

Geotechnical Report Supplement Western Area Guideway Yard & Shops

(P0504-D400-PRT-DE-008, Rev.1)



Silicon Valley Rapid Transit Project

GEOTECHNICAL REPORT - SUPPLEMENT

Western Area Guideway
Yard & Shops

August 29, 2008

P0504-D400-RPT-DE-008

Rev. ~~0~~ 1

Geotechnical Report - SUPPLEMENT
Western Area Guideway – Yard & Shops

Contract No. S04031

PREPARED BY: ENGEIO INCORPORATED ENGEIO INCORPORATED

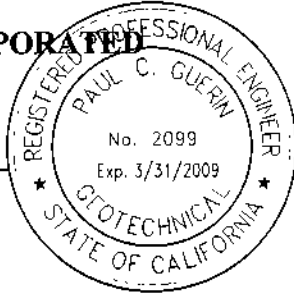


Donald Bruggers, GE 8/29/08
Date
Yard & Shops Geotechnical Investigation

Yan Lap Janet Kan, CE 8/29/08
Date



QA/QC Reviewed by: ENGEIO INCORPORATED



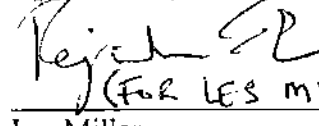
Paul C. Guerin, GE 8/29/08
Date

Submitted by:  STV Incorporated

 9-08-08

Giri Taksali Date
Design Manager – Western Area Guideway, Yard & Shops

Approved by: VTA

 (FOR LES MILLER) 9/26/08

Les Miller Date
Group Manager – Western Area Guideway, Yard & Shops

TABLE OF CONTENTS

1.0 INTRODUCTION	1-1
1.1 Purpose and Scope	1-1
1.2 Site Location	1-1
1.2.1 De La Cruz Boulevard Overpass.....	1-2
1.2.2 Pedestrian Bridge.	1-2
1.2.3 Test Surcharge Fill Area.	1-2
1.2.4 City of San Jose Property.....	1-2
1.3 Project Description.....	1-2
1.4 Previous Study	1-3
2.0 GEOTECHNICAL EXPLORATION	2-1
2.1 Field Exploration.....	2-1
2.1.1 Exploratory Borings	2-2
2.1.2 Cone Penetrometer Test Probe	2-3
2.1.3 Groundwater Monitoring Wells	2-3
2.2 Laboratory Testing.....	2-4
2.3 Subsurface Stratigraphy	2-5
2.3.1 De La Cruz Overpass	2-5
2.3.2 Pedestrian Bridge.	2-5
2.3.3 Test Surcharge Fill Area.	2-6
2.3.4 Revenue Processing Building.....	2-6
2.3.5 Northern Portion of the Revenue Vehicle Maintenance Shop.....	2-7
2.4 Groundwater.....	2-8
3.0 DISCUSSION AND CONCLUSIONS	3-1
3.1 Summary of Site Conditions	3-1
3.2 Considerations for the De La Cruz Retaining Structure	3-1
3.2.1 Liquefaction.....	3-2
3.2.2 Compressible Soil	3-3
3.2.3 Expansive Soil.....	3-4
3.2.4 Corrosive Soil.....	3-4
3.3 Considerations for the Pedestrian Bridge	3-4
3.3.1 Liquefaction.....	3-4
3.3.2 Compressible Soil	3-6
3.3.3 Corrosive Soil.....	3-6
3.4 Considerations for the Test Fill Area	3-6

3.4.1 Compressible Soil	3-6
3.5 Considerations for the Revenue Processing Building (YJ).....	3-7
3.5.1 Liquefaction.....	3-7
3.5.2 Compressible Soil	3-8
3.5.3 Corrosive Soil.....	3-8
3.6 Considerations for the Northern Portion of the Revenue Vehicle Maintenance Shop (YE).....	3-8
3.7 Supplemental Building Code Seismic Information.....	3-8
4.0 RECOMMENDATIONS	4-10
4.1 General - Mass Grading.....	4-10
4.2 Design Considerations for the De La Cruz Retaining Structure.....	4-10
4.2.1 Soil Nail Wall Soil Design Parameters.	4-11
4.2.2 Soil Nail Wall Drainage.....	4-12
4.2.3 Test Nails.....	4-12
4.2.4 Soil Nail Wall Construction Considerations.....	4-13
4.2.5 Mechanically Stabilized Earth Retaining Wall Design Parameters	4-13
4.2.6 Mechanically Stabilized Earth Retaining Drainage Considerations.....	4-14
4.3 Design Considerations for the Pedestrian Bridge.....	4-15
4.3.1 Drilled Piers Foundation.....	4-15
4.3.2 Driven Piles Foundation	4-15
4.4 Test Surcharge Fill Area.....	4-16
4.4.1 Test Surcharge Fill Monitoring	4-16
4.5 Design Considerations for the Revenue Processing Building (YJ).....	4-16
4.5.1 Building Pad Surcharge Recommendations	4-16
4.5.2 Surcharge Fill Monitoring	4-17
4.5.3 Mat Foundations.....	4-17
4.5.4 Driven Piles or Drilled Piers Foundation.....	4-17
4.6 Design Considerations for the Revenue Vehicle Maintenance Shop (YE).....	4-18
5.0 CLARIFICATION ON RECOMMENDATIONS OF THE 35% GEOTECHNICAL REPORT	5-1
5.1 Clarification on Section 5.10 of May 2006 Geotechnical Report	5-1
5.2 Clarifications on Section 5.10.1 of May 2006 Geotechnical Report.....	5-1
5.3 Clarification on Section 5.12.1 of May 2006 Geotechnical Report	5-2
5.4 Clarification on Section 5.12.2 on May 2006 Geotechnical Report.....	5-3
5.5 Clarification on Section 5.13.2 of May 2006 Geotechnical Report	5-4
5.6 Clarification on Section 5.13.2 of May 2006 Geotechnical Report	5-4

5.7 Clarification on Section 5.15 of May 2006 Geotechnical Report5-5
6.0 LIMITATIONS AND UNIFORMITY OF CONDITIONS6-6

- 7.1 APPENDIX A** – ENGEO Incorporated, Logs of Borings
- 7.2 APPENDIX B** – John Sarmiento and Associates, Cone Penetration Test Data
- 7.3 APPENDIX C** – ENGEO Incorporated, Laboratory Test Results
- 7.4 APPENDIX D** – ENGEO Incorporated, Liquefaction Analysis Spreadsheets
- 7.5 APPENDIX E** – ENGEO Incorporated, Settlement Analysis Spreadsheets

LIST OF FIGURES

- Figure 1 Vicinity Map
- Figure 2 Site Plan A – De La Cruz Overpass Retaining Structure
- Figure 3 Site Plan B – Pedestrian Bridge
- Figure 4 Site Plan C – Test Surcharge Area and Revenue Vehicle Maintenance Shops
- Figure 5 Site Plan D – Revenue Processing Building
- Figure 6 Cross Section A-A’
- Figure 7 Cross Section B-B’

SELECTED REFERENCES

- ASCE Standard (ASCE/SEI 7-05), 2005, Minimum Design Loads for Building and other structures.
- Bart Facilities Standards (BFS), Release 1.2, August 18, 2004.
- Boulanger, R.W. and Idriss, I. M. , 2004, Semi-empirical Procedures for Evaluating Liquefaction Potential During Earthquakes, 11th International Conference on Soil Dynamics & Earthquake Engineering and the 3rd International Conference on Earthquake Geotechnical Engineering.
- Division of Mines and Geology, 1997, Special Publication 117, Guidelines for Evaluation and Mitigating Seismic Hazards in California, Adopted March 13.
- ENGEO Incorporated, 2006, Silicon Valley Rapid Transit Project, Geotechnical Report, Yard and Shops, FINAL, P0504-D400-RPT-DE-008, May 24, 2006.
- Finn, W. D. L., 1996, Evaluation of Liquefaction Potential for Different Earthquake Magnitudes and Site Conditions, A Symposium on Recent Developments in Seismic Liquefaction Assessment, April 12, 1996.
- HMM/Bechtel, Silicon Valley Rapid Transit Authority (SVRT), December 20,2004, Silicon Valley Rapid Transit Project, Tunnel Segment, Report on Seismic Ground Motions, P0503-D300-RPT-DE-012 Rev. A.
- International Code Council, 2007, Uniform Building Code.
- Ishihara, K., 1985, Stability of Natural Deposits During Earthquakes: Proceeding of the Eleventh International Conference on Soil Mechanics and Foundation Engineering.
- Parikh Consultants, Inc., 2005, Plate No. 2 and Draft Borelog S-B-5 of Pedestrian Bridge – Santa Clara Station, City of Santa Clara, California.
- Robertson, P. K. and C. E. (Fear) Wride, 1997, Cyclic Liquefaction and its Evaluation based on SPT and CPT, NCEER Workshop.
- Sardis Lacy Waters & Associates, 1959, Log of Test Boring, De La Cruz and El Camino Overpass, City of Santa Clara, California.
- Seed, H. B. and I. M. Idriss, 1982, Ground Motion and Soil Liquefaction During Earthquakes, Earthquake Engineering Research Institute.
- Seed, H. B., K. Tokimatsu, L. F. Harder and R. M. Chung, 1985, Influence of SPT Procedures in Soil Liquefaction Resistance Evaluations, Journal of Geotechnical Engineering, ASCE.
- Seed, R.B., Cetin K.O., Moss R.E.S., Kammerer A.M., Wu J., Pestana J.M., Riemer M.F., Sancio R.B., Bray J.D., Kayen R.E., Faris A., 2003, Recent Advances in Soil

Liquefaction Engineering A unified and Consistent Framework, 26th Annual ASCE Los Angeles Geotechnical Spring Seminar.

Southern California Earthquake Center, 1999, Recommended Procedures for Implementation of DMG Special Publication 117 Guidelines for Analyzing and Mitigating Liquefaction Hazards in California.

Tokimatsu, K. and H. B. Seed, 1987, Evaluation of Settlements in Sands due to Earthquake Shaking: Journal of Geotechnical Engineering, ASCE.

Valley Transit Authority (VTA), 2004, Technical Memorandum, Tunnel Segment Brief Report on Seismic Ground Motions Design Criteria, November 1, P0503-D300-TM-DE-001.

Woodward, Clyde, Sherard & Associates, Consulting Civil Engineers, 1959, Soil Investigation Report for De La Cruz and El Camino Overpass, City of Santa Clara, California.

Youd, T. L., 1993, Liquefaction-Induced Lateral Spread Displacement, Naval Civil Engineering Technical Note N-1862, June 1993.

Youd, T. L., and C. T. Garris, 1995, Liquefaction-induced Ground Surface Deformation: Journal of Geotechnical Engineering, American Society of Civil Engineers, Vol. 121, No. 11, November.

Youd, T. L. and I. M. Idriss, 1997, Proceedings of the NCEER workshop on Evaluation of Liquefaction Resistance of Soils, Technical Report NCEER-97-0022.

1.0 INTRODUCTION

1.1 Purpose and Scope

The purpose of this geotechnical report, as described in Modification No. 1 of our contract agreement dated July 20, 2007, is to provide supplemental geotechnical recommendations for design of the retaining structure near the De La Cruz Boulevard Overpass and the pedestrian bridge crossing that is planned to extend over the existing rail tracks. In addition, exploratory borings were drilled in the vicinity of the proposed test surcharge fill location, proposed revenue processing building and revenue vehicle maintenance shop. Clarifications to recommendations provided in the geotechnical report P0504-D400-RPT-DE-008 Rev.0 dated May 24, 2006 are also provided herein.

Our scope of service included exploratory drilling with collection of subsurface samples, advancement of cone penetration test probe, laboratory testing of subsurface materials, analysis of the gathered geotechnical data, and preparation of this report summarizing our supplemental recommendations for development within areas not explored in the 35 percent preliminary engineering study (P0504-D400-RPT-DE-008 Rev.0 dated May 24, 2006).

In the event that any changes are made in the character, design, or layout of the proposed construction, the conclusions and recommendations contained in this report should be reviewed by ENGEO Incorporated to determine whether modifications to the report are necessary.

1.2 Site Location

The approximately 80-acre, relatively level proposed Yard & Shops Complex is located near the eastern portion of the Union Pacific Railroad (UPRR) Newhall Yard in the City of Santa Clara and a small area east of Interstate 880 in San Jose.

The current study area includes the northeastern area of the De La Cruz Boulevard overpass, the northeastern area of the intersection of Benton Street and Railroad Avenue in Santa Clara, and portions of the former FMC facility in San Jose, California. The location of the proposed Yard & Shops Complex and the areas of focused study are shown on the Vicinity Map (Figure 1).

1.2.1 De La Cruz Boulevard Overpass. A 25-foot-high retaining structure is proposed at the northeastern area of the De La Cruz Boulevard overpass. Currently, a 25-foot-high embankment with side slopes inclined at approximately 2:1 (horizontal:vertical) is present at this location. The embankment slopes from Elevation 85 feet to 60 feet above mean sea level (msl). A few trees are located at the bottom of the embankment and dense vegetation, both native and landscaped, is present on the embankment slope.

1.2.2 Pedestrian Bridge. The northeastern area of the intersection of Benton Street and Railroad Avenue, where a pedestrian bridge is proposed, is situated in a paved parking lot associated with the Caltrain Station. Numerous underground utility lines are present in this area. In addition, overhead utility lines and existing railroad track are in close proximity of this location.

1.2.3 Test Surcharge Fill Area. The test surcharge fill area is located within the northern portion of the proposed Revenue Vehicle Maintenance Building. Approximately 5 feet of surcharge fill will be placed in the test surcharge area. Details about the test surcharge program are outlined in the Surcharge Fill Placement and Settlement Monument Installation Manual dated April 30, 2007.

1.2.4 City of San Jose Property. The City of San Jose property, formerly occupied by the FMC is located south of Coleman Street between Brokaw Road and Newhall Drive. The revenue processing building and the southern portion of the revenue vehicle maintenance shop is planned within the City of San Jose properties. Additional subsurface exploration is performed within the footprint of these proposed structures.

At the time of our study, access to the Federal Express property was prohibited. Additional subsurface exploration, lab testing, and analysis will be performed after access permits for the Federal Express property are obtained.

1.3 Project Description

In addition to the maintenance shops and operation buildings, site development will include a retaining structure below the De La Cruz overpass and a pedestrian bridge spanning over the

existing rail tracks and connecting Brokaw Road on the northeast and Benton Street on the southwest.

As shown on the 35 percent submittal plans, the alignment of future rail tracks from approximately Station 885+00 to 908+50 is planned to cut into the north embankment of the De La Cruz overpass. An approximately 25-foot-high soil nail retaining wall is currently planned to retain and support the bridge embankment. The preliminary layout of the soil nail wall is provided in the 35 percent submittal plans dated September 6, 2006.

A pedestrian bridge is also planned to span over the existing rail track connecting Brokaw Road on the northeast and Benton Street on the southwest. We understand that the pedestrian bridge will also be connected to the future Santa Clara Station.

The final location of the revenue processing building is planned north of the proposed non-revenue maintenance shops.

The extent of cutting or filling required to achieve final grades near the proposed structures is not finalized at this time.

1.4 Previous Study

ENGEO previously conducted field exploration for the Yard & Shops Complex of the SVRT project and prepared a geotechnical report P0504-D400-RPT-DE-008 Rev.0 dated May 24, 2006. The previous study consisted of drilling 32 exploratory borings and advancing 35 cone Penetrometer test (CPT) probes to evaluate the soil and geologic conditions and provide foundation recommendations for the master Yard & Shops development.

The regional geologic and seismic setting of the general Yard and Shops development including the current study area is discussed in Section 2.0 of the May 2006 Geotechnical Report.

We were provided with the foundation plan of the De La Cruz overpass prepared by Sardis Lacy Waters & Associates Consulting Engineers dated August 14, 1959. The logs of test borings

drilled by Woodward Clyde, Sherard & Associates, in the vicinity of the De La Cruz embankment prior to construction of the overpass were included on the foundation plan. In general, subsurface conditions encountered at test boreholes 2-B1 and 2-B3 are consistent with surface conditions encountered in the Woodward Clyde borings. Information from the Woodward Clyde borelogs has been incorporated in our analyses, where appropriate.

The draft boring log of Boring S-B-5 formerly drilled along Brokaw Road by Parikh Consultants, Inc. in July 2005 was provided to us. Information from this borelog has been incorporated into our analyses, where appropriate.

2.0 GEOTECHNICAL EXPLORATION

2.1 Field Exploration

The field exploration for this study was conducted between August 20 and September 6, 2007 within the City of Santa Clara, and consisted of drilling 5 boreholes (Borings 2-B1 through 2-B3, 2-B9 and 2-B15). Field exploration within the City of San Jose properties was conducted on February 1 and 5, 2008, and consisted of drilling 2 boreholes (Borings 2-B11 and 2-B13) and advancing 3 cone penetration test probes (2-CPT7, 2-CPT10 and CPT13). It should be noted that several proposed borings and CPTs within the City of San Jose Properties were eliminated because the proposed locations are inaccessible or are no longer within a future structure. The eliminated locations include Borings 2-BH10, 2-BH12, 2-BH14, 2-BH15 and Probes 2-CPT8, 2-CPT9, 2-CPT11, and 2-CPT12.

Due to access restrictions, proposed borings within the Federal Express parcel were not advanced.

The approximate locations of the borings are shown on Figures 2 to 5. The field exploration program is summarized in the following table.

FACILITY	BORING NUMBER	CPT NUMBER	DEPTH (feet)
De La Cruz Overpass (Figure 2)	2-B1		103
	2-B2		35
	2-B3		101.5
Pedestrian Crossing (Figure 3)	2-B9		81.5
Test Surcharge Fill Area (Figure 4)	2-B15		51.5
Revenue Vehicle Maintenance Shop – Northern section (Figure 4)	2-B11		43
		2-CPT7	70.5
		2-CPT10	74.0
Revenue Processing Building (Figure 5)	2-B13		36.5
		2-CPT13	33.0

The exploratory boring locations were established by utilizing Global Positioning System (GPS) and should be considered accurately located only to the degree implied by the method used. GPS utilized a local coordinate system established for the project with modifications due to site access or vehicle constraints.

2.1.1 Exploratory Borings. Exploratory borings 2-B1, 2-B3, 2-B9, 2-B11, 2-B13 and 2-B15 were drilled using mud rotary drilling methods with a Mobile B-80 truck-mounted drill rig. Boring 2-B2 was drilled using a track mounted Mobile Drill B-24 drill rig equipped with a 4-inch-diameter solid flight auger. An ENGEO Engineer logged the boreholes in the field and collected soil samples using a 3-inch outside diameter (O.D.) California-type split-spoon sampler fitted with 6-inch-long brass liners, a 2-inch outside diameter (O.D.) Standard Penetration Test split-spoon sampler, or a 3-inch O.D. Shelby Tube. The split spoon samplers were driven with a 140-pound above-hole safety hammer falling a distance of 30 inches. An automatic trip system was used to lift the hammer mounted on the mud rotary rig during our exploration and a rope and cathead system was used to lift the hammer mounted on the solid flight auger track rig. The drill rods were used to keep the hammer above ground. The Shelby Tubes were pushed into the soil using hydraulics of the mud rotary drill rig. The borings ranged in depth between 35 and 103 feet below ground surface.

The penetration of the split-spoon samplers into the subsurface materials was field recorded as the number of blows needed to drive the sampler 18 inches in 6-inch increments using the 140-pound hammer with a 30-inch drop. The report borelogs represent the actual field blow counts for the last one foot of penetration and have not been subjected to conversion factors to achieve representative SPT (N_{60}) results.

The field logs for the borings were used to develop the report borelogs, which are located in Appendix A. The boring logs depict subsurface conditions within the borings for the date of site activities; however, subsurface conditions may vary with time. The boreholes were backfilled after the completion of each field exploration activity in August 2007 and in February 2008, using cement slurry.

2.1.2 Cone Penetrometer Test Probe. The CPT probes were extended to a maximum depth of approximately 74 feet below the existing ground surface. The CPT logs and data sets are located in Appendix B. The CPT probes were backfilled on February 1, 2008, after the completion of field exploration activity using a bentonite-cement slurry.

The CPT equipment has a 20-ton compression-type cone with a 15-square-centimeter (cm²) base area, an apex angle of 60 degrees, and a friction sleeve with a surface area of 225 cm². 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 ASTM D-3441. Measurements include the tip resistance to penetration of the cone (Qc), the resistance of the surface sleeve (Fs), and pore pressure (U) (Robertson and Campanella, 1988). The ratio of the sleeve reading to the corresponding tip reading provides the Friction Ratio (Rf). Various soil property correlations have been developed based on these relationships including equivalent standard penetration test (N) values, soil friction angle (Phi), undrained shear strength (Su), soil behavior type, and estimated soil density range (Robertson and Campanella, 1988; Olsen, 1989). The procedures used to estimate the soil properties are discussed in Appendix B.

2.1.3 Groundwater Monitoring Wells. One piezometer was installed at Borehole 2-B3 for groundwater monitoring purposes. Due to access restrictions, planned piezometers within the Federal Express parcel were not installed. A total of five piezometers were installed during the previous exploration; however, two of the piezometers, 1-B26 and 1-B30 were found to have been destroyed or covered by fill. The approximate location of the piezometer installed for this study is shown on Figure 2. The following table summarizes the approximate surveyed location, depth, and screen length of the existing and newly installed monitoring wells.

PIEZOMETER LABEL	NORTHING, EASTING	APPROXIMATE DEPTH TO BOTTOM OF CASING (feet)	SCREEN LENGTH (feet)
2-B3	1955432.5, 6142705.7	40	30
1-B8	1953007.8, 6147007.8	39	30
1-B10	1953162.2, 6146677.6	50	40

1-B20	1953838.9, 6145754.1	40	30
1-B26	1954327.0, 6144956.9	38	30
1-B30	1954581.3, 6144154.8	39	30

The screened depths of the piezometers were selected to be located within the sand/silt stratum. The piezometers were constructed with a 2-inch O.D. screened PVC pipe. In general, the upper 8 to 10 feet of the piezometer pipe is non-screened. Clean sand was used to backfill around the screened section and extends to 1 foot above the screen section of the piezometer pipe. A bentonite plug approximately 1 foot thick is located over the clean sand. The remaining length of the piezometer pipe was backfilled with cement grout. Each piezometer location received a flush-mounted, metal, bolted monitoring well box. The general piezometer construction method is shown on the borelogs presented in Appendix A.

2.2 Laboratory Testing

Select samples recovered during drilling activities were tested to determine the following soil characteristics:

SOIL CHARACTERISTIC	ASTM METHOD	LOCATION OF RESULTS
Natural Unit Weight and Moisture Content	D-2216	Appendix A
Unconfined Compression	D-2166	Appendix A, C
Plasticity Index	D-4318	Appendix C
Grain Size Distribution	D-422	Appendix C
Consolidation (Incremental)	D-2435	Appendix C
Triaxial Compression	D-2850	Appendix C
Direct Shear	D-3080	Appendix C

The laboratory test results are shown on the borelogs (Appendix A), with individual test results presented in Appendix C.

2.3 Subsurface Stratigraphy

Five general areas, including the De La Cruz Overpass, the Pedestrian Bridge, the test surcharge fill area, the Revenue Processing Building and the northern section of the Revenue Vehicle Maintenance Shop, were explored during this study. The subsurface stratigraphy at each area is discussed in the following sections.

2.3.1 De La Cruz Overpass. The De La Cruz Overpass area consists of an embankment roughly 25 feet high with vegetation on the embankment slopes. The embankment supports the elevated portions of De La Cruz Boulevard that spans over the existing rail tracks. Boring 2-B2 was advanced in the sidewalk area of the De La Cruz overpass to obtain samples of the embankment fill. In general, the embankment fill consist of stiff to very stiff/dense to very dense silty clay, clayey sand, sandy clay, clayey gravel, sandy silt and silty sand deposits. According to the Woodward, Clyde, Sherard and Associates' borings, we estimated that the embankment fill material was placed roughly 45 years ago.

In general, the exploration locations near the bottom of the embankment, including 2-B1 and 2-B3, encountered medium stiff to very stiff silty clay and clayey silt deposits from the ground surface to approximately 20 feet below ground surface (bgs). Inter-layered silty sand, sandy silt and sand that is generally medium dense/medium stiff were encountered from approximately 20 feet bgs to 65 feet bgs. A layer of loose sandy silt, roughly 9 feet thick, is present in 2-B3 at approximately 33 feet bgs. Older alluvial deposits consisting of very stiff silty clay and medium dense to dense silty sand, sandy silt and clayey sand were encountered below approximately 65 feet and extended to the termination depth of Borings 2-B1 and 2-B3.

The general subsurface conditions at the vicinity of the De La Cruz Overpass is shown on the cross-section on Figure 6, as well as described in the boring logs in Appendix A

2.3.2 Pedestrian Bridge. Boring 2-B9 was advanced near the southwest end of the proposed pedestrian bridge at Brokaw Road and Benton Street. Near surface soils observed in Boring 2-B9 generally consist of stiff silty clay and medium dense clayey sand deposits that extend to approximately 9 feet bgs. A loose layer of silty sand was observed between depths of 9 to 11 feet.

Beneath the silty sand layer, medium stiff silty clay was present from 11 feet to 23 feet bgs. Inter-layered stiff sandy clay and loose clayey sand was observed below the stiff silty clay and extended to approximately 56 feet bgs. Below this depth, medium dense to dense silty sand and gravelly sand were encountered and extended to the termination depth of 2-B9 at 81½ feet bgs.

Boring 1-B28, a hollow stem auger boring formerly drilled for the 35 percent submittal exploration, and Boring S-B-5, a rotary wash boring formerly drilled by Parikh Consultants, are located near the northeast extend of the proposed pedestrian bridge on the east side of Brokaw Road. Subsurface stratigraphy observed in Boring 1-B28 and S-B-5 is consistent with soils encountered in Boring 2-B9.

The general subsurface conditions at the vicinity of the Pedestrian Bridge Abutments are depicted on the cross-section on Figure 7, as well as described in the boring logs in Appendix A

2.3.3 Test Surcharge Fill Area. Boring 2-B15 was advanced within the proposed test surcharge fill area located within the northern portion of the proposed Revenue Vehicle Maintenance Building.

We understand that additional fill was placed in the vicinity of 2-B15 since our preliminary exploration activity. Near surface material encountered in Boring 2-B15 consists of stiff sandy and silty clay and medium dense silty sand. These deposits are considered undocumented fill and extend from ground surface to approximately 9 feet bgs.

Medium stiff and moderately compressible silty clay deposits are present from 9 feet to 32 feet bgs. Beneath the silty clay layer, loose to medium dense silty sand and medium stiff clayey silt deposits were encountered and extend to approximately 44 feet bgs. Stiff silty clay deposits were encountered below the clayey silt and silty sand deposits and extend to the termination depth of Boring 2-B15 at 51½ feet bgs.

2.3.4 Revenue Processing Building. The Revenue Processing Building is located north of the proposed Non-Revenue Maintenance Shop within the City of San Jose. Currently, the site contains abandoned depot structures, concrete foundations, concrete slabs and stored bulk materials. In general, the exploration locations within the Revenue Processing Building, including 2-B13 and

2-CPT13, encountered 6 inches of concrete and approximately 3 feet of clayey sand at the surface. Beneath the clayey sand, soft to medium stiff silty clay deposits was encountered down to approximately 20 feet below ground surface (bgs). Inter-layered clayey silt, silty sand and gravelly sand that is generally medium dense/medium stiff was encountered from approximately 20 feet bgs to 30 feet bgs. Medium dense to dense alluvial deposits consisting of sandy gravel and gravelly sand were encountered below approximately 30 feet and extended to the termination depth of Boring 2-B13 and Probe 2-CPT13. It should be noted that heaving sand problems were encountered during drilling of Boring 2-B13 at approximately 30 feet. The recorded blow counts in heaving conditions may not be representative due to soil disturbance effects. However, data from the nearby CPT probe 2-CPT13 indicate that the granular layer is dense and refusal condition is encountered at approximately 30 feet bgs.

2.3.5 Northern Portion of the Revenue Vehicle Maintenance Shop. The southern portion of the proposed Revenue Vehicle Maintenance Shop was previously explored in May 2005 located within the City of San Jose. For this study, ENGEO explored the remaining northern portion of the proposed Revenue Vehicle Maintenance Shop, which is located within the City of San Jose. The site is generally covered with concrete pavement. Abandoned rail tracks, concrete slabs, and an oval shape race track is observed in the vicinity of the proposed Revenue Vehicle Maintenance Shop. The exploration locations within the northern portion of the Revenue Vehicle Maintenance Shop, including 2-B11, 2-CPT7 and 2-CPT10, encountered approximately 5 inches of concrete and approximately 2½ feet of clayey sand at the surface. Beneath the clayey sand, soft to medium stiff silty clay deposits was encountered down to approximately 20 feet below ground surface (bgs). A thin layer of sandy silt and silty sand is encountered in Probe 2-CPT7 below the silty clay deposits and extends to approximately 27 feet bgs. In Boring 2-B11 and Probe 2-CPT10, a layer of soft to medium stiff clayey silt and silty clay is encountered and extend to approximately 30 feet. Older alluvium deposits consist of inter-layered medium dense/medium stiff silty sand, sandy silt, clayey silt and silty clay was encountered from approximately 30 feet bgs to 55 feet bgs. Beneath this layer, interbedded dense/very stiff silty clay, silty sand and gravelly sand is encountered and extends to the termination depths of Probes 2-CPT7 and 2-CPT10. Subsurface conditions encountered in the northern portion of the Revenue Vehicle Maintenance Shop are consistent with conditions encountered in the southern portion.

2.4 Groundwater

During the previous exploration, a total of five piezometers (Borings 1-B8, 1-B10, 1-B20, 1-B26, and 1-B30) were installed at the site for groundwater level monitoring. In addition, a piezometer was installed in Boring 2-B3 for the current study. Construction of piezometers is discussed in Section 2.1.3.

Due to recent grading activities, piezometers located at 1-B26 and 1-B30 were destroyed. The water level was measured from the remaining piezometers on October 11, 2007, and November 1, 2007, and presented in the following table.

PIEZOMETER LABEL	APPROXIMATE GROUND SURFACE ELEVATION* (feet)	APPROXIMATE DEPTH TO GROUNDWATER, (feet)	APPROXIMATE GROUNDWATER ELEVATION* (feet)
2-B3	67.0	12.5	54.5
1-B8	63.0	9.7	53.3
1-B10	62.4	8.6	53.8
1-B20	62.2	10.6	51.6
1-B26	Destroyed		
1-B30	Destroyed		

* Mean Sea Level datum

In summary, groundwater was encountered between 9 and 13 feet bgs. For design purposes, we recommend assuming water level to be at Elevation 54 ft above msl. Fluctuations in groundwater levels may occur seasonally and over a period of years because of precipitation, temperature, changes in drainage patterns, pumping, and/or irrigation.

3.0 DISCUSSION AND CONCLUSIONS

3.1 Summary of Site Conditions

Based on the findings of the current explorations, we conclude that construction of the proposed De La Cruz Retaining Structure, the pedestrian bridge, the Revenue Processing Building and the Revenue Vehicle Maintenance Shop are feasible from a geotechnical standpoint. The primary geotechnical issues to be considered in the design of the proposed structures include the presence of compressible soils and earthquake-induced liquefaction and densification.

Other geotechnical engineering matters such as, the expansion characteristic of the on-site soils, grading concepts and suitable foundations are discussed in the geotechnical report P0504-D400-RPT-DE-008 Rev 0 dated May 24, 2006. Accordingly, the recommendations provided in the geotechnical report dated May 24, 2006, should be used for design and construction of the proposed structures. Supplemental recommendations provided in this report should be used for the proposed structures located in areas not previously explored, including areas within the City of San Jose Parcels and City of Santa Clara Parcels.

3.2 Considerations for the De La Cruz Retaining Structure

A soil nail wall is currently planned on the south side of the north embankment of the De La Cruz Overpass. General soil nail layout and wall height is shown on Sheet YS-S101 of the 35 percent Submittal Plans. Based on the findings of the current explorations, we concluded that a soil nail wall is suitable for retaining the embankment soil beneath the De La Cruz Overpass.

Specific geotechnical issues related to the construction of the retaining structure beneath the De La Cruz overpass include the presence of potentially liquefiable, compressible, expansive, and corrosive soils. Other geotechnical considerations such as grading concepts, regional and site geology, general seismic hazards are discussed in our previous geotechnical exploration report (P0504-D400-RPT-DE-008).

3.2.1 Liquefaction. Liquefaction is a phenomenon in which saturated 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.

As discussed in Section 2.3.1, loose to medium dense sandy deposits were encountered from approximately 20 feet bgs to 65 feet bgs. Liquefaction analysis were performed on test boring data based on guidelines provided in Robertson and Wride (1997), Finn (1996), Youd et al. (1997), and Seed et al. (2003). Our analyses consider a peak ground acceleration of 0.54g, as provided by the design team seismic consultant, and groundwater levels at approximately Elevation 54 feet.

SPT blow counts of saturated silty sand, sandy silt and sand layers were utilized to calculate the Cyclic Resistance Ratio (CRR) and the Cyclic Stress Ratio (CSR). The scaled CRR is divided by the CSR to determine the factor of safety (F.S.) within the given soil profile layer.

According to recent liquefaction research performed by Seed et al. (2003), silty deposits may be marginally liquefiable. Marginally liquefiable soil are defined as soil with fines content (FC) greater than 35 percent, Plasticity Index (PI) less than 12 percent, and water content (w_c) is greater than 80 percent of the liquid limit (LL). In general, potentially liquefiable sandy layers (F.S.<1.2) up to a cumulative thickness of 24 feet were identified in Borings 2-B1 and 2-B2 at approximately 31 to 55 feet below ground surface. Marginally liquefiable silty layers based on the Seed et al. (2003) classification, were encountered at approximately 23 to 33 feet below ground surface in Borings 2-B1 and 2-B2. The cumulative thickness of the marginally liquefiable silty layers is approximately 10 feet. Tabular liquefaction analysis spreadsheets are included in Appendix D.

At present, methods for calculation of expected magnitude of vertical settlement due to cyclic softening of silty deposits are not well developed and require site-specific evaluation (Boulanger and Idriss, 2004). Therefore, our approach for evaluation of liquefaction-induced settlement of silty deposits was based on a reduced volumetric strain and engineering judgment.

One significant hazard associated with soil liquefaction occurs when the liquefied soils vent to the ground surface causing disruption and sand boils. In order for liquefaction-induced ground

surface disruption to occur, the pore water pressure generated within the liquefied strata, generally loose to medium dense sandy deposits, must exert a sufficient force to break through the overlying soil and vent to the surface, resulting in sand boils or fissures. In 1985, Ishihara presented preliminary empirical criteria to assess the potential for ground surface disruption at liquefiable sites based on the relationship between thickness of liquefiable sediments and thickness of overlying non-liquefiable soil. A more recent study by Youd and Garris (1995) expanded on the work of Ishihara to include data from over 308 exploratory borings, 15 different earthquakes, and several ranges of recorded peak ground acceleration. It is generally believed that a significantly thick capping layer can reduce effects of sand boils and occurrence of fissures at the ground surface.

Based on the proposed elevation of the BART tracks at roughly Elevation 63 feet above mean sea level, we anticipate approximately 25 feet of existing non-liquefiable soil and 6 feet of marginally liquefiable silty deposits cover the potentially liquefiable sandy deposits at the planned soil nail wall location. Thus, the potential for ground failure (sand boils) at the surface due to liquefaction will be reduced by the relatively stiff, non-liquefiable and marginally liquefiable surface layers.

Retrofitting of the existing De La Cruz overpass to resist the potential liquefaction induced ground settlement is beyond the SVRT project scope. It should be noted that while the proposed soil nail wall may be capable of retaining the existing embankment fill, significant ground settlement and wall distortion may result under a strong seismic event where the sandy and/or silty deposit liquefy and cause settlement. We estimate that as much as 6 inches of total earthquake-induced settlement may occur as a result of liquefaction with considerations to a reduced volumetric strain for marginally liquefiable soil. However, due to bridging effects of the surficial soils, the actual settlement is anticipated to be less than the theoretically predicted settlement.

3.2.2 Compressible Soil. Medium stiff silty clay deposits were encountered from 12 to 19 feet bgs (roughly Elevation 58 to 48 feet). As discussed in Section 2.3.1, the embankment fill material placed at the De La Cruz Overpass is estimated to be roughly 45 years old. It is our opinion that the majority of the consolidation settlement due to the embankment fill load is complete. Moreover, the proposed retaining structure beneath the De La Cruz overpass will require removal of approximately 25 feet of embankment fill, creating an unloading effect.

Therefore, it is our opinion that consolidation settlement due to structural loading will be negligible (less than 0.1 inches). Preliminary settlement analysis spreadsheet is included in Appendix E.

3.2.3 Expansive Soil. Selected samples of the embankment fill material were tested and yielded Plasticity Indices (PI) of 12 and 16. This indicates a low to moderate expansion potential. Expansive soils will shrink and swell as a result of moisture changes. Specifically, expansive organic soils or cohesive soils may result in potentially problematical condition for soil nail wall construction. The soil nail wall design should evaluate the effects of expansive soil.

3.2.4 Corrosive Soil. We understand that corrosion testing is being performed by another consultant and the results of that assessment will be provided in a separate document.

3.3 Considerations for the Pedestrian Bridge

A pedestrian bridge is planned to span over the existing rail tracks and connect Brokaw Road with Benton Street. Specific geotechnical issue related to the construction of the pedestrian bridge includes the presences of liquefiable, compressible and corrosive soils. Other geotechnical considerations such as grading concepts, regional and site geology, general seismic hazards are discussed in our previous geotechnical exploration report (P0504-D400-RPT-DE-008).

3.3.1 Liquefaction. Liquefaction is a phenomenon in which saturated 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.

As discussed in Section 2.3.2, saturated inter-layered stiff sandy clay and loose clayey sand was observed below the stiff silty clay and extended to approximately 56 feet bgs. Liquefaction analysis were performed on test boring data based on guidelines provided in Robertson and Wride (1997), Finn (1996), Youd et al. (1997), and Seed et al. (2003). Our analyses consider a peak ground acceleration of 0.54g, as provided by the design team seismic consultant, and groundwater levels at approximately Elevation 54 feet.

SPT blow counts of saturated silty sand, clayey sand and sandy clay were utilized to calculate the Cyclic Resistance Ratio (CRR) and the Cyclic Stress Ratio (CSR). The scaled CRR is divided by the CSR to determine the factor of safety (F.S.) against liquefaction within the given soil profile layer.

According to the recent liquefaction research performed by Seed et al. (2003), silty deposits may be marginally liquefiable. Marginally liquefiable soil are defined as soil with fines content (FC) greater than 35 percent, Plasticity Index (PI) less than 12, and water content (w_c) greater than 80 percent of the liquid limit (LL).

In general, potentially liquefiable clayey sand (F.S.<1.2) deposits were encountered from approximately 24 to 26 feet bgs and 41 to 46 feet bgs. The cumulative thickness of the potentially liquefiable sandy layers is approximately 7 feet. Based on the Seed et al. (2003) classification, marginally liquefiable sandy clay layers were encountered at approximately 26 to 41 feet bgs. The cumulative thickness of the marginally liquefiable clayey layers is approximately 15 feet. Tabular liquefaction analysis spreadsheet is included in Appendix D.

As discussed in Section 3.2.1, methods for calculation of expected magnitude of vertical settlement due to cyclic softening of low plasticity clayey deposits are not well developed at this time and require site-specific evaluation (Boulanger and Idriss, 2004). Therefore, our approach for evaluation of liquefaction-induced settlement of clayey deposits was based on a reduced volumetric strain and engineering judgment.

Based on the existing ground elevation at the proposed pedestrian bridge location, we anticipate approximately 24 feet of existing non-liquefiable soil overlays the potentially liquefiable sandy deposits at the planned pedestrian bridge location. We believe that the site will have a thick enough non-liquefiable surface layer to reduce the potential for ground failure (sand boils) at the surface due to liquefaction of the sandy deposits.

Theoretically, up to 5½ inches of total earthquake-induced settlement may occur as a result of liquefaction of the sandy and clayey deposits. However, due to bridging effects of the

non-liquefiable soils, the actual settlement will be significantly less than the theoretically predicted settlement.

3.3.2 Compressible Soil. Medium stiff silty clay deposits were encountered at 11 to 21 feet bgs (roughly Elevation 58 to 48 feet). As is common practice, the pedestrian bridge will be supported on deep foundations that extend below the potentially compressible soil. Settlement of the bridge foundations due to soil compressibility is expected to be less than ¼ inch.

3.3.3 Corrosive Soil. We understand that corrosion testing is being performed by another consultant and the results of that assessment will be provided in a separate document.

3.4 Considerations for the Test Fill Area

As outlined in the Surcharge Fill Placement and Settlement Monument Installation Manual, a test surcharge area, roughly 60 by 120 feet in plan dimensions, is located within the future Revenue Vehicle Maintenance Shop. Subsurface information obtained from the borehole located within the test fill area will be used to correlate with in-situ settlement monitoring data collected after the test surcharge fill is placed.

General grading concepts for the test surcharge fill are discussed in the Surcharge Fill Placement and Settlement Monument Installation Manual dated April 30, 2007.

3.4.1 Compressible Soil. Medium stiff silty clay deposits were encountered at 9 to 32 feet bgs (roughly Elevation 35 to 58 feet), which for analysis purposes was divided into two layers. This is consistent with subsurface conditions (soil profile C) encountered in nearby borings drilled for the 35 percent submittal geotechnical exploration and reported in the Geotechnical Report dated May 24, 2006, (P0504-D400-RPT-DE-008). The compressible materials encountered in Boring 2-B15 consists of slightly over-consolidated, medium stiff clays. According to the test surcharge fill height proposed, we estimate that settlement due to consolidation of compressible clay soil under the test surcharge fill load will range from ¼ to ¾ inches. Preliminary settlement analysis spreadsheet is included in Appendix E.

3.5 Considerations for the Revenue Processing Building (YJ)

Specific geotechnical issue related to the construction of the Revenue Processing Building (YJ) includes the presences of liquefiable, compressible and corrosive soils. Other geotechnical considerations such as grading concepts, regional and site geology, general seismic hazards are discussed in our previous geotechnical exploration report (P0504-D400-RPT-DE-008).

3.5.1 Liquefaction. Liquefaction is a phenomenon in which saturated 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.

Thin lenses of medium dense silty sand deposits generally less than 12 inches thick was encountered at Probe 2-CPT13 at approximately 19 to 20 feet bgs and 30 feet bgs. Liquefaction analysis were performed on the CPT data based on guidelines provided in Robertson and Wride (1997), Finn (1996), Youd et al. (1997), and Seed et al. (2003). Our analyses consider a peak ground acceleration of 0.54g, as provided by the design team seismic consultant, and groundwater levels at approximately Elevation 54 feet.

To retain conservativeness, laboratory fines content of the samples collected from Boring 2-B13 is incorporated into the CPT analyses when the CPT correlated fine contents value are high that the laboratory value.

In general, potentially liquefiable (F.S.<1.2) silty and sandy deposits were encountered from approximately 19 to 31 feet bgs. The cumulative thickness of the potentially liquefiable sandy layers is approximately 1½ feet. Tabular liquefaction analysis spreadsheet is included in Appendix D.

Theoretically, up to ½ inches of total earthquake-induced settlement may occur as a result of liquefaction of the sandy and silty deposits. However, due to bridging effects of the non-liquefiable soils, the actually settlement will be significantly less that the theoretically predicted settlement.

3.5.2 Compressible Soil. Soft to medium stiff silty clay deposits were encountered at 5 to 20 feet bgs. This is consistent with subsurface conditions (soil profile B) encountered in nearby borings drilled for the 35 percent submittal geotechnical exploration and reported in the Geotechnical Report dated May 24, 2006, (P0504-D400-RPT-DE-008). The compressible materials encountered in Boring 2-B13 consist of slightly over-consolidated, medium stiff clays. According to structural loads provided to us for the 35 percent submittal geotechnical exploration, we estimate that settlement due to consolidation of compressible clay soil under the test surcharge fill load will range from 7 to 9 inches. Preliminary settlement analysis spreadsheet is included in Appendix E.

3.5.3 Corrosive Soil. We understand that corrosion testing is being performed by another consultant and the results of that assessment will be provided in a separate document.

3.6 Considerations for the Northern Portion of the Revenue Vehicle Maintenance Shop (YE)

Subsurface conditions encountered within the northern portion of the Revenue Vehicle Maintenance Shop (YE) is consistent with conditions encountered in the southern portion of the proposed structure. The geotechnical issue related to the construction of the Revenue Maintenance Shop (YE) including presences of liquefiable, compressible and corrosive soils; grading concepts, regional and site geology, general seismic hazards are discussed in our previous geotechnical exploration report (P0504-D400-RPT-DE-008).

3.7 Supplemental Building Code Seismic Information

ENGEO previously presented 1997 UBC seismic design parameters for this site in the Geotechnical Report date May 24, 2006, (P0504-D400-RPT-DE-008). Due to recent updates in the building codes, the proposed structures may be designed in accordance with the 2007 CBC seismic design criteria. To provide the criteria meeting 2007 CBC, we have reviewed United States Geological Survey (USGS) posted values for Seismic Design Values for Buildings, and their Ground Motion Parameter Calculator. Also, to determine 2007 CBC criteria, we utilized ASCE 7.5, and 2006 IBC calculation modules. Provided below is a summary of the suggested design values for the general Western Area – Yard and Shops area:

Summary of 2007 CBC Seismic Design Values

Latitude = 37.3518 and Longitude = -121.9302

	DESIGN VALUE
Site Class	D
0.2 second Spectral Response Acceleration, S_s	1.500
1.0 second Spectral Response Acceleration, S_1	0.600
Site Coefficient, F_a	1.0
Site Coefficient, F_v	1.5
Maximum considered earthquake spectral response accelerations for short periods, S_{MS}	1.500
Maximum considered earthquake spectral response accelerations for 1-second periods, S_{M1}	0.900
Design spectral response acceleration at short periods, S_{DS}	1.000
Design spectral response acceleration at 1-second periods, S_{D1}	0.600

As per the American Society of Civil Engineers Standard 7-05, the long-period transition period (T_L) for the site is 8 seconds.

4.0 RECOMMENDATIONS

4.1 General - Mass Grading

We anticipated that minor grading will be required to provide drainable grades for the De La Cruz Overpass, Pedestrian Bridge and Test Surcharge Fill sites. Grading operations should be performed in accordance with recommendation provided in the Geotechnical Report dated May 24, 2006, (P0504-D400-RPT-DE-008, Rev. 0).

It should be noted that a qualified Geotechnical Engineering firm must be identified in writing to the City of San Jose and the City of Santa Clara as the Geotechnical Engineer of Record and must be involved with Yard & Shops Complex demolition, preparation, remedial/corrective grading, civil mass grading, and improvement (utilities and streets) activities at the site. Operations performed without proper oversight and testing by a qualified Geotechnical Engineer or their field representatives could result in the inability to obtain Final Permit compliance or occupancy by city/county agencies and could deem work performed as inadequate.

All earthwork activities including clearing, grubbing, and site grading should be accomplished as described in this report and in general conformance with the Bart Facility Standards.

4.2 Design Considerations for the De La Cruz Retaining Structure

According to the soil nail wall plans prepared by HNTB Corporation included in the 35 percent Submittal plans (Sheets YS-S101 to YS-S103), the proposed soil nail wall will be up to 24½ feet high. We anticipate wall cuts will expose embankment fill consisting of stiff to very stiff silty clay and sandy clay and dense to very dense clayey sand, clayey gravel, sandy silt and silty sand deposits.

Due to proximity of the existing De La Cruz overpass structure, we recommend that a pre-construction survey and monitoring program be performed before and during construction for the existing bridges, roadways and pavements which may be affected by construction activities.

This will form a basis for any damage claims. This survey may consist of a baseline elevation survey, photographs, video tapes, etc.

4.2.1 Soil Nail Wall Soil Design Parameters. Preliminary soil nail wall design recommendations were provided under Section 5.18 of the Geotechnical Report dated May 24, 2006, (P0504-D400-RPT-DE-008, Rev. 0). The following sections (Sections 4.2.1 through 4.2.4) provide supplemental soil nail wall design recommendations based on subsurface information obtained from the exploratory borings drilled for this study.

Based on the subsurface information obtained from Borings 2-BH1, 2-BH2 and 2-BH3, the soil parameters provide in Section 5.18 of the Geotechnical Report dated May 24, 2006, (P0504-D400-RPT-DE-008, Rev. 0) are updated as follow:

<u>Material</u>	Allowable Bond Stress (psi)	Cohesion (c') (pcf)	Friction Angle (ϕ') (degrees)	Unit Weight (γ) (pcf)
Embankment Fill	6	0	30	125

Based a peak ground acceleration of 0.54g provided by the design team seismic consultant, the soil nail wall designer should consider a seismic coefficient of 0.18g for pseudo-static analyses. Factors of safety provided in Section 5.18.1 of the Geotechnical Report dated May 24, 2006, (P0504-D400-RPT-DE-008, Rev. 0) should be incorporated in the soil nail wall design.

All soil nails should have a minimum embedment length of at least 15 feet. Surcharge loads from the existing De La Cruz roadway structure, foundations and vehicle loading should be included in the design. The designer should consult the project Civil Engineer and Structural Engineer for appropriate design surcharge loads from automobiles and structures, respectively. Prior to installation of soil wall nails, the location of existing foundation piers and buried utilities within the embankment fill should be surveyed.

Shotcrete facing should have appropriate reinforcement steel designed to resist structural loads as well as stresses caused by regional temperature variations and concrete shrinkage. The shotcrete facing should be embedded at least 12 inches below grade along the bottom of the wall.

4.2.2 Soil Nail Wall Drainage. Drained soil parameters have been assumed, as the walls are expected to be above the regional groundwater table; however, zones of perched groundwater seepage may be encountered. Accordingly, all retaining walls should be provided with drainage facilities to prevent the build-up of hydrostatic pressures behind them. Wall drainage should be provided using prefabricated synthetic wall drain panels, with at least 6-ounce unit weight filter fabric, that are 6 to 12 inches wide and spaced every 4 to 6 feet horizontally. The panels should be suitably attached to the soil and hydraulically connected at the bottom of the wall to 4-inch-diameter perforated pipe (SDR 35 or approved equivalent) embedded in free-draining gravel surrounded by synthetic filter fabric, or Class 2 permeable material. The drain panels should extend to about one foot below the finished grades at the top of the wall. Drainage should be collected by perforated pipes and directed to an outlet approved by the Civil Engineer. Weep holes could also be approved upon review of the design plans, provided the owner is tolerant of seepage through the wall and onto the ground surface situated at the base of the wall.

4.2.3 Test Nails. The Geotechnical Engineer should perform full-time monitoring of nail installation and testing. The actual bond between the grout and the nail can vary significantly with the method of installation.

It is imperative that a comprehensive testing program be implemented to verify that the design loads can be attained. Accordingly, at least 4 sacrificial nails, located at the discretion of the Geotechnical Engineer, should be successfully tested prior to production nailing, using the same equipment and methods to be used for production work. The verification test nails should have a minimum bond length of 10 feet and a minimum unbonded length of 5 feet at the time of testing. The test nail bars should be sized so that the test load does not exceed 80 percent of the yield or ultimate strength of the steel and should be loaded to 200 percent of the design load.

Five percent of the production nails should be proof tested to 150 percent of the design load. Nails to be tested should have a bonded zone and an unbonded free zone, to be specified by the Geotechnical Engineer. If necessary, the size of the nail tested should be increased such that the test load does not exceed 80 percent of the yield or ultimate strength of the steel. Upon completion of testing, the free length should be backfilled with structural grout.

It should be expected that the soil nails will encounter gravels mixed with a fine-grained matrix within the embankment fill. As mentioned before, zones of water seepage should also be expected. The contractor should be advised of the potential presence of these conditions and should be prepared to implement appropriate drilling methods.

Holes should be drilled without a loss of ground. This may require casing or augercast installation methods, particularly in areas where groundwater seepage are encountered. Holes should not be drilled with fluids or water. Nails should be installed and grouted immediately upon completion of drilling.

4.2.4 Soil Nail Wall Construction Considerations. Construction should be performed by a contractor experienced in soil nailing. The successful performance of soil nailing wall systems is dependent on proper installation methods. The shotcrete wall should be installed within 8 hours after the soil is excavated to the final line. The shotcrete should cure for at least 4 days or until tests show a minimum of 50 percent of the required compressive strength.

4.2.5 Mechanically Stabilized Earth Retaining Wall Design Parameters. Near-vertical, mechanically stabilized earth (MSE) retaining wall may also be suitable for retaining cuts below the De La Cruz Overpass. If a MSE wall is planned, the designer should confirm that there is adequate space to place the geogrid and the excavations made during construction of the MSE walls will not affect the stability of the existing structures.

Since the retaining structure proposed beneath the De La Cruz Overpass will experience significant structural/traffic surcharge loads, the designer should consider segmental blocks with fiber glass pin connections for geogrid (e.g. Keystone Standard 21½-inch blocks or equivalent) in their wall design in order to obtain suitable long-term performance. Traffic surcharge from automobiles and structural loads from existing structures should be considered in the MSE wall design. The designer should consult with the project Civil Engineer and Structural Engineer for appropriate design surcharge loads from automobiles and structures, respectively.

The retaining wall designer may consider using Tensar UX1600SB geogrid as the geogrid reinforcement. As a minimum, the geogrid material should be a high density polyethylene (HDPE), uniaxially oriented integrally formed structural geogrid. The geogrid length should be at least 75 percent of the retained wall height and should be uniform for the full wall height. Actual geogrid lengths should be based on specific structural analysis of MSE wall.

In general, coarse-grained fill is the most suitable material for geogrid construction. The following soil criteria representing a coarse-grained fill should be incorporated in the wall design:

	Cohesion (c) (pcf)	Friction Angle (ϕ) (degrees)	Unit Weight (γ) (pcf)
Reinforced Fill	0	30	125
Retained Soil	0	30	125
Foundation Soil	0	30	125

We anticipated the MSE wall to be founded on native silty clay deposits. Due to potential liquefaction potential within the vicinity of the proposed retaining structure beneath the De La Cruz Overpass, settlement and wall distress are possible in the event of a large earthquake.

Foundation design for the MSE wall should be in accordance with recommendations provided in Sections 5.12 and 5.13 of the 35 percent Submittal Geotechnical Report dated May 24, 2006, (P0504-D400-RPT-DE-008 Rev 0.) and clarifications to the associated recommendations provided in Section 5.0 of this report.

The minimum embedment of the walls (measured from the lowest adjacent soil subgrade to the bottom of the base block) should be at least one foot into compacted engineered if the area in front of the wall is horizontal for a distance of at least 10 feet. If the horizontal distance is less than 10 feet (where downslope areas are near the base of the wall), the embedment depth of the wall should be increased to a depth at which the horizontal distance from the outer edge of the bottom block to the face of the slope is at least 10 feet.

4.2.6 Mechanically Stabilized Earth Retaining Drainage Considerations. All retaining walls should be provided with drainage facilities to prevent the build-up of hydrostatic pressures. Drainage may be provided using a 4-inch-diameter perforated pipe (SDR 35 or approved equivalent) surrounded

by Caltrans Class 2 permeable material. The thickness of the drain blanket should be at least 12 inches. The drain blanket should extend to about one foot below finished grades. The upper one foot of backfill should be a compacted native cap. Drainage should be collected by solid pipes and directed to an outlet approved by the Civil Engineer, such as into a catch basin, field inlet or storm drain manhole. Recommendations provided under Section 5.16 of the Geotechnical Report dated May 24, 2006, (P0504-D400-RPT-DE-008, Rev. 0) for behind wall drainage remain applicable and should also be considered.

4.3 Design Considerations for the Pedestrian Bridge

As discussed in Section 3.3, the significant geotechnical hazard at the pedestrian bridge abutments are the potential for earthquake-induced liquefaction and densification of sandy soils. Considering the potential liquefaction-induced ground settlement, we recommend the pedestrian bridge be supported on drilled or driven piles as described below.

4.3.1 Drilled Piers Foundation. Drilled piers such as auger cast-in-place concrete piers may be used to support the proposed pedestrian bridge abutments. Drilled piers should be designed in accordance with recommendations provided in Section 5.12 of the 35 percent Submittal Geotechnical Report dated May 24, 2006 (P0504-D400-RPT-DE-008 Rev 0.) and clarifications to the associated recommendations provided in Section 5.0 of this report. Drill piers should extend through the potentially liquefiable soil; thus, we anticipate the drilled pier to be at least 50 feet deep.

4.3.2 Driven Piles Foundation. Driven piles consisting of pre-cast, pre-stressed concrete piles may also be suitable for supporting the proposed pedestrian bridge abutments. Driven piles should be designed in accordance with recommendations provided in Section 5.13 of the 35 percent Submittal Geotechnical Report dated May 24, 2006, (P0504-D400-RPT-DE-008 Rev 0.) and clarifications to the associated recommendations provided in Section 5.0 of this report. Driven piles should extend below the liquefiable materials; thus a pile length of at least 50 feet is anticipated.

4.4 Test Surcharge Fill Area

General guidelines for the construction of the test surcharge fill area are provided in the Surcharge Fill Placement and Settlement Monument Installation Manual dated April 13, 2007, and in Section 02246 of the Construction Specifications of Contract C401 (07044) Addenda 1. As discussed in Section 3.4.1, the estimated ground settlement due to consolidation of compressible clay soil under the test surcharge fill load will range from ¼ to ¾ inches.

4.4.1 Test Surcharge Fill Monitoring. After the test surcharge fill is placed and monitoring devices are installed, the Geotechnical Engineer should begin monitoring ground settlement. Readings of settlement monuments should be tied to bench marks established well beyond the zone of surcharge influence. Construction of structures should be postponed until the majority of the settlement has occurred. The following monitoring schedule should be followed:

Time after completion of surcharge placement (months)	Data Collection Interval
0 to 1	Every week
1 to 3	Every 2 weeks
3 to 6*	Every 4 weeks

Note: * Estimated surcharge duration; subject to change based on actual settlement recorded.

4.5 Design Considerations for the Revenue Processing Building (YJ)

As discussed in Section 3.5, the significant geotechnical hazard at the proposed Revenue Processing Building (YJ) is the presence of compressible soil. As recommended in Section 5.10 of the 35 percent Submittal Geotechnical Report dated May 24, 2006 (P0504-D400-RPT-DE-008 Rev 0.) and clarifications to the associated recommendations provided in Section 5.0 of this report, the proposed structure can be supported on a mat foundation. This foundation recommendation remains valid for the proposed building location. Considering potential ground settlement due to presence of compressible soils, we recommend a surcharge program within the general building footprint.

4.5.1 Building Pad Surcharge Recommendations. The intent and considerations of a surcharge fill program is discussed in Section 5.8.1 of the 35 percent Submittal Geotechnical Report dated

May 24, 2006 (P0504-D400-RPT-DE-008 Rev 0.). For planning purposes, placing 6 feet of surcharge fill within the vicinity of the Revenue Processing Building, including areas 5 feet away from the building footprint, for approximately 8 months can mitigate the consolidation settlement due to the structural loads. The surcharging time can be shortened by installing closely spaced vertical permeable drains, or “wick drains”, that extend through the compressible clay layer. Typically, the surcharge schedule could be reduced by 20 to 40 percent by installing wick drains approximately 5 to 10 feet apart in a triangular pattern.

