4	4	clayy SILT to silty CLAY	115	2.0	21	53	11	-	-	7.3	9.9	37	0.070	2.63	15
49.87	127.4	51.0	-	127.4	8.2	1.1	6.6	3	silty CLAY to CLAY	115	1.5	34	85	14	-	-	8.8	9.9	41	0.005	2.70	15
50.04	263.2	161.7	274.3	263.3	10.2	1.0	3.9	8	stiff SAND to clayy SAND	115	5.0	32	53	35	83	41	-	-	19	0.250	2.21	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.

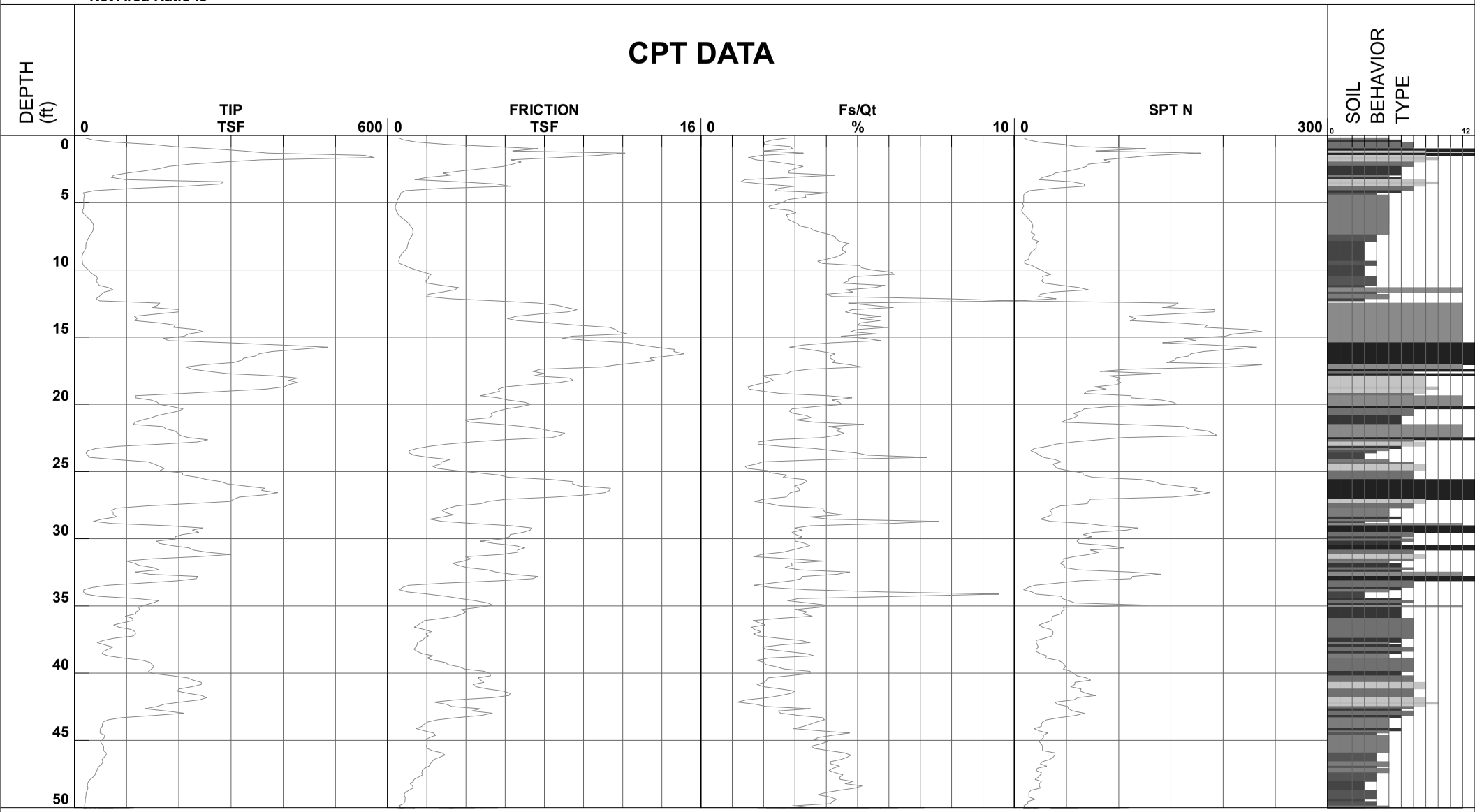
Middle Earth Geo Testing

CTE Cal

Project	San Bruno Genesis & Hyundai	Operator	AJ-OO	Filename	SDF(715).cpt
Job Number	60-0921G	Cone Number	DDG1587	GPS	
Hole Number	CPT-02	Date and Time	6/30/2021 8:55:14 AM	Maximum Depth	60.53 ft
EST GW Depth During Test		35.00 ft			

Net Area Ratio .8

CPT DATA



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

Cone Size 15cm squared

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

San Bruno Genesis & Hyundai

Project ID: CTE Cal
Data File: SDF(715).cpt
CPT Date: 6/30/2021 8:55:14 AM
GW During Test: 35 ft

Sounding ID: CPT-02
Project No: 60-0921G
Cone/Rig: DDG1587

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR - -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
0.33	35.0	56.2	116.3	35.0	0.8	0.1	2.3	5	silty SAND to sandy SILT	120	3.0	19	12	13	48	48	-	-	24	0.200	2.34	16
0.49	74.5	119.4	166.9	74.5	1.5	0.2	2.0	5	silty SAND to sandy SILT	120	3.0	40	25	24	73	48	-	-	15	0.200	2.07	16
0.66	149.2	239.4	279.4	149.2	3.0	0.2	2.0	6	clean SAND to silty SAND	125	5.0	48	30	45	95	48	-	-	10	0.350	1.88	16
0.82	188.3	302.0	372.7	188.3	5.4	0.2	2.8	8	stiff SAND to clayy SAND	115	5.0	60	38	58	95	48	-	-	11	0.250	1.94	16
0.98	262.8	421.5	495.8	262.8	7.7	0.2	2.9	8	stiff SAND to clayy SAND	115	5.0	84	53	79	95	48	-	-	10	0.250	1.89	16
1.15	324.1	519.7	536.6	324.1	6.4	0.0	2.0	8	stiff SAND to clayy SAND	115	5.0	100	65	91	95	48	-	-	6	0.250	1.69	16
1.31	371.0	595.0	690.5	371.1	12.1	2.9	3.3	8	stiff SAND to clayy SAND	115	5.0	100	74	100	95	48	-	-	10	0.250	1.87	16
1.48	555.4	890.7	890.7	555.5	10.8	4.9	1.9	8	stiff SAND to clayy SAND	115	5.0	100	100	100	95	48	-	-	5	0.250	1.60	16
1.64	574.4	921.1	921.1	574.4	8.7	1.6	1.5	8	stiff SAND to clayy SAND	115	5.0	100	100	100	95	48	-	-	5	0.250	1.49	16
1.80	358.4	574.8	574.8	358.4	6.3	1.3	1.8	8	stiff SAND to clayy SAND	115	5.0	100	72	99	95	48	-	-	5	0.250	1.63	16
1.97	288.4	462.6	506.9	288.5	6.8	1.1	2.4	8	stiff SAND to clayy SAND	115	5.0	93	58	84	95	48	-	-	8	0.250	1.78	16
2.13	222.3	356.5	428.3	222.3	6.4	4.3	2.9	8	stiff SAND to clayy SAND	115	5.0	71	44	68	95	48	-	-	11	0.250	1.91	16
2.30	180.9	290.1	379.1	180.9	5.9	1.7	3.3	8	stiff SAND to clayy SAND	115	5.0	58	36	57	95	48	-	-	13	0.250	2.01	16
2.46	162.7	260.9	338.6	162.7	4.9	4.7	3.0	8	stiff SAND to clayy SAND	115	5.0	52	33	51	95	48	-	-	13	0.250	2.00	16
2.62	134.6	215.9	286.2	134.6	3.8	-0.3	2.8	8	stiff SAND to clayy SAND	115	5.0	43	27	43	92	48	-	-	13	0.250	2.02	16
2.79	101.2	162.3	233.7	101.2	2.8	1.2	2.8	5	silty SAND to sandy SILT	120	3.0	54	34	33	83	48	-	-	16	0.200	2.09	16
2.95	75.5	121.0	241.1	75.5	3.2	1.3	4.3	9	very stiff fine SOIL	120	1.0	100	75	27	-	-	2.7	9.9	23	0.250	2.31	30
3.12	70.7	113.4	186.6	70.7	2.0	1.2	2.8	5	silty SAND to sandy SILT	120	3.0	38	24	24	71	47	-	-	19	0.200	2.19	16
3.28	98.6	158.1	183.6	98.6	1.4	0.9	1.4	6	clean SAND to silty SAND	125	5.0	32	20	30	82	48	-	-	10	0.350	1.87	16
3.45	286.0	458.7	458.7	286.0	3.6	-1.1	1.3	6	clean SAND to silty SAND	125	5.0	92	57	77	95	48	-	-	5	0.350	1.55	16
3.61	279.1	447.6	472.2	279.1	5.5	-0.6	2.0	6	clean SAND to silty SAND	125	5.0	90	56	79	95	48	-	-	7	0.350	1.73	16
3.77	210.9	338.2	414.6	210.9	6.3	0.1	3.0	8	stiff SAND to clayy SAND	115	5.0	68	42	65	95	48	-	-	11	0.250	1.94	16
3.94	113.6	182.2	240.9	113.6	2.8	-0.2	2.5	5	silty SAND to sandy SILT	120	3.0	61	38	36	87	48	-	-	13	0.200	2.02	16
4.10	39.1	62.8	124.8	39.1	0.9	-0.1	2.4	5	silty SAND to sandy SILT	120	3.0	21	13	14	52	43	-	-	23	0.200	2.31	16
4.27	16.6	26.7	-	16.6	0.7	0.6	4.1	3	silty CLAY to CLAY	115	1.5	18	11	7	-	-	1.2	9.9	43	0.005	2.75	15
4.43	19.5	31.3	-	19.5	0.6	-1.9	3.4	4	clayy SILT to silty CLAY	115	2.0	16	10	8	-	-	1.4	9.9	37	0.070	2.64	15
4.59	18.2	29.1	-	18.1	0.6	-1.4	3.4	4	clayy SILT to silty CLAY	115	2.0	15	9	8	-	-	1.3	9.9	39	0.070	2.67	15
4.76	18.0	28.9	-	18.0	0.5	-1.7	2.8	4	clayy SILT to silty CLAY	115	2.0	14	9	7	-	-	1.3	9.9	36	0.070	2.62	15
4.92	17.9	28.7	-	17.9	0.5	-2.2	2.7	4	clayy SILT to silty CLAY	115	2.0	14	9	7	-	-	1.2	9.9	36	0.070	2.61	15
5.09	17.6	28.3	92.9	17.6	0.4	-2.2	2.5	4	clayy SILT to silty CLAY	115	2.0	14	9	7	-	-	1.2	9.9	35	0.070	2.59	15
5.25	18.0	28.9	88.0	18.0	0.4	-2.1	2.2	4	clayy SILT to silty CLAY	115	2.0	14	9	7	-	-	1.3	9.9	33	0.070	2.55	15
5.41	17.6	28.2	88.0	17.6	0.4	-1.9	2.2	4	clayy SILT to silty CLAY	115	2.0	14	9	7	-	-	1.2	9.9	34	0.070	2.56	15
5.58	15.3	24.6	-	15.3	0.4	-2.1	2.9	4	clayy SILT to silty CLAY	115	2.0	12	8	7	-	-	1.1	9.9	40	0.070	2.68	15
5.74	16.2	26.1	-	16.2	0.5	-2.3	3.1	4	clayy SILT to silty CLAY	115	2.0	13	8	7	-	-	1.1	9.9	39	0.070	2.68	15
5.91	20.4	32.7	103.3	20.3	0.6	-1.9	2.8	4	clayy SILT to silty CLAY	115	2.0	16	10	8	-	-	1.4	9.9	34	0.070	2.57	15
6.07	24.5	39.3	111.9	24.5	0.7	-1.3	2.8	4	clayy SILT to silty CLAY	115	2.0	20	12	10	-	-	1.7	9.9	31	0.070	2.52	15
6.23	30.0	48.1	121.6	30.0	0.8	-0.6	2.8	4	clayy SILT to silty CLAY	115	2.0	24	15	11	-	-	2.1	9.9	28	0.070	2.45	15
6.40	32.8	52.1	129.3	32.8	1.0	0.1	3.0	4	clayy SILT to silty CLAY	115	2.0	26	16	12	-	-	2.3	9.9	28	0.070	2.44	15
6.56	35.4	55.5	136.8	35.4	1.1	1.1	3.1	4	clayy SILT to silty CLAY	115	2.0	28	18	13	-	-	2.5	9.9	28	0.070	2.44	15
6.73	37.0	57.3	140.4	37.0	1.2	1.5	3.2	4	clayy SILT to silty CLAY	115	2.0	29	19	14	-	-	2.6	9.9	28	0.070	2.43	15
6.89	36.0	55.1	146.3	36.1	1.3	1.7	3.5	4	clayy SILT to silty CLAY	115	2.0	28	18	13	-	-	2.5	9.9	30	0.070	2.48	15
7.05	35.9	54.3	147.5	36.0	1.3	2.3	3.6	4	clayy SILT to silty CLAY	115	2.0	27	18	13	-	-	2.5	9.9	30	0.070	2.49	15
7.22	33.8	50.6	148.5	33.8	1.3	2.0	3.9	4	clayy SILT to silty CLAY	115	2.0	25	17	12	-	-	2.4	9.9	32	0.070	2.53	15
7.38	30.5	45.2	147.7	30.6	1.3	1.6	4.2	4	clayy SILT to silty CLAY	115	2.0	23	15	11	-	-	2.1	9.9	35	0.070	2.59	15
7.55	28.2	45.2	-	28.2	1.2	1.2	4.4	4	clayy SILT to silty CLAY	115	2.0	23	14	12	-	-	2.0	9.9	35	0.070	2.60	15
7.71	26.2	42.1	-	26.2	1.1	0.7	4.4	4	clayy SILT to silty CLAY	115	2.0	21	13	11	-	-	1.8	9.9	37	0.070	2.63	15
7.87	24.1	38.7	-	24.1	1.1	0.6	4.5	4	clayy SILT to silty CLAY	115	2.0	19	12	10	-	-	1.7	9.9	38	0.070	2.66	15
8.04	22.2	35.5	-	22.2	1.0	0.5	4.8	3	silty CLAY to CLAY	115	1.5	24	15	10	-	-	1.5	9.9	41	0.005	2.71	15
8.20	22.2	35.5	-	22.2	1.0	0.3	4.7	3	silty CLAY to CLAY	115	1.5	24	15	10	-	-	1.5	9.9	40	0.005	2.70	15
8.37	21.9	35.1	-	21.9	1.0	-0.2	4.6	3	silty CLAY to CLAY	115	1.5	23	15	9	-	-	1.5	9.9	40	0.005	2.70	15
8.53	20.0	32.1	-	20.0	0.9	0.0	4.6	3	silty CLAY to CLAY	115	1.5	21	13	9	-	-	1.4	9.9	42	0.005	2.73	15
8.69	17.1	27.4	-	17.1	0.8	-0.4	4.8	3	silty CLAY to CLAY	115	1.5	18	11	8	-	-	1.2	9.9	45	0.005	2.79	15
8.86	15.5	24.8	-	15.4	0.7	-0.5	4.6	3	silty CLAY to CLAY	115	1.5	17	10	7	-	-	1.1	9.6	47	0.005	2.82	15
9.02	14.5	23.2	-	14.5	0.6	0.0	4.5	3	silty CLAY to CLAY	115	1.5	15	10	7	-	-	1.0	8.8	48	0.005	2.83	15
9.19	14.7	23.6	-	14.7	0.6	0.2	4.2	3	silty CLAY to CLAY	115	1.5	16	10	7	-	-	1.0	8.7	46	0.005	2.80	15
9.35	15.2	24.4	-	15.2	0.6	0.6	3.9	4	clayy SILT to silty CLAY	115	2.0	12	8	7	-	-	1.0	8.9	44	0.070	2.77	15
9.51	15.6	25.0	-	15.6	0.6	0.8	4.0	3	silty CLAY to CLAY	115	1.5	17	10	7	-	-	1.1	9.0	44	0.005	2.77	15
9.68	17.5	28.1	-	17.6	0.9	1.0	5.2	3	silty CLAY to CLAY	115	1.5	19	12	8	-	-	1.2	9.9	47	0.005	2.81	15
9.84	22.1	35.4	-	22.1	1.1	1.7	5.3	3	silty CLAY to CLAY	115	1.5	24	15	10	-	-	1.5	9.9	43	0.005	2.74	15
10.01	27.0	43.4	-	27.1	1.5	1.6	5.6	3	silty CLAY to CLAY	115	1.5	29	18	12	-	-	1.9	9.9	40	0.005	2.70	15
10.17	30.2	48.4	-	30.2	1.8	3.2	6.2	3	silty CLAY to CLAY	115	1.5	32	20	13	-	-	2.1	9.9	40	0.005	2.69	15
10.34	36.0	57.7	-	36.1	2.2	4.4	6.3	3	silty CLAY to CLAY	115	1.5	38	24	15	-	-	2.5	9.9	38	0.005	2.65	15
10.50	42.6	53.0	175.3	42.7	2.1	3.9	5.0	4	clayy SILT to silty CLAY	115	2.0	26	21	14	-	-	3.0	9.9	35	0.070	2.60	15
10.66	44.2	54.5	172.9	44.2	2.1	3.8	4.8	4	clayy SILT to silty CLAY	115	2.0	27	22	14	-	-	3.1	9.9	34	0.070	2.57	15
10.83	41.1	50.3	167.3	41.2	1.9	7.5	4.8	4	clayy SILT to silty CLAY	115	2.0	25	21	13	-	-	2.9	9.9	35	0.070	2.60	15
10.99	44.7	54.4	169.1	44.9	2.0	7.5	4.6	4	clayy SILT to silty CLAY	115	2.0	27	22	14	-	-	3.1	9.9	34	0.070	2.56	15
11.16	47.6	63.3	-	47.7	2.8	8.7	6.0	4	clayy SILT to silty CLAY	115	2.0	32	24	16	-	-	3.3	9.9	36	0.070	2.60	15
11.32	65.1	78.0	226.4	65.3	3.6	11.2	5.6	9	very stiff fine SOIL	120	1.0	78	65	19	-	-	2.3	9.9	32	0.250	2.53	30
11.48	73.8	87.8	215.2	74.1	3.4	11.1	4.7	4	clayy SILT to silty CLAY	115	2.0	44	37	21	-	-	5.2	9.9	28	0.070	2.43	15
11.65	57.5	67.9	195.1	57.7	2.8	7.7	4.9	4	clayy SILT to silty CLAY	115	2.0	34	29	17	-	-	4.0	9.9	32	0.070	2.52	15
11.81	51.9	60.8	165.4	52.2	2.1	15.0	4.1	4	clayy SILT to silty CLAY	115	2.0	30	26	15	-	-	3.6	9.9	30	0.070	2.49	15
11.98	47.6	55.4	163.1	47.9	2.0	17.0	4.2	4	clayy SILT to silty CLAY	115	2.0	28	24	14	-	-	3.3	9.9	32	0.070	2.53	15
12.14	41.2	58.4	-	41.5	3.2	15.5	8.0	3	silty CLAY to CLAY	115	1.5	39	27	16	-	-	2.9	9.9	42	0.005	2.72	15
12.30	48.3	67.6	-	48.6	5.5	17.9	9.9	9	very stiff fine SOIL	120	1.0	68	48	19	-	-	1.7	9.9	44	0.250	2.76	30
12.47	163.5	186.6	332.0	163.7	7.7	12.5	4.7	9	very stiff fine SOIL	120	1.0	100	100	40	-	-	5.8	9.9	20	0.250	2.24	30
12.63	159.3	180.6	354.9	159.3	8.7	0.3	5.5	9	very stiff fine SOIL	120	1.0	100	100	40	-	-	5.6	9.9	23	0.250	2.31	30
12.80	148.4	167.1	364.7	148.6	9.1	12.0	6.2	9	very stiff fine SOIL	120	1.0	100	100	38	-	-	5.2	9.9	25	0.250	2.37	30
12.96	200.8	224.6	379.4	201.0	9.7	10.9	4.8	9	very stiff fine SOIL	120	1.0	100	100	48	-	-	7.1	9.9	19	0.250	2.21	30
13.12	199.6	221.8	367.7	199.8	9.2	10.7	4.6	9	very stiff fine SOIL	120	1.0	100	100	47	-	-	7.0	9.9	19	0.250	2.20	30
13.29	157.0	173.4	325.9	157.1	7.7	6.9	5.0	9	very stiff fine SOIL	120	1.0	100	100	38	-	-	5.5	9.9	22	0.250	2.28	30
13.45	114.9	126.1	296.8	115.2	6.6	15.7	5.8	9	very stiff fine SOIL	120	1.0	100	100	29	-	-	4.0	9.9	27	0.250	2.41	30
13.62	120.4	131.3	281.6	121.0	6.1	34.3	5.1	9	very stiff fine SOIL	120	1.0	100	100	30	-	-	4.2	9.9	25	0.250	2.36	30
13.78	115.6	125.3	295.3	116.1	6.6	23.3	5.8	9	very stiff fine SOIL	120	1.0	100	100	29	-	-	4.1	9.9	27	0.250	2.41	30
13.94	161.9	174.5	334.1	162.4	8.3	21.1	5.1	9	very stiff fine SOIL	120	1.0	100	100	39	-	-	5.7	9.9	22	0.250	2.29	30
14.11	193.0	206.7	366.5	193.2	9.6	10.8	5.0	9	very stiff fine SOIL	120	1.0	100	100	45	-	-	6.8	9.9	20	0.250	2.24	30
14.27	190.1	202.3	402.9	190.5	11.3	21.7	6.0	9	very stiff fine SOIL	120	1.0	100	100	45	-	-	6.7	9.9	23	0.250	2.31	30
14.44	232.9	246.4	412.7	233.2	11.6	17.8	5.0	9	very stiff fine SOIL	120	1.0	100	100	52	-	-	8.2	9.9	19	0.250	2.20	30
14.60	246.7	259.6	417.2	247.2	11.8	27.7	4.8	9	very stiff fine SOIL	120	1.0	100	100	55	-	-	8.7	9.9	18	0.250	2.17	30
14.76	218.7	228.8	419.1	219.1	12.2	20.4	5.6	9	very stiff fine SOIL	120	1.0	100	100	50	-	-	7.7	9.9	21	0.250	2.26	30
14.93	210.3	218.8	358.2	210.5	9.4	10.2	4.5	9	very stiff fine SOIL	120	1.0	100	100	46	-	-	7.4	9.9	19	0.250	2.19	30
15.09	170.2	176.0	341.5	170.4	8.9	11.5	5.3	9	very stiff fine SOIL	120	1.0	100	100	39	-	-	6.0	9.9	22	0.250	2.30	30
15.26	180.6	185.8	373.2	181.4	10.4	43.2	5.8	9	very stiff fine SOIL	120	1.0	100	100	42	-	-	6.3	9.9	23	0.250	2.32	30
15.42	295.4	302.2	435.1	295.8	12.3	18.8	4.2	8	stiff SAND to clayy SAND	115	5.0	60	59	62	95	46	-	-	16	0.250	2.09	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

Project ID: CTE Cal
Data File: SDF(715).cpt
CPT Date: 6/30/2021 8:55:14 AM
GW During Test: 35 ft

