Geotechnical Feasibility Assessment

555 South Winchester Boulevard
San Jose, California

Submitted to:
Mr. Dan Carroll
Pulte Group
6210 Stoneridge Mall Road, 5th Floor
Pleasanton, CA 94588

Prepared by:
ENGEO Incorporated

August 16, 2013

Project No.
10439.000.000

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GEOTECHNICAL
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WATER RESOURCES
CONSTRUCTION SERVICES

Project No.
10439.000.000

August 16, 2013

Mr. Dan Carroll
Pulte Group
6210 Stoneridge Mall Road, 5th Floor
Pleasanton, CA 94588

Subject: 555 South Winchester Boulevard
San Jose, California

GEOTECHNICAL FEASIBILITY ASSESSMENT

Dear Mr. Carroll:

With your authorization, we completed this geotechnical feasibility assessment for your proposed residential project located at 555 South Winchester Boulevard in San Jose, California.

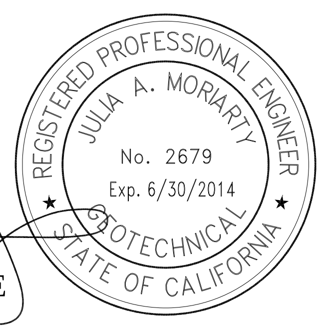
The accompanying geotechnical feasibility assessment presents our field exploration with our conclusions and preliminary recommendations regarding residential development at the site. We are also conducting a Modified Phase I Environmental Site Assessment (ESA) Report at the project site; the findings of that assessment will be submitted under a separate cover.

Our findings indicate that the study area is suitable for the proposed residential redevelopment of the site provided the preliminary recommendations and guidelines provided in this report are implemented during project planning. Additional design-level geotechnical exploration services will be required for grading plan preparation, construction and foundation design.

We are pleased to have been of service to you on this project and are prepared to consult further with you and your design team as the project progresses.

Sincerely,

ENGEO Incorporated



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1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE

The purpose of this preliminary geotechnical assessment is to provide preliminary conclusions and recommendations for the proposed residential development. The information presented in this report may be used for general land planning purposes.

The scope of our services included:

- Reviewing available literature and geologic maps for the immediate area.
- Performing limited subsurface exploration consisting of three cone penetration test (CPT) probes.
- Preparing a report summarizing our initial recommendations for proposed site development and recommendations for additional studies.

We prepared this report exclusively for the Pulte Group and their design team consultants. ENGEO should review any changes made in the character, design or layout of the development to modify the conclusions and recommendations contained in this report, as necessary. This document may not be reproduced in whole or in part by any means whatsoever, nor may it be quoted or excerpted without the express written consent of ENGEO.

1.2 SITE LOCATION AND DESCRIPTION

The roughly 15.7-acre irregularly shaped site is generally bounded by Winchester Boulevard to the east, Highway 280 to the south, and existing residential and commercial to the west and north (Figure 1). Based on a recent aerial photograph (Google Maps), the site appears to be an existing mobile home community, currently occupied by numerous mobile homes, paved streets, and common areas (Figure 2).

1.3 PROPOSED DEVELOPMENT

We understand that the site is under consideration to be developed into a residential neighborhood with associated private streets. We anticipate up to 3-story buildings with no below-grade levels. As a result, the structures will likely be of wood-frame construction, resulting in light building loads. We also anticipate proposed grades will roughly match existing site grades.

1.4 CONCURRENT ENVIRONMENTAL STUDY

We also conducted a Modified Phase I Environmental Site Assessment (ESA) Report at the project site. As part of that study, we determined that a former underground storage tank (UST) was abandoned in-place (with soil) near the southwestern corner of the site. In addition, septic tank(s) are allegedly remaining at the eastern portion of the site, as well as a dormant incinerator. The general location of these features are shown on the Site Plan (Figure 2). Additional information and findings can be reviewed in the Modified ESA, submitted under a separate cover.

2.0 GEOLOGY AND SEISMICITY

2.1 REGIONAL GEOLOGY

As depicted in Figure 3, Wentworth (1999) has mapped the soils at the site as older Holocene-age alluvial fan deposits (Qhf2). The deposits are in excess of 100 feet thick.

2.2 SITE SEISMICITY

The site is not located within a State of California or City of San Jose Earthquake Fault Zone (1982, 1983), and no known active faults cross the site. However, the potentially active Stanford Fault is shown to cross the site (Figure 2), based on review of the Quaternary Fault and Fold Database of the United States (USGS, 2010). This fault is identified to be one of the concealed older faults in the South San Francisco Bay Area and generally does not require further fault study according to State criteria.

Because of the presence of nearby active[1] faults, the Bay Area Region is considered seismically active. Numerous small earthquakes occur every year in the region, and large (>M7) earthquakes have been recorded and can be expected to occur in the future. Figure 5 shows the approximate locations of these faults and significant historic earthquakes recorded within the Greater Bay Area Region. Nearby active faults within 25 miles of the site are provided in the following table.

TABLE 2.2-1
Regional Faults and Seismicity

Fault Name	Approximate Distance (miles)	Approximate Direction from Site
Monte Vista – Shannon	4.4	Southwest
San Andreas	8.6	Southwest
Calaveras	11.9	Northeast
Hayward	12.0	Northeast

[1] An active fault is defined by the State Mining and Geology Board as one that has had surface displacement within Holocene time (about the last 11,000 years) (Hart, 1997).

Ground motions are typically expressed as a fraction of the acceleration due to gravity (g). As described in the 2010 California Building Code (CBC), Section 1803.5.12, the calculated peak horizontal ground acceleration (PHGA) is 0.40g.

3.0 FIELD EXPLORATION

The sections below summarize our field exploration activities as well as ground surface, subsurface, and groundwater conditions.

3.1 CONE PENETRATION TEST PROBES

The field exploration for this study was conducted on August 5, 2013, and consisted of advancing three cone penetration test (CPT) probes to a maximum depth of approximately 50 feet below ground surface (bgs) at the approximate locations shown on Figure 2. Rig refusal was encountered in 1-CPT3 at a depth of approximately 32 feet bgs. The CPT locations were established by taping and visual sighting from existing features and should be considered accurately located only to the degree implied by the method used.

The CPT equipment used was equipped with a 20-ton compression-type cone with a 15-square-centimeter (cm^2) base area, an apex angle of 60 degrees, and a friction sleeve with a surface area of 225 cm^2. The cone, connected with a series of rods, is pushed into the ground at a constant rate. Cone readings are taken at approximately 5-cm intervals with a penetration rate of 2 cm per second in accordance with revised (2002) ASTM standards (D-5778-95). Measurements include the tip resistance to penetration of the cone (Qc), the resistance of the surface sleeve (Fs), and dynamic pore pressure (U). The CPT logs and supporting empirical data are located in Appendix A.

A water level indicator instrument was used upon removal of the probes to record groundwater levels, if encountered. The CPT hole were backfilled with cement grout. No soil samples were collected as part of this study due to the exploration method implemented.

3.2 SUBSURFACE CONDITIONS

Based on empirical correlations of the CPT data, the subsurface conditions at the CPT locations consist of stiff to very stiff clay to a depth of approximately 15 to 28 feet, underlain by medium dense to very dense sand with occasional interbedded hard clay layers to the maximum depth explored of 50 feet bgs. Groundwater was not encountered in the CPT probes during our exploration activities.

4.0 DISCUSSION AND CONCLUSIONS

From a geologic and geotechnical standpoint, the study area appears to be suitable for residential redevelopment. The preliminary recommendations in this report should be considered in the initial planning for the study area. Design-level explorations will be required to create a final land plan and to develop recommendations for site grading and foundations.

Potential concerns at the site include seismic hazards, expansive site materials, and existing underground utilities and existing fills. These potential concerns and other geotechnical issues relevant to the study area are discussed below.

4.1 SEISMIC HAZARDS

Potential seismic hazards resulting from a nearby moderate to major earthquake can generally be classified as primary and secondary. The primary effect is ground rupture, also called surface faulting. The common secondary seismic hazards include ground shaking, liquefaction, densification, lateral spreading, and ground lurching. The following sections present a discussion of these hazards as they apply to the site.

Based on topographic and lithologic data, the risk of regional subsidence/uplift, landslides, tsunamis, or seiches is considered low to negligible at the site.

4.1.1 Ground Rupture

As described above, the site is not located within a State of California or City of San Jose Earthquake Fault Zone (1982, 1983) and no known active faults cross the site. The potentially active Stanford Fault is shown to cross the site (Figure 2), but this fault is identified to be one of the concealed older faults in the South San Francisco Bay Area and generally does not require further fault study according to State criteria. Therefore, it is our opinion that ground rupture is unlikely at the subject property.

4.1.2 Ground Shaking

An earthquake of moderate to high magnitude generated within the San Francisco Bay Region could cause considerable ground shaking at the site, similar to that which has occurred in the past. To mitigate the shaking effects, all structures should be designed using sound engineering judgment and the California Building Code (CBC) requirements, as a minimum.

Seismic design provisions of current building codes generally prescribe minimum lateral forces, applied statically to the structure, combined with the gravity forces of dead-and-live loads. The code-prescribed lateral forces are generally considered to be substantially smaller than the comparable forces that would be associated with a major earthquake. Therefore, structures should be able to: (1) resist minor earthquakes without damage, (2) resist moderate earthquakes without structural damage but with some nonstructural damage, and (3) resist major earthquakes without collapse but with some structural as well as nonstructural damage. Conformance to the current building code recommendations does not constitute any kind of guarantee that significant structural damage would not occur in the event of a maximum magnitude earthquake; however, it is reasonable to expect that a well-designed and well-constructed structure will not collapse or cause loss of life in a major earthquake (SEAOC, 1996).

4.1.3 Liquefaction

Liquefaction is a phenomenon in which saturated, loose or medium dense, cohesionless soils are subject to a temporary, but essentially total, loss of shear strength because of pore pressure build-up under the reversing cyclic shear stresses associated with earthquakes. The site is not mapped within a potentially liquefiable zone as identified by the State of California Seismic Hazard Zones Map (Figure 4).

Preliminary liquefaction analyses were performed on the CPT probes using the computer program CLiq. We assumed a conservative groundwater level 40 feet below the existing ground surface, a PGA of 0.77g (2 percent exceedance in 50 years), and a Mw of 7.00. Our analyses were based on guidelines provided in DMG Special Publication 117A (2008) and methods developed by Youd et al. (NCEER 1998) (2001), Moss et al. (2006), and Seed (2003).

Based on the results of the analysis, potentially liquefiable zones were not identified within the CPT profile, and therefore, we anticipate potential post-liquefaction ground settlement at the site is low to negligible.

To confirm this preliminary conclusion, soil samples should be collected during a design-level study to confirm the potential for liquefaction and liquefaction-induced settlement potential.

4.1.4 Ground Lurching and Lateral Spreading

Lurch cracking and lateral spreading can occur in weaker soils on slopes and adjacent to open channels that are subjected to strong ground shaking during earthquakes. The potential for lurch cracks forming in weaker surface soils can be reduced by proper site preparation and grading methods that will be provided in a design-level geotechnical report for the project.

Lateral spreading is a failure within a nearly horizontal soil zone (possibly due to liquefaction) that causes the overlying soil mass to move toward a free face or down a gentle slope. Generally, the effects of lateral spreading are most significant at the free face or the crest of a slope and diminishes with distance from the slope. Considering the low to negligible potential for liquefaction at the site, it is our opinion that the potential for lateral spreading is low.

These hazards should be reevaluated during design-level study.

4.1.5 Flooding

The project Civil Engineer should assess if the site is located above or below the 100-year flood elevation.

4.2 EXPANSIVE SOILS

Sampling and testing of site soils were not performed as part of this study; however, based on nearby project experience, surficial soils at the site are expected to be of low to moderate expansion potential. Expansive soils shrink and swell as a result of moisture changes. This can cause heaving and cracking of slabs-on-grade, pavements, and structures founded on shallow foundations.

Successful construction on expansive soils requires special attention during grading. It is imperative to keep exposed soils moist by occasional sprinkling. If the soils dry, it is extremely difficult to remoisturize the soils (because of their clayey nature) without excavation, moisture conditioning, and recompaction.

Conventional grading operations, incorporating fill placement specifications tailored to the expansive characteristics of the soil, and use of a mat foundation (either post-tensioned or conventionally reinforced) are common, generally cost-effective measures to address the expansive potential of the foundation soils. Based upon our initial findings, the effects of expansive soils are expected to pose a low impact when mitigated.

4.3 EXISTING FILLS

With exception to the existing pavement and aggregate base, a significant amount of existing fill does not appear to be present at the CPT locations (i.e., approximately 2 feet or less). However, existing fill materials should be anticipated around the existing structures, as utility trench backfill, and at former UST and septic tank locations identified on Figure 2.

Existing fills could undergo vertical movement that is not easily characterized and could ultimately be inadequate to effectively support the proposed building loads. In general, undocumented fills should be excavated and replaced as engineered soil fill. The extent and quality of existing fills should be evaluated at the time of design-level study and mitigated during grading activities.

4.4 DIFFERENTIAL FILL THICKNESS

Depending upon the depths of excavations required for removal of existing backfill areas and subsurface structures as well the proximity of proposed buildings, a differential fill condition may arise that could adversely impact the performance of the building foundations. General preliminary recommendations to address this potential condition are presented in a subsequent section.

4.5 GROUNDWATER

As discussed in the above sections, groundwater was not encountered during our field exploration. A historical high groundwater level of approximately 50 feet below existing grade was reported for the site vicinity (CGS, San Jose West Quadrangle, 2002). Fluctuations in groundwater levels should be expected during seasonal changes or over a period of years because of precipitation changes, perched zones, changes in drainage patterns, and irrigation.