4.5.2 Surcharge Fill Monitoring. After the surcharge fill is placed and monitoring devices are installed, the Geotechnical Engineer should begin monitoring ground settlement. Readings of settlement monuments should be tied to bench marks established well beyond the zone of surcharge influence. Construction of structures should be postponed until the majority of the settlement has occurred. The following monitoring schedule should be followed:

Time after completion of surcharge placement (months)	Data Collection Interval
0 to 1	Every week
1 to 3	Every 2 weeks
3 to 6*	Every 4 weeks

Note: * Estimated surcharge duration; subject to change based on actual settlement recorded.

4.5.3 Mat Foundations Mat foundations, including conventionally reinforced structural mat, stiffened rib mat and post-tensioned slab foundation may be used to support the proposed Revenue Processing Building provided a surcharge program is implemented. Mat foundations should be designed in accordance with recommendations provided in Section 5.10.1, 5.10.2 and 5.10.3 of the 35 percent Submittal Geotechnical Report dated May 24, 2006 (P0504-D400-RPT-DE-008 Rev 0.) and clarifications to the associated recommendations provided in Section 5.0 of this report.

4.5.4 Driven Piles or Drilled Piers Foundation. Driven piles consisting of pre-cast, pre-stressed concrete piles or drilled piers such as auger cast-in-place concrete piers may be used to support the proposed Revenue Processing Building (YJ) in lieu of a surcharge program. Driven piles and drilled piers should be designed in accordance with recommendations provided in Section 5.13 or 5.12 of the 35 percent Submittal Geotechnical Report dated May 24, 2006, (P0504-D400-RPT-

DE-008 Rev 0.) and clarifications to the associated recommendations provided in Section 5.0 of this report. Driven piles or drilled piers should extend below the compressible material; thus a pile length of at least 30 feet is anticipated.

4.6 Design Considerations for the Revenue Vehicle Maintenance Shop (YE)

General recommendations for the Revenue Vehicle Maintenance Shop is provided in the 35 percent Submittal Geotechnical Report dated May 24, 2006, (P0504-D400-RPT-DE-008 Rev 0.). The subsurface conditions encountered in the northern portion of the propose structure is consistent with conditions encountered during the 35 percent exploration within the southern portion of the structure. Thus, recommendations the 35 percent Submittal Geotechnical Report dated May 24, 2006, (P0504-D400-RPT-DE-008 Rev 0.), for the Revenue Vehicle Maintenance Shop (YE) is still valid.

5.0 CLARIFICATION ON RECOMMENDATIONS OF THE 35% GEOTECHNICAL REPORT

Based on the subsurface information obtained from the supplemental Phase 2 exploration and discussions with the Structural Engineer (Miyamoto International Incorporated), some of the foundation recommendations presented in the 35% Geotechnical Report dated May 24, 2006, have been updated. The updated sections are documented herein.

5.1 Clarification on Section 5.10 of May 2006 Geotechnical Report

The conceptual foundation types for Buildings YE and YL as provided on page 5-9 on the May 2006 Geotechnical Report should be updated as follows to reflect the foundations discussed and depicted in Appendix E of the May 2006 Geotechnical Report:

DRAWING TITLE	STRUCTURE	TOTAL CONCEPTUAL LOADING (PSF)	PRELIMINARY FOUNDATION TYPES	SURCHARGE REQUIRED (Y/N)
YE	Revenue Vehicle Maintenance Shop	1290	Pier/Pile Foundation Mat Foundation	Y
	Main Repair Bays	730	Pier/Pile Foundation	Y
	Storage Room	2265	Pier/Pile Foundation Mat Foundation	Y
YL	Window Replacement Platform	735	Pier/Pile Foundation	N
			Mat Foundation	Y

5.2 Clarifications on Section 5.10.1 of May 2006 Geotechnical Report

For small structures that are less than 15 feet long in the shortest direction, the conventionally reinforced structural mat should be designed for a 3-foot edge-cantilever distance extending one-half column bay in each direction and a 5-foot unsupported interior-span distance.

Structures that are greater than 15 feet long in the shortest direction should be designed utilizing the cantilever recommendations provided in the May 2006 Geotechnical Report. This includes a 5-foot edge cantilever extending one-half column bay in each direction and a 15-foot unsupported interior span distance. This requirement may necessitate the use of a thickened mat, additional reinforcement and/or stiffing ribs at column locations. Moreover, the average allowable bearing

pressure may be increased to 2,000 psf in areas of high stress concentration such as along the edge of the mat.

Exterior structural mat slabs such as approach ramps or truck loading area may be designed according to parameters provided in Section 5.10.1 of the May 2006 Geotechnical Report. A thickened edge is not required for exterior structural slab.

5.3 Clarification on Section 5.12.1 of May 2006 Geotechnical Report

As recommended in Section 5.12.1 of the May 2006 Geotechnical Report, drilled piers should be at least 25 feet deep and extend through any potentially liquefiable zone. The following table summarizes the estimated depths and zones where layers of the potentially liquefiable soils may exist within the pier/pile supported structures.

DRAWING TITLE	STRUCTURE	ZONE WHERE POT. LIQUEFIABLE SOILS MAY BE PRESENT	APPROX. ELEVATION OF POT. LIQUEFIABLE LAYER (FEET above MSL)
YE	Main Repair Bays	25 to 45 feet below ground surface	El. 37 to 17
YG	Maintenance and Engineering Shops	Pot. liquefiable layer not present	--
YH	NR Maintenance Shop	Pot. liquefiable layer not present	--
YL	Window Replacement Platform	25 to 45 feet below ground surface	EL. 37.5 to 17.5
YM	Wheel Truing Facility	20 to 30 feet below ground surface	EL 42.7 to 32.7

Due to presence of potentially liquefiable soils, it will be necessary to consider; (1) downdrag loads caused by potential liquefiable soils on the structural capacity of the pile/piers and (2) potential seismic settlement of the pile/pier shafts. The downdrag load for a single pile/pier can be estimated as 25-percent of the pile/pier static load capacity. The downdrag load will not reduce the capacity of the pile/pier under uplift/tension condition. The Structural Engineer should verify that the total load that includes the downdrag load does not exceed the structural capacity of the pile/pier. Pile/pier settlement under static loads area estimated to be less than 1 inch. Seismic settlement

could be on the order of another ¼ to ½ inch. The allowable vertical capacity can be increased by a factor of 1.33 for total load conditions, which include wind and/or seismic forces.

The single drilled pier vertical capacities table provided on page 5-14 of the May 2006 Geotechnical Report is revised as follows:

PIER DIAMETER (INCHES)	EMBEDMENT DEPTH (FEET)	ULTIMATE ALLOWABLE VERTICAL CAPACITY** (KIPS)	
		COMPRESSION	UPLIFT/TENSION
18	25	55	45
24	45	135	120
36	45	200	195

** A Factor of Safety of 3 is incorporated

5.4 Clarification on Section 5.12.2 on May 2006 Geotechnical Report

Lateral loads such as wind and seismic loads can be resisted by passive pressures acting on the pile/pier caps, grade beams and the upper portions of the pile/piers embedded in non-liquefiable soils. The allowable lateral capacity can be increased by a factor of 1.33 for total load conditions, which include wind and/or seismic forces.

Moreover, the single drilled pier lateral capacities table provided on page 5-14 of the May 2006 Geotechnical Report is revised as follow:

PIER DIAMETER (INCHES)	EMBEDMENT DEPTH (FEET)	ULTIMATE ALLOWABLE LATERAL CAPACITY** (KIPS)
18	25	45 75
24	45	40 100
36	45	60 150

** A Factor of Safety of 3 is incorporated

The typical allowable lateral pile capacities provided above assumes that lateral loads will be resisted by the upper portion of the pile/pier shafts, which will be embedded in soils that are not susceptible to liquefaction. For static conditions, a reduction in lateral capacity due to liquefaction is not necessary. When considering seismic lateral capacity, passive resistance along the liquefiable zone should be ignored.

In some conditions, pile/pier foundation are planned adjacent to mat foundations, for the mat bearing pressures recommended in the report, lateral surcharge pressures from mat foundations adjacent pier will be negligible and do not need to be considered in the lateral design of the piles/piers.

The following table provides a summary of the lateral load analyses for a 24-inch and 36-inch diameter pier under a lateral load of 20 kips.

Pier Diameter (inches)	Moment of Inertia (in ⁴)	Modulus of Elasticity, E _c (kips/in ²)	Pier Length (ft)	Anticipated Axial Load per Pier (kips)	Pier Head Deflection (inches)	Depth of Zero Moment (feet from top of pier)
24	16,286	3000	45	135	0.52	12.5
36	82,448	3000	60	200	0.23	15.5

5.5 Clarification on Section 5.13.2 of May 2006 Geotechnical Report

General pile capacities provided in Section 5.13.1 does not include reduction from downdrag forces. The downdrag load for a single drive pier can be estimated according to method outlined in Section 5.3 of this report.

5.6 Clarification on Section 5.13.2 of May 2006 Geotechnical Report

Lateral loads such as wind and seismic loads can be resisted by passive pressures. The allowable capacity can be increased by a factor of 1.33 for total load conditions, which include wind and/or seismic forces. Lateral resistant reduction due to presences of liquefiable soil should be considered

in accordance to recommendations provided under Section 5.4 of this report. Moreover, if mat foundations are planned nearby, lateral surcharge pressures need not be considered as discussed under Section 5.4 of this report.

5.7 Clarification on Section 5.15 of May 2006 Geotechnical Report

We understand that concrete apron slabs will be constructed as approach ramps to some of the proposed structures and will not be structurally connected to the structure's foundation. Slab-on-grade design recommendations provided under Section 5.15 of the May 2006 Geotechnical Report should be used to design apron slabs.

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 their partners, contractors, 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 Incorporated 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 development. We are unable to eliminate all risks or provide insurance; therefore, we are unable to guarantee or warrant the results of our services.

This report is based upon field and other conditions discovered at the time of preparation of ENGEO's documents of service. This document must not be subject to unauthorized reuse. Such authorization is essential because it requires ENGEO to evaluate the document's applicability given new circumstances, not the least of which is passage of time. Actual field or other conditions will necessitate clarifications, adjustments, modifications or other changes to ENGEO's documents. Therefore, ENGEO must be engaged to prepare the necessary clarifications, adjustments, modifications or other changes before construction activities commence or further activity proceeds. If ENGEO's scope of services does not include on-site construction observation, or if other persons or entities are retained to provide such services, ENGEO cannot be held responsible for any or all claims, including, but not limited to claims arising from or resulting from the performance of such services by other persons or entities, and any or all claims arising from or resulting from clarifications, adjustments, modifications, discrepancies or other changes necessary to reflect changed field or other conditions.

7.1 APPENDIX A

ENGEO INCORPORATED

Logs of Borings

FIELD EQUIPMENT & PROCEDURES

The test borings were drilled by Gregg Drilling and Testing using a Mobile B-80 truck-mounted drill rig equipped with mud rotary drill rods and a Mobile Drill B-24 track-mounted drill rig equipped with 4-inch-diameter soil flight augers. The drilling procedure was performed in accordance with ASTM standards (D5783-95 and D1452-07a). The mud rotary drilling method utilizes drilling mud to hold the borehole open for sediment sampling and piezometer installation.

Soil samples were collected by using a 3-inch outside diameter (O.D.) California-type split-spoon sampler fitted with 6-inch-long brass liners, a 2-inch outside diameter (O.D.) Standard Penetration Test split-spoon sampler or a 3-inch O.D. Shelby Tube. The split spoon samplers were driven with a 140-pound above-hole safety hammer falling a distance of 30 inches. An automatic trip system was used to lift the hammer for the mud rotary borings and a rope and cathead system is used to lift the hammer for the solid flight auger borings. The penetration of the split-spoon samplers into the subsurface materials was field recorded as the number of blows needed to drive the sampler 18 inches in 6-inch increments using the 140-pound hammer with a 30-inch drop. The Shelby Tubes were advanced by pushing using the hydraulics of the drill rig.

It should be noted that the report borelogs represent the actual field blow counts for the last one foot of penetration and have not been subjected to conversion factors to achieve representative SPT (N_{60}) results.

After the completion of each test borehole, if a piezometer is planned, a 2-inch O.D. screened PVC pipe will be installed. Clean sand is used to backfill around the screened section and extends to 1 foot above the screen section of the piezometer pipe. A bentonite plug approximately 1-foot-thick is then placed over the clean sand. The remaining length of the piezometer pipe was backfilled with cement grout. If no piezometer is planned at the borehole location, the full length of the borehole was backfilled using cement grout.

Aug 29, 2008 - 2:52pm G:\Active Projects\6600\66003001\02\DRAWINGS\BASE FILES\9-28-07\420-S-YS-G132.DWG
 LOG - GEOTECHNICAL 6600300102 BORINGS.GPJ ENGE0 INC.DOT 2/11/08

LOG OF BORING 2-B1													
Geotechnical Exploration SVRT - YARD & SHOPS Santa Clara County, California 6600.3.001.02			DATE DRILLED: 8/20/2007 HOLE DEPTH: Approx. 103 ft. HOLE DIAMETER: 4.0 in. SURF ELEV (MSL): Approx. 65 ft.			LOGGED / REVIEWED BY: A. Firmin / DEB DRILLING CONTRACTOR: Gregg Drilling & Testing DRILLING METHOD: Mud Rotary HAMMER TYPE: 140 lb. Auto Trip							
Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits			Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
							Liquid Limit	Plastic Limit	Plasticity Index				
0	0		CLAYEY SILT (ML), dark olive brown mottled with dark brown, very stiff, moist, trace rootlets (FILL)										
1	1		SILTY SAND (SM), dark olive brown mottled with dark brown, medium dense, moist, trace rootlets			32							+4.5*
5	5		SILTY CLAY (CL), dark brownish, stiff, moist, some fine-grained sand, trace rootlets										
2	2		SILTY CLAY (CL), dark grayish brown, medium stiff to stiff, moist, trace fine-grained sand			14							2.25*
10	10		SILTY CLAY (CL), olive brown, medium stiff, saturated, with fine-grained sand, trace organics			8							
15	15		Pocket Torvane = 1.08 kg/cm ²			7							0.75*
20	20		SILTY CLAY (CL), dark olive brown mottled with dark yellowish brown, soft to medium stiff, saturated, with fine-grained sand, trace organics			9				21.9	104.4		0.5
25	25		SILTY CLAY (CL), dark olive brown mottled with dark yellowish brown, soft to medium stiff, saturated, with fine-grained sand, trace organics			6	34	16	18	80	24.4	103	1.75*

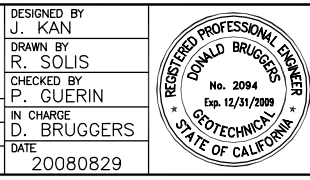
LOG OF BORING 2-B1													
Geotechnical Exploration SVRT - YARD & SHOPS Santa Clara County, California 6600.3.001.02			DATE DRILLED: 8/20/2007 HOLE DEPTH: Approx. 103 ft. HOLE DIAMETER: 4.0 in. SURF ELEV (FT-MSL): Approx. 65 ft.			LOGGED / REVIEWED BY: A. Firmin / DEB DRILLING CONTRACTOR: Gregg Drilling & Testing DRILLING METHOD: Mud Rotary HAMMER TYPE: 140 lb. Auto Trip							
Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits			Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
							Liquid Limit	Plastic Limit	Plasticity Index				
8	8		SILTY CLAY (CL), dark olive brown mottled with dark yellowish brown, soft to medium stiff, saturated, with fine-grained sand, trace organics			6				26.2	94.7		1.0*
9	9		SANDY SILT (ML), dark gray, medium stiff, saturated, trace clay										
10	10		SAND (SP), very dark gray, medium dense, saturated, some silt, fine-grained sand			7							
35	35		As above, grades to dense, trace fine gravel, fine- to coarse-grained sand			12							
40	40		SILTY SAND (SM), dark olive brown, medium dense, saturated, fine- to medium-grained sand			45				7	13.7	116.1	
45	45		SILTY SAND (SM), dark yellowish brown, medium dense, saturated, fine-grained sand			24				28	19.8	107.2	
50	50		SILTY SAND (SM), dark yellowish brown, medium dense, saturated, fine-grained sand			18				23	22.2		

LOG OF BORING 2-B1													
Geotechnical Exploration SVRT - YARD & SHOPS Santa Clara County, California 6600.3.001.02			DATE DRILLED: 8/20/2007 HOLE DEPTH: Approx. 103 ft. HOLE DIAMETER: 4.0 in. SURF ELEV (FT-MSL): Approx. 65 ft.			LOGGED / REVIEWED BY: A. Firmin / DEB DRILLING CONTRACTOR: Gregg Drilling & Testing DRILLING METHOD: Mud Rotary HAMMER TYPE: 140 lb. Auto Trip							
Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits			Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
							Liquid Limit	Plastic Limit	Plasticity Index				
16	16		SILTY SAND (SM), dark yellowish brown, medium dense, saturated, fine-grained sand			37							
55	55		SANDY SILT (ML), dark grayish brown, very stiff, saturated, fine-grained sand			12							
60	60		SILTY SAND (SM), dark gray, medium dense, saturated, trace fine gravel			29					18.1	115.4	3.0*
70	70		SILTY CLAY (CL), very dark greenish gray, very stiff, saturated, with fine-grained sand, trace organics			22					73	20.5	109.8
75	75					20							1.25*

REFERENCE DRAWING
NOT FOR CONSTRUCTION
FOR PROCUREMENT PURPOSES ONLY

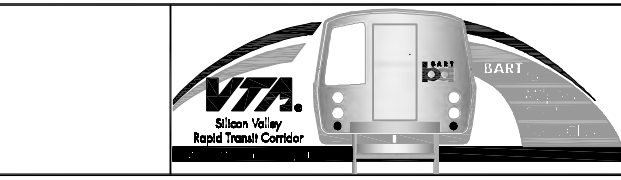
NOTE:
FOR NOTES AND BORING COORDINATES,
SEE DRAWING YS-G001.

DESIGNED BY J. KAN	20080829	PRE-PROPOSAL - ISSUED FOR RECORD
DRAWN BY R. SOLIS	20080516	PRE-BID - ISSUED FOR REVIEW
CHECKED BY P. GUERIN		
IN CHARGE D. BRUGGERS		
DATE 20080829		



ENGE0 INCORPORATED
 6399 SAN IGNACIO AVENUE SUITE 150
 SAN JOSE, CALIFORNIA 95119
 EXCELLENT SERVICE SINCE 1971 (408) 574-4900 - FAX (888) 279-2688

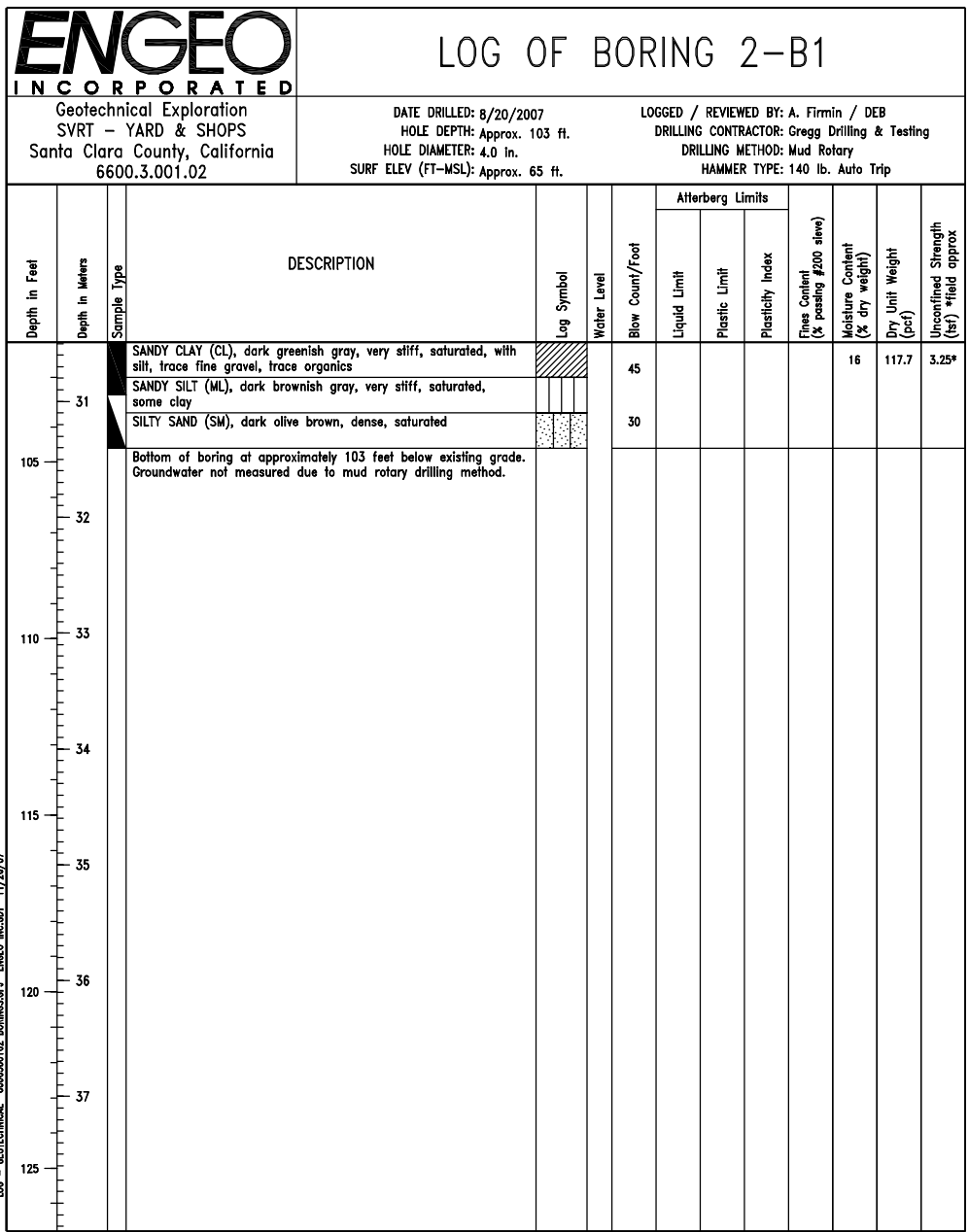
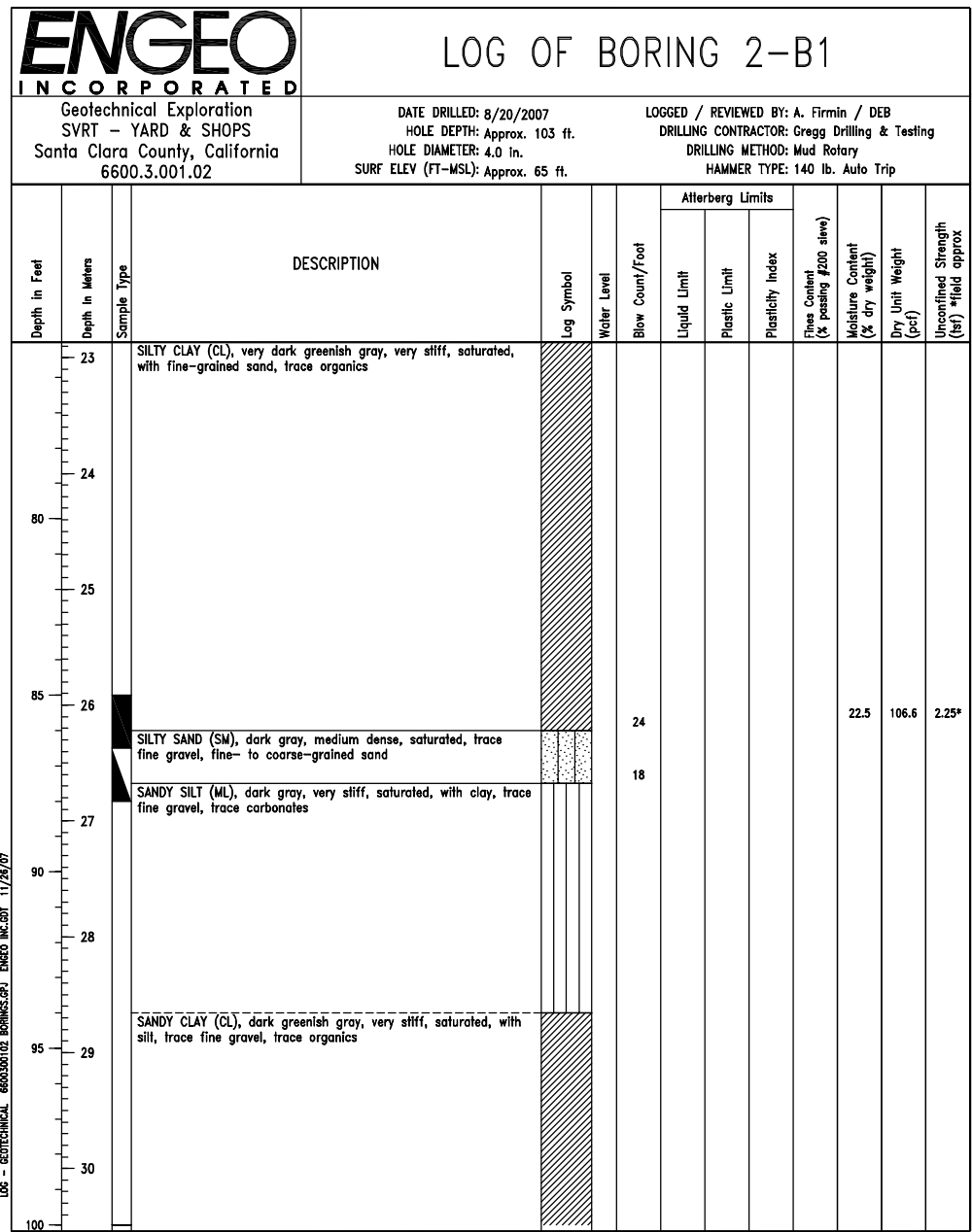
STV Incorporated
 Engineers/Architects/Planners/Construction Managers
 2580 ZANKER ROAD, SUITE 203
 SAN JOSE, CA 95134
 TEL:(408) 432-7222 FAX:(408) 432-7235



YARD AND SHOPS

 GEOTECHNICAL
 BORING LOGS
 BORING 2-B1
 SHEET 28 OF 37

CADD FILENAME C420-S-YS-G132.DWG	REV. B
SIZE SCALE D NTS	CONTRACT NO. C420
AREA CODE YS	SHEET NO. G132
	PAGE NO. 315



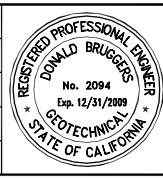
REFERENCE DRAWING
NOT FOR CONSTRUCTION
FOR PROCUREMENT PURPOSES ONLY

Aug 29, 2008 - 2:53pm C:\Active Projects\6600\6600300102\DRIFTING\BASE FILES\9-26-07\C420-S-YS-G133.DWG
 LOG - GEOTECHNICAL 6600300102 BORINGS.GPJ ENGED INC.GDT 11/26/07

NOTE:
 FOR NOTES AND BORING COORDINATES,
 SEE DRAWING YS-G001.

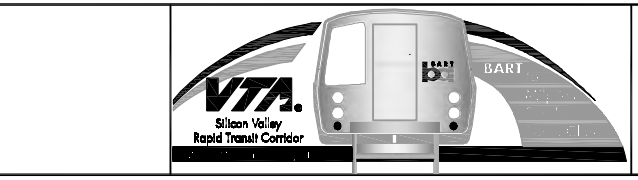
REV	DATE	BY	SUB	APP	DESCRIPTION
B	20080829				PRE-PROPOSAL - ISSUED FOR RECORD
A	20080516				PRE-BID - ISSUED FOR REVIEW

DESIGNED BY
 J. KAN
 DRAWN BY
 R. SOLIS
 CHECKED BY
 P. GUERIN
 IN CHARGE
 D. BRUGGERS
 DATE
 20080829



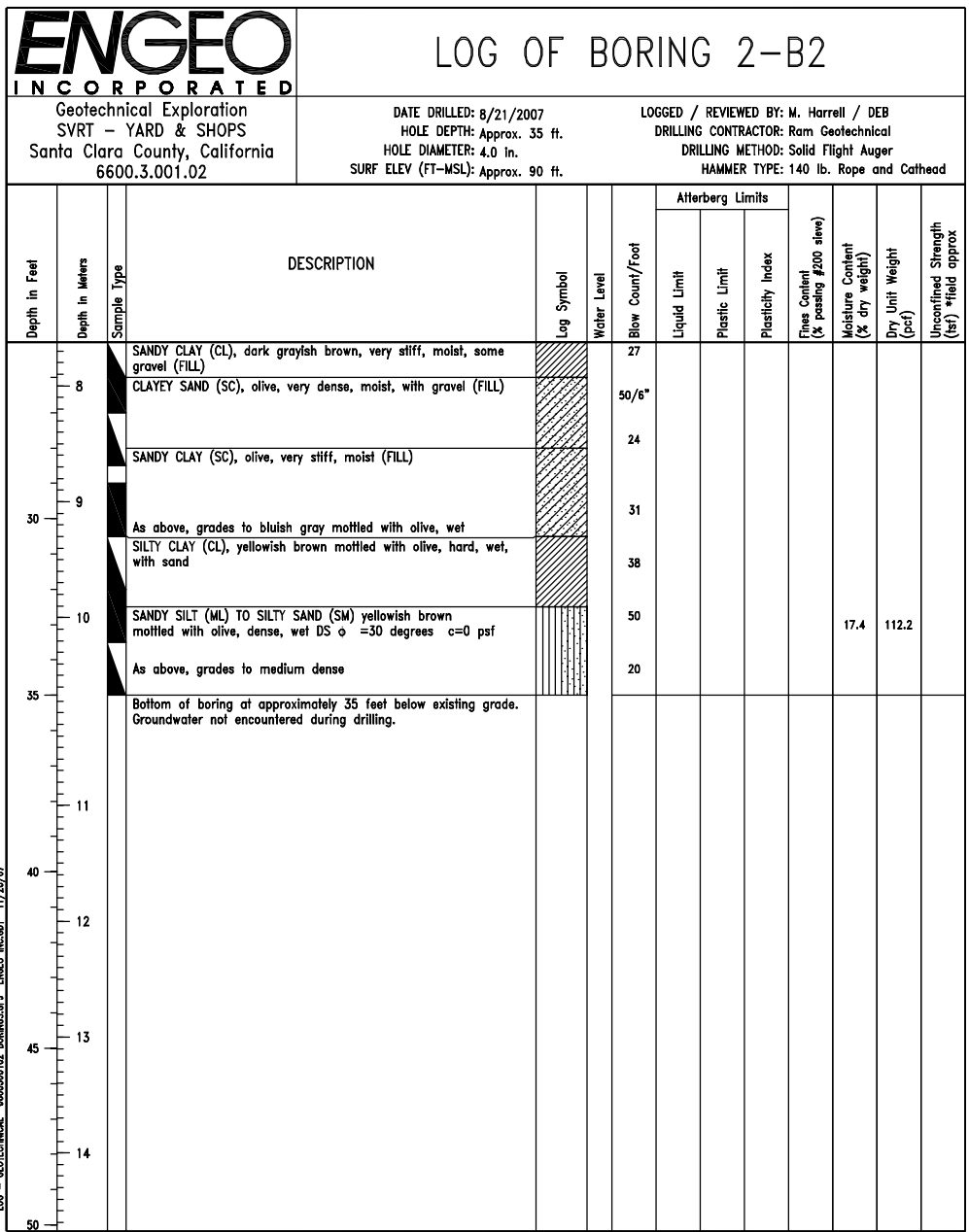
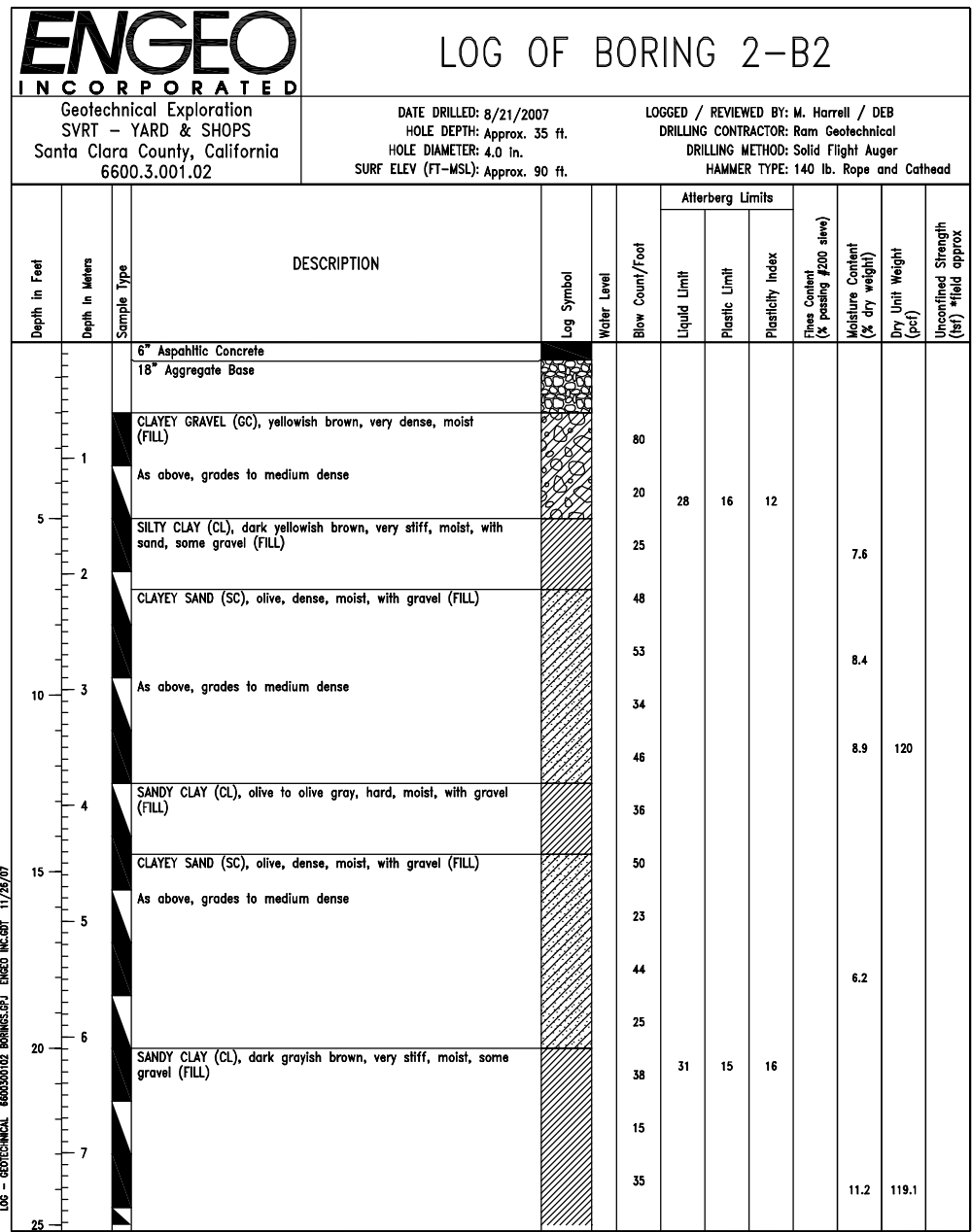
ENGEEO INCORPORATED
 6399 SAN IGNACIO AVENUE SUITE 150
 SAN JOSE, CALIFORNIA 95119
 EXCELLENT SERVICE SINCE 1971 (408) 574-4900 - FAX (888) 279-2688

STV Incorporated
 Engineers/Architects/Planners/Construction Managers
 2580 ZANKER ROAD, SUITE 203
 SAN JOSE, CA 95134
 TEL:(408) 432-7222 FAX:(408) 432-7235



YARD AND SHOPS
 GEOTECHNICAL
 BORING LOGS
 BORING 2-B1 CONTINUED
 SHEET 29 OF 37

CADD FILENAME C420-S-YS-G133.DWG			
SIZE	SCALE		
D	NTS		
CONTRACT NO.	C420	REV.	B
AREA CODE	YS	SHEET NO.	G133
		PAGE NO.	316



REFERENCE DRAWING
NOT FOR CONSTRUCTION
FOR PROCUREMENT PURPOSES ONLY

Aug 29, 2008 - 2:53pm C:\Active Projects\6600\6600300102\DRAWINGS\BASE FILES\9-26-07\C420-S-YS-G134.DWG

NOTE:
FOR NOTES AND BORING COORDINATES,
SEE DRAWING YS-G001.

DESIGNED BY	J. KAN
DRAWN BY	R. SOLIS
CHECKED BY	P. GUERIN
IN CHARGE	D. BRUGGERS
DATE	20080829

REV	DATE	BY	SUB	APP	DESCRIPTION
B	20080829				PRE-PROPOSAL - ISSUED FOR RECORD
A	20080516				PRE-BID - ISSUED FOR REVIEW



YARD AND SHOPS

GEOTECHNICAL
BORING LOGS
BORING 2-B2
SHEET 30 OF 37

CADD FILENAME			C420-S-YS-G134.DWG
SIZE	SCALE		NTS
CONTRACT NO.	C420	REV.	B
AREA CODE	YS	SHEET NO.	G134
		PAGE NO.	317



LOG OF BORING 2-B3

Geotechnical Exploration
SVRT - YARD & SHOPS
Santa Clara County, California
6600.3.001.02

DATE DRILLED: 8/21/2007
HOLE DEPTH: Approx. 101½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (FT-MSL): Approx. 67 ft.

LOGGED / REVIEWED BY: A. Firmin / DEB
DRILLING CONTRACTOR: Gregg Drilling & Testing
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx	Well Construction
0	0		SILTY CLAY (CL), dark grayish brown mottled with dark brown, very stiff, moist, with fine-grained sand, trace fine gravel (FILL)							Top cap
1	0.3					26			+4.5*	Cement bentonite grout
2	0.6		CLAYEY SILT (ML), dark yellowish brown mottled with olive brown, medium stiff, moist, with fine-grained sand			14	21.6	100.7	1.25*	
3	0.9					6				
4	1.2		SILTY CLAY (CH), dark grayish brown, medium stiff, saturated, with fine-grained sand, trace rootlets			10	32.5	88.5	0.6	
5	1.5									
6	1.8		SILTY CLAY (CL), dark olive brown mottled with dark yellowish brown, stiff, saturated, with fine-grained sand			12			0.75*	Sand
7	2.1					10				
25	7.6		SANDY SILT (ML), dark olive brown mottled with yellowish brown, medium stiff, saturated, with clay, trace carbonates							



LOG OF BORING 2-B3

Geotechnical Exploration
SVRT - YARD & SHOPS
Santa Clara County, California
6600.3.001.02

DATE DRILLED: 8/21/2007
HOLE DEPTH: Approx. 101½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (FT-MSL): Approx. 67 ft.

LOGGED / REVIEWED BY: A. Firmin / DEB
DRILLING CONTRACTOR: Gregg Drilling & Testing
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx	Well Construction
8	2.4		SANDY SILT (ML), dark olive brown mottled with yellowish brown, medium stiff, saturated, with clay, trace carbonates			8			0.25*	
9	2.7		SANDY SILT (ML) TO SILTY SAND (SM) light olive brown, medium stiff, saturated, trace clay, fine-grained sand Pocket Torvane = 0.70 kg/cm ² (1434 psf)			5	22.1	106	0.9	Sand
10	3.0									
11	3.3		SANDY SILT (ML), dark brownish gray mottled with dark yellowish brown, medium stiff, saturated, with clay			12				
12	3.6		SILTY SAND (SM), dark gray, loose, saturated, fine-grained sand			10				
13	3.9		SILTY SAND (SM), dark brown, loose, saturated, fine- to coarse-grained sand			27				
14	4.2		As above, grades to medium dense, some fine gravel			10			1.0*	Cement grout
15	4.5		SILTY CLAY (CL), bluish gray, medium stiff to stiff, saturated, trace fine-grained sand							
50	15.2		SANDY CLAY (CL) TO CLAYEY SAND (SC) light olive brown, stiff, saturated, trace carbonates, fine-grained sand							



LOG OF BORING 2-B3

Geotechnical Exploration
SVRT - YARD & SHOPS
Santa Clara County, California
6600.3.001.02

DATE DRILLED: 8/21/2007
HOLE DEPTH: Approx. 101½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (FT-MSL): Approx. 67 ft.

LOGGED / REVIEWED BY: A. Firmin / DEB
DRILLING CONTRACTOR: Gregg Drilling & Testing
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

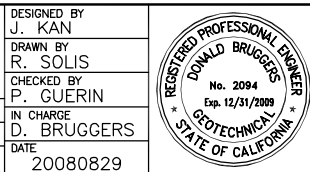
Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx	Well Construction
16	4.9		SANDY CLAY (CL) TO CLAYEY SAND (SC) light olive brown, stiff, saturated, trace carbonates, fine-grained sand			16			0.5*	
17	5.2		SILTY SAND (SM), dark yellowish brown, medium dense, saturated, some clay			20				
18	5.5									
19	5.8		SANDY SILT (ML), dark bluish gray, stiff, saturated, trace clay			18				
20	6.1									
21	6.4		SILTY CLAY (CL), olive brown, stiff, saturated, with fine-grained sand			10			1.0*	
22	6.7									
27	8.2		SILTY CLAY (CL), dark bluish gray, very stiff, saturated, with fine-grained sand, trace fine gravel, trace organics			27	16.7	117.9	1.25*	
56	17.0		SILTY SAND (SM), dark bluish gray, very dense, saturated, some fine gravel, trace organics, fine- to coarse-grained sand			56				
75	22.8		SILTY SAND (SM), dark brown, very dense, saturated, some fine gravel, trace organics, fine- to coarse-grained sand							

REFERENCE DRAWING
NOT FOR CONSTRUCTION
FOR PROCUREMENT PURPOSES ONLY

NOTE:
FOR NOTES AND BORING COORDINATES,
SEE DRAWING YS-G001.

Aug 29, 2008 - 2:53pm C:\Active Projects\6600\6600300102\DRAWINGS\BASE FILES\9-26-07\C420-S-YS-G135.DWG

DESIGNED BY	J. KAN
DRAWN BY	R. SOLIS
CHECKED BY	P. GUERIN
IN CHARGE	D. BRUGGERS
DATE	20080829



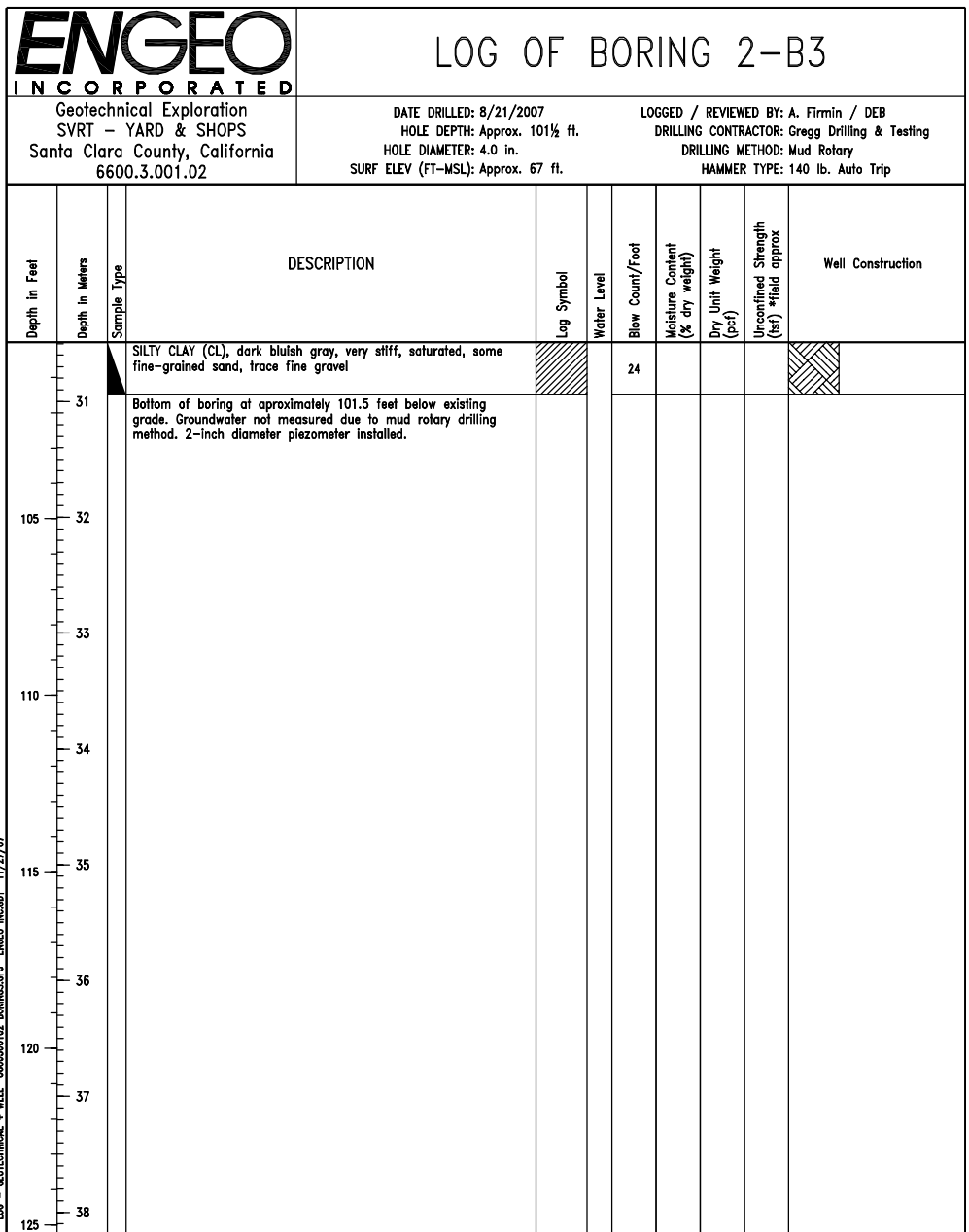
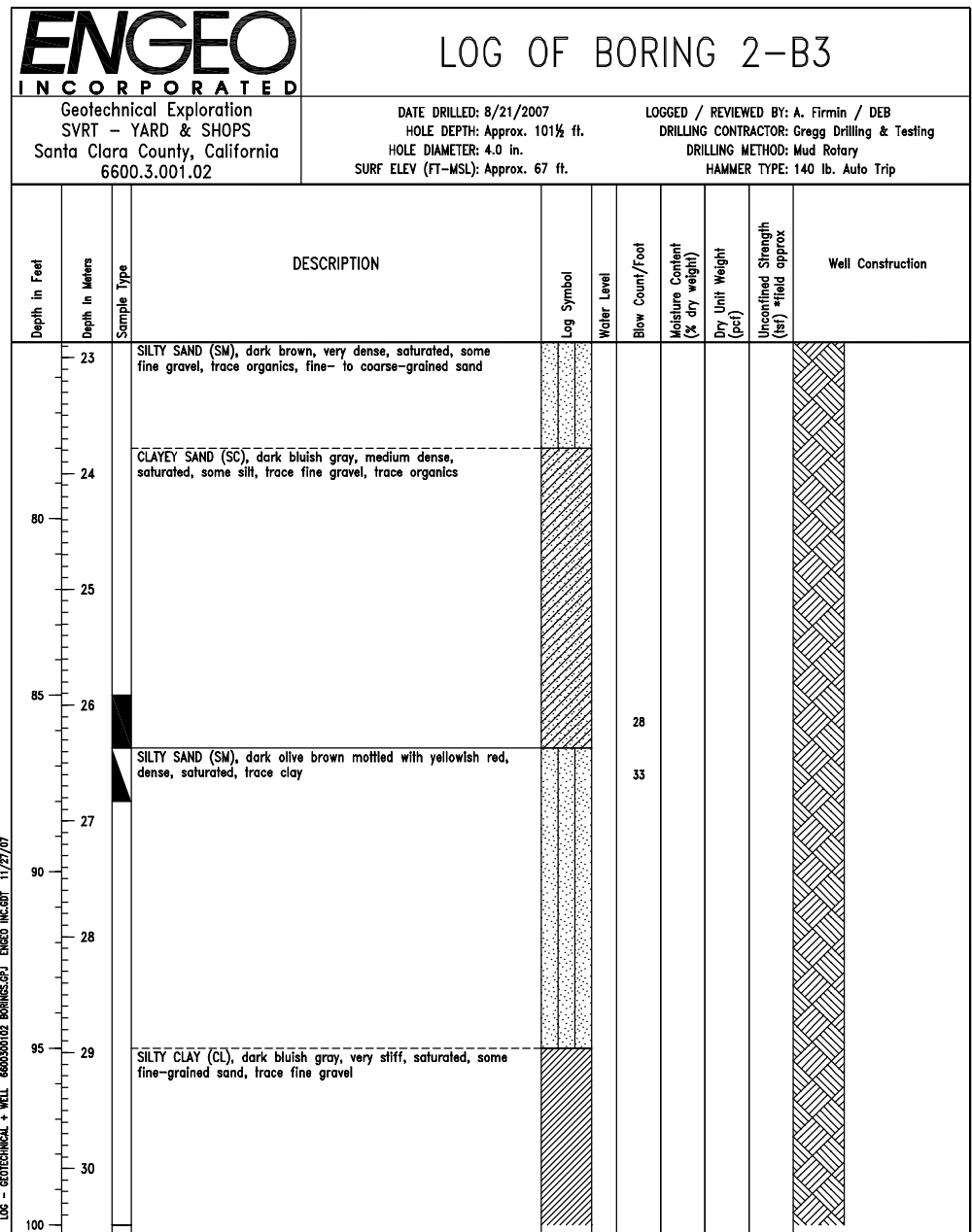
ENGEO INCORPORATED
6399 SAN IGNACIO AVENUE SUITE 150
SAN JOSE, CALIFORNIA 95119
EXCELLENT SERVICE SINCE 1971 (408) 574-4900 - FAX (888) 279-2688

STV Incorporated
Engineers/Architects/Planners/Construction Managers
2580 ZANKER ROAD, SUITE 203
SAN JOSE, CA 95134
TEL:(408) 432-7222 FAX:(408) 432-7235



YARD AND SHOPS
GEOTECHNICAL
BORING LOGS
BORING 2-B3
SHEET 31 OF 37

CADD FILENAME	C420-S-YS-G135.DWG		
SIZE	SCALE NTS		
CONTRACT NO.	C420	REV.	B
AREA CODE	YS	SHEET NO.	G135
		PAGE NO.	318



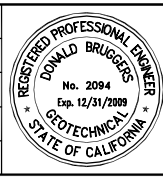
REFERENCE DRAWING
NOT FOR CONSTRUCTION
FOR PROCUREMENT PURPOSES ONLY

Aug 29, 2008 - 2:54pm C:\Active Projects\6600\6600300102\DRAWINGS\BASE FILES\9-28-07\C420-S-YS-G136.DWG

NOTE:
 FOR NOTES AND BORING COORDINATES,
 SEE DRAWING YS-G001.

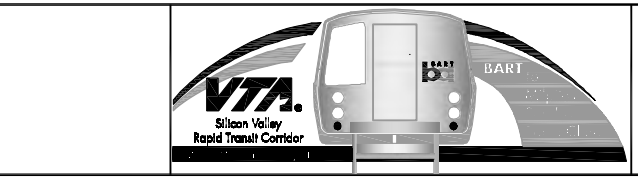
DESIGNED BY	J. KAN
DRAWN BY	R. SOLIS
CHECKED BY	P. GUERIN
IN CHARGE	D. BRUGGERS
DATE	20080829

PRE-PROPOSAL - ISSUED FOR RECORD
 PRE-BID - ISSUED FOR REVIEW



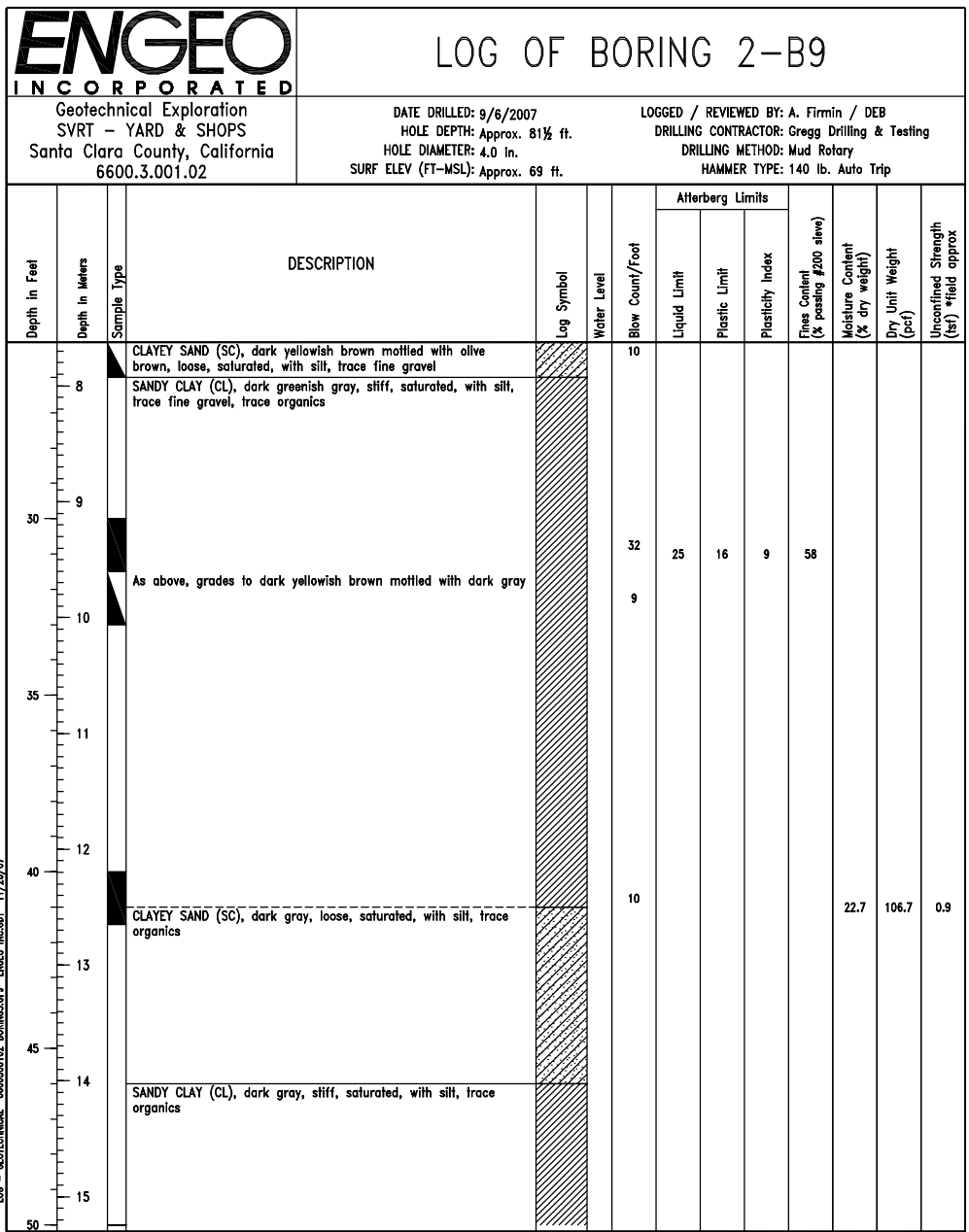
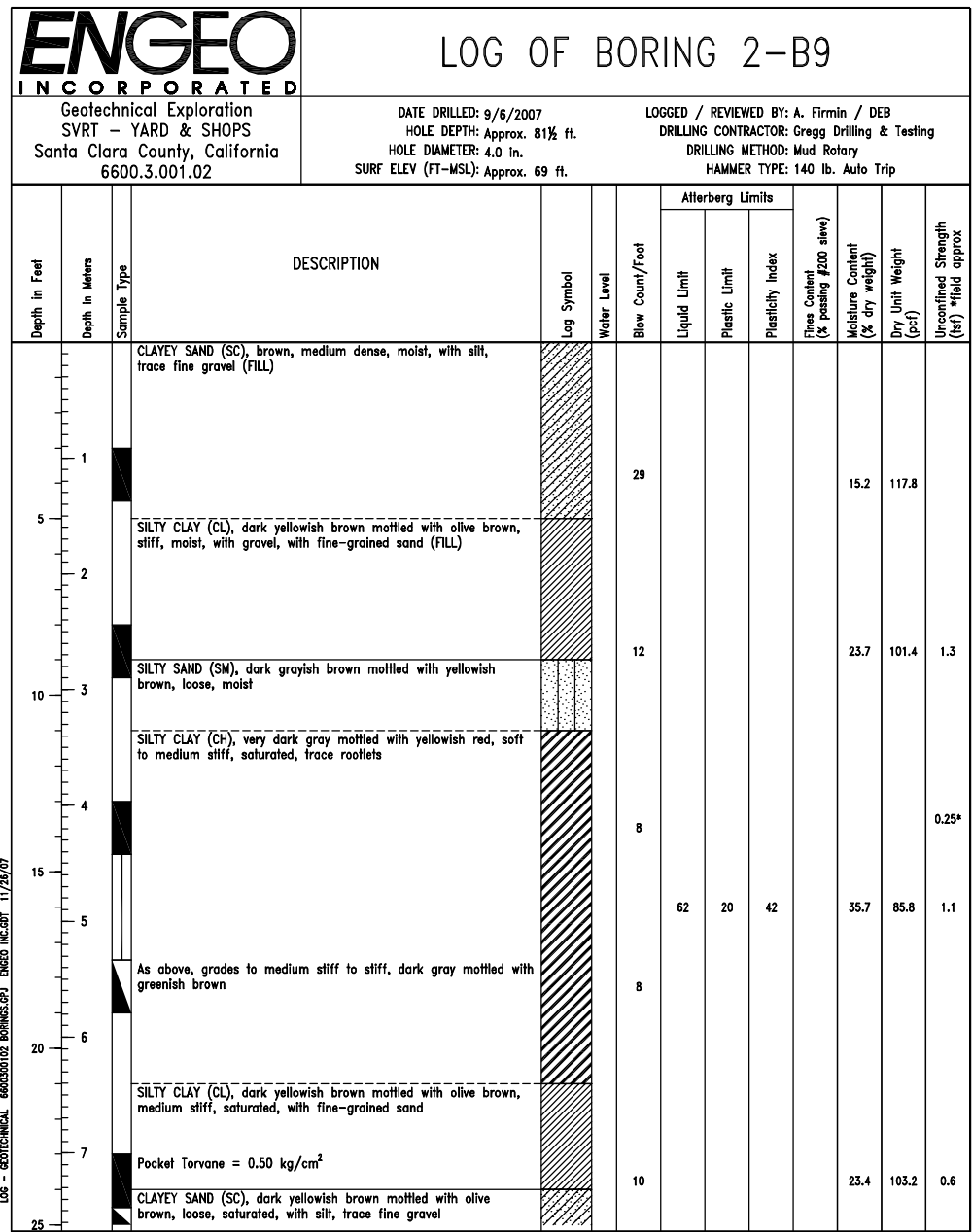
ENGEEO INCORPORATED
 6399 SAN IGNACIO AVENUE SUITE 150
 SAN JOSE, CALIFORNIA 95119
 (408) 574-4900 - FAX (888) 279-2688

STV Incorporated
 Engineers/Architects/Planners/Construction Managers
 2580 ZANKER ROAD, SUITE 203
 SAN JOSE, CA 95134
 TEL: (408) 432-7222 FAX: (408) 432-7235



YARD AND SHOPS
 GEOTECHNICAL
 BORING LOGS
 BORING 2-B3 CONTINUED
 SHEET 32 OF 37

CADD FILENAME	C420-S-YS-G136.DWG		
SIZE	SCALE	NTS	
CONTRACT NO.	C420	REV.	B
AREA CODE	YS	SHEET NO.	G136
		PAGE NO.	319



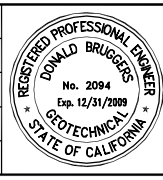
REFERENCE DRAWING
NOT FOR CONSTRUCTION
FOR PROCUREMENT PURPOSES ONLY

Aug 29, 2008 - 2:54pm C:\Active Projects\6600\66003001\02\DRAWINGS\BASE FILES\9-26-07\C420-S-YS-G137.DWG
 LOG - GEOTECHNICAL 66003001\02\BORINGS.GPJ ENGED INC.GDT 11/26/07

NOTE:
FOR NOTES AND BORING COORDINATES,
SEE DRAWING YS-G001.