Sounding ID: CPT-02
Project No: 60-0921G
Cone/Rig: DDG1587

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
15.58	393.1	400.1	492.4	393.3	12.9	8.6	3.3	8	stiff SAND to clayy SAND	115	5.0	80	79	77	95	48	-	-	11	0.250	1.94	16
15.75	485.1	491.1	560.5	485.5	13.7	19.7	2.8	8	stiff SAND to clayy SAND	115	5.0	98	97	91	95	48	-	-	9	0.250	1.85	16
15.91	429.5	432.6	532.6	429.7	14.6	10.5	3.4	8	stiff SAND to clayy SAND	115	5.0	87	86	83	95	48	-	-	11	0.250	1.94	16
16.08	378.0	378.8	501.0	378.3	14.6	15.9	3.9	8	stiff SAND to clayy SAND	115	5.0	76	76	75	95	47	-	-	13	0.250	2.02	16
16.24	353.4	352.5	494.7	353.7	15.1	11.5	4.3	9	very stiff fine SOIL	120	1.0	100	100	71	-	-	12.5	9.9	15	0.250	2.07	30
16.40	347.5	344.8	478.6	347.8	14.4	16.8	4.1	8	stiff SAND to clayy SAND	115	5.0	69	70	69	95	47	-	-	15	0.250	2.06	16
16.57	324.4	320.3	452.0	324.7	13.4	15.1	4.1	8	stiff SAND to clayy SAND	115	5.0	64	65	65	95	46	-	-	15	0.250	2.07	16
16.73	319.2	313.6	452.1	319.8	13.6	28.1	4.3	9	very stiff fine SOIL	120	1.0	100	100	64	-	-	11.2	9.9	16	0.250	2.09	30
16.90	305.1	298.3	432.4	305.8	12.8	33.3	4.2	9	very stiff fine SOIL	120	1.0	100	100	61	-	-	10.7	9.9	16	0.250	2.10	30
17.06	247.7	241.0	395.1	247.9	11.8	9.0	4.8	9	very stiff fine SOIL	120	1.0	100	100	51	-	-	8.7	9.9	19	0.250	2.19	30
17.23	213.0	206.1	372.6	213.5	10.9	27.8	5.2	9	very stiff fine SOIL	120	1.0	100	100	45	-	-	7.5	9.9	21	0.250	2.25	30
17.39	226.4	218.1	314.5	227.1	7.8	38.5	3.5	8	stiff SAND to clayy SAND	115	5.0	44	45	44	93	45	-	-	16	0.250	2.09	16
17.55	256.5	245.9	319.6	256.8	7.4	15.7	2.9	8	stiff SAND to clayy SAND	115	5.0	49	51	48	95	45	-	-	13	0.250	2.00	16
17.72	292.7	279.4	346.2	293.2	8.0	22.0	2.7	8	stiff SAND to clayy SAND	115	5.0	56	59	54	95	46	-	-	12	0.250	1.95	16
17.88	381.5	362.5	392.5	381.9	7.5	21.5	2.0	6	clean SAND to silty SAND	125	5.0	72	76	65	95	47	-	-	7	0.350	1.77	16
18.05	427.1	403.8	441.7	427.8	9.3	34.6	2.2	8	stiff SAND to clayy SAND	115	5.0	81	85	73	95	47	-	-	8	0.250	1.78	16
18.21	410.7	386.6	431.8	410.9	9.5	10.2	2.3	8	stiff SAND to clayy SAND	115	5.0	77	82	71	95	47	-	-	8	0.250	1.81	16
18.37	426.4	399.6	431.8	427.1	8.8	38.3	2.1	6	clean SAND to silty SAND	125	5.0	80	85	72	95	47	-	-	7	0.350	1.76	16
18.54	410.6	382.9	401.1	410.9	7.2	16.1	1.8	6	clean SAND to silty SAND	125	5.0	77	82	68	95	47	-	-	6	0.350	1.71	16
18.70	401.7	372.9	376.9	402.2	6.0	25.0	1.5	6	clean SAND to silty SAND	125	5.0	75	80	65	95	47	-	-	5	0.350	1.66	16
18.87	367.6	339.7	350.9	367.8	5.6	9.4	1.5	6	clean SAND to silty SAND	125	5.0	68	74	60	95	46	-	-	6	0.350	1.69	16
19.03	290.3	267.0	303.8	290.4	5.7	7.0	2.0	6	clean SAND to silty SAND	125	5.0	53	58	49	95	45	-	-	9	0.350	1.84	16
19.19	209.2	191.5	252.5	209.4	5.3	11.0	2.5	5	silty SAND to sandy SILT	120	3.0	64	70	38	88	44	-	-	13	0.200	2.01	16
19.36	117.1	106.7	219.6	117.2	4.7	6.2	4.1	9	very stiff fine SOIL	120	1.0	100	100	24	-	-	4.1	9.9	24	0.250	2.33	30
19.52	116.8	106.0	243.0	117.4	5.6	31.6	4.9	9	very stiff fine SOIL	120	1.0	100	100	25	-	-	4.1	9.9	26	0.250	2.40	30
19.69	146.8	132.6	253.2	147.6	6.2	42.8	4.2	9	very stiff fine SOIL	120	1.0	100	100	29	-	-	5.1	9.9	22	0.250	2.29	30
19.85	158.7	142.8	272.2	159.2	7.0	27.4	4.4	9	very stiff fine SOIL	120	1.0	100	100	32	-	-	5.6	9.9	22	0.250	2.29	30
20.01	162.9	146.0	278.6	163.5	7.3	30.4	4.5	9	very stiff fine SOIL	120	1.0	100	100	32	-	-	5.7	9.9	22	0.250	2.29	30
20.18	187.7	167.5	269.5	188.2	6.8	25.7	3.6	8	stiff SAND to clayy SAND	115	5.0	34	38	35	84	43	-	-	18	0.250	2.18	16
20.34	208.2	185.1	260.5	208.6	6.1	19.9	2.9	5	silty SAND to sandy SILT	120	3.0	62	69	37	87	43	-	-	15	0.200	2.07	16
20.51	199.0	176.2	248.4	199.5	5.6	24.1	2.8	5	silty SAND to sandy SILT	120	3.0	59	66	36	86	43	-	-	15	0.200	2.07	16
20.67	179.6	158.4	235.3	179.9	5.3	14.5	3.0	5	silty SAND to sandy SILT	120	3.0	53	60	33	82	43	-	-	16	0.200	2.12	16
20.83	159.5	140.1	231.9	159.8	5.3	17.1	3.4	5	silty SAND to sandy SILT	120	3.0	47	53	30	78	42	-	-	19	0.200	2.20	16
21.00	147.2	128.8	226.1	147.6	5.2	19.5	3.5	5	silty SAND to sandy SILT	120	3.0	43	49	28	75	41	-	-	20	0.200	2.23	16
21.16	130.0	113.2	194.4	130.2	3.9	12.6	3.1	5	silty SAND to sandy SILT	120	3.0	38	43	24	71	41	-	-	20	0.200	2.22	16
21.33	116.2	100.9	200.5	116.5	4.2	13.8	3.7	5	silty SAND to sandy SILT	120	3.0	34	39	23	67	40	-	-	23	0.200	2.31	16
21.49	112.7	97.4	243.7	113.0	5.9	14.3	5.3	9	very stiff fine SOIL	120	1.0	97	100	23	-	-	3.9	9.9	28	0.250	2.44	30
21.65	170.2	146.6	264.4	170.4	6.9	6.3	4.1	8	stiff SAND to clayy SAND	115	5.0	29	34	32	80	42	-	-	21	0.250	2.25	16
21.82	174.7	149.8	282.0	174.9	7.8	14.3	4.5	9	very stiff fine SOIL	120	1.0	100	100	33	-	-	6.1	9.9	22	0.250	2.28	30
21.98	192.4	164.5	292.8	192.7	8.3	13.2	4.4	9	very stiff fine SOIL	120	1.0	100	100	36	-	-	6.8	9.9	20	0.250	2.24	30
22.15	198.1	168.6	306.7	198.3	9.0	12.5	4.6	9	very stiff fine SOIL	120	1.0	100	100	37	-	-	7.0	9.9	21	0.250	2.26	30
22.31	202.7	172.0	301.7	202.9	8.8	8.2	4.4	9	very stiff fine SOIL	120	1.0	100	100	37	-	-	7.1	9.9	20	0.250	2.23	30
22.47	218.0	184.2	295.6	218.2	8.4	9.0	3.9	8	stiff SAND to clayy SAND	115	5.0	37	44	39	87	43	-	-	18	0.250	2.17	16
22.64	255.0	214.7	267.9	255.2	6.0	12.9	2.3	6	clean SAND to silty SAND	125	5.0	43	51	41	92	44	-	-	12	0.350	1.96	16
22.80	236.1	198.0	234.1	236.5	4.3	19.9	1.8	6	clean SAND to silty SAND	125	5.0	40	47	37	90	43	-	-	10	0.350	1.89	16
22.97	165.4	138.2	178.7	165.5	3.0	5.8	1.8	6	clean SAND to silty SAND	125	5.0	28	33	27	78	42	-	-	13	0.350	1.99	16
23.13	84.2	70.1	138.1	84.3	2.1	1.6	2.6	5	silty SAND to sandy SILT	120	3.0	23	28	16	55	38	-	-	23	0.200	2.31	16
23.30	40.4	29.5	-	40.5	1.5	1.9	3.8	4	clayy SILT to silty CLAY	115	2.0	15	20	8	-	-	2.8	9.4	40	0.070	2.70	15
23.46	25.7	18.6	-	25.8	1.1	3.9	4.5	3	silty CLAY to CLAY	115	1.5	12	17	6	-	-	1.7	5.8	52	0.005	2.91	15
23.62	22.2	16.0	-	22.3	1.1	2.3	5.3	3	silty CLAY to CLAY	115	1.5	11	15	5	-	-	1.5	4.9	59	0.005	3.01	15
23.79	25.2	18.0	-	25.4	1.3	7.5	5.6	3	silty CLAY to CLAY	115	1.5	12	17	6	-	-	1.7	5.6	57	0.005	2.98	15
23.95	28.9	20.5	-	29.1	2.1	7.1	7.6	3	silty CLAY to CLAY	115	1.5	14	19	7	-	-	1.9	6.4	60	0.005	3.03	15
24.12	80.3	65.5	171.4	80.6	3.2	12.7	4.0	4	clayy SILT to silty CLAY	115	2.0	33	40	16	-	-	5.6	9.9	29	0.070	2.47	15
24.28	140.8	114.5	161.6	140.9	2.8	5.2	2.0	5	silty SAND to sandy SILT	120	3.0	38	47	23	71	40	-	-	15	0.200	2.08	16
24.44	152.8	123.8	164.0	152.9	2.7	5.7	1.8	5	silty SAND to sandy SILT	120	3.0	41	51	24	74	41	-	-	13	0.200	2.02	16
24.61	163.1	131.6	160.2	163.2	2.3	7.9	1.4	6	clean SAND to silty SAND	125	5.0	26	33	25	76	41	-	-	11	0.350	1.93	16
24.77	172.1	138.5	168.5	172.2	2.5	4.5	1.5	6	clean SAND to silty SAND	125	5.0	28	34	26	78	41	-	-	11	0.350	1.93	16
24.94	164.3	131.7	182.4	164.5	3.5	9.2	2.1	5	silty SAND to sandy SILT	120	3.0	44	55	26	76	41	-	-	15	0.200	2.06	16
25.10	207.8	166.1	217.7	208.0	4.6	7.2	2.2	5	silty SAND to sandy SILT	120	3.0	55	69	33	84	42	-	-	13	0.200	2.01	16
25.26	206.8	164.7	234.8	206.9	5.7	6.9	2.8	5	silty SAND to sandy SILT	120	3.0	55	69	33	83	42	-	-	15	0.200	2.08	16
25.43	235.5	186.9	251.7	235.6	6.2	6.1	2.6	5	silty SAND to sandy SILT	120	3.0	62	78	37	88	43	-	-	14	0.200	2.03	16
25.59	253.0	200.1	290.3	253.3	8.3	17.2	3.3	8	stiff SAND to clayy SAND	115	5.0	40	51	41	90	43	-	-	16	0.250	2.10	16
25.76	280.0	220.8	314.9	280.1	9.5	7.3	3.4	8	stiff SAND to clayy SAND	115	5.0	44	56	45	93	44	-	-	15	0.250	2.08	16
25.92	292.9	230.3	317.8	293.0	9.4	6.7	3.2	8	stiff SAND to clayy SAND	115	5.0	46	59	46	95	44	-	-	15	0.250	2.06	16
26.08	328.6	257.5	335.4	329.0	9.8	21.5	3.0	8	stiff SAND to clayy SAND	115	5.0	52	66	51	95	44	-	-	13	0.250	2.00	16
26.25	364.5	284.8	368.4	365.0	11.4	24.5	3.1	8	stiff SAND to clayy SAND	115	5.0	57	73	56	95	45	-	-	13	0.250	2.00	16
26.41	358.7	279.4	364.5	359.2	11.3	26.6	3.2	8	stiff SAND to clayy SAND	115	5.0	56	72	55	95	45	-	-	13	0.250	2.00	16
26.58	389.3	302.3	374.1	389.9	11.1	29.0	2.9	8	stiff SAND to clayy SAND	115	5.0	60	78	58	95	45	-	-	12	0.250	1.95	16
26.74	362.9	281.0	350.3	363.5	10.1	26.5	2.8	8	stiff SAND to clayy SAND	115	5.0	56	73	54	95	45	-	-	12	0.250	1.96	16
26.90	316.1	244.0	311.1	316.5	8.6	22.5	2.7	8	stiff SAND to clayy SAND	115	5.0	49	63	48	95	44	-	-	12	0.250	1.98	16
27.07	304.7	234.5	273.8	305.2	6.0	21.9	2.0	6	clean SAND to silty SAND	125	5.0	47	61	44	95	44	-	-	10	0.350	1.88	16
27.23	297.8	228.4	258.7	298.1	5.1	19.0	1.7	6	clean SAND to silty SAND	125	5.0	46	60	42	94	44	-	-	9	0.350	1.83	16
27.40	218.3	167.0	217.3	218.4	4.8	3.4	2.2	5	silty SAND to sandy SILT	120	3.0	56	73	33	84	42	-	-	13	0.200	2.00	16
27.56	137.7	105.0	171.3	137.7	3.5	3.6	2.6	5	silty SAND to sandy SILT	120	3.0	35	46	22	69	40	-	-	19	0.200	2.19	16
27.72	79.9	60.7	164.2	79.9	3.1	3.4	4.0	4	clayy SILT to silty CLAY	115	2.0	30	40	15	-	-	5.5	9.9	30	0.070	2.49	15
27.89	71.0	53.8	156.1	71.3	2.8	14.9	4.0	4	clayy SILT to silty CLAY	115	2.0	27	35	13	-	-	4.9	9.9	32	0.070	2.53	15
28.05	74.1	56.0	160.7	74.3	3.0	11.1	4.1	4	clayy SILT to silty CLAY	115	2.0	28	37	14	-	-	5.1	9.9	32	0.070	2.52	15
28.22	74.6	44.9	-	74.8	3.4	8.9	4.6	4	clayy SILT to silty CLAY	115	2.0	22	37	12	-	-	5.2	9.9	37	0.070	2.62	15
28.38	81.1	60.9	154.3	81.3	2.8	9.5	3.6	4	clayy SILT to silty CLAY	115	2.0	30	41	14	-	-	5.6	9.9	29	0.070	2.45	15
28.54	52.8	31.4	-	53.0	2.1	11.6	4.2	4	clayy SILT to silty CLAY	115	2.0	16	26	8	-	-	3.6	9.9	41	0.070	2.71	15
28.71	36.4	21.5	-	36.7	2.8	18.5	7.9	3	silty CLAY to CLAY	115	1.5	14	24	7	-	-	2.5	6.8	60	0.005	3.02	15
28.87	72.1	42.4	-	72.6	4.3	28.0	6.2	3	silty CLAY to CLAY	115	1.5	28	48	12	-	-	5.0	9.9	42	0.005	2.73	15
29.04	180.1	133.9	231.2	180.2	6.3	3.4	3.5	5	silty SAND to sandy SILT	120	3.0	45	60	29	77	41	-	-	20	0.200	2.22	16
29.20	245.7	182.1	261.0	245.8	7.4	5.8	3.0	5	silty SAND to sandy SILT	120	3.0	61	82	37	87	42	-	-	15	0.200	2.09	16
29.36	226.1	167.1	254.5	226.2	7.3	1.9	3.2	8	stiff SAND to clayy SAND	115	5.0	33	45	35	84	42	-	-	17	0.250	2.14	16
29.53	238.3	175.6	251.4	238.6	6.9	16.7	2.9	5	silty SAND to sandy SILT	120	3.0	59	79	36	86	42	-	-	15	0.200	2.09	16
29.69	206.8	151.9	232.4	207.0	6.3	11.8	3.1	5	silty SAND to sandy SILT	120	3.0	51	69	32	81	41	-	-	17	0.200	2.14	16
29.86	192.7	141.2	228.8	193.1	6.2	19.5	3.3	5	silty SAND to sandy SILT	120	3.0	47	64	30	78	41	-	-	18	0.200	2.18	16
30.02	194.5	142.1	221.9	194.7	5.8	13.4	3.0	5	silty SAND to sandy SILT	120	3.0	47	65	30	79	41	-	-	17	0.200	2.15	16
30.19	157.4	114.7	195.5	157.6	4.7	9.2	3.0	5	silty SAND to sandy SILT	120	3.0	38	52	25	72	40	-	-	20	0.200	2.22	16
30.35	162.8	118.3	209.1	163.1	5.4	15.3	3.4	5	silty SAND to sandy SILT	120	3.0	39	54	26	73	40	-	-	20	0.200	2.24	16
30.51	187.1	135.6	231.8	187.4	6.5	18.5	3.5	5	silty SAND to sandy SILT	120	3.0	45	62	29	77	41	-	-	20	0.200	2.22	16
30.68	219.4	158.6	244.9	219.8	7.0	19.3	3.2	5	silty SAND to sandy SILT	120	3.0	53	73	33	82	42	-	-	17	0.200	2.15	16
30.84	228.1	164.4	240.3	228.4	6.6	16.1	2.9	5	silty SAND to sandy SILT	120	3.0	55	76	34	83	42	-	-	16	0.200	2.10	16

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

Project ID: CTE Cal
Data File: SDF(715).cpt
CPT Date: 6/30/2021 8:55:14 AM
GW During Test: 35 ft

Sounding ID: CPT-02
Project No: 60-0921G
Cone/Rig: DDG1587

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
31.01	254.2	182.7	247.6	254.8	6.7	32.7	2.6	5	silty SAND to sandy SILT	120	3.0	61	85	36	87	42	-	-	14	0.200	2.04	16
31.17	300.2	215.2	254.2	300.6	5.8	19.0	1.9	6	clean SAND to silty SAND	125	5.0	43	60	41	92	43	-	-	10	0.350	1.89	16
31.33	237.2	169.6	203.2	237.3	4.0	3.7	1.7	6	clean SAND to silty SAND	125	5.0	34	47	32	84	42	-	-	11	0.350	1.91	16
31.50	148.5	105.9	181.9	148.6	4.2	2.7	2.9	5	silty SAND to sandy SILT	120	3.0	35	50	23	69	39	-	-	20	0.200	2.22	16
31.66	99.3	70.6	176.4	99.4	3.9	3.7	4.0	4	clayy SILT to silty CLAY	115	2.0	35	50	17	-	-	6.9	9.9	28	0.070	2.44	15
31.83	114.9	81.5	159.3	115.0	3.3	7.5	2.9	5	silty SAND to sandy SILT	120	3.0	27	38	18	60	38	-	-	23	0.200	2.30	16
31.99	124.0	87.7	166.1	124.2	3.6	10.8	3.0	5	silty SAND to sandy SILT	120	3.0	29	41	19	63	38	-	-	22	0.200	2.28	16
32.15	151.5	106.9	177.4	151.6	4.1	9.1	2.7	5	silty SAND to sandy SILT	120	3.0	36	50	23	69	39	-	-	19	0.200	2.20	16
32.32	161.4	113.6	199.7	161.5	5.1	6.9	3.2	5	silty SAND to sandy SILT	120	3.0	38	54	25	71	40	-	-	20	0.200	2.24	16
32.48	116.3	81.6	211.8	116.4	5.5	8.9	4.8	4	clayy SILT to silty CLAY	115	2.0	41	58	20	-	-	8.1	9.9	29	0.070	2.46	15
32.65	145.2	101.7	224.5	145.8	6.3	29.8	4.4	9	very stiff fine SOIL	120	1.0	100	100	23	-	-	5.1	9.9	25	0.250	2.37	30
32.81	236.4	165.1	253.6	236.9	7.7	22.2	3.3	8	stiff SAND to clayy SAND	115	5.0	33	47	34	84	42	-	-	17	0.250	2.14	16
32.97	233.3	162.5	248.6	233.5	7.4	11.8	3.2	5	silty SAND to sandy SILT	120	3.0	54	78	34	83	41	-	-	17	0.200	2.14	16
33.14	197.2	137.1	213.4	197.4	5.7	7.0	2.9	5	silty SAND to sandy SILT	120	3.0	46	66	29	77	41	-	-	17	0.200	2.15	16
33.30	132.4	91.8	150.6	132.5	3.0	7.4	2.3	5	silty SAND to sandy SILT	120	3.0	31	44	19	64	38	-	-	19	0.200	2.19	16
33.47	63.3	43.8	93.0	63.3	1.1	-4.2	1.7	5	silty SAND to sandy SILT	120	3.0	15	21	10	40	34	-	-	24	0.200	2.35	16
33.63	33.5	16.9	-	33.4	0.7	-3.0	2.4	4	clayy SILT to silty CLAY	115	2.0	8	17	5	-	-	2.2	5.2	44	0.070	2.77	15
33.79	18.0	9.0	-	18.0	0.6	1.6	3.8	3	silty CLAY to CLAY	115	1.5	6	12	3	-	-	1.1	2.6	68	0.005	3.13	15
33.96	17.3	8.7	-	17.4	1.0	3.3	6.6	3	silty CLAY to CLAY	115	1.5	6	12	3	-	-	1.1	2.5	81	0.005	3.30	15
34.12	21.6	10.7	-	21.7	2.1	4.8	9.9	3	silty CLAY to CLAY	115	1.5	7	14	4	-	-	1.4	3.2	83	0.005	3.33	15
34.29	47.4	23.5	-	47.4	3.0	2.2	6.6	3	silty CLAY to CLAY	115	1.5	16	32	7	-	-	3.2	7.4	55	0.005	2.94	15
34.45	120.1	81.9	166.0	120.3	3.7	12.2	3.2	5	silty SAND to sandy SILT	120	3.0	27	40	18	60	38	-	-	23	0.200	2.32	16
34.61	161.6	109.9	183.1	161.7	4.5	5.3	2.8	5	silty SAND to sandy SILT	120	3.0	37	54	23	70	39	-	-	19	0.200	2.20	16
34.78	150.1	101.8	195.3	150.2	5.1	5.5	3.4	5	silty SAND to sandy SILT	120	3.0	34	50	23	68	39	-	-	22	0.200	2.29	16
34.94	133.8	90.5	201.9	133.8	5.4	2.0	4.1	4	clayy SILT to silty CLAY	115	2.0	45	67	21	-	-	9.3	9.9	26	0.070	2.38	15
35.11	123.0	83.2	187.3	123.2	4.7	8.2	3.9	4	clayy SILT to silty CLAY	115	2.0	42	61	19	-	-	8.5	9.9	26	0.070	2.39	15
35.27	124.8	84.3	166.0	124.8	3.8	2.6	3.1	5	silty SAND to sandy SILT	120	3.0	28	42	19	61	38	-	-	23	0.200	2.31	16
35.43	118.4	79.9	172.3	118.5	4.0	4.5	3.4	4	clayy SILT to silty CLAY	115	2.0	40	59	18	-	-	8.2	9.9	25	0.070	2.36	15
35.60	117.4	79.1	168.0	117.5	3.8	5.8	3.3	5	silty SAND to sandy SILT	120	3.0	26	39	18	59	37	-	-	24	0.200	2.35	16
35.76	97.6	65.7	161.8	97.7	3.5	4.1	3.6	4	clayy SILT to silty CLAY	115	2.0	33	49	15	-	-	6.8	9.9	28	0.070	2.44	15
35.93	112.0	75.3	142.6	112.3	2.8	13.0	2.5	5	silty SAND to sandy SILT	120	3.0	25	37	17	58	37	-	-	22	0.200	2.28	16
36.09	112.2	75.4	118.6	112.3	1.9	3.4	1.7	5	silty SAND to sandy SILT	120	3.0	25	37	16	58	37	-	-	18	0.200	2.16	16
36.26	93.5	62.7	113.4	93.6	1.7	4.7	1.9	5	silty SAND to sandy SILT	120	3.0	21	31	14	52	36	-	-	21	0.200	2.25	16
36.42	75.5	50.6	108.3	75.6	1.5	6.6	2.1	5	silty SAND to sandy SILT	120	3.0	17	25	12	45	35	-	-	25	0.200	2.36	16
36.58	84.6	56.7	101.7	84.8	1.4	7.9	1.7	5	silty SAND to sandy SILT	120	3.0	19	28	12	48	35	-	-	21	0.200	2.25	16
36.75	108.0	72.2	117.2	108.1	1.8	6.2	1.7	5	silty SAND to sandy SILT	120	3.0	24	36	15	56	37	-	-	18	0.200	2.18	16
36.91	116.2	77.6	127.8	116.3	2.2	5.3	2.0	5	silty SAND to sandy SILT	120	3.0	26	39	16	59	37	-	-	19	0.200	2.19	16
37.08	117.0	78.1	121.3	117.1	2.0	5.6	1.7	5	silty SAND to sandy SILT	120	3.0	26	39	16	59	37	-	-	17	0.200	2.15	16
37.24	112.6	75.0	123.6	112.7	2.1	3.6	1.9	5	silty SAND to sandy SILT	120	3.0	25	38	16	58	37	-	-	19	0.200	2.19	16
37.40	75.5	50.3	118.8	75.6	1.9	3.3	2.5	5	silty SAND to sandy SILT	120	3.0	17	25	12	44	34	-	-	27	0.200	2.41	16
37.57	54.8	25.7	-	54.9	1.8	5.9	3.3	4	clayy SILT to silty CLAY	115	2.0	13	27	7	-	-	3.7	8.1	41	0.070	2.71	15
37.73	43.6	20.4	-	43.8	1.5	7.0	3.7	3	silty CLAY to CLAY	115	1.5	14	29	6	-	-	2.9	6.4	47	0.005	2.82	15
37.90	58.2	27.2	-	58.4	1.5	9.7	2.7	4	clayy SILT to silty CLAY	115	2.0	14	29	7	-	-	4.0	8.6	37	0.070	2.63	15
38.06	73.5	48.7	104.4	73.6	1.4	7.7	2.0	5	silty SAND to sandy SILT	120	3.0	16	24	11	43	34	-	-	25	0.200	2.36	16
38.22	64.5	42.7	102.3	64.7	1.3	8.2	2.2	5	silty SAND to sandy SILT	120	3.0	14	22	10	39	33	-	-	27	0.200	2.42	16
38.39	55.6	25.8	-	55.7	1.5	8.6	2.8	4	clayy SILT to silty CLAY	115	2.0	13	28	7	-	-	3.8	8.2	39	0.070	2.67	15
38.55	52.8	24.4	-	53.0	1.8	9.0	3.5	4	clayy SILT to silty CLAY	115	2.0	12	26	7	-	-	3.6	7.7	43	0.070	2.75	15
38.72	63.9	29.5	-	64.2	2.3	11.4	3.7	4	clayy SILT to silty CLAY	115	2.0	15	32	8	-	-	4.4	9.4	40	0.070	2.70	15
38.88	92.9	61.3	120.8	93.2	2.0	13.7	2.2	5	silty SAND to sandy SILT	120	3.0	20	31	14	51	36	-	-	23	0.200	2.31	16
39.04	129.8	85.5	131.0	130.1	2.3	16.4	1.8	5	silty SAND to sandy SILT	120	3.0	28	43	18	62	38	-	-	17	0.200	2.14	16
39.21	145.0	95.4	146.3	145.3	2.9	13.8	2.0	5	silty SAND to sandy SILT	120	3.0	32	48	20	65	38	-	-	17	0.200	2.14	16
39.37	149.0	98.0	150.5	149.3	3.1	12.5	2.1	5	silty SAND to sandy SILT	120	3.0	33	50	20	66	38	-	-	17	0.200	2.14	16
39.54	152.1	99.9	162.5	152.3	3.7	10.5	2.4	5	silty SAND to sandy SILT	120	3.0	33	51	21	67	39	-	-	18	0.200	2.18	16
39.70	147.7	96.9	167.9	147.9	3.9	7.5	2.7	5	silty SAND to sandy SILT	120	3.0	32	49	21	66	38	-	-	20	0.200	2.23	16
39.86	142.0	93.1	189.1	142.2	4.9	8.3	3.5	5	silty SAND to sandy SILT	120	3.0	31	47	21	65	38	-	-	23	0.200	2.32	16
40.03	149.8	98.0	194.2	150.0	5.2	11.4	3.5	5	silty SAND to sandy SILT	120	3.0	33	50	22	66	38	-	-	23	0.200	2.31	16
40.19	187.9	122.9	196.6	188.1	5.3	8.9	2.8	5	silty SAND to sandy SILT	120	3.0	41	63	26	74	40	-	-	18	0.200	2.17	16
40.36	217.0	141.7	192.3	217.2	4.6	8.4	2.2	5	silty SAND to sandy SILT	120	3.0	47	72	28	79	40	-	-	14	0.200	2.04	16
40.52	227.0	148.1	196.9	227.2	4.7	9.6	2.1	5	silty SAND to sandy SILT	120	3.0	49	76	29	80	41	-	-	14	0.200	2.02	16
40.68	243.1	158.4	204.2	243.3	4.9	8.7	2.0	5	silty SAND to sandy SILT	120	3.0	53	81	31	82	41	-	-	13	0.200	1.99	16
40.85	243.1	158.3	196.5	243.3	4.4	8.5	1.8	6	clean SAND to silty SAND	125	5.0	32	49	31	82	41	-	-	12	0.350	1.95	16
41.01	224.9	146.3	192.4	225.1	4.5	7.3	2.0	5	silty SAND to sandy SILT	120	3.0	49	75	29	80	41	-	-	13	0.200	2.01	16
41.18	200.6	130.3	195.4	200.7	5.1	4.8	2.6	5	silty SAND to sandy SILT	120	3.0	43	67	27	76	40	-	-	17	0.200	2.12	16
41.34	197.1	127.9	208.1	197.2	5.9	7.4	3.0	5	silty SAND to sandy SILT	120	3.0	43	66	27	75	40	-	-	18	0.200	2.18	16
41.50	217.2	140.8	216.9	217.4	6.3	11.1	2.9	5	silty SAND to sandy SILT	120	3.0	47	72	29	78	40	-	-	17	0.200	2.14	16
41.67	244.0	158.0	221.5	244.1	6.2	7.8	2.6	5	silty SAND to sandy SILT	120	3.0	53	81	32	82	41	-	-	15	0.200	2.07	16
41.83	253.1	163.7	212.7	253.1	5.4	2.6	2.1	5	silty SAND to sandy SILT	120	3.0	55	84	32	83	41	-	-	13	0.200	2.00	16
42.00	239.6	154.8	182.4	239.7	3.5	3.6	1.5	6	clean SAND to silty SAND	125	5.0	31	48	29	81	41	-	-	10	0.350	1.89	16
42.16	203.1	131.1	152.7	203.1	2.4	0.5	1.2	6	clean SAND to silty SAND	125	5.0	26	41	25	76	40	-	-	10	0.350	1.87	16
42.32	171.9	110.8	152.0	171.9	3.0	0.9	1.8	5	silty SAND to sandy SILT	120	3.0	37	57	22	70	39	-	-	14	0.200	2.05	16
42.49	158.3	102.0	154.0	158.4	3.3	2.9	2.1	5	silty SAND to sandy SILT	120	3.0	34	53	21	68	39	-	-	17	0.200	2.13	16
42.65	135.6	87.2	183.6	135.7	4.7	4.8	3.6	4	clayy SILT to silty CLAY	115	2.0	44	68	20	-	-	9.4	9.9	24	0.070	2.35	15
42.82	175.2	112.6	176.2	175.3	4.3	1.0	2.5	5	silty SAND to sandy SILT	120	3.0	38	58	24	71	39	-	-	18	0.200	2.16	16
42.98	210.3	135.1	199.9	210.3	5.3	-2.1	2.6	5	silty SAND to sandy SILT	120	3.0	45	70	28	77	40	-	-	16	0.200	2.11	16
43.15	153.3	98.3	183.5	153.3	4.8	-0.4	3.2	5	silty SAND to sandy SILT	120	3.0	33	51	22	66	38	-	-	22	0.200	2.27	16
43.31	90.2	39.3	-	90.2	3.5	1.0	4.0	4	clayy SILT to silty CLAY	115	2.0	20	45	10	-	-	6.2	9.9	37	0.070	2.62	15
43.47	64.5	28.0	-	64.8	2.5	13.1	4.1	4	clayy SILT to silty CLAY	115	2.0	14	32	8	-	-	4.4	8.9	43	0.070	2.74	15
43.64	55.2	23.9	-	55.6	2.0	23.6	3.9	4	clayy SILT to silty CLAY	115	2.0	12	28	7	-	-	3.7	7.5	45	0.070	2.78	15
43.80	53.5	23.1	-	54.1	1.9	31.2	3.7	4	clayy SILT to silty CLAY	115	2.0	12	27	6	-	-	3.6	7.3	45	0.070	2.78	15
43.97	53.3	23.0	-	54.0	1.7	34.9	3.4	4	clayy SILT to silty CLAY	115	2.0	12	27	6	-	-	3.6	7.2	44	0.070	2.76	15
44.13	49.9	21.5	-	50.6	1.5	39.1	3.1	4	clayy SILT to silty CLAY	115	2.0	11	25	6	-	-	3.4	6.7	44	0.070	2.76	15
44.29	49.3	21.2	-	50.3	1.9	49.4	4.0	3	silty CLAY to CLAY	115	1.5	14	33	6	-	-	3.3	6.6	48	0.005	2.83	15
44.46	49.2	21.1	-	50.0	2.3	44.5	5.0	3	silty CLAY to CLAY	115	1.5	14	33	6	-	-	3.3	6.6	52	0.005	2.90	15
44.62	58.4	25.0	-	59.0	2.5	32.4	4.4	3	silty CLAY to CLAY	115	1.5	17	39	7	-	-	4.0	7.9	46	0.005	2.80	15
44.79	57.1	24.4	-	57.7	2.1	33.0	3.9	4	clayy SILT to silty CLAY	115	2.0	12	29	7	-	-	3.9	7.7	45	0.070	2.78	15
44.95	54.4	23.2	-	54.9	2.0	25.0	3.8	3	silty CLAY to CLAY	115	1.5	15	36	7	-	-	3.7	7.3	45	0.005	2.78	15
45.11	50.1	21.4	-	50.8	2.0	36.2	4.3	3	silty CLAY to CLAY	115	1.5	14	33	6	-	-	3.4	6.7	49	0.005	2.85	15
45.28	53.0	22.6	-	53.8	2.0	39.8	4.0	3	silty CLAY to CLAY	115	1.5	15	35	6	-	-	3.6	7.1	47	0.005	2.81	15
45.44	55.8	23.7	-	56.7	2.0	41.9	3.7	4	clayy SILT to silty CLAY	115	2.0	12	28	7	-	-	3.8	7.5	44	0.070	2.77	15
45.61	55.9	23.7	-	56.9	2.0	47.8	3.8	4	clayy SILT to silty CLAY	115	2.0	12	28	7	-	-	3.8	7.5	45	0.070	2.78	15
45.77	55.7	23.6	-	56.7	2.3	53.5	4.3	3	silty CLAY to CLAY	115	1.5	16	37	7	-	-	3.8	7.4	47	0.005	2.81	15
45.93	60.8	25.7	-	61.6	2.8	43.6	4.8	3	silty CLAY to CLAY	115	1.5	17	41	7	-	-	4.1	8.1	47	0.005	2.82	15
46.10	61.2	25.8	-	61.8	2.9	29.8	5.0	3	silty CLAY to CLAY	115	1.5	17	41	7	-	-	4.2	8.1	48	0.005	2.83	15
46.26	56.8	23.9	-	57.4	2.6	30.0	4.9	3	silty CLAY to CLAY	115	1.5	16	38	7	-	-	3.8	7.5	49	0.005	2.85	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: CTE Cal
Data File: SDF(715).cpt
CPT Date: 6/30/2021 8:55:14 AM
GW During Test: 35 ft