4.6 CALIFORNIA BUILDING CODE (CBC) SEISMIC DESIGN PARAMETERS

Based on the CPT empirical correlations and local seismic sources, the following preliminary 2010 California Building Code (CBC) seismic design parameters may be considered for land planning purposes. The to-be-published 2013 CBC is scheduled to be adopted for implementation in January 2014. The seismic design parameters presented in the 2013 CBC seismic parameters will be based upon the 2012 International Building Code and the ASCE standard "Minimum Design Loads for Buildings and Other Structures" (ASCE 7-10) published in 2010. As an estimate of 2013 CBC seismic parameters, we used recently developed USGS Seismic Design Map online tool to develop ASCE 7-10 seismic design parameters (http://geohazards.usgs.gov/designmaps/us/application.php). These parameters should be revisited during design-level explorations.

TABLE 4.6-1
2010 and 2013 CBC Seismic Design Parameters

Parameter	Current Design Value 2010 CBC	Future Design Value 2013 CBC
Site Class	D	D
0.2 second Spectral Response Acceleration, S_S	1.52	1.50
1.0 second Spectral Response Acceleration, S_1	0.60	0.60
Site Coefficient, F_A	1.00	1.00
Site Coefficient, F_V	1.50	1.50
Maximum considered earthquake spectral response accelerations for short periods, S_{MS}	1.52	1.50
Maximum considered earthquake spectral response accelerations for 1-second periods, S_{M1}	0.90	0.90
Design spectral response acceleration at short periods, S_{DS}	1.01	1.00
Design spectral response acceleration at 1-second periods, S_{D1}	0.60	0.60
Long period transition-period, T_L	12 sec	12 sec

Latitude = 37.317763; Longitude = -121.954140

4.7 CORROSIVE SOILS

The California Building Code (CBC) references the 2008 American Concrete Institute Manual, ACI 318-08 (Chapter 4, Sections 4.2 and 4.3) for concrete requirements based on the potential exposure risk for sulfate attack on concrete in contact with soil.

Baseline samples should be collected and tested as part of the design-level study to determine the potential for corrosion to buried metal pipelines and sulfate attack on foundation concrete. The sulfate test results should be used to provide recommended concrete design parameters in accordance with the guidelines presented in the CBC. Samples of actual pad subgrade soils should then be collected and tested to confirm minimum foundation concrete strength.

4.8 CONCLUSIONS

Based upon this preliminary study, it is our opinion that the project site is suitable for the proposed development. The significant potential geotechnical issues for the site are:

- Presence of existing fill materials.
- Presence of expansive soils.

A design-level geotechnical exploration should be performed as part of the design process, which would include borings and laboratory soil testing as needed to provide data for preparation of specific recommendations regarding site grading, remedial grading measures, foundations, and drainage for the proposed residential construction. The exploration will also allow for more detailed evaluation of the above-described geotechnical issues and afford the opportunity to provide techniques and procedures to be implemented during construction to mitigate potential geotechnical/geological hazards.

5.0 RECOMMENDATIONS

The following recommendations are for initial land planning and preliminary estimating purposes. Final recommendations regarding site grading and foundation construction will be provided after additional site-specific exploration has been undertaken.

5.1 DEMOLITION AND STRIPPING

As part of demolition activities, removal of buried structures, including abandoned utilities and septic tanks and their leach fields, if any exist, should be removed. Debris or soft compressible soils should be subexcavated from locations to be graded, from areas to receive fill or structures, or those areas to serve as borrow. The depth of removal of such materials should be determined by the Geotechnical Engineer in the field at the time of grading. In general, subexcavated soil can be reused as engineered fill unless deemed unsuitable by ENGEO at the time of grading.

For existing landscape areas, the existing vegetation should be removed from areas to receive fill or structures, or those areas to serve for borrow. Tree roots should be removed to a depth of at least 3 feet below existing grade. The actual depths of tree root removal should be determined by the Geotechnical Engineer's representative in the field. Subject to approval by the Landscape Architect, strippings and organically contaminated soils can be used in landscape areas.

Otherwise, such soils should be removed from the project site. Any topsoil that will be retained for future use in landscape areas should be stockpiled in areas where it will not interfere with grading operations.

For the paved parking areas, if desired, crushing and reusing the existing asphalt concrete and aggregate base as recycled gravel below hardscape or as aggregate base could be considered from a geotechnical standpoint. The material should be crushed to meet specific gradations and other material specifications, depending upon its desired use. If approved by the owner, it is possible that asphalt concrete and aggregate base can also be broken down to 3 inches or less in dimension and incorporated into general fills.

All excavations from demolition and stripping below design grades should be cleaned to a firm undisturbed soil surface determined by the Geotechnical Engineer. This surface should then be scarified, moisture conditioned, and backfilled with compacted engineered fill. The requirements for backfill materials and placement operations are the same as for engineered fill. No loose or uncontrolled backfilling of depressions resulting from demolition or stripping is permitted.

5.2 EXISTING FILL

Where encountered, existing fill is considered undocumented and should be subexcavated to expose underlying competent native soils that are approved by the Geotechnical Engineer. If in a fill area, the base of the excavations should be processed, moisture conditioned, as needed, and compacted in accordance with the recommendations for engineered fill. Based on similar project types, the existing fill may reach up to 10 feet deep in utility trenches or other buried improvements.

5.3 SELECTION OF MATERIALS

With the exception of construction debris (wood, brick, asphalt, concrete, metal, etc.), trees, organically contaminated materials (soil which contains more than 3 percent organic content by weight), and environmentally impacted soils (if any), we anticipate the site soils are suitable for use as engineered fill provided they are broken down to 3 inches or less in size. Other materials and debris, including trees with their root balls, should be removed from the project site.

5.4 GRADED SLOPES

In general and for preliminary purposes, graded slopes should be no steeper than 2:1 (horizontal:vertical).

5.5 DIFFERENTIAL FILL THICKNESS

Depending upon cuts associated with removal of buried structures, foundations, or undocumented fills, differential fill thickness conditions could possibly arise.

For subexcavation activities that create a differential fill thickness across the building footprint, mitigation to achieve a similar fill thickness across the pad is beneficial for the performance of a shallow foundation system. We recommend that a differential fill thickness of up to 5 feet is acceptable across the building footprint. For a differential fill thickness exceeding 5 feet across the footprint, we recommend performing subexcavation activities to bring this vertical distance to within the 5-foot tolerance and that the material be replaced as engineered fill. As a minimum, the subexcavation area should include the entire structure footprint plus 5 feet beyond the edges of the building footprint.

5.6 FILL PLACEMENT

For land planning and cost estimating purposes, the following compaction control requirements should be anticipated for general fill areas:

Test Procedures:	ASTM D-1557.
Required Moisture Content:	Not less than 3 percentage points above optimum moisture content.
Minimum Relative Compaction:	Not less than 90 percent.

Relative compaction refers to the in-place dry density of soil expressed as a percentage of the maximum dry density of the same material.

Additional compaction requirements may be required that will be developed during our detailed exploration.

5.7 FOUNDATION DESIGN

In order to reduce the effects of the potentially expansive soils, the foundations should be sufficiently stiff to move as rigid units with minimum differential movements. This can be accomplished with construction of relatively rigid mat foundations, such as post-tensioned structural mats.

A minimum mat thickness of 10 inches should be anticipated for preliminary purposes. We anticipate that structural mats constructed on swelling soils will move differentially; therefore, structural mats may require stiffening to reduce differential movements due to swelling/shrinkage to a value compatible with the type of structure that will be constructed.

5.8 RETAINING WALLS

For preliminary purposes, unrestrained drained retaining walls constructed on level ground may be designed using an active equivalent fluid weight of 45 pounds per cubic foot (pcf). We recommend that drained, restrained walls consider an at-rest equivalent fluid weight of 65 pcf.

Drainage facilities should be installed behind retaining walls to prevent the build-up of hydrostatic pressures on the walls. For planning purposes, wall drainage may be provided using 4-inch-diameter perforated (SDR 35 or approved equivalent) pipe encapsulated in either Class 2 permeable material, or free-draining gravel surrounded by 6-ounce synthetic filter fabric. The width of the gravel-type drain blanket should be at least 12 inches. The drain blanket should extend from base of the wall to about one foot below the finished grade. The upper one foot of wall backfill should consist of compacted soil. If preapproved by the Geotechnical Engineer, prefabricated wall drain panels could be considered in lieu of the granular drain blanket above the pipe system. Collected water should flow to an outlet approved by the Civil Engineer via solid pipe.

5.9 PRELIMINARY PAVEMENT DESIGN

The following preliminary pavement sections have been determined for Traffic Indices of 5 and 6, an assumed R-value of 5, and in accordance with the design methods contained in Topic 608 of Caltrans Highway Design Manual.

TABLE 5.9-1
Preliminary Pavement Sections

Traffic Index (TI)	Private Streets		Public Streets	
	AC (inches)	AB (inches)	AC (inches)	AB (inches)
5.0	3.0	10.0	4.2*	7.0
6.0	3.5	13.0	4.2*	11.0

Notes: AC is asphalt concrete (* city minimum thickness for public streets)
AB is aggregate base Class 2 Material with minimum R = 78

The above preliminary pavement sections are provided for estimating only. We recommend the actual subgrade material be tested for R-value once established and the Traffic Index and minimum pavement section(s) should be confirmed by the Civil Engineer and the City of San Jose.

5.10 SURFACE DRAINAGE

The building pads must be positively graded at all times to provide for rapid removal of surface water runoff from the foundation systems and to prevent ponding of water under floors or seepage toward the foundation systems at any time during or after construction. Ponding of stormwater must not be permitted on the building pads during prolonged periods of inclement weather. As a minimum requirement, finished grades should have slopes of at least 5 percent within 10 feet from the exterior walls at right angles to them to allow surface water to drain positively away from the structures. For paved areas, the slope gradient can be reduced to 2 percent. All surface water should be collected and discharged into the storm drain system. Landscape mounds must not interfere with this requirement.

All roof stormwater should be collected and directed to downspouts. Stormwater from roof downspouts should not be allowed to discharge onto splashblocks or into landscape areas within 5 feet from the foundation; rather they should discharge through the curb and into the street or onto an impermeable material that drains into the street.

5.11 STORMWATER TREATMENT AND FACILITIES

Due to an anticipated high clay content and density of the underlying soils, the site soils are not expected to have adequate permeability values to handle stormwater infiltration in grassy swales or permeable pavers. Therefore, best management practices should assume that little stormwater infiltration will occur at the site and any soft-bottomed storm treatment units such as grassy swales or bioretention facilities, should be subdrained. Depending upon their location, a vapor retarder/barrier may also be warranted.

5.12 REQUIREMENTS FOR LANDSCAPING IRRIGATION

For planning purposes, vegetation should not be planted immediately adjacent to the structures. If planting adjacent to a building is desired, we recommend using plants that require very little moisture with drip irrigation systems. Similarly, sprinkler systems should not be installed where they may cause ponding or saturation of foundation soils within 5 feet of the walls or under a structure as ponding or saturation of foundation soils may cause loss of soil strength, and movements of the foundation and slabs.

Irrigation of landscaped areas should be strictly limited to that necessary to sustain vegetation. Excessive irrigation could result in saturating and weakening of foundation soils.

6.0 LIMITATIONS AND UNIFORMITY OF CONDITIONS

This report is issued with the understanding that it is the responsibility of the owner to transmit the information and recommendations of this report to developers, owners, buyers, architects, engineers, and designers for the project so that the necessary steps can be taken by the contractors and subcontractors to carry out such recommendations in the field. The conclusions and recommendations contained in this report are solely professional opinions.

The professional staff of ENGEO strives to perform its services in a proper and professional manner with reasonable care and competence but is not infallible. There are risks of earth movement and property damages inherent in land development. We are unable to eliminate all risks or provide insurance; therefore, we are unable to guarantee or warrant the results of our services.