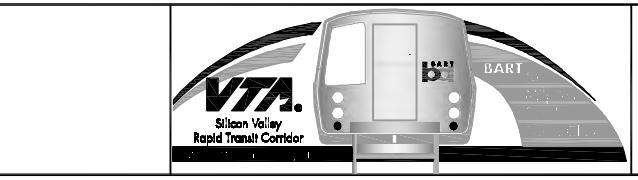
REV	DATE	BY	SUB	APP	DESCRIPTION
B	20080829				PRE-PROPOSAL - ISSUED FOR RECORD
A	20080516				PRE-BID - ISSUED FOR REVIEW

DESIGNED BY
J. KAN
 DRAWN BY
R. SOLIS
 CHECKED BY
P. GUERIN
 IN CHARGE
D. BRUGGERS
 DATE
20080829



ENGEO INCORPORATED
 6399 SAN IGNACIO AVENUE SUITE 150
 SAN JOSE, CALIFORNIA 95119
 EXCELLENT SERVICE SINCE 1971 (408) 574-4900 - FAX (888) 279-2698

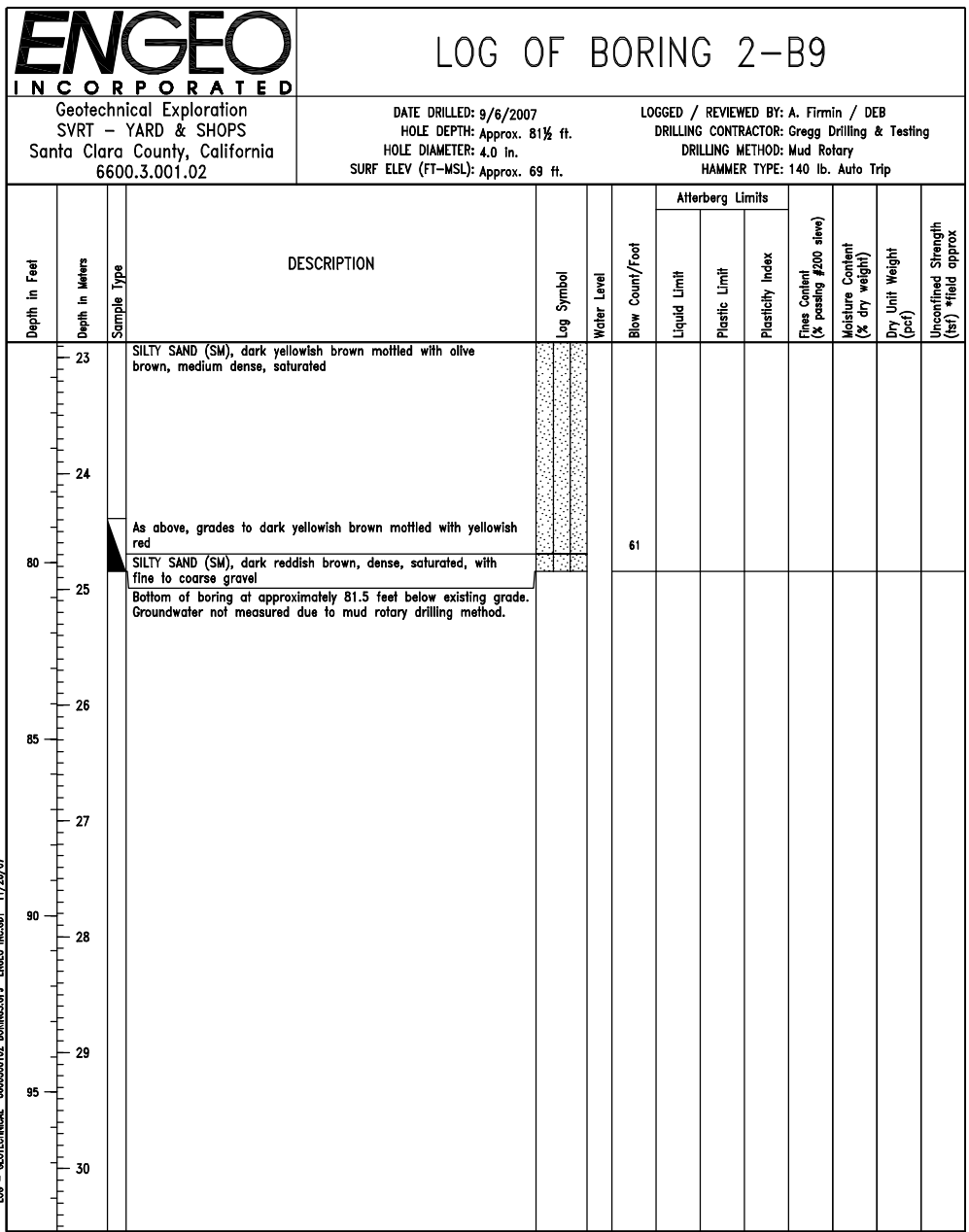
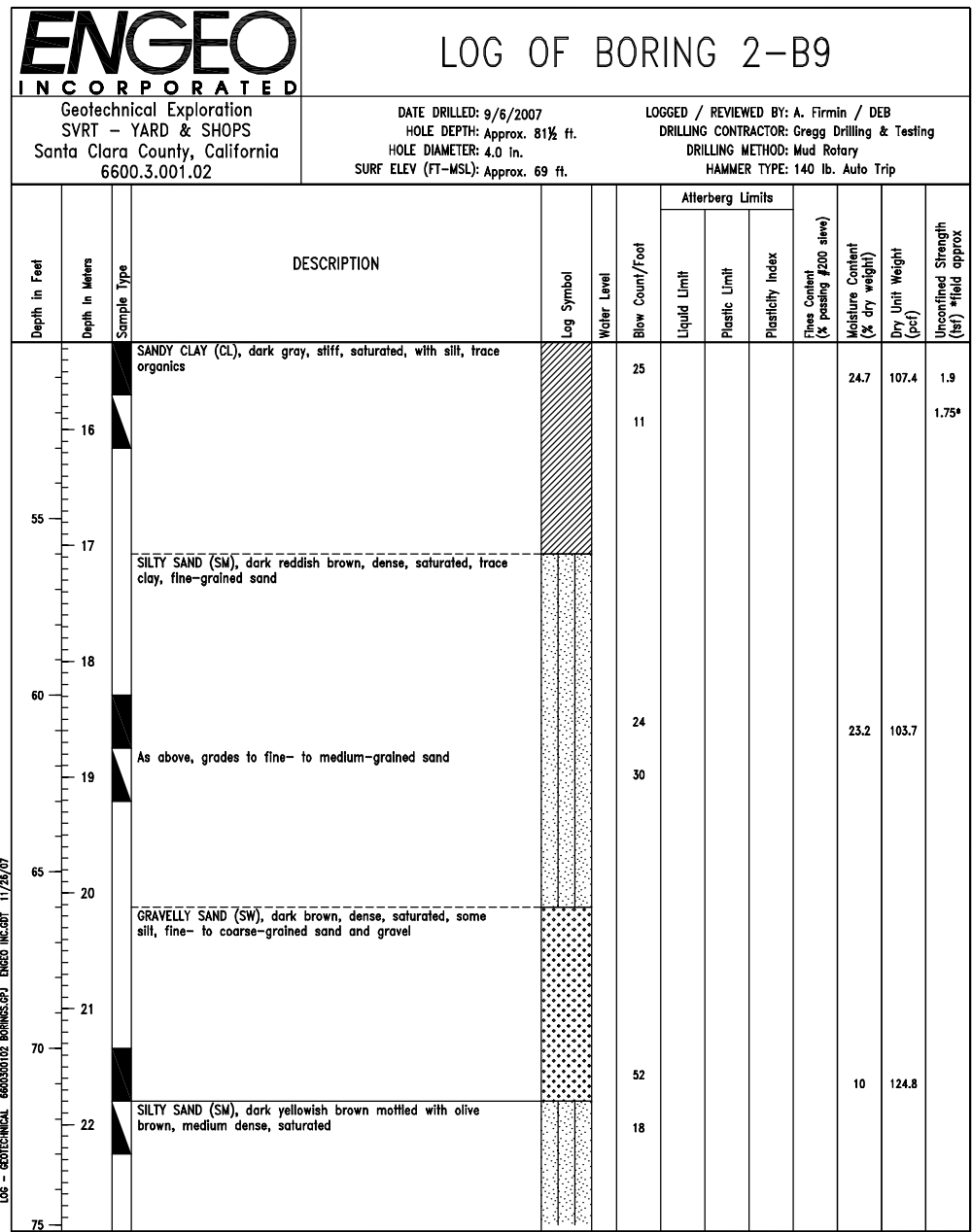
STV Incorporated
 Engineers/Architects/Planners/Construction Managers
 2580 ZANKER ROAD, SUITE 203
 SAN JOSE, CA 95134
 TEL:(408) 432-7222 FAX:(408) 432-7235



YARD AND SHOPS

 GEOTECHNICAL
 BORING LOGS
 BORING 2-B9
 SHEET 33 OF 37

CADD FILENAME C420-S-YS-G137.DWG			
SIZE D	SCALE NTS		
CONTRACT NO. C420	REV. B		
AREA CODE YS	SHEET NO. G137	PAGE NO. 320	



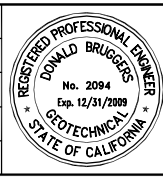
REFERENCE DRAWING
NOT FOR CONSTRUCTION
FOR PROCUREMENT PURPOSES ONLY

NOTE:
FOR NOTES AND BORING COORDINATES,
SEE DRAWING YS-G001.

Aug 29, 2008 - 2:54pm G:\Active Projects\6600\6600\3001\02\DRAWINGS\BASE FILES\9-26-07\C420-S-YS-G138.DWG

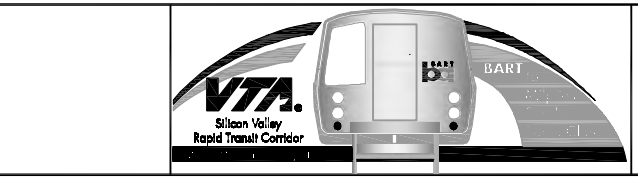
REV	DATE	BY	SUB	APP	DESCRIPTION
B	20080829				PRE-PROPOSAL - ISSUED FOR RECORD
A	20080516				PRE-BID - ISSUED FOR REVIEW

DESIGNED BY
J. KAN
DRAWN BY
R. SOLIS
CHECKED BY
P. GUERIN
IN CHARGE
D. BRUGGERS
DATE
20080829



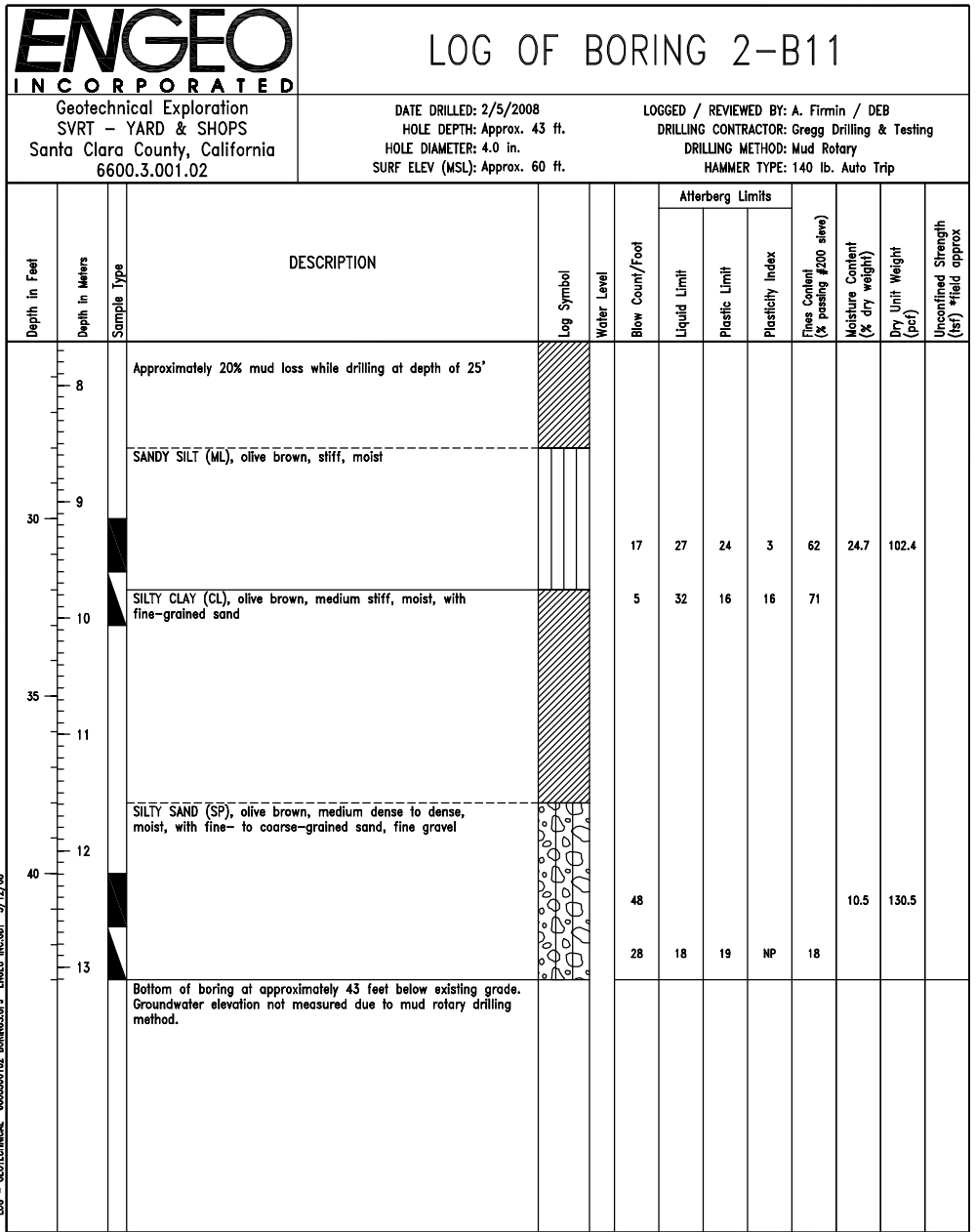
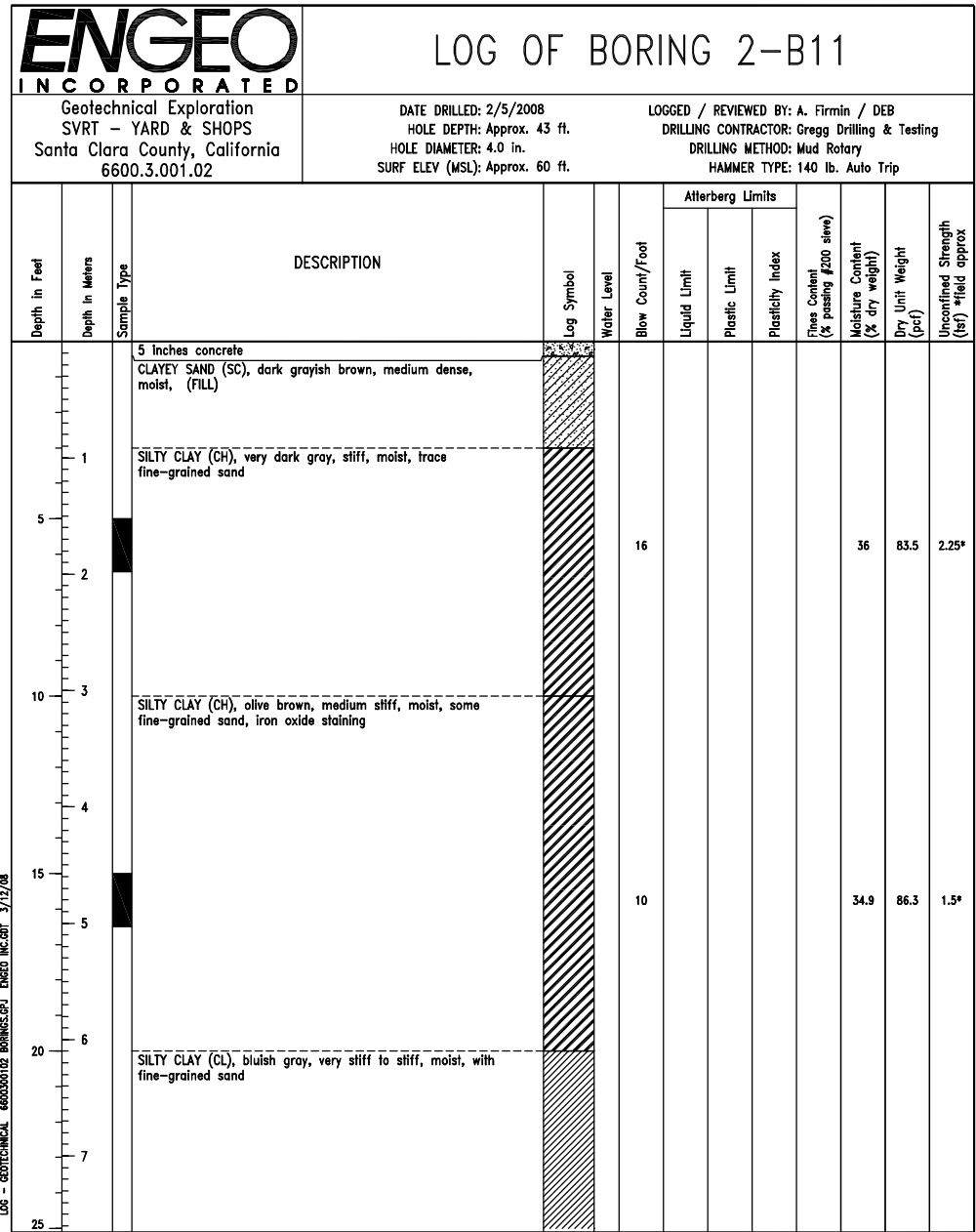
ENGEO INCORPORATED
6399 SAN IGNACIO AVENUE SUITE 150
SAN JOSE, CALIFORNIA 95119
EXCELLENT SERVICE SINCE 1971 (408) 574-4900 - FAX (888) 279-2688

STV Incorporated
Engineers/Architects/Planners/Construction Managers
2580 ZANKER ROAD, SUITE 203
SAN JOSE, CA 95134
TEL: (408) 432-7222 FAX: (408) 432-7235



YARD AND SHOPS
GEOTECHNICAL
BORING LOGS
BORING 2-B9 CONTINUED
SHEET 34 OF 37

CADD FILENAME C420-S-YS-G138.DWG		
SIZE D	SCALE NTS	
CONTRACT NO. YS	REV. C420	REV. B
SHEET NO. G138	PAGE NO. 321	



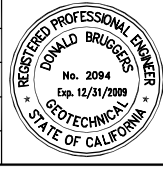
REFERENCE DRAWING
NOT FOR CONSTRUCTION
FOR PROCUREMENT PURPOSES ONLY

LOG - GEOTECHNICAL 6600300102 BORINGS.GPJ ENGED INC.GDT 3/12/08

NOTE:
FOR NOTES AND BORING COORDINATES,
SEE DRAWING YS-G001.

REV	DATE	BY	SUB	APP	DESCRIPTION
B	20080829				PRE-PROPOSAL - ISSUED FOR RECORD
A	20080516				PRE-BID - ISSUED FOR REVIEW

DESIGNED BY
J. KAN
DRAWN BY
R. SOLIS
CHECKED BY
P. GUERIN
IN CHARGE
D. BRUGGERS
DATE
20080829



ENGEO INCORPORATED
6399 SAN IGNACIO AVENUE SUITE 150
SAN JOSE, CALIFORNIA 95119
EXCELLENT SERVICE SINCE 1971 (408) 574-4900 - FAX (888) 279-2688

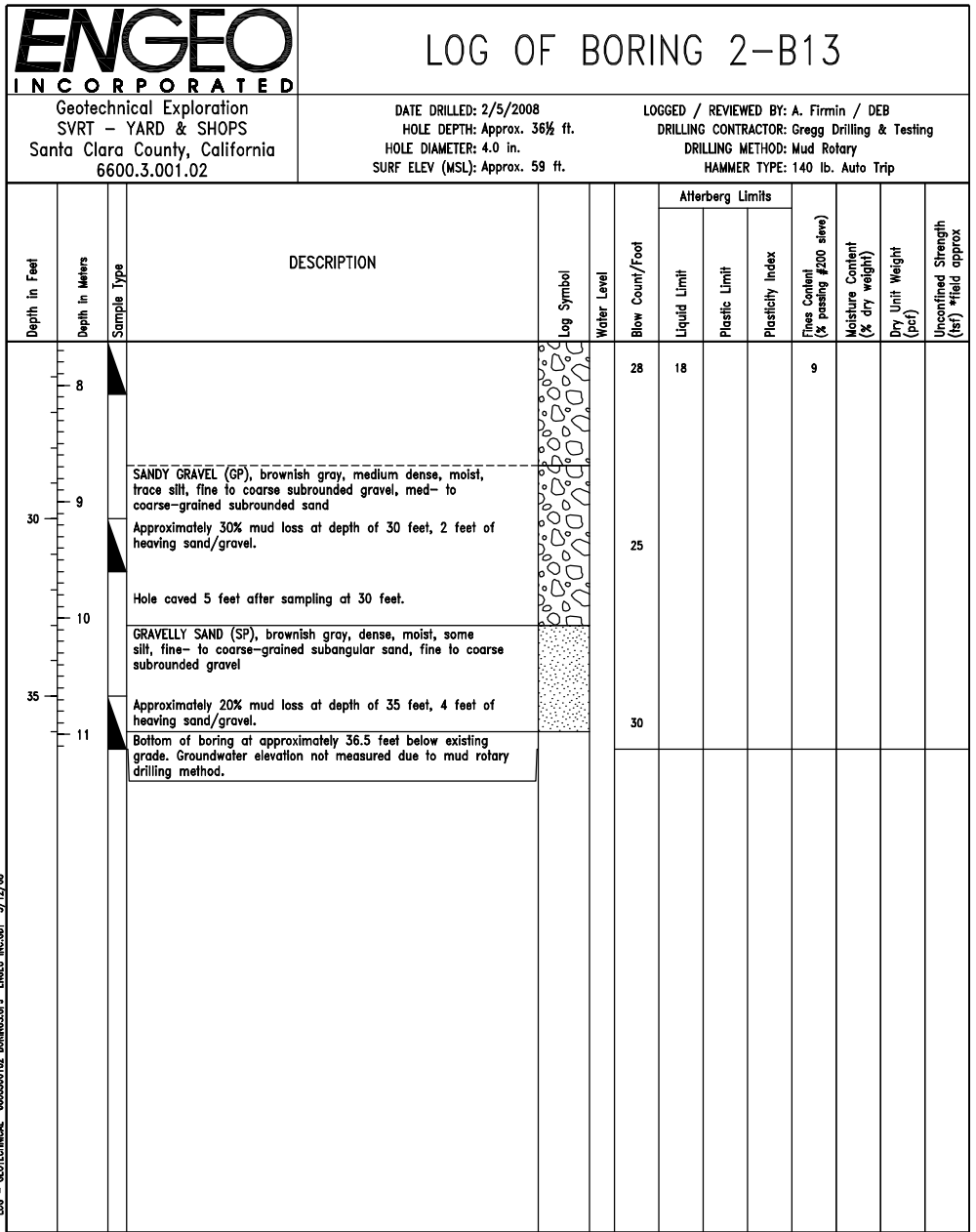
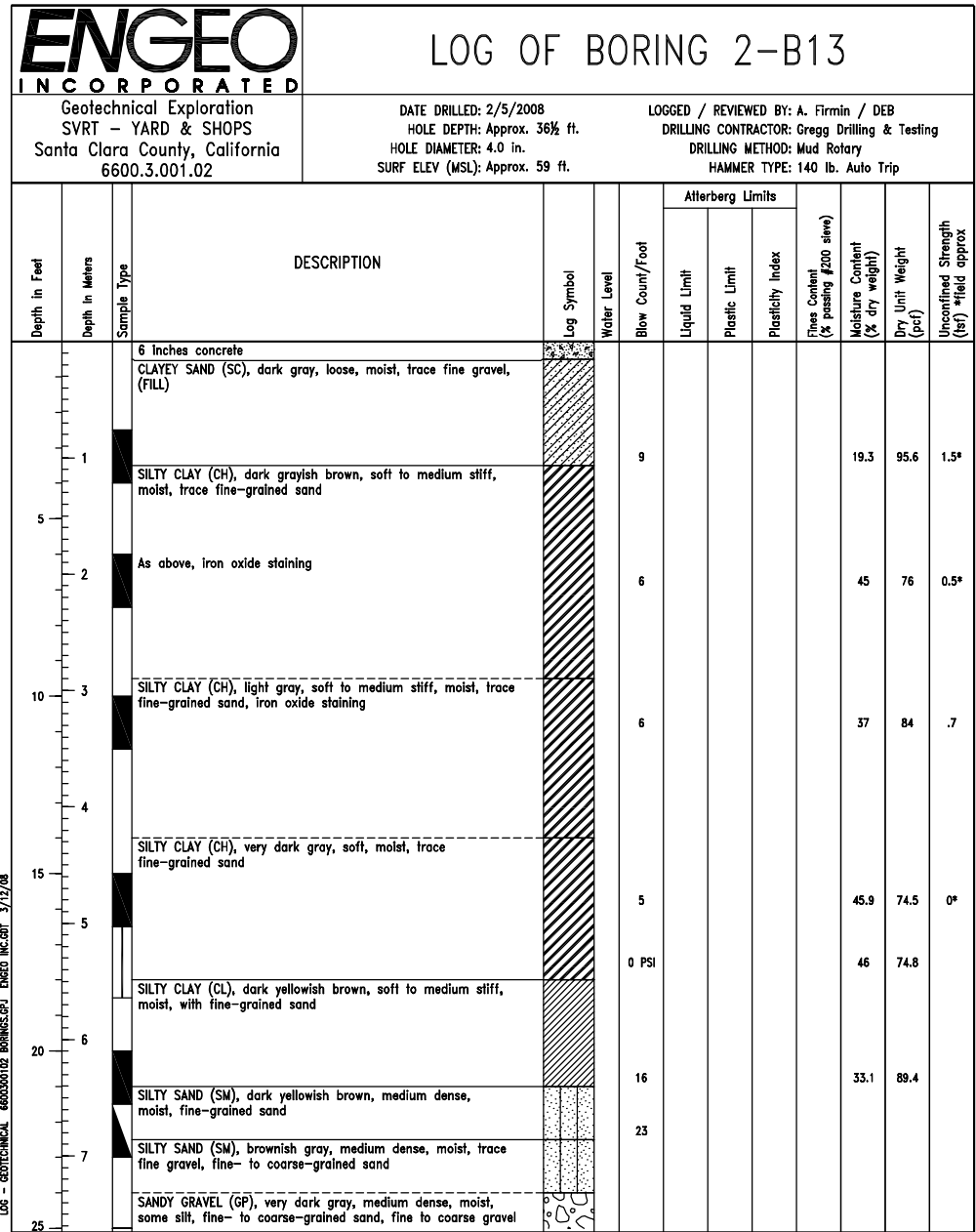
STV Incorporated
Engineers/Architects/Planners/Construction Managers
2580 ZANKER ROAD, SUITE 203
SAN JOSE, CA 95134
TEL:(408) 432-7222 FAX:(408) 432-7235



YARD AND SHOPS

GEOTECHNICAL
BORING LOGS
BORING 2-B11
SHEET 35 OF 37

CADD FILENAME C420-S-YS-G139.DWG		
SIZE D	SCALE NTS	
CONTRACT NO. C420	REV. B	
AREA CODE YS	SHEET NO. G139	PAGE NO. 322

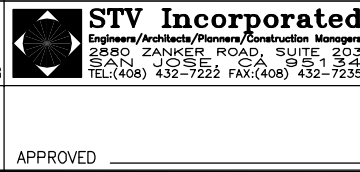
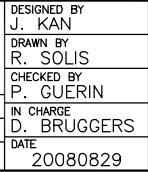


REFERENCE DRAWING
NOT FOR CONSTRUCTION
FOR PROCUREMENT PURPOSES ONLY

NOTE:
FOR NOTES AND BORING COORDINATES,
SEE DRAWING YS-G001.

Aug 29, 2008 - 2:55pm G:\Active Projects\6600\66003001\02\DRAWINGS\BASE FILES\9-28-07\CA20-S-YS-G140.DWG

DESIGNED BY J. KAN	20080829	PRE-PROPOSAL - ISSUED FOR RECORD
DRAWN BY R. SOLIS	20080516	PRE-BID - ISSUED FOR REVIEW
CHECKED BY P. GUERIN		
IN CHARGE D. BRUGGERS		
DATE 20080829		



YARD AND SHOPS

GEOTECHNICAL
BORING LOGS
BORING 2-B13
SHEET 36 OF 37

CADD FILENAME C420-S-YS-G139.DWG	REV. B
SIZE SCALE D NTS	CONTRACT NO. C420
AREA CODE YS	SHEET NO. G140
	PAGE NO. 323



LOG OF BORING 2-B15

Geotechnical Exploration
SVRT - YARD & SHOPS
Santa Clara County, California
6600.3.001.02

DATE DRILLED: 8/22/2007
HOLE DEPTH: Approx. 51½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (FT-MSL): Approx. 67 ft.

LOGGED / REVIEWED BY: A. Firmin / DEB
DRILLING CONTRACTOR: Gregg Drilling & Testing
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/foot	Atterberg Limits			Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
							Liquid Limit	Plastic Limit	Plasticity Index				
0	0		SANDY CLAY (CL), dark yellowish brown, stiff, moist, some silt (FILL)										
1	0.3		SILTY SAND (SM), dark brownish gray, medium dense, moist (FILL)			15						1.0*	
5	1.5		SILTY CLAY (CL), very dark grayish brown, loose to medium dense, moist, with fine-grained sand (FILL)										
10	3.0		SILTY CLAY (CH), brownish gray, medium stiff, moist, some fine-grained sand			12						1.75*	
15	4.5		SILTY CLAY (CH), dark grayish brown mottled with yellowish red, medium stiff, wet			11			32.3	88.5	1.5		
20	6.0		SILTY CLAY (CL), dark olive brown mottled with dark yellowish brown, medium stiff, saturated			6			30.6	90.5	1.25*		
25	7.5					10				24			



LOG OF BORING 2-B15

Geotechnical Exploration
SVRT - YARD & SHOPS
Santa Clara County, California
6600.3.001.02

DATE DRILLED: 8/22/2007
HOLE DEPTH: Approx. 51½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (FT-MSL): Approx. 67 ft.

LOGGED / REVIEWED BY: A. Firmin / DEB
DRILLING CONTRACTOR: Gregg Drilling & Testing
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/foot	Atterberg Limits			Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
							Liquid Limit	Plastic Limit	Plasticity Index				
8	2.4		SILTY CLAY (CL), dark olive brown mottled with dark yellowish brown, medium stiff, saturated										
9	2.7		SILTY CLAY (CL), dark brownish gray, medium stiff, saturated, some fine-grained sand										
10	3.0		CLAYEY SILT (ML), dark bluish gray, medium stiff, saturated, with fine-grained sand, trace carbonates										
35	10.7		Pocket Torvane = 0.57 kg/cm ²										
11	3.3		SILTY SAND (SM), dark bluish gray, loose, saturated, some clay, fine-grained sand			7				26.8	97.8	0.5*	
12	3.6					5							
13	3.9		As above, trace organics										
14	4.2		SILTY CLAY (CL), dark bluish gray, stiff, saturated, with fine-grained sand, trace organics			14							
15	4.5												
50	15.2		SILTY CLAY (CL), dark olive brown mottled with yellowish red, stiff, saturated, with fine-grained sand, trace fine gravel										



LOG OF BORING 2-B15

Geotechnical Exploration
SVRT - YARD & SHOPS
Santa Clara County, California
6600.3.001.02

DATE DRILLED: 8/22/2007
HOLE DEPTH: Approx. 51½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (FT-MSL): Approx. 67 ft.

LOGGED / REVIEWED BY: A. Firmin / DEB
DRILLING CONTRACTOR: Gregg Drilling & Testing
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

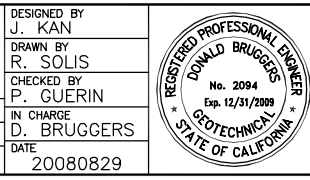
Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/foot	Atterberg Limits			Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
							Liquid Limit	Plastic Limit	Plasticity Index				
10	3.0		SILTY CLAY (CL), dark olive brown mottled with yellowish red, stiff, saturated, with fine-grained sand, trace fine gravel			10							
16	4.9		Bottom of boring at approximately 51.5 feet below existing grade. Groundwater not measured due to mud rotary drilling method.										

REFERENCE DRAWING
NOT FOR CONSTRUCTION
FOR PROCUREMENT PURPOSES ONLY

NOTE:
FOR NOTES AND BORING COORDINATES,
SEE DRAWING YS-G001.

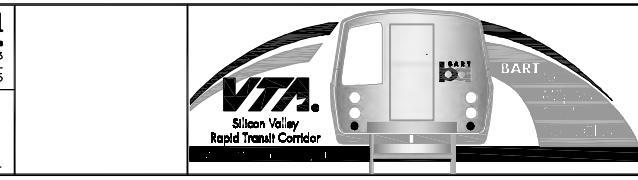
Aug 29, 2008 - 2:55pm G:\Active Projects\6600\66003001\02\DRAWINGS\BASE FILES\9-28-07\0420-S-YS-G141.DWG
 LOC - GEOTECHNICAL 6600300102 BORINGS.GPJ ENGEO INC.GDT 11/28/07

DESIGNED BY J. KAN	20080829	PRE-PROPOSAL - ISSUED FOR RECORD
DRAWN BY R. SOLIS	20080516	PRE-BID - ISSUED FOR REVIEW
CHECKED BY P. GUERIN		
IN CHARGE D. BRUGGERS		
DATE 20080829		



ENGEO INCORPORATED
6399 SAN IGNACIO AVENUE SUITE 150
SAN JOSE, CALIFORNIA 95119
EXCELLENT SERVICE SINCE 1971 (408) 574-4900 - FAX (888) 279-2688

STV Incorporated
Engineers/Architects/Planners/Construction Managers
2580 ZANKER ROAD, SUITE 203
SAN JOSE, CA 95134
TEL:(408) 432-7222 FAX:(408) 432-7235



YARD AND SHOPS
GEOTECHNICAL
BORING LOGS
BORING 2-B15
SHEET 37 OF 37

CADD FILENAME C420-S-YS-G139.DWG	REV. B
SIZE SCALE D NTS	CONTRACT NO. C420
AREA CODE YS	SHEET NO. G141
PAGE NO. 324	

7.2 APPENDIX B

JOHN SARMIENTO & ASSOCIATES

Cone Penetration Test Data

FIELD EQUIPMENT & PROCEDURES

The Cone Penetration Tests (CPT) were carried out by John Sarmiento and Associates, of Menlo Park, California using an integrated electronic cone system. The CPT probes were performed in accordance with ASTM standards (D3441). A 20-ton capacity cone was used for the probes. This cone has a tip area of 15 cm² and friction sleeve area of 225 cm². A piezometer element of 5 mm thickness is located immediately behind the cone tip. The cone used has an equal end area friction sleeve and a tip end area ratio of 0.85.

The cone used during the program was capable of recording the following parameters at 5-cm-depth intervals at a rate of 2 cm per second:

- Tip Resistance (qc)
- Sleeve Friction (fs)

The above parameters were printed simultaneously on a printer and stored on a computer diskette for future analysis and reference. CPT logs are included as well as interpreted parameters based on the CPT measurements.

It should be noted that Pore Pressure Dissipation Tests (PPDT's) were not taken at various intervals to measure hydrostatic water pressures and approximate depth to groundwater table. The groundwater level at each CPT probe location was measured by taping after the completion of the probe advancement.

CONE PENETRATION TEST DATA & INTERPRETATION

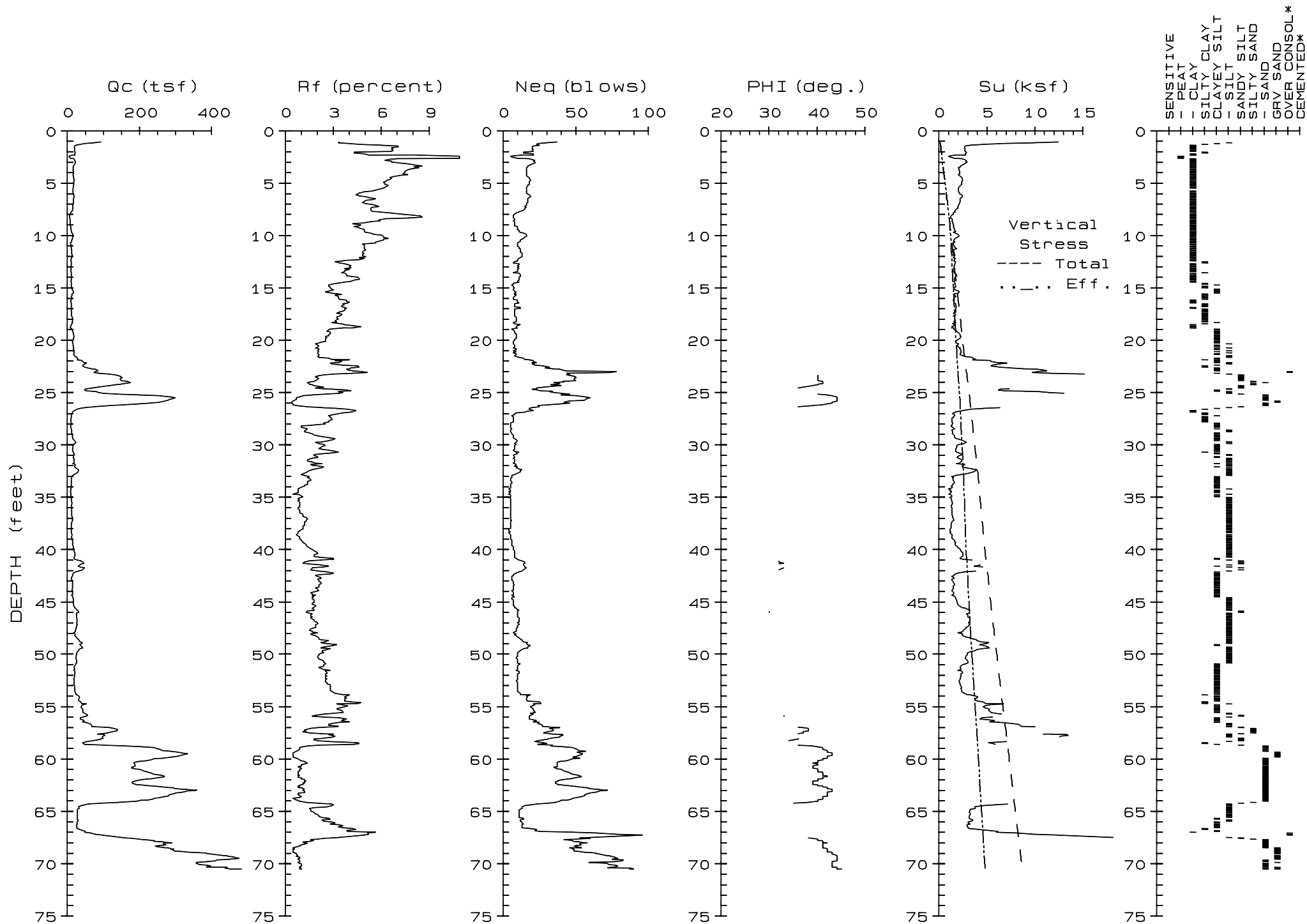
The cone penetration test data is presented in graphical form. Penetration depths are referenced to existing ground surface. This data includes CPT logs of measured soil parameters and a computer tabulation of interpreted soil types along with additional geotechnical parameters and pore pressure dissipation data.

The stratigraphic interpretation is based on relationships between cone bearing (qc), sleeve friction (fs), and penetration pore pressure (U). The friction ratio (Rf), which is sleeve friction divided by cone bearing, is a calculated parameter which is used to infer soil behavior type. Generally, cohesive soils (clays) have high friction ratios, low cone bearing and generate large excess pore water pressures. Cohesionless soils (sands) have lower friction ratios, high cone bearing and generate little in the way of excess pore water pressures.

The interpretation of soils encountered on this project was carried out using recent correlations developed by Robertson et al, 1986. It should be noted that it is not always possible to clearly identify a soil type based on qc, fs and U. In these situations, experience and judgment and an assessment of the pore pressure dissipation data should be used to infer the soil behavior type. The soil classification chart used to interpret soil types based on qc and Rf is provided on the following page.

REFERENCES

Robertson, P.K. and Campanella, R.G., Gillespie, D. and Grieg, J., 1986, "Use of Piezometer Cone Data", Proceedings of In Situ 86, ASCE Specialty Conference, Blacksburg, Virginia.



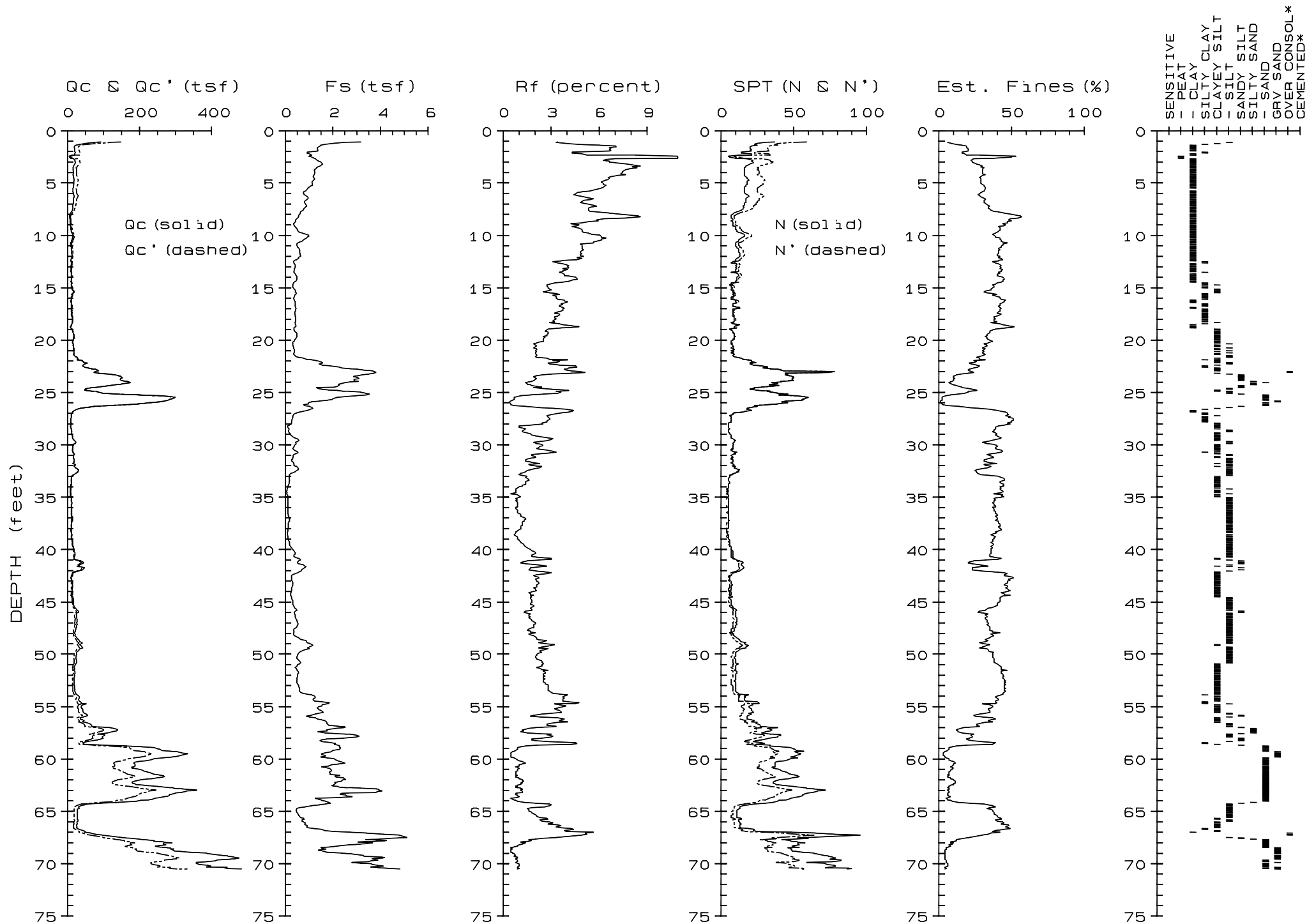
Terminated at 70.5 feet

Groundwater estimated at 9.0 feet

PROJECT: BART PHASE 2
 LOCATION: San Jose CA
 PROJ. NO.: 6600.3.001.01 (EGO-102A)

CPT NO.: CPT-7
 DATE : 02-01-2008

ENGEO, INC.
cpts by John Sarmiento & Associates



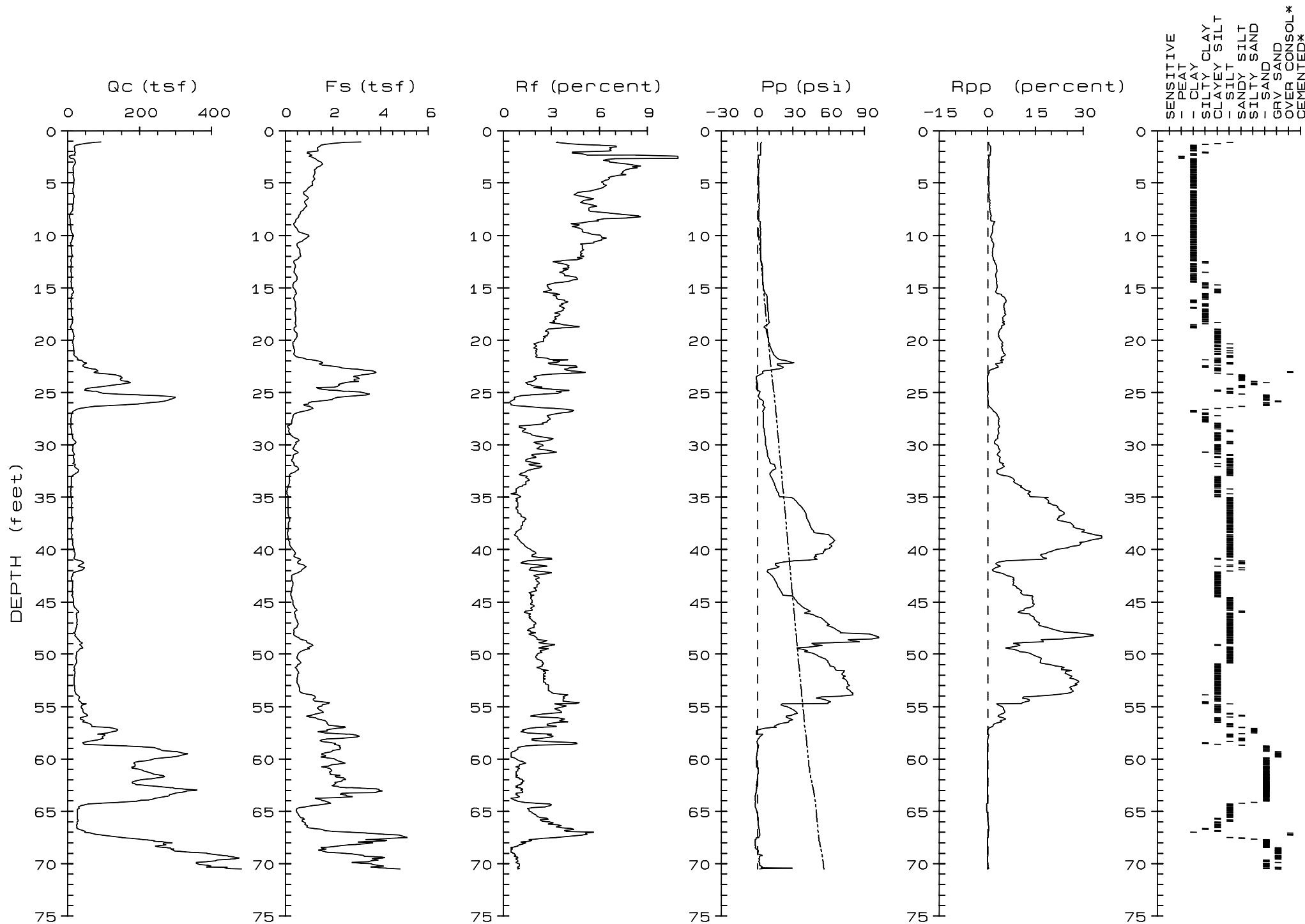
Terminated at 70.5 feet

Groundwater estimated at 9.0 feet

PROJECT: BART PHASE 2
 LOCATION: San Jose CA
 PROJ. NO.: 6600.3.001.01 (EGO-102A)

CPT NO.: CPT-7
 DATE : 02-01-2008

ENGEO, INC.
cpts by John Sarmiento & Associates



Terminated at 70.5 feet

Groundwater estimated at 9.0 feet

PROJECT: BART PHASE 2
 LOCATION: San Jose CA
 PROJ. NO.: 6600.3.001.01 (EGO-102A)

CPT NO.: CPT-7
 DATE : 02-01-2008

ENGEO, INC.
cpts by John Sarmiento & Associates

PROJECT: BART PHASE 2
 LOCATION: San Jose CA
 PROJ. NO.: 6600.3.001.01(EGO-102A)
 Terminated at 70.5 feet

CPT NO.: CPT-7
 DATE : 02-01-2008
 TIME : 13:55:53

ENGEO, INC.
cpts by John Sarmiento & Associates

Groundwater estimated at 9.0 feet

RANGE (pcf)	Qc (tsf)	Qc' (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT' (N')	EffVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
1.07	92.9	148.64	3.13	3.4	37	59	0.12	----	12.38	Sandy SILT to Clayey SILT	130-140
1.54	19.9	31.84	1.39	7.0	20	32	0.19	----	2.64	CLAY	"
2.05	21.6	34.56	0.93	4.3	14	23	0.26	----	2.86	Silty CLAY to CLAY	"
2.54	6.2	9.92	1.11	12.0	6	10	0.32	----	1.21	Organic Material	120-130
3.09	21.6	34.56	1.51	7.0	22	35	0.39	----	2.85	CLAY	130-140
3.55	15.5	24.80	1.29	8.3	16	25	0.45	----	2.04	"	"
4.02	16.4	26.24	1.22	7.4	16	26	0.52	----	2.15	"	"
4.57	18.3	29.28	1.21	6.6	18	29	0.59	----	2.40	"	"
5.02	18.2	29.12	1.12	6.2	18	29	0.65	----	2.38	"	"
5.52	18.2	29.12	1.12	6.2	18	29	0.65	----	2.38	"	"
6.03	16.8	26.88	0.76	4.5	17	27	0.78	----	2.19	"	120-130
6.58	16.7	25.92	0.91	5.4	17	26	0.85	----	2.17	"	"
7.04	15.8	23.62	0.85	5.4	16	24	0.91	----	2.05	"	"
7.50	14.5	20.83	0.77	5.3	15	21	0.96	----	1.87	"	"
8.06	7.2	9.98	0.57	7.9	7	10	1.03	----	1.34	"	110-120
8.52	7.6	10.32	0.44	5.8	8	10	1.08	----	1.41	"	"
9.08	8.3	11.15	0.38	4.6	8	11	1.11	----	1.55	"	"
9.52	10.6	14.08	0.52	4.9	11	14	1.14	----	1.67	"	120-130
10.08	16.0	20.97	0.98	6.1	16	21	1.17	----	2.05	"	"
10.54	12.0	15.54	0.70	5.8	12	16	1.20	----	1.51	"	"
11.01	10.3	13.19	0.50	4.9	10	13	1.23	----	1.60	"	"
11.57	12.4	15.66	0.60	4.8	12	16	1.27	----	1.56	"	"
12.03	12.5	15.61	0.63	5.0	13	16	1.29	----	1.57	"	"
12.50	11.4	14.10	0.35	3.1	8	9	1.32	----	1.77	Silty CLAY to CLAY	110-120
13.08	10.1	12.35	0.41	4.1	10	12	1.35	----	1.55	CLAY	"
13.54	10.6	12.83	0.37	3.5	7	9	1.37	----	1.63	Silty CLAY to CLAY	"
14.00	11.0	13.16	0.49	4.5	11	13	1.40	----	1.69	CLAY	120-130
14.56	11.1	13.13	0.35	3.2	7	9	1.43	----	1.70	Silty CLAY to CLAY	110-120
15.03	12.3	14.40	0.35	2.8	8	10	1.46	----	1.52	"	"
15.58	13.6	15.70	0.45	3.3	9	10	1.49	----	1.68	"	120-130
16.09	10.6	12.12	0.36	3.4	7	8	1.52	----	1.60	"	110-120
16.52	11.7	13.28	0.42	3.6	8	9	1.54	----	1.78	"	"
17.06	11.7	13.16	0.43	3.7	8	9	1.57	----	1.77	"	"
17.51	11.4	12.73	0.40	3.5	8	8	1.59	----	1.72	"	"
18.06	13.9	15.35	0.44	3.2	9	10	1.63	----	1.71	"	120-130
18.53	11.6	12.71	0.43	3.7	12	13	1.65	----	1.74	CLAY	110-120
19.04	13.9	15.09	0.37	2.7	7	8	1.68	----	1.70	Clayey SILT to Silty CLAY	"
19.57	17.7	19.00	0.48	2.7	9	10	1.71	----	2.20	"	120-130
20.02	15.6	16.59	0.39	2.5	8	8	1.74	----	1.92	"	"
20.56	16.0	16.89	0.33	2.1	8	8	1.77	----	1.97	"	110-120
21.01	18.6	19.51	0.38	2.0	7	8	1.80	----	2.31	Sandy SILT to Clayey SILT	120-130
21.56	22.3	23.20	0.45	2.0	9	9	1.83	----	2.80	"	"
22.04	41.7	43.04	1.45	3.5	21	22	1.87	----	5.38	Clayey SILT to Silty CLAY	130-140
22.56	48.5	49.62	2.25	4.6	32	33	1.90	----	6.28	Silty CLAY to CLAY	"
23.01	77.8	78.98	3.71	4.8	78	79	1.94	----	10.18	Very Stiff Fine Grained *	"
23.53	149.5	150.41	2.91	1.9	50	50	1.97	40	----	Silty SAND to Sandy SILT	"
24.00	169.1	169.07	2.69	1.6	42	42	2.01	41	----	SAND to Silty SAND	"
24.56	69.3	69.23	1.30	1.9	23	23	2.05	36	----	Silty SAND to Sandy SILT	"
25.08	98.9	98.73	3.34	3.4	40	39	2.09	----	12.98	Sandy SILT to Clayey SILT	"
25.58	291.7	291.04	1.98	0.7	58	58	2.11	44	----	SAND	110-120
26.00	227.8	227.20	0.97	0.4	46	45	2.13	43	----	"	100-110
26.53	36.2	36.08	1.15	3.2	18	18	2.17	----	4.61	Clayey SILT to Silty CLAY	130-140
27.04	12.3	12.25	0.40	3.3	8	8	2.20	----	1.42	Silty CLAY to CLAY	110-120
27.57	9.8	9.76	0.28	2.9	7	7	2.22	----	1.35	"	"
28.02	10.1	10.05	0.25	2.5	5	5	2.24	----	1.40	Clayey SILT to Silty CLAY	100-110

PROJECT: BART PHASE 2
 LOCATION: San Jose CA
 PROJ. NO.: 6600.3.001.01(EGO-102A)
 Terminated at 70.5 feet

CPT NO.: CPT-7
 DATE : 02-01-2008
 TIME : 13:55:53
 Groundwater estimated at 9.0 feet

ENGEO, INC.
cpts by John Sarmiento & Associates

RANGE (pcf)	Qc (tsf)	Qc' (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT' (N')	EffVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
28.50	11.8	11.74	0.16	1.4	6	6	2.26	----	1.67	Clayey SILT to Silty CLAY	100-110
29.05	13.4	13.32	0.24	1.8	7	7	2.29	----	1.55	"	110-120
29.51	18.3	18.18	0.55	3.0	9	9	2.32	----	2.20	"	120-130
30.06	15.6	15.49	0.39	2.5	8	8	2.36	----	1.83	"	"
30.52	14.7	14.59	0.39	2.7	7	7	2.38	----	1.71	"	"
31.02	18.3	18.15	0.33	1.8	7	7	2.41	----	2.19	Sandy SILT to Clayey SILT	110-120
31.55	19.7	19.53	0.28	1.4	8	8	2.44	----	2.37	"	"
32.02	20.1	19.91	0.42	2.1	8	8	2.47	----	2.42	"	120-130
32.56	29.3	28.99	0.42	1.4	12	12	2.50	----	3.64	"	"
33.03	12.3	12.09	0.18	1.5	6	6	2.52	----	1.37	Clayey SILT to Silty CLAY	100-110
33.58	11.7	11.41	0.16	1.4	6	6	2.55	----	1.61	"	"
34.04	10.7	10.38	0.11	1.0	5	5	2.56	----	1.44	"	90-100
34.50	8.9	8.59	0.07	0.8	4	4	2.58	----	1.36	"	"
35.01	10.8	10.36	0.11	1.0	4	4	2.59	----	1.16	Sandy SILT to Clayey SILT	"
35.54	12.8	12.21	0.11	0.9	5	5	2.61	----	1.42	"	"
36.00	12.3	11.67	0.10	0.8	5	5	2.62	----	1.35	"	"
36.56	12.2	11.50	0.12	1.0	5	5	2.64	----	1.33	"	"
37.02	13.5	12.64	0.19	1.4	5	5	2.66	----	1.50	"	100-110
37.58	11.9	11.07	0.14	1.2	5	4	2.68	----	1.29	"	90-100
38.04	11.2	10.37	0.12	1.1	4	4	2.70	----	1.19	"	"
38.59	12.8	11.77	0.09	0.7	5	5	2.71	----	1.40	"	"
39.05	13.9	12.71	0.14	1.0	6	5	2.73	----	1.54	"	"
39.52	15.0	13.62	0.19	1.3	6	5	2.75	----	1.69	"	100-110
40.00	18.7	16.82	0.32	1.7	7	7	2.77	----	2.18	"	110-120
40.55	20.9	18.57	0.37	1.8	8	7	2.81	----	2.47	"	120-130
41.02	28.3	24.87	0.62	2.2	11	10	2.84	----	3.45	"	"
41.57	29.9	25.88	0.82	2.7	15	13	2.88	----	3.66	Clayey SILT to Silty CLAY	130-140
42.05	31.4	26.87	0.65	2.1	13	11	2.91	----	3.85	Sandy SILT to Clayey SILT	120-130
42.58	12.9	10.92	0.26	2.0	6	5	2.94	----	1.38	Clayey SILT to Silty CLAY	110-120
43.02	13.7	11.49	0.29	2.1	7	6	2.96	----	1.49	"	"
43.57	13.6	11.28	0.28	2.1	7	6	2.99	----	1.47	"	"
44.03	13.7	11.28	0.25	1.8	7	6	3.01	----	1.48	"	"
44.51	15.3	12.56	0.27	1.8	8	6	3.04	----	1.69	"	"
45.06	17.1	13.98	0.30	1.8	7	6	3.07	----	1.92	Sandy SILT to Clayey SILT	"
45.52	20.6	16.77	0.38	1.8	8	7	3.09	----	2.39	"	120-130
46.07	26.1	21.15	0.39	1.5	10	8	3.13	----	3.12	"	"
46.53	26.4	21.30	0.43	1.6	11	9	3.16	----	3.15	"	"
47.08	26.5	21.28	0.53	2.0	11	9	3.19	----	3.16	"	"
47.53	23.7	18.95	0.41	1.7	9	8	3.22	----	2.78	"	"
48.06	21.6	17.19	0.34	1.6	9	7	3.25	----	2.50	"	"
48.52	29.3	23.22	0.62	2.1	12	9	3.28	----	3.52	"	"
49.07	34.8	27.42	1.12	3.2	17	14	3.32	----	4.25	Clayey SILT to Silty CLAY	130-140
49.57	32.7	25.63	0.84	2.6	13	10	3.36	----	3.97	Sandy SILT to Clayey SILT	"
50.02	24.9	19.43	0.52	2.1	10	8	3.39	----	2.92	"	120-130
50.56	25.0	19.42	0.57	2.3	10	8	3.42	----	2.93	"	"
51.01	21.9	16.94	0.52	2.4	11	8	3.45	----	2.51	Clayey SILT to Silty CLAY	"
51.53	18.1	13.93	0.50	2.8	9	7	3.48	----	2.00	"	"
52.09	20.0	15.31	0.52	2.6	10	8	3.52	----	2.25	"	"
52.54	18.9	14.41	0.47	2.5	9	7	3.54	----	2.10	"	"
53.00	20.3	15.41	0.56	2.8	10	8	3.57	----	2.28	"	"
53.54	20.9	15.78	0.61	2.9	10	8	3.61	----	2.36	"	"
54.09	33.8	25.37	1.24	3.7	17	13	3.65	----	4.07	"	130-140
54.54	37.4	27.93	1.55	4.1	25	19	3.68	----	4.55	Silty CLAY to CLAY	"
55.02	37.9	28.15	1.40	3.7	19	14	3.71	----	4.61	Clayey SILT to Silty CLAY	"
55.56	44.1	32.56	1.57	3.6	22	16	3.75	----	5.43	"	"