Sounding ID: CPT-02
Project No: 60-0921G
Cone/Rig: DDG1587

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
46.43	52.9	22.2	-	53.8	2.4	44.6	4.7	3	silty CLAY to CLAY	115	1.5	15	35	7	-	-	3.6	7.0	50	0.005	2.86	15
46.59	54.6	22.9	-	55.7	2.3	53.4	4.3	3	silty CLAY to CLAY	115	1.5	15	36	7	-	-	3.7	7.2	48	0.005	2.83	15
46.75	52.5	22.0	-	53.3	2.2	39.0	4.4	3	silty CLAY to CLAY	115	1.5	15	35	6	-	-	3.5	6.9	49	0.005	2.84	15
46.92	47.5	19.9	-	48.2	2.1	33.4	4.7	3	silty CLAY to CLAY	115	1.5	13	32	6	-	-	3.2	6.2	52	0.005	2.90	15
47.08	44.6	18.6	-	45.3	1.9	36.1	4.5	3	silty CLAY to CLAY	115	1.5	12	30	6	-	-	3.0	5.8	53	0.005	2.91	15
47.25	43.2	18.0	-	43.7	1.8	29.5	4.4	3	silty CLAY to CLAY	115	1.5	12	29	5	-	-	2.9	5.5	53	0.005	2.92	15
47.41	40.7	16.9	-	41.2	1.7	25.5	4.6	3	silty CLAY to CLAY	115	1.5	11	27	5	-	-	2.7	5.2	55	0.005	2.95	15
47.57	39.5	16.4	-	40.0	1.8	21.6	4.9	3	silty CLAY to CLAY	115	1.5	11	26	5	-	-	2.6	5.0	57	0.005	2.98	15
47.74	35.6	14.7	-	35.9	1.6	15.1	4.8	3	silty CLAY to CLAY	115	1.5	10	24	5	-	-	2.3	4.5	59	0.005	3.01	15
47.90	30.6	12.6	-	30.8	1.4	12.4	4.9	3	silty CLAY to CLAY	115	1.5	8	20	4	-	-	2.0	3.8	64	0.005	3.07	15
48.07	27.0	11.2	-	27.3	1.3	11.5	5.4	3	silty CLAY to CLAY	115	1.5	7	18	4	-	-	1.7	3.3	69	0.005	3.15	15
48.23	24.9	10.3	-	25.2	1.1	10.7	5.2	3	silty CLAY to CLAY	115	1.5	7	17	4	-	-	1.6	3.0	71	0.005	3.17	15
48.39	24.8	10.2	-	25.0	1.3	10.0	5.8	3	silty CLAY to CLAY	115	1.5	7	17	4	-	-	1.6	3.0	73	0.005	3.20	15
48.56	26.2	10.8	-	26.4	1.3	9.5	5.5	3	silty CLAY to CLAY	115	1.5	7	17	4	-	-	1.7	3.2	71	0.005	3.17	15
48.72	24.6	10.1	-	24.7	1.1	5.7	5.0	3	silty CLAY to CLAY	115	1.5	7	16	4	-	-	1.6	2.9	71	0.005	3.17	15
48.89	22.4	9.2	-	22.6	0.9	8.1	4.6	3	silty CLAY to CLAY	115	1.5	6	15	3	-	-	1.4	2.6	72	0.005	3.18	15
49.05	22.3	9.1	-	22.5	0.8	9.6	4.3	3	silty CLAY to CLAY	115	1.5	6	15	3	-	-	1.4	2.6	71	0.005	3.17	15
49.22	21.7	8.8	-	21.9	0.9	9.5	4.8	3	silty CLAY to CLAY	115	1.5	6	14	3	-	-	1.4	2.5	74	0.005	3.21	15
49.38	20.6	8.4	-	20.8	0.9	9.4	5.0	3	silty CLAY to CLAY	115	1.5	6	14	3	-	-	1.3	2.4	76	0.005	3.24	15
49.54	20.8	8.5	-	21.0	0.9	8.9	4.9	3	silty CLAY to CLAY	115	1.5	6	14	3	-	-	1.3	2.4	75	0.005	3.23	15
49.71	20.1	8.2	-	20.3	0.8	8.6	4.8	3	silty CLAY to CLAY	115	1.5	5	13	3	-	-	1.2	2.3	77	0.005	3.24	15
49.87	19.4	7.9	-	19.6	0.6	8.5	3.4	3	silty CLAY to CLAY	115	1.5	5	13	3	-	-	1.2	2.2	71	0.005	3.18	15
50.04	19.8	8.0	-	19.9	0.7	8.1	4.0	3	silty CLAY to CLAY	115	1.5	5	13	3	-	-	1.2	2.2	73	0.005	3.21	15
50.20	19.4	7.8	-	19.6	0.7	7.6	4.0	3	silty CLAY to CLAY	115	1.5	5	13	3	-	-	1.2	2.2	74	0.005	3.21	15
50.36	16.4	6.6	-	16.5	0.7	7.8	4.9	3	silty CLAY to CLAY	115	1.5	4	11	3	-	-	1.0	1.8	84	0.005	3.34	15
50.53	21.4	8.6	-	21.6	0.6	9.4	3.4	3	silty CLAY to CLAY	115	1.5	6	14	3	-	-	1.3	2.4	68	0.005	3.13	15
50.69	21.2	8.5	-	21.4	0.7	9.8	3.8	3	silty CLAY to CLAY	115	1.5	6	14	3	-	-	1.3	2.4	71	0.005	3.17	15
50.86	22.2	8.9	-	22.4	0.8	10.7	4.0	3	silty CLAY to CLAY	115	1.5	6	15	3	-	-	1.4	2.5	70	0.005	3.16	15
51.02	21.7	8.7	-	21.9	0.8	9.4	4.4	3	silty CLAY to CLAY	115	1.5	6	14	3	-	-	1.4	2.5	72	0.005	3.19	15
51.18	16.9	6.8	-	17.1	0.8	8.8	5.5	3	silty CLAY to CLAY	115	1.5	5	11	3	-	-	1.0	1.8	86	0.005	3.36	15
51.35	19.6	7.8	-	19.8	0.7	9.4	4.2	3	silty CLAY to CLAY	115	1.5	5	13	3	-	-	1.2	2.2	75	0.005	3.23	15
51.51	19.6	7.8	-	19.8	0.7	10.1	4.1	3	silty CLAY to CLAY	115	1.5	5	13	3	-	-	1.2	2.2	75	0.005	3.22	15
51.68	20.3	8.1	-	20.5	0.7	11.1	4.3	3	silty CLAY to CLAY	115	1.5	5	14	3	-	-	1.3	2.3	74	0.005	3.22	15
51.84	20.9	8.3	-	21.1	0.8	9.6	4.5	3	silty CLAY to CLAY	115	1.5	6	14	3	-	-	1.3	2.3	74	0.005	3.22	15
52.00	21.0	8.3	-	21.2	0.8	9.6	4.5	3	silty CLAY to CLAY	115	1.5	6	14	3	-	-	1.3	2.3	74	0.005	3.22	15
52.17	21.0	8.3	-	21.2	0.8	11.7	4.4	3	silty CLAY to CLAY	115	1.5	6	14	3	-	-	1.3	2.3	74	0.005	3.21	15
52.33	23.4	9.2	-	23.7	0.8	13.2	3.7	3	silty CLAY to CLAY	115	1.5	6	16	3	-	-	1.5	2.6	67	0.005	3.13	15
52.50	24.8	9.8	-	25.0	0.7	11.8	3.4	3	silty CLAY to CLAY	115	1.5	7	17	3	-	-	1.6	2.8	64	0.005	3.08	15
52.66	21.2	8.3	-	21.5	0.7	11.3	4.0	3	silty CLAY to CLAY	115	1.5	6	14	3	-	-	1.3	2.4	72	0.005	3.19	15
52.82	19.8	7.8	-	20.0	0.7	12.8	3.9	3	silty CLAY to CLAY	115	1.5	5	13	3	-	-	1.2	2.2	74	0.005	3.21	15
52.99	20.6	8.1	-	20.8	0.7	14.4	3.8	3	silty CLAY to CLAY	115	1.5	5	14	3	-	-	1.3	2.3	72	0.005	3.19	15
53.15	24.9	9.8	-	25.3	1.3	18.1	5.9	3	silty CLAY to CLAY	115	1.5	7	17	4	-	-	1.6	2.8	75	0.005	3.23	15
53.32	74.3	45.1	98.5	74.7	1.3	20.3	1.9	5	silty SAND to sandy SILT	120	3.0	15	25	10	41	33	-	-	25	0.200	2.37	16
53.48	44.2	17.2	-	44.3	1.3	5.9	3.0	3	silty CLAY to CLAY	115	1.5	11	29	5	-	-	2.9	5.3	48	0.005	2.84	15
53.64	26.6	10.3	-	26.8	0.8	10.3	3.3	3	silty CLAY to CLAY	115	1.5	7	18	3	-	-	1.7	3.0	62	0.005	3.05	15
53.81	24.6	9.6	-	24.9	0.5	11.5	2.4	3	silty CLAY to CLAY	115	1.5	6	16	3	-	-	1.6	2.8	59	0.005	3.01	15
53.97	23.1	9.0	-	23.4	0.5	13.5	2.6	3	silty CLAY to CLAY	115	1.5	6	15	3	-	-	1.5	2.6	62	0.005	3.05	15
54.14	19.8	7.7	-	20.1	0.5	15.2	3.0	3	silty CLAY to CLAY	115	1.5	5	13	3	-	-	1.2	2.1	70	0.005	3.15	15
54.30	18.9	7.3	-	19.2	0.5	15.3	3.2	3	silty CLAY to CLAY	115	1.5	5	13	3	-	-	1.2	2.0	73	0.005	3.20	15
54.46	20.0	7.7	-	20.4	0.5	20.1	3.0	3	silty CLAY to CLAY	115	1.5	5	13	3	-	-	1.2	2.1	69	0.005	3.15	15
54.63	20.4	7.9	-	20.8	0.5	21.1	3.0	3	silty CLAY to CLAY	115	1.5	5	14	3	-	-	1.3	2.2	69	0.005	3.15	15
54.79	19.7	7.6	-	20.2	0.6	24.3	3.4	3	silty CLAY to CLAY	115	1.5	5	13	3	-	-	1.2	2.1	72	0.005	3.19	15
54.96	21.4	8.2	-	21.9	0.7	26.9	4.0	3	silty CLAY to CLAY	115	1.5	5	14	3	-	-	1.3	2.3	73	0.005	3.20	15
55.12	24.9	9.5	-	25.4	0.7	28.9	3.4	3	silty CLAY to CLAY	115	1.5	6	17	3	-	-	1.6	2.7	65	0.005	3.10	15
55.28	27.5	10.5	-	28.1	0.9	31.0	3.6	3	silty CLAY to CLAY	115	1.5	7	18	4	-	-	1.8	3.1	63	0.005	3.07	15
55.45	27.6	10.6	-	28.5	1.1	41.7	4.6	3	silty CLAY to CLAY	115	1.5	7	18	4	-	-	1.8	3.1	68	0.005	3.13	15
55.61	31.0	11.8	-	31.9	1.3	45.5	4.5	3	silty CLAY to CLAY	115	1.5	8	21	4	-	-	2.0	3.5	64	0.005	3.08	15
55.78	34.2	13.0	-	35.0	1.4	41.5	4.5	3	silty CLAY to CLAY	115	1.5	9	23	4	-	-	2.2	3.9	61	0.005	3.04	15
55.94	36.2	13.8	-	37.0	1.3	44.3	4.1	3	silty CLAY to CLAY	115	1.5	9	24	4	-	-	2.4	4.1	58	0.005	3.00	15
56.11	40.9	15.5	-	41.9	1.4	50.1	3.8	3	silty CLAY to CLAY	115	1.5	10	27	5	-	-	2.7	4.7	54	0.005	2.93	15
56.27	37.4	14.2	-	38.4	1.5	48.1	4.5	3	silty CLAY to CLAY	115	1.5	9	25	5	-	-	2.5	4.3	59	0.005	3.01	15
56.43	37.3	14.1	-	38.5	2.1	63.1	6.3	3	silty CLAY to CLAY	115	1.5	9	25	5	-	-	2.4	4.2	66	0.005	3.11	15
56.60	57.8	21.9	-	59.1	3.3	63.1	6.1	3	silty CLAY to CLAY	115	1.5	15	39	7	-	-	3.9	6.8	55	0.005	2.94	15
56.76	69.6	26.3	-	70.7	4.2	58.5	6.3	3	silty CLAY to CLAY	115	1.5	18	46	8	-	-	4.7	8.2	52	0.005	2.89	15
56.93	76.5	28.9	-	77.2	4.8	34.2	6.6	3	silty CLAY to CLAY	115	1.5	19	51	9	-	-	5.2	9.1	51	0.005	2.88	15
57.09	85.5	32.3	-	86.2	4.8	33.0	5.8	3	silty CLAY to CLAY	115	1.5	22	57	9	-	-	5.9	9.9	46	0.005	2.80	15
57.25	105.5	39.8	-	106.0	5.6	29.5	5.5	3	silty CLAY to CLAY	115	1.5	27	70	11	-	-	7.3	9.9	41	0.005	2.72	15
57.42	113.5	42.8	-	113.8	5.3	17.7	4.8	4	clayy SILT to silty CLAY	115	2.0	21	57	11	-	-	7.8	9.9	38	0.070	2.65	15
57.58	92.3	34.8	-	92.6	4.1	14.7	4.6	3	silty CLAY to CLAY	115	1.5	23	62	9	-	-	6.3	9.9	41	0.005	2.71	15
57.75	68.3	25.8	-	69.0	3.7	33.1	5.6	3	silty CLAY to CLAY	115	1.5	17	46	8	-	-	4.6	8.0	50	0.005	2.87	15
57.91	65.2	24.6	-	66.0	3.1	43.6	5.1	3	silty CLAY to CLAY	115	1.5	16	43	7	-	-	4.4	7.6	49	0.005	2.85	15
58.07	61.3	23.1	-	61.9	3.2	33.2	5.5	3	silty CLAY to CLAY	115	1.5	15	41	7	-	-	4.1	7.1	52	0.005	2.90	15
58.24	63.2	23.8	-	64.3	3.4	59.3	5.6	3	silty CLAY to CLAY	115	1.5	16	42	7	-	-	4.3	7.3	51	0.005	2.89	15
58.40	72.9	27.5	-	73.2	2.8	15.5	4.0	4	clayy SILT to silty CLAY	115	2.0	14	36	8	-	-	5.0	8.5	43	0.070	2.75	15
58.57	49.7	18.7	-	50.1	2.7	20.4	5.7	3	silty CLAY to CLAY	115	1.5	12	33	6	-	-	3.3	5.7	57	0.005	2.98	15
58.73	45.8	17.3	-	46.9	3.3	56.9	7.7	3	silty CLAY to CLAY	115	1.5	12	31	6	-	-	3.0	5.2	65	0.005	3.09	15
58.89	81.0	30.6	-	82.0	4.0	52.0	5.1	3	silty CLAY to CLAY	115	1.5	20	54	9	-	-	5.5	9.5	45	0.005	2.78	15
59.06	105.6	39.8	-	105.8	4.5	13.1	4.4	4	clayy SILT to silty CLAY	115	2.0	20	53	10	-	-	7.3	9.9	38	0.070	2.65	15
59.22	97.0	36.6	-	97.3	4.1	18.1	4.4	4	clayy SILT to silty CLAY	115	2.0	18	48	10	-	-	6.7	9.9	39	0.070	2.68	15
59.39	73.3	27.7	-	73.6	3.2	15.9	4.5	3	silty CLAY to CLAY	115	1.5	18	49	8	-	-	5.0	8.5	45	0.005	2.78	15
59.55	43.6	16.4	-	44.0	2.2	22.1	5.4	3	silty CLAY to CLAY	115	1.5	11	29	5	-	-	2.9	4.9	59	0.005	3.01	15
59.71	31.9	12.0	-	32.5	1.6	30.4	5.8	3	silty CLAY to CLAY	115	1.5	8	21	4	-	-	2.1	3.4	69	0.005	3.14	15
59.88	30.7	11.6	-	31.5	1.3	40.6	4.9	3	silty CLAY to CLAY	115	1.5	8	20	4	-	-	2.0	3.3	66	0.005	3.11	15
60.04	30.1	11.3	-	30.7	1.4	35.1	5.1	3	silty CLAY to CLAY	115	1.5	8	20	4	-	-	1.9	3.2	68	0.005	3.13	15

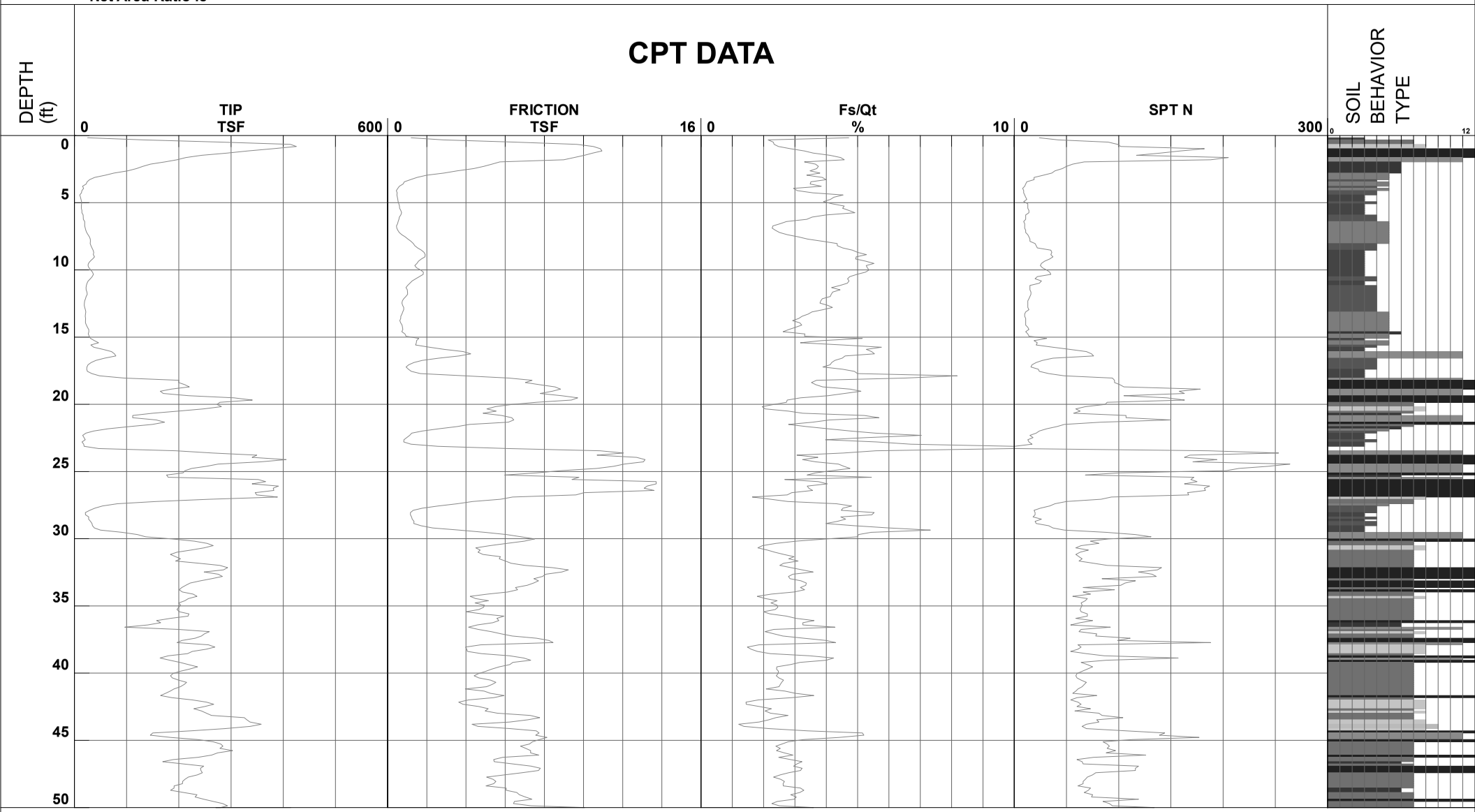
* Indicates the parameter was calculated using the normalized point stress.
The parameters listed above were determined using empirical correlations.
A Professional Engineer must determine their suitability for analysis and design.

CTE Cal

Project	San Bruno Genesis & Hyundai	Operator	AJ-OO	Filename	SDF(716).cpt
Job Number	60-0921G	Cone Number	DDG1587	GPS	
Hole Number	CPT-03	Date and Time	6/30/2021 9:35:27 AM	Maximum Depth	50.52 ft
EST GW Depth During Test		35.00 ft			

Net Area Ratio .8

CPT DATA



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

Cone Size 15cm squared

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

San Bruno Genesis & Hyundai

Project ID: CTE Cal
Data File: SDF(716).cpt
CPT Date: 6/30/2021 9:35:27 AM
GW During Test: 35 ft

Sounding ID: CPT-03
Project No: 60-0921G
Cone/Rig: DDG1587

Depth ft	qc PS tsf	* qcln PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	* Material Behavior Description	Unit Wght pcf	Qc to N	* SPT R-N1 60%	SPT R-N 60%	* SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR - -	* Fin Ic %	* D50 - mm	* Ic SBT Indx	* Nk - -
0.33	132.3	212.2	257.8	132.3	2.8	0.7	2.1	6	clean SAND to silty SAND	125	5.0	42	26	41	92	48	-	-	11	0.350	1.93	16
0.49	281.6	451.6	493.5	281.6	6.5	2.6	2.3	8	stiff SAND to clayy SAND	115	5.0	90	56	82	95	48	-	-	8	0.250	1.78	16
0.66	413.8	663.6	695.7	413.8	9.7	0.2	2.3	8	stiff SAND to clayy SAND	115	5.0	100	83	100	95	48	-	-	6	0.250	1.72	16
0.82	425.1	681.8	723.0	425.2	10.5	3.7	2.5	8	stiff SAND to clayy SAND	115	5.0	100	85	100	95	48	-	-	7	0.250	1.73	16
0.98	380.1	609.6	679.4	380.2	10.9	1.6	2.9	8	stiff SAND to clayy SAND	115	5.0	100	76	100	95	48	-	-	8	0.250	1.81	16
1.15	332.0	532.4	628.3	332.0	10.9	2.6	3.3	8	stiff SAND to clayy SAND	115	5.0	100	66	100	95	48	-	-	10	0.250	1.89	16
1.31	292.8	469.6	579.7	292.8	10.5	0.8	3.6	8	stiff SAND to clayy SAND	115	5.0	94	59	90	95	48	-	-	12	0.250	1.95	16
1.48	243.7	390.9	526.8	243.7	10.0	0.9	4.1	8	stiff SAND to clayy SAND	115	5.0	78	49	78	95	48	-	-	14	0.250	2.03	16
1.64	213.6	342.6	492.6	213.6	9.5	0.3	4.5	9	very stiff fine SOIL	120	1.0	100	100	70	-	-	7.5	9.9	16	0.250	2.09	30
1.80	196.5	315.2	468.4	196.6	9.0	5.2	4.6	9	very stiff fine SOIL	120	1.0	100	100	65	-	-	6.9	9.9	16	0.250	2.12	30
1.97	173.4	278.1	368.8	173.7	5.7	14.9	3.3	8	stiff SAND to clayy SAND	115	5.0	56	35	55	95	48	-	-	13	0.250	2.02	16
2.13	145.7	233.7	338.3	145.9	5.3	10.1	3.7	8	stiff SAND to clayy SAND	115	5.0	47	29	48	95	48	-	-	16	0.250	2.10	16
2.30	130.9	210.0	317.5	131.1	4.9	9.8	3.8	8	stiff SAND to clayy SAND	115	5.0	42	26	43	91	48	-	-	17	0.250	2.13	16
2.46	118.7	190.4	294.9	118.9	4.4	7.9	3.7	8	stiff SAND to clayy SAND	115	5.0	38	24	40	88	48	-	-	17	0.250	2.15	16
2.62	102.0	163.6	259.2	102.0	3.6	1.3	3.5	8	stiff SAND to clayy SAND	115	5.0	33	20	34	83	48	-	-	18	0.250	2.16	16
2.79	75.8	121.5	226.4	75.8	2.9	3.2	3.8	8	stiff SAND to clayy SAND	115	5.0	24	15	27	73	48	-	-	22	0.250	2.27	16
2.95	59.1	94.9	185.2	59.2	2.0	5.1	3.4	5	silty SAND to sandy SILT	120	3.0	32	20	21	65	47	-	-	23	0.200	2.30	16
3.12	38.7	62.1	162.4	38.8	1.5	3.5	3.9	4	clayy SILT to silty CLAY	115	2.0	31	19	15	-	-	2.7	9.9	29	0.070	2.47	15
3.28	29.1	46.6	145.6	29.1	1.2	2.6	4.0	4	clayy SILT to silty CLAY	115	2.0	23	15	12	-	-	2.0	9.9	34	0.070	2.57	15
3.45	24.4	39.2	126.0	24.5	0.9	2.8	3.5	4	clayy SILT to silty CLAY	115	2.0	20	12	10	-	-	1.7	9.9	34	0.070	2.58	15
3.61	22.5	36.1	-	22.6	0.8	3.0	3.5	4	clayy SILT to silty CLAY	115	2.0	18	11	9	-	-	1.6	9.9	36	0.070	2.61	15
3.77	15.6	25.1	-	15.7	0.6	1.7	3.9	4	clayy SILT to silty CLAY	115	2.0	13	8	7	-	-	1.1	9.9	43	0.070	2.76	15
3.94	17.6	28.2	-	17.6	0.5	1.5	3.0	4	clayy SILT to silty CLAY	115	2.0	14	9	7	-	-	1.2	9.9	37	0.070	2.64	15
4.10	14.5	23.2	-	14.5	0.4	1.7	3.1	4	clayy SILT to silty CLAY	115	2.0	12	7	6	-	-	1.0	9.9	42	0.070	2.72	15
4.27	13.6	21.8	-	13.6	0.5	1.0	3.6	4	clayy SILT to silty CLAY	115	2.0	11	7	6	-	-	0.9	9.9	45	0.070	2.78	15
4.43	10.4	16.6	-	10.4	0.5	1.1	4.7	3	silty CLAY to CLAY	115	1.5	11	7	5	-	-	0.7	9.9	55	0.005	2.94	15
4.59	11.7	18.7	-	11.7	0.5	1.0	4.3	3	silty CLAY to CLAY	115	1.5	12	8	6	-	-	0.8	9.9	51	0.005	2.88	15
4.76	12.6	20.2	-	12.6	0.5	1.7	4.2	3	silty CLAY to CLAY	115	1.5	13	8	6	-	-	0.9	9.9	49	0.005	2.85	15
4.92	13.8	22.1	-	13.8	0.5	1.7	4.0	3	silty CLAY to CLAY	115	1.5	15	9	6	-	-	1.0	9.9	46	0.005	2.81	15
5.09	13.7	21.9	-	13.7	0.6	2.2	4.3	3	silty CLAY to CLAY	115	1.5	15	9	6	-	-	0.9	9.9	48	0.005	2.83	15
5.25	13.2	21.2	-	13.2	0.6	2.2	4.7	3	silty CLAY to CLAY	115	1.5	14	9	6	-	-	0.9	9.9	50	0.005	2.87	15
5.41	13.4	21.6	-	13.5	0.6	2.0	4.6	3	silty CLAY to CLAY	115	1.5	14	9	6	-	-	0.9	9.9	49	0.005	2.86	15
5.58	14.2	22.8	-	14.3	0.7	2.3	4.8	3	silty CLAY to CLAY	115	1.5	15	9	7	-	-	1.0	9.9	49	0.005	2.85	15
5.74	14.5	23.2	-	14.5	0.7	2.2	5.0	3	silty CLAY to CLAY	115	1.5	15	10	7	-	-	1.0	9.9	49	0.005	2.86	15
5.91	16.8	26.9	-	16.8	0.7	2.1	4.1	4	clayy SILT to silty CLAY	115	2.0	13	8	7	-	-	1.2	9.9	43	0.070	2.75	15
6.07	16.9	27.1	-	16.9	0.6	2.3	3.6	4	clayy SILT to silty CLAY	115	2.0	14	8	7	-	-	1.2	9.9	41	0.070	2.71	15
6.23	17.1	27.4	-	17.1	0.6	4.0	3.4	4	clayy SILT to silty CLAY	115	2.0	14	9	7	-	-	1.2	9.9	40	0.070	2.69	15
6.40	19.6	31.3	101.9	19.7	0.5	5.5	2.8	4	clayy SILT to silty CLAY	115	2.0	16	10	8	-	-	1.4	9.9	35	0.070	2.59	15
6.56	19.8	31.2	98.1	19.9	0.5	6.5	2.6	4	clayy SILT to silty CLAY	115	2.0	16	10	8	-	-	1.4	9.9	34	0.070	2.57	15
6.73	19.8	30.8	92.9	19.9	0.5	7.6	2.3	4	clayy SILT to silty CLAY	115	2.0	15	10	8	-	-	1.4	9.9	33	0.070	2.55	15
6.89	20.6	31.7	93.4	20.8	0.5	9.7	2.3	4	clayy SILT to silty CLAY	115	2.0	16	10	8	-	-	1.4	9.9	32	0.070	2.53	15
7.05	21.8	33.1	97.0	22.1	0.5	13.7	2.4	4	clayy SILT to silty CLAY	115	2.0	17	11	8	-	-	1.5	9.9	32	0.070	2.53	15
7.22	23.6	35.4	102.3	23.9	0.6	17.8	2.6	4	clayy SILT to silty CLAY	115	2.0	18	12	9	-	-	1.6	9.9	32	0.070	2.52	15
7.38	26.2	38.9	111.4	26.6	0.7	22.0	2.8	4	clayy SILT to silty CLAY	115	2.0	19	13	10	-	-	1.8	9.9	32	0.070	2.52	15
7.55	28.8	42.3	122.7	29.3	0.9	25.3	3.2	4	clayy SILT to silty CLAY	115	2.0	21	14	10	-	-	2.0	9.9	32	0.070	2.53	15
7.71	30.5	44.3	131.5	31.0	1.0	27.8	3.5	4	clayy SILT to silty CLAY	115	2.0	22	15	11	-	-	2.1	9.9	32	0.070	2.54	15
7.87	30.6	44.0	141.3	31.2	1.2	28.3	4.0	4	clayy SILT to silty CLAY	115	2.0	22	15	11	-	-	2.1	9.9	34	0.070	2.58	15
8.04	30.2	48.4	157.0	30.7	1.3	27.7	4.4	4	clayy SILT to silty CLAY	115	2.0	24	15	12	-	-	2.1	9.9	35	0.070	2.59	15
8.20	31.8	51.0	160.7	32.4	1.4	29.7	4.4	4	clayy SILT to silty CLAY	115	2.0	25	16	13	-	-	2.2	9.9	34	0.070	2.57	15
8.37	33.7	54.1	168.7	34.3	1.5	27.0	4.6	4	clayy SILT to silty CLAY	115	2.0	27	17	14	-	-	2.3	9.9	34	0.070	2.56	15
8.53	35.6	57.1	179.8	36.3	1.7	33.6	4.9	4	clayy SILT to silty CLAY	115	2.0	29	18	14	-	-	2.5	9.9	34	0.070	2.57	15
8.69	37.2	59.1	186.5	37.8	1.9	30.6	5.1	4	clayy SILT to silty CLAY	115	2.0	30	19	15	-	-	2.6	9.9	34	0.070	2.57	15
8.86	36.2	56.9	-	36.9	1.9	32.8	5.4	4	clayy SILT to silty CLAY	115	2.0	28	18	15	-	-	2.5	9.9	35	0.070	2.60	15
9.02	38.5	59.6	186.1	39.2	1.9	36.1	5.0	4	clayy SILT to silty CLAY	115	2.0	30	19	15	-	-	2.7	9.9	34	0.070	2.57	15
9.19	34.9	53.4	176.8	35.6	1.7	37.7	5.0	4	clayy SILT to silty CLAY	115	2.0	27	17	14	-	-	2.4	9.9	35	0.070	2.60	15
9.35	29.9	48.0	-	30.6	1.6	31.3	5.4	3	silty CLAY to CLAY	115	1.5	32	20	13	-	-	2.1	9.9	38	0.005	2.65	15
9.51	27.1	43.4	-	27.4	1.5	19.2	5.6	3	silty CLAY to CLAY	115	1.5	29	18	12	-	-	1.9	9.9	40	0.005	2.70	15
9.68	26.2	42.1	-	26.7	1.4	22.4	5.4	3	silty CLAY to CLAY	115	1.5	28	17	11	-	-	1.8	9.9	40	0.005	2.69	15
9.84	27.8	44.6	-	28.3	1.5	25.7	5.4	3	silty CLAY to CLAY	115	1.5	30	19	12	-	-	1.9	9.9	39	0.005	2.68	15
10.01	31.5	50.5	-	32.3	1.7	39.9	5.5	3	silty CLAY to CLAY	115	1.5	34	21	13	-	-	2.2	9.9	37	0.005	2.64	15
10.17	34.8	55.8	-	35.7	1.8	43.7	5.3	4	clayy SILT to silty CLAY	115	2.0	28	17	14	-	-	2.4	9.9	36	0.070	2.61	15
10.34	36.4	51.2	-	37.3	1.8	46.1	5.1	4	clayy SILT to silty CLAY	115	2.0	26	18	13	-	-	2.5	9.9	36	0.070	2.61	15
10.50	34.0	47.4	-	34.9	1.6	43.5	4.8	4	clayy SILT to silty CLAY	115	2.0	24	17	12	-	-	2.4	9.9	36	0.070	2.62	15
10.66	30.7	49.2	-	31.5	1.4	41.5	4.8	4	clayy SILT to silty CLAY	115	2.0	25	15	13	-	-	2.1	9.9	36	0.070	2.61	15
10.83	26.3	42.1	-	27.1	1.2	39.8	4.8	4	clayy SILT to silty CLAY	115	2.0	21	13	11	-	-	1.8	9.9	38	0.070	2.66	15
10.99	24.3	38.3	-	25.0	1.1	37.9	4.8	3	silty CLAY to CLAY	115	1.5	26	16	10	-	-	1.7	9.9	40	0.005	2.69	15
11.16	22.9	35.5	-	23.6	1.0	36.8	4.6	3	silty CLAY to CLAY	115	1.5	24	15	10	-	-	1.6	9.9	40	0.005	2.70	15
11.32	22.4	34.2	-	23.1	0.9	35.5	4.3	4	clayy SILT to silty CLAY	115	2.0	17	11	9	-	-	1.5	9.9	40	0.070	2.69	15
11.48	22.6	34.0	-	23.3	1.0	37.4	4.6	3	silty CLAY to CLAY	115	1.5	23	15	9	-	-	1.5	9.9	41	0.005	2.71	15
11.65	24.0	35.7	-	24.8	1.0	38.6	4.3	4	clayy SILT to silty CLAY	115	2.0	18	12	9	-	-	1.7	9.9	39	0.070	2.68	15
11.81	24.6	36.1	-	25.7	1.0	55.7	4.3	4	clayy SILT to silty CLAY	115	2.0	18	12	10	-	-	1.7	9.9	39	0.070	2.67	15
11.98	22.4	32.4	-	23.5	0.9	57.0	4.3	4	clayy SILT to silty CLAY	115	2.0	16	11	9	-	-	1.5	9.9	41	0.070	2.70	15
12.14	21.2	30.2	-	22.2	0.8	51.4	4.0	4	clayy SILT to silty CLAY	115	2.0	15	11	8	-	-	1.4	9.6	41	0.070	2.71	15
12.30	19.7	27.7	-	20.8	0.8	55.5	4.0	4	clayy SILT to silty CLAY	115	2.0	14	10	8	-	-	1.3	8.8	42	0.070	2.74	15
12.47	19.1	26.6	-	20.2	0.7	54.8	3.9	4	clayy SILT to silty CLAY	115	2.0	13	10	7	-	-	1.3	8.4	43	0.070	2.75	15
12.63	18.8	25.8	-	19.8	0.8	51.3	4.2	3	silty CLAY to CLAY	115	1.5	17	13	7	-	-	1.3	8.2	45	0.005	2.78	15
12.80	19.6	26.5	-	20.6	0.8	54.2	4.4	3	silty CLAY to CLAY	115	1.5	18	13	7	-	-	1.3	8.4	45	0.005	2.78	15
12.96	21.0	28.0	-	22.0	0.8	52.5	4.0	4	clayy SILT to silty CLAY	115	2.0	14	10	8	-	-	1.4	8.9	42	0.070	2.74	15
13.12	21.8	28.8	-	22.9	0.8	56.9	3.7	4	clayy SILT to silty CLAY	115	2.0	14	11	8	-	-	1.5	9.2	40	0.070	2.70	15
13.29	21.2	27.7	-	22.1	0.7	46.4	3.6	4	clayy SILT to silty CLAY	115	2.0	14	11	7	-	-	1.4	8.8	41	0.070	2.70	15
13.45	20.8	26.8	-	22.0	0.7	58.7	3.4	4	clayy SILT to silty CLAY	115	2.0	13	10	7	-	-	1.4	8.5	40	0.070	2.70	15
13.62	21.4	27.2	-	22.7	0.7	65.3	3.2	4	clayy SILT to silty CLAY	115	2.0	14	11	7	-	-	1.5	8.6	40	0.070	2.68	15
13.78	21.2	26.7	-	22.6	0.6	69.4	3.0	4	clayy SILT to silty CLAY	115	2.0	13	11	7	-	-	1.4	8.5	39	0.070	2.67	15
13.94	21.1	26.3	-	22.5	0.7	69.9	3.3	4	clayy SILT to silty CLAY	115	2.0	13	11	7	-	-	1.4	8.3	40	0.070	2.70	15
14.11	22.8	28.0	-	24.2	0.7	72.2	3.3	4	clayy SILT to silty CLAY	115	2.0	14	11	7	-	-	1.6	8.9	39	0.070	2.68	15
14.27	25.1	30.5	-	26.5	0.8	72.5	3.1	4	clayy SILT to silty CLAY	115	2.0	15	13	8	-	-	1.7	9.7	37	0.070	2.63	15
14.44	27.5	30.8	-	28.8	0.8	65.2	2.9	4	clayy SILT to silty CLAY	115	2.0	15	14	8	-	-	1.9	9.9	36	0.070	2.61	15
14.60	27.6	30.5	100.3	29.3	0.7	88.6	2.7	4	clayy SILT to silty CLAY	115	2.0	15	14	8	-	-	1.9	9.9	35	0.070	2.59	15
14.76	26.6	31.2	-	28.4	0.9	92.2	3.4	4	clayy SILT to silty CLAY	115	2.0	16	13	8	-	-	1.8	9.9	38	0.070	2.65	15
14.93	28.3	32.9	-	30.4	0.9	107.0	3.4	4	clayy SILT to silty CLAY	115	2.0	16	14	9	-	-	1.9	9.9	37	0.070	2.63	15
15.09	30.8	35.4	-	32.9	1.6	105.8	5.3	3	silty CLAY to CLAY	115	1.5	24	21	10	-	-	2.1	9.9	43	0.005	2.74	15
15.26	38.4	41.2	-	40.3	1.5	100.2	3.9	4	clayy SILT to silty CLAY	115	2.0	21	19	11	-	-	2.6	9.9	35	0.070	2.60	15
15.42	46.1	47.5	130.9	46.4	1.5	14.9	3.2	4	clayy SILT to silty CLAY	115	2.0	24	23	12	-	-	3.2	9.9	31	0.070	2.50	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: CTE Cal
Data File: SDF(716).cpt
CPT Date: 6/30/2021 9:35:27 AM
GW During Test: 35 ft