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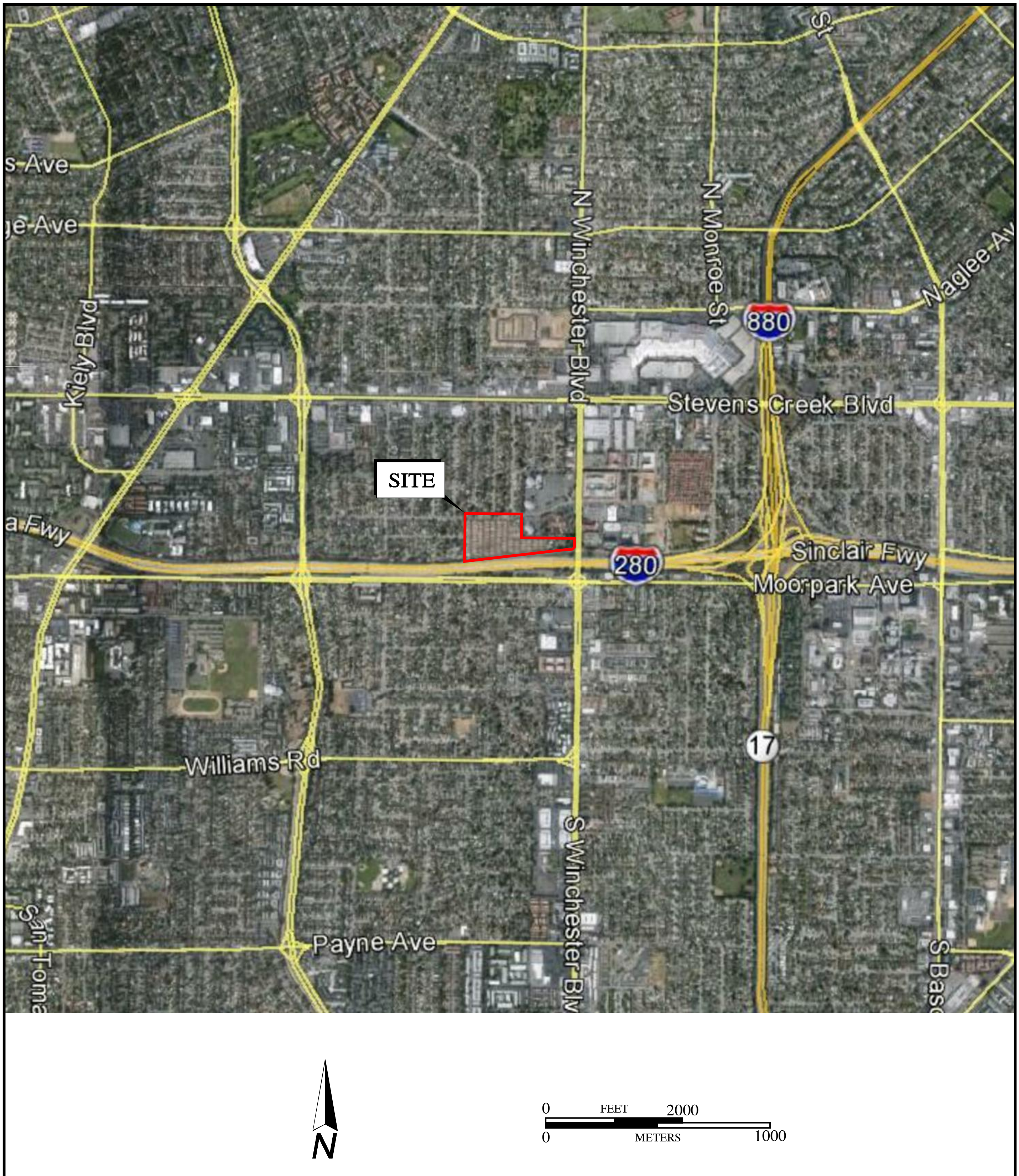
FIGURES



BASE MAP SOURCE: GOOGLE EARTH PRO, 2012

ENGEO Expect Excellence	VICINITY MAP 555 SOUTH WINCHESTER BOULEVARD SAN JOSE, CALIFORNIA	PROJECT NO.: 10439.000.000 SCALE: AS SHOWN DRAWN BY: PC CHECKED BY: PG	FIGURE NO. 1

G:\Drafting\DRAFTING2_Dwg_10000 to 12999\10439\000\GEX\10439000000-GEX-1-VicinityMap-0813.dwg Plot Date: 8-13-13 pcrockett

ORIGINAL FIGURE PRINTED IN COLOR

G:\Drafting\DRAFTING2_Dwg_10000 to 12999\10439\000\GEX\10439000000-GEX-2-SitePlan-0813.dwg Plot Date:8-16-13 pcrockett

EXPLANATION

1-CPT3 APPROXIMATE LOCATION OF CONE PENETRATION TEST PROBE

POTENTIALLY ACTIVE, CONCEALED, QUERIED FAULT

N

0 FEET 300
0 METERS 150

BASE MAP SOURCE: GOOGLE EARTH PRO, 2012

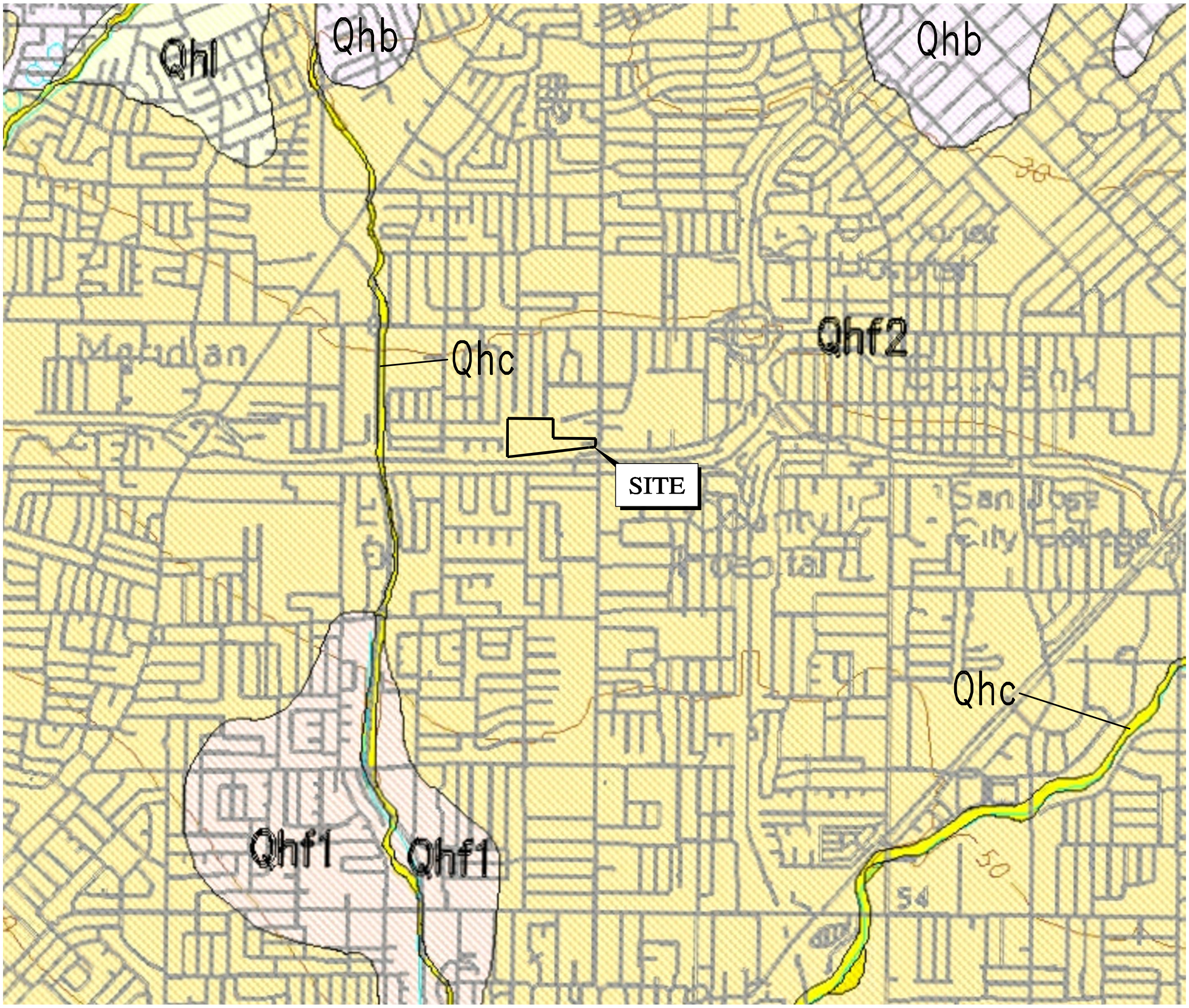
ENGEO Expect Excellence

SITE PLAN
555 SOUTH WINCHESTER BOULEVARD
SAN JOSE, CALIFORNIA

PROJECT NO.: 10439.000.000	
SCALE: AS SHOWN	
DRAWN BY: PC	CHECKED BY: PCG

FIGURE NO. 2

ORIGINAL FIGURE PRINTED IN COLOR



N

0 FEET 3000
0 METERS 1500

EXPLANATION

GEOLOGIC CONTACT

Qhb	BASIN DEPOSITS
Qhl	LEVEE DEPOSITS
Qhc	STREAM CHANNEL DEPOSITS
Qhf1	YOUNGER HOLOCENE ALLUVIUM
Qhf2	OLDER HOLOCENE ALLUVIUM

BASE MAP SOURCE: WENTWORTH, 1999

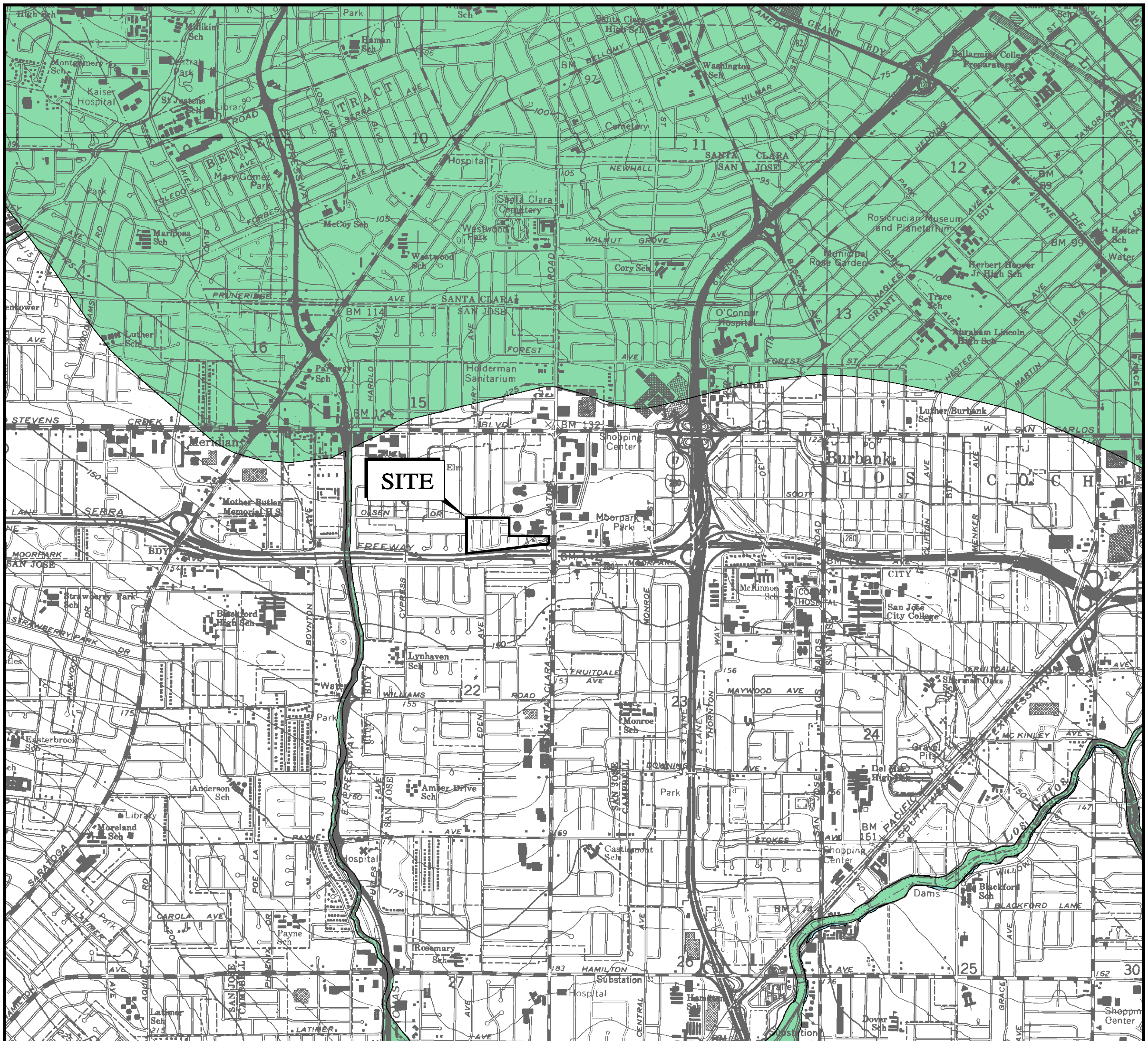
ENGEO
—Expect Excellence—

REGIONAL GEOLOGIC MAP
555 SOUTH WINCHESTER BOULEVARD
SAN JOSE, CALIFORNIA

PROJECT NO.: 10439.000.000
SCALE: AS SHOWN
DRAWN BY: PC
CHECKED BY: PCG
FIGURE NO. 3

G:\Drafting\DRAFTING2_Dwg_10000 to 12999\10439\000\GEX\10439000000-GEX-3-RegGeoMap-0813.dwg Plot Date: 8-13-13 pcrockett