PROJECT: BART PHASE 2
 LOCATION: San Jose CA
 PROJ. NO.: 6600.3.001.01(EGO-102A)
 Terminated at 70.5 feet

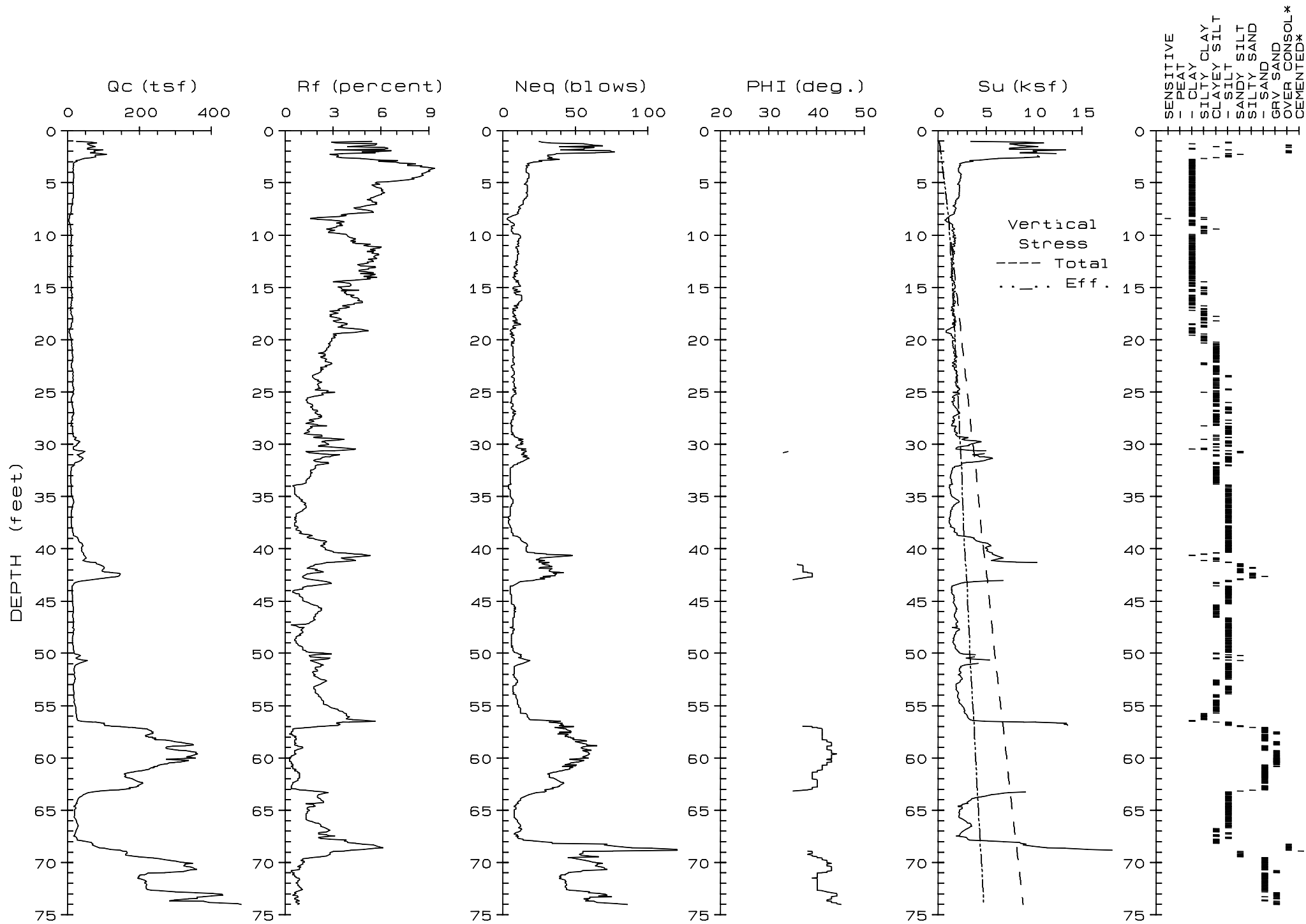
CPT NO.: CPT-7
 DATE : 02-01-2008
 TIME : 13:55:53

ENGEO, INC.
cpts by John Sarmiento & Associates

Groundwater estimated at 9.0 feet

RANGE (pcf)	Qc (tsf)	Qc' (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT' (N')	EffVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
56.00	45.2	33.21	1.02	2.3	18	13	3.79	----	5.58	Sandy SILT to Clayey SILT	130-140
56.53	50.3	36.73	1.71	3.4	25	18	3.82	----	6.25	Clayey SILT to Silty CLAY	"
57.02	118.2	85.83	2.42	2.0	39	29	3.86	37	----	Silty SAND to Sandy SILT	"
57.58	97.2	70.13	2.19	2.3	32	23	3.90	36	----	"	"
58.00	98.9	71.01	2.38	2.4	33	24	3.93	36	----	"	"
58.52	45.6	32.54	2.10	4.6	30	22	3.97	----	5.61	Silty CLAY to CLAY	"
59.02	248.9	176.73	2.25	0.9	50	35	4.00	41	----	SAND	120-130
59.50	331.7	234.93	1.52	0.5	55	39	4.02	43	----	Gravelly SAND to SAND	100-110
60.08	229.8	162.06	2.11	0.9	46	32	4.06	41	----	SAND	120-130
60.58	185.8	130.54	1.92	1.0	37	26	4.09	40	----	"	"
61.07	206.8	144.75	1.91	0.9	41	29	4.12	40	----	"	"
61.50	246.8	172.17	1.92	0.8	49	34	4.15	41	----	"	"
62.02	201.3	139.88	2.38	1.2	40	28	4.18	40	----	"	"
62.53	210.9	145.98	1.98	0.9	42	29	4.21	40	----	"	"
63.03	352.5	243.05	3.92	1.1	71	49	4.24	43	----	"	"
63.52	279.8	192.19	2.54	0.9	56	38	4.27	42	----	"	"
64.04	192.6	131.76	1.66	0.9	39	26	4.30	40	----	"	"
64.56	31.8	21.65	0.83	2.6	13	9	4.34	----	3.72	Sandy SILT to Clayey SILT	130-140
65.07	27.2	18.45	0.48	1.8	11	7	4.37	----	3.10	"	120-130
65.58	27.5	18.58	0.63	2.3	11	7	4.41	----	3.14	"	"
66.02	26.8	18.03	0.77	2.9	13	9	4.44	----	3.04	Clayey SILT to Silty CLAY	130-140
66.56	26.4	17.67	0.96	3.6	13	9	4.48	----	2.98	"	"
67.01	48.6	32.40	2.70	5.6	49	32	4.51	----	5.94	CLAY	"
67.54	160.0	106.14	4.66	2.9	53	35	4.55	38	----	Silty SAND to Sandy SILT	"
68.01	289.5	191.22	3.54	1.2	58	38	4.58	42	----	SAND	"
68.54	285.2	187.66	1.50	0.5	48	31	4.61	42	----	Gravelly SAND to SAND	110-120
69.03	385.5	252.81	2.52	0.7	64	42	4.64	43	----	"	"
69.53	462.4	302.03	3.58	0.8	77	50	4.67	44	----	"	120-130
70.03	358.6	233.27	3.55	1.0	72	47	4.70	43	----	SAND	"
70.53	523.8	339.35	4.76	0.9	87	57	4.73	45	----	Gravelly SAND to SAND	"

Qc = Tip bearing resistance Fs = Sleeve friction resistance Rf = Tip/Sleeve ratio
 TotStr = Total Stress using est. density** Phi = Soil friction angle* Su = Undrained Soil Strength* (Nk=10 for Qc<9 tsf)
 SPT = Equivalent Standard Penetration Test* (Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf)
 References: * Robertson and Campanella, 1988 ** Olsen, 1989 *** Durgunoglu & Mitchell, 1975



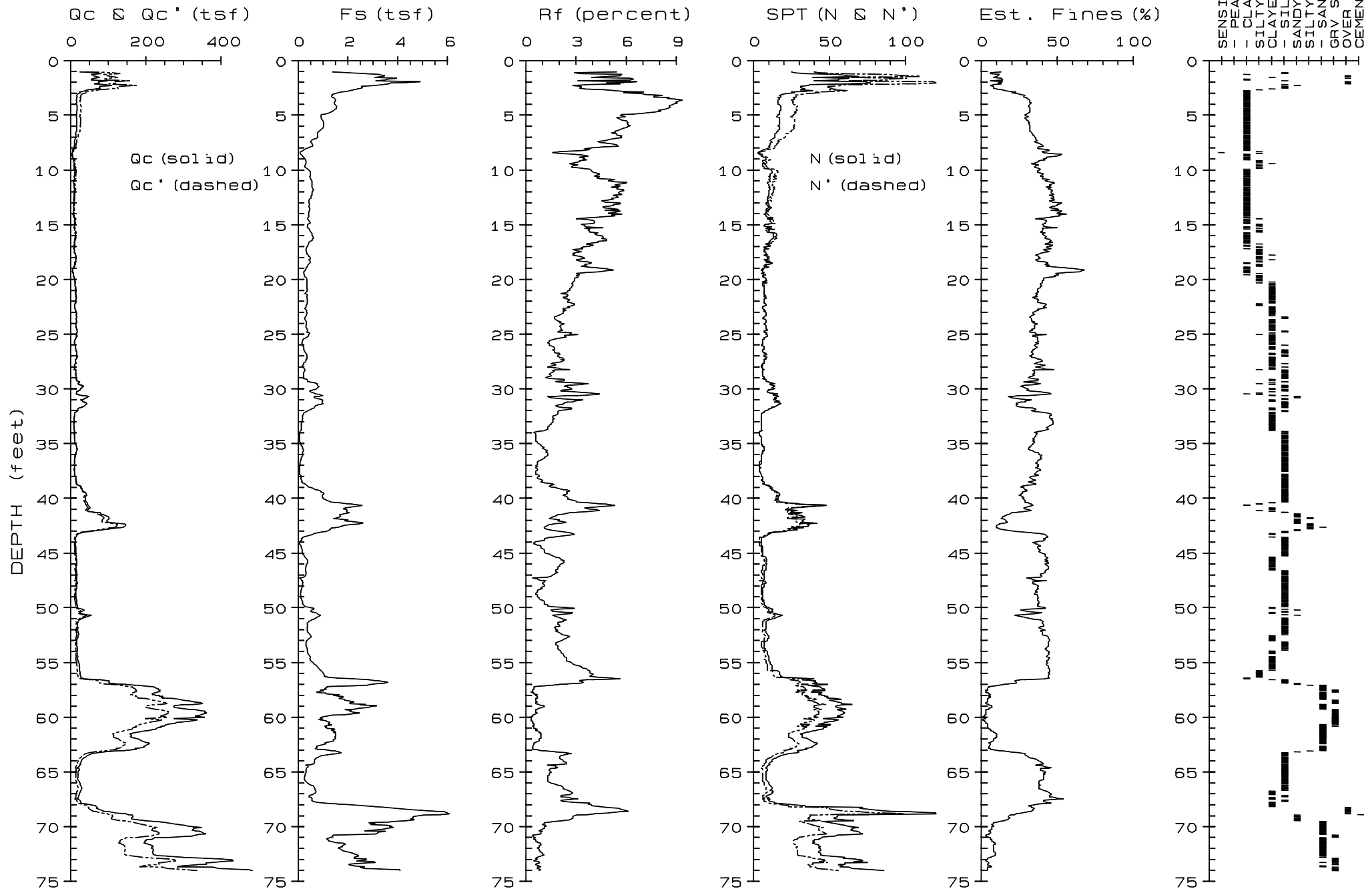
Terminated at 74.0 feet

Groundwater measured at 9.0 feet

PROJECT: BART PHASE 2
 LOCATION: San Jose CA
 PROJ. NO.: 6600.3.001.01 (EGO-102A)

CPT NO.: CPT-10
 DATE : 02-01-2008

ENGEO, INC.
cpts by John Sarmiento & Associates



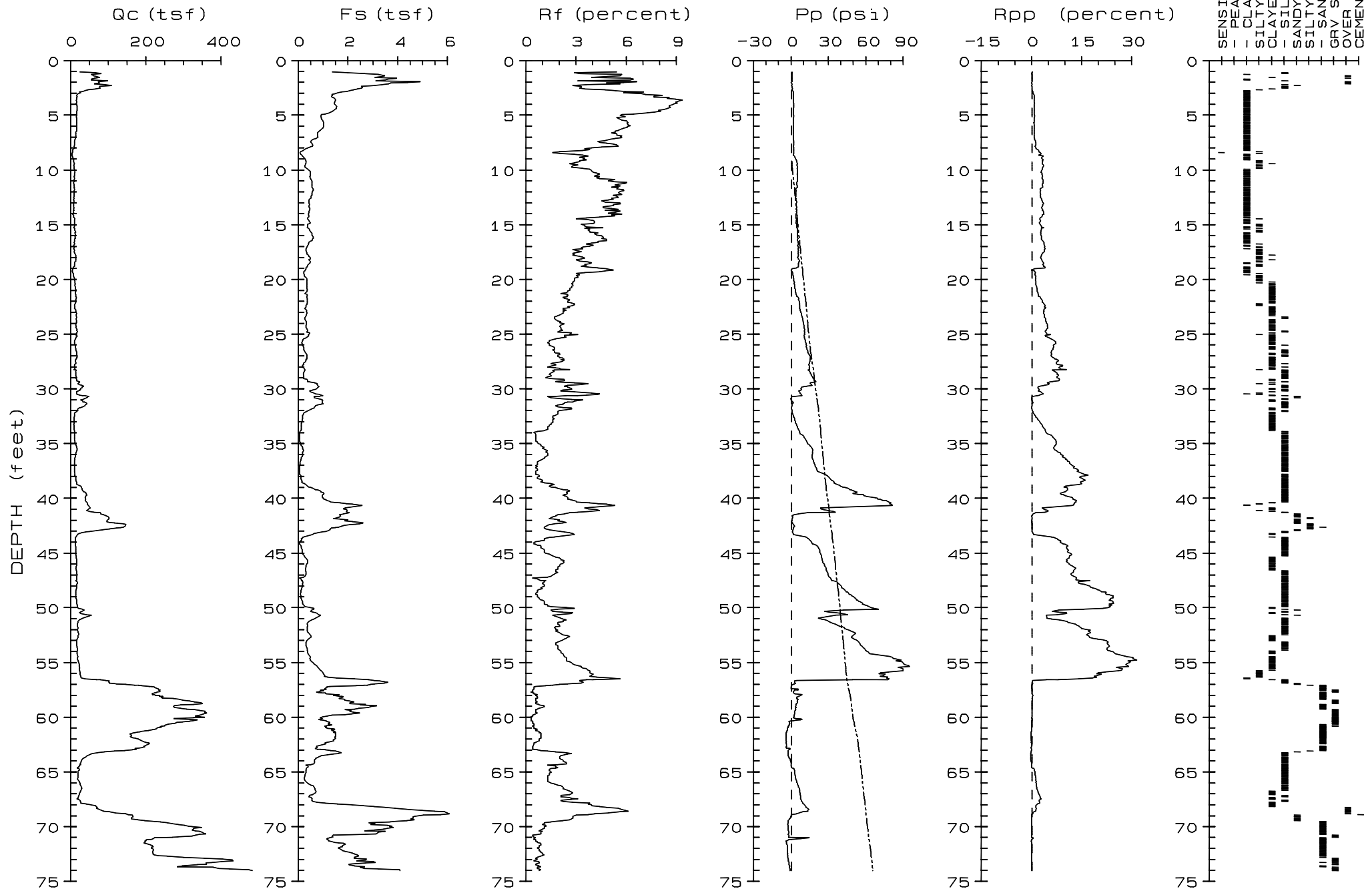
Terminated at 74.0 feet

Groundwater measured at 9.0 feet

PROJECT: BART PHASE 2
 LOCATION: San Jose CA
 PROJ. NO.: 6600.3.001.01 (EGO-102A)

CPT NO.: CPT-10
 DATE : 02-01-2008

ENGEO, INC.
cpts by John Sarmiento & Associates



Terminated at 74.0 feet

Groundwater measured at 9.0 feet

PROJECT: BART PHASE 2
 LOCATION: San Jose CA
 PROJ. NO.: 6600.3.001.01 (EGO-102A)

CPT NO.: CPT-10
 DATE : 02-01-2008

ENGEO, INC.
cpts by John Sarmiento & Associates

PROJECT: BART PHASE 2
 LOCATION: San Jose CA
 PROJ. NO.: 6600.3.001.01(EGO-102A)
 Terminated at 70.5 feet

CPT NO.: CPT-10
 DATE : 02-01-2008
 TIME : 13:01:33

ENGEO, INC.
cpts by John Sarmiento & Associates

Groundwater measured at 9.0 feet

RANGE (pcf)	Qc (tsf)	Qc' (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT' (N')	EffVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
1.04	25.3	40.48	1.36	5.4	25	40	0.12	----	3.37	CLAY	130-140
1.54	77.6	124.16	3.04	3.9	39	62	0.19	----	10.33	Clayey SILT to Silty CLAY	"
2.02	74.7	119.52	4.34	5.8	75	120	0.25	----	9.94	Very Stiff Fine Grained *	"
2.52	79.1	126.56	2.53	3.2	32	51	0.32	----	10.53	Sandy SILT to Clayey SILT	"
3.04	21.4	34.24	1.48	6.9	21	34	0.39	----	2.83	CLAY	"
3.55	16.7	26.72	1.48	8.9	17	27	0.46	----	2.20	"	"
4.04	17.1	27.36	1.48	8.7	17	27	0.53	----	2.24	"	"
4.54	17.9	28.64	1.42	7.9	18	29	0.59	----	2.35	"	"
5.04	16.3	26.08	0.91	5.6	16	26	0.66	----	2.13	"	120-130
5.54	16.6	26.56	0.99	6.0	17	27	0.72	----	2.17	"	130-140
6.04	16.6	26.56	1.00	6.0	17	27	0.79	----	2.16	"	"
6.56	15.0	23.18	0.80	5.3	15	23	0.85	----	1.94	"	120-130
7.06	13.7	20.30	0.78	5.7	14	20	0.92	----	1.77	"	"
7.57	11.2	15.88	0.54	4.8	11	16	0.98	----	1.78	"	"
8.08	9.2	12.69	0.32	3.5	9	13	1.04	----	1.45	"	110-120
8.51	4.6	6.25	0.09	2.0	3	4	1.08	----	0.81	Silty CLAY to CLAY	90-100
9.01	8.2	11.04	0.28	3.4	8	11	1.10	----	1.53	CLAY	100-110
9.55	9.1	12.12	0.28	3.1	6	8	1.13	----	1.42	Silty CLAY to CLAY	110-120
10.04	11.5	15.14	0.45	3.9	12	15	1.16	----	1.81	CLAY	120-130
10.55	11.4	14.81	0.47	4.1	11	15	1.19	----	1.79	"	"
11.06	10.7	13.73	0.56	5.2	11	14	1.23	----	1.67	"	"
11.55	11.0	13.94	0.56	5.1	11	14	1.26	----	1.71	"	"
12.07	10.1	12.64	0.56	5.5	10	13	1.29	----	1.56	"	"
12.58	9.8	12.14	0.50	5.1	10	12	1.32	----	1.50	"	110-120
13.01	7.8	9.58	0.44	5.6	8	10	1.34	----	1.40	"	"
13.52	9.0	10.93	0.46	5.1	9	11	1.37	----	1.36	"	"
14.03	7.2	8.65	0.41	5.7	7	9	1.39	----	1.27	"	"
14.54	11.2	13.32	0.41	3.7	11	13	1.42	----	1.72	"	"
15.05	11.2	13.17	0.39	3.5	7	9	1.45	----	1.71	Silty CLAY to CLAY	"
15.52	12.5	14.53	0.46	3.7	8	10	1.47	----	1.54	"	120-130
16.03	13.0	14.92	0.58	4.5	13	15	1.51	----	1.60	CLAY	"
16.54	11.3	12.84	0.49	4.3	11	13	1.54	----	1.71	"	"
17.05	10.4	11.72	0.35	3.4	7	8	1.57	----	1.56	Silty CLAY to CLAY	110-120
17.56	11.3	12.62	0.34	3.0	8	8	1.59	----	1.70	"	"
18.06	14.1	15.59	0.49	3.5	9	10	1.62	----	1.73	"	120-130
18.52	12.0	13.14	0.46	3.8	12	13	1.65	----	1.45	CLAY	"
19.05	6.3	6.85	0.30	4.8	6	7	1.67	----	1.03	"	100-110
19.56	7.8	8.42	0.25	3.2	8	8	1.70	----	1.32	"	"
20.07	11.9	12.73	0.34	2.9	8	8	1.72	----	1.78	Silty CLAY to CLAY	110-120
20.57	12.6	13.36	0.35	2.8	6	7	1.75	----	1.51	Clayey SILT to Silty CLAY	"
21.07	14.1	14.86	0.35	2.5	7	7	1.78	----	1.71	"	"
21.54	14.5	15.19	0.35	2.4	7	8	1.80	----	1.76	"	"
22.07	14.3	14.89	0.36	2.5	7	7	1.83	----	1.73	"	"
22.58	11.0	11.38	0.29	2.6	6	6	1.86	----	1.61	"	"
23.02	15.8	16.26	0.34	2.2	8	8	1.88	----	1.92	"	"
23.56	15.5	15.85	0.27	1.7	6	6	1.91	----	1.88	Sandy SILT to Clayey SILT	"
24.07	14.6	14.83	0.33	2.3	7	7	1.93	----	1.75	Clayey SILT to Silty CLAY	"
24.58	17.6	17.74	0.37	2.1	9	9	1.97	----	2.15	"	120-130
25.06	13.4	13.41	0.42	3.1	9	9	2.00	----	1.58	Silty CLAY to CLAY	"
25.53	12.5	12.50	0.20	1.6	6	6	2.02	----	1.46	Clayey SILT to Silty CLAY	100-110
26.03	13.4	13.39	0.19	1.4	5	5	2.04	----	1.58	Sandy SILT to Clayey SILT	"
26.54	15.5	15.48	0.26	1.7	6	6	2.06	----	1.85	"	110-120
27.05	18.3	18.26	0.35	1.9	7	7	2.10	----	2.22	"	120-130
27.53	13.8	13.77	0.29	2.1	7	7	2.12	----	1.62	Clayey SILT to Silty CLAY	110-120
28.00	12.5	12.46	0.16	1.3	5	5	2.14	----	1.44	Sandy SILT to Clayey SILT	100-110

PROJECT: BART PHASE 2
 LOCATION: San Jose CA
 PROJ. NO.: 6600.3.001.01(EGO-102A)
 Terminated at 70.5 feet

CPT NO.: CPT-10
 DATE : 02-01-2008
 TIME : 13:01:33

ENGEO, INC.
cpts by John Sarmiento & Associates

Groundwater measured at 9.0 feet

RANGE (pcf)	Qc (tsf)	Qc' (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT' (N')	EffVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
28.57	14.4	14.35	0.21	1.5	6	6	2.17	----	1.69	Sandy SILT to Clayey SILT	100-110
29.07	15.4	15.34	0.23	1.5	6	6	2.19	----	1.82	"	"
29.53	20.6	20.51	0.76	3.7	14	14	2.22	----	2.51	Silty CLAY to CLAY	120-130
30.02	26.5	26.37	0.71	2.7	13	13	2.25	----	3.29	Clayey SILT to Silty CLAY	130-140
30.52	19.9	19.79	0.85	4.3	13	13	2.28	----	2.41	Silty CLAY to CLAY	120-130
31.03	28.7	28.52	0.97	3.4	14	14	2.32	----	3.58	Clayey SILT to Silty CLAY	130-140
31.56	38.2	37.93	0.69	1.8	15	15	2.35	----	4.84	Sandy SILT to Clayey SILT	120-130
32.07	18.1	17.96	0.34	1.9	7	7	2.38	----	2.16	"	110-120
32.56	10.4	10.32	0.17	1.6	5	5	2.40	----	1.41	Clayey SILT to Silty CLAY	100-110
33.06	9.6	9.52	0.15	1.6	5	5	2.42	----	1.27	"	"
33.56	10.3	10.21	0.13	1.3	5	5	2.44	----	1.38	"	90-100
34.07	10.5	10.41	0.06	0.6	4	4	2.45	----	1.13	Sandy SILT to Clayey SILT	85-90
34.50	11.6	11.49	0.07	0.6	5	5	2.46	----	1.27	"	90-100
35.01	13.1	12.97	0.10	0.8	5	5	2.48	----	1.47	"	"
35.51	18.3	18.10	0.20	1.1	7	7	2.50	----	2.16	"	100-110
36.02	13.6	13.36	0.18	1.3	5	5	2.52	----	1.53	"	"
36.52	11.7	11.43	0.10	0.9	5	5	2.54	----	1.27	"	90-100
37.03	11.1	10.78	0.07	0.6	4	4	2.56	----	1.19	"	"
37.54	11.1	10.72	0.07	0.6	4	4	2.57	----	1.19	"	"
38.02	14.3	13.73	0.11	0.8	6	5	2.59	----	1.61	"	"
38.50	16.9	16.12	0.15	0.9	7	6	2.61	----	1.95	"	100-110
39.03	29.5	27.81	0.52	1.8	12	11	2.64	----	3.63	"	120-130
39.50	40.9	38.09	1.00	2.4	16	15	2.68	----	5.15	"	130-140
40.01	40.4	37.14	1.00	2.5	16	15	2.71	----	5.07	"	"
40.54	45.2	40.97	2.15	4.8	30	27	2.75	----	5.71	Silty CLAY to CLAY	"
41.03	46.7	41.79	1.94	4.2	23	21	2.79	----	5.91	Clayey SILT to Silty CLAY	"
41.50	88.2	77.93	1.65	1.9	29	26	2.82	37	----	Silty SAND to Sandy SILT	"
42.07	97.2	84.57	1.85	1.9	32	28	2.86	37	----	"	"
42.50	144.7	124.39	1.82	1.3	36	31	2.90	39	----	SAND to Silty SAND	"
43.02	53.0	44.89	1.11	2.1	21	18	2.93	----	6.73	Sandy SILT to Clayey SILT	"
43.53	14.1	11.82	0.24	1.7	7	6	2.96	----	1.54	Clayey SILT to Silty CLAY	110-120
44.04	13.7	11.43	0.07	0.5	5	5	2.97	----	1.48	Sandy SILT to Clayey SILT	85-90
44.53	14.9	12.35	0.14	0.9	6	5	2.99	----	1.64	"	90-100
45.02	14.6	12.03	0.18	1.2	6	5	3.01	----	1.59	"	100-110
45.53	16.3	13.38	0.34	2.1	8	7	3.04	----	1.82	Clayey SILT to Silty CLAY	110-120
46.03	17.0	13.89	0.35	2.1	9	7	3.07	----	1.91	"	120-130
46.54	15.7	12.78	0.29	1.8	8	6	3.09	----	1.73	"	110-120
47.04	17.8	14.44	0.29	1.6	7	6	3.12	----	2.00	Sandy SILT to Clayey SILT	"
47.51	15.8	12.78	0.15	0.9	6	5	3.14	----	1.74	"	100-110
48.04	16.4	13.22	0.18	1.1	7	5	3.16	----	1.81	"	"
48.52	15.1	12.15	0.10	0.7	6	5	3.18	----	1.63	"	90-100
49.01	14.8	11.88	0.11	0.7	6	5	3.19	----	1.59	"	"
49.58	16.8	13.44	0.19	1.1	7	5	3.22	----	1.85	"	100-110
50.07	22.1	17.60	0.64	2.9	11	9	3.25	----	2.56	Clayey SILT to Silty CLAY	120-130
50.55	28.2	22.34	0.76	2.7	14	11	3.28	----	3.37	"	130-140
51.03	29.2	23.03	0.64	2.2	12	9	3.31	----	3.50	Sandy SILT to Clayey SILT	120-130
51.52	19.2	15.08	0.37	1.9	8	6	3.35	----	2.16	"	"
52.06	18.7	14.61	0.36	1.9	7	6	3.38	----	2.09	"	"
52.55	20.7	16.10	0.52	2.5	10	8	3.41	----	2.35	Clayey SILT to Silty CLAY	"
53.04	17.0	13.16	0.35	2.1	9	7	3.44	----	1.85	"	"
53.54	17.6	13.57	0.33	1.9	7	5	3.47	----	1.93	Sandy SILT to Clayey SILT	110-120
54.04	18.0	13.82	0.38	2.1	9	7	3.50	----	1.98	Clayey SILT to Silty CLAY	120-130
54.53	19.2	14.67	0.47	2.4	10	7	3.53	----	2.13	"	"
55.03	21.9	16.66	0.60	2.7	11	8	3.56	----	2.49	"	"
55.53	24.0	18.15	0.82	3.4	12	9	3.60	----	2.76	"	130-140

PROJECT: BART PHASE 2
 LOCATION: San Jose CA
 PROJ. NO.: 6600.3.001.01(EGO-102A)
 Terminated at 70.5 feet

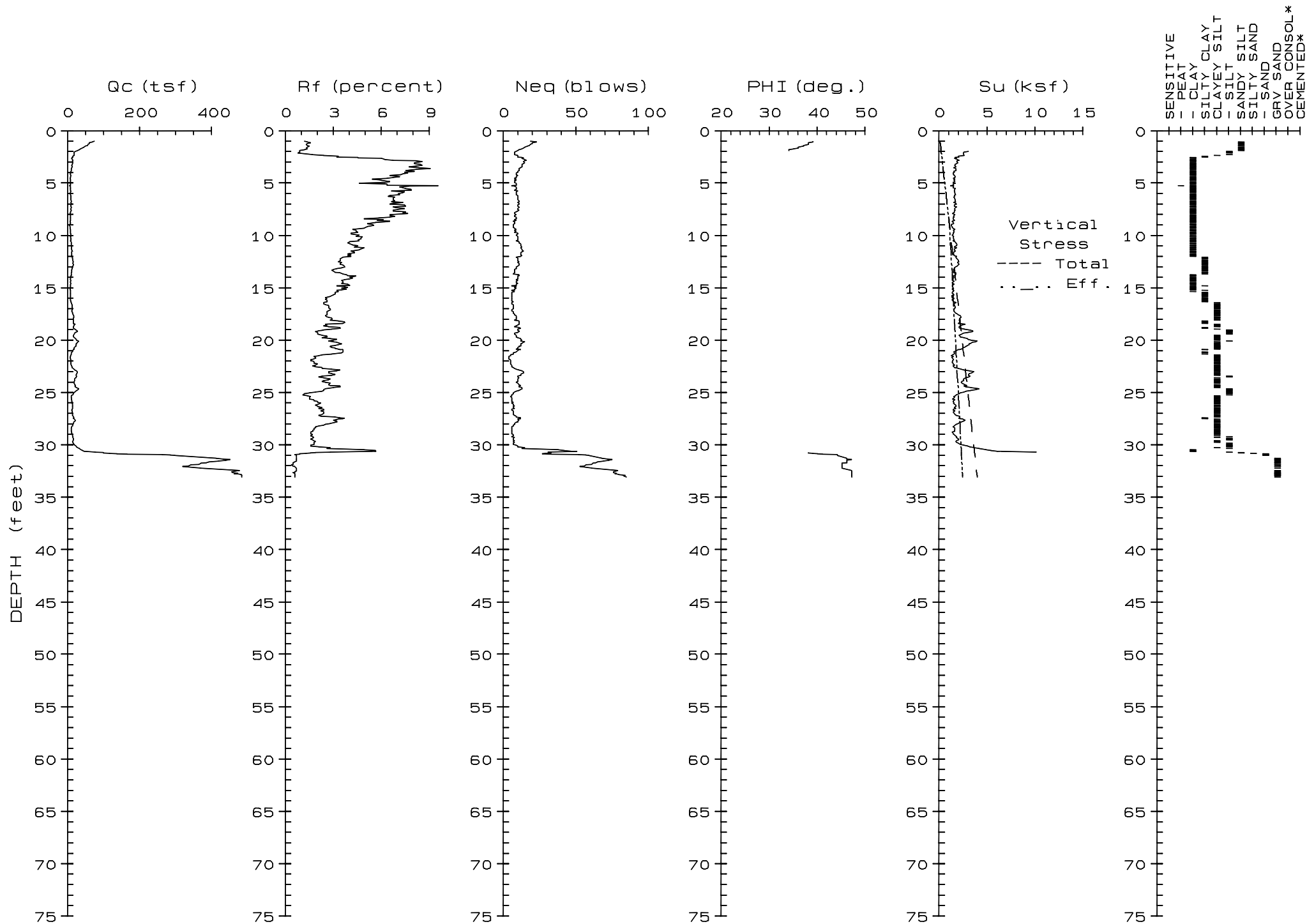
CPT NO.: CPT-10
 DATE : 02-01-2008
 TIME : 13:01:33

ENGEO, INC.
cpts by John Sarmiento & Associates

Groundwater measured at 9.0 feet

RANGE (pcf)	Qc (tsf)	Qc' (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT' (N')	EffVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
56.02	25.9	19.49	1.02	3.9	17	13	3.63	----	3.01	Silty CLAY to CLAY	130-140
56.51	39.7	29.71	2.24	5.6	40	30	3.67	----	4.85	CLAY	"
57.01	147.6	109.83	2.89	2.0	49	37	3.70	39	----	Silty SAND to Sandy SILT	"
57.53	237.3	175.89	0.94	0.4	40	29	3.73	41	----	Gravelly SAND to SAND	100-110
58.00	224.8	166.00	1.41	0.6	45	33	3.75	41	----	"	110-120
58.53	315.7	232.11	2.05	0.6	53	39	3.78	43	----	Gravelly SAND to SAND	"
59.05	271.4	198.52	2.87	1.1	54	40	3.81	42	----	SAND	120-130
59.55	354.2	258.01	2.19	0.6	59	43	3.84	43	----	Gravelly SAND to SAND	110-120
60.03	354.9	257.89	0.94	0.3	59	43	3.86	43	----	"	90-100
60.55	276.4	200.16	1.21	0.4	46	33	3.88	42	----	"	100-110
61.02	228.2	164.61	1.18	0.5	46	33	3.90	41	----	SAND	110-120
61.51	160.2	114.99	1.48	0.9	32	23	3.93	39	----	"	120-130
62.09	159.6	114.47	1.47	0.9	32	23	3.94	39	----	"	"
62.51	179.8	128.41	1.46	0.8	36	26	3.96	39	----	"	"
63.00	163.5	115.87	1.08	0.7	33	23	4.02	39	----	"	110-120
63.54	44.8	31.60	0.93	2.1	18	13	4.05	----	5.47	Sandy SILT to Clayey SILT	130-140
64.01	29.5	20.73	0.65	2.2	12	8	4.08	----	3.43	"	120-130
64.55	22.0	15.40	0.40	1.8	9	6	4.12	----	2.43	"	"
65.04	20.3	14.16	0.30	1.5	8	6	4.14	----	2.20	"	110-120
65.53	20.0	13.91	0.25	1.3	8	6	4.17	----	2.15	"	"
66.03	25.1	17.39	0.38	1.5	10	7	4.20	----	2.83	"	120-130
66.52	30.2	20.85	0.66	2.2	12	8	4.23	----	3.50	"	"
67.02	23.4	16.09	0.63	2.7	12	8	4.26	----	2.59	Clayey SILT to Silty CLAY	"
67.51	21.0	14.39	0.56	2.7	11	7	4.29	----	2.27	"	"
68.02	54.6	37.23	2.14	3.9	27	19	4.33	----	6.74	"	130-140
68.50	82.9	56.27	4.91	5.9	83	56	4.37	----	10.51	Very Stiff Fine Grained *	>140
69.06	165.3	111.63	4.61	2.8	55	37	4.41	39	----	Silty SAND to Sandy SILT	130-140
69.51	222.6	149.70	3.79	1.7	45	30	4.44	40	----	SAND	"
70.02	322.4	215.94	3.63	1.1	64	43	4.47	42	----	"	120-130
70.52	347.7	231.97	3.18	0.9	70	46	4.50	43	----	"	"
71.04	222.7	148.05	1.27	0.6	45	30	4.53	40	----	"	110-120
71.54	196.9	130.38	1.79	0.9	39	26	4.56	40	----	"	120-130
72.05	217.8	143.72	1.66	0.8	44	29	4.59	40	----	"	110-120
72.57	221.2	145.35	2.34	1.1	44	29	4.62	40	----	"	120-130
73.06	427.4	279.91	2.68	0.6	71	47	4.65	44	----	Gravelly SAND to SAND	110-120
73.58	295.4	192.78	2.24	0.8	59	39	4.68	42	----	SAND	"
74.01	515.1	334.97	4.03	0.8	86	56	4.70	45	----	Gravelly SAND to SAND	120-130

Qc = Tip bearing resistance Fs = Sleeve friction resistance Rf = Tip/Sleeve ratio
 TotStr = Total Stress using est. density** Phi = Soil friction angle* Su = Undrained Soil Strength* (Nk=10 for Qc<9 tsf)
 SPT = Equivalent Standard Penetration Test* (Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf)
 References: * Robertson and Campanella, 1988 ** Olsen, 1989 *** Durgunoglu & Mitchell, 1975



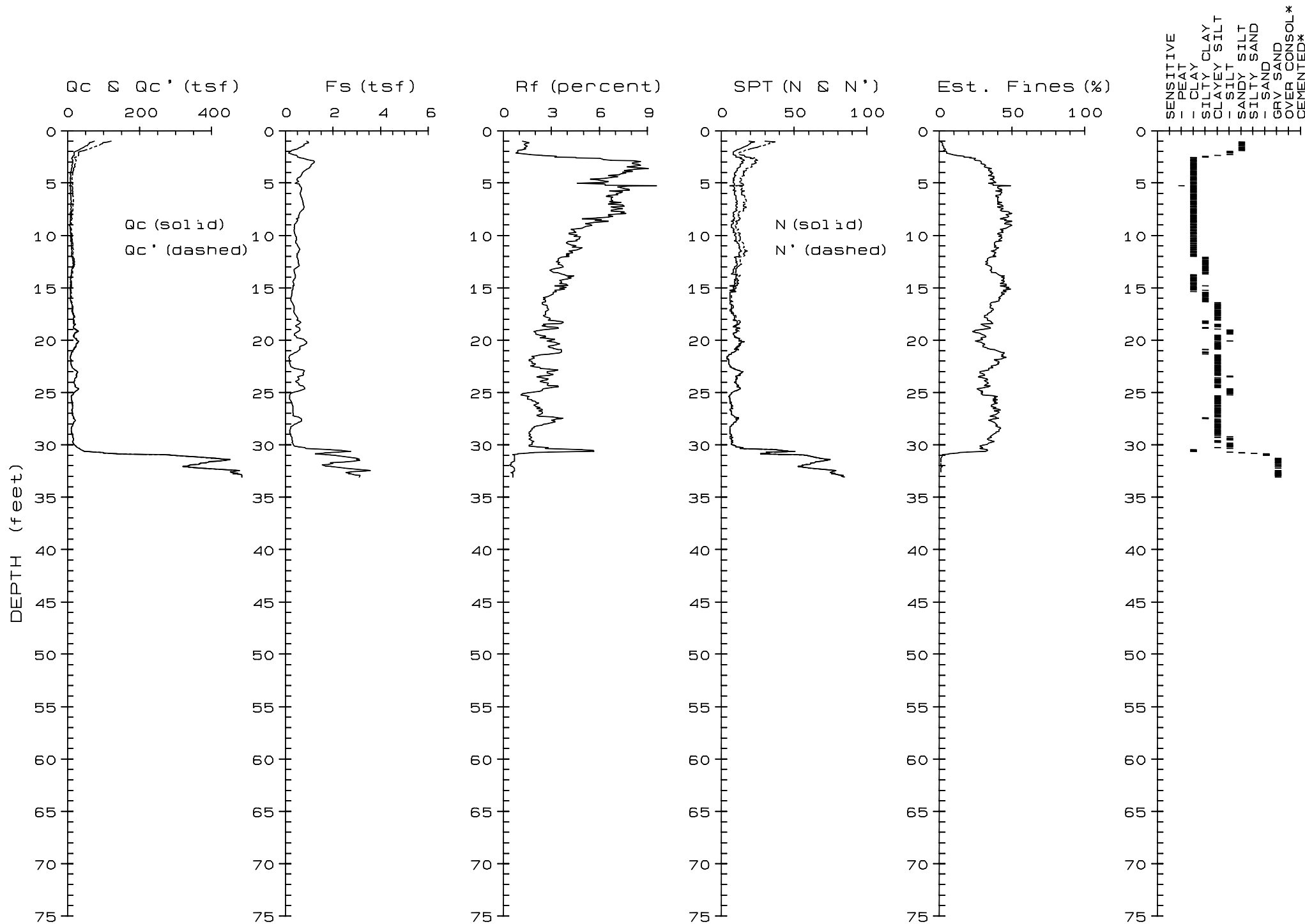
Terminated at 33.0 feet

Groundwater estimated at 9.0 feet

PROJECT: BART PHASE 2
 LOCATION: San Jose CA
 PROJ. NO.: 6600.3.001.01 (EGO-102A)

CPT NO.: CPT-13
 DATE : 02-01-2008

ENGEO, INC.
cpts by John Sarmiento & Associates



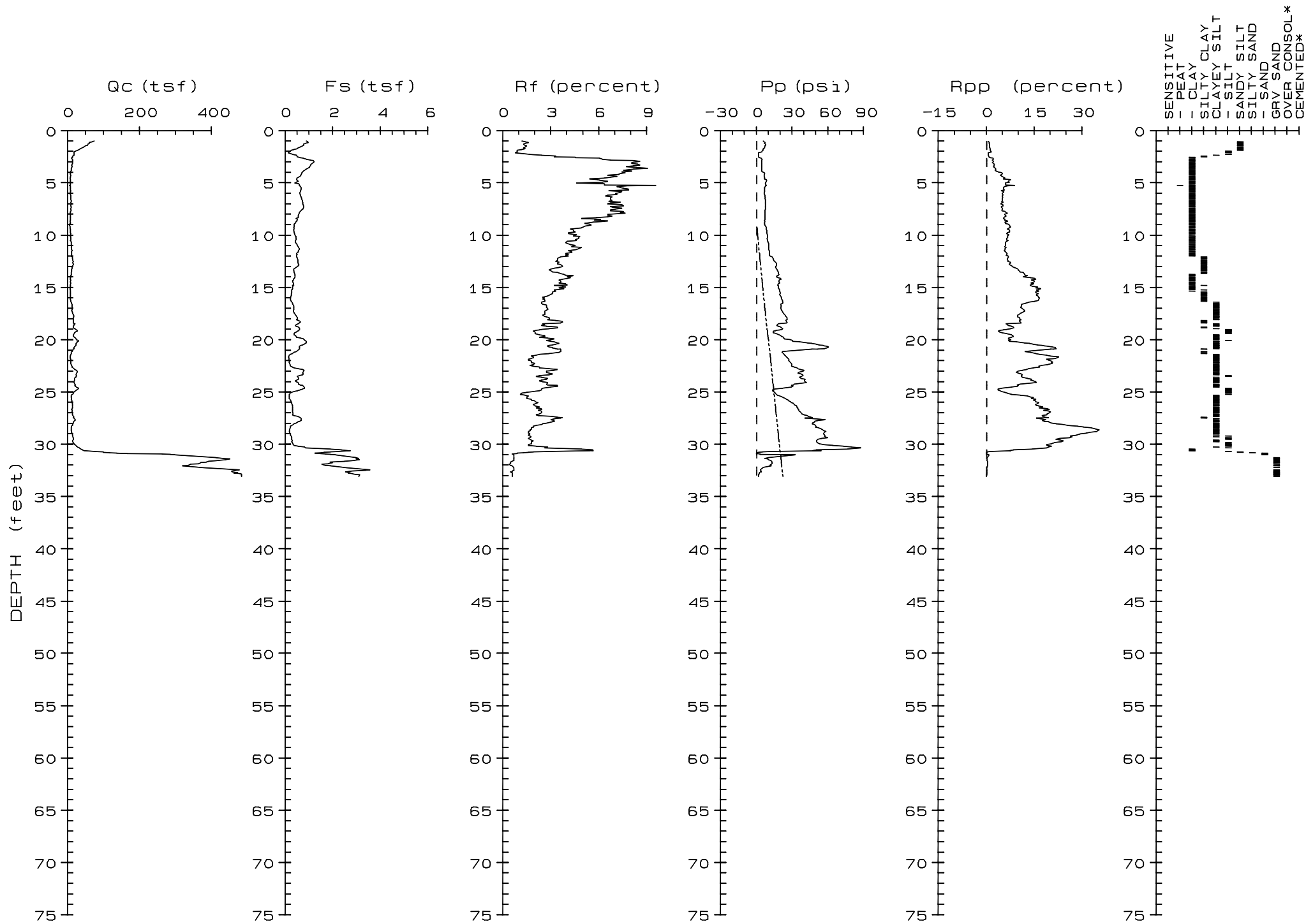
Terminated at 33.0 feet

Groundwater estimated at 9.0 feet

PROJECT: BART PHASE 2
 LOCATION: San Jose CA
 PROJ. NO.: 6600.3.001.01 (EGO-102A)

CPT NO.: CPT-13
 DATE : 02-01-2008

ENGEO, INC.
cpts by John Sarmiento & Associates



Terminated at 33.0 feet

Groundwater estimated at 9.0 feet

PROJECT: BART PHASE 2
 LOCATION: San Jose CA
 PROJ. NO.: 6600.3.001.01 (EGO-102A)

CPT NO.: CPT-13
 DATE : 02-01-2008

ENGEO, INC.
cpts by John Sarmiento & Associates

PROJECT: BART PHASE 2
 LOCATION: San Jose CA
 PROJ. NO.: 6600.3.001.01(EGO-102A)
 Terminated at 33.0 feet

CPT NO.: CPT-13
 DATE : 02-01-2008
 TIME : 11:30:40
 Groundwater estimated at 9.0 feet

ENGEO, INC.
cpts by John Sarmiento & Associates

RANGE (pcf)	Qc (tsf)	Qc' (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT' (N')	EffVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
1.00	75.6	120.96	0.89	1.2	19	30	0.12	39	----	SAND to Silty SAND	120-130
1.58	46.0	73.60	0.64	1.4	15	25	0.19	36	----	Silty SAND to Sandy SILT	"
2.07	19.6	31.36	0.17	0.9	8	13	0.24	----	2.60	Sandy SILT to Clayey SILT	100-110
2.53	15.7	25.12	0.51	3.2	10	17	0.30	----	2.07	Silty CLAY to CLAY	120-130
3.06	14.8	23.68	1.18	8.0	15	24	0.37	----	1.95	CLAY	130-140
3.55	12.1	19.36	1.00	8.3	12	19	0.43	----	1.58	"	120-130
4.04	9.2	14.72	0.70	7.6	9	15	0.49	----	1.49	"	"
4.54	7.9	12.64	0.50	6.3	8	13	0.55	----	1.53	"	110-120
5.03	8.9	14.24	0.41	4.6	9	14	0.60	----	1.72	"	"
5.53	8.9	14.24	0.67	7.5	9	14	0.67	----	1.71	"	120-130
6.03	8.8	14.08	0.62	7.0	9	14	0.73	----	1.69	"	"
6.52	10.2	16.32	0.68	6.7	10	16	0.79	----	1.63	"	"
7.02	11.3	17.48	0.74	6.5	11	17	0.85	----	1.81	"	"
7.52	10.3	15.29	0.72	7.0	10	15	0.92	----	1.64	"	"
8.02	8.8	12.52	0.57	6.5	9	13	0.98	----	1.66	"	"
8.51	8.4	11.61	0.51	6.1	8	12	1.03	----	1.58	"	110-120
9.05	6.9	9.43	0.38	5.5	7	9	1.06	----	1.27	"	"
9.51	8.2	11.11	0.36	4.4	8	11	1.09	----	1.53	"	"
10.07	9.9	13.26	0.44	4.4	10	13	1.12	----	1.55	"	"
10.53	9.4	12.47	0.43	4.6	9	12	1.14	----	1.46	"	"
11.10	12.7	16.61	0.55	4.3	13	17	1.18	----	1.60	"	120-130
11.57	12.6	16.29	0.54	4.3	13	16	1.21	----	1.59	"	"
12.03	11.9	15.21	0.49	4.1	12	15	1.23	----	1.86	"	"
12.52	16.2	20.46	0.53	3.3	11	14	1.27	----	2.06	Silty CLAY to CLAY	"
13.01	13.8	17.22	0.51	3.7	9	11	1.30	----	1.73	"	"
13.51	12.3	15.19	0.38	3.1	8	10	1.32	----	1.53	"	110-120
14.08	9.5	11.60	0.40	4.2	10	12	1.35	----	1.44	CLAY	"
14.50	9.1	11.01	0.33	3.6	9	11	1.37	----	1.37	"	"
15.07	8.5	10.16	0.30	3.5	9	10	1.40	----	1.52	"	"
15.53	9.1	10.78	0.28	3.1	6	7	1.43	----	1.36	Silty CLAY to CLAY	"
16.02	8.9	10.45	0.23	2.6	6	7	1.45	----	1.59	"	100-110
16.53	12.7	14.75	0.31	2.4	6	7	1.48	----	1.56	Clayey SILT to Silty CLAY	110-120
17.02	13.0	14.94	0.37	2.8	7	7	1.50	----	1.60	"	"
17.51	15.5	17.64	0.40	2.6	8	9	1.53	----	1.93	"	120-130
18.01	17.5	19.72	0.51	2.9	9	10	1.56	----	2.19	"	"
18.55	19.2	21.40	0.49	2.6	10	11	1.60	----	2.41	"	"
19.03	24.5	27.04	0.59	2.4	10	11	1.63	----	3.11	Sandy SILT to Clayey SILT	"
19.53	17.1	18.69	0.39	2.3	9	9	1.66	----	2.12	Clayey SILT to Silty CLAY	"
20.02	26.4	28.51	0.80	3.0	13	14	1.69	----	3.36	"	130-140
20.50	23.6	25.23	0.72	3.1	12	13	1.72	----	2.98	"	120-130
21.06	8.8	9.29	0.16	1.8	4	5	1.77	----	1.50	"	100-110
21.56	8.8	9.29	0.16	1.8	4	5	1.77	----	1.50	"	100-110
22.05	9.6	10.08	0.17	1.8	5	5	1.79	----	1.38	"	"
22.55	12.9	13.47	0.25	1.9	6	7	1.82	----	1.54	"	110-120
23.04	28.5	29.51	0.78	2.7	14	15	1.85	----	3.62	"	130-140
23.53	24.8	25.49	0.52	2.1	10	10	1.88	----	3.12	Sandy SILT to Clayey SILT	120-130
24.03	18.9	19.29	0.47	2.5	9	10	1.91	----	2.33	Clayey SILT to Silty CLAY	"
24.56	26.4	26.69	0.80	3.0	13	13	1.95	----	3.32	"	130-140
25.05	18.3	18.39	0.28	1.5	7	7	1.98	----	2.24	Sandy SILT to Clayey SILT	110-120
25.54	11.0	11.00	0.17	1.5	6	5	2.00	----	1.58	Clayey SILT to Silty CLAY	100-110
26.03	12.8	12.79	0.28	2.2	6	6	2.03	----	1.50	"	110-120
26.52	15.0	14.98	0.32	2.1	8	7	2.05	----	1.79	"	"
27.01	13.6	13.58	0.33	2.4	7	7	2.08	----	1.60	"	"
27.51	18.5	18.46	0.67	3.6	12	12	2.11	----	2.25	Silty CLAY to CLAY	120-130
28.05	15.3	15.26	0.39	2.5	8	8	2.14	----	1.82	Clayey SILT to Silty CLAY	"

PROJECT: BART PHASE 2
 LOCATION: San Jose CA
 PROJ. NO.: 6600.3.001.01(EGO-102A)
 Terminated at 33.0 feet

CPT NO.: CPT-13
 DATE : 02-01-2008
 TIME : 11:30:40

ENGEO, INC.
cpts by John Sarmiento & Associates

Groundwater estimated at 9.0 feet

RANGE (pcf)	Qc (tsf)	Qc' (tsf)	Fs (tsf)	Rf (%)	SPT (N)	SPT' (N')	EffVtStr (ksf)	PHI (deg.)	SU (ksf)	SOIL BEHAVIOR TYPE	DENSITY RANGE (pcf)
28.54	11.4	11.36	0.20	1.8	6	6	2.16	----	1.62	Clayey SILT to Silty CLAY	100-110
29.04	13.7	13.65	0.23	1.7	7	7	2.18	----	1.60	"	"
29.54	16.9	16.83	0.28	1.7	7	7	2.21	----	2.02	Sandy SILT to Clayey SILT	110-120
30.03	21.3	21.20	0.34	1.6	9	8	2.24	----	2.60	"	120-130
30.53	42.3	42.07	2.35	5.6	42	42	2.28	----	5.40	CLAY	130-140
31.02	296.9	295.10	2.08	0.7	59	59	2.30	44	----	SAND	110-120
31.55	416.1	413.34	2.85	0.7	69	69	2.33	46	----	Gravelly SAND to SAND	"
32.01	333.7	331.36	1.67	0.5	56	55	2.35	45	----	"	100-110
32.50	466.2	462.68	3.33	0.7	78	77	2.38	47	----	"	110-120
33.06	508.4	504.27	3.05	0.6	85	84	2.41	47	----	"	"

Qc = Tip bearing resistance Fs = Sleeve friction resistance Rf = Tip/Sleeve ratio

TotStr = Total Stress using est. density** Phi = Soil friction angle* Su = Undrained Soil Strength* (Nk=10 for Qc<9 tsf)

SPT = Equivalent Standard Penetration Test* (Nk=12 for Qc=9 to 12 tsf) (Nk=15 for Qc>12 tsf)

References: * Robertson and Campanella, 1988 ** Olsen, 1989 *** Durgunoglu & Mitchell, 1975

7.3 APPENDIX C

ENGEO INCORPORATED

Laboratory Test Results

LABORATORY TESTS - PURPOSE

1. Natural Unit Weight and Moisture Content (ASTM D-2216)

Provides in-place density and percentage moisture by dry weight. These aid in characterizing existing and previous ground-water conditions, soil compressibility, and degree of saturation.

2. Unconfined Compressive Strength (ASTM D-2166)

Determined usually on cohesive (clay) materials to establish allowable design foundation bearing capacity or estimated shear strength for slope stability studies.

3. Atterberg Limits (ASTM D-4318)

Performed primarily on cohesive soils. Includes the Liquid Limit and the Plastic Limit. From these, a Plasticity Index can be computed which allows classification of the soil and is an indirect measure of its expansion characteristics.

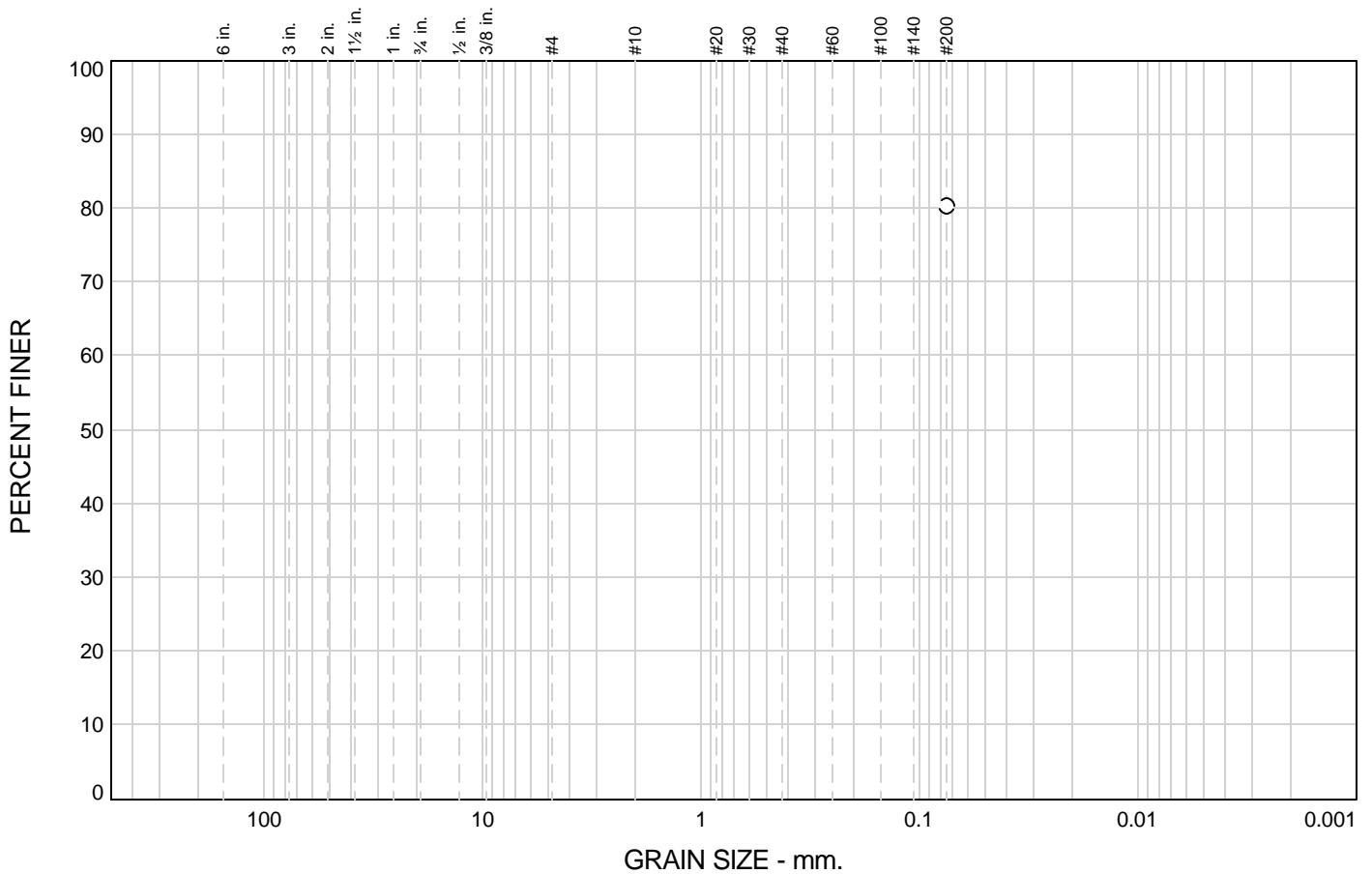
4. Grain Size Distribution (ASTM D-422-63)

Provide information on the distribution of particle sizes in a soil sample. These aid in characterizing soil type and provide information for liquefaction analyses.