Sounding ID: CPT-03
Project No: 60-0921G
Cone/Rig: DDG1587

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
15.58	31.5	35.0	-	33.1	1.4	83.5	4.7	3	silty CLAY to CLAY	115	1.5	23	21	9	-	-	2.2	9.9	41	0.005	2.71	15
15.75	37.2	40.9	-	39.6	2.1	123.8	5.9	3	silty CLAY to CLAY	115	1.5	27	25	11	-	-	2.6	9.9	42	0.005	2.73	15
15.91	54.6	56.9	-	56.3	2.9	89.1	5.4	4	clayy SILT to silty CLAY	115	2.0	28	27	15	-	-	3.8	9.9	35	0.070	2.60	15
16.08	70.9	71.5	215.0	71.9	3.9	53.2	5.5	4	clayy SILT to silty CLAY	115	2.0	36	35	18	-	-	4.9	9.9	33	0.070	2.55	15
16.24	76.7	77.0	225.0	77.0	4.2	16.8	5.6	9	very stiff fine SOIL	120	1.0	77	77	19	-	-	2.7	9.9	32	0.250	2.53	30
16.40	79.4	79.2	203.9	79.7	3.7	16.5	4.7	4	clayy SILT to silty CLAY	115	2.0	40	40	19	-	-	5.5	9.9	29	0.070	2.46	15
16.57	57.8	57.4	173.5	58.1	2.6	18.3	4.6	4	clayy SILT to silty CLAY	115	2.0	29	29	14	-	-	4.0	9.9	33	0.070	2.55	15
16.73	41.3	42.8	-	41.8	1.8	24.2	4.4	4	clayy SILT to silty CLAY	115	2.0	21	21	11	-	-	2.8	9.9	37	0.070	2.62	15
16.90	32.1	33.0	-	32.7	1.3	28.2	4.3	4	clayy SILT to silty CLAY	115	2.0	16	16	9	-	-	2.2	9.9	41	0.070	2.70	15
17.06	26.2	26.6	-	27.0	1.1	41.9	4.3	3	silty CLAY to CLAY	115	1.5	18	17	7	-	-	1.8	8.4	44	0.005	2.77	15
17.23	24.2	24.3	-	25.0	0.9	41.7	4.1	3	silty CLAY to CLAY	115	1.5	16	16	7	-	-	1.6	7.7	45	0.005	2.79	15
17.39	23.5	23.4	-	24.3	1.1	43.0	4.7	3	silty CLAY to CLAY	115	1.5	16	16	7	-	-	1.6	7.4	49	0.005	2.84	15
17.55	24.7	24.4	-	25.8	1.2	53.4	5.1	3	silty CLAY to CLAY	115	1.5	16	16	7	-	-	1.7	7.7	49	0.005	2.85	15
17.72	33.4	32.7	-	34.4	1.7	52.6	5.2	3	silty CLAY to CLAY	115	1.5	22	22	9	-	-	2.3	9.9	44	0.005	2.76	15
17.88	48.2	46.8	-	50.4	3.9	108.5	8.4	3	silty CLAY to CLAY	115	1.5	31	32	13	-	-	3.3	9.9	46	0.005	2.80	15
18.05	95.1	90.5	270.5	98.6	6.2	178.0	6.6	9	very stiff fine SOIL	120	1.0	91	95	22	-	-	3.3	9.9	33	0.250	2.54	30
18.21	200.1	189.6	294.8	200.4	7.4	15.4	3.7	8	stiff SAND to clayy SAND	115	5.0	38	40	40	88	44	-	-	17	0.250	2.15	16
18.37	199.4	188.1	287.0	200.3	7.0	45.8	3.5	8	stiff SAND to clayy SAND	115	5.0	38	40	39	88	44	-	-	17	0.250	2.14	16
18.54	211.3	198.5	303.0	211.5	7.7	7.3	3.7	8	stiff SAND to clayy SAND	115	5.0	40	42	41	90	44	-	-	17	0.250	2.14	16
18.70	220.0	205.7	319.5	220.2	8.5	12.0	3.9	8	stiff SAND to clayy SAND	115	5.0	41	44	43	91	44	-	-	17	0.250	2.15	16
18.87	185.3	172.5	318.6	185.9	8.8	32.0	4.8	9	very stiff fine SOIL	120	1.0	100	100	38	-	-	6.5	9.9	21	0.250	2.27	30
19.03	164.6	152.5	308.3	165.4	8.4	40.1	5.1	9	very stiff fine SOIL	120	1.0	100	100	34	-	-	5.8	9.9	23	0.250	2.32	30
19.19	170.1	156.9	293.9	170.4	7.8	16.4	4.6	9	very stiff fine SOIL	120	1.0	100	100	34	-	-	6.0	9.9	22	0.250	2.28	30
19.36	219.1	201.3	321.9	219.2	8.9	4.4	4.1	8	stiff SAND to clayy SAND	115	5.0	40	44	42	90	44	-	-	18	0.250	2.17	16
19.52	305.4	279.4	365.2	305.5	9.7	6.5	3.2	8	stiff SAND to clayy SAND	115	5.0	56	61	55	95	45	-	-	13	0.250	2.01	16
19.69	340.9	310.5	377.8	341.0	9.4	3.9	2.8	8	stiff SAND to clayy SAND	115	5.0	62	68	59	95	46	-	-	11	0.250	1.93	16
19.85	278.8	252.9	319.9	278.9	7.6	4.6	2.7	8	stiff SAND to clayy SAND	115	5.0	51	56	49	95	45	-	-	12	0.250	1.97	16
20.01	273.1	246.7	298.4	273.2	6.4	5.0	2.3	6	clean SAND to silty SAND	125	5.0	49	55	47	95	45	-	-	11	0.350	1.92	16
20.18	281.7	253.4	290.5	282.0	5.5	14.7	2.0	6	clean SAND to silty SAND	125	5.0	51	56	47	95	45	-	-	9	0.350	1.85	16
20.34	247.4	221.6	263.9	247.5	5.1	5.2	2.1	6	clean SAND to silty SAND	125	5.0	44	49	42	93	44	-	-	10	0.350	1.90	16
20.51	198.6	177.1	248.3	198.7	5.5	4.6	2.8	5	silty SAND to sandy SILT	120	3.0	59	66	36	86	43	-	-	15	0.200	2.07	16
20.67	149.8	133.1	221.2	149.9	4.9	1.5	3.3	5	silty SAND to sandy SILT	120	3.0	44	50	28	76	42	-	-	19	0.200	2.20	16
20.83	111.6	98.7	245.9	111.9	5.8	17.2	5.3	9	very stiff fine SOIL	120	1.0	99	100	23	-	-	3.9	9.9	28	0.250	2.44	30
21.00	111.5	98.2	258.9	112.0	6.3	26.3	5.7	9	very stiff fine SOIL	120	1.0	98	100	24	-	-	3.9	9.9	29	0.250	2.47	30
21.16	156.9	137.7	255.6	157.2	6.4	11.4	4.1	9	very stiff fine SOIL	120	1.0	100	100	30	-	-	5.5	9.9	21	0.250	2.27	30
21.33	172.7	150.9	250.5	172.7	6.2	1.1	3.6	8	stiff SAND to clayy SAND	115	5.0	30	35	32	81	42	-	-	19	0.250	2.20	16
21.49	149.4	130.0	202.9	149.6	4.2	9.2	2.8	5	silty SAND to sandy SILT	120	3.0	43	50	27	76	41	-	-	17	0.200	2.15	16
21.65	106.1	92.0	183.2	106.1	3.6	3.2	3.4	5	silty SAND to sandy SILT	120	3.0	31	35	21	64	40	-	-	23	0.200	2.31	16
21.82	64.6	55.8	161.5	64.6	2.6	1.5	4.1	4	clayy SILT to silty CLAY	115	2.0	28	32	14	-	-	4.5	9.9	32	0.070	2.52	15
21.98	37.1	29.1	-	37.2	1.8	2.6	4.9	3	silty CLAY to CLAY	115	1.5	19	25	8	-	-	2.5	9.3	45	0.005	2.78	15
22.15	22.2	17.3	-	22.3	1.2	6.6	5.9	3	silty CLAY to CLAY	115	1.5	12	15	6	-	-	1.5	5.4	59	0.005	3.01	15
22.31	15.9	12.3	-	16.1	1.1	6.3	7.7	3	silty CLAY to CLAY	115	1.5	8	11	5	-	-	1.0	3.7	73	0.005	3.20	15
22.47	18.4	14.1	-	18.5	1.0	7.5	5.7	3	silty CLAY to CLAY	115	1.5	9	12	5	-	-	1.2	4.3	63	0.005	3.07	15
22.64	20.9	15.9	-	21.0	0.8	5.3	4.2	3	silty CLAY to CLAY	115	1.5	11	14	5	-	-	1.4	4.9	55	0.005	2.95	15
22.80	14.6	11.0	-	14.7	0.8	6.0	6.2	3	silty CLAY to CLAY	115	1.5	7	10	4	-	-	0.9	3.3	72	0.005	3.18	15
22.97	17.8	13.3	-	18.0	1.2	9.6	7.2	3	silty CLAY to CLAY	115	1.5	9	12	5	-	-	1.2	4.1	70	0.005	3.16	15
23.13	18.5	13.8	-	18.6	2.6	6.7	9.9	3	silty CLAY to CLAY	115	1.5	9	12	5	-	-	1.2	4.2	76	0.005	3.24	15
23.30	46.2	34.2	-	46.6	6.2	17.3	9.9	3	silty CLAY to CLAY	115	1.5	23	31	11	-	-	3.2	9.9	55	0.005	2.95	15
23.46	194.4	162.0	337.6	194.8	10.8	17.7	5.6	9	very stiff fine SOIL	120	1.0	100	100	37	-	-	6.8	9.9	24	0.250	2.34	30
23.62	264.5	219.6	362.7	264.6	12.0	2.5	4.6	9	very stiff fine SOIL	120	1.0	100	100	47	-	-	9.3	9.9	19	0.250	2.19	30
23.79	349.5	289.1	369.9	349.9	10.7	22.6	3.1	8	stiff SAND to clayy SAND	115	5.0	58	70	56	95	45	-	-	13	0.250	1.98	16
23.95	340.4	280.6	391.6	340.7	12.7	15.3	3.8	8	stiff SAND to clayy SAND	115	5.0	56	68	57	95	45	-	-	15	0.250	2.07	16
24.12	405.7	333.3	422.8	406.0	13.1	16.5	3.3	8	stiff SAND to clayy SAND	115	5.0	67	81	65	95	46	-	-	12	0.250	1.97	16
24.28	356.8	292.1	400.2	356.8	13.1	-1.0	3.7	8	stiff SAND to clayy SAND	115	5.0	58	71	58	95	45	-	-	14	0.250	2.05	16
24.44	275.6	224.9	361.5	275.7	12.1	3.0	4.4	9	very stiff fine SOIL	120	1.0	100	100	47	-	-	9.7	9.9	18	0.250	2.17	30
24.61	253.1	205.9	348.1	253.2	11.5	2.5	4.6	9	very stiff fine SOIL	120	1.0	100	100	44	-	-	8.9	9.9	19	0.250	2.21	30
24.77	224.5	182.0	329.3	224.7	10.7	9.7	4.8	9	very stiff fine SOIL	120	1.0	100	100	40	-	-	7.9	9.9	21	0.250	2.25	30
24.94	211.9	171.2	294.7	212.0	8.9	3.5	4.2	9	very stiff fine SOIL	120	1.0	100	100	37	-	-	7.4	9.9	20	0.250	2.22	30
25.10	208.0	167.5	270.8	208.1	7.6	4.3	3.7	8	stiff SAND to clayy SAND	115	5.0	33	42	35	84	42	-	-	18	0.250	2.18	16
25.26	176.5	141.6	234.7	176.5	6.0	-2.2	3.4	5	silty SAND to sandy SILT	120	3.0	47	59	30	78	41	-	-	19	0.200	2.20	16
25.43	179.5	143.6	310.0	179.5	9.8	0.8	5.5	9	very stiff fine SOIL	120	1.0	100	100	33	-	-	6.3	9.9	25	0.250	2.36	30
25.59	352.1	280.6	345.1	352.2	9.4	7.3	2.7	8	stiff SAND to clayy SAND	115	5.0	56	70	54	95	45	-	-	11	0.250	1.94	16
25.76	366.1	290.9	402.8	366.4	13.7	13.0	3.8	8	stiff SAND to clayy SAND	115	5.0	58	73	58	95	45	-	-	15	0.250	2.06	16
25.92	340.3	269.5	393.6	340.5	13.7	7.9	4.0	8	stiff SAND to clayy SAND	115	5.0	54	68	55	95	45	-	-	16	0.250	2.10	16
26.08	390.5	308.3	404.5	390.6	13.2	4.5	3.4	8	stiff SAND to clayy SAND	115	5.0	62	78	61	95	45	-	-	13	0.250	2.01	16
26.25	380.9	299.8	397.9	381.0	13.1	6.4	3.5	8	stiff SAND to clayy SAND	115	5.0	60	76	59	95	45	-	-	14	0.250	2.02	16
26.41	382.0	299.8	403.5	382.1	13.6	4.8	3.6	8	stiff SAND to clayy SAND	115	5.0	60	76	60	95	45	-	-	14	0.250	2.03	16
26.58	346.4	271.0	344.9	346.6	10.0	11.9	2.9	8	stiff SAND to clayy SAND	115	5.0	54	69	53	95	45	-	-	12	0.250	1.98	16
26.74	349.1	272.3	340.3	349.5	9.6	19.6	2.8	8	stiff SAND to clayy SAND	115	5.0	54	70	53	95	45	-	-	12	0.250	1.96	16
26.90	388.8	302.3	323.0	388.9	6.4	1.7	1.6	6	clean SAND to silty SAND	125	5.0	60	78	54	95	45	-	-	7	0.350	1.75	16
27.07	258.6	200.4	250.5	258.6	5.8	0.0	2.2	6	clean SAND to silty SAND	125	5.0	40	52	39	90	43	-	-	12	0.350	1.96	16
27.23	156.8	121.1	193.6	156.8	4.3	-0.1	2.8	5	silty SAND to sandy SILT	120	3.0	40	52	25	73	40	-	-	18	0.200	2.17	16
27.40	82.3	63.4	177.7	82.3	3.6	1.7	4.4	4	clayy SILT to silty CLAY	115	2.0	32	41	15	-	-	5.7	9.9	31	0.070	2.51	15
27.56	53.7	33.5	-	53.7	2.6	3.1	5.0	3	silty CLAY to CLAY	115	1.5	22	36	9	-	-	3.7	9.9	43	0.005	2.74	15
27.72	39.1	24.3	-	39.2	1.8	4.9	4.7	3	silty CLAY to CLAY	115	1.5	16	26	7	-	-	2.7	7.7	48	0.005	2.83	15
27.89	29.2	18.0	-	29.3	1.3	3.9	4.7	3	silty CLAY to CLAY	115	1.5	12	19	6	-	-	2.0	5.6	54	0.005	2.93	15
28.05	21.0	12.9	-	21.1	1.2	4.7	6.0	3	silty CLAY to CLAY	115	1.5	9	14	4	-	-	1.4	3.9	67	0.005	3.12	15
28.22	21.3	13.0	-	21.4	1.2	5.6	5.9	3	silty CLAY to CLAY	115	1.5	9	14	4	-	-	1.4	4.0	66	0.005	3.11	15
28.38	27.4	16.6	-	27.5	1.2	5.3	4.7	3	silty CLAY to CLAY	115	1.5	11	18	5	-	-	1.8	5.2	56	0.005	2.96	15
28.54	27.2	16.4	-	27.3	1.3	5.0	4.9	3	silty CLAY to CLAY	115	1.5	11	18	5	-	-	1.8	5.1	57	0.005	2.98	15
28.71	30.9	18.5	-	31.0	1.3	3.5	4.6	3	silty CLAY to CLAY	115	1.5	12	21	6	-	-	2.1	5.8	53	0.005	2.92	15
28.87	33.5	20.0	-	33.6	1.3	3.6	4.2	3	silty CLAY to CLAY	115	1.5	13	22	6	-	-	2.2	6.3	50	0.005	2.86	15
29.04	34.7	20.6	-	34.8	1.7	3.1	5.2	3	silty CLAY to CLAY	115	1.5	14	23	6	-	-	2.3	6.5	53	0.005	2.91	15
29.20	38.3	22.6	-	38.4	2.3	3.6	6.3	3	silty CLAY to CLAY	115	1.5	15	26	7	-	-	2.6	7.1	54	0.005	2.94	15
29.36	49.9	29.3	-	50.0	3.7	4.9	7.6	3	silty CLAY to CLAY	115	1.5	20	33	9	-	-	3.4	9.3	53	0.005	2.91	15
29.53	91.2	53.3	-	91.4	5.0	8.0	5.5	4	clayy SILT to silty CLAY	115	2.0	27	46	14	-	-	6.3	9.9	37	0.070	2.63	15
29.69	120.7	89.3	229.2	120.8	6.1	1.4	5.1	9	very stiff fine SOIL	120	1.0	89	100	21	-	-	4.2	9.9	29	0.250	2.46	30
29.86	136.4	100.6	242.5	136.5	6.8	4.0	5.1	9	very stiff fine SOIL	120	1.0	100	100	24	-	-	4.8	9.9	27	0.250	2.42	30
30.02	187.1	137.7	252.8	187.2	7.5	2.9	4.0	8	stiff SAND to clayy SAND	115	5.0	28	37	30	78	41	-	-	21	0.250	2.26	16
30.19	229.7	168.6	249.2	229.7	7.0	1.7	3.1	5	silty SAND to sandy SILT	120	3.0	56	77	35	84	42	-	-	16	0.200	2.11	16
30.35	254.3	186.1	242.8	254.3	6.1	0.6	2.4	5	silty SAND to sandy SILT	120	3.0	62	85	37	88	42	-	-	13	0.200	2.00	16
30.51	265.8	194.0	235.3	265.9	5.2	3.3	2.0	6	clean SAND to silty SAND	125	5.0	39	53	37	89	43	-	-	11	0.350	1.92	16
30.68	248.4	180.7	217.8	248.4	4.5	3.4	1.8	6	clean SAND to silty SAND	125	5.0	36	50	34	87	42	-	-	11	0.350	1.92	16
30.84	222.8	161.7	210.2	222.9	4.7	1.9	2.1	5	silty SAND to sandy SILT	120	3.0	54	74	32	83	42	-	-	13	0.200	2.00	16

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

Project ID: CTE Cal
Data File: SDF(716).cpt
CPT Date: 6/30/2021 9:35:27 AM
GW During Test: 35 ft