ORIGINAL FIGURE PRINTED IN COLOR



N

0 FEET 3000

0 METERS 1500

EXPLANATION

LIQUEFACTION

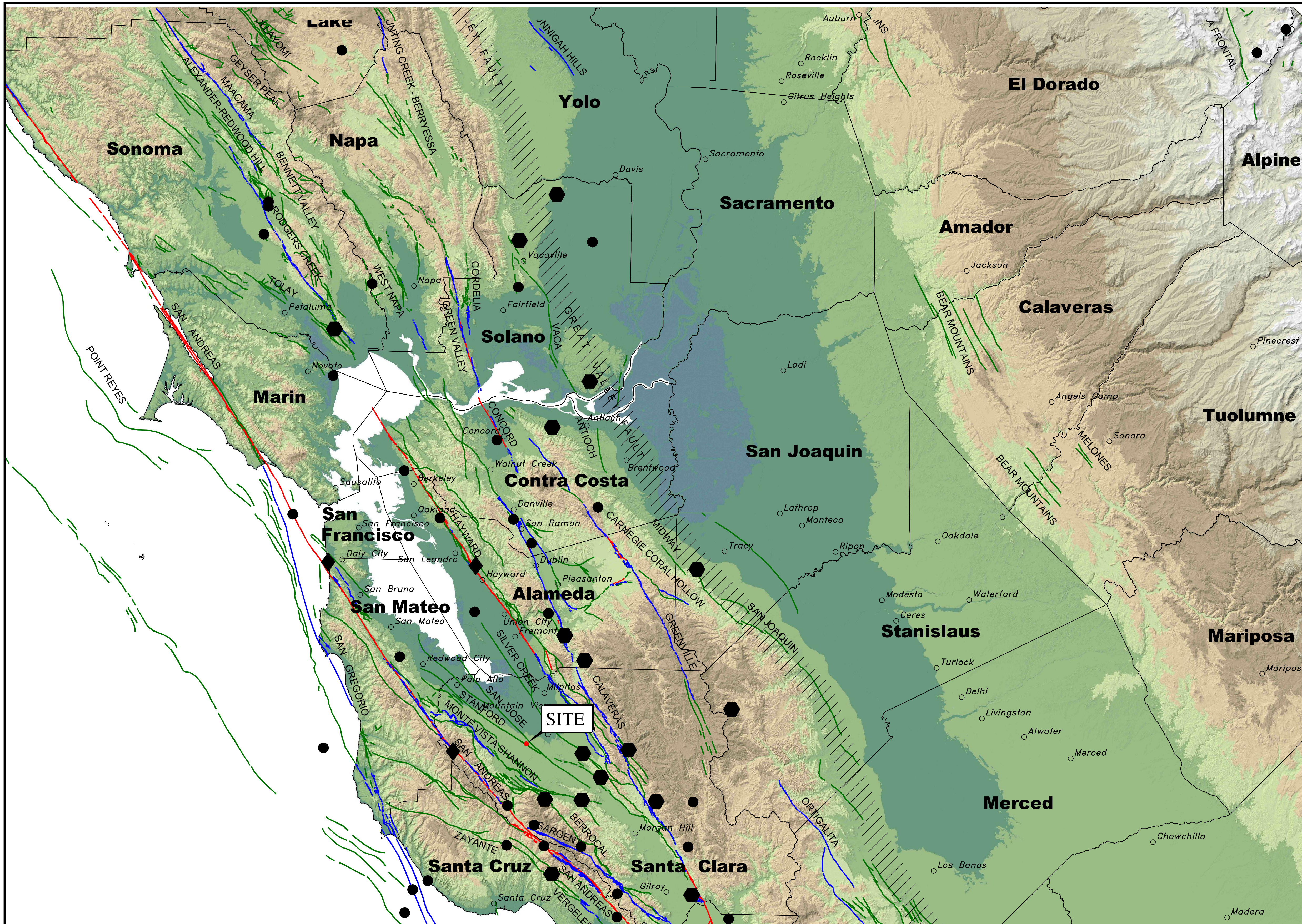
AREAS WHERE HISTORIC OCCURRENCE OF LIQUEFACTION, OR LOCAL GEOLOGICAL, GEOTECHNICAL AND GROUNDWATER CONDITIONS INDICATE A POTENTIAL FOR PERMANENT GROUND DISPLACEMENTS SUCH THAT MITIGATION AS DEFINED IN PUBLIC RESOURCES CODE SECTION 2693(c) WOULD BE REQUIRED

BASE MAP SOURCE: CALIFORNIA DEPARTMENT OF CONSERVATION, CALIFORNIA GEOLOGICAL SURVEY, 2006

ENGEO Expect Excellence	SEISMIC HAZARD ZONE MAP 555 SOUTH WINCHESTER BOULEVARD SAN JOSE, CALIFORNIA	PROJECT NO.: 10439.000.000 SCALE: AS SHOWN DRAWN BY: PC CHECKED BY: PCG	FIGURE NO. 4

G:\Drafting\DRAFTING2_Dwg_10000 to 12999\10439\000\GEX\10439000000-GEX-4-SeismicHazZone-0813.dwg Plot Date: 8-13-13 pcrockett

ORIGINAL FIGURE PRINTED IN COLOR



N

0 MILES 15
0 KILOMETERS 30

EXPLANATION

- MAGNITUDE 7+
- MAGNITUDE 6-7
- MAGNITUDE 5-6
- HISTORIC FAULT
- HOLOCENE FAULT
- QUATERNARY FAULT
- HISTORIC BLIND THRUST FAULT ZONE

BASE MAP SOURCE:
COLOR HILLSHADE IMAGE BASED ON THE NATIONAL ELEVATION DATASET (NED) AT 30 METER RESOLUTION
U.S.G.S. QUATERNARY FAULT DATABASE, NOVEMBER, 2010
U.S.G.S. HISTORIC EARTHQUAKE DATABASE (1800–2000)

ENGEO
Expect Excellence

REGIONAL FAULTING AND SEISMICITY 555 SOUTH WINCHESTER BOULEVARD SAN JOSE, CALIFORNIA	PROJECT NO.: 10439.000.000		FIGURE NO 5
	SCALE: AS SHOWN		
	DRAWN BY: PC	CHECKED BY: PCG	

G:\Drafting\DRAFTING2_Dwg_10000 to 12999\10439\000\GEX\10439000000-GEX-5-10439000000-GEX-5-RegFSMap-0813.dwg Plot Date:8-13-13 pcrockett

ORIGINAL FIGURE PRINTED IN COLOR

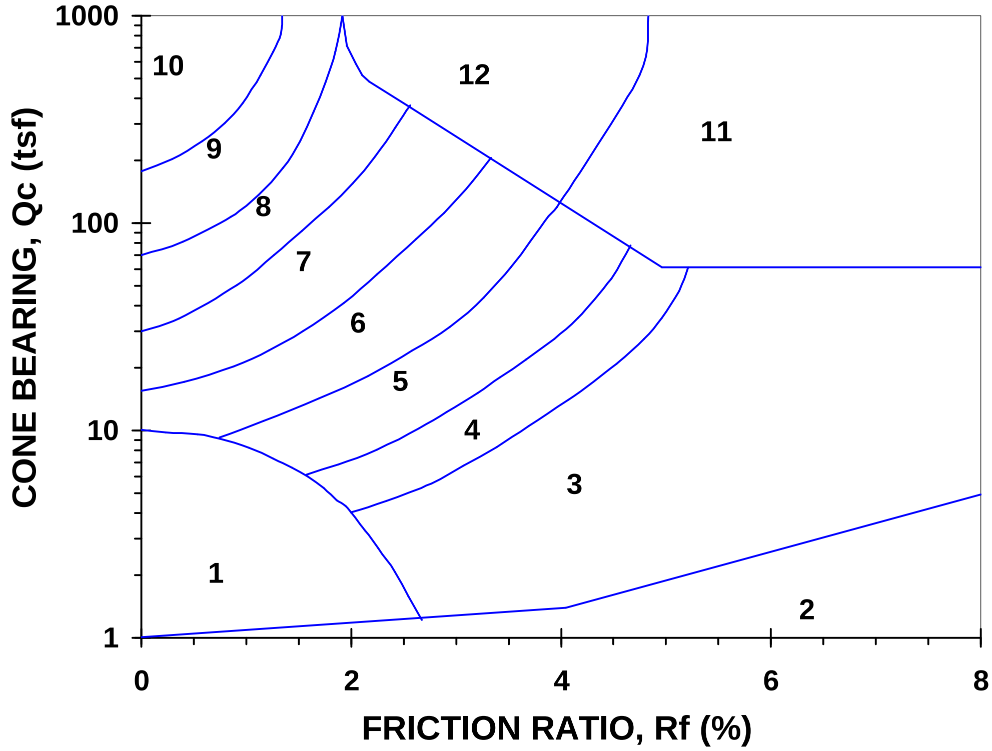
APPENDIX A

JOHN SARMIENTO & ASSOCIATES

Cone Penetration Test (CPT) Logs

A P P E N D I X A

SIMPLIFIED SOIL BEHAVIOR TYPE CLASSIFICATION FOR STANDARD ELECTRONIC CONE PENETROMETER



ZONE	Qc/N[1]	Su Factor (Nk)[2]	SOIL BEHAVIOR TYPE[1]
1	2		Sensitive Fine Grained
2	1	for Zones 1 to 6	Organic Material
3	1	10 for Qc <= 9 tsf	CLAY
4	1.5	12 for Qc = 9 to 12 tsf	Silty CLAY to CLAY
5	2	15 for Qc > 12 tsf	Clayey SILT to Silty CLAY
6	2.5		Sandy SILT to Clayey SILT
7	3	---	Silty SAND to Sandy SILT
8	4	---	SAND to Silty SAND
9	5	---	SAND
10	6	---	Gravelly SAND to SAND
11	1	15	Very Stiff Fine Grained (*)
12	2	---	SAND to Clayey SAND (*)

(*) Overconsolidated or Cemented

Qc = Tip Bearing
Fs = Sleeve Friction
Rf = Fs/Qc*100 = Friction Ratio

References: [1]Robertson, 1986, Olsen, 1988
[2]Bonaparte & Mitchell, 1979 (young bay mud Qc <= 9)
[2]Estimated from local experience (fine grained soils Qc > 9)

Note: Testing performed in accordance with ASTM D3441

John Sarmiento & Associates

Cone Penetrometer Testing Services

PROJECT: 555 SOUTH WINCHESTER BLVD. SITE
LOCATION: San Jose CA
PROJ. NO.: 10439.000.000(EGO-227)
Terminated at 50.0 feet

CPT NO.: 1-CPT1
DATE: 08-05-2013
TIME: 12:18:00
Groundwater not encountered

ENGEO, INC.
cpts by John Sarmiento & Associates

DEPTH (feet)	Qc (tsf)	Qc' (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT' (N')	EffVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
0.52	1.7	2.72	1.00	20.0	2	3	0.06	----	0.33	Organic Material	100-110
1.04	96.3	154.08	1.80	1.9	32	51	0.13	40	----	Silty SAND to Sandy SILT	130-140
1.58	21.9	35.04	1.18	5.4	22	35	0.20	----	2.91	CLAY	"
2.05	15.5	24.80	0.96	6.2	16	25	0.26	----	2.05	"	120-130
2.53	13.5	21.60	0.93	6.9	14	22	0.32	----	1.78	"	"
3.05	10.0	16.00	0.74	7.4	10	16	0.39	----	1.63	"	"
3.53	7.1	11.36	0.46	6.5	7	11	0.44	----	1.38	"	110-120
4.02	7.8	12.48	0.50	6.4	8	13	0.50	----	1.51	"	"
4.55	7.4	11.84	0.55	7.4	7	12	0.56	----	1.42	"	"
5.07	15.3	24.48	1.10	7.2	15	25	0.63	----	2.00	"	130-140
5.51	16.2	25.92	1.01	6.2	16	26	0.69	----	2.11	"	"
6.08	16.8	26.88	0.86	5.1	17	27	0.76	----	2.19	"	120-130
6.53	19.4	30.64	0.95	4.9	20	31	0.82	----	2.53	"	130-140
7.01	21.3	32.27	1.15	5.4	21	32	0.89	----	2.78	"	"
7.56	18.2	26.22	1.05	5.8	18	26	0.96	----	2.36	"	"
8.07	16.4	22.72	1.08	6.6	17	23	1.03	----	2.12	"	"
8.50	14.8	20.09	0.91	6.1	15	20	1.08	----	1.90	"	120-130
9.07	13.2	17.42	0.81	6.1	13	17	1.15	----	1.68	"	"
9.50	14.8	19.13	0.80	5.4	15	19	1.21	----	1.89	"	"
10.03	14.7	18.51	0.91	6.2	15	19	1.27	----	1.88	"	"
10.50	13.3	16.37	0.79	5.9	13	16	1.33	----	1.68	"	"
11.06	10.1	12.09	0.58	5.7	10	12	1.40	----	1.57	"	"
11.50	11.6	13.58	0.83	7.2	12	14	1.46	----	1.81	"	"
12.05	17.9	20.39	0.96	5.4	18	21	1.53	----	2.28	"	130-140
12.56	17.1	19.08	0.83	4.9	17	19	1.60	----	2.17	"	120-130
13.01	14.2	15.56	0.77	5.4	14	16	1.65	----	1.78	"	"
13.57	16.7	17.87	0.88	5.3	17	18	1.72	----	2.11	"	"
14.02	18.6	19.57	1.24	6.7	19	20	1.78	----	2.36	"	130-140
14.55	17.0	17.60	0.99	5.8	17	18	1.85	----	2.14	"	"
15.02	19.1	19.48	0.93	4.9	19	20	1.92	----	2.42	"	"
15.59	20.5	20.53	1.26	6.1	21	21	1.99	----	2.60	"	"
16.03	19.6	19.58	1.22	6.2	20	20	2.05	----	2.48	"	"
16.58	16.4	16.36	1.03	6.3	17	16	2.13	----	2.04	"	"
17.03	20.2	20.12	1.12	5.5	20	20	2.19	----	2.55	"	"
17.51	19.3	19.20	1.01	5.2	19	19	2.25	----	2.42	"	"
18.05	23.9	23.74	1.31	5.5	24	24	2.33	----	3.03	"	"
18.56	24.0	23.81	1.37	5.7	24	24	2.39	----	3.04	"	"
19.07	18.7	18.53	1.13	6.0	19	19	2.46	----	2.33	"	"
19.54	15.8	15.52	0.91	5.8	16	16	2.52	----	1.94	"	120-130
20.02	15.5	14.92	0.85	5.5	16	15	2.58	----	1.89	"	"
20.57	17.6	16.52	0.98	5.6	18	17	2.66	----	2.17	"	130-140
21.02	15.2	13.98	0.75	4.9	15	14	2.71	----	1.85	"	120-130
21.57	17.8	15.96	0.86	4.8	18	16	2.78	----	2.19	"	"
22.01	17.5	15.36	0.96	5.5	18	15	2.84	----	2.14	"	130-140
22.56	13.5	11.54	0.63	4.7	14	12	2.91	----	1.61	"	120-130
23.03	21.6	18.01	1.09	5.0	22	18	2.97	----	2.68	"	130-140
23.54	139.2	114.24	1.48	1.1	28	23	3.04	39	----	SAND	120-130
24.02	180.3	146.73	1.65	0.9	36	29	3.10	40	----	"	"
24.54	170.9	137.81	1.61	0.9	34	28	3.16	40	----	"	"
25.08	105.9	84.51	1.55	1.5	26	21	3.23	37	----	SAND to Silty SAND	130-140
25.54	59.2	46.82	1.42	2.4	24	19	3.30	----	7.67	Sandy SILT to Clayey SILT	"
26.06	116.5	91.26	1.39	1.2	29	23	3.36	37	----	SAND to Silty SAND	120-130
26.50	115.7	89.84	1.88	1.6	29	22	3.42	37	----	"	130-140
27.03	233.0	179.02	3.30	1.4	47	36	3.49	41	----	SAND	"