5. Consolidation (ASTM D-2435)

Provide data for computation of consolidation characteristics for potentially compressible soils. Parameters, which can be estimated, include Preconsolidation Pressure, P_c and Compressions Index, C_c . These are used to estimate foundation and fill settlements.

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						80.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	80.3		

Material Description

See Borelog for description

Atterberg Limits

PL= LL= PI=

Coefficients

D₈₅= D₆₀= D₅₀=
D₃₀= D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= CL AASHTO=

Remarks

* (no specification provided)

Sample Number: B1@21

Depth: 21.0 ft.

Date: 10/5/07



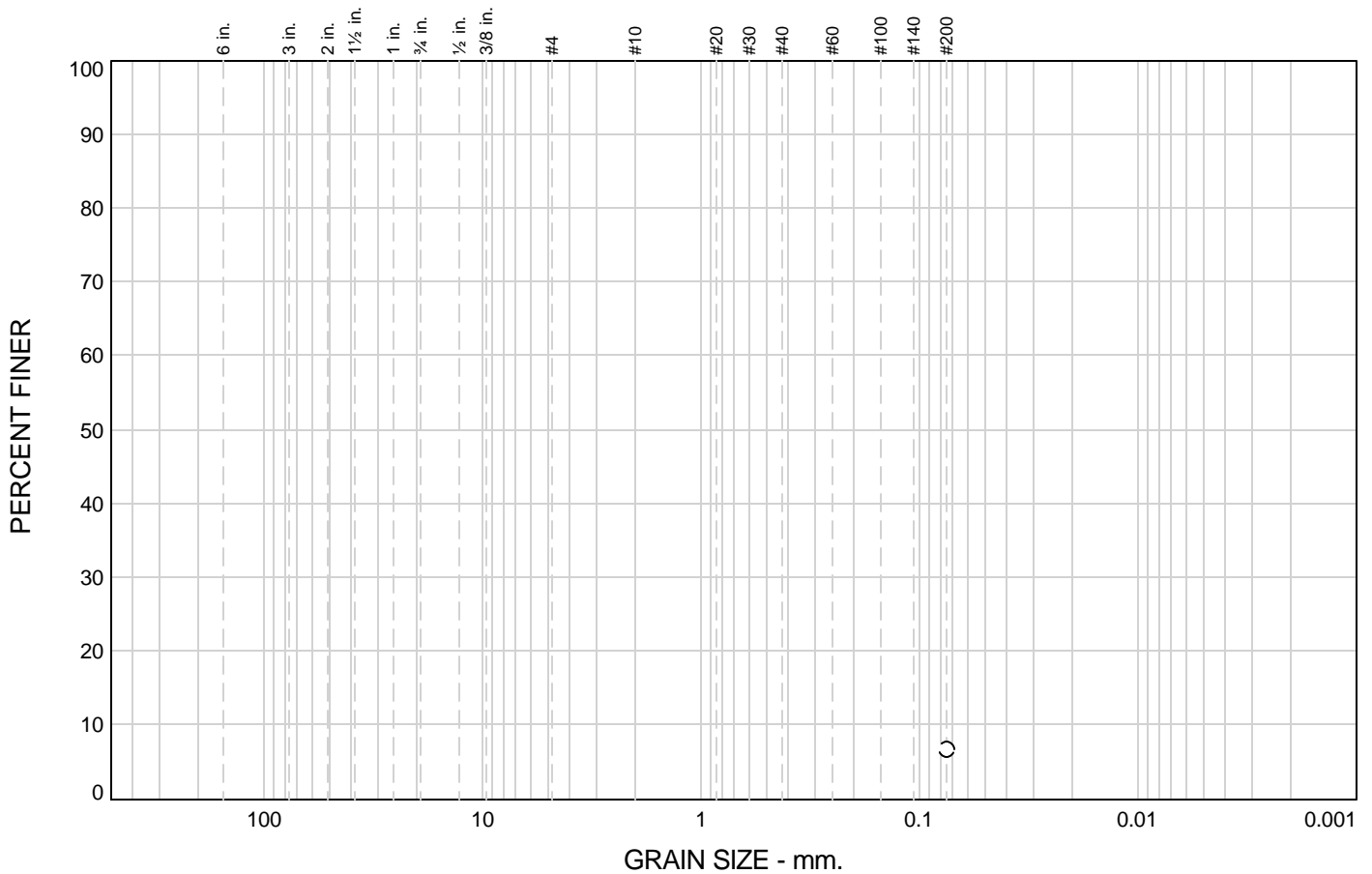
Client:

Project: SVRT - Western Area Yard and Shops

Project No: 6600.3.001.02

Plate

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						6.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	6.7		

Material Description

See Borelog for description

Atterberg Limits

PL= LL= PI=

Coefficients

D₈₅= D₆₀= D₅₀=
D₃₀= D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= SP AASHTO=

Remarks

* (no specification provided)

Sample Number: B1@35.5

Depth: 35.5 ft.

Date: 10/5/07



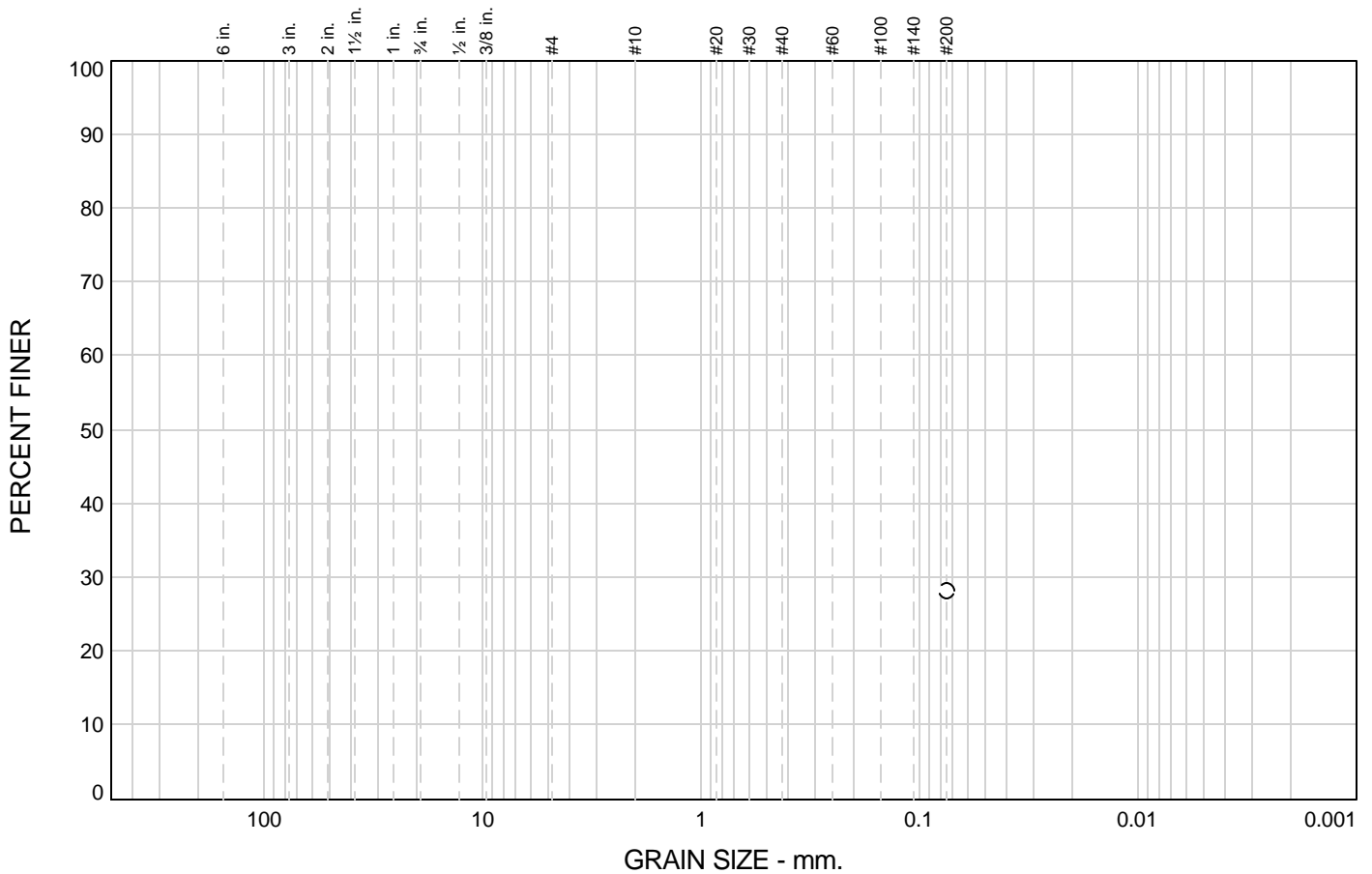
Client:

Project: SVRT - Western Area Yard and Shops

Project No: 6600.3.001.02

Plate

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						28.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	28.1		

Material Description

See Borelog for description

Atterberg Limits

PL= LL= PI=

Coefficients

D₈₅= D₆₀= D₅₀=
D₃₀= D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

* (no specification provided)

Sample Number: B1@41

Depth: 41.0 ft.

Date: 10/5/07



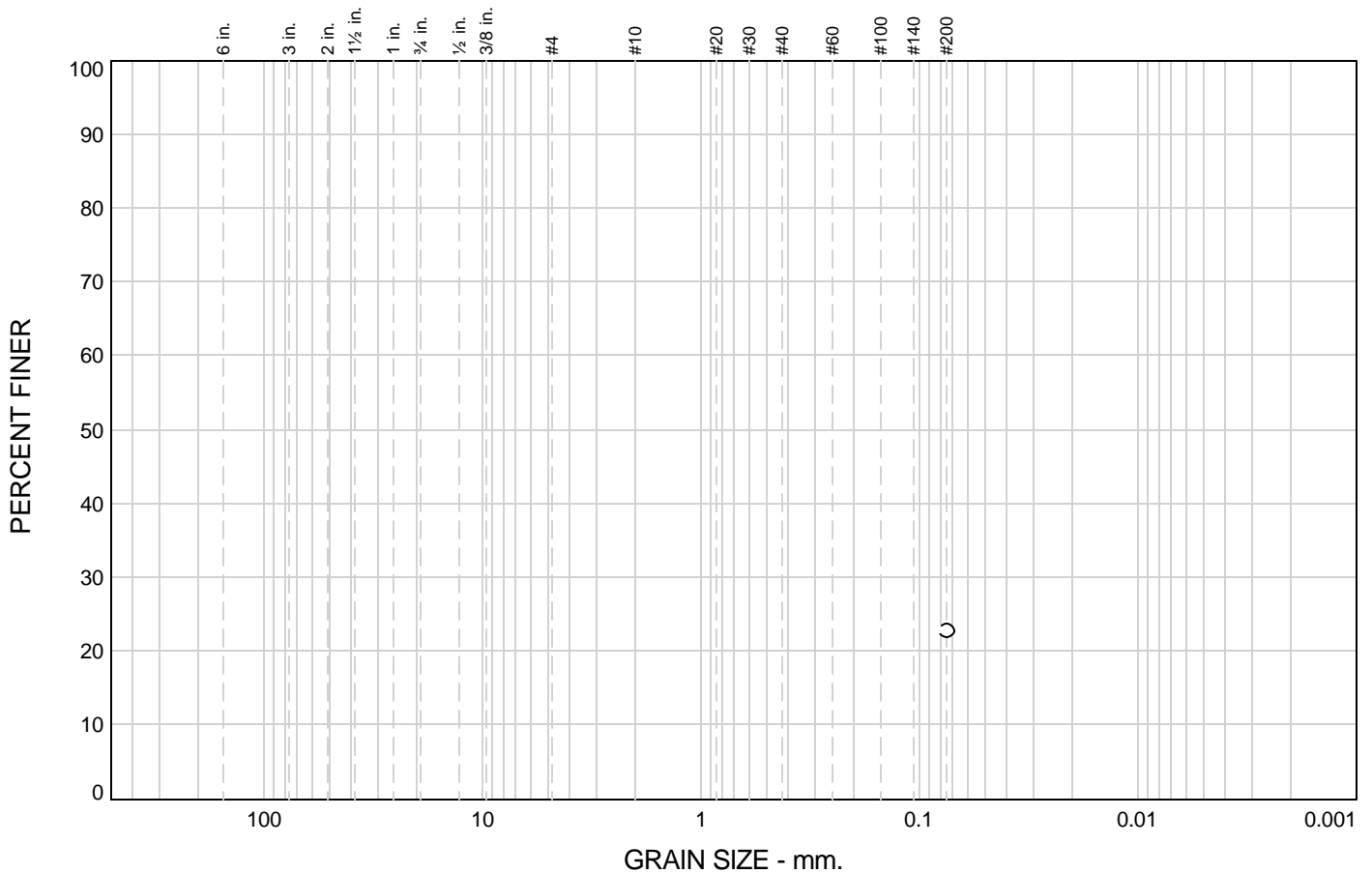
Client:

Project: SVRT - Western Area Yard and Shops

Project No: 6600.3.001.02

Plate

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						22.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	22.9		

Material Description

See Borelog for description

Atterberg Limits

PL= LL= PI=

Coefficients

D₈₅= D₆₀= D₅₀=
D₃₀= D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

* (no specification provided)

Sample Number: B1@41.5

Depth: 41.5 ft.

Date: 10/5/07



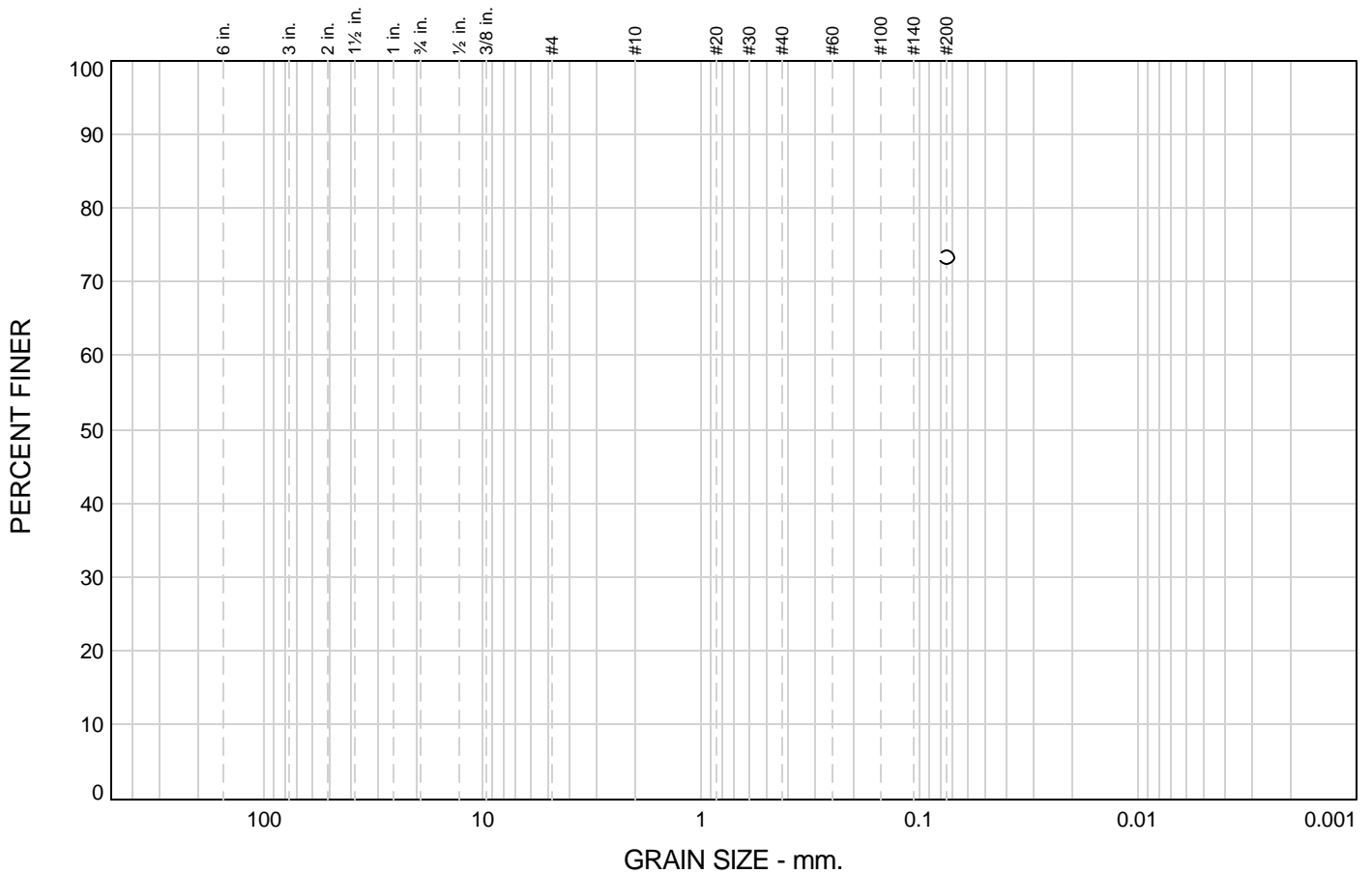
Client:

Project: SVRT - Western Area Yard and Shops

Project No: 6600.3.001.02

Plate

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						73.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	73.3		

Material Description

See Borelog for description

Atterberg Limits

PL= LL= PI=

Coefficients

D₈₅= D₆₀= D₅₀=
D₃₀= D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= CL AASHTO=

Remarks

* (no specification provided)

Sample Number: B1@71

Depth: 71.0 ft.

Date: 10/5/07



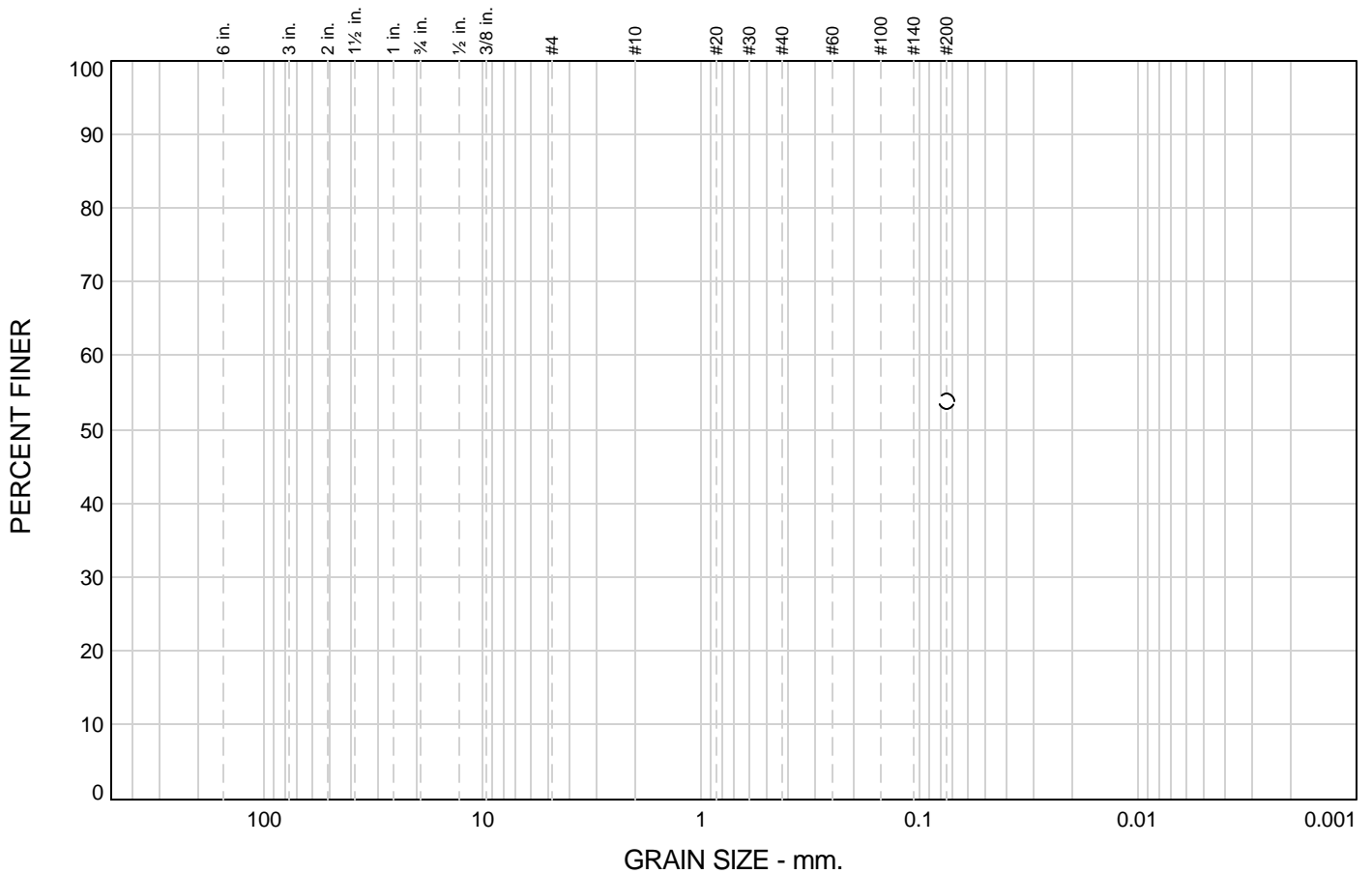
Client:

Project: SVRT - Western Area Yard and Shops

Project No: 6600.3.001.02

Plate

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						53.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	53.8		

Material Description

See Borelog for description

Atterberg Limits

PL= LL= PI=

Coefficients

D₈₅= D₆₀= D₅₀=
D₃₀= D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= SM-ML AASHTO=

Remarks

* (no specification provided)

Sample Number: B3@26.5

Depth: 26.5 ft.

Date: 10/5/07



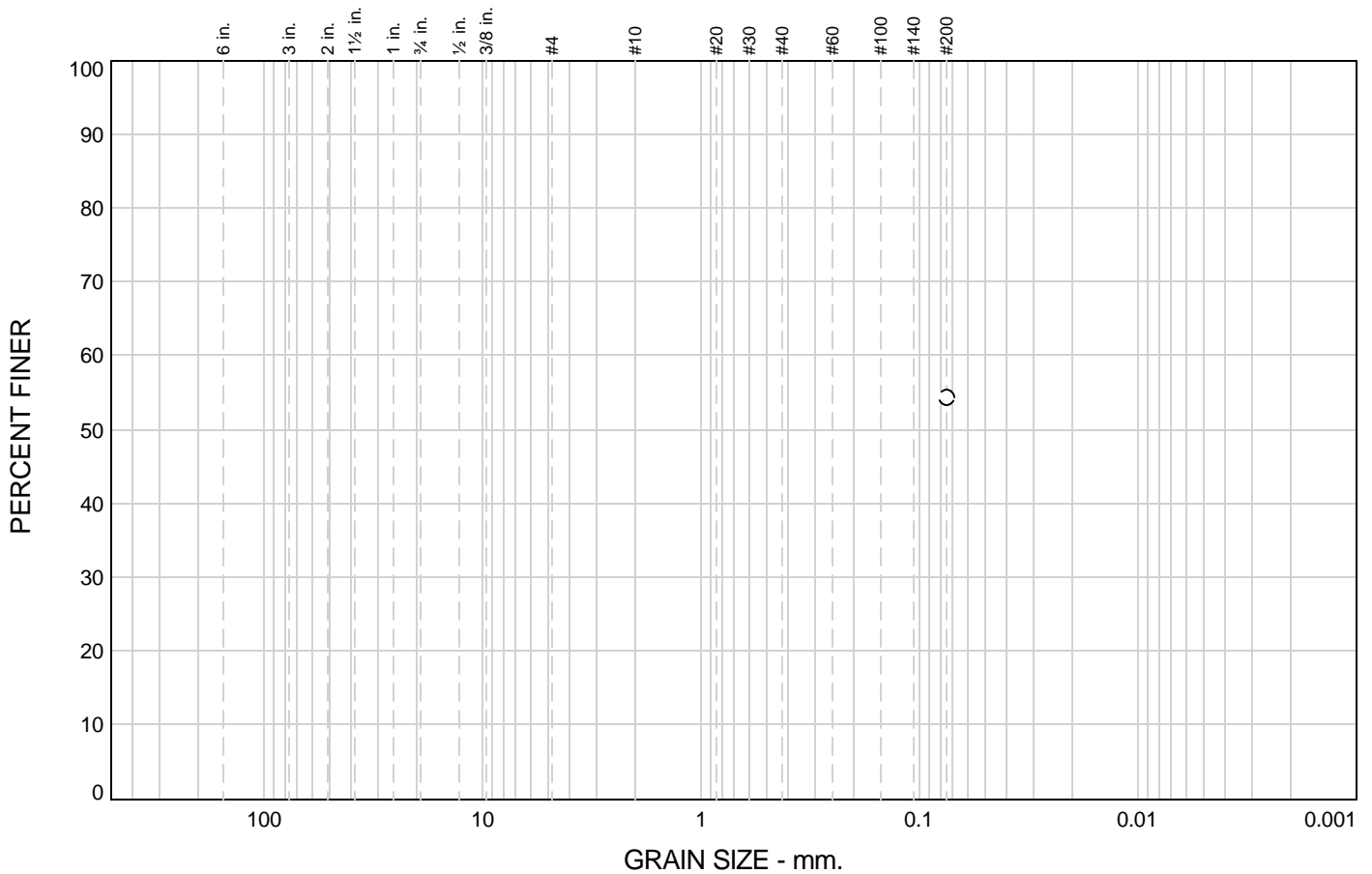
Client:

Project: SVRT - Western Area Yard and Shops

Project No: 6600.3.001.02

Plate

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						54.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	54.4		

Material Description

See Borelog for description

Atterberg Limits

PL= 17 LL= 25 PI= 8

Coefficients

D₈₅= D₆₀= D₅₀=
D₃₀= D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= CL-SC AASHTO=

Remarks

* (no specification provided)

Sample Number: B3@51.5

Depth: 51.5 ft.

Date: 10/5/07



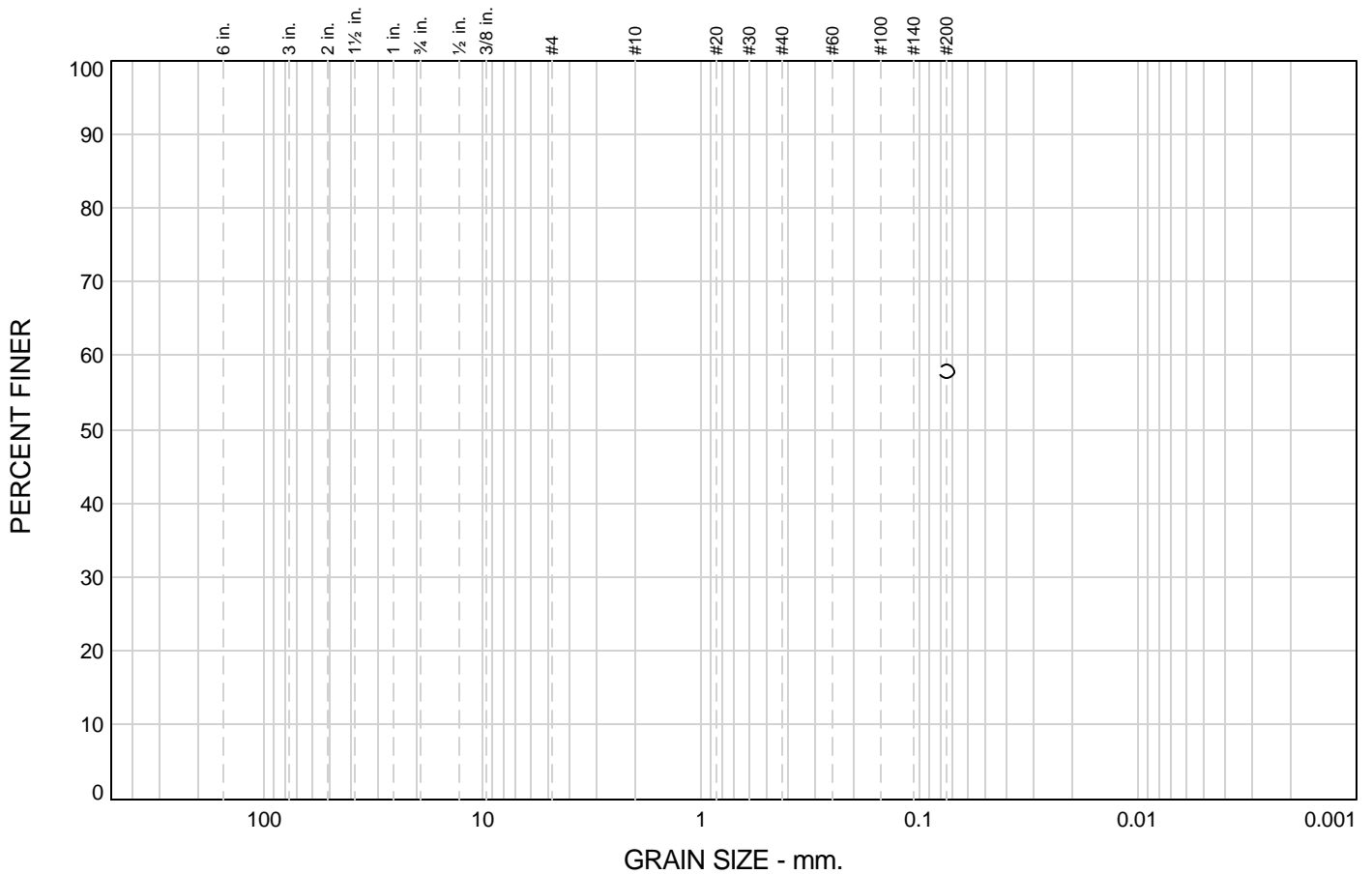
Client:

Project: SVRT - Western Area Yard and Shops

Project No: 6600.3.001.02

Plate

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						57.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	57.9		

Material Description

See Borelog for description

Atterberg Limits

PL= 16 LL= 25 PI= 9

Coefficients

D₈₅= D₆₀= D₅₀=
D₃₀= D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= CL AASHTO=

Remarks

* (no specification provided)

Sample Number: B9@31

Depth: 31.0 ft.

Date: 10/5/07



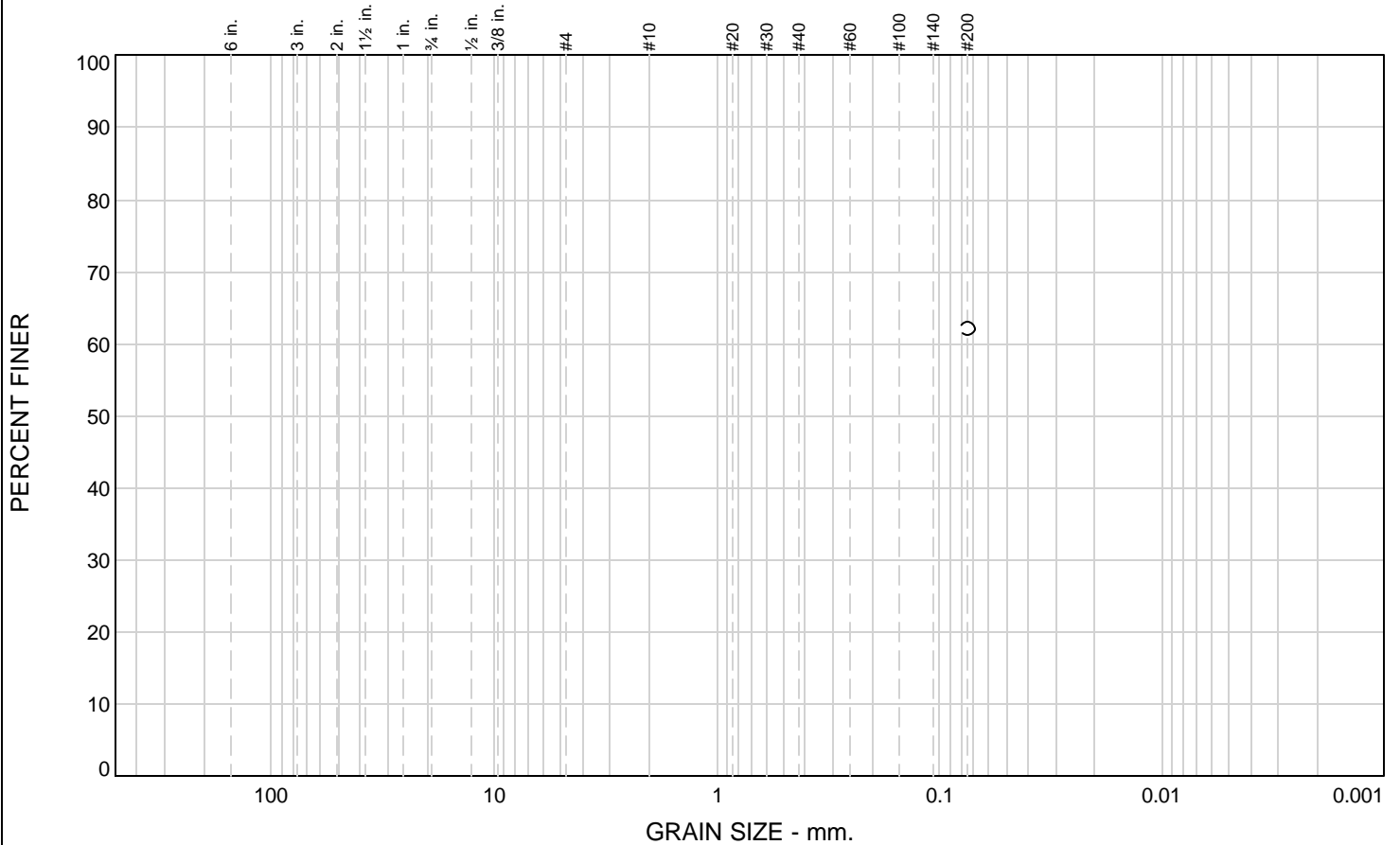
Client:

Project: SVRT - Western Area Yard and Shops

Project No: 6600.3.001.02

Plate

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						62.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	62.2		

Material Description

See Borelog for description

Atterberg Limits

PL= 24 LL= 27 PI= 3

Coefficients

D₈₅= D₆₀= D₅₀=
D₃₀= D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= ML AASHTO=

Remarks

* (no specification provided)

Sample Number: B11@31

Date:

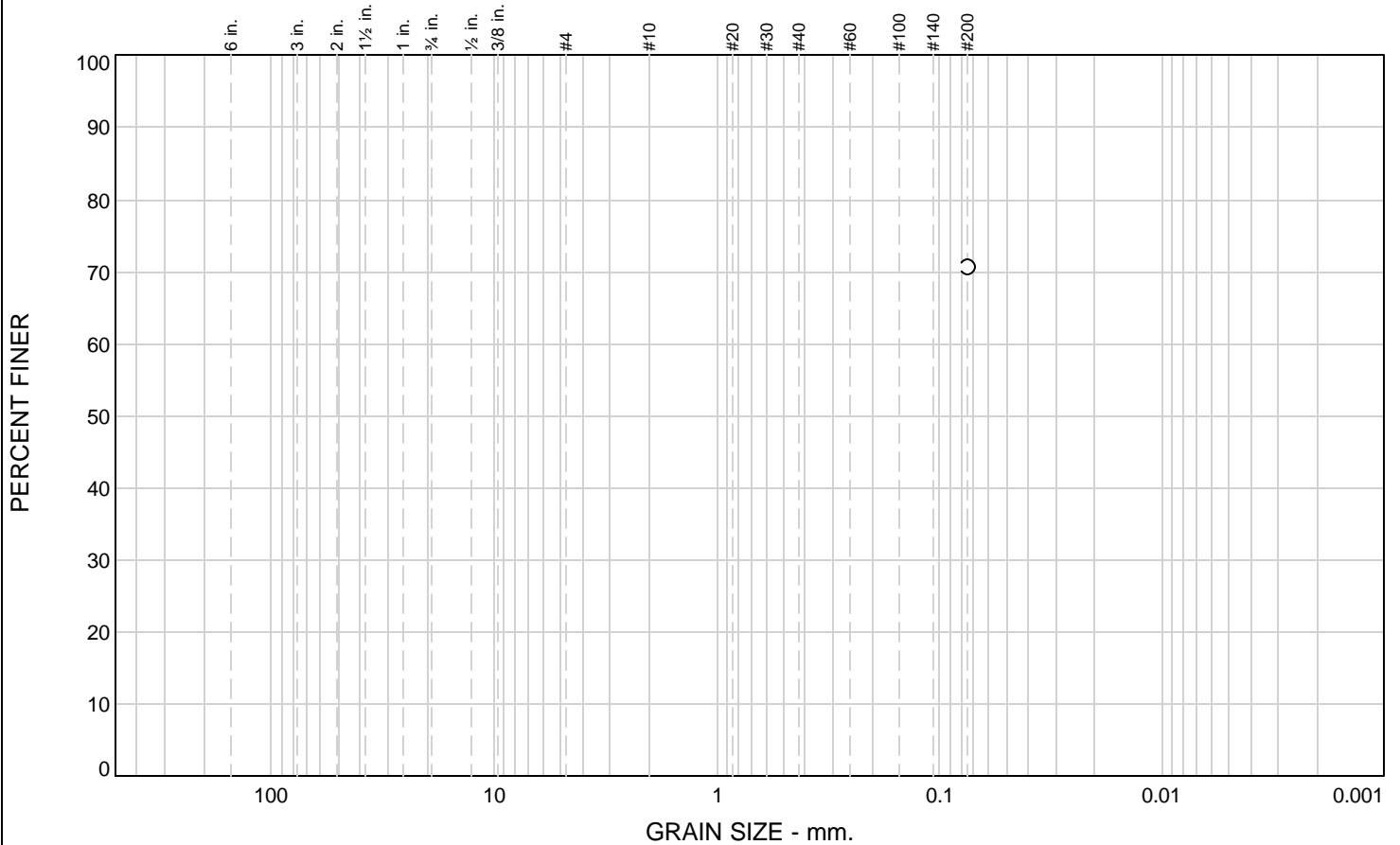


Client:

Project: SVRT - YARD AND SHOPS. Santa Clara County

Project No: 6600.300.102

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						70.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	70.7		

Material Description

See Borelog for description

Atterberg Limits

PL= 16 LL= 32 PI= 16

Coefficients

D₈₅= D₆₀= D₅₀=
D₃₀= D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

* (no specification provided)

Sample Number: B11@31.5

Depth: 31.5 ft.

Date: 2/19/08

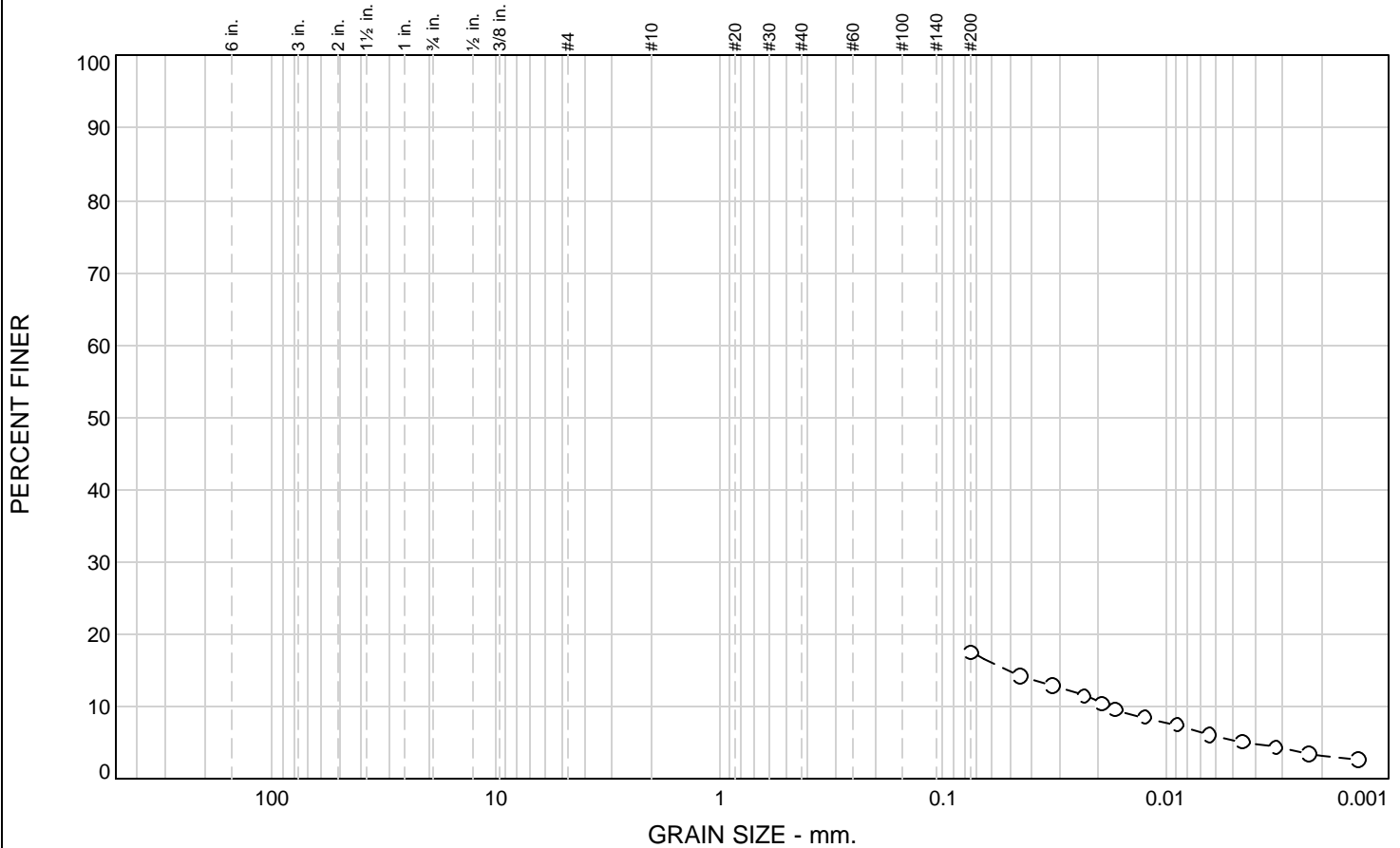


Client:

Project: SVRT - YARD AND SHOPS. Santa Clara County

Project No: 6600.300.102

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						14.4	3.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	17.6		

Material Description

See Borelog for description

Atterberg Limits

PL= 19 LL= 18 PI= NP

Coefficients

D₈₅= D₆₀= D₅₀=
D₃₀= D₁₅= 0.0516 D₁₀= 0.0179
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

* (no specification provided)

Sample Number: B11@41.5

Depth: 41.5 ft.

Date: 2/15/08

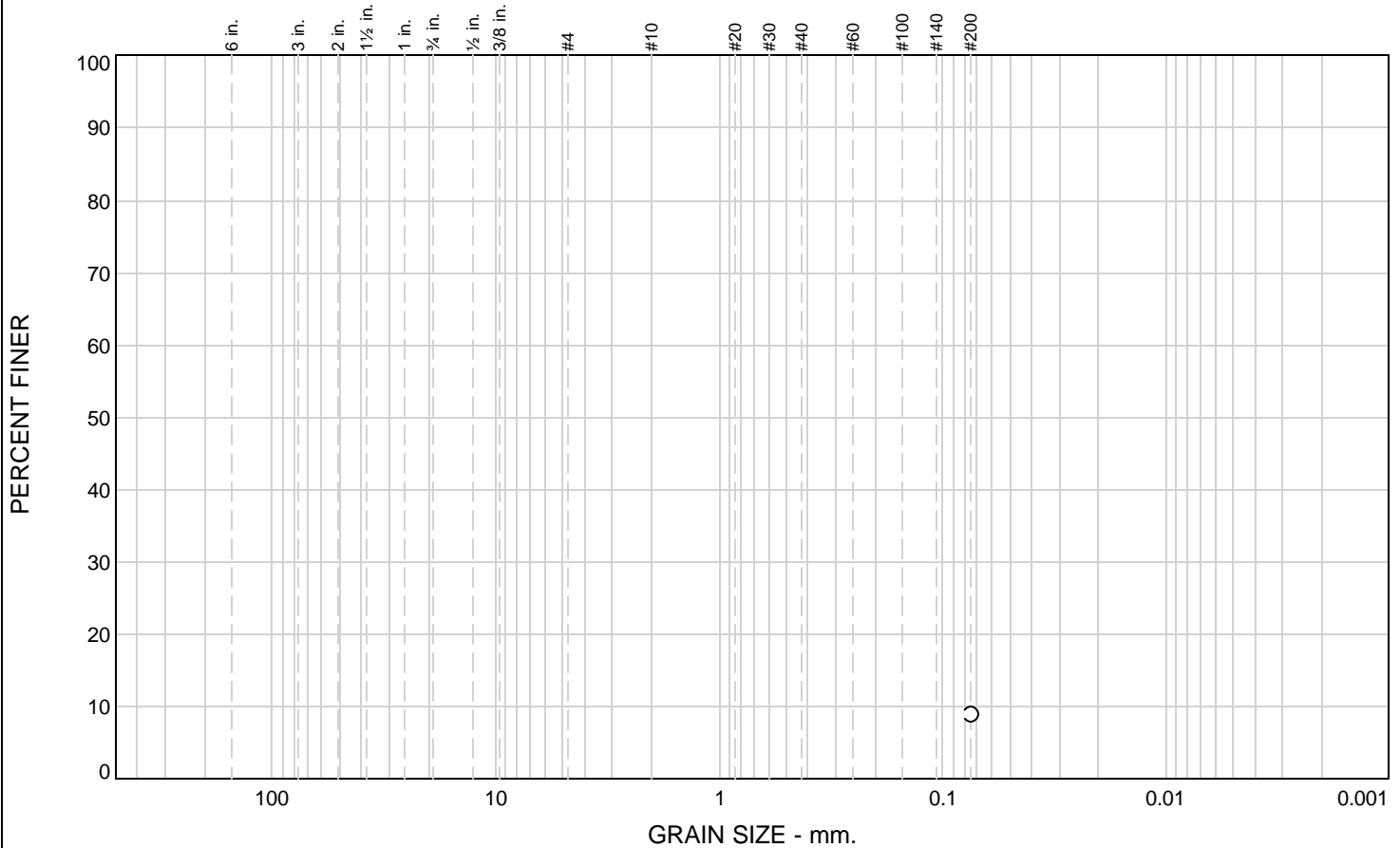


Client:

Project: SVRT - YARD AND SHOPS. Santa Clara County

Project No: 6600.300.102

Particle Size Distribution Report



% Cobbles	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						9.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	9.0		

Material Description

See Borelog for description

Atterberg Limits

PL= LL= PI= NP

Coefficients

D₈₅= D₆₀= D₅₀=
D₃₀= D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

* (no specification provided)

Sample Number: B13@21.5

Depth: 21.5 ft.

Date: 2/19/08

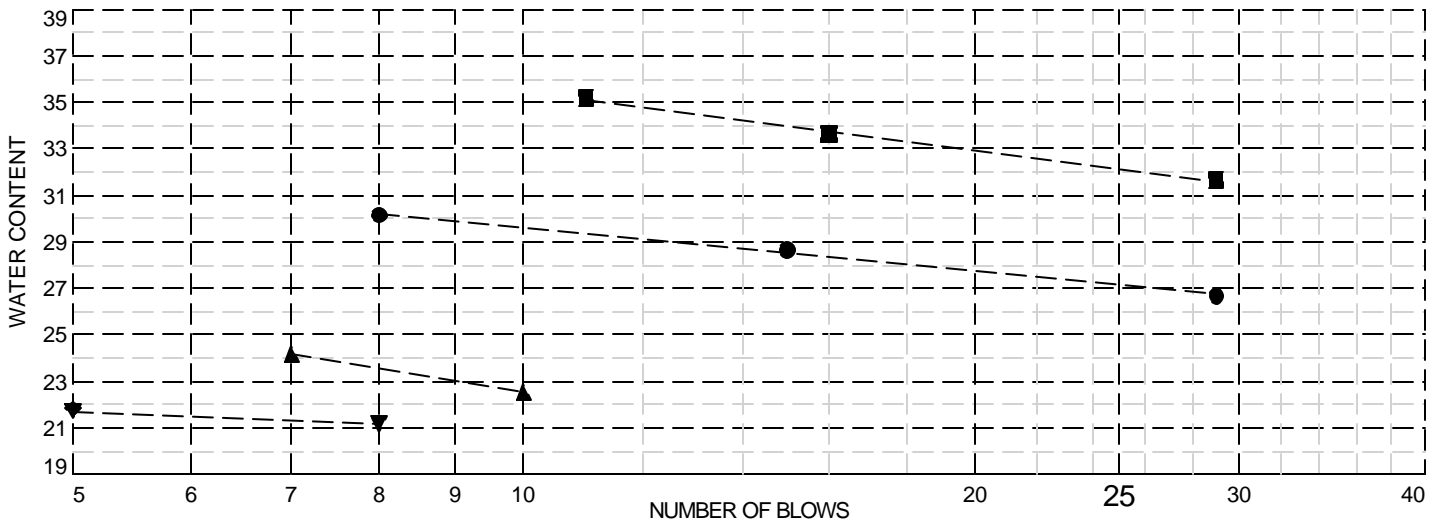
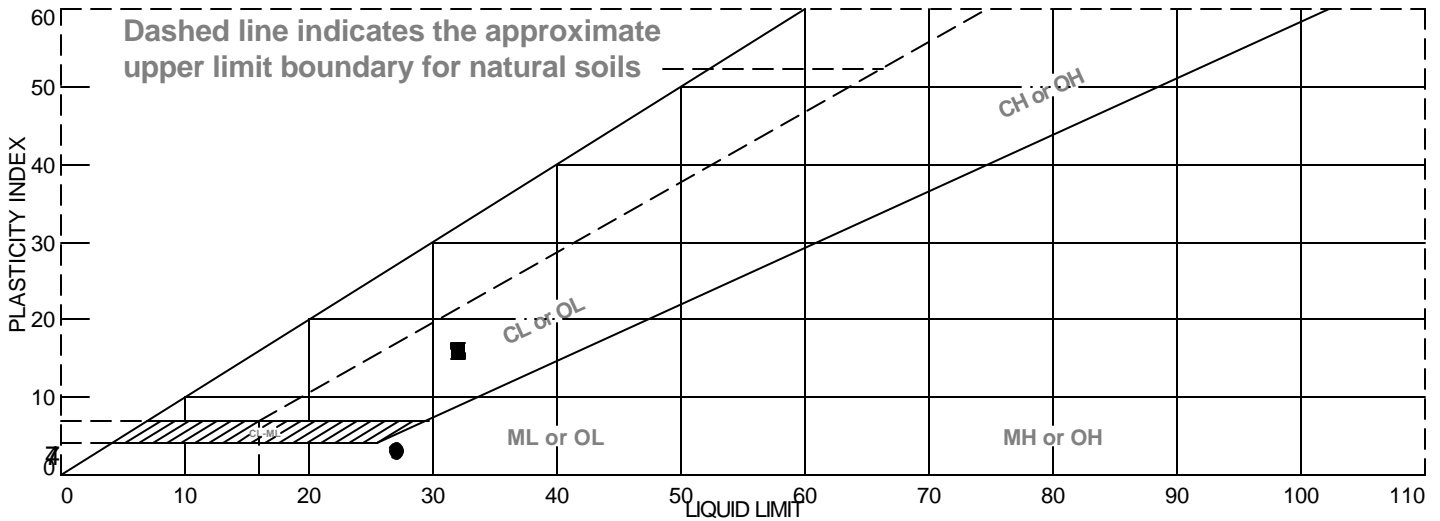


Client:

Project: SVRT - YARD AND SHOPS. Santa Clara County

Project No: 6600.300.102

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	See Borelog for Description	27	24	3		62.2	ML
■	See Borelog for Description	32	16	16		70.7	CL
▲	See Borelog for Description	18	19	NP		17.6	SM
◆	See Borelog for Description	18	NP	NP		9.0	SM
▼	See Borelog for Description	20	20	NP			GP

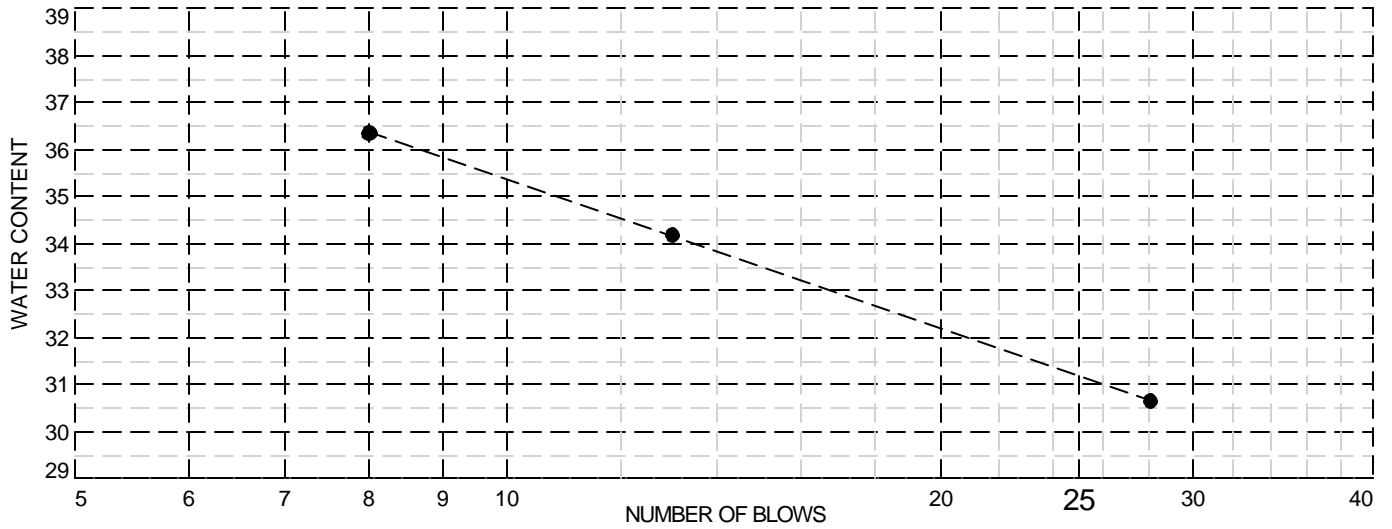
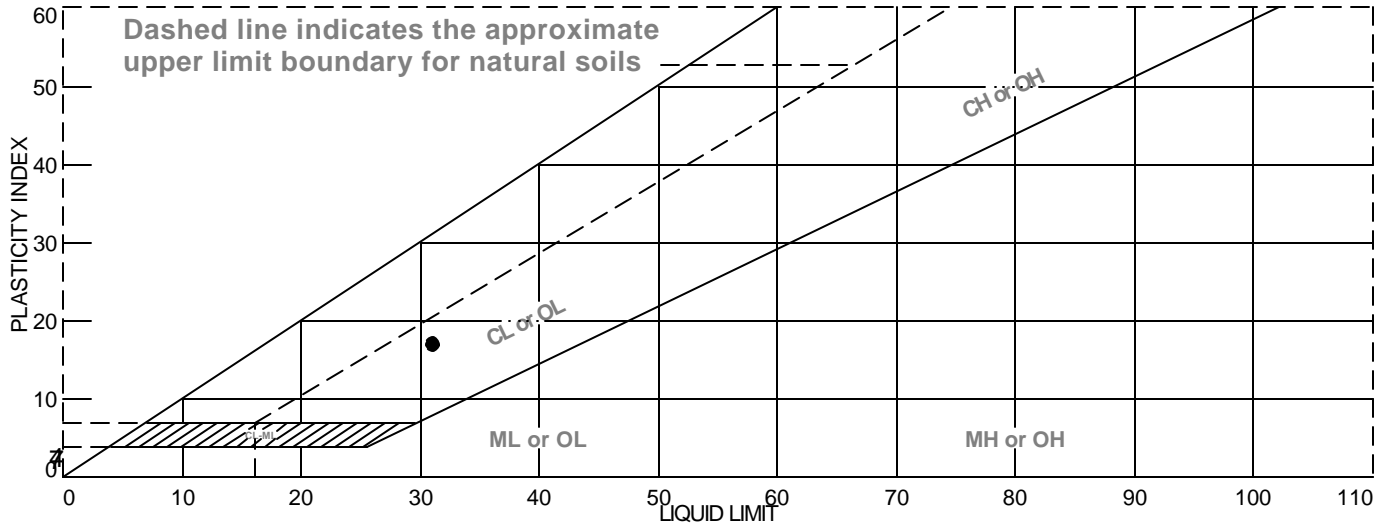
Project No. 6600.300.102 **Client:**
Project: SVRT - YARD AND SHOPS. Santa Clara County

- **Sample Number:** B11@31
- **Sample Number:** B11@31.5
- ▲ **Sample Number:** B11@41.5
- ◆ **Sample Number:** B13@21.5
- ▼ **Sample Number:** B13@25

Remarks:

- B11@31.0 ft.
- B11@31.5 ft.
- ▲ B11@41.5 ft.
- ◆ B13@21.5 ft.
- ▼ B13@25.0 ft.