Depth ft	qc PS tsf	qc1n PS - *	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description *	Unit Wght pcf	Qc to N	SPT R-N1 60% *	SPT R-N 60%	SPT IcN1 60% *	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR - -	Fin Ic % *	D50 - mm *	Ic SBT Indx *	Nk -
31.01	196.1	141.9	199.5	196.2	4.6	1.6	2.4	5	silty SAND to sandy SILT	120	3.0	47	65	29	79	41	-	-	15	0.200	2.07	16
31.17	183.9	132.7	200.7	183.9	4.9	1.4	2.7	5	silty SAND to sandy SILT	120	3.0	44	61	27	76	41	-	-	17	0.200	2.13	16
31.33	193.8	139.5	218.3	193.9	5.8	3.6	3.0	5	silty SAND to sandy SILT	120	3.0	46	65	29	78	41	-	-	18	0.200	2.16	16
31.50	203.2	145.8	218.7	203.2	5.7	0.2	2.8	5	silty SAND to sandy SILT	120	3.0	49	68	30	79	41	-	-	17	0.200	2.12	16
31.66	194.0	138.8	222.2	194.0	6.0	2.6	3.1	5	silty SAND to sandy SILT	120	3.0	46	65	29	78	41	-	-	18	0.200	2.17	16
31.83	239.1	170.7	236.8	239.2	6.3	2.2	2.7	5	silty SAND to sandy SILT	120	3.0	57	80	34	85	42	-	-	15	0.200	2.06	16
31.99	278.4	198.2	258.9	278.5	7.0	3.2	2.5	5	silty SAND to sandy SILT	120	3.0	66	93	39	90	43	-	-	13	0.200	2.00	16
32.15	293.5	208.4	282.0	293.5	8.4	3.5	2.9	8	stiff SAND to clayy SAND	115	5.0	42	59	42	91	43	-	-	14	0.250	2.04	16
32.32	285.5	202.2	290.1	285.5	9.2	2.1	3.3	8	stiff SAND to clayy SAND	115	5.0	40	57	41	90	43	-	-	15	0.250	2.09	16
32.48	248.5	175.6	276.6	248.6	8.9	4.6	3.6	8	stiff SAND to clayy SAND	115	5.0	35	50	37	86	42	-	-	18	0.250	2.16	16
32.65	275.4	194.1	270.4	275.4	8.1	1.5	3.0	8	stiff SAND to clayy SAND	115	5.0	39	55	39	89	42	-	-	15	0.250	2.06	16
32.81	283.4	199.2	270.1	283.4	7.9	1.2	2.8	5	silty SAND to sandy SILT	120	3.0	66	94	40	90	43	-	-	14	0.200	2.04	16
32.97	262.9	184.4	257.5	262.9	7.5	0.7	2.9	5	silty SAND to sandy SILT	120	3.0	61	88	37	87	42	-	-	15	0.200	2.07	16
33.14	241.6	169.0	255.3	241.6	7.7	1.7	3.2	8	stiff SAND to clayy SAND	115	5.0	34	48	35	84	42	-	-	17	0.250	2.13	16
33.30	221.6	154.6	247.3	221.7	7.5	1.7	3.4	8	stiff SAND to clayy SAND	115	5.0	31	44	33	81	41	-	-	18	0.250	2.17	16
33.47	213.2	148.4	240.3	213.2	7.1	1.0	3.4	5	silty SAND to sandy SILT	120	3.0	49	71	31	80	41	-	-	18	0.200	2.18	16
33.63	205.6	142.7	228.7	205.6	6.5	1.0	3.2	5	silty SAND to sandy SILT	120	3.0	48	69	30	79	41	-	-	18	0.200	2.17	16
33.79	200.4	138.8	229.5	200.4	6.6	1.3	3.3	5	silty SAND to sandy SILT	120	3.0	46	67	29	78	41	-	-	19	0.200	2.19	16
33.96	206.7	142.8	221.6	206.7	6.1	1.1	3.0	5	silty SAND to sandy SILT	120	3.0	48	69	30	79	41	-	-	17	0.200	2.15	16
34.12	227.2	156.5	209.7	227.2	5.1	1.8	2.3	5	silty SAND to sandy SILT	120	3.0	52	76	31	82	41	-	-	14	0.200	2.03	16
34.29	234.8	161.4	199.4	234.8	4.2	1.4	1.8	6	clean SAND to silty SAND	125	5.0	32	47	31	83	41	-	-	12	0.350	1.95	16
34.45	218.4	149.7	197.1	218.4	4.5	1.1	2.1	5	silty SAND to sandy SILT	120	3.0	50	73	30	80	41	-	-	13	0.200	2.01	16
34.61	211.7	144.8	205.0	211.7	5.1	0.8	2.5	5	silty SAND to sandy SILT	120	3.0	48	71	29	79	41	-	-	15	0.200	2.08	16
34.78	199.9	136.4	190.5	199.9	4.5	0.7	2.3	5	silty SAND to sandy SILT	120	3.0	45	67	27	77	40	-	-	15	0.200	2.07	16
34.94	203.3	138.4	198.9	203.3	4.9	0.9	2.5	5	silty SAND to sandy SILT	120	3.0	46	68	28	78	41	-	-	16	0.200	2.09	16
35.11	199.9	135.9	197.3	199.9	4.9	0.6	2.5	5	silty SAND to sandy SILT	120	3.0	45	67	28	77	40	-	-	16	0.200	2.10	16
35.27	196.5	133.4	192.4	196.5	4.7	0.0	2.4	5	silty SAND to sandy SILT	120	3.0	44	65	27	77	40	-	-	16	0.200	2.09	16
35.43	201.0	136.3	182.6	201.0	4.0	0.5	2.0	5	silty SAND to sandy SILT	120	3.0	45	67	27	77	40	-	-	14	0.200	2.03	16
35.60	219.3	148.6	200.9	219.3	4.8	-1.3	2.2	5	silty SAND to sandy SILT	120	3.0	50	73	30	80	41	-	-	14	0.200	2.04	16
35.76	217.8	147.4	217.6	217.8	5.9	-1.2	2.8	5	silty SAND to sandy SILT	120	3.0	49	73	30	80	41	-	-	16	0.200	2.11	16
35.93	184.0	124.4	205.8	184.0	5.6	-0.6	3.1	5	silty SAND to sandy SILT	120	3.0	41	61	26	74	40	-	-	19	0.200	2.19	16
36.09	157.4	106.3	206.4	157.4	5.7	0.1	3.7	5	silty SAND to sandy SILT	120	3.0	35	52	24	69	39	-	-	22	0.200	2.30	16
36.26	165.1	111.4	200.2	165.1	5.4	-0.6	3.3	5	silty SAND to sandy SILT	120	3.0	37	55	24	71	39	-	-	21	0.200	2.25	16
36.42	140.7	94.8	183.6	140.6	4.6	-1.5	3.3	5	silty SAND to sandy SILT	120	3.0	32	47	21	65	38	-	-	22	0.200	2.30	16
36.58	96.5	65.0	179.3	96.5	4.1	-1.5	4.4	4	clayy SILT to silty CLAY	115	2.0	32	48	16	-	-	6.7	9.9	31	0.070	2.50	15
36.75	199.3	133.9	191.3	199.3	4.6	3.2	2.3	5	silty SAND to sandy SILT	120	3.0	45	66	27	77	40	-	-	15	0.200	2.08	16
36.91	258.4	173.5	219.0	258.4	5.3	0.1	2.1	6	clean SAND to silty SAND	125	5.0	35	52	34	85	42	-	-	12	0.350	1.97	16
37.08	249.0	167.0	222.6	249.0	5.8	0.0	2.4	5	silty SAND to sandy SILT	120	3.0	56	83	33	84	41	-	-	14	0.200	2.02	16
37.24	243.5	163.1	228.6	243.5	6.4	0.0	2.6	5	silty SAND to sandy SILT	120	3.0	54	81	33	83	41	-	-	15	0.200	2.07	16
37.40	231.1	154.7	244.8	231.1	7.6	-0.4	3.3	5	silty SAND to sandy SILT	120	3.0	52	77	32	81	41	-	-	18	0.200	2.16	16
37.57	206.0	137.7	252.6	206.0	8.2	-0.8	4.0	8	stiff SAND to clayy SAND	115	5.0	28	41	30	78	40	-	-	21	0.250	2.26	16
37.73	196.7	131.4	256.1	196.7	8.4	-1.2	4.3	9	very stiff fine SOIL	120	1.0	100	100	29	-	-	6.9	9.9	23	0.250	2.30	30
37.90	256.8	171.3	210.4	256.8	4.8	-0.4	1.9	6	clean SAND to silty SAND	125	5.0	34	51	33	85	42	-	-	11	0.350	1.94	16
38.06	269.2	179.3	205.6	269.2	4.0	-0.4	1.5	6	clean SAND to silty SAND	125	5.0	36	54	33	86	42	-	-	9	0.350	1.85	16
38.22	252.8	168.2	199.3	252.7	4.0	-2.0	1.6	6	clean SAND to silty SAND	125	5.0	34	51	32	84	41	-	-	10	0.350	1.90	16
38.39	225.8	150.0	189.2	225.7	4.1	-2.5	1.8	6	clean SAND to silty SAND	125	5.0	30	45	29	80	41	-	-	12	0.350	1.97	16
38.55	216.7	143.8	197.0	216.7	4.8	-2.0	2.2	5	silty SAND to sandy SILT	120	3.0	48	72	29	79	41	-	-	14	0.200	2.05	16
38.72	180.0	119.3	215.0	179.9	6.2	-3.3	3.5	5	silty SAND to sandy SILT	120	3.0	40	60	26	73	40	-	-	21	0.200	2.25	16
38.88	163.9	108.6	229.0	163.9	6.9	-2.2	4.3	9	very stiff fine SOIL	120	1.0	100	100	25	-	-	5.7	9.9	24	0.250	2.35	30
39.04	182.8	120.9	234.8	182.8	7.3	-1.6	4.0	9	very stiff fine SOIL	120	1.0	100	100	27	-	-	6.4	9.9	22	0.250	2.30	30
39.21	201.9	133.4	219.4	201.9	6.4	-2.4	3.2	5	silty SAND to sandy SILT	120	3.0	44	67	28	77	40	-	-	19	0.200	2.19	16
39.37	218.5	144.2	219.1	218.5	6.2	-2.0	2.9	5	silty SAND to sandy SILT	120	3.0	48	73	30	79	41	-	-	17	0.200	2.13	16
39.54	235.6	155.4	214.7	235.6	5.7	-1.2	2.4	5	silty SAND to sandy SILT	120	3.0	52	79	31	82	41	-	-	15	0.200	2.06	16
39.70	220.7	145.3	205.0	220.6	5.3	-1.2	2.4	5	silty SAND to sandy SILT	120	3.0	48	74	29	79	41	-	-	15	0.200	2.07	16
39.86	202.4	133.2	195.6	202.3	5.0	-1.2	2.5	5	silty SAND to sandy SILT	120	3.0	44	67	27	76	40	-	-	16	0.200	2.11	16
40.03	188.9	124.1	186.8	188.9	4.6	-0.9	2.5	5	silty SAND to sandy SILT	120	3.0	41	63	26	74	40	-	-	17	0.200	2.13	16
40.19	184.0	120.8	181.7	184.0	4.4	-0.7	2.4	5	silty SAND to sandy SILT	120	3.0	40	61	25	73	40	-	-	17	0.200	2.13	16
40.36	187.4	122.9	186.4	187.4	4.7	-0.8	2.5	5	silty SAND to sandy SILT	120	3.0	41	62	25	74	40	-	-	17	0.200	2.13	16
40.52	199.5	130.7	198.7	199.4	5.3	-0.6	2.7	5	silty SAND to sandy SILT	120	3.0	44	66	27	76	40	-	-	17	0.200	2.13	16
40.68	214.9	140.6	206.1	214.9	5.5	-0.7	2.6	5	silty SAND to sandy SILT	120	3.0	47	72	29	78	40	-	-	16	0.200	2.11	16
40.85	210.3	137.5	201.8	210.3	5.3	-1.2	2.6	5	silty SAND to sandy SILT	120	3.0	46	70	28	78	40	-	-	16	0.200	2.11	16
41.01	203.0	132.5	195.6	202.9	5.0	-1.5	2.5	5	silty SAND to sandy SILT	120	3.0	44	68	27	76	40	-	-	16	0.200	2.11	16
41.18	190.7	124.4	174.7	190.7	4.0	-1.9	2.1	5	silty SAND to sandy SILT	120	3.0	41	64	25	74	40	-	-	15	0.200	2.07	16
41.34	183.7	119.7	189.8	183.6	4.9	-1.8	2.7	5	silty SAND to sandy SILT	120	3.0	40	61	25	73	39	-	-	18	0.200	2.17	16
41.50	174.6	113.6	194.8	174.5	5.3	-2.1	3.1	5	silty SAND to sandy SILT	120	3.0	38	58	24	71	39	-	-	20	0.200	2.22	16
41.67	165.0	107.3	207.5	165.0	5.9	-2.2	3.7	5	silty SAND to sandy SILT	120	3.0	36	55	24	69	39	-	-	22	0.200	2.30	16
41.83	186.7	121.3	198.5	186.7	5.4	-1.1	2.9	5	silty SAND to sandy SILT	120	3.0	40	62	26	73	40	-	-	19	0.200	2.19	16
42.00	225.6	146.4	187.0	225.6	4.1	-1.9	1.9	6	clean SAND to silty SAND	125	5.0	29	45	29	80	41	-	-	12	0.350	1.98	16
42.16	252.9	163.9	190.3	252.9	3.6	-2.3	1.4	6	clean SAND to silty SAND	125	5.0	33	51	31	83	41	-	-	10	0.350	1.87	16
42.32	266.9	172.8	198.6	266.8	3.8	-2.5	1.5	6	clean SAND to silty SAND	125	5.0	35	53	32	85	41	-	-	9	0.350	1.86	16
42.49	249.7	161.5	201.6	249.6	4.6	-3.0	1.9	6	clean SAND to silty SAND	125	5.0	32	50	31	83	41	-	-	12	0.350	1.96	16
42.65	228.8	147.8	201.8	228.8	5.1	-2.8	2.3	5	silty SAND to sandy SILT	120	3.0	49	76	30	80	41	-	-	14	0.200	2.05	16
42.82	243.5	157.1	203.8	243.4	5.0	-2.6	2.1	5	silty SAND to sandy SILT	120	3.0	52	81	31	82	41	-	-	13	0.200	2.00	16
42.98	252.8	162.9	215.0	252.7	5.6	-2.6	2.2	5	silty SAND to sandy SILT	120	3.0	54	84	32	83	41	-	-	13	0.200	2.01	16
43.15	262.3	168.9	240.4	262.3	7.3	-1.9	2.8	5	silty SAND to sandy SILT	120	3.0	56	87	34	84	41	-	-	15	0.200	2.08	16
43.31	325.4	209.3	265.0	325.3	7.8	-2.3	2.4	5	silty SAND to sandy SILT	120	3.0	70	100	41	91	42	-	-	12	0.200	1.97	16
43.47	330.3	212.3	259.9	330.3	7.2	-2.5	2.2	6	clean SAND to silty SAND	125	5.0	42	66	41	92	42	-	-	11	0.350	1.94	16
43.64	336.3	215.8	252.1	336.3	6.2	-1.2	1.9	6	clean SAND to silty SAND	125	5.0	43	67	40	92	43	-	-	10	0.350	1.88	16
43.80	357.9	229.5	240.3	357.9	4.3	-1.3	1.2	6	clean SAND to silty SAND	125	5.0	46	72	41	94	43	-	-	6	0.350	1.71	16
43.97	336.9	215.8	234.7	336.9	4.6	-1.5	1.4	6	clean SAND to silty SAND	125	5.0	43	67	39	92	42	-	-	8	0.350	1.77	16
44.13	288.1	184.3	233.6	288.1	6.3	-2.4	2.2	5	silty SAND to sandy SILT	120	3.0	61	96	36	87	42	-	-	12	0.200	1.97	16
44.29	223.4	142.7	237.0	223.3	7.6	-2.6	3.4	5	silty SAND to sandy SILT	120	3.0	48	74	30	79	40	-	-	19	0.200	2.20	16
44.46	150.0	95.8	242.0	149.9	7.7	-2.6	5.2	9	very stiff fine SOIL	120	1.0	96	100	23	-	-	5.2	9.9	28	0.250	2.45	30
44.62	145.4	92.7	239.5	145.4	7.6	1.0	5.3	9	very stiff fine SOIL	120	1.0	93	100	22	-	-	5.1	9.9	29	0.250	2.46	30
44.79	184.4	117.5	245.0	184.4	8.1	0.1	4.5	9	very stiff fine SOIL	120	1.0	100	100	27	-	-	6.4	9.9	24	0.250	2.34	30
44.95	236.4	150.4	240.5	236.3	7.8	-1.7	3.3	5	silty SAND to sandy SILT	120	3.0	50	79	32	80	41	-	-	18	0.200	2.17	16
45.11	265.7	168.9	240.7	265.7	7.4	-1.8	2.8	5	silty SAND to sandy SILT	120	3.0	56	89	34	84	41	-	-	15	0.200	2.08	16
45.28	280.3	178.0	242.3	280.3	7.2	-1.8	2.6	5	silty SAND to sandy SILT	120	3.0	59	93	36	86	41	-	-	14	0.200	2.04	16
45.44	284.4	180.5	237.5	284.4	6.8	-1.4	2.4	5	silty SAND to sandy SILT	120	3.0	60	95	36	86	42	-	-	13	0.200	2.01	16
45.61	278.8	176.7	239.1	278.8	7.1	0.3	2.6	5	silty SAND to sandy SILT	120	3.0	59	93	35	86	41	-	-	14	0.200	2.04	16
45.77	302.8	191.7	249.2	302.8	7.3	-0.9	2.4	5	silty SAND to sandy SILT	120	3.0	64	100	38	88	42	-	-	13	0.200	2.00	16
45.93	274.5	173.7	240.7	274.5	7.3	-1.2	2.7	5	silty SAND to sandy SILT	120	3.0	58	91	35	85	41	-	-	15	0.200	2.06	16
46.10	262.9	166.1	243.5	262.9	7.7	-0.4	3.0	5	silty SAND to sandy SILT	120	3.0	55	88	34	84	41	-	-	16	0.200	2.11	16
46.26	236.6	149.4	211.5	236.6	5.9	-1.5	2.5	5	silty SAND to sandy SILT	120	3.0	50	79	30	80	41	-	-	15	0.200	2.08	16

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

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR - -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
46.43	189.4	119.4	195.6	189.3	5.4	-1.3	2.9	5	silty SAND to sandy SILT	120	3.0	40	63	25	73	39	-	-	19	0.200	2.19	16
46.59	169.0	106.5	194.9	169.0	5.4	-2.9	3.3	5	silty SAND to sandy SILT	120	3.0	36	56	23	69	39	-	-	21	0.200	2.26	16
46.75	208.3	131.1	213.9	208.2	6.4	-1.3	3.1	5	silty SAND to sandy SILT	120	3.0	44	69	28	76	40	-	-	19	0.200	2.19	16
46.92	247.7	155.8	234.4	247.7	7.3	-1.6	3.0	5	silty SAND to sandy SILT	120	3.0	52	83	32	82	41	-	-	17	0.200	2.13	16
47.08	241.5	151.7	240.0	241.5	7.8	-1.1	3.3	5	silty SAND to sandy SILT	120	3.0	51	80	32	81	41	-	-	18	0.200	2.16	16
47.25	242.3	152.1	238.6	242.3	7.7	0.4	3.2	5	silty SAND to sandy SILT	120	3.0	51	81	32	81	41	-	-	18	0.200	2.16	16
47.41	245.0	153.6	226.6	245.0	6.9	-0.6	2.8	5	silty SAND to sandy SILT	120	3.0	51	82	32	81	41	-	-	16	0.200	2.11	16
47.57	235.6	147.6	211.5	235.6	6.0	-0.5	2.6	5	silty SAND to sandy SILT	120	3.0	49	79	30	80	40	-	-	15	0.200	2.09	16
47.74	218.1	136.5	193.8	218.1	5.1	-0.7	2.3	5	silty SAND to sandy SILT	120	3.0	45	73	28	77	40	-	-	15	0.200	2.08	16
47.90	211.8	132.4	197.5	211.8	5.4	-0.8	2.6	5	silty SAND to sandy SILT	120	3.0	44	71	27	76	40	-	-	16	0.200	2.12	16
48.07	207.3	129.5	198.8	207.3	5.5	-0.7	2.7	5	silty SAND to sandy SILT	120	3.0	43	69	27	76	40	-	-	17	0.200	2.14	16
48.23	206.8	129.0	196.9	206.8	5.4	-1.7	2.7	5	silty SAND to sandy SILT	120	3.0	43	69	27	75	40	-	-	17	0.200	2.14	16
48.39	191.1	119.1	187.9	191.1	5.0	-1.9	2.7	5	silty SAND to sandy SILT	120	3.0	40	64	25	73	39	-	-	18	0.200	2.16	16
48.56	190.9	118.9	205.6	190.8	6.1	-1.4	3.2	5	silty SAND to sandy SILT	120	3.0	40	64	26	73	39	-	-	20	0.200	2.22	16
48.72	184.2	114.6	205.1	184.2	6.1	-0.3	3.3	5	silty SAND to sandy SILT	120	3.0	38	61	25	72	39	-	-	21	0.200	2.25	16
48.89	209.4	130.1	216.0	209.4	6.6	0.6	3.2	5	silty SAND to sandy SILT	120	3.0	43	70	28	76	40	-	-	19	0.200	2.20	16
49.05	235.0	145.9	221.5	235.0	6.7	-1.2	2.9	5	silty SAND to sandy SILT	120	3.0	49	78	30	79	40	-	-	17	0.200	2.13	16
49.22	231.1	143.4	225.2	231.1	7.0	-2.1	3.1	5	silty SAND to sandy SILT	120	3.0	48	77	30	79	40	-	-	18	0.200	2.16	16
49.38	247.6	153.4	232.7	247.6	7.4	-2.1	3.0	5	silty SAND to sandy SILT	120	3.0	51	83	32	81	41	-	-	17	0.200	2.13	16
49.54	266.0	164.7	224.4	266.0	6.5	-2.1	2.5	5	silty SAND to sandy SILT	120	3.0	55	89	33	83	41	-	-	14	0.200	2.04	16
49.71	284.0	175.7	228.7	284.0	6.4	-2.1	2.3	5	silty SAND to sandy SILT	120	3.0	59	95	35	86	41	-	-	13	0.200	2.00	16
49.87	293.0	181.1	242.4	293.0	7.3	-2.1	2.5	5	silty SAND to sandy SILT	120	3.0	60	98	36	87	41	-	-	14	0.200	2.03	16
50.04	280.0	172.8	274.9	279.9	10.1	-1.8	3.6	8	stiff SAND to clayy SAND	115	5.0	35	56	36	85	41	-	-	18	0.250	2.17	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.

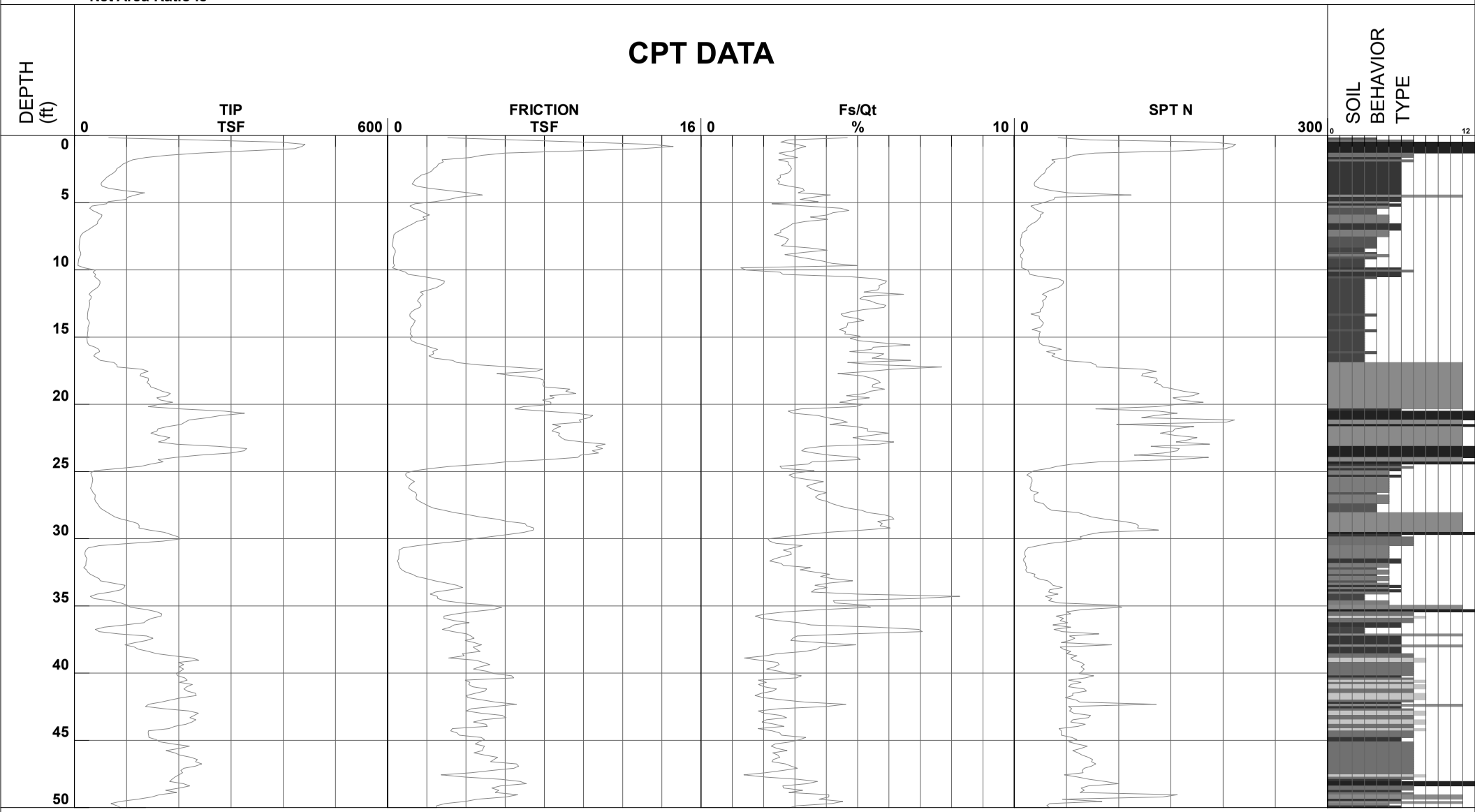
Middle Earth Geo Testing

CTE Cal

Project	San Bruno Genesis & Hyundai	Operator	AJ-OO	Filename	SDF(717).cpt
Job Number	60-0921G	Cone Number	DDG1587	GPS	
Hole Number	CPT-04	Date and Time	6/30/2021 10:11:51 AM	Maximum Depth	50.52 ft
EST GW Depth During Test		35.00 ft			

Net Area Ratio .8

CPT DATA



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

Cone Size 15cm squared

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

San Bruno Genesis & Hyundai

Project ID: CTE Cal
Data File: SDF(717).cpt
CPT Date: 6/30/2021 10:11:51 AM
GW During Test: 35 ft

Sounding ID: CPT-04
Project No: 60-0921G
Cone/Rig: DDG1587

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR - -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
0.33	229.8	368.6	436.6	230.0	6.4	7.9	2.8	8	stiff SAND to clayy SAND	115	5.0	74	46	70	95	48	-	-	10	0.250	1.90	16
0.49	394.6	632.8	681.4	394.7	10.0	7.2	2.5	8	stiff SAND to clayy SAND	115	5.0	100	79	100	95	48	-	-	7	0.250	1.76	16
0.66	441.9	708.7	790.7	442.0	13.4	6.7	3.0	8	stiff SAND to clayy SAND	115	5.0	100	88	100	95	48	-	-	8	0.250	1.81	16
0.82	435.8	698.9	802.2	435.9	14.6	6.7	3.3	8	stiff SAND to clayy SAND	115	5.0	100	87	100	95	48	-	-	9	0.250	1.85	16
0.98	421.4	675.8	759.5	421.6	12.9	11.1	3.1	8	stiff SAND to clayy SAND	115	5.0	100	84	100	95	48	-	-	9	0.250	1.82	16
1.15	327.7	525.5	600.0	327.8	9.6	8.2	2.9	8	stiff SAND to clayy SAND	115	5.0	100	66	97	95	48	-	-	9	0.250	1.85	16
1.31	240.3	385.4	439.0	240.4	6.0	2.7	2.5	8	stiff SAND to clayy SAND	115	5.0	77	48	71	95	48	-	-	9	0.250	1.84	16
1.48	177.8	285.1	350.5	177.8	4.8	2.7	2.7	8	stiff SAND to clayy SAND	115	5.0	57	36	55	95	48	-	-	11	0.250	1.94	16
1.64	136.8	219.4	300.2	136.9	4.2	6.5	3.1	8	stiff SAND to clayy SAND	115	5.0	44	27	44	93	48	-	-	14	0.250	2.05	16
1.80	112.0	179.7	238.7	112.1	2.8	5.4	2.5	5	silty SAND to sandy SILT	120	3.0	60	37	36	86	48	-	-	14	0.200	2.02	16
1.97	102.1	163.8	234.1	102.3	2.8	5.5	2.8	5	silty SAND to sandy SILT	120	3.0	55	34	33	83	48	-	-	15	0.200	2.09	16
2.13	92.9	149.1	219.9	93.0	2.6	5.6	2.8	5	silty SAND to sandy SILT	120	3.0	50	31	31	80	48	-	-	16	0.200	2.11	16
2.30	88.3	141.7	215.0	88.4	2.5	4.8	2.9	5	silty SAND to sandy SILT	120	3.0	47	29	29	78	48	-	-	17	0.200	2.13	16
2.46	81.4	130.5	205.3	81.5	2.4	5.5	2.9	5	silty SAND to sandy SILT	120	3.0	44	27	27	76	48	-	-	18	0.200	2.16	16
2.62	79.3	127.2	200.8	79.4	2.3	4.8	2.9	5	silty SAND to sandy SILT	120	3.0	42	26	27	75	48	-	-	18	0.200	2.16	16
2.79	74.5	119.5	191.0	74.6	2.1	4.9	2.8	5	silty SAND to sandy SILT	120	3.0	40	25	25	73	48	-	-	18	0.200	2.17	16
2.95	67.8	108.7	172.7	67.9	1.7	4.5	2.5	5	silty SAND to sandy SILT	120	3.0	36	23	23	70	47	-	-	18	0.200	2.17	16
3.12	61.8	99.0	164.1	61.8	1.6	4.4	2.5	5	silty SAND to sandy SILT	120	3.0	33	21	21	67	46	-	-	19	0.200	2.20	16
3.28	57.8	92.6	154.4	57.9	1.4	6.6	2.4	5	silty SAND to sandy SILT	120	3.0	31	19	20	64	46	-	-	19	0.200	2.20	16
3.45	53.2	85.3	150.2	53.4	1.3	10.1	2.5	5	silty SAND to sandy SILT	120	3.0	28	18	18	62	45	-	-	20	0.200	2.24	16
3.61	50.6	81.2	144.9	50.8	1.2	6.9	2.5	5	silty SAND to sandy SILT	120	3.0	27	17	18	60	45	-	-	21	0.200	2.25	16
3.77	53.3	85.5	159.8	53.4	1.5	6.2	2.8	5	silty SAND to sandy SILT	120	3.0	28	18	19	62	45	-	-	22	0.200	2.27	16
3.94	66.3	106.3	193.1	66.4	2.2	7.5	3.3	5	silty SAND to sandy SILT	120	3.0	35	22	23	69	46	-	-	21	0.200	2.26	16
4.10	94.9	152.2	241.2	95.1	3.1	12.9	3.3	5	silty SAND to sandy SILT	120	3.0	51	32	32	81	47	-	-	18	0.200	2.16	16
4.27	134.5	215.6	297.5	134.7	4.2	14.9	3.1	8	stiff SAND to clayy SAND	115	5.0	43	27	43	92	48	-	-	14	0.250	2.06	16
4.43	117.0	187.6	309.4	117.2	4.8	12.3	4.1	8	stiff SAND to clayy SAND	115	5.0	38	23	40	88	48	-	-	19	0.250	2.19	16
4.59	101.9	163.5	262.9	102.2	3.6	11.6	3.6	8	stiff SAND to clayy SAND	115	5.0	33	20	34	83	47	-	-	18	0.250	2.18	16
4.76	99.1	158.9	243.3	99.3	3.1	12.4	3.2	5	silty SAND to sandy SILT	120	3.0	53	33	33	82	47	-	-	17	0.200	2.14	16
4.92	64.5	103.5	205.5	64.7	2.4	8.0	3.8	5	silty SAND to sandy SILT	120	3.0	34	22	23	68	45	-	-	23	0.200	2.31	16
5.09	61.5	98.6	155.6	61.5	1.4	0.9	2.3	5	silty SAND to sandy SILT	120	3.0	33	20	21	67	44	-	-	18	0.200	2.16	16
5.25	34.0	54.5	141.8	34.0	1.1	2.7	3.4	4	clayy SILT to silty CLAY	115	2.0	27	17	13	-	-	2.4	9.9	29	0.070	2.47	15
5.41	29.3	47.0	-	29.4	1.3	2.7	4.5	4	clayy SILT to silty CLAY	115	2.0	24	15	12	-	-	2.0	9.9	35	0.070	2.60	15
5.58	35.0	56.1	175.0	35.0	1.7	1.8	4.8	4	clayy SILT to silty CLAY	115	2.0	28	17	14	-	-	2.4	9.9	34	0.070	2.56	15
5.74	44.1	70.7	182.0	44.2	1.9	3.6	4.2	4	clayy SILT to silty CLAY	115	2.0	35	22	17	-	-	3.1	9.9	29	0.070	2.46	15
5.91	52.9	84.8	193.8	52.9	2.1	2.6	4.1	4	clayy SILT to silty CLAY	115	2.0	42	26	20	-	-	3.7	9.9	26	0.070	2.39	15
6.07	51.5	82.6	176.4	51.6	1.8	3.0	3.5	4	clayy SILT to silty CLAY	115	2.0	41	26	19	-	-	3.6	9.9	25	0.070	2.35	15
6.23	47.8	76.6	184.7	47.8	1.9	3.4	4.1	4	clayy SILT to silty CLAY	115	2.0	38	24	18	-	-	3.4	9.9	27	0.070	2.42	15
6.40	44.7	70.8	158.9	44.7	1.5	3.3	3.3	4	clayy SILT to silty CLAY	115	2.0	35	22	16	-	-	3.1	9.9	26	0.070	2.38	15
6.56	44.2	69.3	147.0	44.3	1.3	2.2	3.0	5	silty SAND to sandy SILT	120	3.0	23	15	16	55	41	-	-	24	0.200	2.35	16
6.73	37.7	58.3	133.2	37.8	1.1	1.8	2.9	5	silty SAND to sandy SILT	120	3.0	19	13	13	49	40	-	-	26	0.200	2.39	16
6.89	31.2	47.7	119.4	31.3	0.8	1.2	2.7	4	clayy SILT to silty CLAY	115	2.0	24	16	11	-	-	2.2	9.9	28	0.070	2.44	15
7.05	25.5	38.4	106.2	25.5	0.6	0.9	2.6	4	clayy SILT to silty CLAY	115	2.0	19	13	9	-	-	1.8	9.9	31	0.070	2.50	15
7.22	17.1	27.5	-	17.1	0.4	0.9	2.6	4	clayy SILT to silty CLAY	115	2.0	14	9	7	-	-	1.2	9.9	36	0.070	2.62	15
7.38	13.6	21.8	-	13.6	0.3	0.6	2.4	4	clayy SILT to silty CLAY	115	2.0	11	7	6	-	-	0.9	9.9	39	0.070	2.68	15
7.55	11.7	18.8	-	11.7	0.3	0.5	2.7	4	clayy SILT to silty CLAY	115	2.0	9	6	5	-	-	0.8	8.4	44	0.070	2.76	15
7.71	10.1	16.2	-	10.1	0.3	0.4	2.9	3	silty CLAY to CLAY	115	1.5	11	7	5	-	-	0.7	7.1	48	0.005	2.84	15
7.87	9.9	15.8	-	9.9	0.3	0.4	2.9	3	silty CLAY to CLAY	115	1.5	11	7	5	-	-	0.7	6.7	48	0.005	2.84	15
8.04	9.7	15.5	-	9.7	0.3	0.3	2.8	3	silty CLAY to CLAY	115	1.5	10	6	5	-	-	0.6	6.4	49	0.005	2.84	15
8.20	9.2	14.7	-	9.2	0.2	0.2	2.7	3	silty CLAY to CLAY	115	1.5	10	6	4	-	-	0.6	6.0	49	0.005	2.85	15
8.37	8.8	14.2	-	8.8	0.3	0.2	3.7	3	silty CLAY to CLAY	115	1.5	9	6	4	-	-	0.6	5.6	55	0.005	2.95	15
8.53	9.5	15.3	-	9.5	0.4	0.1	4.2	3	silty CLAY to CLAY	115	1.5	10	6	5	-	-	0.6	6.0	56	0.005	2.96	15
8.69	11.9	19.1	-	11.9	0.4	0.8	3.4	3	silty CLAY to CLAY	115	1.5	13	8	5	-	-	0.8	7.4	47	0.005	2.82	15
8.86	12.3	19.8	-	12.4	0.3	0.7	2.8	4	clayy SILT to silty CLAY	115	2.0	10	6	5	-	-	0.8	7.5	43	0.070	2.75	15
9.02	10.1	16.2	-	10.1	0.3	0.5	3.3	3	silty CLAY to CLAY	115	1.5	11	7	5	-	-	0.7	6.0	50	0.005	2.87	15
9.19	8.4	13.4	-	8.4	0.3	0.4	3.7	3	silty CLAY to CLAY	115	1.5	9	6	4	-	-	0.6	4.8	57	0.005	2.97	15
9.35	7.7	12.3	-	7.7	0.3	0.2	4.2	3	silty CLAY to CLAY	115	1.5	8	5	4	-	-	0.5	4.3	61	0.005	3.03	15
9.51	7.2	11.5	-	7.2	0.3	0.3	4.5	3	silty CLAY to CLAY	115	1.5	8	5	4	-	-	0.5	3.9	64	0.005	3.08	15
9.68	7.0	11.3	-	7.0	0.4	0.4	5.4	3	silty CLAY to CLAY	115	1.5	8	5	4	-	-	0.5	3.8	68	0.005	3.14	15
9.84	18.9	24.2	65.8	18.9	0.2	0.9	1.3	5	silty SAND to sandy SILT	120	3.0	8	6	6	20	34	-	-	30	0.200	2.49	16
10.01	40.3	51.2	91.6	40.3	0.6	1.1	1.5	5	silty SAND to sandy SILT	120	3.0	17	13	11	45	38	-	-	21	0.200	2.25	16
10.17	35.9	45.2	113.1	35.9	0.9	1.0	2.6	5	silty SAND to sandy SILT	120	3.0	15	12	11	41	38	-	-	28	0.200	2.44	16
10.34	40.4	50.6	120.8	40.4	1.1	-0.2	2.7	5	silty SAND to sandy SILT	120	3.0	17	13	12	44	38	-	-	27	0.200	2.42	16
10.50	38.7	53.6	172.7	38.7	1.8	-0.7	4.8	4	clayy SILT to silty CLAY	115	2.0	27	19	14	-	-	2.7	9.9	35	0.070	2.58	15
10.66	43.9	60.1	-	44.0	2.5	2.5	5.7	4	clayy SILT to silty CLAY	115	2.0	30	22	15	-	-	3.1	9.9	35	0.070	2.60	15
10.83	48.9	66.2	218.0	48.9	2.9	3.3	6.0	9	very stiff fine SOIL	120	1.0	66	49	17	-	-	1.7	9.9	35	0.250	2.59	30
10.99	49.0	65.7	215.9	49.1	2.9	5.0	5.9	4	clayy SILT to silty CLAY	115	2.0	33	25	17	-	-	3.4	9.9	35	0.070	2.59	15
11.16	47.3	62.7	207.1	47.4	2.7	6.7	5.8	4	clayy SILT to silty CLAY	115	2.0	31	24	16	-	-	3.3	9.9	35	0.070	2.60	15
11.32	43.9	57.6	-	44.0	2.5	7.0	5.8	4	clayy SILT to silty CLAY	115	2.0	29	22	15	-	-	3.1	9.9	36	0.070	2.62	15
11.48	37.5	56.0	-	37.6	2.1	5.7	5.7	3	silty CLAY to CLAY	115	1.5	37	25	14	-	-	2.6	9.9	37	0.005	2.63	15
11.65	32.0	47.0	-	32.1	1.7	4.9	5.3	3	silty CLAY to CLAY	115	1.5	31	21	12	-	-	2.2	9.9	38	0.005	2.66	15
11.81	28.1	40.7	-	28.2	1.8	6.5	6.6	3	silty CLAY to CLAY	115	1.5	27	19	11	-	-	1.9	9.9	44	0.005	2.77	15
11.98	32.2	46.1	-	32.4	1.7	7.7	5.3	3	silty CLAY to CLAY	115	1.5	31	21	12	-	-	2.2	9.9	38	0.005	2.66	15
12.14	31.4	44.4	-	31.5	1.6	4.1	5.2	3	silty CLAY to CLAY	115	1.5	30	21	12	-	-	2.2	9.9	39	0.005	2.66	15
12.30	28.2	39.3	-	28.4	1.5	8.7	5.5	3	silty CLAY to CLAY	115	1.5	26	19	11	-	-	1.9	9.9	42	0.005	2.72	15
12.47	29.4	40.4	-	29.6	1.6	7.9	5.7	3	silty CLAY to CLAY	115	1.5	27	20	11	-	-	2.0	9.9	42	0.005	2.72	15
12.63	29.0	39.3	-	29.1	1.7	7.4	6.1	3	silty CLAY to CLAY	115	1.5	26	19	11	-	-	2.0	9.9	43	0.005	2.75	15
12.80	28.0	37.5	-	28.1	1.6	7.4	6.0	3	silty CLAY to CLAY	115	1.5	25	19	10	-	-	1.9	9.9	44	0.005	2.76	15
12.96	26.5	35.1	-	26.7	1.4	7.2	5.3	3	silty CLAY to CLAY	115	1.5	23	18	10	-	-	1.8	9.9	43	0.005	2.75	15
13.12	25.6	33.5	-	25.8	1.2	9.3	4.9	3	silty CLAY to CLAY	115	1.5	22	17	9	-	-	1.8	9.9	42	0.005	2.74	15
13.29	25.3	32.7	-	25.5	1.1	11.2	4.6	3	silty CLAY to CLAY	115	1.5	22	17	9	-	-	1.7	9.9	42	0.005	2.72	15
13.45	25.0	31.9	-	25.2	1.1	11.6	4.7	3	silty CLAY to CLAY	115	1.5	21	17	9	-	-	1.7	9.9	43	0.005	2.74	15
13.62	24.9	31.3	-	25.1	1.2	11.7	5.2	3	silty CLAY to CLAY	115	1.5	21	17	9	-	-	1.7	9.9	44	0.005	2.77	15
13.78	27.1	33.8	-	27.3	1.4	12.2	5.4	3	silty CLAY to CLAY	115	1.5	23	18	9	-	-	1.9	9.9	44	0.005	2.76	15
13.94	28.9	35.5	-	29.1	1.4	12.3	4.8	3	silty CLAY to CLAY	115	1.5	24	19	10	-	-	2.0	9.9	41	0.005	2.71	15
14.11	27.6	33.5	-	27.8	1.3	10.2	4.8	3	silty CLAY to CLAY	115	1.5	22	18	9	-	-	1.9	9.9	42	0.005	2.73	15
14.27	25.9	31.2	-	26.1	1.2	12.1	4.8	3	silty CLAY to CLAY	115	1.5	21	17	9	-	-	1.8	9.9	43	0.005	2.75	15
14.44	26.2	31.1	-	26.4	1.2	11.8	4.6	3	silty CLAY to CLAY	115	1.5	21	17	9	-	-	1.8	9.9	43	0.005	2.74	15
14.60	25.7	30.3	-	26.0	1.2	11.4	4.8	3	silty CLAY to CLAY	115	1.5	20	17	8	-	-	1.8	9.7	44	0.005	2.76	15
14.76	25.0	29.1	-	25.2	1.1	11.4	4.8	3	silty CLAY to CLAY	115	1.5	19	17	8	-	-	1.7	9.3	44	0.005	2.77	15
14.93	24.8	28.5	-	25.0	1.3	10.9	5.3	3	silty CLAY to CLAY	115	1.5	19	17	8	-	-	1.7	9.1	47	0.005	2.81	15
15.09	24.1	27.4	-	24.3	1.1	10.9	4.9	3	silty CLAY to CLAY	115	1.5	18	16	8	-	-	1.6	8.7	46	0.005	2.80	15
15.26	24.4	27.5	-	24.6	1.2	10.6	5.2	3	silty CLAY to CLAY	115	1.5	18	16	8	-	-	1.7	8.7	47	0.005	2.82	15
15.42	25.1	28.0	-	25.3	1.4	11.3	6.0	3	silty CLAY to CLAY	115	1.5	19	17	8	-	-	1.7	8.9	49	0.005	2.85	15