PROJECT: 555 SOUTH WINCHESTER BLVD. SITE
LOCATION: San Jose CA
PROJ. NO.: 10439.000.000(EGO-227)
Terminated at 50.0 feet

CPT NO.: 1-CPT1
DATE: 08-05-2013
TIME: 12:18:00
Groundwater not encountered

ENGEO, INC.
cpts by John Sarmiento & Associates

DEPTH (feet)	Qc (tsf)	Qc' (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT' (N')	EffVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
27.53	268.7	204.36	3.22	1.2	54	41	3.56	42	----	SAND	130-140
28.02	290.5	218.89	3.23	1.1	58	44	3.62	43	----	"	120-130
28.51	277.9	207.26	3.61	1.3	56	41	3.69	42	----	"	130-140
29.02	237.2	175.04	2.88	1.2	47	35	3.76	41	----	"	"
29.57	231.2	168.80	2.60	1.1	46	34	3.83	41	----	"	120-130
30.06	199.9	144.43	4.26	2.1	67	48	3.89	40	----	Silty SAND to Sandy SILT	130-140
30.53	229.5	164.13	3.95	1.7	46	33	3.95	41	----	SAND	"
31.07	33.1	23.42	1.33	4.0	22	16	4.03	----	4.14	Silty CLAY to CLAY	"
31.54	111.8	78.51	2.21	2.0	37	26	4.09	37	----	Silty SAND to Sandy SILT	"
32.06	84.9	59.11	2.66	3.1	34	24	4.16	----	11.04	Sandy SILT to Clayey SILT	"
32.58	134.2	92.63	1.94	1.4	34	23	4.23	38	----	SAND to Silty SAND	"
33.02	73.7	50.50	1.93	2.6	29	20	4.29	----	9.54	Sandy SILT to Clayey SILT	"
33.55	17.5	11.89	0.53	3.0	9	6	4.36	----	2.04	Clayey SILT to Silty CLAY	120-130
34.07	17.8	12.00	0.54	3.0	9	6	4.42	----	2.08	"	"
34.53	16.0	10.71	0.56	3.5	11	7	4.48	----	1.83	Silty CLAY to CLAY	"
35.05	19.5	12.94	0.67	3.4	10	6	4.55	----	2.30	Clayey SILT to Silty CLAY	"
35.52	28.5	18.76	0.91	3.2	14	9	4.61	----	3.49	"	130-140
36.07	51.4	33.51	2.28	4.4	34	22	4.68	----	6.54	Silty CLAY to CLAY	"
36.52	43.7	28.27	2.25	5.1	44	28	4.74	----	5.51	CLAY	"
37.04	30.5	19.54	1.50	4.9	31	20	4.81	----	3.75	"	"
37.51	21.0	13.35	0.74	3.5	14	9	4.87	----	2.48	Silty CLAY to CLAY	120-130
38.07	19.3	12.16	0.83	4.3	19	12	4.94	----	2.24	CLAY	"
38.51	21.5	13.43	0.86	4.0	14	9	5.00	----	2.53	Silty CLAY to CLAY	130-140
39.06	21.2	13.14	0.88	4.2	14	9	5.08	----	2.49	"	"
39.52	25.5	15.71	1.14	4.5	17	10	5.14	----	3.06	"	"
40.05	37.3	22.80	1.59	4.3	25	15	5.21	----	4.63	"	"
40.52	66.4	40.32	2.69	4.1	33	20	5.27	----	8.50	Clayey SILT to Silty CLAY	"
41.07	137.3	82.72	2.33	1.7	34	21	5.35	37	----	SAND to Silty SAND	"
41.57	131.9	78.88	2.97	2.3	44	26	5.41	37	----	Silty SAND to Sandy SILT	"
42.01	211.7	125.79	2.92	1.4	42	25	5.47	39	----	SAND	"
42.53	444.1	261.82	7.87	1.8	89	52	5.55	44	----	"	"
43.02	490.5	287.10	11.15	2.3	245	144	5.61	44	----	SAND to Clayey SAND *	"
43.52	371.8	216.11	2.99	0.8	62	36	5.67	42	----	Gravelly SAND to SAND	120-130
44.06	255.7	147.42	4.68	1.8	51	29	5.75	40	----	SAND	130-140
44.54	385.7	220.73	5.74	1.5	77	44	5.81	43	----	"	"
45.02	316.2	179.72	3.49	1.1	63	36	5.87	41	----	"	120-130
45.51	367.8	207.60	3.23	0.9	74	42	5.93	42	----	"	"
46.02	262.4	146.92	3.74	1.4	52	29	6.00	40	----	"	130-140
46.54	284.0	158.03	4.25	1.5	57	32	6.07	41	----	"	"
47.06	20.6	11.39	1.28	6.2	21	11	6.14	----	2.34	CLAY	"
47.57	56.0	30.77	1.35	2.4	22	12	6.21	----	7.05	Sandy SILT to Clayey SILT	"
48.07	18.4	10.05	0.63	3.4	12	7	6.27	----	2.04	Silty CLAY to CLAY	120-130
48.56	12.8	6.96	0.29	2.3	6	3	6.33	----	1.28	Clayey SILT to Silty CLAY	110-120
49.00	27.8	15.03	1.03	3.7	14	8	6.39	----	3.28	"	130-140
49.51	115.9	62.25	3.94	3.4	46	25	6.46	----	15.02	Sandy SILT to Clayey SILT	"
50.04	19.4	10.36	0.41	2.1	10	5	6.52	----	2.15	Clayey SILT to Silty CLAY	120-130

DEPTH = Sampling interval (~0.1 feet)
Qc = Tip bearing uncorrected   Qt = Tip bearing corrected   Fs = Sleeve friction resistance   Rf = Qt / Fs
SPT = Equivalent Standard Penetration Test   Qt' and SPT' = Qt and SPT corrected for overburden
EffVtStr = Effective Vertical Stress using est. density**   Phi = Soil friction angle*
Su = Undrained Soil Strength* (see classification chart)
References: * Robertson and Campanella, 1988   **Olsen, 1989   *** Durgunoglu & Mitchell, 1975

PROJECT: 555 SOUTH WINCHESTER BLVD. SITE
LOCATION: San Jose CA
PROJ. NO.: 10439.000.000(EGO-227)
Terminated at 50.0 feet

CPT NO.: 1-CPT2
DATE: 08-05-2013
TIME: 10:24:00
Groundwater not encountered

ENGEO, INC.
cpts by John Sarmiento & Associates

DEPTH (feet)	Qc (tsf)	Qc' (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT' (N')	EffVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
0.54	6.0	9.60	0.58	9.7	6	10	0.06	----	1.19	Organic Material	110-120
1.04	80.6	128.96	0.37	0.5	20	32	0.11	39	----	SAND to Silty SAND	100-110
1.54	13.8	22.08	0.68	4.9	14	22	0.18	----	1.83	CLAY	120-130
2.02	9.6	15.36	0.50	5.2	10	16	0.23	----	1.58	"	110-120
2.54	7.9	12.64	0.48	6.1	8	13	0.29	----	1.55	"	"
3.02	11.4	18.24	0.63	5.5	11	18	0.35	----	1.87	"	120-130
3.50	17.8	28.48	0.81	4.6	18	28	0.41	----	2.35	"	"
4.05	15.9	25.44	0.87	5.5	16	25	0.48	----	2.09	"	"
4.53	19.1	30.56	0.99	5.2	19	31	0.55	----	2.51	"	130-140
5.06	19.7	31.52	1.09	5.5	20	32	0.62	----	2.59	"	"
5.52	19.3	30.88	1.07	5.5	19	31	0.68	----	2.53	"	"
6.03	18.3	29.28	1.02	5.6	18	29	0.75	----	2.39	"	"
6.58	13.3	21.06	0.91	6.8	13	21	0.82	----	1.72	"	120-130
7.01	12.2	18.66	0.80	6.6	12	19	0.87	----	1.57	"	"
7.57	9.5	13.87	0.81	8.5	10	14	0.94	----	1.50	"	"
8.01	9.0	12.64	0.68	7.6	9	13	1.00	----	1.42	"	"
8.53	5.4	7.40	0.48	8.9	5	7	1.06	----	0.97	Organic Material	110-120
9.04	6.3	8.45	0.48	7.6	6	8	1.11	----	1.15	CLAY	"
9.56	5.5	7.20	0.40	7.3	6	7	1.17	----	0.98	"	"
10.06	4.4	5.64	0.31	7.0	5	6	1.23	----	0.76	"	100-110
10.52	6.4	8.04	0.36	5.6	7	8	1.28	----	1.15	"	110-120
11.08	11.4	13.94	0.95	8.3	12	14	1.35	----	1.79	"	120-130
11.53	14.1	16.85	1.00	7.1	14	17	1.41	----	1.79	"	"
12.06	8.4	9.77	0.73	8.7	9	10	1.47	----	1.53	"	"
12.52	12.9	14.70	0.84	6.5	13	15	1.53	----	1.62	"	"
13.08	9.2	10.25	0.88	9.6	9	10	1.60	----	1.40	"	"
13.54	9.5	10.39	0.86	9.1	10	11	1.66	----	1.45	"	"
14.05	10.9	11.67	0.93	8.5	11	12	1.72	----	1.67	"	"
14.50	12.9	13.59	0.86	6.7	13	14	1.78	----	1.60	"	"
15.03	72.3	75.04	0.81	1.1	18	19	1.84	36	----	SAND to Silty SAND	"
15.57	69.0	70.40	1.19	1.7	23	24	1.92	36	----	Silty SAND to Sandy SILT	130-140
16.07	215.1	215.93	3.36	1.6	43	43	1.98	42	----	SAND	"
16.57	269.7	269.42	5.07	1.9	54	54	2.05	44	----	"	"
17.04	195.4	194.95	3.29	1.7	49	49	2.11	42	----	SAND to Silty SAND	"
17.52	342.6	341.37	4.89	1.4	69	68	2.18	45	----	SAND	"
18.03	289.1	287.67	4.57	1.6	58	58	2.25	44	----	"	"
18.52	222.7	221.30	3.22	1.4	45	44	2.31	43	----	"	"
19.05	177.5	176.15	2.00	1.1	36	35	2.38	41	----	"	120-130
19.55	229.7	227.64	2.79	1.2	46	46	2.45	43	----	"	130-140
20.01	193.4	190.84	3.08	1.6	39	38	2.51	42	----	"	"
20.53	218.1	210.47	2.36	1.1	44	42	2.58	42	----	"	120-130
21.03	209.4	197.38	3.15	1.5	42	39	2.64	42	----	"	130-140
21.53	137.4	126.68	1.65	1.2	34	32	2.71	39	----	SAND to Silty SAND	120-130
22.09	112.2	100.68	1.92	1.7	37	34	2.78	38	----	Silty SAND to Sandy SILT	130-140
22.53	126.7	111.55	0.85	0.7	25	22	2.83	39	----	SAND	110-120
23.08	76.0	65.06	1.55	2.0	25	22	2.91	36	----	Silty SAND to Sandy SILT	130-140
23.53	122.5	102.59	1.47	1.2	31	26	2.96	38	----	SAND to Silty SAND	120-130
24.08	69.7	57.21	1.74	2.5	28	23	3.04	----	9.09	Sandy SILT to Clayey SILT	130-140
24.54	42.1	34.28	0.73	1.7	14	11	3.09	32	----	Silty SAND to Sandy SILT	120-130
25.02	50.4	40.66	0.82	1.6	17	14	3.16	33	----	"	130-140
25.56	221.7	177.13	1.90	0.9	44	35	3.23	41	----	SAND	120-130
26.05	182.4	144.46	1.88	1.0	36	29	3.29	40	----	"	"
26.57	354.1	277.78	3.95	1.1	71	56	3.35	44	----	"	"
27.05	356.5	276.99	4.33	1.2	71	55	3.42	44	----	"	130-140

PROJECT: 555 SOUTH WINCHESTER BLVD. SITE
LOCATION: San Jose CA
PROJ. NO.: 10439.000.000(EGO-227)
Terminated at 50.0 feet