LIQUID AND PLASTIC LIMITS TEST REPORT



MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● See Borelog for description	31	14	17			CL

Project No. 6600.3.001.02 **Client:**

Project: SVRT - Western Area Yard and Shops

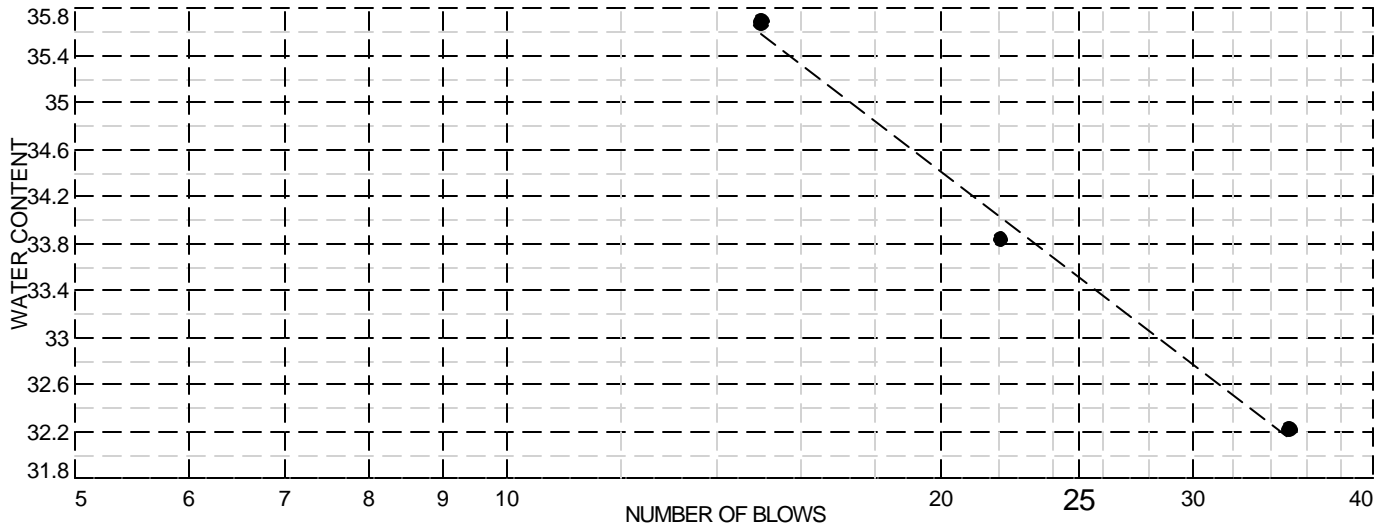
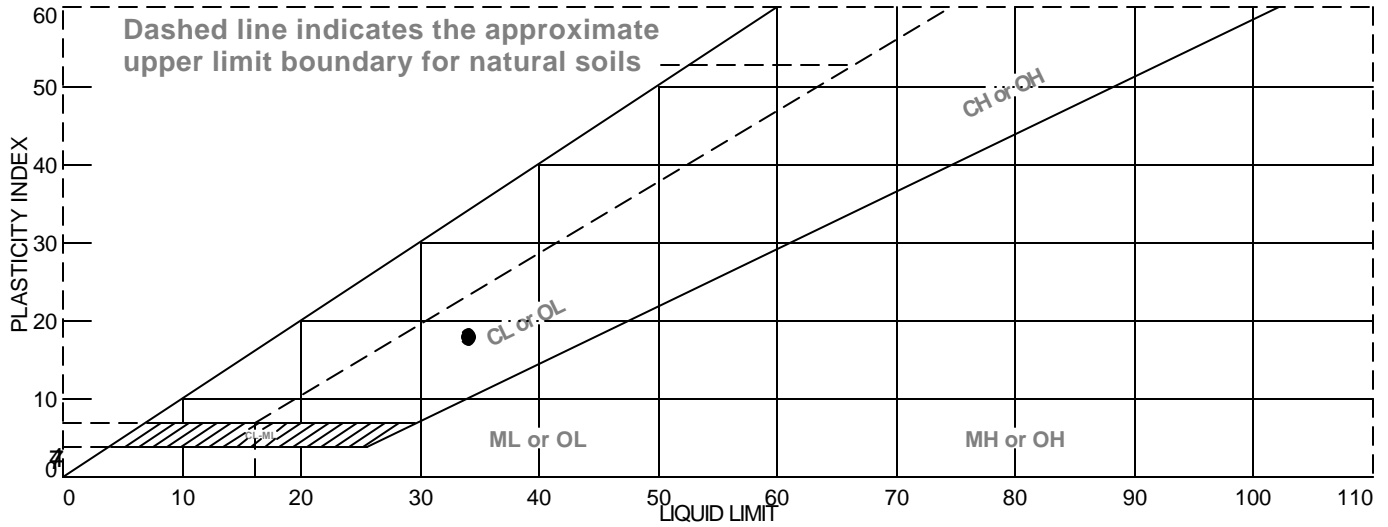
● **Depth:** 14.5 ft. **Sample Number:** B1@14.5

GEOTECHNICAL AND
 ENVIRONMENTAL CONSULTANTS
 MATERIALS TESTING

Remarks:

Plate

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	See Borelog for Description	34	16	18			CL

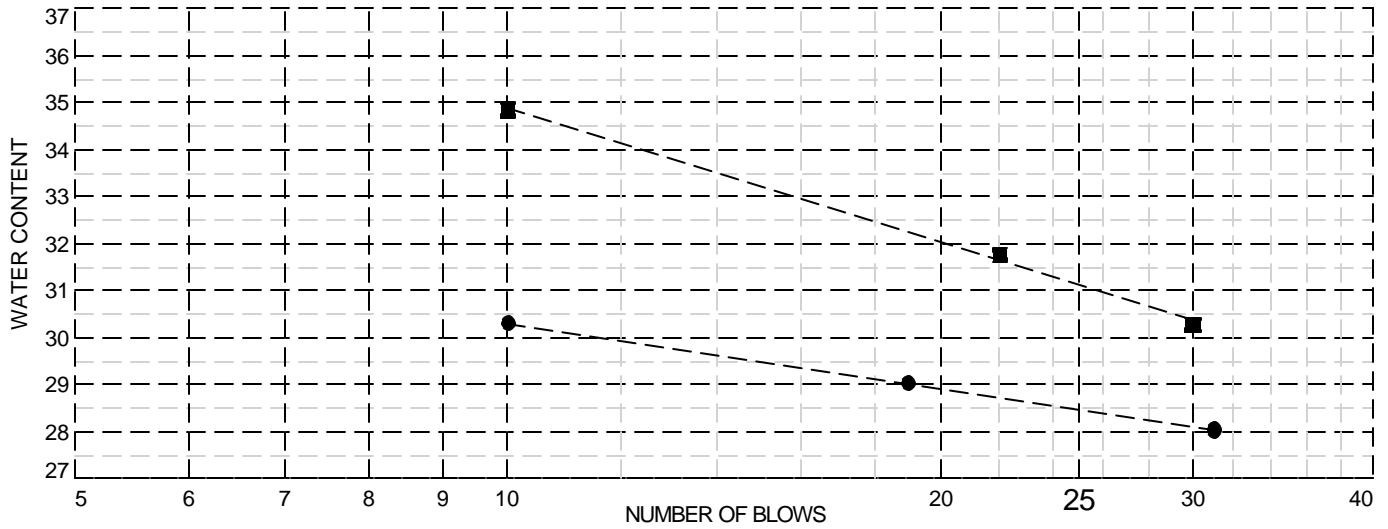
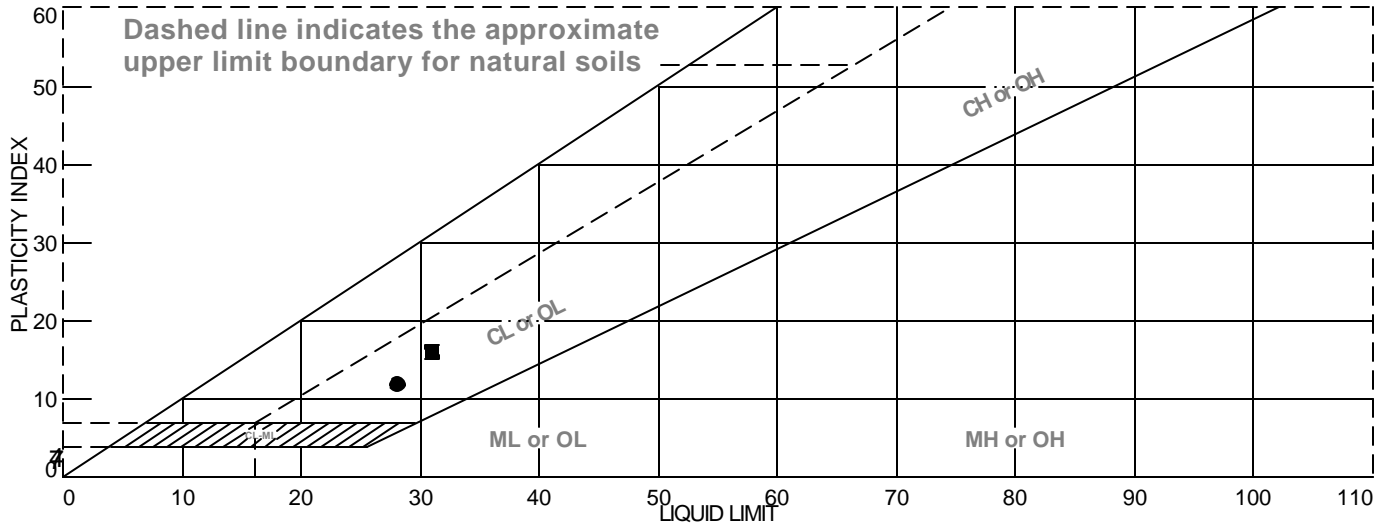
Project No. 6600.3.001.02 **Client:**

Project: SVRT - Western Area Yard and Shops

● **Depth:** 21.5 ft. **Sample Number:** B1@21.5

Remarks:

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	See Borelog for Description	28	16	12			CL
■	See Borelog for Description	31	15	16			CL

Project No. 6600.3.001.02 **Client:**

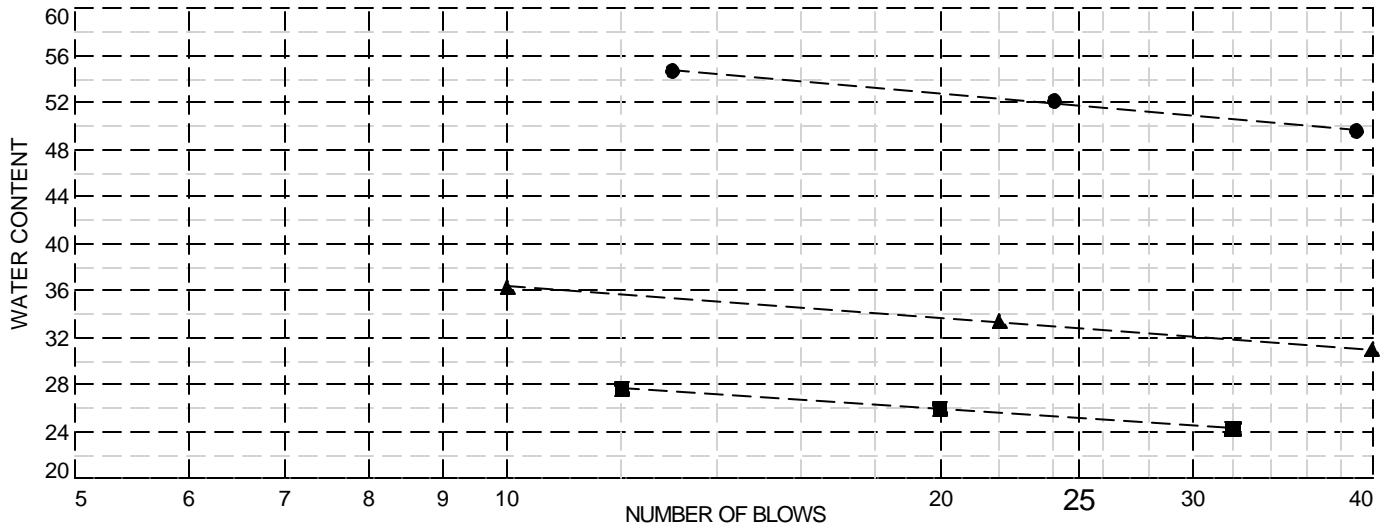
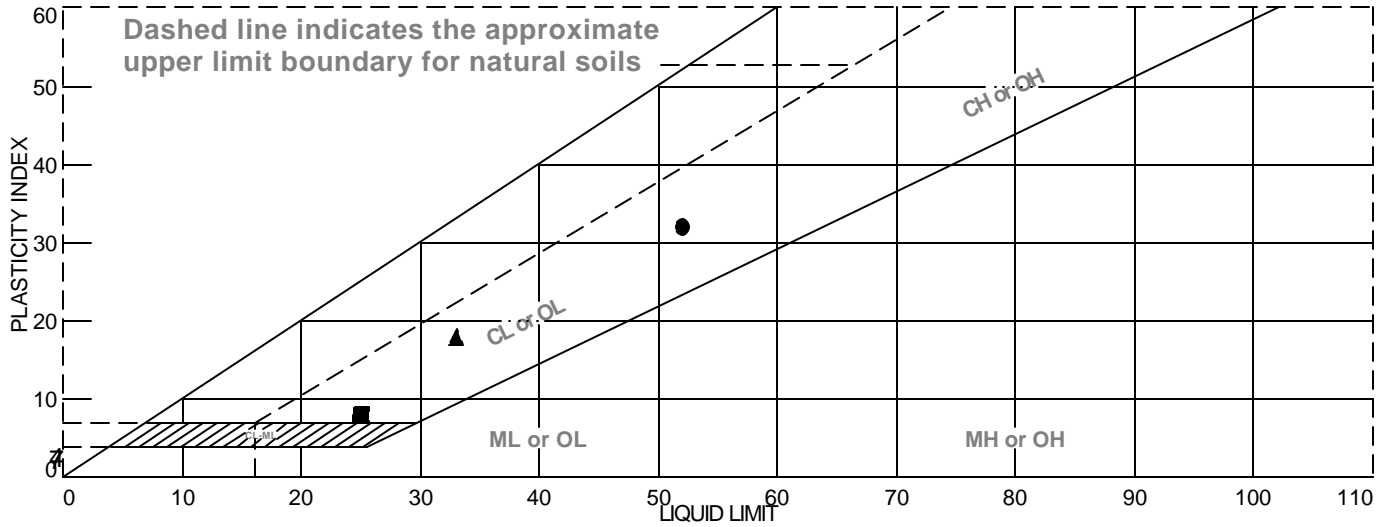
Project: SVRT - Western Area Yard and Shops

● **Depth:** 4.5 to 5 ft. **Sample Number:** B2@4.5-5

■ **Depth:** 20.5-21 ft. **Sample Number:** B2@20.5-21

Remarks:

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	See Borelog for description	52	20	32			CH
■	See Borelog for description	25	17	8		54.4	CL-SC
▲	See Borelog for description	33	15	18			CL

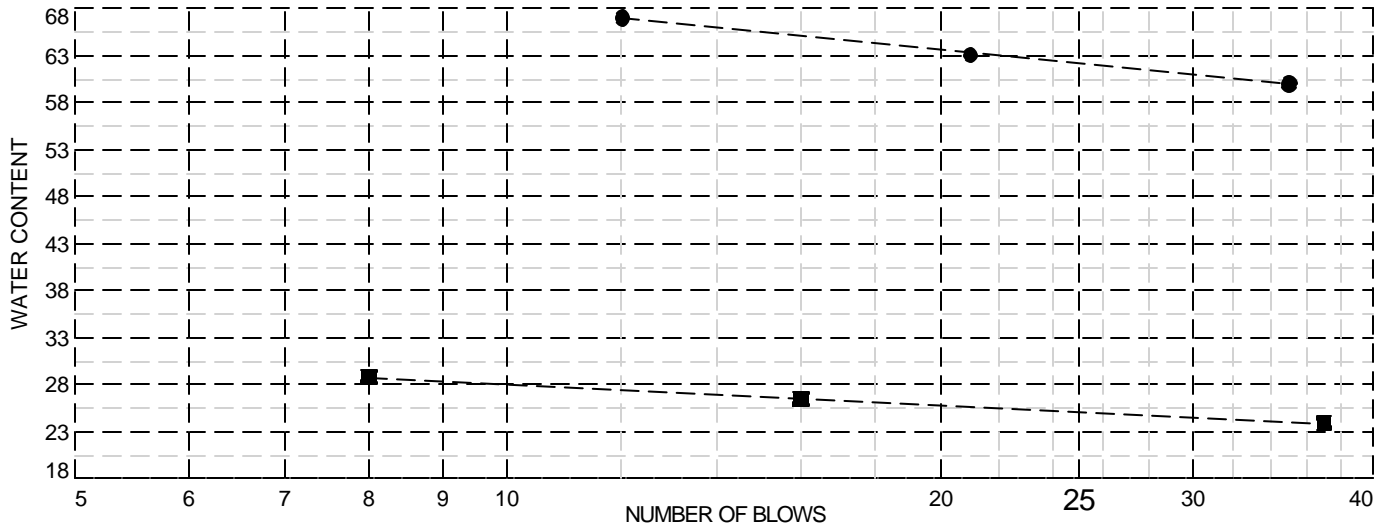
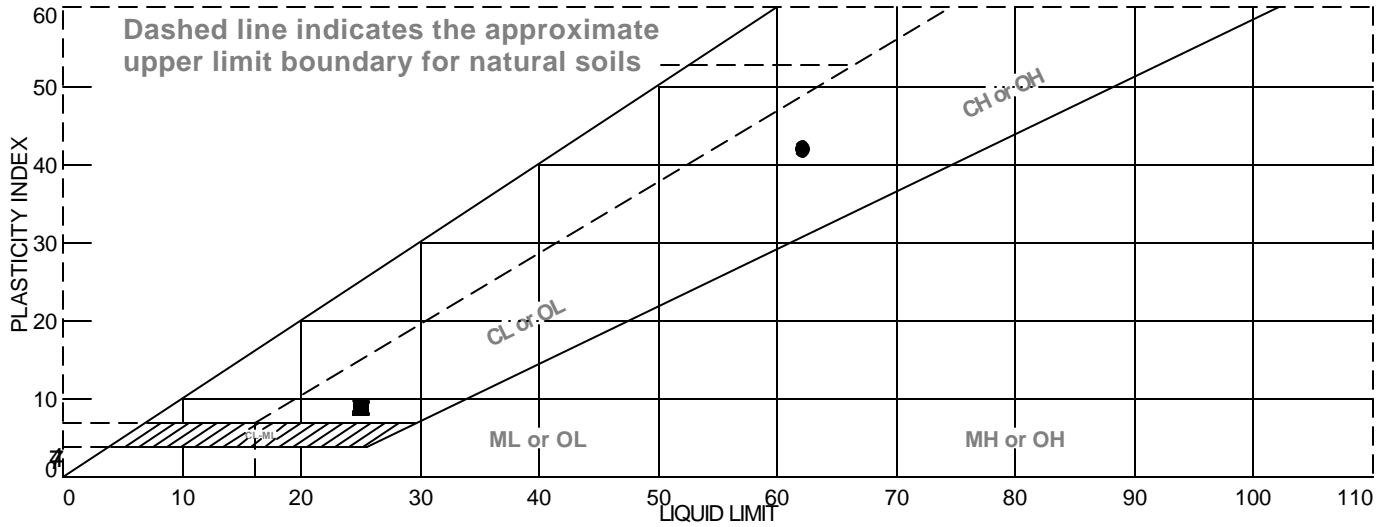
Project No. 6600.3.001.02 **Client:**

Project: SVRT - Western Area Yard and Shops

● **Depth:** 14.0 ft. **Sample Number:** B3@14
 ■ **Depth:** 51.5 ft. **Sample Number:** B3@51.5
 ▲ **Depth:** 61.5 ft. **Sample Number:** B3@61.5

Remarks:

LIQUID AND PLASTIC LIMITS TEST REPORT



MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
● See Borelog for description	62	20	42			CH
■ See Borelog for description	25	16	9		57.9	CL

Project No. 6600.3.001.02 **Client:**

Project: SVRT - Western Area Yard and Shops

● **Depth:** 14.5 ft. **Sample Number:** B9@14.5

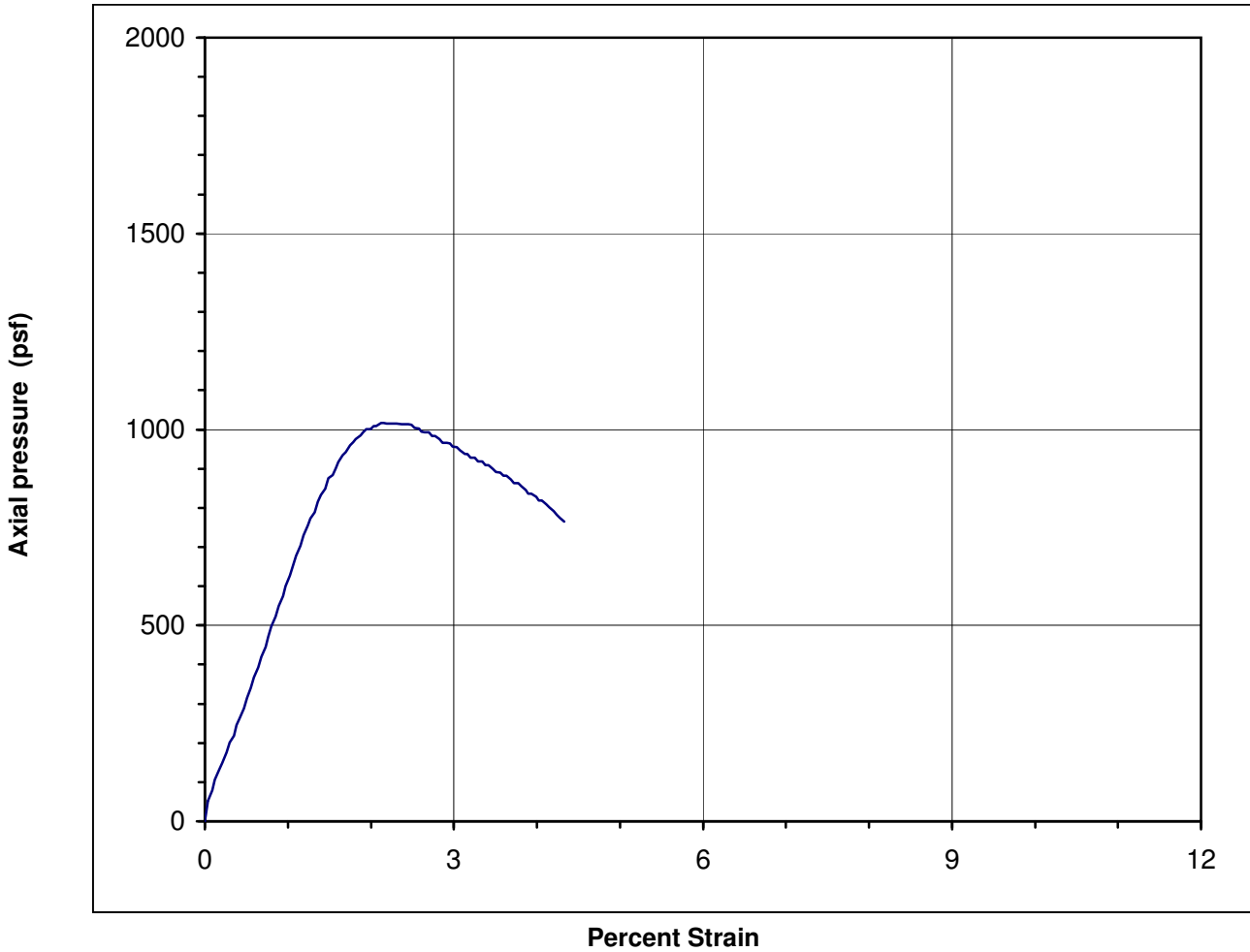
■ **Depth:** 31.0 ft. **Sample Number:** B9@31

GEOTECHNICAL AND
 ENVIRONMENTAL CONSULTANTS
 MATERIALS TESTING

Remarks:

Plate

**Unconfined Compression Test
ASTM Test Method D2166**



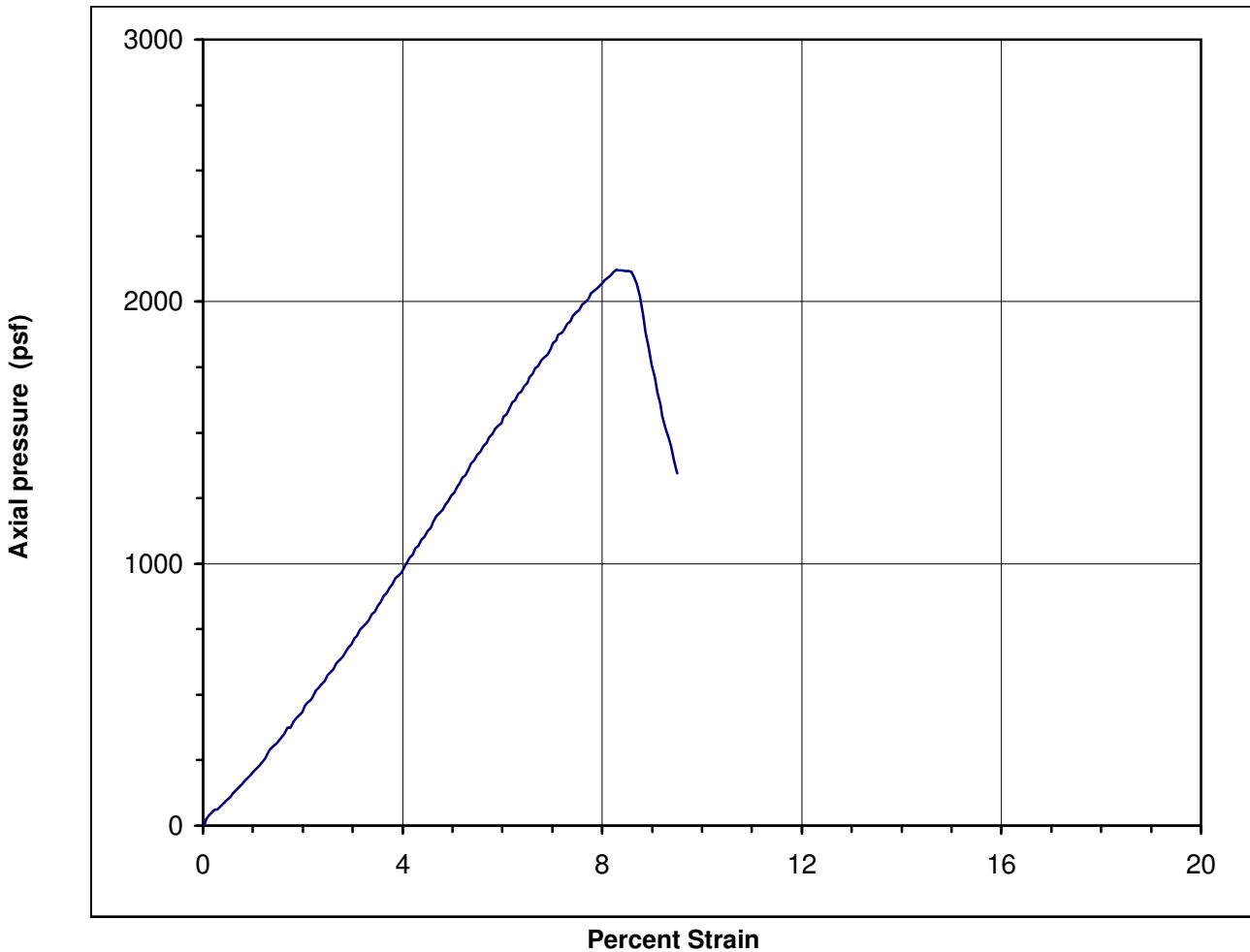
Unconfined Compressive Strength: 1010 psf 0.5 tsf

Sample Description: See Borelog for description

Initial Diameter:	2.860 in.	Sample Number:	B1@14.5
Initial Height:	5.56 in.	Dry Unit Weight:	104.4 pcf
Strain Rate:	1.272 %/min	Moisture Content:	21.9 %
Total Strain:	4.33 %	Depth of Sample:	14.5 ft.

	SVRT - WESTERN AREA YARK SHOPS Santa Clara County	Job No.: 6600.3.001.02	Figure No.
		Sample Number: B1@14.5	
		Date: 9/28/2007	

**Unconfined Compression Test
ASTM Test Method D2166**



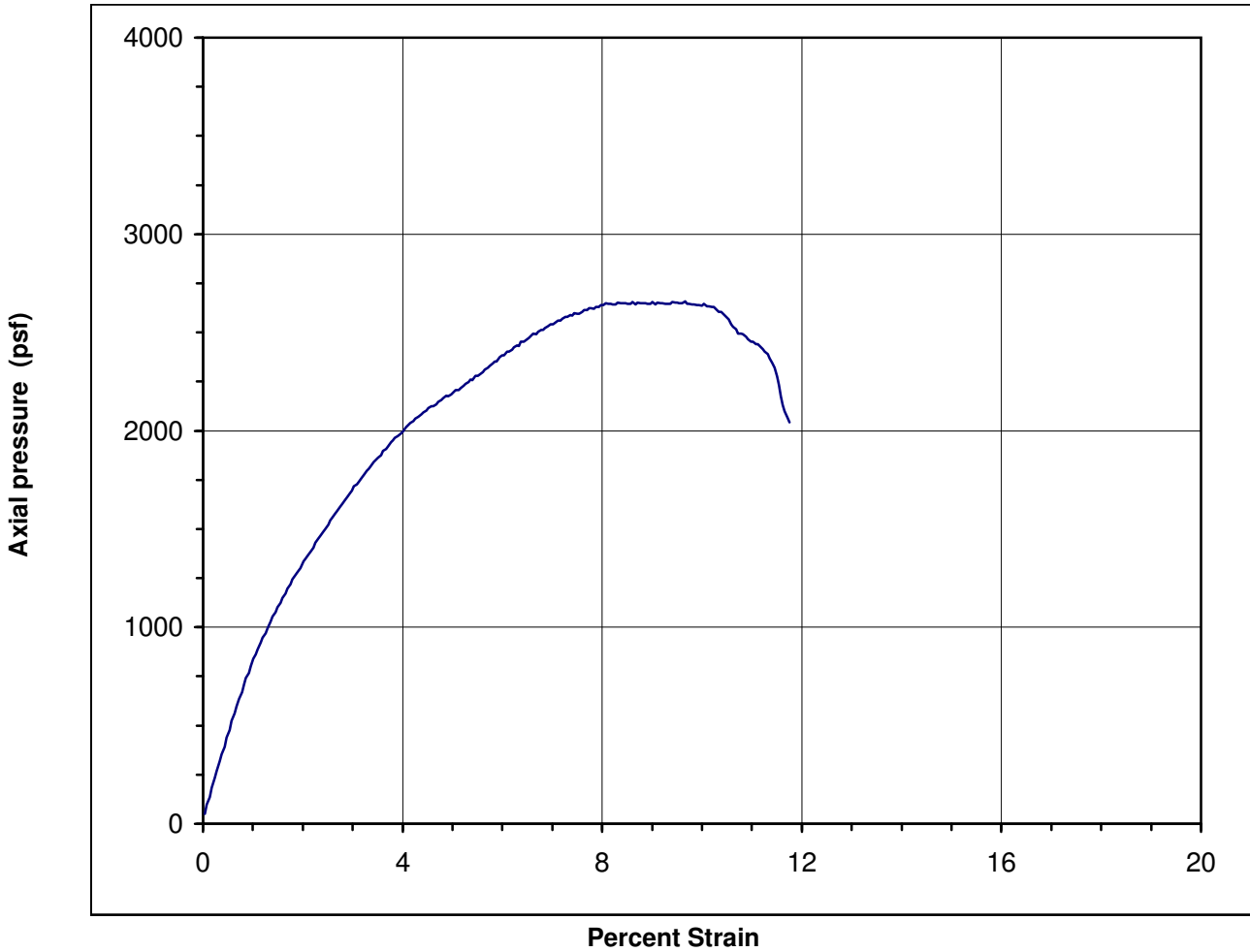
Unconfined Compressive Strength: 2121 psf 0.9 tsf

Sample Description: See Borelog for description

Initial Diameter:	2.420 in.	Sample Number:	B3@26.5
Initial Height:	4.98 in.	Dry Unit Weight:	106.0 pcf
Strain Rate:	1.754 %/min	Moisture Content:	22.1 %
Total Strain:	9.50 %	Depth of Sample:	26.5 ft.

	SVRT - WESTERN AREA YARK SHOPS Santa Clara County	Job No.: 6600.3.001.02	Figure No.
		Sample Number: B3@26.5	
		Date: 10/1/2007	

**Unconfined Compression Test
ASTM Test Method D2166**



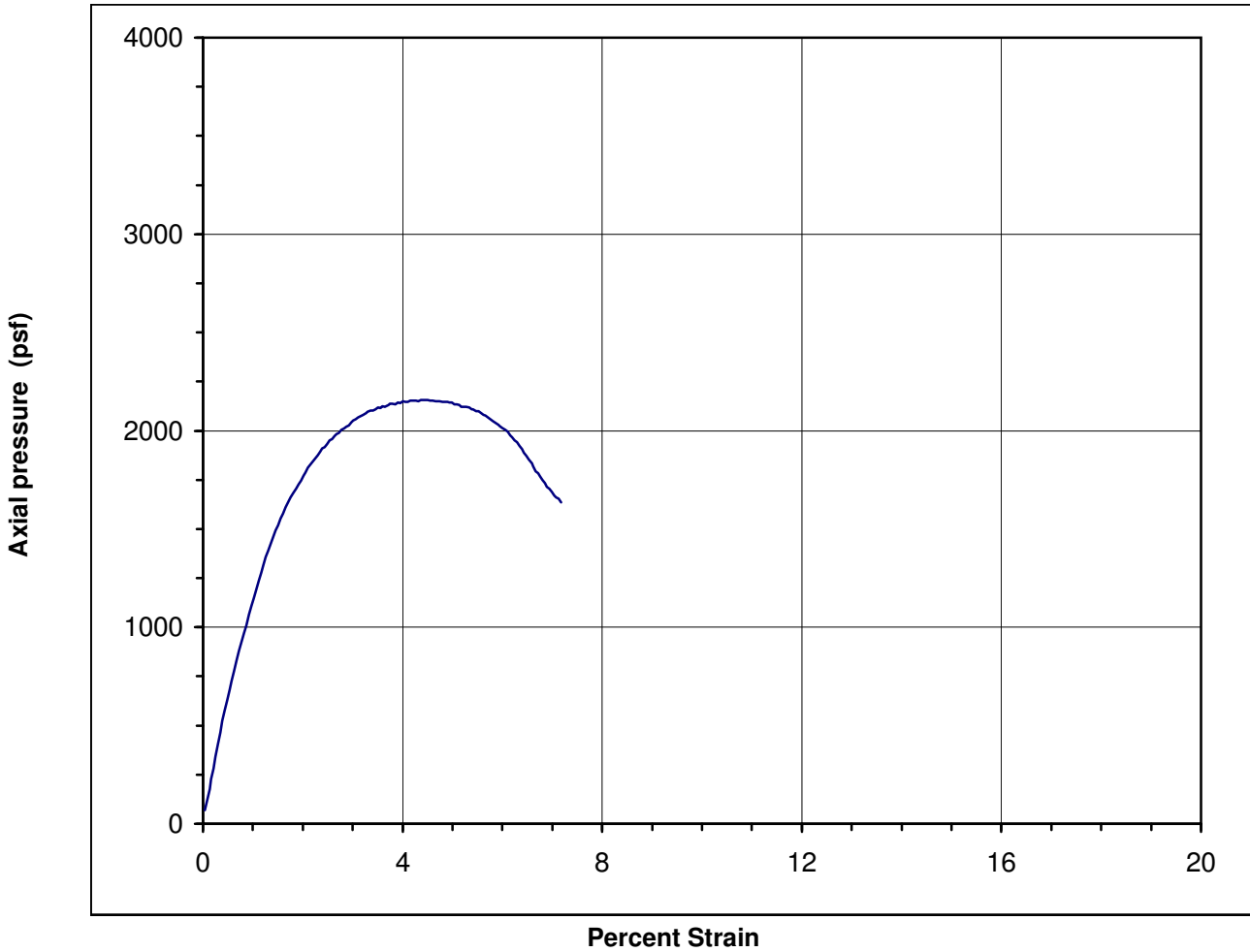
Unconfined Compressive Strength: 2650 psf 1.3 tsf

Sample Description: See Borelog for description

Initial Diameter:	2.420 in.	Sample Number:	B9@9
Initial Height:	4.93 in.	Dry Unit Weight:	101.4 pcf
Strain Rate:	1.471 %/min	Moisture Content:	23.7 %
Total Strain:	11.76 %	Depth of Sample:	9.0 ft.

ENGEO INCORPORATED	SVRT - WESTERN AREA YARK SHOPS Santa Clara County	Job No.: 6600.3.001.02	Figure No.
		Sample Number: B9@9	
		Date: 10/1/2007	

**Unconfined Compression Test
ASTM Test Method D2166**



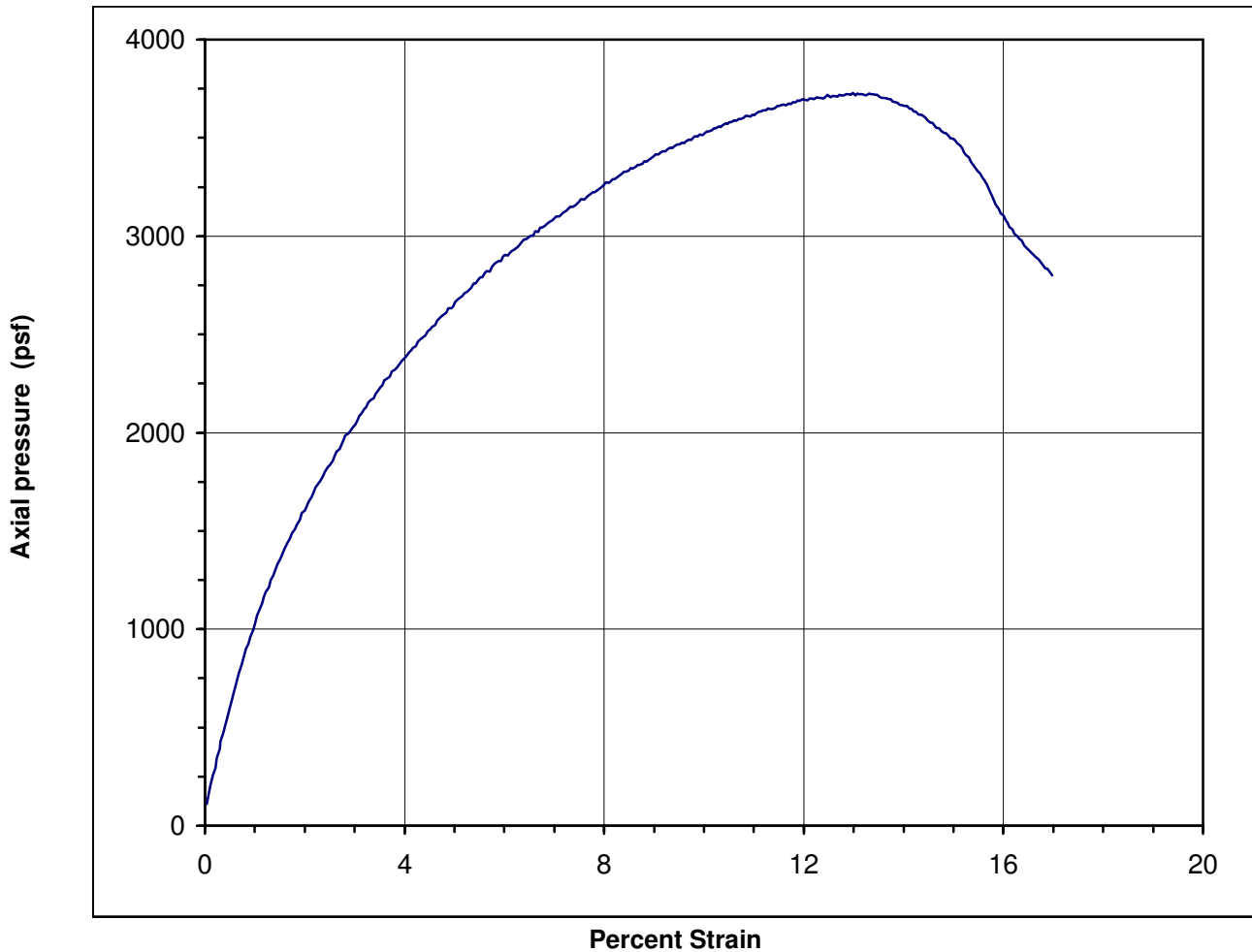
Unconfined Compressive Strength: 2150 psf 1.1 tsf

Sample Description: See Borelog for description

Initial Diameter:	2.860 in.	Sample Number:	B9@14.5
Initial Height:	5.79 in.	Dry Unit Weight:	88.2 pcf
Strain Rate:	1.456 %/min	Moisture Content:	35.7 %
Total Strain:	7.18 %	Depth of Sample:	14.5 ft.

	SVRT - WESTERN AREA YARK SHOPS Santa Clara County	Job No.: 6600.3.001.02	Figure No.
		Sample Number: B9@14.5	
		Date: 10/2/2007	

**Unconfined Compression Test
ASTM Test Method D2166**



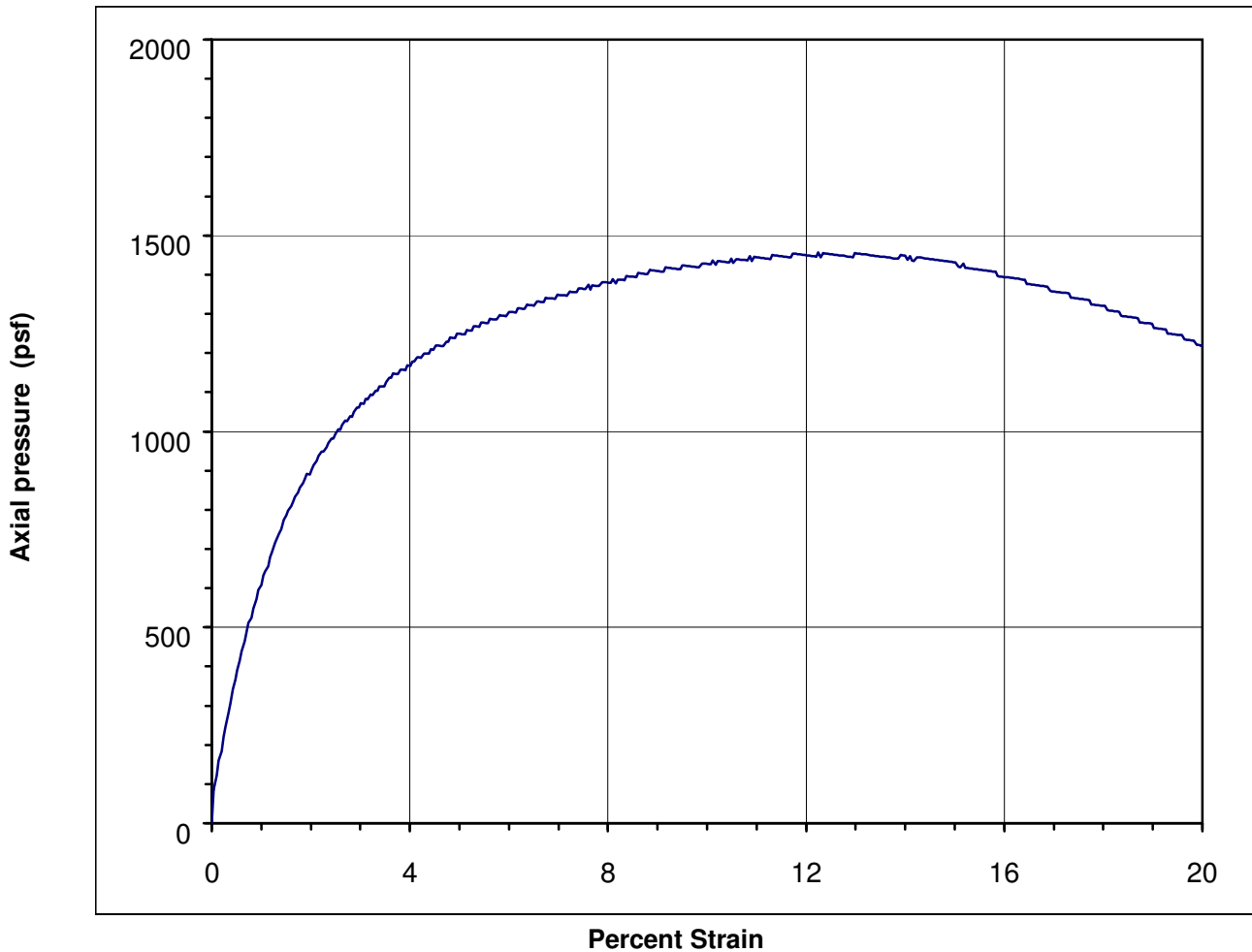
Unconfined Compressive Strength: 3720 psf 1.9 tsf

Sample Description: See Borelog for description

Initial Diameter:	2.420 in.	Sample Number:	B9@51
Initial Height:	4.92 in.	Dry Unit Weight:	102.4 pcf
Strain Rate:	1.370 %/min	Moisture Content:	24.7 %
Total Strain:	16.98 %	Depth of Sample:	51.0 ft.

	SVRT - WESTERN AREA YARK SHOPS Santa Clara County	Job No.: 6600.3.001.02	Figure No.
		Sample Number: B9@51	
		Date: 10/1/2007	

**Unconfined Compression Test
ASTM Test Method D2166**



Unconfined Compressive Strength: 1450 psf 0.7 tsf

Sample Description: See Borelog for Description

Initial Diameter:	2.420 in.	Sample Number:	B13@11
Initial Height:	4.95 in.	Dry Unit Weight:	84.0 pcf
Strain Rate:	1.404 %/min	Moisture Content:	37.0 %
Total Strain:	20.00 %	Depth of Sample:	11.0 ft.

ENGEO
INCORPORATED

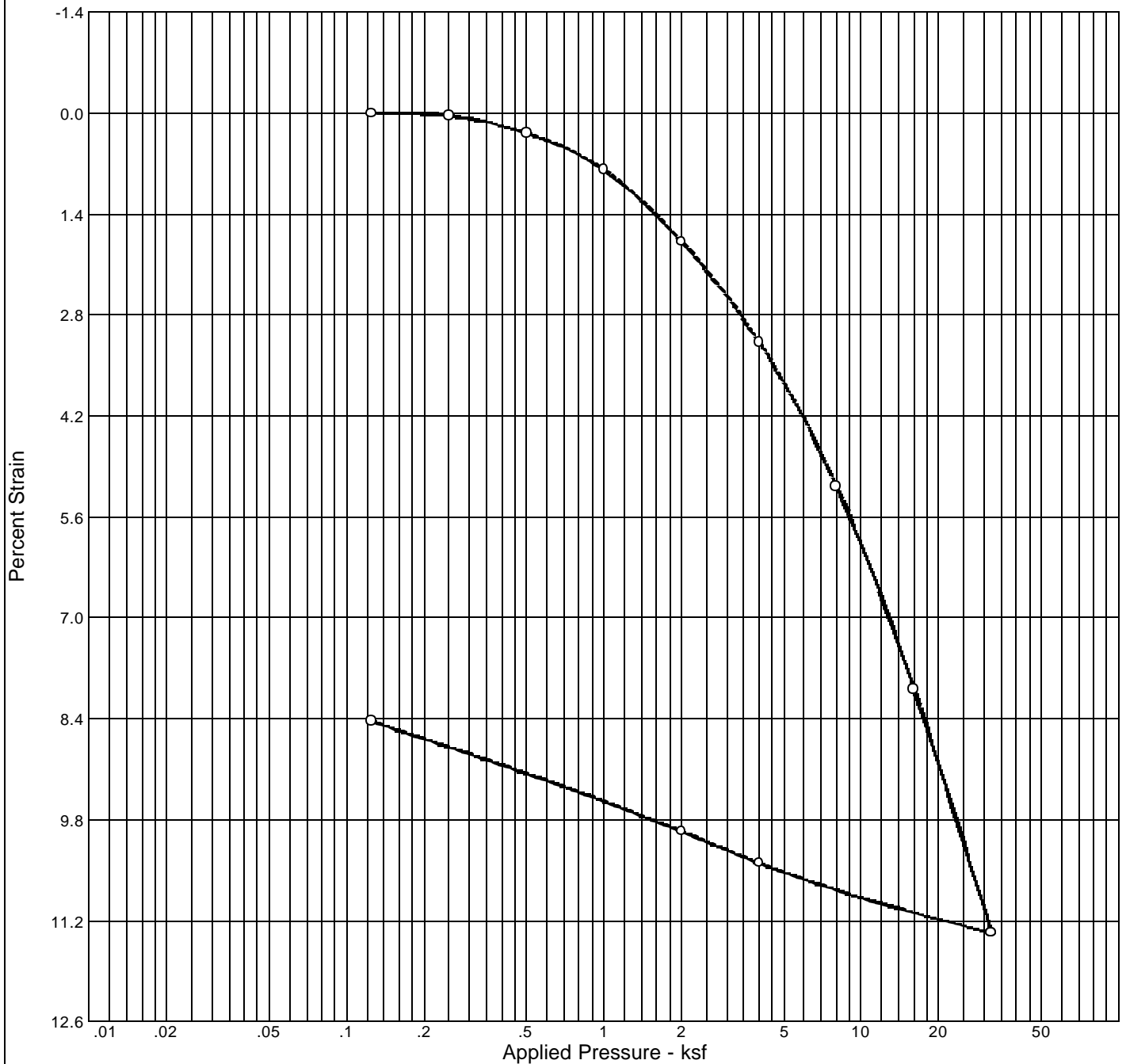
SVRT - YARD AND SHOPS

Santa Clara County

Job No.:	6600.300.102
Sample Number:	B13@11
Date:	2/11/2008

Figure No.

CONSOLIDATION TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	USCS	AASHTO	Initial Void Ratio
Saturation	Moisture							
99.7 %	21.9 %	104.5	31	17	2.65	CL		0.583

MATERIAL DESCRIPTION

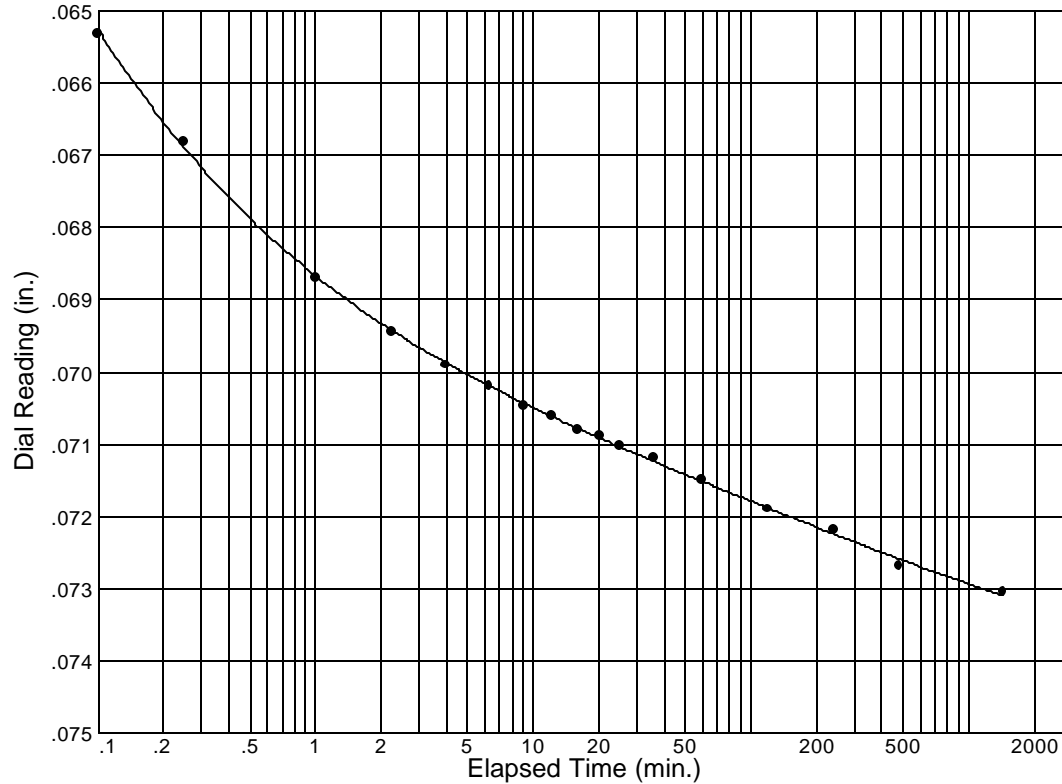
See Borelog for Description

Project No. 6600.3.001.02 Client: Project: SVRT - Western Area Yard and Shops Source:	Sample No.: B1@14.5 Elev./Depth: 14.5'	Remarks: Sample swelled to 250 psf loading
-------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------	------------------------------------------------------

Dial Reading vs. Time

Project No.: 6600.3.001.02
 Project: SVRT - Western Area Yard and Shops

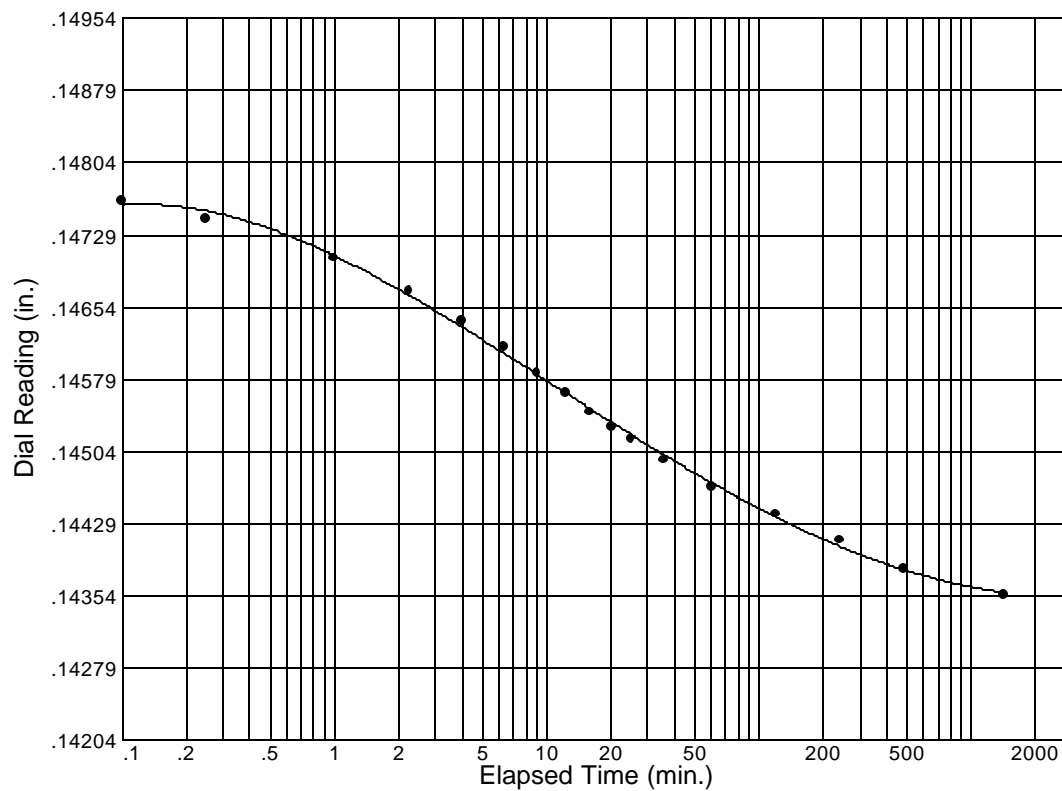
Source: Sample No.: B1@14.5 Elev./Depth: 14.5'



Load No.= 6
 Load= 4.00 ksf
 $D_0 = 0.05850$
 $D_{50} = 0.06532$
 $D_{100} = 0.07215$
 $T_{50} = 0.10$ min.

$C_v @ T_{50}$
 4.89 ft.²/day

$C_\alpha = 0.001$



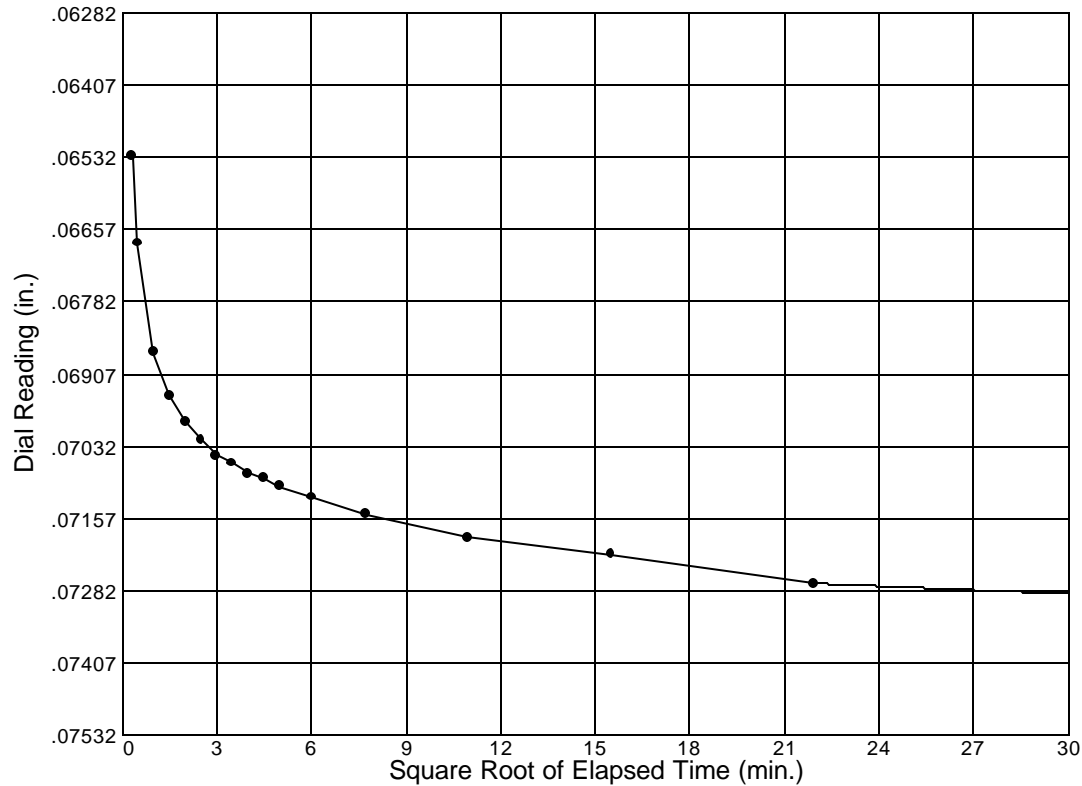
Load No.= 11
 Load= 2.00 ksf
 $D_0 = 0.14802$
 $D_{50} = 0.14606$
 $D_{100} = 0.14411$
 $T_{50} = 6.26$ min.