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

Middle Earth Geo Testing

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
15.58	27.8	30.7	-	28.0	1.9	11.9	6.9	3	silty CLAY to CLAY	115	1.5	20	19	9	-	-	1.9	9.8	50	0.005	2.87	15
15.75	39.5	43.2	-	39.8	2.2	14.3	5.6	3	silty CLAY to CLAY	115	1.5	29	26	12	-	-	2.7	9.9	40	0.005	2.70	15
15.91	46.7	50.5	-	47.0	2.5	11.6	5.6	3	silty CLAY to CLAY	115	1.5	34	31	13	-	-	3.2	9.9	38	0.005	2.65	15
16.08	48.4	49.9	-	48.6	2.3	12.0	4.8	4	clayy SILT to silty CLAY	115	2.0	25	24	13	-	-	3.4	9.9	36	0.070	2.61	15
16.24	40.3	42.7	-	40.4	2.3	8.8	6.0	3	silty CLAY to CLAY	115	1.5	28	27	12	-	-	2.8	9.9	42	0.005	2.72	15
16.40	37.0	38.8	-	37.3	2.1	12.8	5.8	3	silty CLAY to CLAY	115	1.5	26	25	11	-	-	2.5	9.9	43	0.005	2.74	15
16.57	43.6	45.3	-	43.9	2.4	13.9	5.6	3	silty CLAY to CLAY	115	1.5	30	29	12	-	-	3.0	9.9	40	0.005	2.68	15
16.73	49.6	51.0	-	50.0	3.3	20.8	6.8	3	silty CLAY to CLAY	115	1.5	34	33	14	-	-	3.4	9.9	41	0.005	2.71	15
16.90	75.7	74.2	199.6	76.2	3.5	28.7	4.7	4	clayy SILT to silty CLAY	115	2.0	37	38	18	-	-	5.3	9.9	30	0.070	2.48	15
17.06	81.2	79.2	230.5	81.6	4.6	20.2	5.7	9	very stiff fine SOIL	120	1.0	79	81	20	-	-	2.8	9.9	32	0.250	2.53	30
17.23	82.0	81.9	-	82.9	6.3	44.1	7.8	9	very stiff fine SOIL	120	1.0	82	82	21	-	-	2.9	9.9	37	0.250	2.63	30
17.39	129.2	124.8	308.0	129.8	7.9	27.3	6.2	9	very stiff fine SOIL	120	1.0	100	100	29	-	-	4.5	9.9	28	0.250	2.44	30
17.55	141.3	135.8	296.9	142.0	7.6	36.6	5.4	9	very stiff fine SOIL	120	1.0	100	100	31	-	-	5.0	9.9	25	0.250	2.37	30
17.72	127.7	122.2	247.4	128.7	5.6	50.1	4.4	9	very stiff fine SOIL	120	1.0	100	100	27	-	-	4.5	9.9	23	0.250	2.32	30
17.88	125.5	119.5	270.0	127.8	6.5	116.6	5.2	9	very stiff fine SOIL	120	1.0	100	100	28	-	-	4.4	9.9	26	0.250	2.39	30
18.05	141.2	133.8	296.9	142.2	7.7	50.3	5.5	9	very stiff fine SOIL	120	1.0	100	100	31	-	-	5.0	9.9	25	0.250	2.38	30
18.21	142.1	134.0	304.1	143.5	8.0	75.5	5.7	9	very stiff fine SOIL	120	1.0	100	100	31	-	-	5.0	9.9	26	0.250	2.39	30
18.37	139.0	130.5	302.7	140.6	8.0	80.0	5.8	9	very stiff fine SOIL	120	1.0	100	100	30	-	-	4.9	9.9	26	0.250	2.40	30
18.54	144.3	134.9	300.3	146.8	7.9	126.1	5.5	9	very stiff fine SOIL	120	1.0	100	100	31	-	-	5.1	9.9	26	0.250	2.38	30
18.70	146.2	136.0	300.9	148.3	8.0	110.5	5.5	9	very stiff fine SOIL	120	1.0	100	100	31	-	-	5.1	9.9	25	0.250	2.37	30
18.87	158.9	147.2	328.8	160.3	9.3	69.1	5.9	9	very stiff fine SOIL	120	1.0	100	100	34	-	-	5.6	9.9	26	0.250	2.38	30
19.03	168.2	155.1	322.5	169.2	9.1	51.2	5.4	9	very stiff fine SOIL	120	1.0	100	100	35	-	-	5.9	9.9	24	0.250	2.34	30
19.19	183.9	168.9	332.3	184.7	9.6	39.6	5.3	9	very stiff fine SOIL	120	1.0	100	100	38	-	-	6.5	9.9	23	0.250	2.31	30
19.36	178.3	163.0	303.3	178.9	8.3	29.6	4.7	9	very stiff fine SOIL	120	1.0	100	100	36	-	-	6.3	9.9	21	0.250	2.27	30
19.52	157.9	143.8	307.4	158.6	8.5	30.9	5.4	9	very stiff fine SOIL	120	1.0	100	100	33	-	-	5.5	9.9	25	0.250	2.36	30
19.69	164.9	149.5	293.5	166.1	7.9	62.7	4.8	9	very stiff fine SOIL	120	1.0	100	100	33	-	-	5.8	9.9	23	0.250	2.30	30
19.85	188.1	169.8	302.8	189.0	8.3	43.6	4.5	9	very stiff fine SOIL	120	1.0	100	100	37	-	-	6.6	9.9	21	0.250	2.24	30
20.01	161.7	145.3	301.5	162.8	8.3	56.9	5.2	9	very stiff fine SOIL	120	1.0	100	100	33	-	-	5.7	9.9	24	0.250	2.34	30
20.18	141.2	126.4	270.8	142.1	7.0	43.0	5.0	9	very stiff fine SOIL	120	1.0	100	100	29	-	-	4.9	9.9	25	0.250	2.36	30
20.34	203.2	181.1	267.2	204.4	6.5	60.6	3.2	8	stiff SAND to clayy SAND	115	5.0	36	41	37	87	43	-	-	16	0.250	2.11	16
20.51	287.2	254.9	324.4	287.7	8.0	21.8	2.8	8	stiff SAND to clayy SAND	115	5.0	51	57	50	95	45	-	-	12	0.250	1.98	16
20.67	325.9	288.1	364.1	326.2	9.6	15.5	3.0	8	stiff SAND to clayy SAND	115	5.0	58	65	56	95	45	-	-	12	0.250	1.97	16
20.83	280.8	247.3	356.7	281.0	10.5	7.5	3.7	8	stiff SAND to clayy SAND	115	5.0	49	56	50	95	45	-	-	16	0.250	2.09	16
21.00	255.1	223.8	344.8	255.3	10.3	12.0	4.0	8	stiff SAND to clayy SAND	115	5.0	45	51	47	94	44	-	-	17	0.250	2.14	16
21.16	220.0	192.2	328.1	220.3	9.8	14.5	4.5	9	very stiff fine SOIL	120	1.0	100	100	41	-	-	7.7	9.9	20	0.250	2.22	30
21.33	211.6	184.2	328.3	211.9	9.9	13.5	4.7	9	very stiff fine SOIL	120	1.0	100	100	40	-	-	7.4	9.9	21	0.250	2.24	30
21.49	204.4	177.2	298.9	204.9	8.4	28.1	4.1	8	stiff SAND to clayy SAND	115	5.0	35	41	38	86	43	-	-	19	0.250	2.21	16
21.65	179.2	154.8	304.6	179.5	8.8	15.7	5.0	9	very stiff fine SOIL	120	1.0	100	100	34	-	-	6.3	9.9	23	0.250	2.31	30
21.82	160.2	137.9	298.6	160.4	8.5	11.3	5.4	9	very stiff fine SOIL	120	1.0	100	100	31	-	-	5.6	9.9	25	0.250	2.36	30
21.98	158.2	135.6	295.2	158.5	8.4	14.5	5.4	9	very stiff fine SOIL	120	1.0	100	100	31	-	-	5.5	9.9	25	0.250	2.37	30
22.15	146.4	125.0	304.7	146.7	8.8	12.7	6.1	9	very stiff fine SOIL	120	1.0	100	100	29	-	-	5.1	9.9	28	0.250	2.43	30
22.31	161.0	136.9	300.6	161.4	8.7	21.1	5.5	9	very stiff fine SOIL	120	1.0	100	100	31	-	-	5.6	9.9	25	0.250	2.37	30
22.47	182.7	154.8	301.9	182.9	8.9	9.8	4.9	9	very stiff fine SOIL	120	1.0	100	100	34	-	-	6.4	9.9	23	0.250	2.30	30
22.64	174.6	147.4	305.1	174.8	9.0	13.3	5.2	9	very stiff fine SOIL	120	1.0	100	100	33	-	-	6.1	9.9	24	0.250	2.34	30
22.80	161.3	135.7	324.2	161.5	9.9	7.7	6.2	9	very stiff fine SOIL	120	1.0	100	100	32	-	-	5.7	9.9	27	0.250	2.42	30
22.97	194.9	163.4	343.7	195.2	11.1	13.2	5.7	9	very stiff fine SOIL	120	1.0	100	100	37	-	-	6.8	9.9	24	0.250	2.35	30
23.13	273.8	228.6	343.7	274.2	10.6	23.1	3.9	8	stiff SAND to clayy SAND	115	5.0	46	55	47	94	44	-	-	17	0.250	2.13	16
23.30	330.2	274.7	367.0	330.4	11.0	14.2	3.3	8	stiff SAND to clayy SAND	115	5.0	55	66	55	95	45	-	-	14	0.250	2.03	16
23.46	325.2	269.7	357.2	325.6	10.5	22.5	3.2	8	stiff SAND to clayy SAND	115	5.0	54	65	53	95	45	-	-	13	0.250	2.02	16
23.62	298.8	247.0	350.8	299.1	10.8	12.2	3.6	8	stiff SAND to clayy SAND	115	5.0	49	60	50	95	44	-	-	15	0.250	2.08	16
23.79	239.9	197.6	320.2	240.2	9.8	18.0	4.1	8	stiff SAND to clayy SAND	115	5.0	40	48	42	89	43	-	-	18	0.250	2.18	16
23.95	194.2	159.4	312.8	194.4	9.7	8.9	5.0	9	very stiff fine SOIL	120	1.0	100	100	35	-	-	6.8	9.9	23	0.250	2.30	30
24.12	160.3	131.1	282.1	160.4	8.1	7.2	5.1	9	very stiff fine SOIL	120	1.0	100	100	30	-	-	5.6	9.9	25	0.250	2.36	30
24.28	169.9	138.5	237.2	169.9	6.0	4.5	3.6	8	stiff SAND to clayy SAND	115	5.0	28	34	30	78	41	-	-	20	0.250	2.22	16
24.44	146.2	118.8	212.6	146.3	5.0	2.2	3.5	5	silty SAND to sandy SILT	120	3.0	40	49	26	73	41	-	-	21	0.200	2.25	16
24.61	127.9	103.5	169.0	128.0	3.2	4.0	2.6	5	silty SAND to sandy SILT	120	3.0	35	43	22	68	40	-	-	19	0.200	2.19	16
24.77	86.2	69.5	139.1	86.2	2.2	1.4	2.6	5	silty SAND to sandy SILT	120	3.0	23	29	16	55	38	-	-	23	0.200	2.32	16
24.94	38.7	26.5	-	38.7	1.4	0.7	3.8	4	clayy SILT to silty CLAY	115	2.0	13	19	7	-	-	2.6	8.4	42	0.070	2.73	15
25.10	31.2	21.3	-	31.2	0.9	2.2	3.2	4	clayy SILT to silty CLAY	115	2.0	11	16	6	-	-	2.1	6.7	44	0.070	2.77	15
25.26	32.4	21.9	-	32.5	0.9	2.3	2.9	4	clayy SILT to silty CLAY	115	2.0	11	16	6	-	-	2.2	6.9	42	0.070	2.73	15
25.43	34.3	23.1	-	34.3	1.0	1.0	3.1	4	clayy SILT to silty CLAY	115	2.0	12	17	6	-	-	2.3	7.3	42	0.070	2.73	15
25.59	34.9	23.3	-	35.0	1.2	1.5	3.6	4	clayy SILT to silty CLAY	115	2.0	12	17	6	-	-	2.4	7.4	44	0.070	2.76	15
25.76	35.0	23.3	-	35.1	1.4	2.0	4.1	3	silty CLAY to CLAY	115	1.5	16	23	7	-	-	2.4	7.3	46	0.005	2.80	15
25.92	33.3	22.0	-	33.4	1.2	1.6	3.8	3	silty CLAY to CLAY	115	1.5	15	22	6	-	-	2.2	6.9	46	0.005	2.80	15
26.08	32.6	21.3	-	32.6	1.1	2.0	3.5	4	clayy SILT to silty CLAY	115	2.0	11	16	6	-	-	2.2	6.7	46	0.070	2.79	15
26.25	30.9	20.2	-	31.0	1.1	4.0	3.7	3	silty CLAY to CLAY	115	1.5	13	21	6	-	-	2.1	6.3	47	0.005	2.82	15
26.41	33.5	21.7	-	33.6	1.2	2.3	3.8	3	silty CLAY to CLAY	115	1.5	14	22	6	-	-	2.3	6.8	46	0.005	2.81	15
26.58	35.7	23.0	-	35.7	1.4	1.0	4.2	3	silty CLAY to CLAY	115	1.5	15	24	7	-	-	2.4	7.3	47	0.005	2.81	15
26.74	39.8	25.5	-	39.8	1.5	3.9	3.9	4	clayy SILT to silty CLAY	115	2.0	13	20	7	-	-	2.7	8.1	44	0.070	2.76	15
26.90	39.7	25.2	-	39.8	1.5	5.2	3.8	4	clayy SILT to silty CLAY	115	2.0	13	20	7	-	-	2.7	8.0	43	0.070	2.76	15
27.07	39.1	24.7	-	39.2	1.5	7.1	3.9	4	clayy SILT to silty CLAY	115	2.0	12	20	7	-	-	2.6	7.8	44	0.070	2.77	15
27.23	40.7	25.6	-	40.8	1.6	7.4	4.2	3	silty CLAY to CLAY	115	1.5	17	27	7	-	-	2.8	8.1	45	0.005	2.78	15
27.40	44.5	27.8	-	44.6	1.9	8.4	4.3	3	silty CLAY to CLAY	115	1.5	19	30	8	-	-	3.0	8.8	44	0.005	2.76	15
27.56	46.8	29.1	-	47.0	2.1	8.5	4.6	3	silty CLAY to CLAY	115	1.5	19	31	8	-	-	3.2	9.3	44	0.005	2.76	15
27.72	50.0	30.9	-	50.2	2.4	9.3	4.9	3	silty CLAY to CLAY	115	1.5	21	33	9	-	-	3.4	9.9	44	0.005	2.76	15
27.89	56.4	34.6	-	56.6	2.9	10.4	5.3	3	silty CLAY to CLAY	115	1.5	23	38	10	-	-	3.9	9.9	43	0.005	2.75	15
28.05	63.7	38.9	-	64.0	3.4	12.1	5.5	3	silty CLAY to CLAY	115	1.5	26	42	11	-	-	4.4	9.9	42	0.005	2.72	15
28.22	70.7	42.9	-	70.9	4.1	13.5	6.0	3	silty CLAY to CLAY	115	1.5	29	47	12	-	-	4.9	9.9	42	0.005	2.72	15
28.38	77.4	46.7	-	77.7	4.7	14.9	6.2	3	silty CLAY to CLAY	115	1.5	31	52	13	-	-	5.4	9.9	41	0.005	2.71	15
28.54	90.5	54.3	-	90.8	5.6	18.1	6.3	3	silty CLAY to CLAY	115	1.5	36	60	14	-	-	6.3	9.9	39	0.005	2.67	15
28.71	108.3	81.3	234.9	108.7	6.1	22.4	5.7	9	very stiff fine SOIL	120	1.0	81	100	20	-	-	3.8	9.9	32	0.250	2.52	30
28.87	121.2	90.7	252.0	121.5	7.0	14.2	5.9	9	very stiff fine SOIL	120	1.0	91	100	22	-	-	4.2	9.9	31	0.250	2.50	30
29.04	124.1	92.6	252.7	124.2	7.1	8.6	5.8	9	very stiff fine SOIL	120	1.0	93	100	22	-	-	4.3	9.9	30	0.250	2.49	30
29.20	123.5	91.8	260.5	123.7	7.5	12.5	6.1	9	very stiff fine SOIL	120	1.0	92	100	22	-	-	4.3	9.9	31	0.250	2.51	30
29.36	144.0	106.8	255.2	144.6	7.4	27.8	5.2	9	very stiff fine SOIL	120	1.0	100	100	25	-	-	5.0	9.9	27	0.250	2.42	30
29.53	172.3	127.4	242.7	172.5	7.0	12.4	4.1	9	very stiff fine SOIL	120	1.0	100	100	28	-	-	6.0	9.9	22	0.250	2.29	30
29.69	185.2	136.6	227.0	185.3	6.1	4.7	3.3	5	silty SAND to sandy SILT	120	3.0	46	62	29	77	41	-	-	19	0.200	2.20	16
29.86	198.5	146.0	212.5	198.7	5.2	8.5	2.6	5	silty SAND to sandy SILT	120	3.0	49	66	30	79	41	-	-	16	0.200	2.10	16
30.02	202.7	148.6	198.8	202.9	4.3	9.3	2.2	5	silty SAND to sandy SILT	120	3.0	50	68	29	80	41	-	-	14	0.200	2.03	16
30.19	169.3	123.8	177.4	169.5	3.7	7.4	2.2	5	silty SAND to sandy SILT	120	3.0	41	56	25	74	40	-	-	15	0.200	2.09	16
30.35	106.4	77.6	141.4	106.4	2.5	3.8	2.4	5	silty SAND to sandy SILT	120	3.0	26	35	17	59	38	-	-	21	0.200	2.26	16
30.51	47.6	26.7	-	47.6	1.5	1.0	3.4	4	clayy SILT to silty CLAY	115	2.0	13	24	7	-	-	3.2	8.5	41	0.070	2.70	15
30.68	26.6	14.8	-	26.6	0.8	1.6	3.2	3	silty CLAY to CLAY	115	1.5	10	18	4	-	-	1.8	4.6	52	0.005	2.90	15
30.84	22.1	12.3	-	22.2	0.6	2.3	2.9	3	silty CLAY to CLAY	115	1.5	8	15	4	-	-	1.4	3.7	55	0.005	2.94	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: CTE Cal
Data File: SDF(717).cpt
CPT Date: 6/30/2021 10:11:51 AM
GW During Test: 35 ft