CPT NO.: 1-CPT2
DATE: 08-05-2013
TIME: 10:24:00
Groundwater not encountered

ENGEO, INC.
cpts by John Sarmiento & Associates

DEPTH (feet)	Qc (tsf)	Qc' (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT' (N')	EffVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
27.55	338.0	260.02	4.98	1.5	68	52	3.48	44	----	SAND	120-130
28.07	309.5	235.57	3.99	1.3	62	47	3.56	43	----	"	"
28.51	314.2	236.99	4.48	1.4	63	47	3.62	43	----	"	"
29.02	387.6	289.29	4.40	1.1	78	58	3.68	44	----	"	"
29.53	249.5	184.27	3.80	1.5	50	37	3.75	42	----	"	"
30.03	357.8	261.46	7.78	2.2	72	52	3.82	44	----	"	"
30.54	239.1	172.81	4.82	2.0	60	43	3.89	41	----	SAND to Silty SAND	"
31.01	235.6	168.70	2.56	1.1	47	34	3.95	41	----	SAND	120-130
31.52	300.3	212.79	5.10	1.7	60	43	4.02	42	----	"	130-140
32.04	453.8	318.86	6.09	1.3	91	64	4.09	45	----	"	"
32.53	452.9	315.70	8.36	1.8	91	63	4.15	45	----	"	"
33.02	280.9	194.20	3.90	1.4	56	39	4.22	42	----	"	"
33.55	287.9	197.31	6.01	2.1	58	39	4.29	42	----	"	"
34.01	328.7	223.54	5.60	1.7	66	45	4.35	43	----	"	"
34.09	307.0	208.48	5.24	1.7	61	42	4.36	42	----	"	"
35.07	167.5	111.87	2.61	1.6	42	28	4.50	39	----	SAND to Silty SAND	"
35.52	93.7	62.09	1.61	1.7	31	21	4.56	35	----	Silty SAND to Sandy SILT	"
36.04	225.5	148.09	3.93	1.7	45	30	4.63	40	----	SAND	"
36.53	298.2	194.15	6.59	2.2	60	39	4.69	42	----	"	"
37.02	346.1	223.39	7.93	2.3	69	45	4.76	43	----	"	"
37.53	252.9	161.75	4.32	1.7	51	32	4.83	41	----	"	"
38.06	234.9	148.83	4.46	1.9	47	30	4.90	40	----	"	"
38.50	354.0	222.49	6.15	1.7	71	45	4.96	43	----	"	"
39.04	265.7	165.53	5.16	1.9	53	33	5.03	41	----	"	"
39.52	124.0	76.72	2.83	2.3	41	26	5.10	36	----	Silty SAND to Sandy SILT	"
40.06	62.5	38.38	2.69	4.3	31	19	5.17	----	7.99	Clayey SILT to Silty CLAY	"
40.58	17.0	10.37	0.70	4.1	11	7	5.23	----	1.92	Silty CLAY to CLAY	120-130
41.04	14.9	9.03	0.41	2.8	8	5	5.29	----	1.63	Clayey SILT to Silty CLAY	"
41.57	21.5	12.94	0.74	3.4	11	6	5.36	----	2.51	"	"
42.05	19.6	11.72	0.54	2.8	10	6	5.42	----	2.25	"	"
42.53	16.6	9.86	0.54	3.3	11	7	5.48	----	1.85	Silty CLAY to CLAY	"
43.09	162.7	95.81	9.12	5.6	163	96	5.56	----	21.32	Very Stiff Fine Grained *	>140
43.54	117.2	68.55	4.81	4.1	117	69	5.62	----	15.25	"	130-140
44.01	345.0	200.38	6.54	1.9	69	40	5.68	42	----	SAND	"
44.50	511.3	294.74	7.18	1.4	102	59	5.75	44	----	"	"
45.03	375.6	214.90	2.84	0.8	63	36	5.81	42	----	Gravelly SAND to SAND	120-130
45.54	543.3	308.61	4.11	0.8	91	51	5.88	44	----	"	"
46.02	250.0	140.95	4.94	2.0	50	28	5.94	40	----	SAND	130-140
46.51	308.7	173.01	1.22	0.4	51	29	5.99	41	----	Gravelly SAND to SAND	100-110
47.00	349.5	194.68	4.53	1.3	70	39	6.06	42	----	SAND	130-140
47.53	336.2	186.08	4.63	1.4	67	37	6.13	42	----	"	"
48.06	209.4	115.15	3.40	1.6	42	23	6.20	39	----	"	"
48.52	349.0	190.83	4.92	1.4	70	38	6.26	42	----	"	"
49.03	300.2	163.11	3.76	1.3	60	33	6.33	41	----	"	"
49.53	385.2	208.10	4.26	1.1	77	42	6.40	42	----	"	120-130
50.00	253.5	136.19	2.89	1.1	51	27	6.45	40	----	"	"

DEPTH = Sampling interval (~0.1 feet)
Qc = Tip bearing uncorrected   Qt = Tip bearing corrected   Fs = Sleeve friction resistance   Rf = Qt / Fs
SPT = Equivalent Standard Penetration Test   Qt' and SPT' = Qt and SPT corrected for overburden
EffVtStr = Effective Vertical Stress using est. density**   Phi = Soil friction angle*
Su = Undrained Soil Strength* (see classification chart)
References: * Robertson and Campanella, 1988   **Olsen, 1989   *** Durgunoglu & Mitchell, 1975

PROJECT: 555 SOUTH WINCHESTER BLVD. SITE
LOCATION: San Jose CA
PROJ. NO.: 10439.000.000(EGO-227)
Terminated at 32.2 feet

CPT NO.: 1-CPT3
DATE: 08-05-2013
TIME: 11:18:00
Groundwater not encountered

ENGEO, INC.
cpts by John Sarmiento & Associates

DEPTH (feet)	Qc (tsf)	Qc' (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT' (N')	EffVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
0.51	16.4	26.24	1.23	7.5	16	26	0.06	----	2.18	CLAY	130-140
1.04	67.0	107.20	2.88	4.3	34	54	0.13	----	8.92	Clayey SILT to Silty CLAY	"
1.53	25.9	41.44	1.04	4.0	17	28	0.20	----	3.44	Silty CLAY to CLAY	"
2.06	15.9	25.44	0.56	3.5	11	17	0.26	----	2.10	"	120-130
2.57	9.3	14.88	0.34	3.7	9	15	0.32	----	1.52	CLAY	110-120
3.06	14.7	23.52	0.72	4.9	15	24	0.38	----	1.93	"	120-130
3.51	17.9	28.64	0.95	5.3	18	29	0.44	----	2.36	"	130-140
4.05	18.7	29.92	1.02	5.5	19	30	0.52	----	2.46	"	"
4.53	13.9	22.24	0.84	6.0	14	22	0.58	----	1.81	"	120-130
5.01	16.2	25.92	0.73	4.5	16	26	0.64	----	2.12	"	"
5.52	13.4	21.44	0.87	6.5	14	22	0.70	----	1.74	"	"
6.08	22.8	36.48	1.07	4.7	23	36	0.78	----	2.99	"	130-140
6.52	21.9	34.27	1.10	5.0	22	34	0.84	----	2.86	"	"
7.04	10.1	15.15	0.86	8.5	10	15	0.90	----	1.61	"	120-130
7.55	14.2	20.39	0.74	5.2	14	21	0.96	----	1.83	"	"
8.00	15.3	21.26	1.01	6.6	15	21	1.02	----	1.97	"	"
8.56	13.4	18.13	1.04	7.8	14	18	1.09	----	1.71	"	"
9.00	13.0	17.22	0.89	6.8	13	17	1.15	----	1.66	"	"
9.54	14.2	18.31	0.95	6.7	14	18	1.21	----	1.81	"	"
10.07	11.2	14.07	0.79	7.1	11	14	1.28	----	1.76	"	"
10.58	11.4	13.97	0.79	6.9	12	14	1.34	----	1.79	"	"
11.02	10.2	12.23	0.61	6.0	10	12	1.40	----	1.58	"	"
11.52	7.6	8.90	0.46	6.1	8	9	1.46	----	1.37	"	110-120
12.01	9.1	10.43	0.48	5.3	9	11	1.51	----	1.39	"	"
12.53	6.8	7.65	0.40	5.9	7	8	1.57	----	1.20	"	"
13.06	14.5	15.96	0.79	5.4	15	16	1.64	----	1.82	"	120-130
13.57	20.3	21.83	1.11	5.5	20	22	1.71	----	2.59	"	130-140
14.01	22.0	23.23	1.25	5.7	22	23	1.77	----	2.82	"	"
14.53	22.3	23.18	1.37	6.1	22	23	1.84	----	2.85	"	"
15.02	18.0	18.42	1.38	7.7	18	19	1.90	----	2.27	"	"
15.53	13.9	14.01	1.12	8.1	14	14	1.97	----	1.72	"	120-130
16.04	13.9	13.89	0.75	5.4	14	14	2.03	----	1.72	"	"
16.56	14.2	14.17	0.86	6.1	14	14	2.09	----	1.75	"	"
17.08	16.8	16.74	1.06	6.3	17	17	2.16	----	2.10	"	130-140
17.50	20.9	20.81	1.19	5.7	21	21	2.22	----	2.64	"	"
18.02	24.6	24.46	1.28	5.2	25	25	2.29	----	3.13	"	"
18.54	27.6	27.40	1.11	4.0	18	18	2.36	----	3.52	Silty CLAY to CLAY	"
19.01	31.9	31.63	1.53	4.8	32	32	2.42	----	4.09	CLAY	"
19.56	26.6	26.33	1.56	5.9	27	26	2.50	----	3.38	"	"
20.02	33.1	32.10	1.64	5.0	33	32	2.56	----	4.24	"	"
20.52	30.6	28.99	1.47	4.8	31	29	2.63	----	3.90	"	"
21.03	30.8	28.47	1.52	4.9	31	28	2.70	----	3.93	"	"
21.51	18.8	16.98	0.93	4.9	19	17	2.76	----	2.32	"	"
22.03	18.4	16.23	0.82	4.5	18	16	2.83	----	2.26	"	120-130
22.58	19.9	17.06	0.91	4.6	20	17	2.90	----	2.46	"	130-140
23.04	19.0	15.90	1.02	5.4	19	16	2.96	----	2.34	"	"
23.51	19.3	15.86	0.99	5.1	19	16	3.03	----	2.37	"	"
24.02	26.9	21.89	1.17	4.3	18	15	3.10	----	3.38	Silty CLAY to CLAY	"
24.53	35.7	28.77	1.57	4.4	24	19	3.17	----	4.55	"	"
25.02	17.9	14.29	0.95	5.3	18	14	3.23	----	2.17	CLAY	"
25.54	29.0	22.92	1.62	5.6	29	23	3.30	----	3.65	"	"
26.03	44.8	35.06	2.03	4.5	30	23	3.37	----	5.75	Silty CLAY to CLAY	"
26.53	23.5	18.21	1.58	6.7	24	18	3.43	----	2.90	CLAY	"
27.08	40.3	30.88	1.80	4.5	27	21	3.51	----	5.14	Silty CLAY to CLAY	"

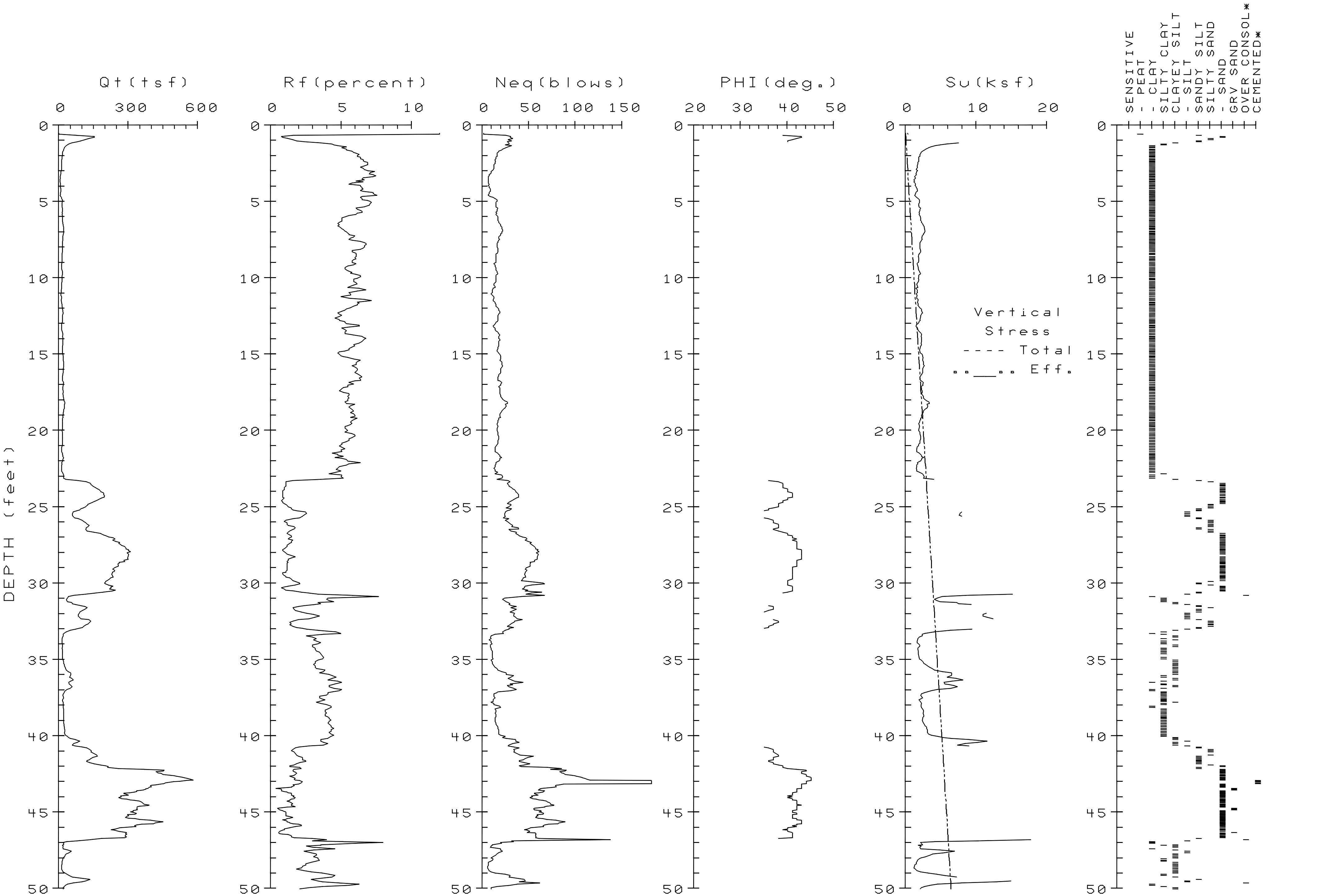
PROJECT: 555 SOUTH WINCHESTER BLVD. SITE
LOCATION: San Jose CA
PROJ. NO.: 10439.000.000(EGO-227)
Terminated at 32.2 feet