$C_v @ T_{50}$
 0.07 ft.²/day

Dial Reading vs. Time

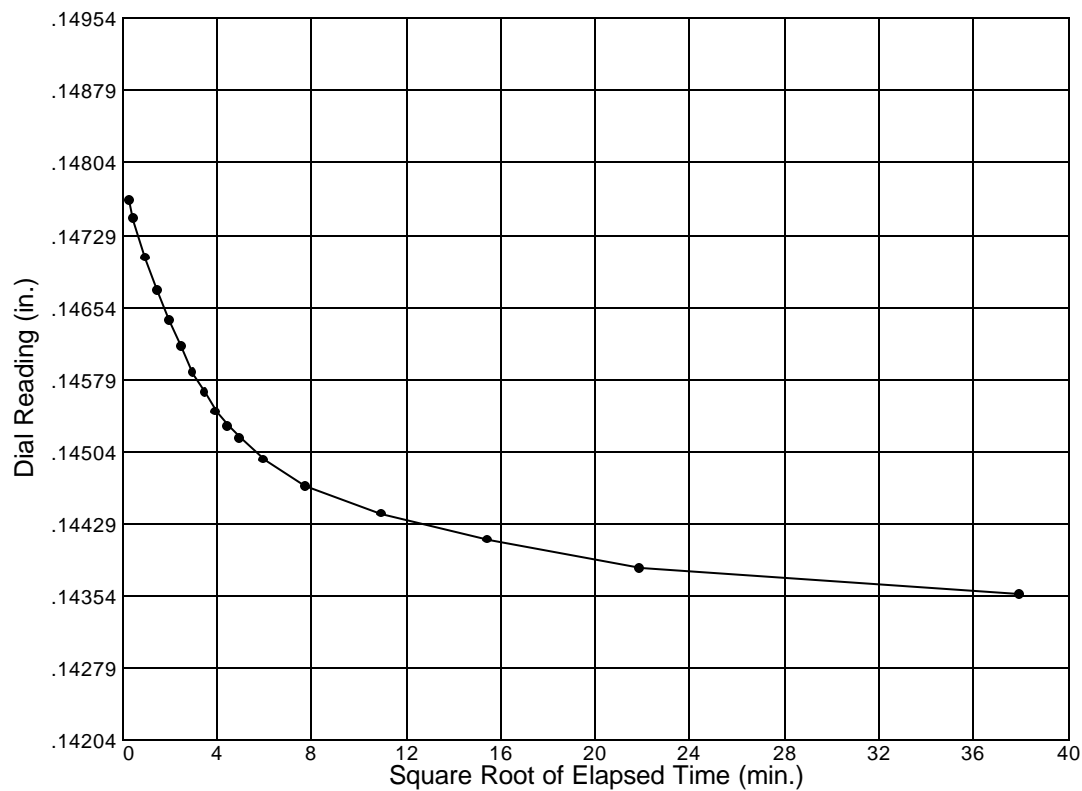
Project No.: 6600.3.001.02
 Project: SVRT - Western Area Yard and Shops

Source: Sample No.: B1@14.5 Elev./Depth: 14.5'



Load No.= 6
 Load= 4.00 ksf
 $D_0 = 0.06407$
 $D_{90} = 0.06900$
 $D_{100} = 0.06955$
 $T_{90} = 1.44 \text{ min.}$

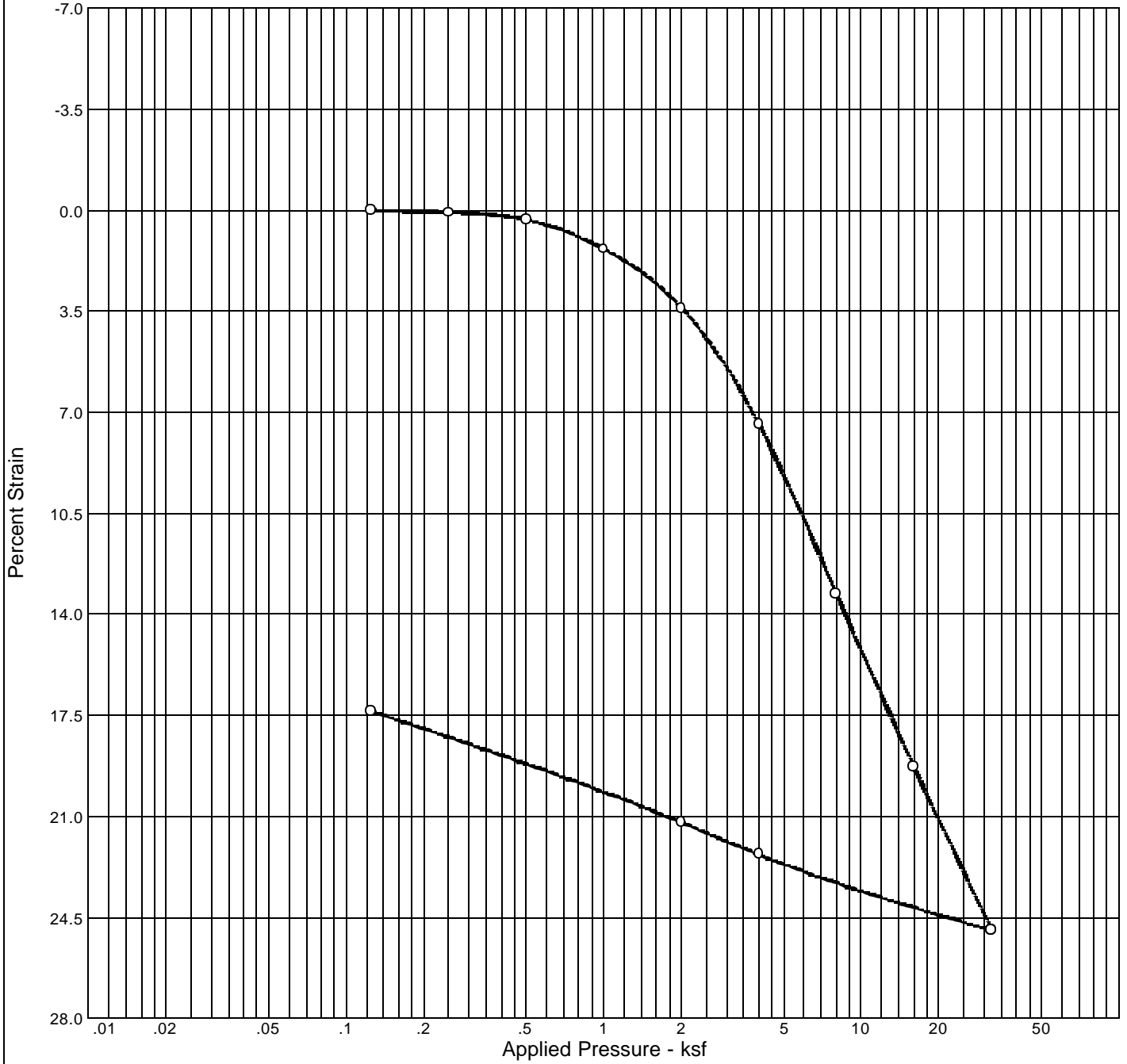
$C_v @ T_{90}$
 1.52 ft.²/day



Load No.= 11
 Load= 2.00 ksf
 $D_0 = 0.14773$
 $D_{90} = 0.14532$
 $D_{100} = 0.14506$
 $T_{90} = 19.56 \text{ min.}$

$C_v @ T_{90}$
 0.09 ft.²/day

CONSOLIDATION TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	USCS	AASHTO	Initial Void Ratio
Saturation	Moisture							
99.6 %	46.0 %	74.8			2.68	CL		1.237

MATERIAL DESCRIPTION

See Borelog for description

Project No. 6600.300.102	Client:	Remarks: Sample swelled to 500 psf loading
Project: SVRT - YARD AND SHOPS. Santa Clara County		
Source:	Sample No.: B13@16.5 Elev./Depth: 16.0 ft.	
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS MATERIALS TESTING		

Plate

Dial Reading vs. Time

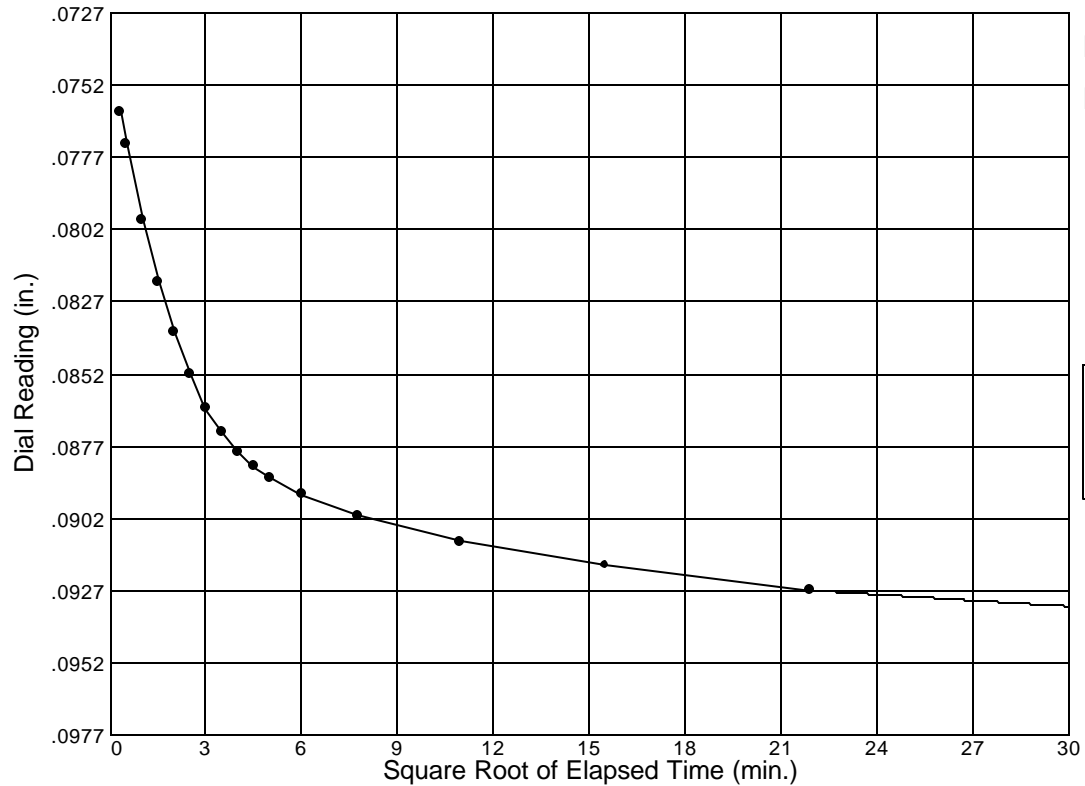
Project No.: 6600.300.102

Project: SVRT - YARD AND SHOPS. Santa Clara County

Source:

Sample No.: B13@16.5

Elev./Depth: 16.0 ft.



Load No.= 5

Load= 2.00 ksf

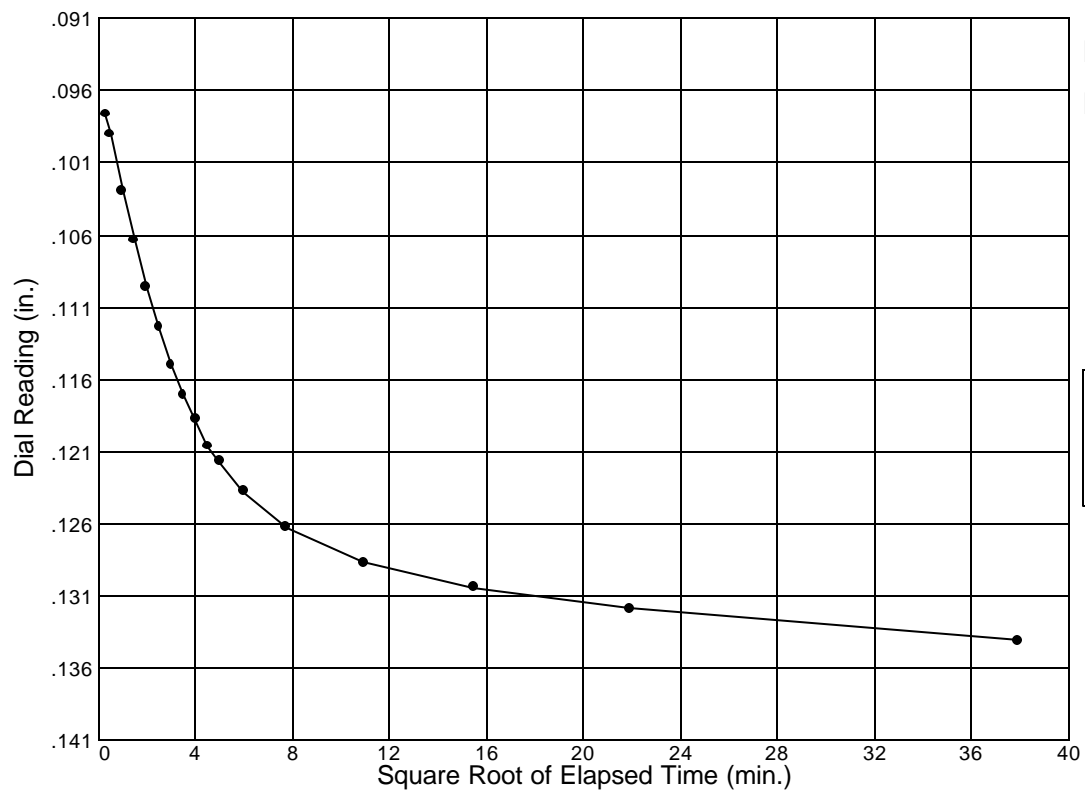
$D_0 = 0.07522$

$D_{90} = 0.08656$

$D_{100} = 0.08782$

$T_{90} = 9.68 \text{ min.}$

$C_v @ T_{90}$
0.21 ft.²/day



Load No.= 6

Load= 4.00 ksf

$D_0 = 0.09638$

$D_{90} = 0.12055$

$D_{100} = 0.12323$

$T_{90} = 20.04 \text{ min.}$

$C_v @ T_{90}$
0.09 ft.²/day

Dial Reading vs. Time

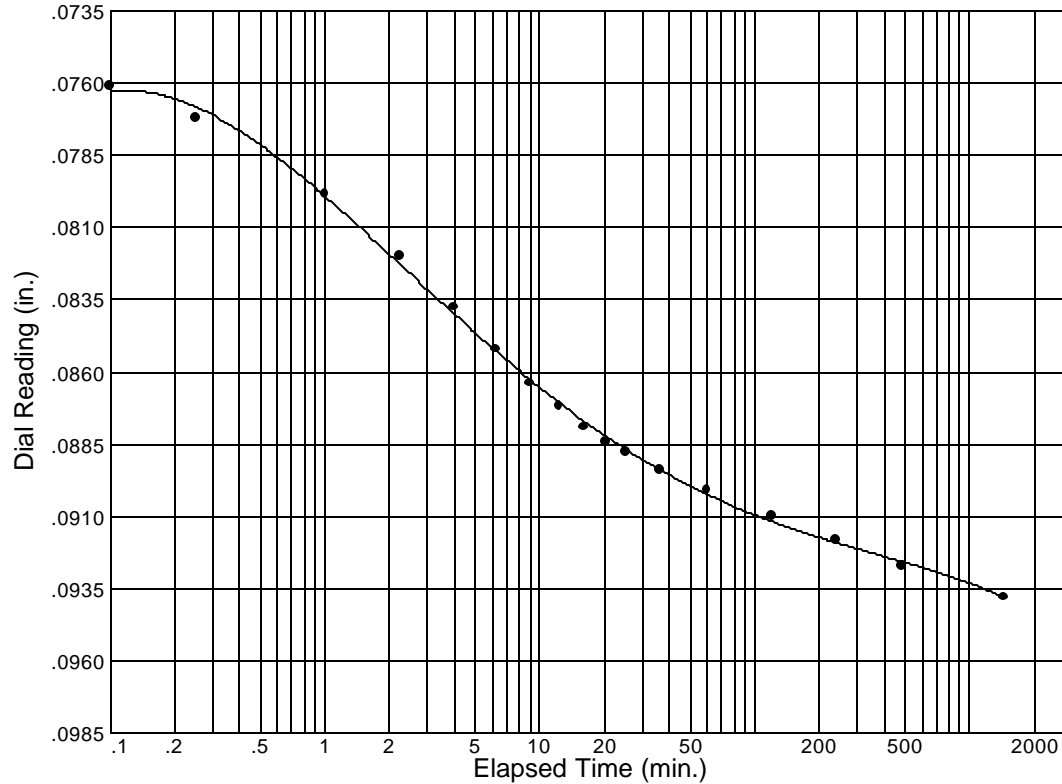
Project No.: 6600.300.102

Project: SVRT - YARD AND SHOPS. Santa Clara County

Source:

Sample No.: B13@16.5

Elev./Depth: 16.0 ft.



Load No.= 5

Load= 2.00 ksf

$D_0 = 0.07413$

$D_{50} = 0.08144$

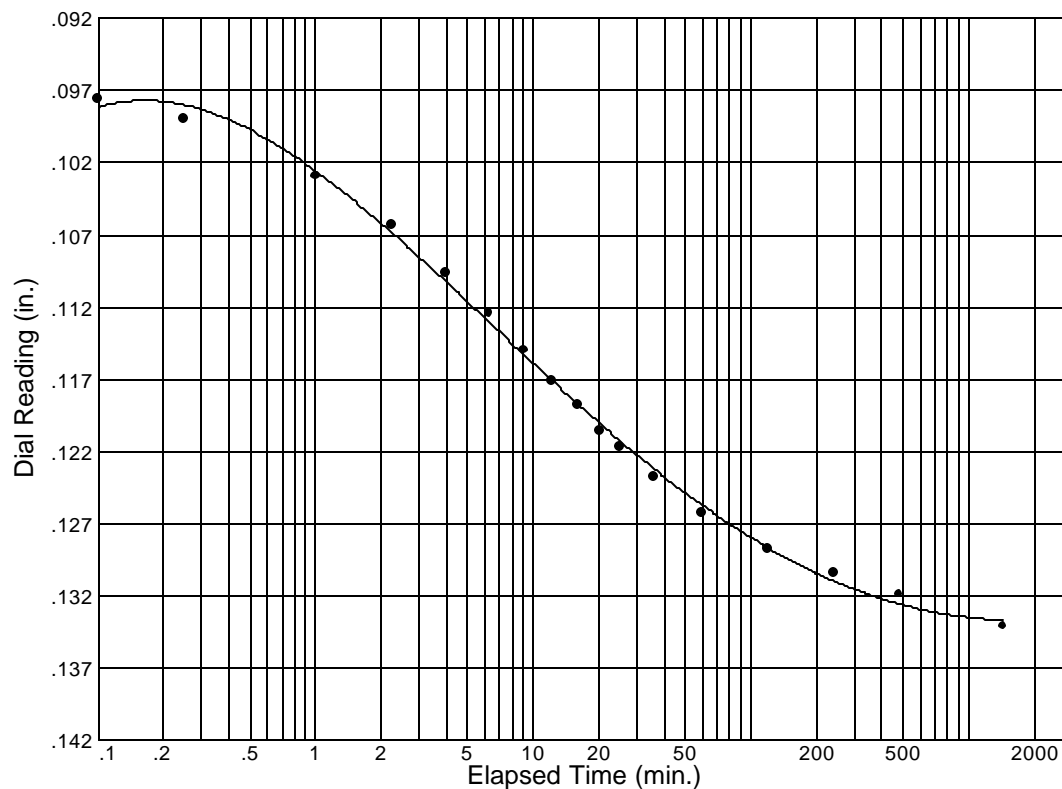
$D_{100} = 0.08875$

$T_{50} = 1.69$ min.

$C_v @ T_{50}$

0.28 ft.²/day

$C_\alpha = 0.003$



Load No.= 6

Load= 4.00 ksf

$D_0 = 0.09309$

$D_{50} = 0.11059$

$D_{100} = 0.12809$

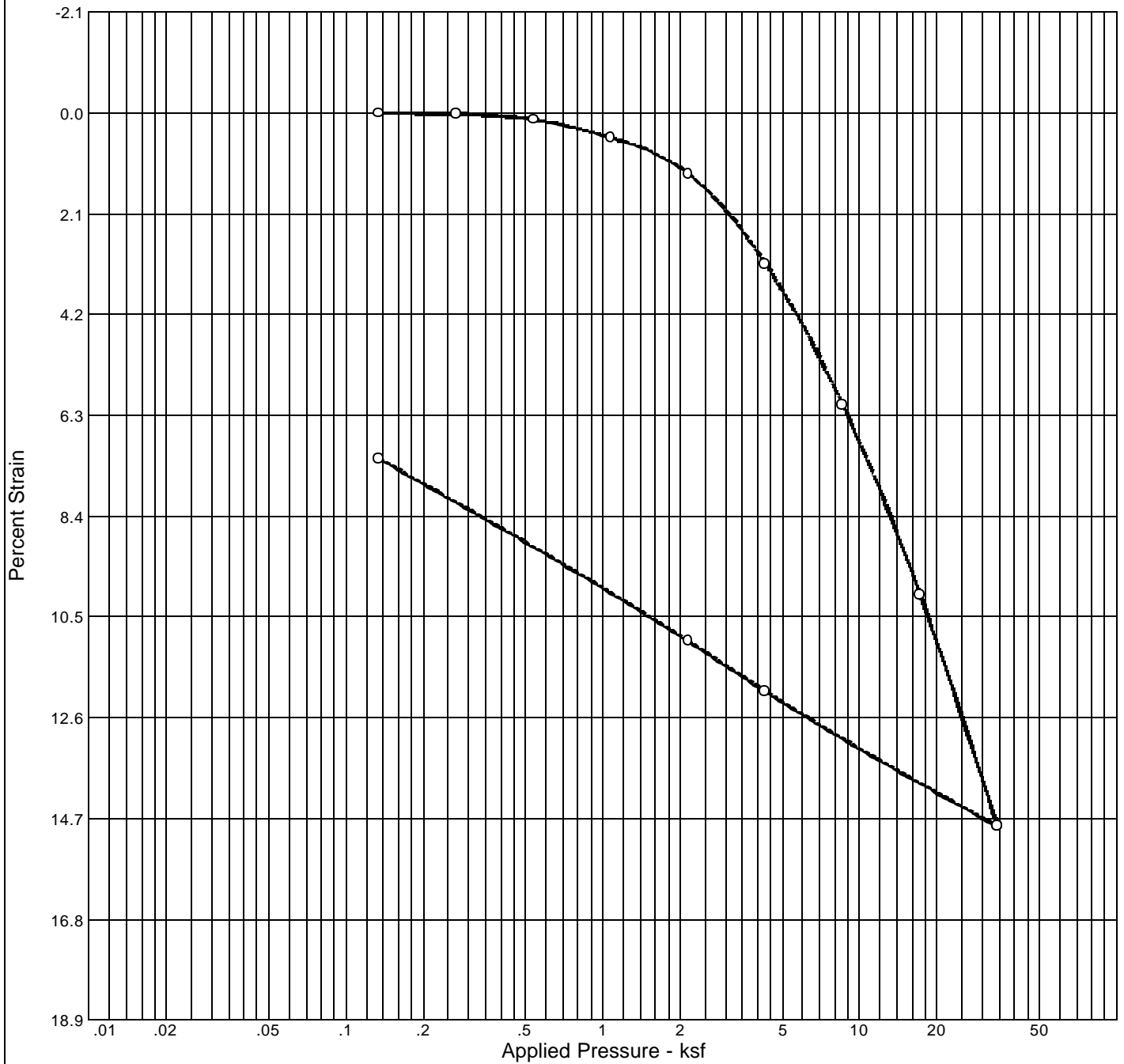
$T_{50} = 4.20$ min.

$C_v @ T_{50}$

0.10 ft.²/day

$C_\alpha = 0.005$

CONSOLIDATION TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	USCS	AASHTO	Initial Void Ratio
Saturation	Moisture							
99.7 %	32.3 %	87.7			2.58			0.837

MATERIAL DESCRIPTION

See Borelog for Description

Project No. 6600.3.001.02 **Client:**
Project: SVRT - Western Area Yard and Shops

Remarks:
 Sample swelled to 536 psf loading

Source: **Sample No.:** B15@14 **Elev./Depth:** 14.0'

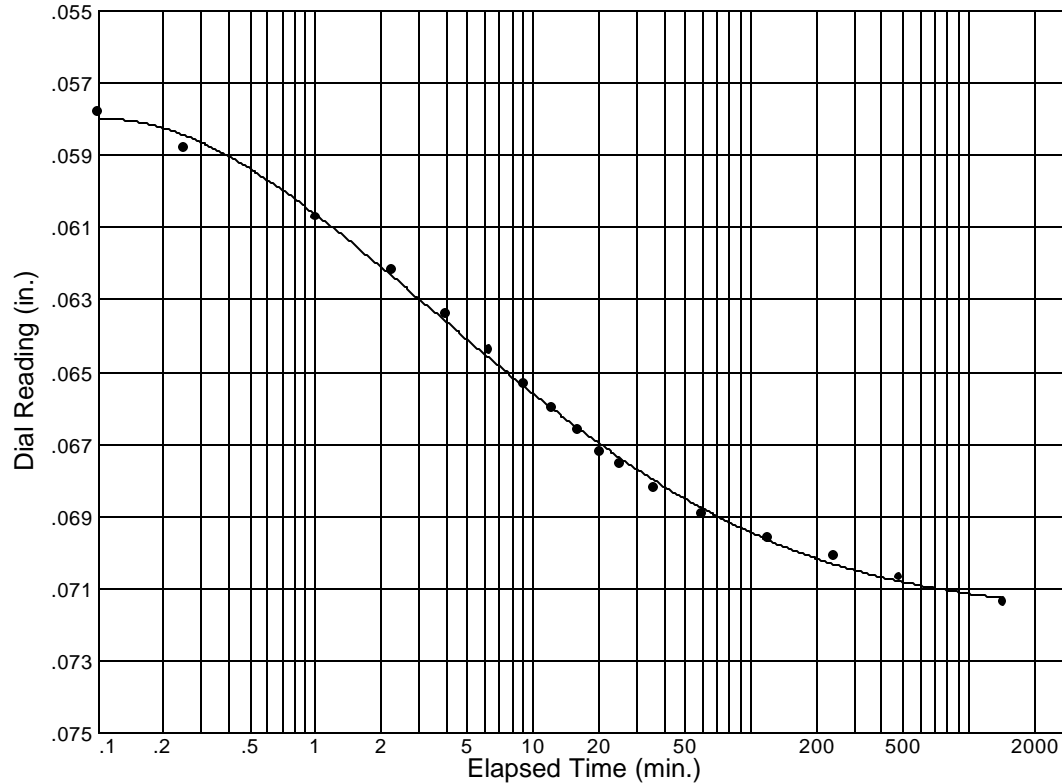


Plate

Dial Reading vs. Time

Project No.: 6600.3.001.02
 Project: SVRT - Western Area Yard and Shops

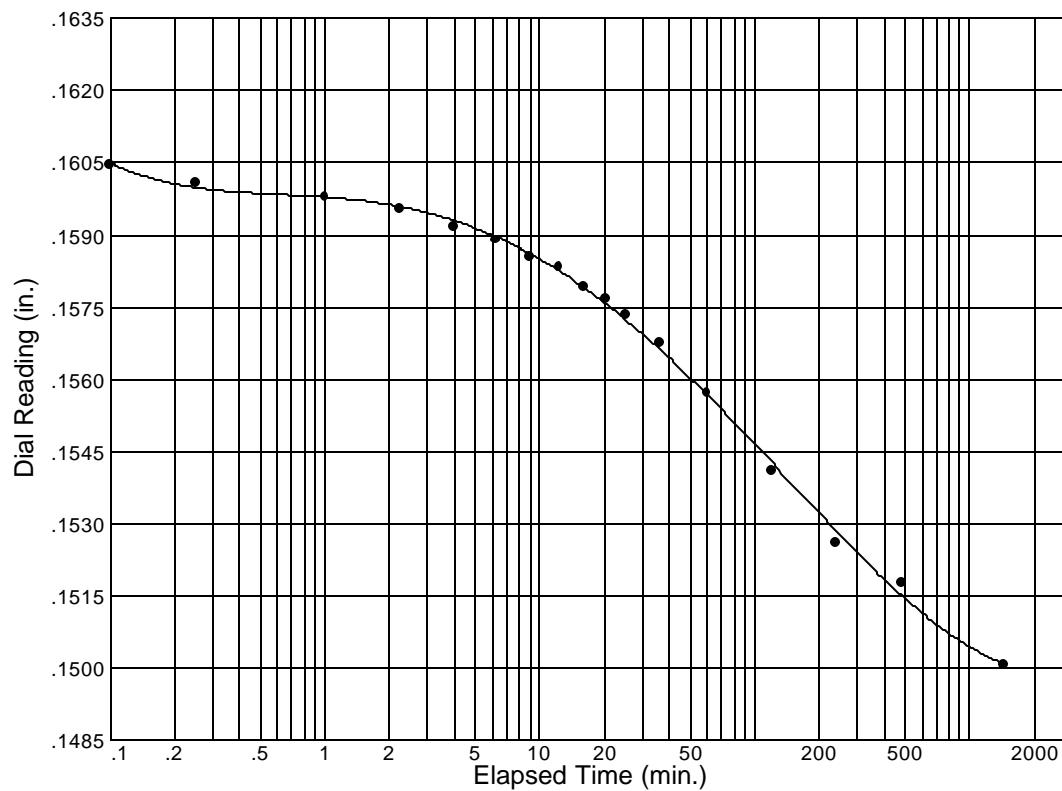
Source: Sample No.: B15@14 Elev./Depth: 14.0'



Load No.= 6
 Load= 4.29 ksf
 $D_0 = 0.05695$
 $D_{50} = 0.06291$
 $D_{100} = 0.06886$
 $T_{50} = 2.90 \text{ min.}$

$C_v @ T_{50}$
 0.16 ft.²/day

$C_{\alpha} = 0.002$



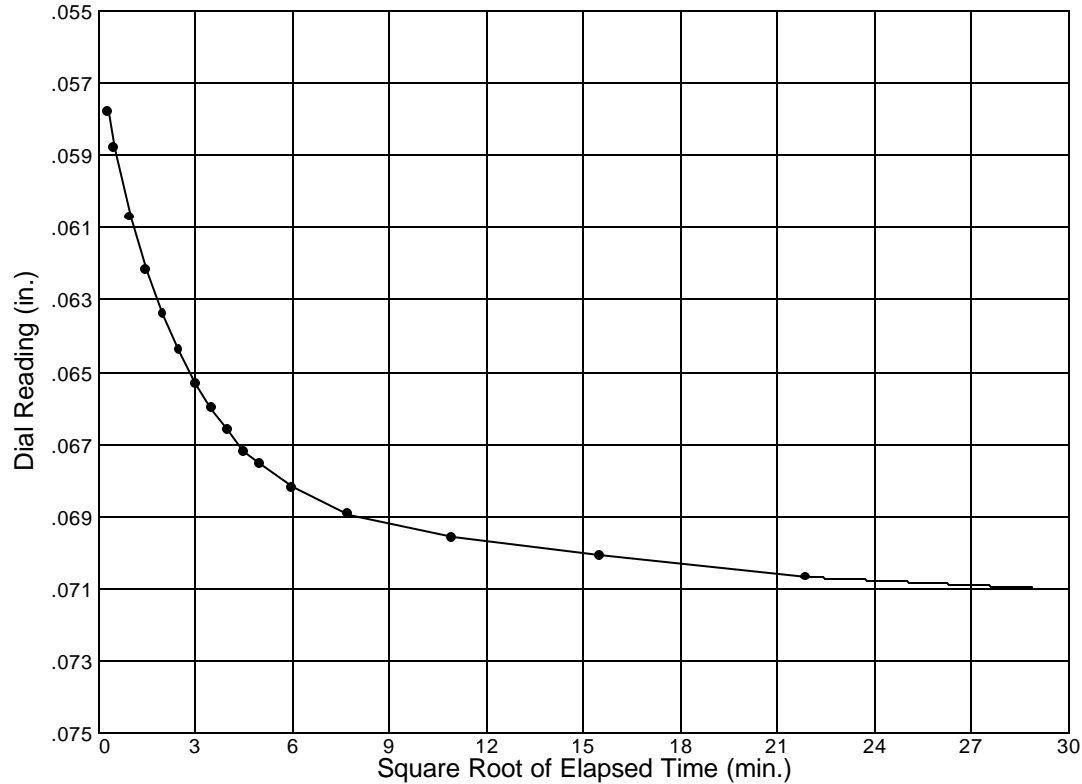
Load No.= 11
 Load= 2.14 ksf
 $D_0 = 0.16069$
 $D_{50} = 0.15682$
 $D_{100} = 0.15294$
 $T_{50} = 32.26 \text{ min.}$

$C_v @ T_{50}$
 0.01 ft.²/day

Dial Reading vs. Time

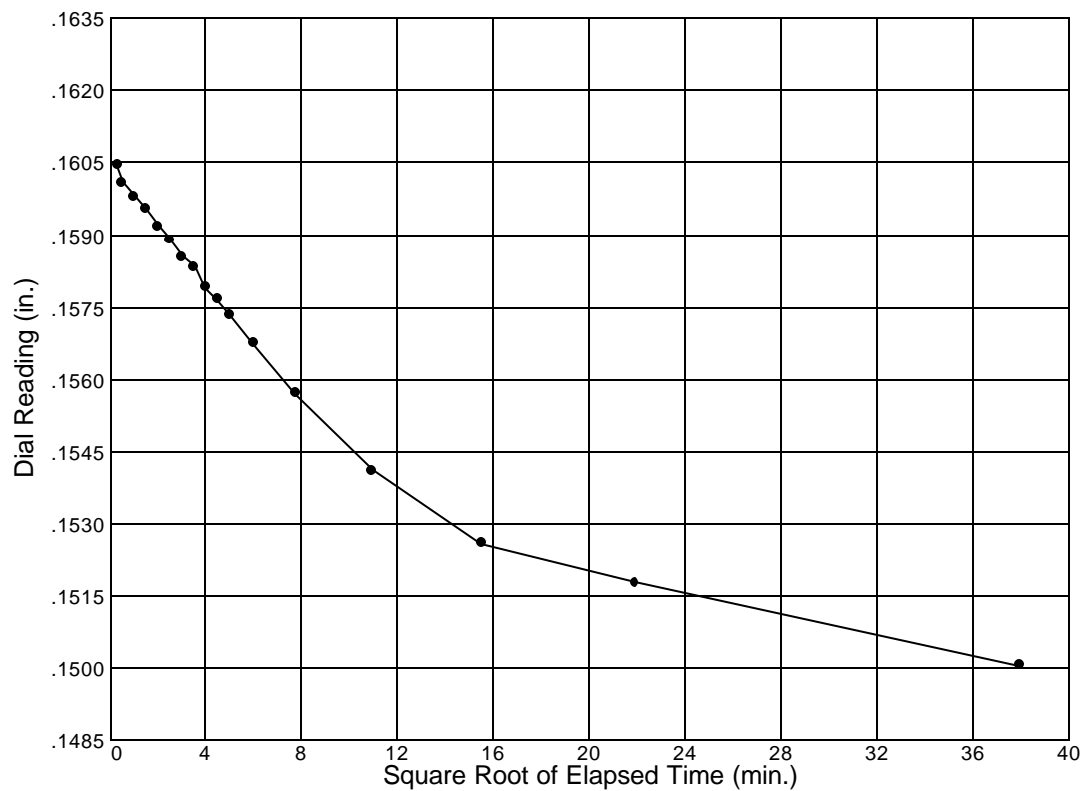
Project No.: 6600.3.001.02
 Project: SVRT - Western Area Yard and Shops

Source: Sample No.: B15@14 Elev./Depth: 14.0'



Load No.= 6
 Load= 4.29 ksf
 $D_0 = 0.05731$
 $D_{90} = 0.06553$
 $D_{100} = 0.06644$
 $T_{90} = 9.96 \text{ min.}$

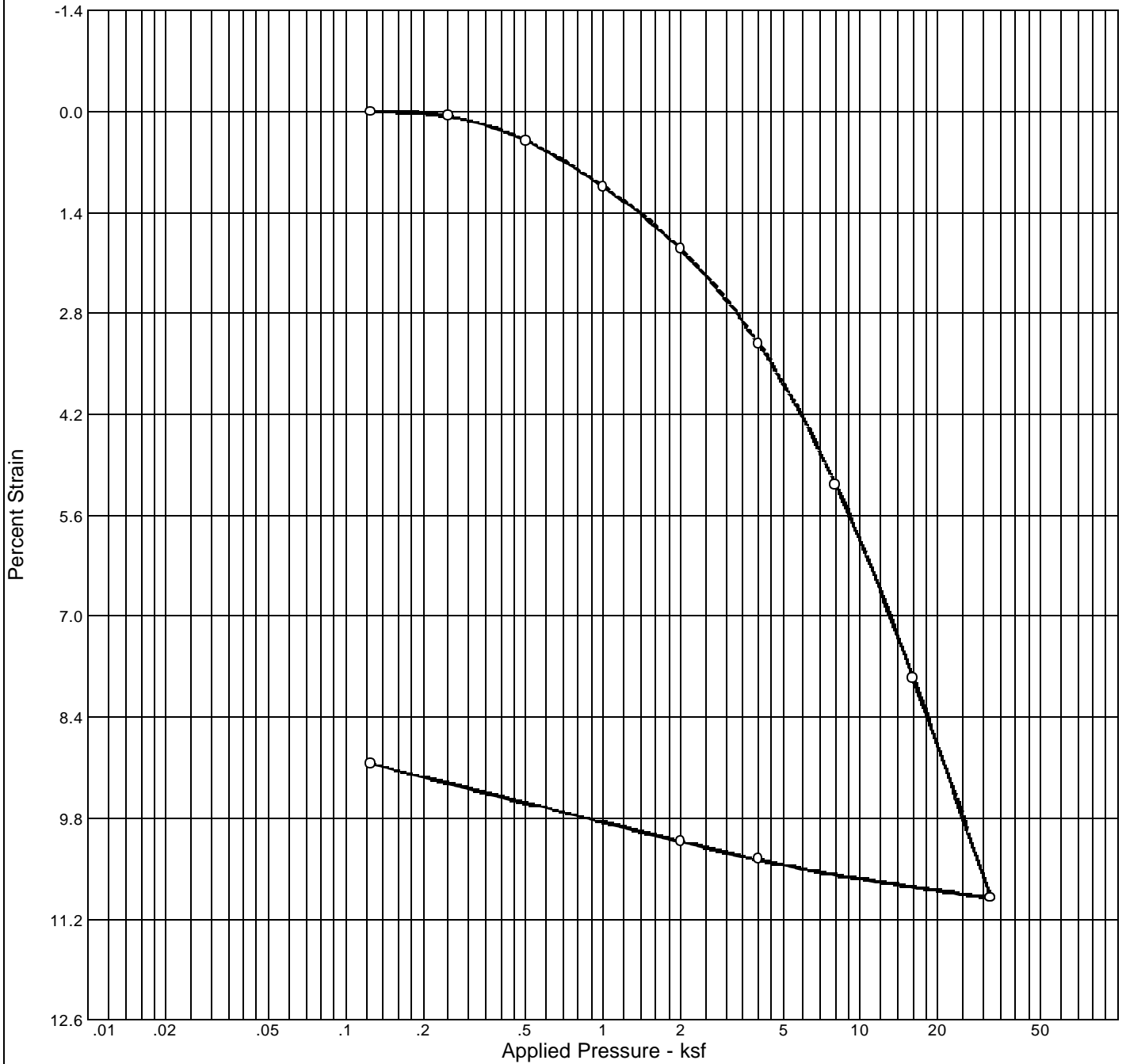
$C_v @ T_{90}$
 0.20 ft.²/day



Load No.= 11
 Load= 2.14 ksf
 $D_0 = 0.16047$
 $D_{90} = 0.15340$
 $D_{100} = 0.15261$
 $T_{90} = 170.54 \text{ min.}$

$C_v @ T_{90}$
 0.01 ft.²/day

CONSOLIDATION TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	USCS	AASHTO	Initial Void Ratio
Saturation	Moisture							
99.3 %	24.0 %	97.2			2.50			0.605

MATERIAL DESCRIPTION

See Borelog for Description

Project No. 6600.3.001.02	Client:	Remarks: Sample swelled to 125 psf loading
Project: SVRT - Western Area Yard and Shops		
Source:	Sample No.: B15@24.5 Elev./Depth: 24.5'	

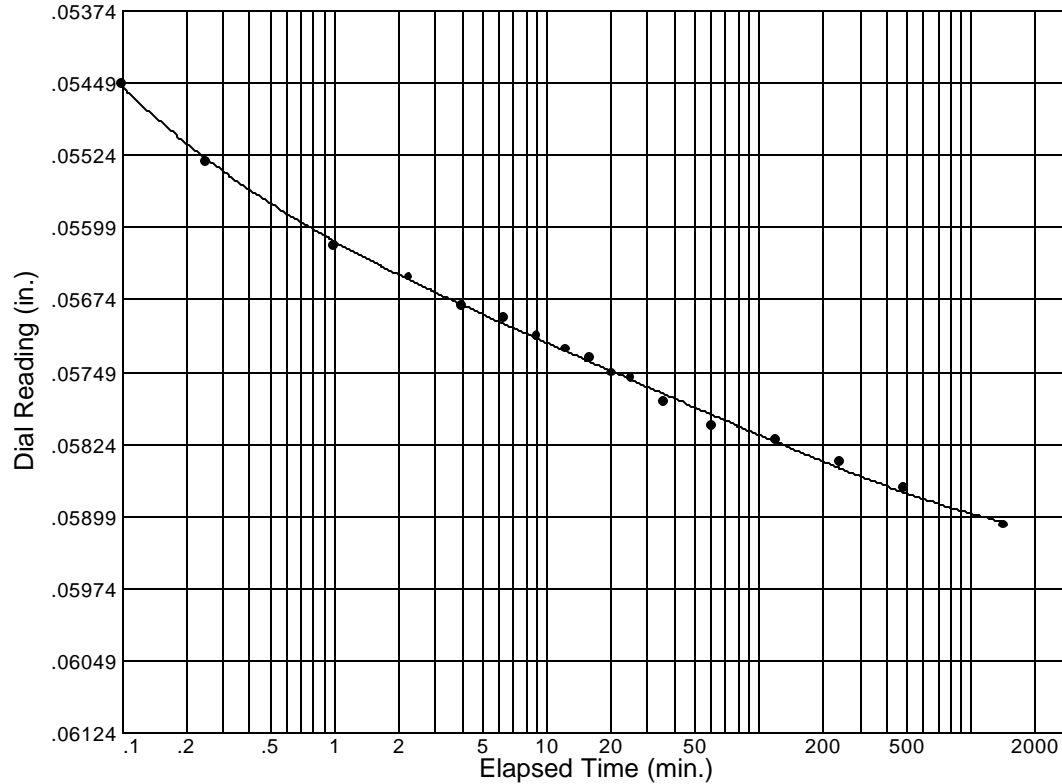


Plate

Dial Reading vs. Time

Project No.: 6600.3.001.02
 Project: SVRT - Western Area Yard and Shops

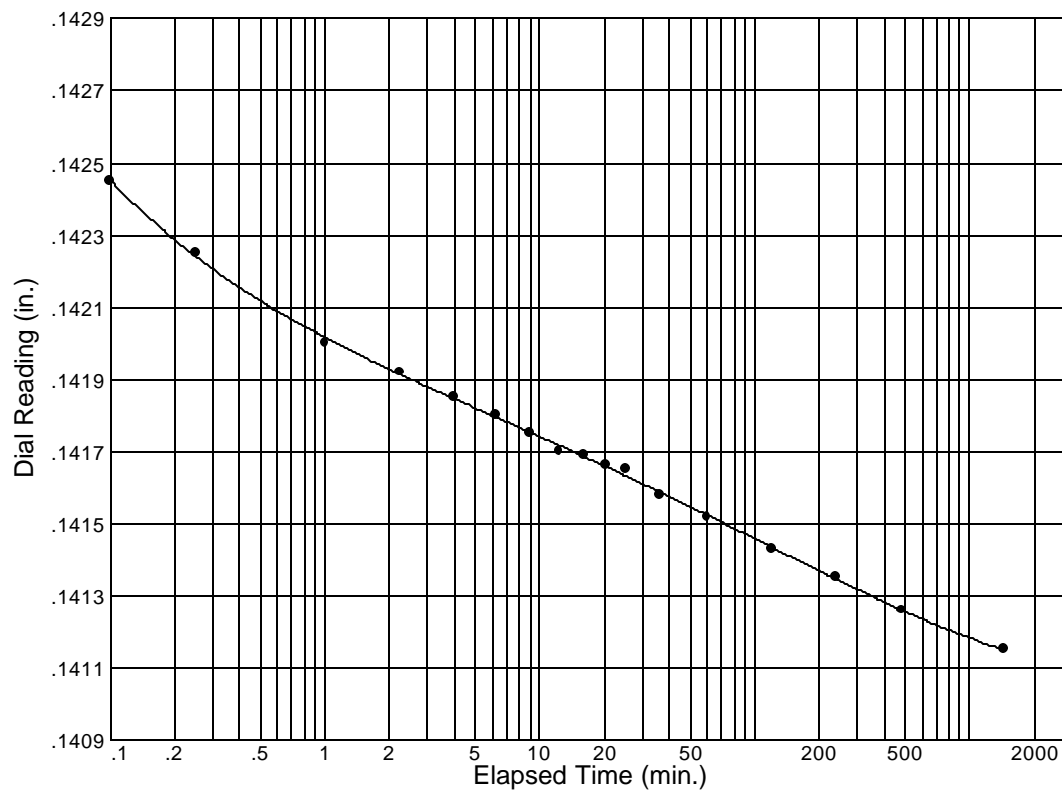
Source: Sample No.: B15@24.5 Elev./Depth: 24.5'



Load No.= 5
 Load= 2.00 ksf
 $D_0 = 0.05040$
 $D_{50} = 0.05456$
 $D_{100} = 0.05872$
 $T_{50} = 0.10$ min.

$C_v @ T_{50}$
 4.58 ft.²/day

$C_\alpha = 0.001$



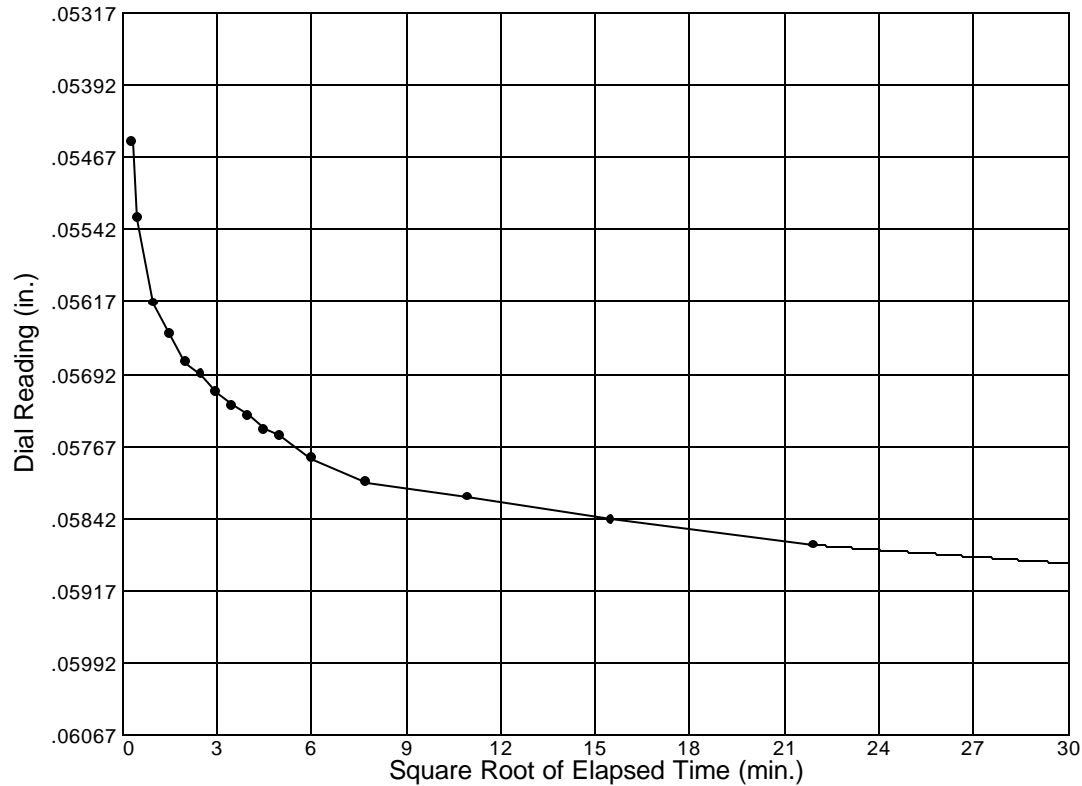
Load No.= 11
 Load= 2.00 ksf
 $D_0 = 0.14370$
 $D_{50} = 0.14245$
 $D_{100} = 0.14120$
 $T_{50} = 0.10$ min.

$C_v @ T_{50}$
 3.91 ft.²/day

Dial Reading vs. Time

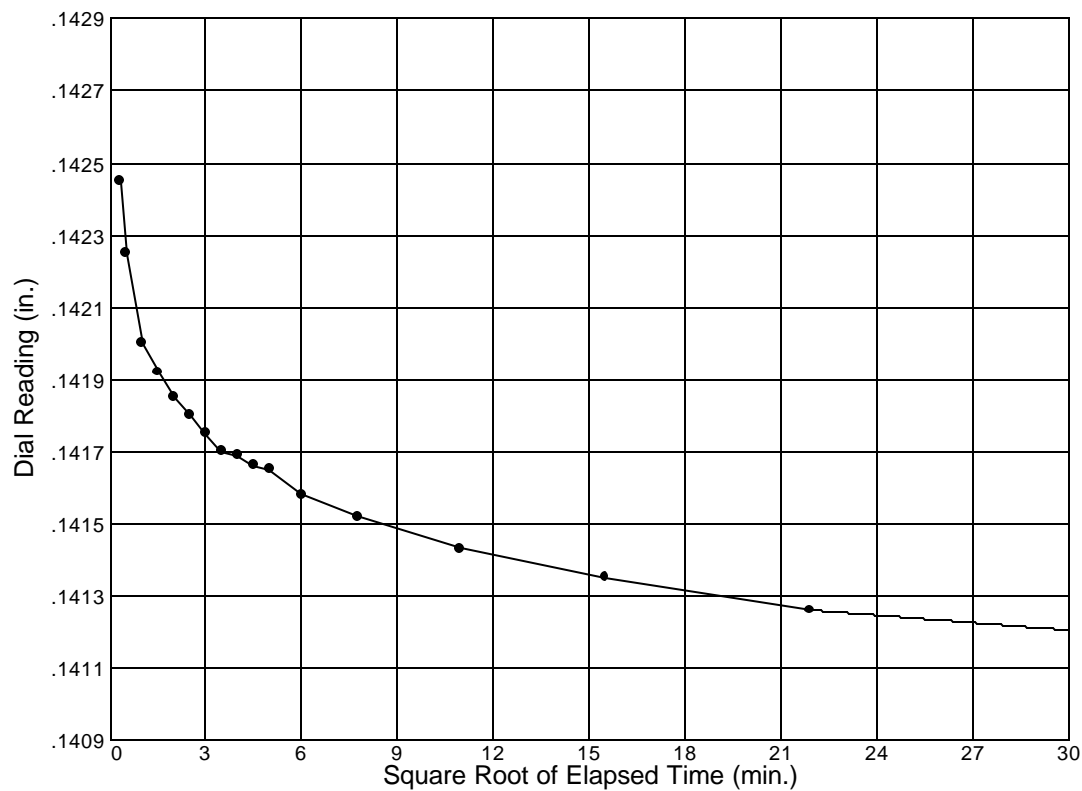
Project No.: 6600.3.001.02
 Project: SVRT - Western Area Yard and Shops

Source: Sample No.: B15@24.5 Elev./Depth: 24.5'



Load No.= 5
 Load= 2.00 ksf
 $D_0 = 0.05393$
 $D_{90} = 0.05629$
 $D_{100} = 0.05656$
 $T_{90} = 1.39 \text{ min.}$

$C_v @ T_{90}$
 1.48 ft.²/day

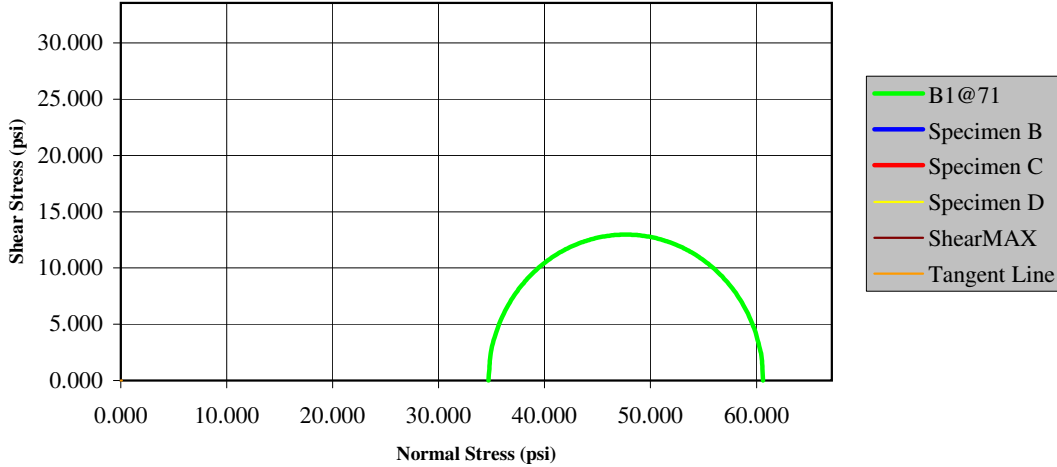


Load No.= 11
 Load= 2.00 ksf
 $D_0 = 0.14261$
 $D_{90} = 0.14197$
 $D_{100} = 0.14190$
 $T_{90} = 1.39 \text{ min.}$

$C_v @ T_{90}$
 1.23 ft.²/day



Mohr Circles



Date
10/1/07

Checked By
DS

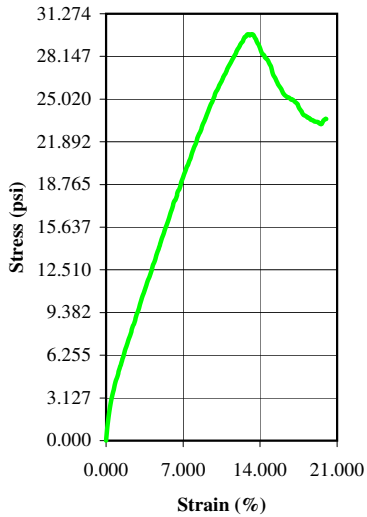
Date
10/1/07

Computed By
RC

Date
10/1/07

Checked By
DS

Stress-Strain Curve

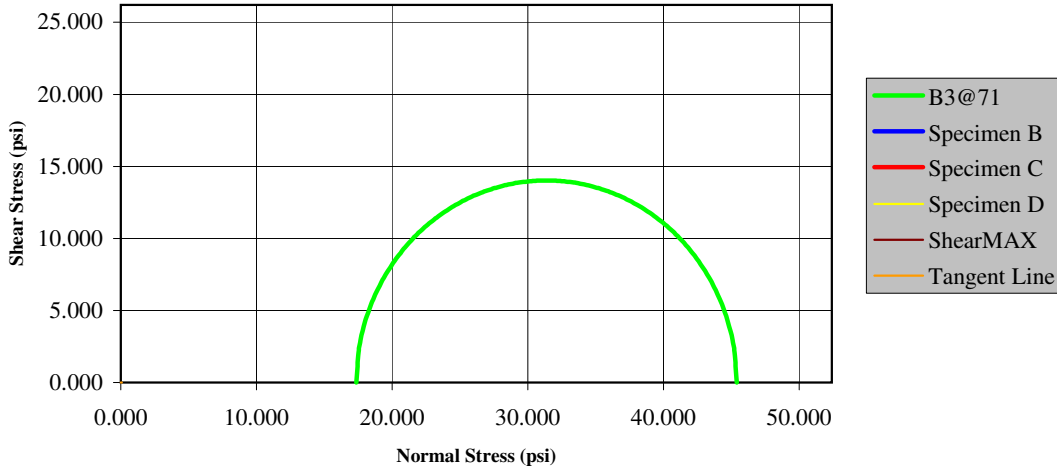


	Specimen				
	Before Test	B1@71	B	C	D
Water Content (%)	20.49	0.00	0.00	0.00	0.00
Dry Density (pcf)	109.89	0.00	0.00	0.00	0.00
Saturation (%)	107.41	0.00	0.00	0.00	0.00
Void Ratio	0.51	0.00	0.00	0.00	0.00
Diameter (in)	2.420	0.000	0.000	0.000	0.000
Height (in)	4.920	0.000	0.000	0.000	0.000
After Test	B1@71	B	C	D	
Water Content (%)	20.49	0.00	0.00	0.00	0.00
Test Data	B1@71	B	C	D	
Strain Rate (in/min)	0.02	0.00	0.00	0.00	0.00
Peak Deviator Stress (psi)	25.929	0.000	0.000	0.000	0.000
Axial Strain @ Failure (%)	12.947	0.000	0.000	0.000	0.000
	Cell Pressure				
Cell (psi)	34.7	0.0	0.0	0.0	
Back (psi)	n/a	n/a	n/a	n/a	
	Principle Stresses at Failure				
σ_1 (psi)	60.6	0.0	0.0	0.0	
σ_3 (psi)	34.7	0.0	0.0	0.0	

Mohr-Coulomb Strength Parameters		Sample Description	
C (psi)	0.0	See Boring Log	
Friction Angle ϕ	0.00	Liquid Limit:	Specific Gravity: 2.650
Test Performed By:		Plastic Limit:	
Remarks:			



Mohr Circles



Date
10/1/07

Checked By
DS

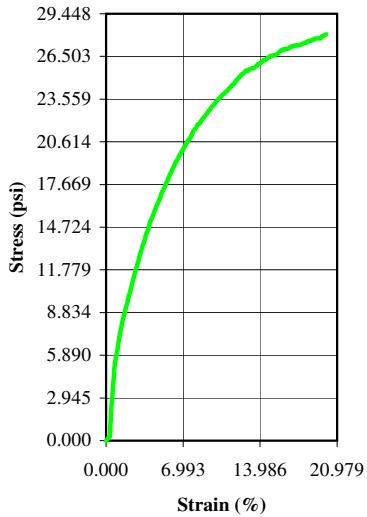
Date
10/1/07

Computed By
DS

Date
10/1/07

Checked By
DS

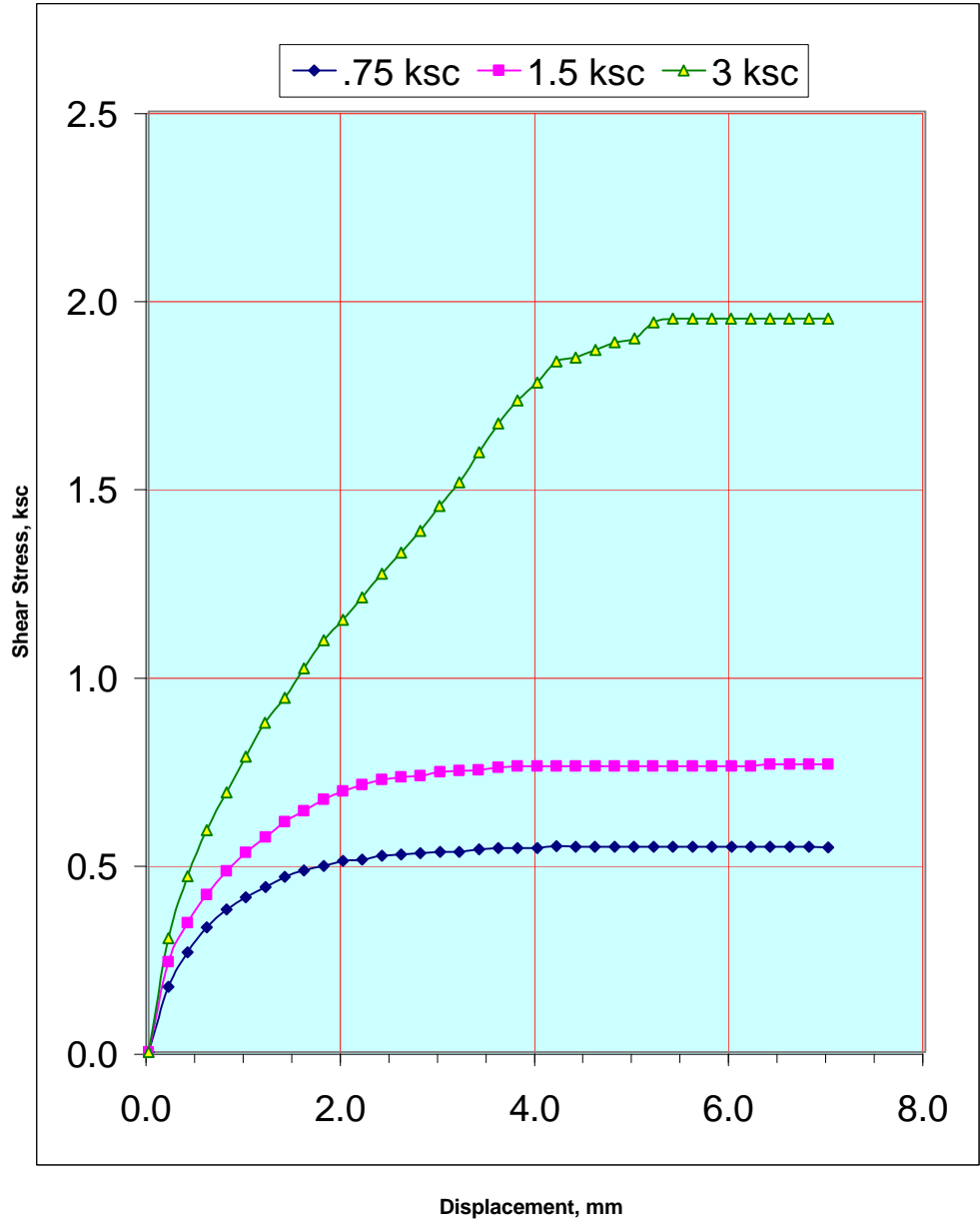
Stress-Strain Curve



	Specimen				
	Before Test	B3@71	B	C	D
Water Content (%)		16.64	0.00	0.00	0.00
Dry Density (pcf)		117.94	0.00	0.00	0.00
Saturation (%)		109.50	0.00	0.00	0.00
Void Ratio		0.40	0.00	0.00	0.00
Diameter (in)		2.420	0.000	0.000	0.000
Height (in)		4.940	0.000	0.000	0.000
After Test		B3@71	B	C	D
Water Content (%)		16.68	0.00	0.00	0.00
Test Data		B3@71	B	C	D
Strain Rate (in/min)		0.02	0.00	0.00	0.00
Peak Deviator Stress (psi)		28.046	0.000	0.000	0.000
Axial Strain @ Failure (%)		19.980	0.000	0.000	0.000
		Cell Pressure			
Cell (psi)		17.4	0.0	0.0	0.0
Back (psi)		n/a	n/a	n/a	n/a
		Principle Stresses at Failure			
σ_1 (psi)		45.4	0.0	0.0	0.0
σ_3 (psi)		17.4	0.0	0.0	0.0