Sounding ID: CPT-04
Project No: 60-0921G
Cone/Rig: DDG1587

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
31.01	20.3	11.2	-	20.4	0.6	2.7	3.1	3	silty CLAY to CLAY	115	1.5	7	14	4	-	-	1.3	3.4	59	0.005	3.00	15
31.17	20.1	11.0	-	20.1	0.6	3.4	3.2	3	silty CLAY to CLAY	115	1.5	7	13	4	-	-	1.3	3.3	59	0.005	3.01	15
31.33	22.0	12.0	-	22.0	0.6	3.9	2.8	3	silty CLAY to CLAY	115	1.5	8	15	4	-	-	1.4	3.6	55	0.005	2.95	15
31.50	24.1	13.1	-	24.3	0.6	10.1	2.5	3	silty CLAY to CLAY	115	1.5	9	16	4	-	-	1.6	4.0	51	0.005	2.89	15
31.66	22.4	12.1	-	22.6	0.5	9.9	2.4	3	silty CLAY to CLAY	115	1.5	8	15	4	-	-	1.5	3.7	52	0.005	2.90	15
31.83	22.1	11.9	-	22.3	0.6	10.4	2.8	3	silty CLAY to CLAY	115	1.5	8	15	4	-	-	1.4	3.6	55	0.005	2.95	15
31.99	21.9	11.7	-	22.1	0.6	11.2	2.9	3	silty CLAY to CLAY	115	1.5	8	15	4	-	-	1.4	3.5	56	0.005	2.96	15
32.15	17.8	9.5	-	18.1	0.6	12.8	3.9	3	silty CLAY to CLAY	115	1.5	6	12	3	-	-	1.1	2.8	67	0.005	3.12	15
32.32	23.1	12.2	-	23.4	0.7	14.3	3.4	3	silty CLAY to CLAY	115	1.5	8	15	4	-	-	1.5	3.7	58	0.005	2.99	15
32.48	25.5	13.4	-	25.8	0.9	15.5	3.9	3	silty CLAY to CLAY	115	1.5	9	17	4	-	-	1.7	4.1	58	0.005	2.99	15
32.65	30.5	16.0	-	30.9	1.3	17.3	4.4	3	silty CLAY to CLAY	115	1.5	11	20	5	-	-	2.0	5.0	55	0.005	2.95	15
32.81	38.8	20.2	-	39.2	1.5	20.6	4.0	3	silty CLAY to CLAY	115	1.5	13	26	6	-	-	2.6	6.3	49	0.005	2.85	15
32.97	47.2	24.5	-	47.7	2.0	24.4	4.4	3	silty CLAY to CLAY	115	1.5	16	31	7	-	-	3.2	7.8	46	0.005	2.81	15
33.14	49.7	25.7	-	50.2	2.4	25.7	5.0	3	silty CLAY to CLAY	115	1.5	17	33	7	-	-	3.4	8.1	48	0.005	2.83	15
33.30	73.1	37.6	-	73.9	3.0	39.1	4.2	4	clayy SILT to silty CLAY	115	2.0	19	37	10	-	-	5.0	9.9	38	0.070	2.65	15
33.47	97.1	67.5	165.7	97.7	3.5	29.3	3.7	4	clayy SILT to silty CLAY	115	2.0	34	49	16	-	-	6.7	9.9	28	0.070	2.43	15
33.63	95.2	66.0	173.9	95.6	3.8	19.7	4.1	4	clayy SILT to silty CLAY	115	2.0	33	48	16	-	-	6.6	9.9	29	0.070	2.47	15
33.79	89.0	61.5	158.9	89.3	3.2	17.5	3.7	4	clayy SILT to silty CLAY	115	2.0	31	44	15	-	-	6.1	9.9	29	0.070	2.46	15
33.96	69.5	35.1	-	69.8	2.4	14.8	3.6	4	clayy SILT to silty CLAY	115	2.0	18	35	9	-	-	4.8	9.9	37	0.070	2.63	15
34.12	43.5	21.8	-	43.8	2.2	14.0	5.2	3	silty CLAY to CLAY	115	1.5	15	29	7	-	-	2.9	6.9	52	0.005	2.90	15
34.29	30.6	15.3	-	30.9	2.5	17.2	8.8	3	silty CLAY to CLAY	115	1.5	10	20	5	-	-	2.0	4.7	71	0.005	3.17	15
34.45	37.7	18.7	-	38.1	2.6	24.2	7.2	3	silty CLAY to CLAY	115	1.5	12	25	6	-	-	2.5	5.9	61	0.005	3.04	15
34.61	68.8	34.1	-	69.3	2.9	26.4	4.3	4	clayy SILT to silty CLAY	115	2.0	17	34	9	-	-	4.7	9.9	40	0.070	2.69	15
34.78	88.7	43.7	-	89.2	3.8	24.3	4.4	4	clayy SILT to silty CLAY	115	2.0	22	44	11	-	-	6.1	9.9	36	0.070	2.62	15
34.94	100.9	49.5	-	101.3	5.3	19.4	5.4	3	silty CLAY to CLAY	115	1.5	33	67	13	-	-	7.0	9.9	38	0.005	2.64	15
35.11	107.7	52.7	-	108.0	5.8	18.5	5.5	3	silty CLAY to CLAY	115	1.5	35	72	14	-	-	7.5	9.9	37	0.005	2.63	15
35.27	137.5	93.3	201.9	137.9	5.4	20.7	4.0	4	clayy SILT to silty CLAY	115	2.0	47	69	21	-	-	9.6	9.9	25	0.070	2.36	15
35.43	157.5	106.8	179.0	157.8	4.3	13.8	2.8	5	silty SAND to sandy SILT	120	3.0	36	53	23	69	39	-	-	19	0.200	2.20	16
35.60	167.4	113.4	164.7	167.7	3.5	13.5	2.1	5	silty SAND to sandy SILT	120	3.0	38	56	23	71	39	-	-	16	0.200	2.10	16
35.76	166.1	112.3	152.7	166.2	2.9	9.5	1.8	5	silty SAND to sandy SILT	120	3.0	37	55	22	71	39	-	-	14	0.200	2.04	16
35.93	148.0	100.0	148.2	148.1	2.9	3.0	2.0	5	silty SAND to sandy SILT	120	3.0	33	49	21	67	39	-	-	16	0.200	2.11	16
36.09	138.0	93.2	157.7	138.1	3.4	3.1	2.5	5	silty SAND to sandy SILT	120	3.0	31	46	20	65	38	-	-	19	0.200	2.21	16
36.26	133.1	89.7	174.7	133.1	4.2	4.1	3.2	5	silty SAND to sandy SILT	120	3.0	30	44	20	63	38	-	-	23	0.200	2.30	16
36.42	96.8	65.2	160.0	96.9	3.4	2.9	3.6	4	clayy SILT to silty CLAY	115	2.0	33	48	15	-	-	6.7	9.9	28	0.070	2.43	15
36.58	56.8	27.3	-	56.9	3.2	3.0	5.8	3	silty CLAY to CLAY	115	1.5	18	38	8	-	-	3.9	8.7	49	0.005	2.85	15
36.75	40.1	19.2	-	40.2	2.8	5.4	7.3	3	silty CLAY to CLAY	115	1.5	13	27	6	-	-	2.7	6.0	61	0.005	3.04	15
36.91	47.4	22.6	-	47.6	3.3	9.7	7.4	3	silty CLAY to CLAY	115	1.5	15	32	7	-	-	3.2	7.1	58	0.005	2.99	15
37.08	84.4	40.3	-	84.7	4.0	14.3	4.9	3	silty CLAY to CLAY	115	1.5	27	56	11	-	-	5.8	9.9	39	0.005	2.68	15
37.24	138.3	92.7	176.1	138.6	4.3	13.1	3.1	5	silty SAND to sandy SILT	120	3.0	31	46	20	64	38	-	-	22	0.200	2.28	16
37.40	150.5	100.7	179.6	150.7	4.4	9.0	3.0	5	silty SAND to sandy SILT	120	3.0	34	50	22	67	39	-	-	21	0.200	2.24	16
37.57	138.2	92.4	169.6	138.3	4.0	5.5	2.9	5	silty SAND to sandy SILT	120	3.0	31	46	20	64	38	-	-	21	0.200	2.26	16
37.73	116.6	77.9	181.6	116.8	4.4	6.9	3.9	4	clayy SILT to silty CLAY	115	2.0	39	58	18	-	-	8.1	9.9	27	0.070	2.40	15
37.90	96.9	45.7	-	97.1	4.8	11.5	5.1	4	clayy SILT to silty CLAY	115	2.0	23	48	12	-	-	6.7	9.9	38	0.070	2.65	15
38.06	114.9	76.5	180.6	115.0	4.4	9.1	3.9	4	clayy SILT to silty CLAY	115	2.0	38	57	18	-	-	8.0	9.9	27	0.070	2.41	15
38.22	122.4	81.5	182.9	122.5	4.5	7.2	3.8	4	clayy SILT to silty CLAY	115	2.0	41	61	19	-	-	8.5	9.9	26	0.070	2.38	15
38.39	142.0	94.4	185.5	142.2	4.7	9.6	3.4	5	silty SAND to sandy SILT	120	3.0	31	47	21	65	38	-	-	23	0.200	2.30	16
38.55	157.2	104.4	167.4	157.4	3.8	7.4	2.5	5	silty SAND to sandy SILT	120	3.0	35	52	22	68	39	-	-	18	0.200	2.17	16
38.72	188.8	125.3	175.0	189.0	3.9	13.1	2.1	5	silty SAND to sandy SILT	120	3.0	42	63	25	74	40	-	-	15	0.200	2.07	16
38.88	225.5	149.5	175.6	225.7	3.1	9.6	1.4	6	clean SAND to silty SAND	125	5.0	30	45	28	80	41	-	-	10	0.350	1.88	16
39.04	238.4	157.8	199.3	238.6	4.5	10.3	1.9	6	clean SAND to silty SAND	125	5.0	32	48	31	82	41	-	-	12	0.350	1.97	16
39.21	199.8	132.1	193.6	199.9	4.9	7.4	2.5	5	silty SAND to sandy SILT	120	3.0	44	67	27	76	40	-	-	16	0.200	2.11	16
39.37	209.2	138.2	201.0	209.3	5.2	7.6	2.5	5	silty SAND to sandy SILT	120	3.0	46	70	28	78	40	-	-	16	0.200	2.10	16
39.54	200.8	132.5	190.7	201.0	4.7	10.1	2.4	5	silty SAND to sandy SILT	120	3.0	44	67	27	76	40	-	-	16	0.200	2.09	16
39.70	209.1	137.8	187.5	209.2	4.4	6.7	2.1	5	silty SAND to sandy SILT	120	3.0	46	70	28	78	40	-	-	14	0.200	2.04	16
39.86	202.9	133.6	196.9	203.0	5.1	6.5	2.5	5	silty SAND to sandy SILT	120	3.0	45	68	27	77	40	-	-	16	0.200	2.11	16
40.03	195.1	128.3	201.3	195.1	5.4	4.5	2.8	5	silty SAND to sandy SILT	120	3.0	43	65	27	75	40	-	-	18	0.200	2.16	16
40.19	197.9	130.0	217.2	198.0	6.3	4.8	3.2	5	silty SAND to sandy SILT	120	3.0	43	66	28	76	40	-	-	19	0.200	2.20	16
40.36	211.4	138.7	220.4	211.5	6.4	4.4	3.1	5	silty SAND to sandy SILT	120	3.0	46	70	29	78	40	-	-	18	0.200	2.17	16
40.52	216.0	141.6	182.5	216.1	4.0	7.0	1.9	6	clean SAND to silty SAND	125	5.0	28	43	28	78	40	-	-	13	0.350	1.99	16
40.68	201.5	131.9	181.7	201.6	4.2	8.4	2.1	5	silty SAND to sandy SILT	120	3.0	44	67	26	76	40	-	-	14	0.200	2.05	16
40.85	225.9	147.7	188.2	226.0	4.1	6.3	1.9	6	clean SAND to silty SAND	125	5.0	30	45	29	80	41	-	-	12	0.350	1.98	16
41.01	215.3	140.7	187.4	215.4	4.3	3.1	2.0	5	silty SAND to sandy SILT	120	3.0	47	72	28	78	40	-	-	14	0.200	2.02	16
41.18	209.8	136.9	197.1	209.8	5.1	4.3	2.4	5	silty SAND to sandy SILT	120	3.0	46	70	28	77	40	-	-	16	0.200	2.09	16
41.34	216.2	141.0	197.1	216.3	5.0	4.5	2.3	5	silty SAND to sandy SILT	120	3.0	47	72	28	78	40	-	-	15	0.200	2.07	16
41.50	232.0	151.1	194.3	232.1	4.5	3.9	1.9	5	silty SAND to sandy SILT	120	3.0	50	77	30	81	41	-	-	13	0.200	1.99	16
41.67	233.3	151.7	188.4	233.3	4.0	3.5	1.7	6	clean SAND to silty SAND	125	5.0	30	47	29	81	41	-	-	12	0.350	1.95	16
41.83	205.7	133.7	180.5	205.8	4.1	3.0	2.0	5	silty SAND to sandy SILT	120	3.0	45	69	27	77	40	-	-	14	0.200	2.04	16
42.00	184.9	120.0	187.7	184.9	4.8	0.9	2.6	5	silty SAND to sandy SILT	120	3.0	40	62	25	73	39	-	-	18	0.200	2.16	16
42.16	165.7	107.4	199.2	165.7	5.5	1.2	3.4	5	silty SAND to sandy SILT	120	3.0	36	55	24	69	39	-	-	21	0.200	2.27	16
42.32	142.2	92.1	222.0	142.2	6.6	0.6	4.7	9	very stiff fine SOIL	120	1.0	92	100	22	-	-	4.9	9.9	27	0.250	2.42	30
42.49	136.3	88.2	199.3	136.3	5.5	0.1	4.1	4	clayy SILT to silty CLAY	115	2.0	44	68	20	-	-	9.5	9.9	26	0.070	2.39	15
42.65	171.5	110.9	175.6	171.5	4.3	0.0	2.5	5	silty SAND to sandy SILT	120	3.0	37	57	23	70	39	-	-	18	0.200	2.16	16
42.82	219.3	141.6	182.5	219.3	4.0	-0.1	1.9	6	clean SAND to silty SAND	125	5.0	28	44	28	78	40	-	-	13	0.350	1.99	16
42.98	237.6	153.3	198.9	237.6	4.8	-1.4	2.0	5	silty SAND to sandy SILT	120	3.0	51	79	30	81	41	-	-	13	0.200	2.00	16
43.15	229.5	147.9	212.3	229.4	5.9	-1.1	2.6	5	silty SAND to sandy SILT	120	3.0	49	76	30	80	41	-	-	15	0.200	2.09	16
43.31	221.2	142.4	213.3	221.2	6.0	-0.1	2.8	5	silty SAND to sandy SILT	120	3.0	47	74	29	79	40	-	-	17	0.200	2.12	16
43.47	232.7	149.7	198.2	232.7	4.9	-0.2	2.1	5	silty SAND to sandy SILT	120	3.0	50	78	30	80	41	-	-	13	0.200	2.02	16
43.64	225.3	144.7	189.2	225.3	4.4	-1.8	2.0	5	silty SAND to sandy SILT	120	3.0	48	75	28	79	40	-	-	13	0.200	2.01	16
43.80	213.4	136.9	195.3	213.3	5.0	-1.3	2.4	5	silty SAND to sandy SILT	120	3.0	46	71	28	77	40	-	-	15	0.200	2.08	16
43.97	191.9	123.0	192.1	191.9	5.1	-1.3	2.7	5	silty SAND to sandy SILT	120	3.0	41	64	26	74	40	-	-	17	0.200	2.15	16
44.13	181.0	115.9	159.1	181.0	3.3	-2.6	1.8	5	silty SAND to sandy SILT	120	3.0	39	60	23	72	39	-	-	14	0.200	2.05	16
44.29	141.9	90.8	150.3	141.8	3.2	-2.6	2.3	5	silty SAND to sandy SILT	120	3.0	30	47	19	64	38	-	-	19	0.200	2.20	16
44.46	141.3	90.3	157.2	141.2	3.5	-1.9	2.6	5	silty SAND to sandy SILT	120	3.0	30	47	19	64	38	-	-	20	0.200	2.23	16
44.62	142.2	90.8	159.5	142.2	3.7	0.8	2.6	5	silty SAND to sandy SILT	120	3.0	30	47	20	64	38	-	-	20	0.200	2.23	16
44.79	142.9	91.1	183.1	142.9	4.8	-0.6	3.4	5	silty SAND to sandy SILT	120	3.0	30	48	20	64	38	-	-	23	0.200	2.32	16
44.95	156.5	99.7	186.1	156.4	4.9	-1.4	3.2	5	silty SAND to sandy SILT	120	3.0	33	52	22	67	38	-	-	22	0.200	2.27	16
45.11	163.0	103.8	180.9	163.0	4.7	-1.1	2.9	5	silty SAND to sandy SILT	120	3.0	35	54	22	68	39	-	-	20	0.200	2.23	16
45.28	189.4	120.4	180.3	189.4	4.5	-0.8	2.4	5	silty SAND to sandy SILT	120	3.0	40	63	25	73	39	-	-	16	0.200	2.12	16
45.44	220.3	139.9	194.4	220.3	4.9	-0.8	2.3	5	silty SAND to sandy SILT	120	3.0	47	73	28	78	40	-	-	15	0.200	2.06	16
45.61	201.2	127.6	189.1	201.2	4.9	-0.5	2.5	5	silty SAND to sandy SILT	120	3.0	43	67	26	75	40	-	-	16	0.200	2.11	16
45.77	175.5	111.2	184.3	175.5	4.8	-0.2	2.8	5	silty SAND to sandy SILT	120	3.0	37	58	24	71	39	-	-	19	0.200	2.20	16
45.93	192.2	121.7	179.3	192.2	4.4	0.0	2.3	5	silty SAND to sandy SILT	120	3.0	41	64	25	73	39	-	-	16	0.200	2.11	16
46.10	202.0	127.8	190.1	202.0	5.0	-0.1	2.5	5	silty SAND to sandy SILT	120	3.0	43	67	26	75	40	-	-	16	0.200	2.12	16
46.26	223.4	141.2	204.7	223.4	5.6	-0.4	2.5	5	silty SAND to sandy SILT	120	3.0	47	74	29	78	40	-	-	16	0.200	2.10	16

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

Project ID: CTE Cal
Data File: SDF(717).cpt
CPT Date: 6/30/2021 10:11:51 AM
GW During Test: 35 ft

Sounding ID: CPT-04
Project No: 60-0921G
Cone/Rig: DDG1587

Depth ft	qc PS tsf	qc1n PS -	q1ncs PS -	qt PS tsf	Slv Stss tsf	pore prss (psi)	Frct Rato %	Mat Typ Zon	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	SPT IcN1 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	OCR - -	Fin Ic %	D50 - mm	Ic SBT Indx	Nk -
46.43	235.5	148.7	204.7	235.5	5.4	-0.7	2.3	5	silty SAND to sandy SILT	120	3.0	50	78	30	80	40	-	-	14	0.200	2.05	16
46.59	232.1	146.4	201.2	232.0	5.3	-0.9	2.3	5	silty SAND to sandy SILT	120	3.0	49	77	29	80	40	-	-	14	0.200	2.05	16
46.75	243.8	153.6	222.9	243.7	6.6	-1.4	2.7	5	silty SAND to sandy SILT	120	3.0	51	81	31	81	41	-	-	16	0.200	2.10	16
46.92	231.9	146.0	222.1	231.9	6.7	-0.7	2.9	5	silty SAND to sandy SILT	120	3.0	49	77	30	79	40	-	-	17	0.200	2.13	16
47.08	209.5	131.8	215.0	209.5	6.4	-1.2	3.1	5	silty SAND to sandy SILT	120	3.0	44	70	28	76	40	-	-	19	0.200	2.19	16
47.25	203.8	128.0	195.3	203.8	5.3	-0.5	2.6	5	silty SAND to sandy SILT	120	3.0	43	68	27	75	40	-	-	17	0.200	2.14	16
47.41	207.2	130.1	179.5	207.2	4.3	-0.7	2.1	5	silty SAND to sandy SILT	120	3.0	43	69	26	76	40	-	-	15	0.200	2.06	16
47.57	200.2	125.5	153.8	200.2	2.7	-1.1	1.4	6	clean SAND to silty SAND	125	5.0	25	40	24	75	40	-	-	11	0.350	1.94	16
47.74	192.5	120.5	170.9	192.4	4.0	-1.5	2.1	5	silty SAND to sandy SILT	120	3.0	40	64	24	73	39	-	-	15	0.200	2.08	16
47.90	186.9	117.0	201.4	186.9	5.8	-1.3	3.1	5	silty SAND to sandy SILT	120	3.0	39	62	25	72	39	-	-	20	0.200	2.22	16
48.07	182.3	114.0	218.5	182.3	6.8	-1.8	3.8	5	silty SAND to sandy SILT	120	3.0	38	61	25	71	39	-	-	22	0.200	2.29	16
48.23	208.9	130.4	224.4	208.9	7.1	-1.6	3.4	5	silty SAND to sandy SILT	120	3.0	43	70	28	76	40	-	-	20	0.200	2.22	16
48.39	220.9	137.8	204.9	220.9	5.8	-2.1	2.6	5	silty SAND to sandy SILT	120	3.0	46	74	28	78	40	-	-	16	0.200	2.12	16
48.56	201.3	125.5	194.3	201.3	5.3	-2.3	2.7	5	silty SAND to sandy SILT	120	3.0	42	67	26	74	39	-	-	17	0.200	2.15	16
48.72	174.8	108.8	198.0	174.7	5.7	-2.1	3.3	5	silty SAND to sandy SILT	120	3.0	36	58	24	70	39	-	-	21	0.200	2.26	16
48.89	195.9	121.8	196.3	195.8	5.5	-2.7	2.8	5	silty SAND to sandy SILT	120	3.0	41	65	26	74	39	-	-	18	0.200	2.18	16
49.05	162.6	101.0	216.5	162.5	6.6	-3.3	4.2	9	very stiff fine SOIL	120	1.0	100	100	23	-	-	5.7	9.9	25	0.250	2.36	30
49.22	148.2	92.0	206.4	148.2	6.0	-2.7	4.2	4	clayy SILT to silty CLAY	115	2.0	46	74	21	-	-	10.3	9.9	26	0.070	2.38	15
49.38	121.4	75.3	179.1	121.3	4.6	-3.1	3.9	4	clayy SILT to silty CLAY	115	2.0	38	61	18	-	-	8.4	9.9	27	0.070	2.42	15
49.54	87.5	35.6	-	87.5	4.0	-2.2	4.7	3	silty CLAY to CLAY	115	1.5	24	58	10	-	-	6.0	9.9	41	0.005	2.70	15
49.71	70.1	28.5	-	70.1	2.9	-0.6	4.4	3	silty CLAY to CLAY	115	1.5	19	47	8	-	-	4.8	9.0	43	0.005	2.76	15
49.87	81.5	33.1	-	81.6	2.5	0.7	3.2	4	clayy SILT to silty CLAY	115	2.0	17	41	9	-	-	5.6	9.9	36	0.070	2.61	15
50.04	88.6	54.8	133.1	88.6	2.5	-0.2	2.9	4	clayy SILT to silty CLAY	115	2.0	27	44	13	-	-	6.1	9.9	28	0.070	2.43	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 C

LABORATORY METHODS AND RESULTS

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ATTERBERG LIMITS

ASTM D4318

Job Name: San Bruno Genesis Hyundai **Date:** 05/24/21

Job Number: 60-0921G **Lab #:** Fremont

Sample Number: B3-5ft

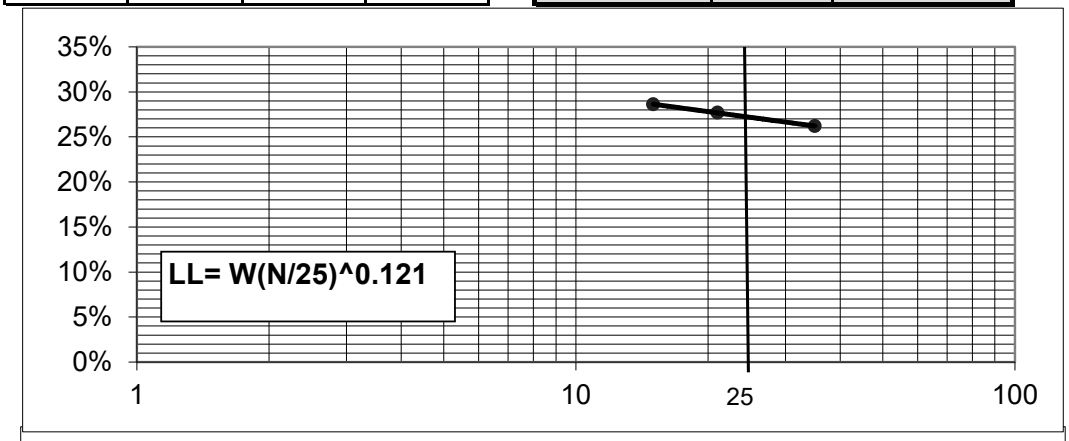
	LIQUID LIMITS		
WET SOIL	9.26	8.39	9.25
DRY SOIL	7.20	6.57	7.33
WATER	2.06	1.82	1.92
# BLOWS	15	21	35
% MOIST	**28.61%**	**27.70%**	**26.19%**

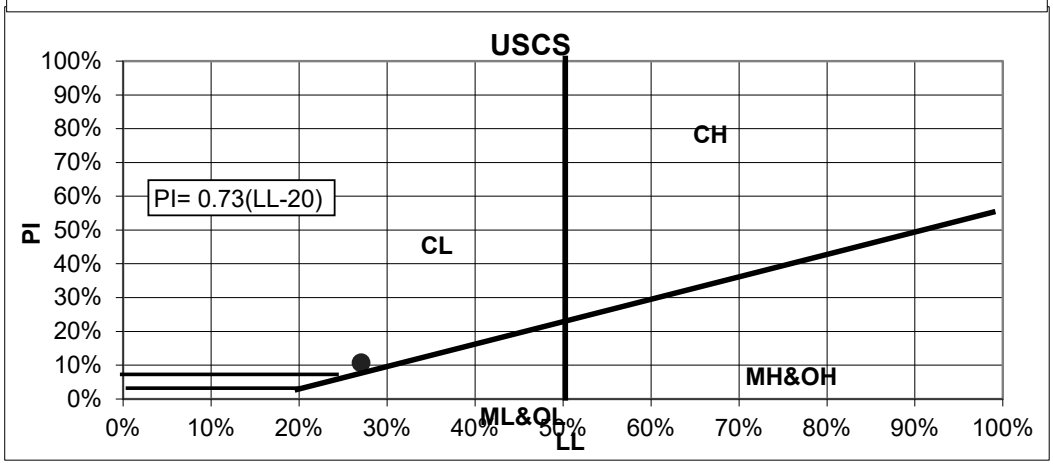
PLASTIC LIMIT	
8.89	7.69
7.65	6.59
1.24	1.1
16.21%	**16.69%**

Method used		Dry
	X	Moist
Plastic Limit	X	Hand rolled
		Mach.rolling device
Liquid Limit Apparatus	X	Manual
		Mechanical
Casagrande		Metal
Grooving tool	X	Plastic

NE POINT	**26.9%**	**27.1%**	**27.3%**

LL	PL	PI
27%	**16%**	**11%**





REVIEWED BY: Fella Damardji **DATE:** 6/3/2021

Material Finer than #200 Sieve

ASTM D-1140

Project Name: San Bruno Genesis

Project #: 60-0921G

Sample Description: SPT Samples

Date Received: 5/24/2021

Sampled By: Selena Gray

Lab #: Fremont

Sample Location:	B1	B2	B3	B5	B6
Depth:	20 ft	15 ft	30 ft	30 ft	10 ft
Initial Dry Wt. + Tare (g):	624.9	608.2	499.8	484.4	210.3
Initial Tare:	235.3	268.2	268.6	200.3	86.7
Final Dry Wt. + Tare (g):	533.5	545.5	345.6	351.1	123.3
Final Tare:	235.3	268.2	268.6	200.3	86.7
Soil Loss (g):	91.4	62.7	154.2	133.3	87
Percent Finer than # 200 Sieve:	**23.5%**	**18.4%**	**66.7%**	**46.9%**	**70.4%**

Sample Location:	B4	B4	B4	B4	B4
Depth:	25 ft	35 ft	40 ft	45 ft	50 ft
Initial Dry Wt. + Tare (g):	361.1	322.9	352.3	379.7	336.7
Initial Tare:	87.3	73.9	73.7	86.3	86.7
Final Dry Wt. + Tare (g):	237.6	226	301.1	277.3	144.8
Final Tare:	87.3	73.9	73.7	86.3	86.7
Soil Loss (g):	123.5	96.9	51.2	102.4	191.9
Percent Finer than # 200 Sieve:	**45.1%**	**38.9%**	**18.4%**	**34.9%**	**76.8%**

Sample Location:					
Depth:					
Initial Dry Wt. + Tare (g):					
Initial Tare:					
Final Dry Wt. + Tare (g):					
Final Tare:					
Soil Loss (g):					
Percent Finer than # 200 Sieve:					

Reviewed By: Fella Damardji
Laboratory Manager

Date: 5/28/2021

Material Finer than #200 Sieve

ASTM D-1140

Project Name: San Bruno Genesis

Project #: 60-0921G

Sample Description: SPT Samples

Date Received: 5/24/2021

Sampled By: Selena Gray

Lab #: Fremont

	Retest
Sample Location:	B4
Depth:	40 ft
Initial Dry Wt. + Tare (g):	354.62
Initial Tare:	348.36
Final Dry Wt. + Tare (g):	351.97
Final Tare:	348.36
Soil Loss (g):	2.65
Percent Finer than # 200 Sieve:	**42.3%**

	Retest
Sample Location:	B4
Depth:	35 ft
Initial Dry Wt. + Tare (g):	550.4
Initial Tare:	342.2
Final Dry Wt. + Tare (g):	456.6
Final Tare:	342.2
Soil Loss (g):	93.8
Percent Finer than # 200 Sieve:	**45.1%**

Reviewed By: Fella Damardji
Laboratory Manager

Date: 6/7/2021

CTE CAL,INC. 46716 Fremont Blvd. | Fremont, CA 94538 | Ph: (510) 573-6362 | Fax: (510) 573-6684

Laboratory Determination of Moisture Content of Soil and Rock by Mass (ASTM D 2216) And Laboratory Test Method For Determination of Density of Soil Specimens (ASTM D7263)

Project Name: San Bruno Genesis Date: 5/24/2021

Project #: 60-0921G Sampled By: Selena

Moisture Content
Method used: ■ A ☐ B
Drying Temperature: 225 °F

Sample Depth (ft): **B4- 5ft**

Volume (ft^3):	0.0051
Tare (g):	73.5
Moist Wt. + Tare (g):	386.7
Oven Dry Wt. + Tare (g):	340.7
Moisture Content:	**17%**
Wet Density (lb/ft^3)	**135.4**
Dry Density (lb/ft^3)	**115.5**

Moisture Content
Method used: ■ A ☐ B
Drying Temperature: 225 °F

Sample Depth (ft): **B4-15ft**

Volume (ft^3):	0.0051
Tare (g):	86.8
Moist Wt. + Tare (g):	399.2
Oven Dry Wt. + Tare (g):	368.2
Moisture Content:	**11%**
Wet Density (lb/ft^3)	**135.0**
Dry Density (lb/ft^3)	**121.6**

Moisture Content
Method used: ■ A ☐ B
Drying Temperature: 225 °F

Sample Depth (ft): **B4-20ft**

Volume (ft^3):	0.0051
Tare (g):	86.7
Moist Wt. + Tare (g):	443.8
Oven Dry Wt. + Tare (g):	413.5
Moisture Content:	**9%**
Wet Density (lb/ft^3)	**154.4**
Dry Density (lb/ft^3)	**141.3**

Moisture Content
Method used: ■ A ☐ B
Drying Temperature: 225 °F

Sample Depth (ft): **B4-25ft**

Volume (ft^3):	0.0051
Tare (g):	87.3
Moist Wt. + Tare (g):	412.3
Oven Dry Wt. + Tare (g):	361.1
Moisture Content:	**19%**
Wet Density (lb/ft^3)	**140.5**
Dry Density (lb/ft^3)	**118.4**

Laboratory Manager: Fella Damardji Date: 5/28/2021

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Moisture Content
Method used: ■ A ☐ B
Drying Temperature: 225 °F

Sample Depth (ft): **B4-30ft**

Volume (ft^3):	0.0051
Tare (g):	87.2
Moist Wt. + Tare (g):	443.6
Oven Dry Wt. + Tare (g):	405.3
Moisture Content:	**12%**
Wet Density (lb/ft^3)	**154.1**
Dry Density (lb/ft^3)	**137.5**

Moisture Content
Method used: ■ A ☐ B
Drying Temperature: 225 °F

Sample Depth (ft): **B4-35ft**

Volume (ft^3):	0.0051
Tare (g):	73.9
Moist Wt. + Tare (g):	383.6
Oven Dry Wt. + Tare (g):	322.9
Moisture Content:	**24%**
Wet Density (lb/ft^3)	**133.9**
Dry Density (lb/ft^3)	**107.6**

Moisture Content
Method used: ■ A ☐ B
Drying Temperature: 225 °F

Sample Depth (ft): **B4-40ft**

Volume (ft^3):	0.0051
Tare (g):	73.7
Moist Wt. + Tare (g):	406.8
Oven Dry Wt. + Tare (g):	352.3
Moisture Content:	**20%**
Wet Density (lb/ft^3)	**144.0**
Dry Density (lb/ft^3)	**120.4**

Moisture Content
Method used: ■ A ☐ B
Drying Temperature: 225 °F

Sample Depth (ft): **B4-45ft**

Volume (ft^3):	0.0051
Tare (g):	86.3
Moist Wt. + Tare (g):	426.2
Oven Dry Wt. + Tare (g):	379.7
Moisture Content:	**16%**
Wet Density (lb/ft^3)	**146.9**
Dry Density (lb/ft^3)	**126.8**

Moisture Content
Method used: ■ A ☐ B
Drying Temperature: 225 °F

Sample Depth (ft): **B4-50ft**

Volume (ft^3):	0.0051
Tare (g):	86.7
Moist Wt. + Tare (g):	397.4
Oven Dry Wt. + Tare (g):	336.7
Moisture Content:	**24%**
Wet Density (lb/ft^3)	**134.3**
Dry Density (lb/ft^3)	**108.1**

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ATTERBERG LIMITS

ASTM D4318

Job Name: San Bruno Genesis Hyundai **Date:** 05/24/21

Job Number: 60-0921G **Lab #:** Fremont

Sample Number: B4-5ft

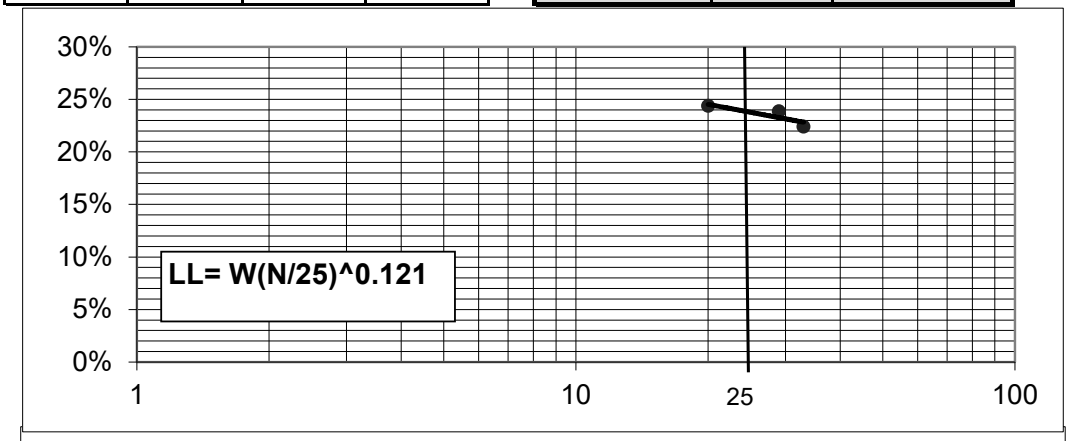
	LIQUID LIMITS		
WET SOIL	14.90	14.64	13.94
DRY SOIL	11.98	11.82	11.39
WATER	2.92	2.82	2.55
# BLOWS	20	29	33
% MOIST	**24.37%**	**23.86%**	**22.39%**