CPT NO.: 1-CPT3
DATE: 08-05-2013
TIME: 11:18:00
Groundwater not encountered

ENGEO, INC.
cpts by John Sarmiento & Associates

DEPTH (feet)	Qc (tsf)	Qc' (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT' (N')	EffVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
27.52	77.7	59.02	1.99	2.6	31	24	3.57	----	10.12	Sandy SILT to Clayey SILT	130-140
28.06	295.1	221.68	6.32	2.1	59	44	3.64	43	----	SAND	"
28.50	462.3	344.11	10.76	2.3	231	172	3.70	45	----	SAND to Clayey SAND *	"
29.01	562.5	414.24	10.85	1.9	113	83	3.77	46	----	SAND	"
29.53	491.9	358.26	11.58	2.4	246	179	3.84	45	----	SAND to Clayey SAND *	"
30.01	421.0	303.71	3.51	0.8	70	51	3.90	44	----	Gravelly SAND to SAND	120-130
30.54	617.5	440.51	10.83	1.8	124	88	3.97	47	----	SAND	130-140
31.03	505.5	357.51	4.47	0.9	84	60	4.03	45	----	Gravelly SAND to SAND	120-130
31.51	629.8	442.22	5.32	0.8	105	74	4.09	47	----	"	"
32.00	541.9	377.68	0.00	0.0	90	63	4.15	46	----	"	"
32.21	766.3	435.01	0.00	0.0	104	73	4.16	46	----	"	"

DEPTH = Sampling interval (~0.1 feet)
Qc = Tip bearing uncorrected   Qt = Tip bearing corrected   Fs = Sleeve friction resistance   Rf = Qt / Fs
SPT = Equivalent Standard Penetration Test   Qt' and SPT' = Qt and SPT corrected for overburden
EffVtStr = Effective Vertical Stress using est. density**   Phi = Soil friction angle*
Su = Undrained Soil Strength* (see classification chart)
References: * Robertson and Campanella, 1988   **Olsen, 1989   *** Durgunoglu & Mitchell, 1975



Terminated at 50.0 feet

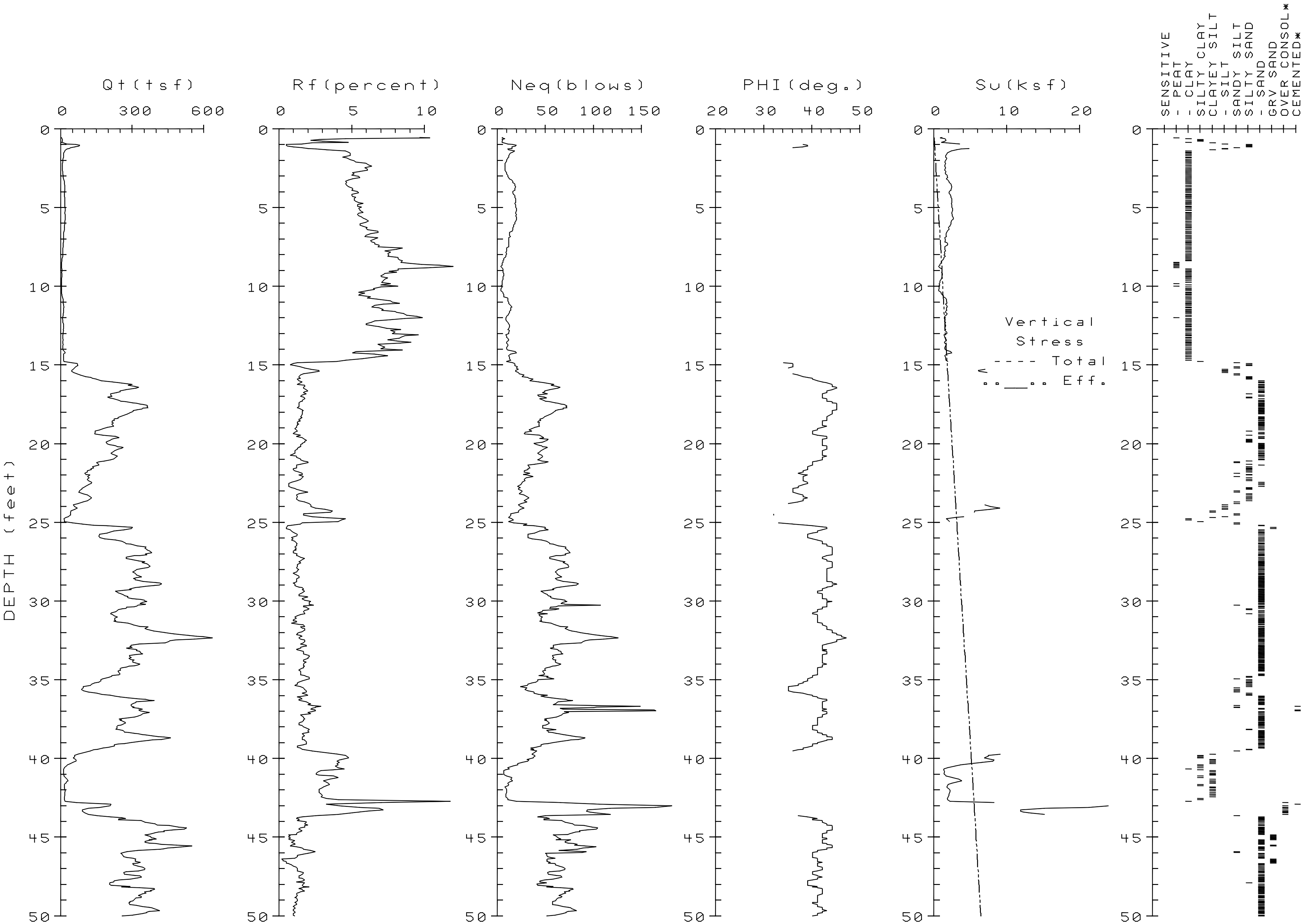
Groundwater not encountered

PROJECT: 555 SOUTH WINCHESTER BLVD. SITE
LOCATION: San Jose CA
PROJ. NO.: 10439.000.000(EGO-227)

CPT NO.: 1-CPT-1
DATE : 08-05-2013

ENGEO, INC.

cpts by John Sarmiento & Associates



Terminated at 50.0 feet

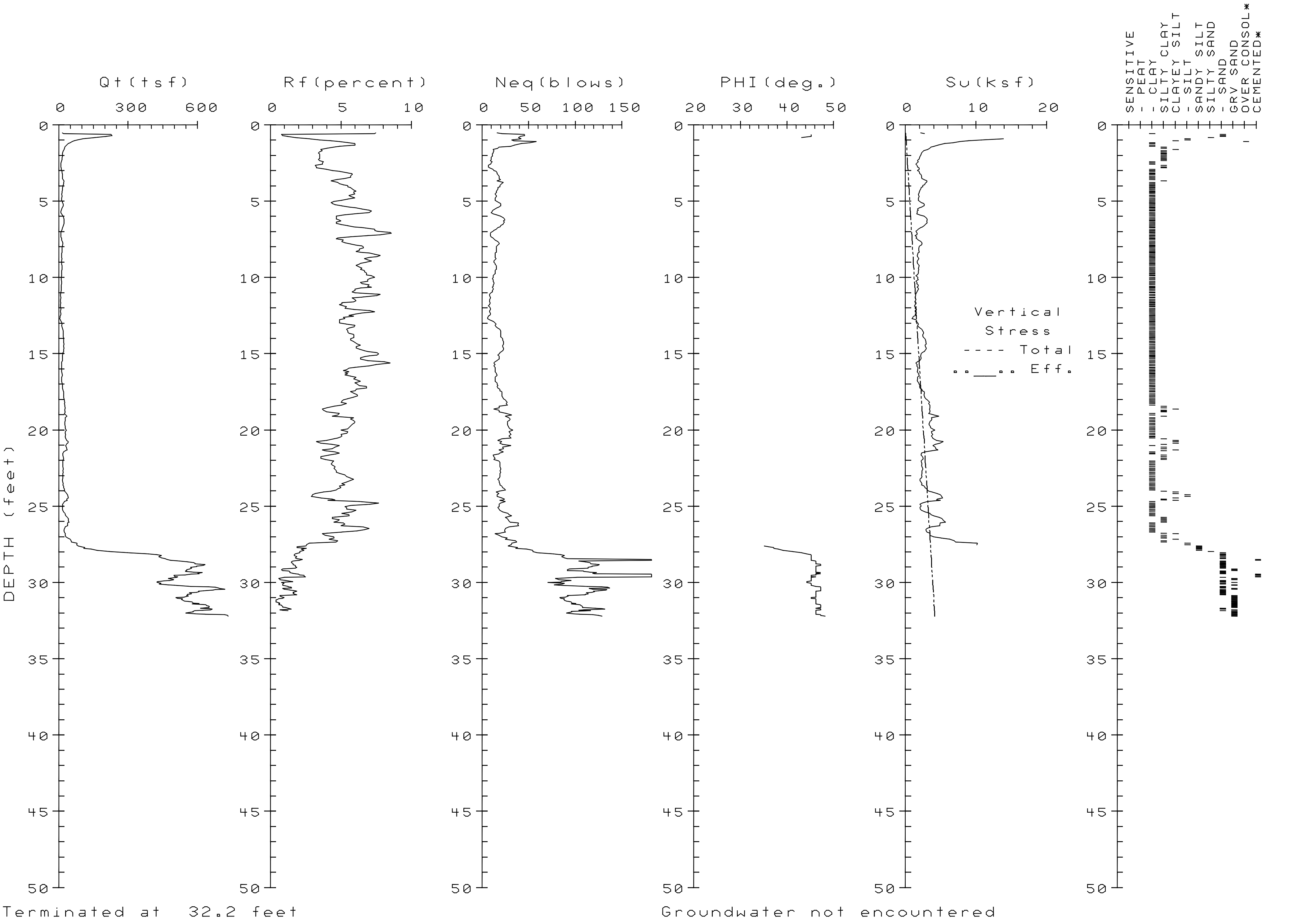
Groundwater not encountered

PROJECT: 555 SOUTH WINCHESTER BLVD. SITE
LOCATION: San Jose CA
PROJ. NO.: 10439.000.000(EGO-227)

CPT NO.: 1-CPT-2
DATE : 08-05-2013

ENGEO, INC.

cpts by John Sarmiento & Associates

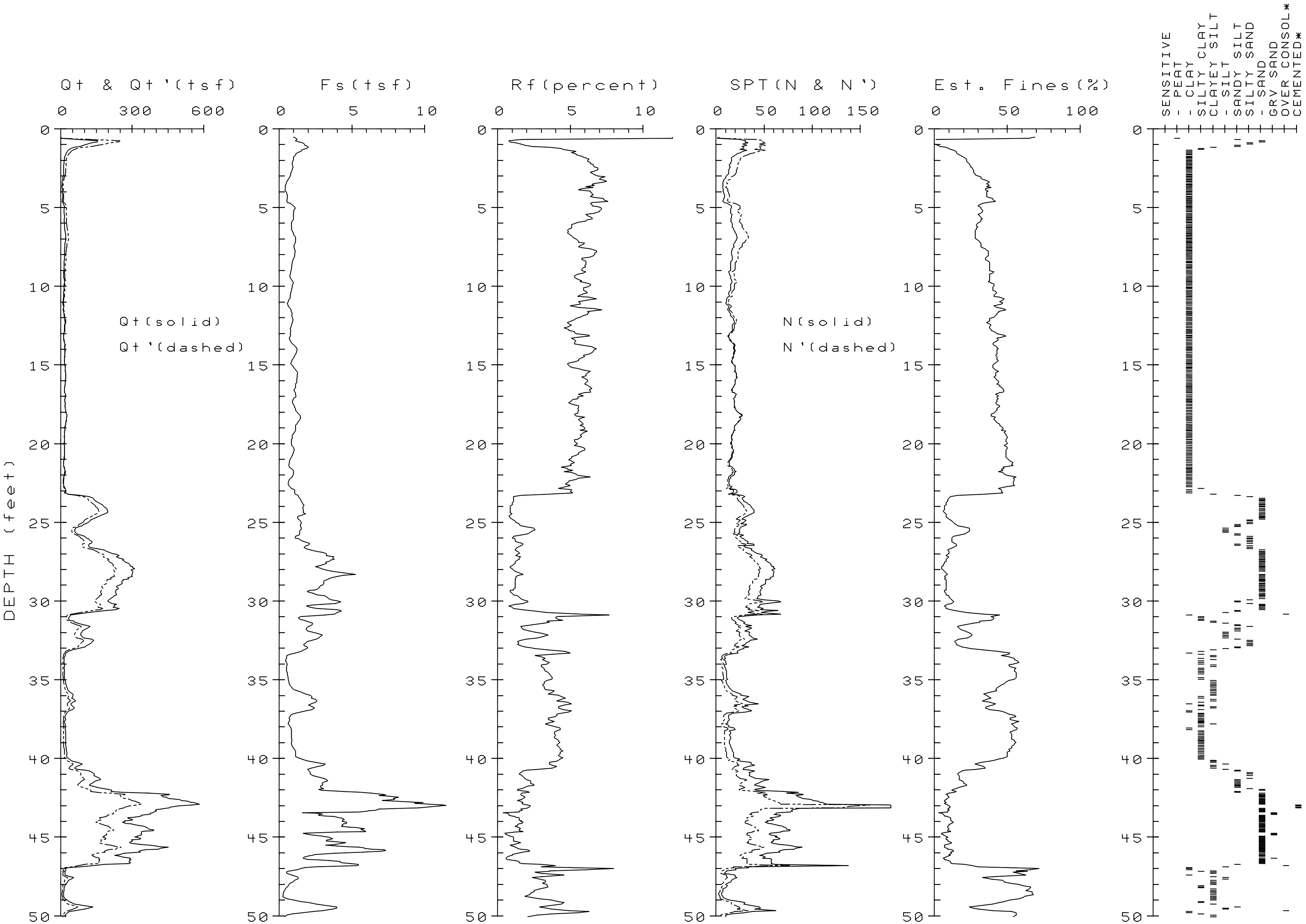


PROJECT: 555 SOUTH WINCHESTER BLVD. SITE
LOCATION: San Jose CA
PROJ. NO.: 10439.000.000(EGO-227)