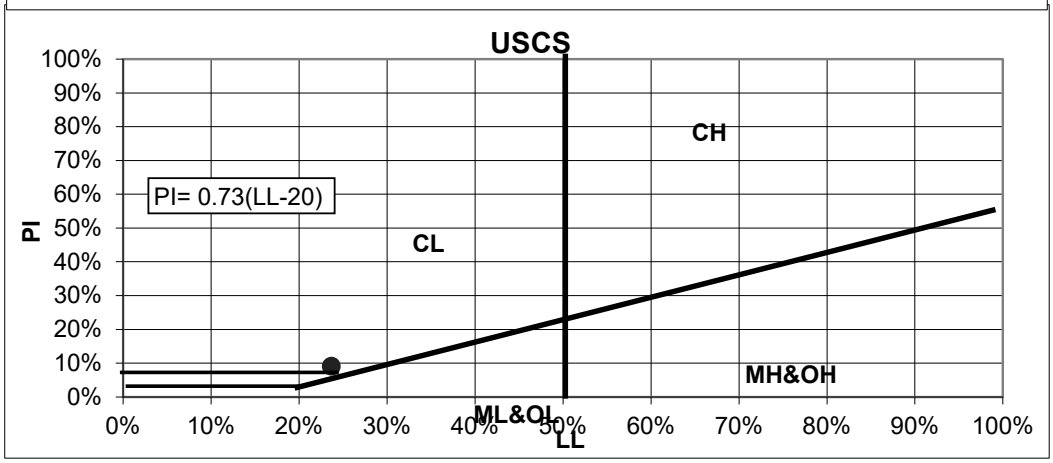
PLASTIC LIMIT	
9.72	7.32
8.44	6.4
1.28	0.92
15.17%	**14.38%**

Method used		Dry
	X	Moist
Plastic Limit	X	Hand rolled
		Mach.rolling device
Liquid Limit Apparatus	X	Manual
		Mechanical
Casagrande		Metal
Grooving tool	X	Plastic

NE POINT	**23.7%**	**24.3%**	**23.2%**

LL	PL	PI
24%	**15%**	**9%**





REVIEWED BY: Fella Damardji **DATE:** 6/3/2021

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ATTERBERG LIMITS

ASTM D4318

Job Name: San Bruno Genesis Hyundai **Date:** 05/24/21

Job Number: 60-0921G **Lab #:** Fremont

Sample Number: B5-10ft

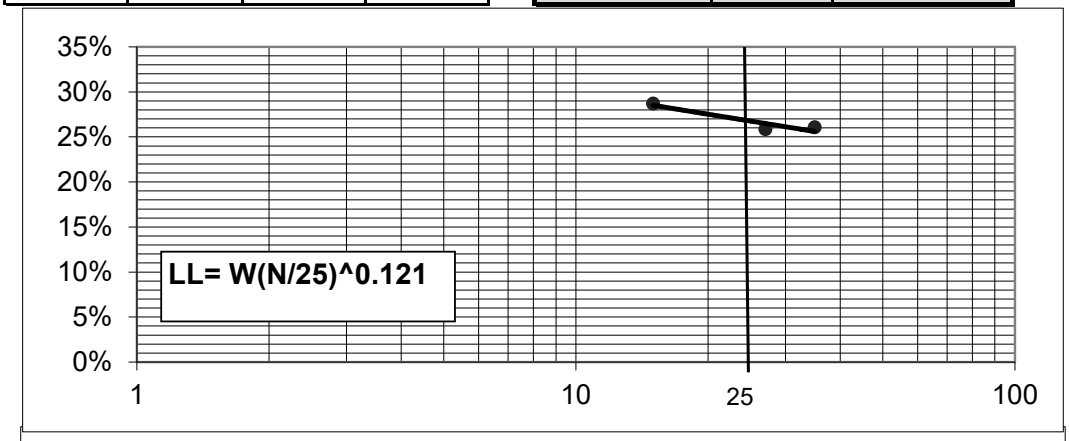
	LIQUID LIMITS		
WET SOIL	8.70	9.20	8.13
DRY SOIL	6.76	7.31	6.45
WATER	1.94	1.89	1.68
# BLOWS	15	27	35
% MOIST	**28.70%**	**25.85%**	**26.05%**

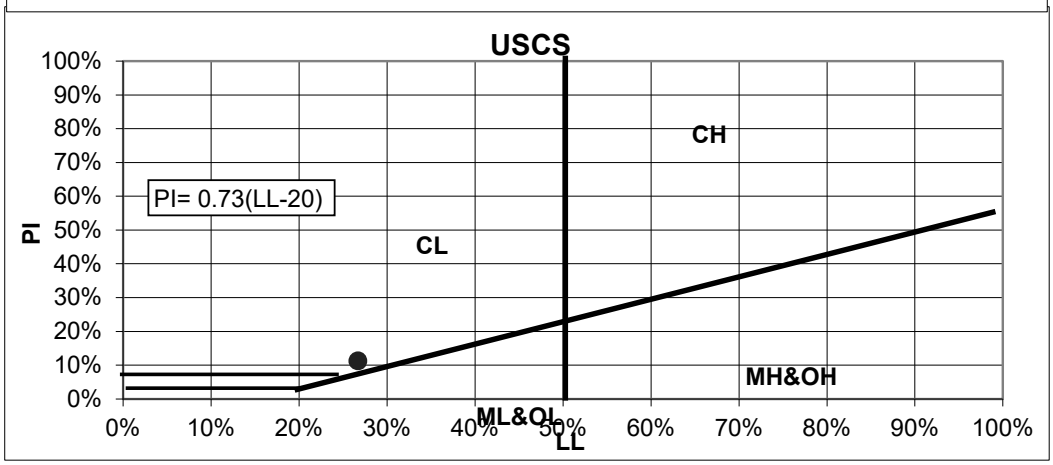
PLASTIC LIMIT	
10.18	10.63
8.81	9.2
1.37	1.43
15.55%	**15.54%**

Method used		Dry
	X	Moist
Plastic Limit	X	Hand rolled
		Mach.rolling device
Liquid Limit Apparatus	X	Manual
		Mechanical
Casagrande		Metal
Grooving tool	X	Plastic

NE POINT	**27.0%**	**26.1%**	**27.1%**

LL	PL	PI
27%	**16%**	**11%**





REVIEWED BY: Fella Damardji **DATE:** 6/3/2021

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ATTERBERG LIMITS

ASTM D4318

Job Name: San Bruno Genesis Hyundai **Date:** 05/24/21

Job Number: 60-0921G **Lab #:** Fremont

Sample Number: B5-15ft

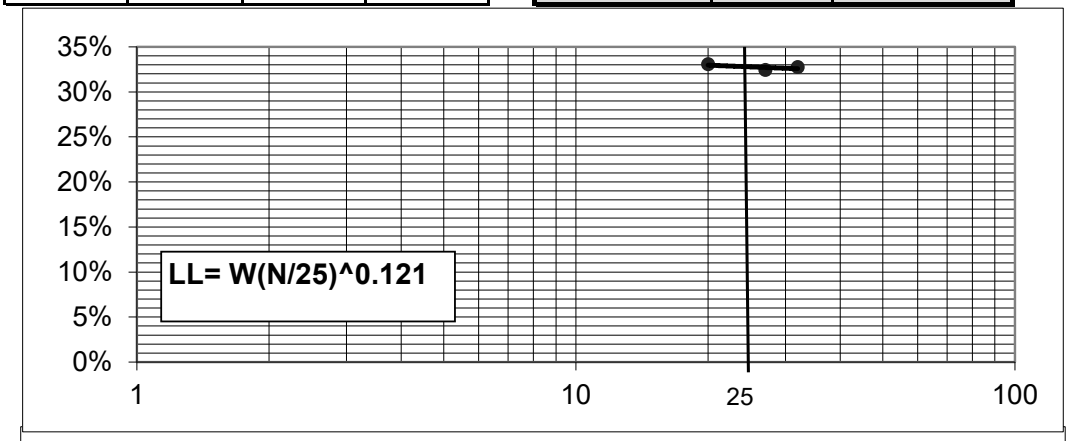
	LIQUID LIMITS		
WET SOIL	8.41	8.74	8.39
DRY SOIL	6.32	6.60	6.32
WATER	2.09	2.14	2.07
# BLOWS	20	27	32
% MOIST	**33.07%**	**32.42%**	**32.75%**

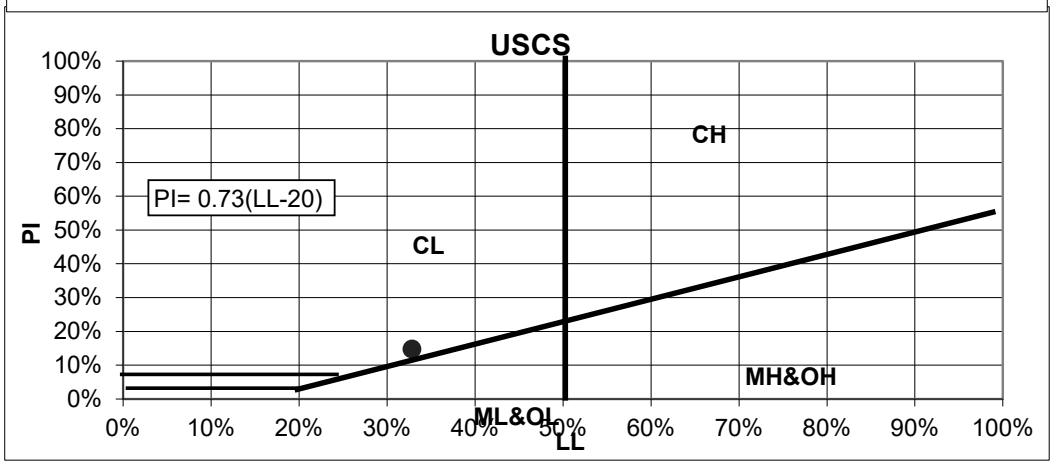
PLASTIC LIMIT	
9.66	9.53
8.15	8.08
1.51	1.45
18.53%	**17.95%**

Method used		Dry
	X	Moist
Plastic Limit	X	Hand rolled
		Mach.rolling device
Liquid Limit Apparatus	X	Manual
		Mechanical
Casagrande		Metal
Grooving tool	X	Plastic

NE POINT	**32.2%**	**32.7%**	**33.7%**

LL	PL	PI
33%	**18%**	**15%**





REVIEWED BY: Fella Damardji **DATE:** 6/3/2021

3628 Madison Avenue, Suite 22 | Sacramento, CA 95660 | 916.331.6030 | Fax 916.331.6037
CIVIL ENGINEERING | GEOTECHNICAL | ENVIRONMENTAL | CONSTRUCTION INSPECTION AND TESTING

ATTERBERG LIMITS

ASTM D4318

Job Name: San Bruno Genesis Hyundai **Date:** 05/24/21

Job Number: 60-0921G **Lab #:** Fremont

Sample Number: B6-10ft

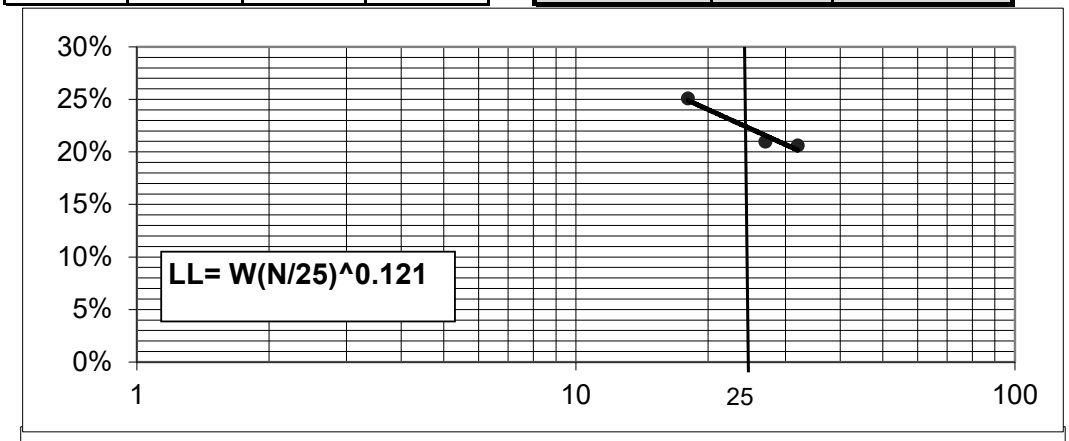
	LIQUID LIMITS		
WET SOIL	8.68	10.50	9.72
DRY SOIL	6.94	8.68	8.06
WATER	1.74	1.82	1.66
# BLOWS	18	27	32
% MOIST	**25.07%**	**20.97%**	**20.60%**

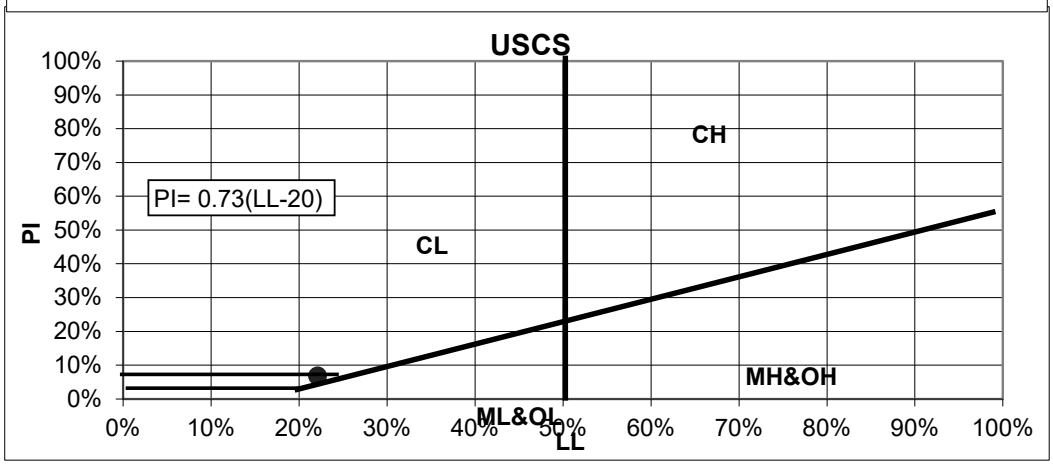
PLASTIC LIMIT	
7.61	9.1
6.59	7.88
1.02	1.22
15.48%	**15.48%**

Method used		Dry
	X	Moist
Plastic Limit	X	Hand rolled
		Mach.rolling device
Liquid Limit Apparatus	X	Manual
		Mechanical
Casagrande		Metal
Grooving tool	X	Plastic

NE POINT	**24.1%**	**21.2%**	**21.2%**

LL	PL	PI
22%	**15%**	**7%**





REVIEWED BY: Fella Damardji **DATE:** 6/3/2021

Report of Aggregate Testing

CTE CAL,INC. 46716 Fremont Blvd. | Fremont, CA 94538 | Ph: (510) 573-6362 | Fax: (510) 573-6684

Project Name:	San Bruno Genesis
Project No.:	60-0921G
Sample Location :	B4- 40ft
Sampled By:	Selena Date: 5/24/2021
Tested By :	Fella Date: 5/28/2021

SM/SC

Sample Size: 20575 g	% Passing	Specifications	Tolerance	Notes
2.5"	**100**			
1.5"	**100**			
1 "	**100**			
3/4"	**100**			
1/2"	**100**			
3/8"	**100**			
#4	**99**			
#8	**99**			
#10	**98**			
#30	**97**			
#50	**95**			
#100	**85**			
#200	**48.5**			

All Sampling and Testing Done In Accordance With Applicable ASTM Standards

Reviewed By: Fella Damardji

Laboratory Technician

APPENDIX D

STANDARD GRADING RECOMMENDATIONS

APPENDIX E

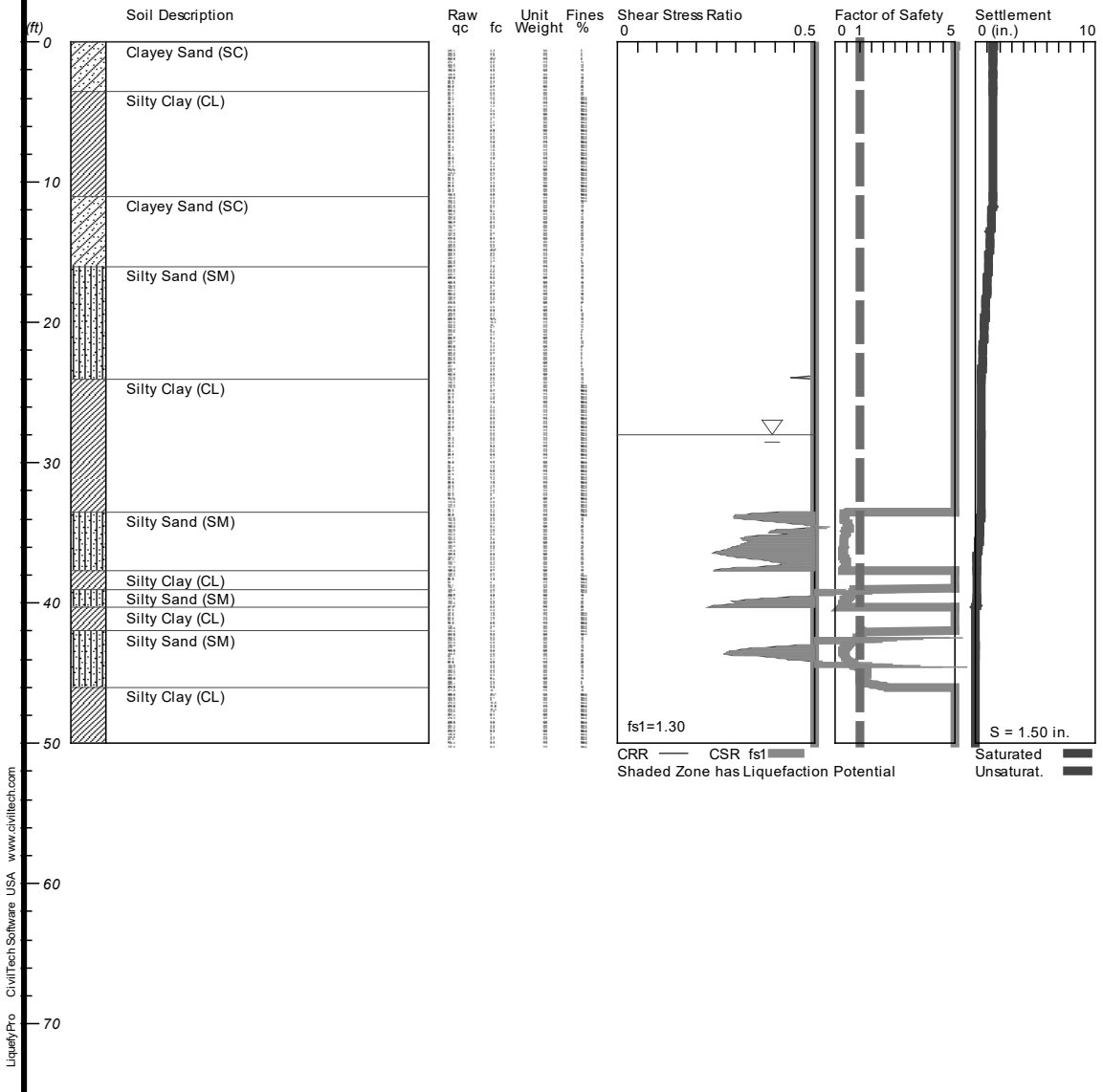
LIQUEFACTION AND LATERAL SPREADING EVALUATION

LIQUEFACTION ANALYSIS

San Bruno Genesis Hyundai - Code Based

Hole No.=CPT 1 Water Depth=28 ft Surface Elev.=EGS

Magnitude=7.5
Acceleration=1.057g

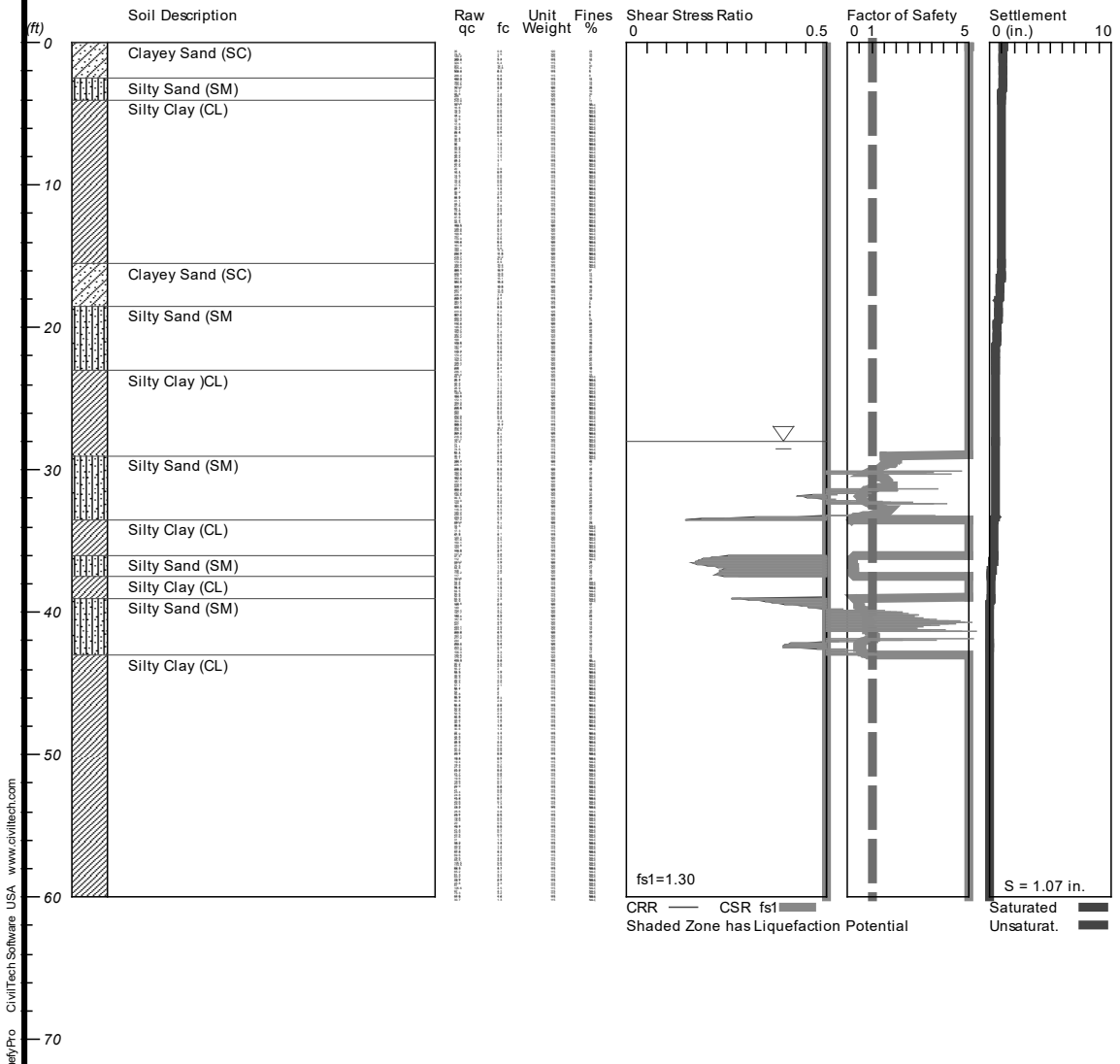


LIQUEFACTION ANALYSIS

San Bruno Genesis Hyundai - Code Based

Hole No.=CPT 2 Water Depth=28 ft Surface Elev.=EGS

Magnitude=7.5
Acceleration=1.057g



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Modesto, CA 95356
Ph: (209) 543 - 1799
Fax: (209) 543 - 1775

Lateral Spreading Evaluation

Project:	San Bruno Gensis Hyundai	Project No:	60-0921G
Calculated By:	SG	Date:	5/27/2021
Checked By:	MK	Boring:	CPT-04

Seismic Parameters			
Event #	1	2	3
Magnitude [M_w]	7.2	6.0	6.9
Distance [R] (mi)	2.07	40	50.6
(km)	3.3	64.4	81.4
R_0	6.2	0.5	3.2
R*	9.6	64.9	84.6

Site Geometry		
Slope	1	%
Free Face Height	15	ft
Free Face Base Distance	7400	ft
Free Face Ratio [W]	0.2	%

Subsurface Parameters		
Soils with blowcounts $(N_1)_{60} < 15$:		
Fines Content [F_{15}]	48.5	%
Thickness [T_{15}]	0.6	ft
	0.18	m
Mean Particle Size [D_{50}]	0.078	mm

Displacement (D_H)					
	Event 1		***Event 2***		***Event 3***	
Free-Face (FF)	1.5	in	0.0	in	0.0	in
Displacement Range	**1 in - 3 in**		**0 in - 0 in**		**0 in - 0 in**	
Sloping Ground (S)	12.0	in	0.0	in	0.0	in
Displacement Range	**6 in - 24 in**		**0 in - 0 in**		**0 in - 0 in**	

Table 12.13-2 Upper Limit on Lateral Spreading Horizontal Ground Displacement for Shallow Foundations Beyond Which Deep Foundations Are Required

Risk Category	I or II	III	IV
Limit (in. (mm))	18 (455)	12 (305)	4 (100)

Limit on lateral spreading for shallow foundations based on risk category from ASCE 7-16 Chapter 12

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4230 Kiernan Ave., Ste. 150
Modesto, CA 95356
Ph: (209) 543 - 1799

Liquefaction Surface Manifestation Evaluation

Project:	San Bruno Gensis Hyundai	Project No:	60-0921G
Calculated By:	SG	Date:	5/27/2021
Checked By:	MK	Boring:	B4

Seismic Parameters	
Magnitude [M_w]	7.5
PGA_M	1.057

Subsurface Parameters				
Capping Layer	37.5	(ft)	11.4	(m)
Liquefiable Layer	5.0	(ft)	1.5	(m)
Liquefaction Severity Number	*LSN*		2.6	
Liquefaction Potential Index	*LPI*		6.4	

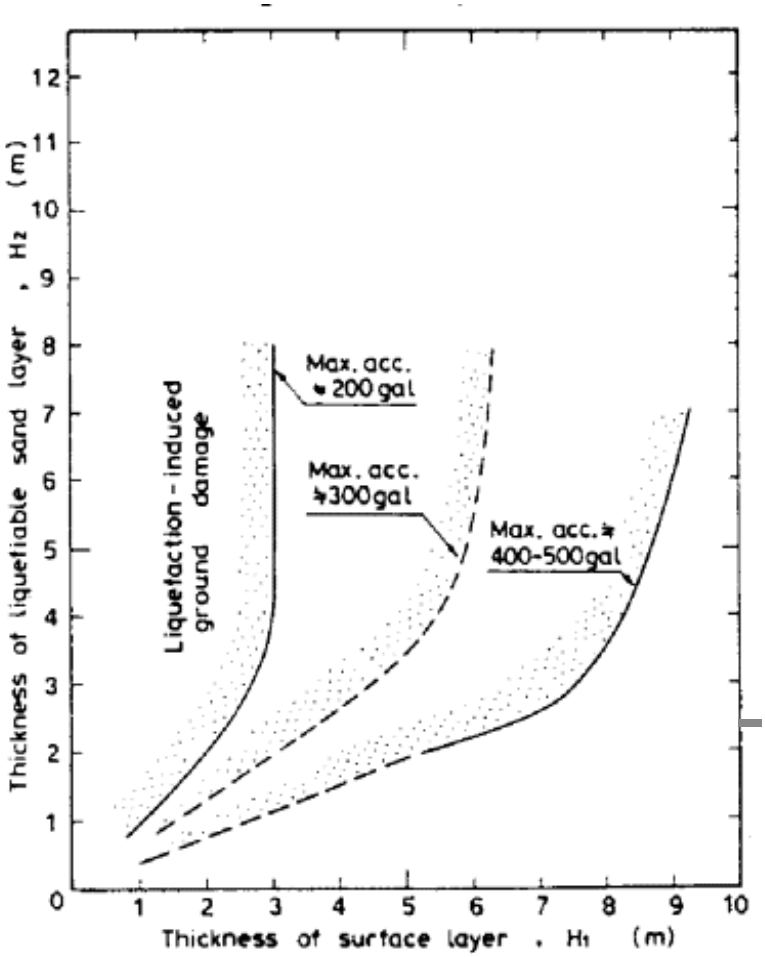

Figure 1: Layers for Determining Occurrence of Surface Effects of Liquefaction (Ishihara, 1985)

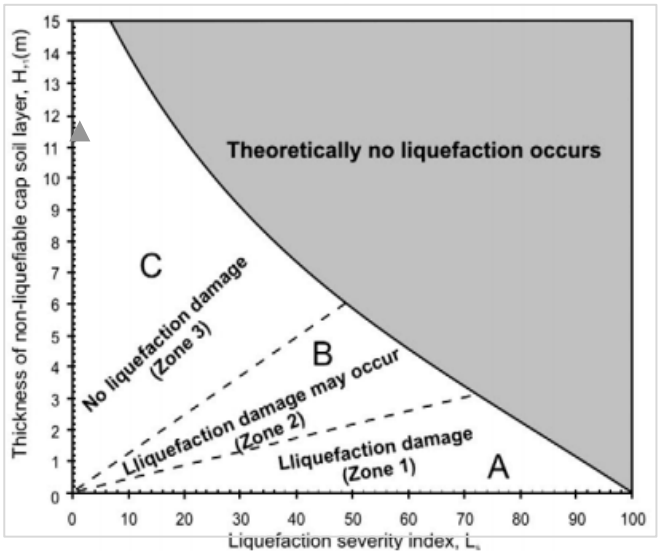

Figure 2: Correlation between Liquefaction Severity Number and liquefaction damage (Somnez et al. 2008)

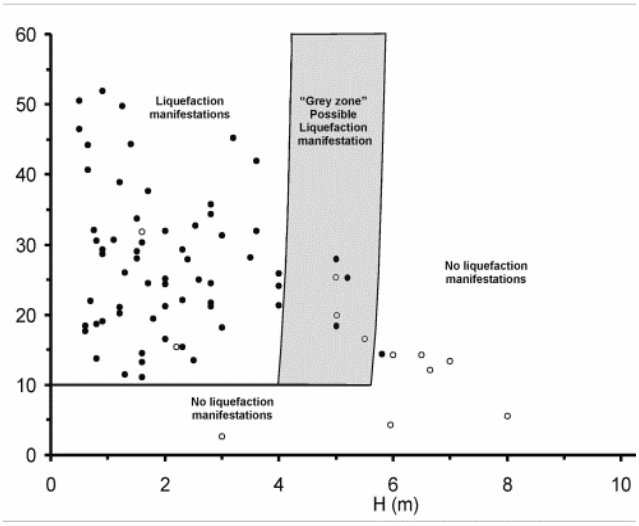

Figure 3:Correlation Between Liquefaction Potential Index and Surface Damage (Papathanassiou, 2008)