CPT NO.: 1-CPT-3
DATE : 08-05-2013

ENGEO, INC.

cpts by John Sarmiento & Associates



Terminated at 50.0 feet

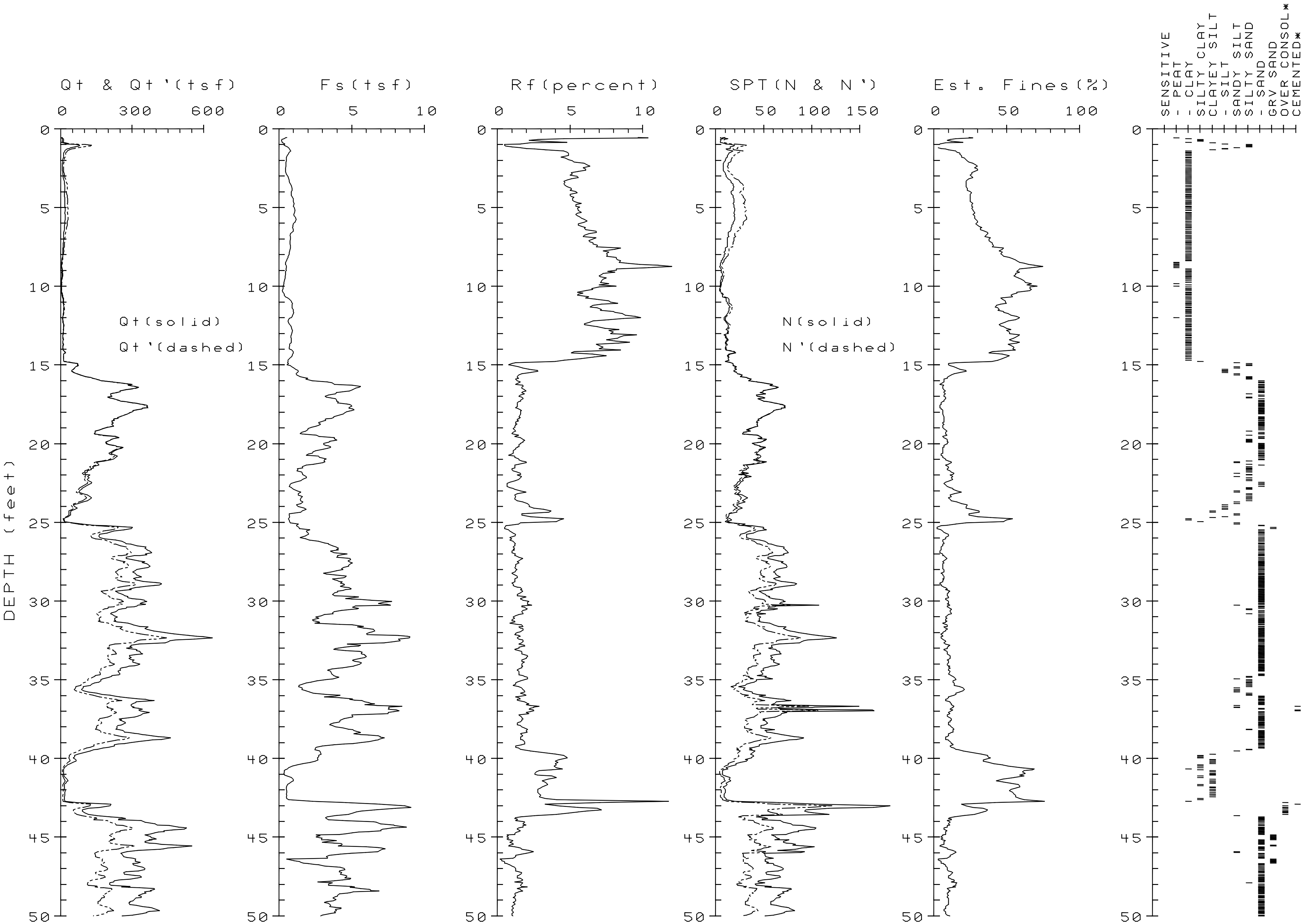
Groundwater not encountered

PROJECT: 555 SOUTH WINCHESTER BLVD. SITE
LOCATION: San Jose CA
PROJ. NO.: 10439.000.000(EGO-227)

CPT NO.: 1-CPT-1
DATE : 08-05-2013

ENGEO, INC.

cpts by John Sarmiento & Associates



Terminated at 50.0 feet

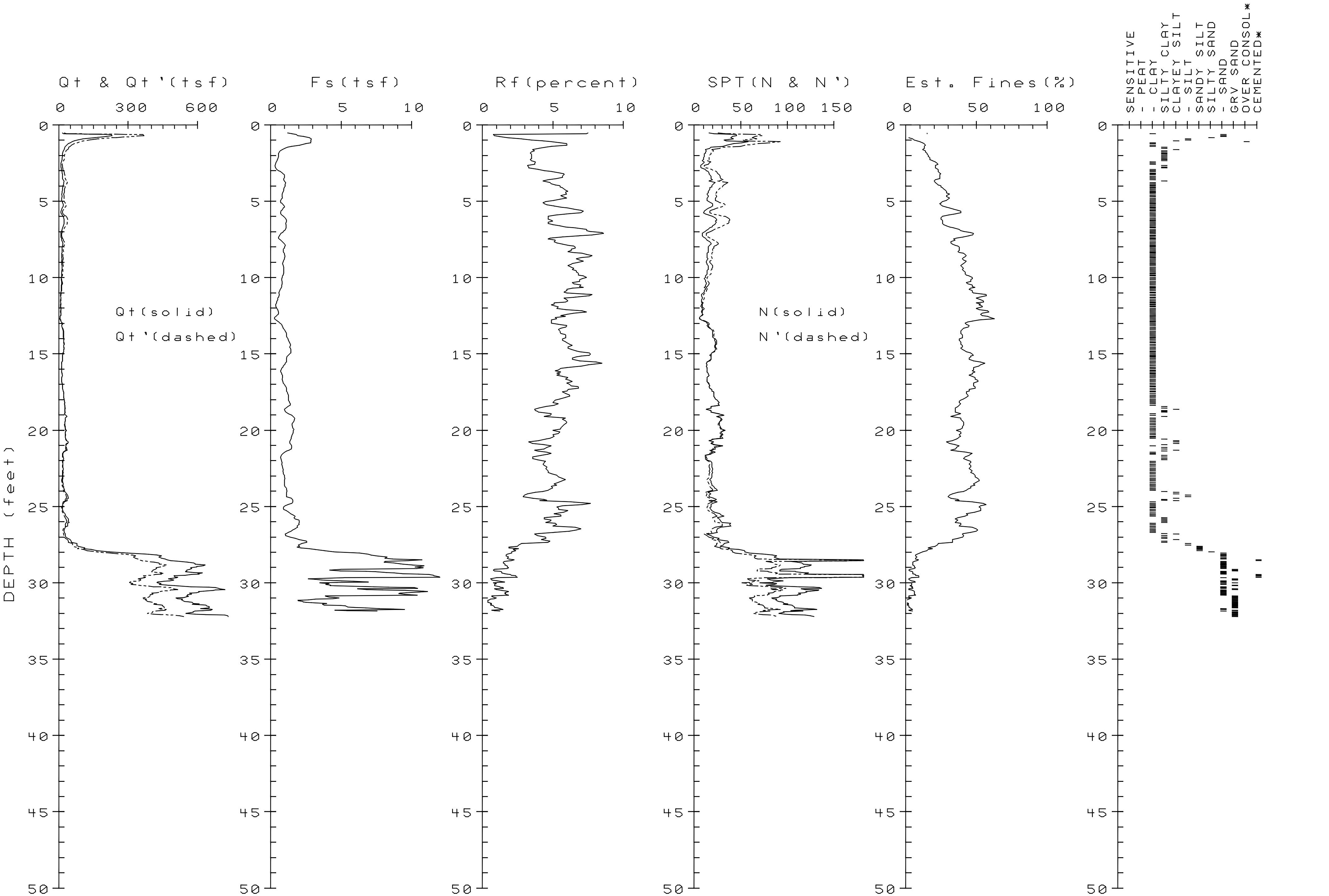
Groundwater not encountered

PROJECT: 555 SOUTH WINCHESTER BLVD. SITE
LOCATION: San Jose CA
PROJ. NO.: 10439.000.000(EGO-227)

CPT NO.: 1-CPT-2
DATE : 08-05-2013

ENGEO, INC.

cpts by John Sarmiento & Associates



Terminated at 32.2 feet

Groundwater not encountered

PROJECT: 555 SOUTH WINCHESTER BLVD. SITE
LOCATION: San Jose CA
PROJ. NO.: 10439.000.000(EGO-227)

CPT NO.: 1-CPT-3
DATE : 08-05-2013

ENGEO, INC.

cpts by John Sarmiento & Associates

SOILS OPINION LETTER

RE: 555 South Winchester Boulevard, San Jose

Dear Sirs:

I understand that PulteGroup is considering the purchase of the land identified in the attached legal description and commonly known as 555 South Winchester Boulevard and that, in order to assist in its decision whether to purchase the land, Pulte has requested our professional assistance with respect to the feasibility of using the land for a residential development (single-family, townhouse, etc.)

We acknowledge that:

1. We are professional geotechnical engineers licensed by the State of California.
2. We have professional errors and omissions insurance coverage with limits of one million dollars as evidenced by the attached certificate of insurance.
3. We have reviewed Pulte's Soils Investigation Policy, dated January, 2013 – (the "Policy"). We understand that this letter is being furnished to assist Pulte in complying with it.
4. We have performed a preliminary feasibility-level assessment of the land described above which Pulte purposes to purchase, and we have conducted and/or reviewed such tests as we deem appropriate to form a professional opinion that the land can be developed and used for the intended purpose.

Based on our investigation, review and/or tests it is our professional opinion that there are soil conditions at the subject site which will materially increase the cost of developing the property for the proposed use or will require special design of one or more of the following: foundation footings, cut and fill procedures, dewatering, soil removal and disposal, or any other development or construction activity.

These soil conditions are:

- expansive soils,
- potential existing fill related to existing improvements

The special design requirements are:

- pad treatment and fill placement specifications
- foundation design
- undocumented fill reworking
- differential fill thickness subexcavations

More details regarding these conditions and potential mitigation measures can be found in our Geotechnical/Geologic Feasibility Assessment dated August 16, 2013.

Julia A. Moriarty, GE (ENGEO)
Engineer

February 14, 2014
Date

(ENGEO Project No. 10439.000.000)

SOIL BORING EVALUATION FORM

Parcel ____555 South Winchester Boulevard _______

County____Santa Clara County________________________

In performing the requested work, the driller should also look for and record the following condition if they occur on the parcel:

ITEMS CHECK IF LOCATION OR	Check if Found	LOCATION OR BORING #
1. Unusual Soil Coloration or Streaking (Surface or Subsurface)	________	_________
2. Disturbed Soil (Surface or Subsurface)	________	_________
3. Fill Materials		
a. Soil not Native to Site	________	_________
b. Debris Fill (metal, glass, concrete, garbage, etc.) garbage, etc.)	________	_________
4. Areas of Sparse, Sick or Dead Vegetation	________	_________
5. Drums, Storage Tanks or Other Containers	________	_________
6. Discolored/Polluted Water (ground or surface)	________	__________
7. Unusual Odors:		
a. Chemical/Solvent	________	__________
b. Gasoline	________	__________
c. Rotten Egg/Sewage	_________	__________
d. Oil or Fuel Oil	_________	__________

COMMENTS AND SUMMARY As part of the due diligence geotechnical assessment report dated August 16, 2013, ENGEO performed Cone Penetration Test Probes (CPTs) that collected empirical data (not actual soil samples) and presented in the geotechnical feasibility study.

As part of the environmental due diligence efforts, ENGEO collected near-surface samples for agrichemical impact purposes and observed remnant Winchester Estate items such as an incinerator. In addition, Winchester septic tanks are allegedly underneath the clubhouse/pool area. Further, an underground storage tank was filled in-place near the southwest corner as documented in the August 16, 2013 Modified ESA prepared for the project.

Signed ______________________________

Date February 14, 2014

Company ENGEO Incorporated