Mohr-Coulomb Strength Parameters		Sample Description	
C (psi)	0.0	See Exploration Logs	
Friction Angle ϕ	0.00	Liquid Limit:	Specific Gravity: 2.650
Test Performed By:		Plastic Limit:	
Remarks:			

**Direct Shear Test
ASTM Test Method D3080**



LOAD, (ksc)	PEAK	SOFTENED
0.75	0.55 ksc	0.55 ksc
1.5	0.76 ksc	0.76 ksc
3	1.95 ksc	1.95 ksc

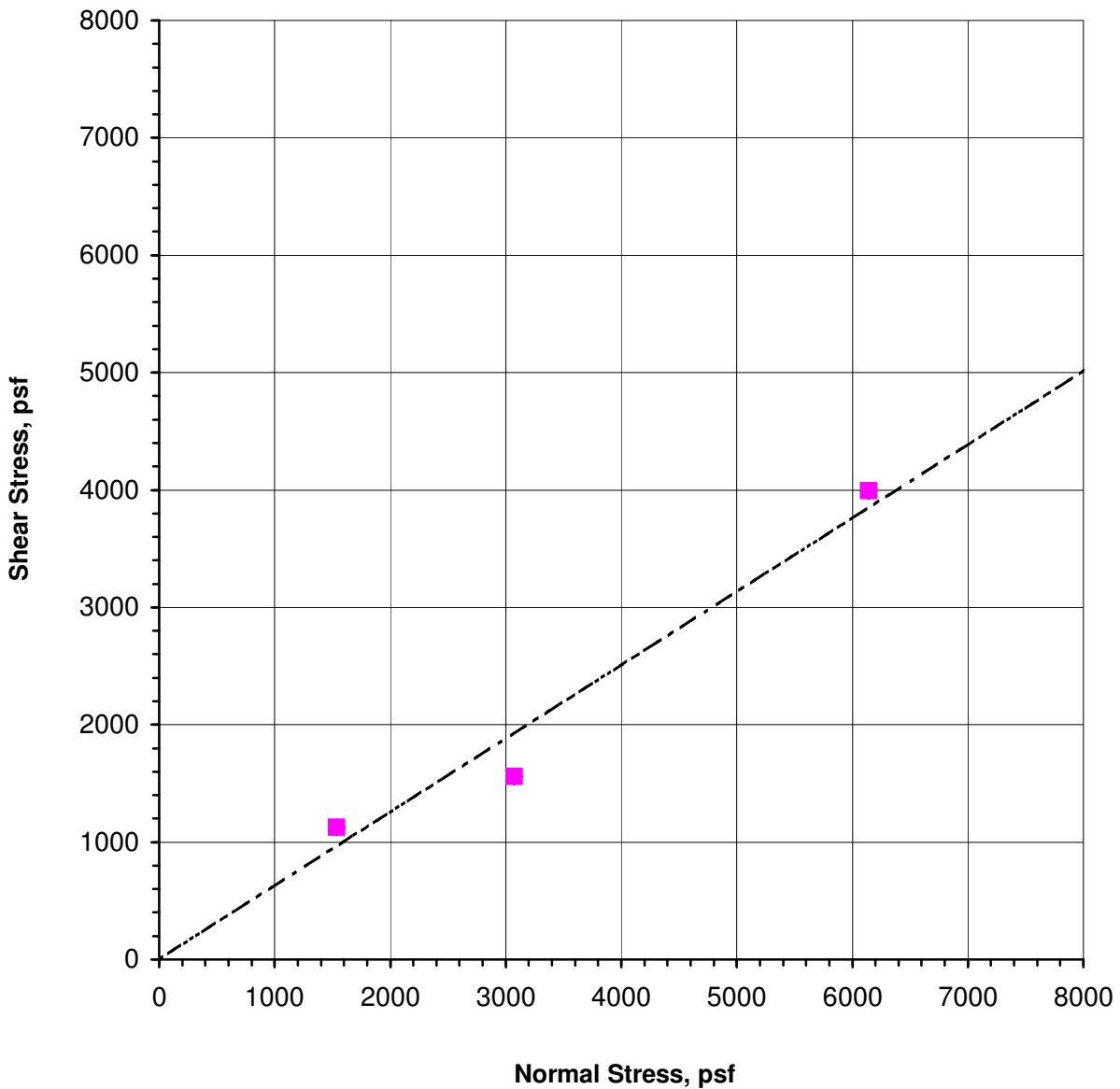
Dry Density:	127.6 pcf
Moisture Content:	6.2 %
USCS Classification:	SC
Shear Type:	CD
Shear Rate:	Slow

ENGEO
INCORPORATED

SVRT WESTERN AREA YARD/SHOPS
Santa Clara County

Job No.:	6600.3.001.02
Sample Number:	B2@18-18.5'
Date:	10/11/2007

**Direct Shear Test
ASTM Test Method D3080**



	FRICITION ANGLE	COHESION
Peak	32 degrees	0 psf
Softened	32 degrees	0 psf

Dry Density:	127.6 pcf
Moisture Content:	6.2 %
USCS Classification:	SC
Shear Type:	CD
Shear Rate:	Slow

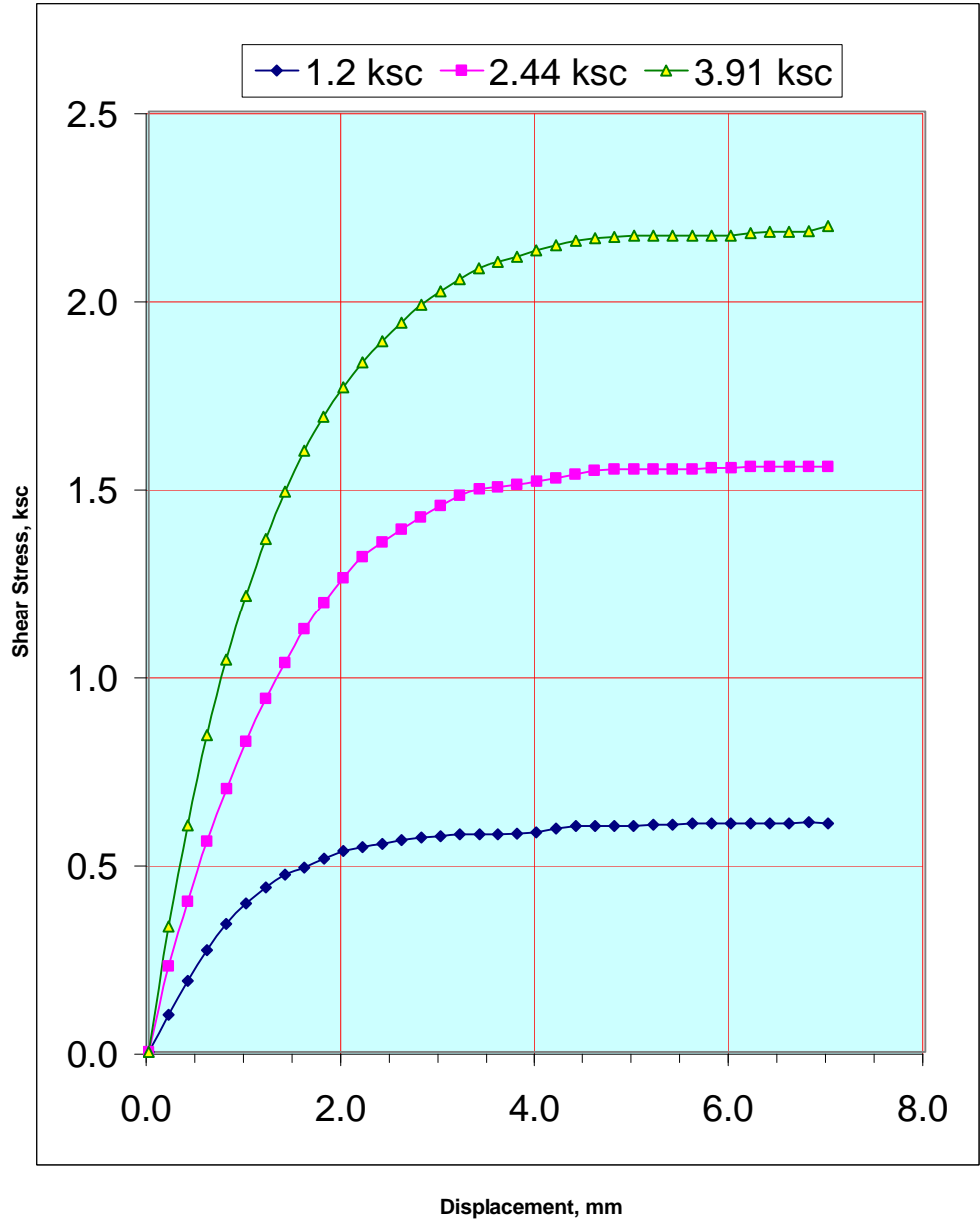
ENGEO
INCORPORATED

SVRT WESTERN ARE YARDS/SHOPS
Santa Clara County

Job No.:	6600.3.001.02
Sample Number:	B2@18-18.5'
Date:	10/11/2007

Figure No.

**Direct Shear Test
ASTM Test Method D3080**



LOAD, (ksc)	PEAK	SOFTENED
1.20	0.61 ksc	0.61 ksc
2.44	1.56 ksc	1.55 ksc
3.91	2.20 ksc	2.17 ksc

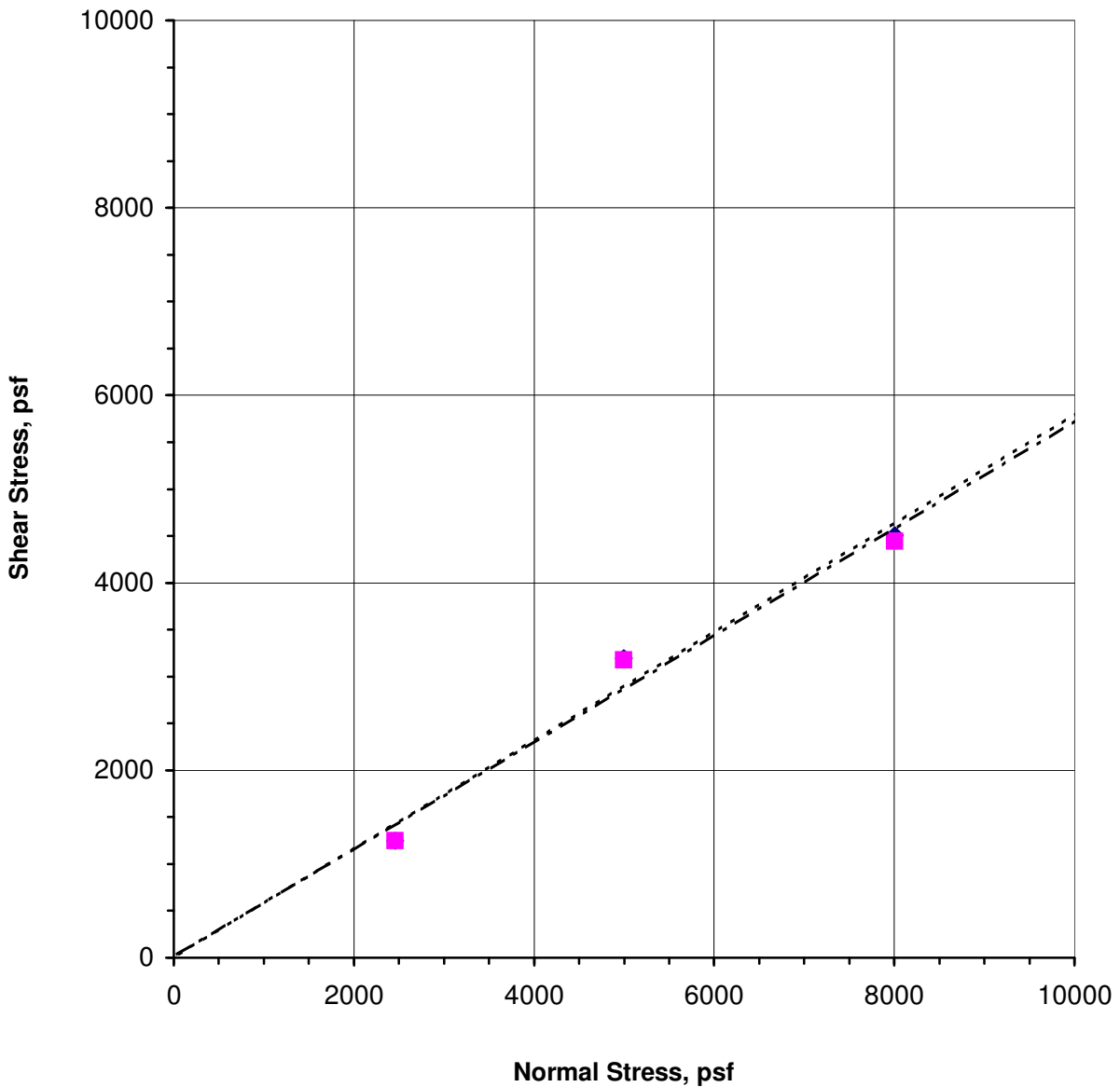
Dry Density:	112.2 pcf
Moisture Content:	17.4 %
USCS Classification:	SM-ML
Shear Type:	CD
Shear Rate:	Slow

ENGEO
INCORPORATED

SVRT WESTERN AREA YARD/SHOPS
Santa Clara County

Job No.:	6600.3.001.02
Sample Number:	B2@33-33.5
Date:	10/8/2007

**Direct Shear Test
ASTM Test Method D3080**



	FRICITION ANGLE	COHESION
Peak	30 degrees	0 psf
Softened	30 degrees	0 psf

Dry Density:	112.2 pcf
Moisture Content:	17.4 %
USCS Classification:	SM-ML
Shear Type:	CD
Shear Rate:	Slow

ENGEO
INCORPORATED

**SVRT WESTERN ARE YARD/SHOP
Santa Clara County**

Job No.:	6600.3.001.02
Sample Number:	B2@33-33.5'
Date:	10/8/2007

Figure No.

7.4 APPENDIX D

ENGEO INCORPORATED

Liquefaction Analysis Spreadsheets

LIQUEFACTION POTENTIAL EVALUATION USING CORRECTED BLOWCOUNTS

Project Name: SVRT - Western Area, Yard and Shops, Santa Clara County, CA

Project Number: 6600.3.001.02

Liquefaction Analyses 2004 Youd Method

EQ Magnitude: 6.50

PGA: 0.54

Boring	Sample Depth (FT)	Water Table (FT)	Measured Blow Count (N)	CE	CB	CR	CS	Corrected Blow Count (N)	Est. % FINES (%)	Est. PI	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	C _N	(N ₁) ₆₀	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments	Liquefiable Layer
2-B1	3.0	11	20	1.3	1.05	0.78	1.2	26	80	17	120	360.0	360.0	1.60	41	0.351	0.600	0.865	2.47	Above W.T.	
2-B1	8.0	11	8	1.3	1.05	0.75	1.08	9	80	25	120	960.0	960.0	1.44	13	0.351	0.120	0.173	0.49	Above W.T.	
2-B1	9.5	11	8	1.3	1.05	0.75	1.08	9	80	17	120	1140.0	1140.0	1.32	12	0.351	0.110	0.159	0.45	Above W.T.	
2-B1	13.0	11	4	1.3	1.05	0.85	1.04	5	80	17	120	1560.0	1435.2	1.18	6	0.374	0.070	0.101	0.27	Check PI	Identified as compressibel layer
2-B1	15.0	11	4	1.3	1.05	0.85	1.04	5	80	17	125	1875.0	1625.4	1.11	5	0.397	0.060	0.087	0.22	Check PI	
2-B1	20.0	11	6	1.3	1.05	0.95	1.06	8	80	17	125	2500.0	1938.4	1.02	8	0.435	0.080	0.115	0.27	Check PI	Marginally liquefiable layer 10 feet thick
2-B1	21.5	11	6	1.3	1.05	0.95	1.06	8	80	17	115	2472.5	1817.3	1.05	9	0.458	0.085	0.123	0.27	Check PI	
2-B1	25.0	11	4	1.3	1.05	0.95	1.04	5	80	17	115	2875.0	2001.4	1.00	5	0.484	0.060	0.087	0.18	Check PI	Liquefiable sand, silty sand and sandy silty approximately 24 feet thick
2-B1	30.0	11	12	1.3	1.05	1	1.12	18	58	0	115	3450.0	2264.4	0.94	17	0.492	0.163	0.235	0.48	Liquefaction	
2-B1	31.5	11	12	1.3	1.05	1	1.12	18	7	0	130	4095.0	2815.8	0.84	15	0.357	0.102	0.147	0.41	Liquefaction	
2-B1	35.0	11	27	1.3	1.05	1	1.27	47	7	0	130	4550.0	3052.4	0.81	38	0.366	0.560	0.808	2.21	(N1)60>30	
2-B1	40.0	11	18	1.3	1.05	1	1.18	29	28	0	130	5200.0	3390.4	0.77	22	0.312	0.231	0.333	1.07	Liquefaction	
2-B1	41.5	11	18	1.3	1.05	1	1.18	29	23	0	130	5395.0	3491.8	0.76	22	0.315	0.219	0.316	1.01	Liquefaction	
2-B1	50.0	11	12	1.3	1.05	1	1.12	18	23	0	130	6500.0	4066.4	0.70	13	0.309	0.102	0.147	0.48	Liquefaction	
2-B1	51.5	11	12	1.3	1.05	1	1.12	18	23	0	130	6695.0	4167.8	0.69	13	0.310	0.102	0.147	0.47	Liquefaction	
2-B1	60.0	11	22	1.3	1.05	1	1.22	37	23	0	130	7800.0	4742.4	0.65	24	0.289	0.254	0.366	1.27		
2-B1	61.5	11	22	1.3	1.05	1	1.22	37	23	0	130	7995.0	4843.8	0.64	24	0.290	0.254	0.366	1.26		
2-B1	70.0	11	20	1.3	1.05	1	1.2	33	73	25	130	9100.0	5418.4	0.61	20	0.283	0.210	0.303	1.07		
2-B1	71.5	11	20	1.3	1.05	1	1.2	33	73	25	130	9295.0	5519.8	0.60	20	0.284	0.210	0.303	1.07		
2-B1	85.0	11	18	1.3	1.05	1	1.18	29	30	0	130	11050.0	6432.4	0.56	16	0.289	0.144	0.208	0.72	Liquefaction	Liquifiable layer deeper than 55 feet and less than 1.5 feet thick - effects of liquefaction will be negligible at
2-B1	86.5	11	18	1.3	1.05	1	1.18	29	30	17	130	11245.0	6533.8	0.55	16	0.290	0.144	0.208	0.72	Liquefaction	
2-B1	100.0	11	30	1.3	1.05	1	1.3	53	70	25	130	13000.0	7446.4	0.52	28	0.294	0.400	0.577	1.96		
2-B1	101.5	11	30	1.3	1.05	1	1.3	53	70	0	130	13195.0	7547.8	0.51	27	0.295	0.360	0.519	1.76		

Settlement calculations for 2-B1

Liq Layers (FT)	USGS	Layer Thickness (FT)	Vol. Strain (%)	Settlement (inches)
28-31	ML	3	1.5%	0.5
31-35	SP	4	2.5%	1.2
35-38	SP	3	0.0%	0.0
38-45	SM	7	1.0%	0.8
45-55	SM	10	3.0%	3.6
				<u>6.2</u>

LIQUEFACTION POTENTIAL EVALUATION USING CORRECTED BLOWCOUNTS

Project Name: SVRT - Western Area, Yard and Shops, Santa Clara County, CA

Project Number: 6600.3.001.02

Liquefaction Analyses 2004 Youd Method

EQ Magnitude: 6.50

PGA: 0.54

Boring	Sample Depth (FT)	Water Table (FT)	Measured Blow Count (N)	CE	CB	CR	CS	Corrected Blow Count (N)	Est. % FINES (%)	Est. PI	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	C_N	$(N_1)_{60}$	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments	Liquefiable Layer
2-B2	2.0	33	20	1	1.05	0.75	1.2	19	35	15	130	260.0	260.0	1.60	30	0.351	0.550	0.793	2.26	Above W.T.	
2-B2	3.5	33	20	1	1.05	0.75	1.2	19	35	15	130	455.0	455.0	1.60	30	0.351	0.550	0.793	2.26	Above W.T.	
2-B2	5.0	33	48	1	1.05	0.75	1.48	56	70	15	130	650.0	650.0	1.60	90	0.351	0.600	0.865	2.47	Above W.T.	
2-B2	6.5	33	48	1	1.05	0.75	1.48	56	70	70	130	845.0	845.0	1.54	86	0.351	0.600	0.865	2.47	Above W.T.	
2-B2	8.0	33	34	1	1.05	0.75	1.34	36	35	35	130	1040.0	1040.0	1.39	50	0.351	0.600	0.865	2.47	Above W.T.	
2-B2	9.5	33	34	1	1.05	0.75	1.34	36	35	35	130	1235.0	1235.0	1.27	46	0.351	0.600	0.865	2.47	Above W.T.	
2-B2	11.0	33	36	1	1.05	0.75	1.36	39	35	35	130	1430.0	1430.0	1.18	46	0.344	0.600	0.865	2.52	Above W.T.	
2-B2	12.5	33	36	1	1.05	0.75	1.36	39	45	35	130	1625.0	1625.0	1.11	43	0.344	0.600	0.865	2.52	Above W.T.	
2-B2	14.0	33	23	1	1.05	0.85	1.23	25	45	70	130	1820.0	1820.0	1.05	26	0.344	0.340	0.490	1.43	Above W.T.	
2-B2	15.5	33	23	1	1.05	0.85	1.23	25	35	35	130	2015.0	2015.0	1.00	25	0.344	0.320	0.462	1.34	Above W.T.	
2-B2	17.0	33	25	1	1.05	0.85	1.25	28	35	35	130	2210.0	2210.0	0.95	27	0.344	0.360	0.519	1.51	Above W.T.	
2-B2	18.5	33	25	1	1.05	0.85	1.25	28	35	35	130	2405.0	2405.0	0.91	25	0.344	0.320	0.462	1.34	Above W.T.	
2-B2	20.0	33	25	1	1.05	0.95	1.25	31	35	35	130	2600.0	2600.0	0.88	27	0.337	0.360	0.519	1.54	Above W.T.	
2-B2	21.5	33	25	1	1.05	0.95	1.25	31	45	70	130	2795.0	2795.0	0.85	26	0.337	0.340	0.490	1.46	Above W.T.	
2-B2	23.0	33	15	1	1.05	0.95	1.15	17	45	70	130	2990.0	2990.0	0.82	14	0.337	0.130	0.188	0.56	Above W.T.	
2-B2	24.5	33	15	1	1.05	0.95	1.15	17	45	70	130	3185.0	3185.0	0.79	14	0.337	0.130	0.188	0.56	Above W.T.	
2-B2	26.0	33	27	1	1.05	0.95	1.27	34	45	70	130	3380.0	3380.0	0.77	26	0.337	0.340	0.490	1.46	Above W.T.	
2-B2	27.0	33	27	1	1.05	0.95	1.27	34	35	70	130	3510.0	3510.0	0.75	26	0.337	0.340	0.490	1.46	Above W.T.	
2-B2	28.5	33	24	1	1.05	0.95	1.24	30	35	70	130	3705.0	3705.0	0.73	22	0.337	0.248	0.358	1.06	Above W.T.	
2-B2	29.0	33	24	1	1.05	0.95	1.24	30	45	70	130	3770.0	3770.0	0.73	22	0.337	0.248	0.358	1.06	Above W.T.	
2-B2	30.5	33	38	1	1.05	1	1.38	55	45	70	130	3965.0	3965.0	0.71	39	0.246	0.600	0.865	3.52	Above W.T.	
2-B2	32.0	33	38	1	1.05	1	1.38	55	45	35	130	4160.0	4160.0	0.69	38	0.246	0.600	0.865	3.52	Above W.T.	
2-B2	33.5	33	20	1	1.05	1	1.2	25	52	70	130	4355.0	4323.8	0.68	17	0.247	0.163	0.235	0.95		
2-B2	35.0	33	20	1	1.05	1	1.2	25	52	55	130	4550.0	4425.2	0.67	17	0.253	0.163	0.235	0.93		

LIQUEFACTION POTENTIAL EVALUATION USING CORRECTED BLOWCOUNTS

Project Name: SVRT - Western Area, Yard and Shops, Santa Clara County, CA

Project Number: 6600.3.001.02

Liquefaction Analyses 2004 Youd Method

EQ Magnitude: 6.50

PGA: 0.54

Boring	Sample Depth (FT)	Water Table (FT)	Measured Blow Count (N)	CE	CB	CR	CS	Corrected Blow Count (N)	Est. % FINES (%)	Est. PI	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	C_N	$(N_1)_{60}$	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments	Liquefiable Layer
2-B3	3.0	13	16	1.3	1.05	0.75	1.16	19	70	25	120	360.0	360.0	1.60	30	0.351	0.550	0.793	2.26	Above W.T.	
2-B3	8.0	13	6	1.3	1.05	0.75	1.06	7	70	20	120	960.0	960.0	1.44	9	0.351	0.085	0.123	0.35	Above W.T.	
2-B3	9.5	13	6	1.3	1.05	0.75	1.06	7	70	20	120	1140.0	1140.0	1.32	9	0.351	0.085	0.123	0.35	Above W.T.	
2-B3	13.0	13	6	1.3	1.05	0.85	1.06	7	80	32	115	1495.0	1495.0	1.16	9	0.344	0.085	0.123	0.36		
2-B3	18.0	13	10	1.3	1.05	0.85	1.1	13	80	32	115	2070.0	1758.0	1.07	14	0.405	0.130	0.188	0.46		
2-B3	19.5	13	10	1.3	1.05	0.85	1.1	13	65	32	130	2535.0	2129.4	0.97	12	0.410	0.110	0.159	0.39		
2-B3	25.0	13	5	1.3	1.05	0.95	1.05	7	54	17	130	3250.0	2501.2	0.89	6	0.438	0.070	0.101	0.23	Check PI	Marginally liquefiable layer 10 feet thick
2-B3	26.5	13	5	1.3	1.05	0.95	1.05	7	54	17	130	3445.0	2602.6	0.88	6	0.446	0.070	0.101	0.23	Check PI	
2-B3	29.5	13	5	1.3	1.05	0.95	1.05	7	65	17	130	3835.0	2805.4	0.84	6	0.461	0.070	0.101	0.22	Check PI	
2-B3	35.0	13	7	1.3	1.05	1	1.07	10	35	5	130	4550.0	3177.2	0.79	8	0.352	0.080	0.115	0.33	Liquefaction	Liquefiable silty sand and sandy silt layers approximately 5 feet thick
2-B3	40.0	13	10	1.3	1.05	1	1.1	15	35	35	130	5200.0	3515.2	0.75	11	0.301	0.095	0.137	0.46	Liquefaction	
2-B3	41.5	13	10	1.3	1.05	1	1.1	15	70	35	130	5395.0	3616.6	0.74	11	0.304	0.095	0.137	0.45		
2-B3	50.0	13	20	1.3	1.05	1	1.2	33	55	8	130	6500.0	4191.2	0.69	23	0.299	0.260	0.375	1.25		
2-B3	51.5	13	20	1.3	1.05	1	1.2	33	35	8	130	6695.0	4292.6	0.68	22	0.301	0.248	0.358	1.19	Liquefaction	Liquefiable silty sand and sandy silt layers approximately 5 feet thick
2-B3	60.0	13	10	1.3	1.05	1	1.1	15	65	18	130	7800.0	4867.2	0.64	10	0.281	0.090	0.130	0.46	Check PI	Marginally liquefiable layer 5.5 feet thick > 55 feet deep; effects of liquefaction is negligible at ground
2-B3	61.5	13	10	1.3	1.05	1	1.1	15	70	18	130	7995.0	4968.6	0.63	10	0.282	0.090	0.130	0.46	Check PI	
2-B3	70.0	13	56	1.3	1.05	1	1.56	119	65	18	130	9100.0	5543.2	0.60	72	0.277	0.600	0.865	3.13	(N1)60>30	
2-B3	71.5	13	56	1.3	1.05	1	1.56	119	45	8	130	9295.0	5644.6	0.60	71	0.277	0.600	0.865	3.12	(N1)60>30	
2-B3	85.0	13	33	1.3	1.05	1	1.33	60	35	8	130	11050.0	6557.2	0.55	33	0.284	0.600	0.865	3.05	(N1)60>30	
2-B3	86.5	13	33	1.3	1.05	1	1.33	60	35	8	130	11245.0	6658.6	0.55	33	0.285	0.600	0.865	3.04	(N1)60>30	
2-B3	100.0	13	24	1.3	1.05	1	1.24	41	70	20	130	13000.0	7571.2	0.51	21	0.289	0.225	0.325	1.12	Check PI	PI>20 - low risk of liquefaction

Settlement calculations for 2-B3

Liq Layers (FT)	USGS	Layer Thickness (FT)	Vol. Strain (%)	Settlement (inches)
23-33	ML	10	1.5%	1.8
33-42	SM	9	2.5%	2.7
47-52	SC	5	1.5%	0.9
52-57	SM	5	1.5%	0.9
				<u>6.3</u>

LIQUEFACTION POTENTIAL EVALUATION USING CORRECTED BLOWCOUNTS

Project Name: SVRT - Western Area, Yard and Shops, Santa Clara County, CA

Project Number: 6600.3.001.02

Liquefaction Analyses 2004 Youd Method

EQ Magnitude: 6.50

PGA: 0.54

Boring	Sample Depth (FT)	Water Table (FT)	Measured Blow Count (N)	CE	CB	CR	CS	Corrected Blow Count (N)	Est. % FINES (%)	Est. PI	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	C _N	(N ₁) ₆₀	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments	Liquefiable Layer
2-B9	3.0	15	17	1.3	1.05	0.75	1.17	20	35	20	130	390.0	390.0	1.60	33	0.351	0.600	0.865	2.47	Above W.T.	
2-B9	8.0	15	7	1.3	1.05	0.75	1.07	8	80	30	125	1000.0	1000.0	1.41	11	0.351	0.095	0.137	0.39	Above W.T.	
2-B9	13.0	15	8	1.3	1.05	0.85	1.08	10	80	42	115	1495.0	1495.0	1.16	12	0.344	0.110	0.159	0.46	Above W.T.	
2-B9	15.0	15	8	1.3	1.05	0.85	1.08	10	80	42	115	1725.0	1725.0	1.08	11	0.344	0.095	0.137	0.40		
2-B9	17.5	15	8	1.3	1.05	0.85	1.08	10	80	42	115	2012.5	1856.5	1.04	10	0.373	0.090	0.130	0.35		
2-B9	23.0	15	10	1.3	1.05	0.95	1.1	14	80	25	125	2875.0	2375.8	0.92	13	0.408	0.120	0.173	0.42		
2-B9	24.5	15	10	1.3	1.05	0.95	1.1	14	35	18	125	3062.5	2469.7	0.90	13	0.418	0.120	0.173	0.41	Liquefaction	Liquefiable clayey sand and sandy clay layers approximately 22 feet thick
2-B9	30.0	15	9	1.3	1.05	1	1.09	13	58	9	125	3750.0	2814.0	0.84	11	0.430	0.095	0.137	0.32	Liquefaction	
2-B9	31.5	15	9	1.3	1.05	1	1.09	13	58	9	125	3937.5	2907.9	0.83	11	0.333	0.095	0.137	0.41	Liquefaction	
2-B9	40.0	15	6	1.3	1.05	1	1.06	9	35	9	130	5200.0	3640.0	0.74	6	0.291	0.070	0.101	0.35	Liquefaction	
2-B9	50.0	15	11	1.3	1.05	1	1.11	17	80	22	130	6500.0	4316.0	0.68	11	0.291	0.095	0.137	0.47		
2-B9	51.5	15	11	1.3	1.05	1	1.11	17	80	25	130	6695.0	4417.4	0.67	11	0.293	0.095	0.137	0.47		
2-B9	60.0	15	30	1.3	1.05	1	1.3	53	35	18	125	7500.0	4692.0	0.65	35	0.281	0.600	0.865	3.09	(N1)60>30	
2-B9	61.5	15	30	1.3	1.05	1	1.3	53	35	18	130	7995.0	5093.4	0.63	33	0.275	0.600	0.865	3.14	(N1)60>30	
2-B9	70.0	15	31	1.3	1.05	1	1.31	55	5	5	130	9100.0	5668.0	0.59	33	0.270	0.450	0.649	2.40	(N1)60>30	
2-B9	71.5	15	18	1.3	1.05	1	1.18	29	25	5	130	9295.0	5769.4	0.59	17	0.271	0.147	0.211	0.78	Liquefaction	Liquefiable silty sand layer approximatley 5 feet thick
2-B9	80.0	15	61	1.3	1.05	1	1.61	134	25	5	130	10400.0	6344.0	0.56	75	0.276	0.600	0.865	3.13	(N1)60>30	

Liq Layers (FT)	USGS	Layer Thickness (FT)	Vol. Strain (%)	Settlement (inches)
24-26	SC	2	2.0%	0.5
26-41	CL	15	1.7%	3.1
41-46	SC	5	3.0%	1.8
				<u>5.3</u>

LIQUEFACTION POTENTIAL EVALUATION USING CORRECTED BLOWCOUNTS

Project Name: SVRT - Western Area, Yard and Shops, Santa Clara County, CA

Project Number: 6600.300.102

Liquefaction Analyses 2004 Youd Method

EQ Magnitude: 6.50

PGA: 0.54

Boring	Sample Depth (FT)	Water Table (FT)	Measured Blow Count (N)	CE	CB	CR	CS	Corrected Blow Count (N)	Est. % FINES (%)	Est. PI	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	C_N	$(N_1)_{60}$	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments	Liquefiable Layer
2-B11	5.0	6	9	1.3	1.05	0.78	1	10	80	30	120	600.0	600.0	1.60	15	0.351	0.140	0.202	0.58	Above W.T.	
2-B11	15.0	6	6	1.3	1.05	0.85	1	7	80	30	120	1800.0	1238.4	1.27	9	0.500	0.085	0.123	0.25		
2-B11	30.0	6	10	1.3	1.05	1	1	14	40	17	120	3600.0	2102.4	0.98	13	0.553	0.120	0.173	0.31	Liquefaction	Potentially Liquefiable layer 30 to 32 feet
2-B11	31.5	6	5	1.3	1.05	1	1.05	7	70	16	120	3780.0	2188.8	0.96	7	0.424	0.075	0.108	0.25	Check PI	wc<0.85(LL)
2-B11	40.0	6	28	1.3	1.05	1	1.28	49	25	15	125	5000.0	2878.4	0.83	41	0.354	0.600	0.865	2.45	(N1)60>30	
2-B11	41.5	6	28	1.3	1.05	1	1.28	49	25	15	125	5187.5	2972.3	0.82	40	0.355	0.600	0.865	2.44	(N1)60>30	

Settlement calculations for 2-B11

Liq Layers (FT)	USGS	Layer Thickness (FT)	Vol. Strain (%)	Settlement (inches)
28-32	ML	4	3.0%	1.4
Total				1.4

LIQUEFACTION POTENTIAL EVALUATION USING CORRECTED BLOWCOUNTS

Project Name: SVRT - Western Area, Yard and Shops, Santa Clara County, CA

Project Number: 6600.300.102

Liquefaction Analyses 2004 Youd Method

EQ Magnitude: 6.50

PGA: 0.54

Boring	Sample Depth (FT)	Water Table (FT)	Measured Blow Count (N)	CE	CB	CR	CS	Corrected Blow Count (N)	Est. % FINES (%)	Est. PI	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	C_N	$(N_{1,60})$	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments	Liquefiable Layer
2-B13	2.5	4	9	1.3	1.05	0.75	0.63	6	80	35	120	300.0	300.0	1.60	9	0.351	0.085	0.123	0.35	Above W.T.	
2-B13	6.0	4	6	1.3	1.05	0.75	0.63	4	80	35	120	720.0	595.2	1.60	6	0.425	0.070	0.101	0.24		
2-B13	10.0	4	6	1.3	1.05	0.75	0.63	4	80	35	120	1200.0	825.6	1.56	6	0.500	0.070	0.101	0.20		
2-B13	15.0	4	5	1.3	1.05	0.85	0.63	4	80	35	120	1800.0	1113.6	1.34	5	0.556	0.060	0.087	0.16		
2-B13	20.0	4	16	1.3	1.05	0.95	0.63	13	80	25	120	2400.0	1401.6	1.19	16	0.577	0.152	0.219	0.38		
2-B13	21.5	4	23	1.3	1.05	0.95	1.23	37	35	NP	125	2687.5	1595.5	1.12	41	0.568	0.600	0.865	1.52	(N1)60>30	
2-B13	25.0	4	28	1.3	1.05	0.95	1.28	46	10	NP	125	3125.0	1814.6	1.05	49	0.580	0.600	0.865	1.49	(N1)60>30	
2-B13	30.0	4	25	1.3	1.05	1	1.25	43	5	2	130	3900.0	2277.6	0.94	40	0.553	0.600	0.865	1.57	(N1)60>30	
2-B13	35.0	4	30	1.3	1.05	1	1.3	53	10	5	130	4550.0	2615.6	0.87	47	0.427	0.600	0.865	2.02	(N1)60>30	

LIQUEFACTION POTENTIAL EVALUATION USING CORRECTED BLOWCOUNTS

Project Name: SVRT - Western Area, Yard and Shops, Santa Clara County, CA

Project Number: 6600.3.001.02

Liquefaction Analyses 2004 Youd Method

EQ Magnitude: 6.50

PGA: 0.54

Boring	Sample Depth (FT)	Water Table (FT)	Measured Blow Count (N)	CE	CB	CR	CS	Corrected Blow Count (N)	Est. % FINES (%)	Est. PI	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	C_N	$(N_1)_{60}$	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments	Liquefiable Layer
2-B15	3.0	13	9	1.3	1.05	0.75	1.09	10	80	35	130	390.0	390.0	1.60	16	0.351	0.152	0.219	0.62	Above W.T.	
2-B15	8.0	13	6	1.3	1.05	0.75	1.06	7	80	35	125	1000.0	1000.0	1.41	9	0.351	0.085	0.123	0.35	Above W.T.	
2-B15	9.5	13	6	1.3	1.05	0.75	1.06	7	80	42	115	1092.5	1092.5	1.35	9	0.351	0.085	0.123	0.35	Above W.T.	
2-B15	13.0	13	7	1.3	1.05	0.85	1.07	9	80	42	115	1495.0	1495.0	1.16	10	0.344	0.090	0.130	0.38		
2-B15	18.0	13	7	1.3	1.05	0.85	1.07	9	80	42	115	2070.0	1758.0	1.07	9	0.405	0.085	0.123	0.30		
2-B15	19.5	13	6	1.3	1.05	0.85	1.06	7	80	42	115	2242.5	1836.9	1.04	8	0.420	0.080	0.115	0.27		
2-B15	23.0	13	6	1.3	1.05	0.95	1.06	8	80	35	125	2875.0	2251.0	0.94	8	0.430	0.080	0.115	0.27		
2-B15	24.5	13	6	1.3	1.05	0.95	1.06	8	80	35	125	3062.5	2344.9	0.92	8	0.440	0.080	0.115	0.26		
2-B15	26.0	13	6	1.3	1.05	0.95	1.06	8	80	35	125	3250.0	2438.8	0.91	7	0.449	0.075	0.108	0.24		
2-B15	27.5	13	6	1.3	1.05	0.95	1.06	8	80	35	125	3437.5	2532.7	0.89	7	0.457	0.075	0.108	0.24		
2-B15	35.0	13	5	1.3	1.05	1	1.05	7	60	22	125	4375.0	3002.2	0.82	6	0.358	0.070	0.101	0.28		
2-B15	36.5	13	5	1.3	1.05	1	1.05	7	35	10	125	4562.5	3096.1	0.80	6	0.362	0.070	0.101	0.28	Liquefaction	
2-B15	43.0	13	8	1.3	1.05	1	1.08	12	35	10	125	5375.0	3503.0	0.76	9	0.312	0.085	0.123	0.39	Liquefaction	
2-B15	50.0	13	10	1.3	1.05	1	1.1	15	60	25	125	6250.0	3941.2	0.71	11	0.306	0.095	0.137	0.45		Liquefiable silty sand layer approximately 8 feet thick

Project Name: SVRT - Yard & Shops
 Project Number: 6600.300.102
 Date: 4-Feb-08
 CPT Number: 2-CPT7
 Depth to Groundwater: 6 ft

EQ Magnitude (M_w): 6.5
 PGA (g): 0.54
 MSF: 1.44

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Frict. (TSF)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip Q _{ns}	Corr. Tip Q	Friction Ratio F	Ic	F.C. (%)	K _{CRP}	ΔQ_{ns}	(Q _{ns}) _s	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments
2-CPT7	1.07	6	92.9	3.13	135	144	144	177.9	1284.7	3.37	1.8	7.8	0.07	14.4	192.3	0.351	0.741	1.068	3.04	Above W.T.
2-CPT7	1.14	6	73.8	2.43	135	154	154	141.3	957.7	3.30	1.8	8.2	0.09	13.4	154.7	0.351	0.424	0.611	1.74	Above W.T.
2-CPT7	1.22	6	48.2	1.93	135	165	165	92.3	584.1	4.01	2.0	11.7	0.18	20.3	112.6	0.351	0.213	0.306	0.87	Above W.T.
2-CPT7	1.3	6	34.4	1.62	135	176	176	65.9	390.9	4.72	2.1	15.4	0.28	25.5	91.3	0.351	0.151	0.217	0.62	Above W.T.
2-CPT7	1.38	6	24.6	1.48	135	186	186	47.1	263.0	6.04	2.3	21.1	0.43	35.4	82.5	0.351	0.132	0.190	0.54	Above W.T.
2-CPT7	1.46	6	20.7	1.45	135	197	197	39.6	209.0	7.04	2.4	25.0	0.53	45.6	85.3	0.351	0.138	0.198	0.56	Above W.T.
2-CPT7	1.54	6	19.9	1.39	135	208	208	38.1	190.4	7.02	2.4	25.8	0.56	47.6	85.7	0.351	0.139	0.199	0.57	Above W.T.
2-CPT7	1.62	6	20.1	1.32	135	219	219	38.5	182.7	6.60	2.4	25.2	0.54	45.2	83.7	0.351	0.135	0.194	0.55	Above W.T.
2-CPT7	1.71	6	20	1.33	135	231	231	38.3	172.2	6.69	2.4	26.0	0.56	48.6	87.0	0.351	0.141	0.203	0.58	Above W.T.
2-CPT7	1.79	6	20.6	1.35	135	242	242	39.5	169.4	6.59	2.4	25.9	0.56	49.7	89.2	0.351	0.146	0.210	0.60	Above W.T.
2-CPT7	1.88	6	20.3	1.35	135	254	254	38.9	158.9	6.69	2.4	26.7	0.58	53.6	92.5	0.351	0.153	0.221	0.63	Above W.T.
2-CPT7	1.96	6	20.6	1.36	135	265	265	39.5	154.6	6.64	2.4	26.9	0.58	55.3	94.7	0.351	0.159	0.229	0.65	Above W.T.
2-CPT7	2.05	6	21.6	0.93	135	277	277	41.4	155.0	4.33	2.3	20.9	0.42	30.5	71.9	0.351	0.115	0.165	0.47	Above W.T.
2-CPT7	2.14	6	21.4	0.91	135	289	289	41.0	147.1	4.28	2.3	21.2	0.43	31.2	72.2	0.351	0.115	0.166	0.47	Above W.T.
2-CPT7	2.23	6	20.8	1.02	135	301	301	39.8	137.1	4.94	2.3	23.7	0.50	39.9	79.7	0.351	0.127	0.183	0.52	Above W.T.
2-CPT7	2.31	6	21	1.09	135	312	312	40.2	133.6	5.23	2.4	24.8	0.53	44.9	85.2	0.351	0.137	0.198	0.56	Above W.T.
2-CPT7	2.34	6	13.4	1.1	125	293	293	25.7	90.6	8.30	2.6	36.3	0.80	102.7	128.3	0.351	0.276	0.398	1.13	Above W.T.
2-CPT7	2.42	6	5.2	0.99	125	303	303	10.0	33.4	19.61	3.2	71.3	0.80	39.8	49.8	0.351	0.091	0.132	0.38	Above W.T.
2-CPT7	2.46	6	5.6	1	125	308	308	10.7	35.4	18.36	3.1	68.4	0.80	42.9	53.6	0.351	0.094	0.136	0.39	Above W.T.
2-CPT7	2.54	6	6.2	1.11	125	318	318	11.9	38.0	18.37	3.1	67.0	0.80	47.5	59.4	0.351	0.099	0.143	0.41	Above W.T.
2-CPT7	2.63	6	9.8	1.21	125	329	329	18.8	58.6	12.56	2.9	50.5	0.80	75.1	93.8	0.351	0.157	0.226	0.64	Above W.T.
2-CPT7	2.69	6	18.3	1.26	135	363	363	35.0	99.7	6.95	2.5	32.2	0.73	92.8	127.9	0.351	0.275	0.395	1.13	Above W.T.
2-CPT7	2.76	6	20.2	1.3	135	373	373	38.7	107.4	6.50	2.5	30.3	0.67	80.1	118.8	0.351	0.236	0.340	0.97	Above W.T.
2-CPT7	2.83	6	21.5	1.33	135	382	382	41.2	111.5	6.24	2.5	29.2	0.65	75.4	116.6	0.351	0.227	0.327	0.93	Above W.T.
2-CPT7	2.91	6	21.2	1.4	135	393	393	40.6	106.9	6.67	2.5	30.7	0.69	89.0	129.6	0.351	0.282	0.407	1.16	Above W.T.
2-CPT7	3	6	22.4	1.48	135	405	405	42.9	109.6	6.67	2.5	30.4	0.68	90.9	133.8	0.351	0.303	0.436	1.24	Above W.T.
2-CPT7	3.09	6	21.6	1.51	135	417	417	41.4	102.5	7.06	2.5	32.1	0.72	108.5	149.9	0.351	0.393	0.566	1.61	Above W.T.
2-CPT7	3.18	6	20	1.54	135	429	429	38.3	92.1	7.78	2.6	35.0	0.80	153.2	191.5	0.351	0.733	1.056	3.01	Above W.T.
2-CPT7	3.27	6	18.8	1.51	135	441	441	36.0	84.1	8.13	2.6	36.9	0.80	144.0	180.0	0.351	0.623	0.897	2.55	Above W.T.
2-CPT7	3.37	6	17	1.44	135	455	455	32.6	73.7	8.59	2.7	39.6	0.80	130.2	162.8	0.351	0.481	0.693	1.97	Above W.T.
2-CPT7	3.46	6	16.9	1.36	135	467	467	32.4	71.3	8.16	2.7	39.2	0.80	129.5	161.8	0.351	0.474	0.683	1.95	Above W.T.
2-CPT7	3.55	6	15.5	1.29	135	479	479	29.7	63.7	8.45	2.7	41.4	0.80	118.7	148.4	0.351	0.384	0.553	1.58	Above W.T.
2-CPT7	3.65	6	16.1	1.25	135	493	493	30.8	64.3	7.88	2.7	40.0	0.80	123.3	154.2	0.351	0.421	0.606	1.73	Above W.T.
2-CPT7	3.74	6	15.9	1.21	135	505	505	30.5	62.0	7.73	2.7	40.2	0.80	121.8	152.3	0.351	0.408	0.588	1.67	Above W.T.
2-CPT7	3.83	6	16.2	1.21	135	517	517	31.0	61.6	7.59	2.7	39.9	0.80	124.1	155.1	0.351	0.427	0.615	1.75	Above W.T.
2-CPT7	3.92	6	16.4	1.22	135	529	529	31.2	61.0	7.56	2.7	40.0	0.80	124.8	156.0	0.351	0.433	0.623	1.78	Above W.T.
2-CPT7	4.02	6	16.4	1.22	135	543	543	30.8	59.4	7.56	2.7	40.4	0.80	123.2	154.0	0.351	0.420	0.604	1.72	Above W.T.
2-CPT7	4.11	6	16.4	1.2	135	555	555	30.5	58.1	7.44	2.7	40.4	0.80	121.9	152.3	0.351	0.409	0.588	1.68	Above W.T.
2-CPT7	4.2	6	15.6	1.19	135	567	567	28.7	54.0	7.77	2.7	42.3	0.80	114.7	143.3	0.351	0.354	0.509	1.45	Above W.T.
2-CPT7	4.29	6	16.4	1.17	135	579	579	29.8	55.6	7.26	2.7	40.6	0.80	119.3	149.1	0.351	0.388	0.559	1.59	Above W.T.
2-CPT7	4.38	6	17.2	1.16	135	591	591	30.9	57.2	6.86	2.7	39.2	0.80	123.8	154.7	0.351	0.425	0.611	1.74	Above W.T.
2-CPT7	4.47	6	18.4	1.19	135	603	603	32.8	60.0	6.58	2.6	37.8	0.80	131.1	163.9	0.351	0.489	0.704	2.01	Above W.T.
2-CPT7	4.57	6	18.3	1.21	135	617	617	32.2	58.3	6.73	2.7	38.6	0.80	128.9	161.2	0.351	0.469	0.676	1.93	Above W.T.
2-CPT7	4.66	6	18.6	1.2	135	629	629	32.4	58.1	6.56	2.7	38.2	0.80	129.8	162.2	0.351	0.477	0.687	1.96	Above W.T.
2-CPT7	4.75	6	18.6	1.18	135	641	641	32.1	57.0	6.46	2.7	38.2	0.80	128.6	160.7	0.351	0.466	0.671	1.91	Above W.T.
2-CPT7	4.84	6	18.2	1.13	135	653	653	31.2	54.7	6.32	2.7	38.4	0.80	124.6	155.8	0.351	0.431	0.621	1.77	Above W.T.
2-CPT7	4.93	6	18.2	1.11	135	666	666	30.9	53.7	6.21	2.7	38.4	0.80	123.5	154.3	0.351	0.422	0.608	1.73	Above W.T.
2-CPT7	5.02	6	18.2	1.12	135	678	678	30.6	52.7	6.27	2.7	38.9	0.80	122.4	152.9	0.351	0.413	0.594	1.69	Above W.T.
2-CPT7	5.12	6	18.1	1.12	135	691	691	30.1	51.4	6.31	2.7	39.3	0.80	120.5	150.6	0.351	0.398	0.573	1.63	Above W.T.
2-CPT7	5.21	6	17.4	1.12	135	703	703	28.7	48.5	6.57	2.7	40.9	0.80	114.8	143.5	0.351	0.355	0.511	1.46	Above W.T.
2-CPT7	5.3	6	16.7	1.06	135	716	716	27.3	45.7	6.49	2.7	41.6	0.80	109.3	136.6	0.351	0.317	0.456	1.30	Above W.T.
2-CPT7	5.39	6	16	0.99	125	674	674	27.0	46.5	6.32	2.7	40.9	0.80	107.9	134.9	0.351	0.308	0.444	1.26	Above W.T.
2-CPT7	5.49	6	15.5	0.94	125	686	686	25.9	44.2	6.20	2.7	41.4	0.80	103.6	129.4	0.351	0.282	0.406	1.16	Above W.T.
2-CPT7	5.75	6	15.6	0.84	125	719	719	25.5	42.4	5.51	2.7	40.0	0.80	101.8	127.3	0.351	0.272	0.391	1.12	Above W.T.
2-CPT7	5.85	6	15.8	0.78	125	731	731	25.6	42.2	5.05	2.7	38.6	0.80	102.3	127.8	0.351	0.274	0.395	1.13	Above W.T.
2-CPT7	5.94	6	16.2	0.75	125	743	743	26.0	42.6	4.74	2.6	37.4	0.80	104.1	130.1	0.351	0.285	0.410	1.17	Above W.T.
2-CPT7	6.03	6	16.8	0.76	125	754	752	26.8	43.7	4.63	2.6	36.7	0.80	107.2	134.0	0.352	0.304	0.438	1.24	NonLiqble.
2-CPT7	6.13	6	18.3	0.8	125	766	758	29.1	47.2	4.47	2.6	35.0	0.80	116.8	145.9	0.355	0.369	0.531	1.50	FS>1.3
2-CPT7	6.22	6	18.7	0.86	125	778	764	29.6	47.9	4.70	2.6	35.6	0.80	118.4	148.0	0.357	0.382	0.550	1.54	NonLiqble.
2-CPT7	6.31	6	18.5	0.92	135	852	833	28.1	43.4	5.09	2.7	38.3	0.80	112.2	140.3	0.359	0.337	0.485	1.35	NonLiqble.
2-CPT7	6.4	6	18.1	0.95	135	864	839	27.3	42.1	5.38	2.7	39.7	0.80	109.4	136.7	0.361	0.318	0.457	1.27	NonLiqble.
2-CPT7	6.49	6	16.7	0.94	125	811	781	26.2	41.7	5.77	2.7	41.0	0.80	104.6	130.8	0.365	0.288	0.415	1.14	NonLiqble.
2-CPT7	6.58	6	16.7	0.91	125	823	786	26.1	41.4	5.59										

Project Name:	SVRT - Yard & Shops
Project Number:	6600.300.102
Date:	4-Feb-08
CPT Number:	2-CPT7
Depth to Groundwater:	6 ft

EQ Magnitude (M_w):	6.5
PGA (g):	0.54
MSF:	1.44

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Frict. (TSF)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip Q_{tN}	Corr. Tip Q	Friction Ratio F	Ic	F.C. (%)	K_{CPT}	ΔQ_{tN}	(Q_{tN}) ^s	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments
2-CPT7	7.6	6	13.8	0.73	125	950	850	20.7	31.3	5.48	2.8	44.9	0.80	82.8	103.5	0.392	0.183	0.264	0.67	NonLiqble.
2-CPT7	7.69	6	12.4	0.67	125	961	856	18.5	27.8	5.62	2.8	47.5	0.80	74.2	92.7	0.394	0.154	0.222	0.56	NonLiqble.
2-CPT7	7.78	6	10.8	0.63	125	973	861	16.1	23.9	6.11	2.9	51.8	0.80	64.4	80.5	0.396	0.129	0.185	0.47	NonLiqble.
2-CPT7	7.87	6	9.4	0.62	125	984	867	14.0	20.5	6.96	3.0	57.5	0.80	55.9	69.8	0.398	0.112	0.161	0.40	NonLiqble.
2-CPT7	7.97	6	8.1	0.59	115	917	794	12.6	19.2	7.72	3.0	61.0	0.80	50.3	62.9	0.405	0.103	0.149	0.37	NonLiqble.
2-CPT7	8.06	6	7.2	0.57	115	927	798	11.1	16.9	8.46	3.1	65.9	0.80	44.6	55.7	0.408	0.096	0.138	0.34	NonLiqble.
2-CPT7	8.15	6	6.7	0.56	115	937	803	10.3	15.5	8.99	3.1	69.1	0.80	41.4	51.7	0.410	0.093	0.134	0.33	NonLiqble.
2-CPT7	8.24	6	6.5	0.55	115	948	808	10.0	14.9	9.13	3.2	70.4	0.80	40.0	50.0	0.412	0.092	0.132	0.32	NonLiqble.
2-CPT7	8.34	6	6.6	0.51	115	959	813	10.1	15.0	8.33	3.1	68.2	0.80	40.5	50.6	0.414	0.092	0.133	0.32	NonLiqble.
2-CPT7	8.43	6	7.6	0.47	115	969	818	11.6	17.4	6.61	3.0	60.0	0.80	46.5	58.1	0.416	0.098	0.142	0.34	NonLiqble.
2-CPT7	8.52	6	7.6	0.44	115	980	823	11.6	17.3	6.19	3.0	58.8	0.80	46.4	58.0	0.418	0.098	0.141	0.34	NonLiqble.
2-CPT7	8.62	6	7.3	0.43	115	991	828	11.1	16.4	6.32	3.0	60.3	0.80	44.4	55.5	0.420	0.096	0.138	0.33	NonLiqble.
2-CPT7	8.71	6	7.7	0.41	115	1002	833	11.7	17.3	5.70	3.0	57.2	0.80	46.7	58.4	0.422	0.099	0.142	0.34	NonLiqble.
2-CPT7	8.8	6	7.7	0.38	115	1012	837	11.6	17.2	5.28	3.0	55.9	0.80	46.6	58.2	0.424	0.098	0.142	0.33	NonLiqble.
2-CPT7	8.89	6	8.1	0.34	115	1022	842	12.2	18.0	4.48	2.9	51.9	0.80	48.9	61.1	0.426	0.101	0.146	0.34	NonLiqble.
2-CPT7	8.99	6	7.9	0.37	115	1034	847	11.9	17.4	5.01	2.9	54.7	0.80	47.5	59.4	0.428	0.099	0.143	0.33	NonLiqble.
2-CPT7	9.08	6	8.3	0.38	115	1044	852	12.4	18.2	4.89	2.9	53.2	0.80	49.8	62.2	0.430	0.102	0.147	0.34	NonLiqble.
2-CPT7	9.15	6	9.6	0.41	115	1052	856	14.4	21.2	4.52	2.8	48.8	0.80	57.4	71.8	0.432	0.114	0.165	0.38	NonLiqble.
2-CPT7	9.24	6	9.7	0.44	115	1063	860	14.5	21.3	4.80	2.9	49.8	0.80	57.9	72.3	0.433	0.115	0.166	0.38	NonLiqble.
2-CPT7	9.33	6	10.2	0.48	115	1073	865	15.2	22.3	4.97	2.9	49.4	0.80	60.7	75.9	0.435	0.121	0.174	0.40	NonLiqble.
2-CPT7	9.43	6	10.3	0.5	125	1179	965	14.5	20.1	5.15	2.9	52.2	0.80	58.0	72.5	0.429	0.116	0.166	0.39	NonLiqble.
2-CPT7	9.52	6	10.6	0.52	125	1190	970	14.9	20.6	5.20	2.9	51.8	0.80	59.6	74.4	0.430	0.118	0.170	0.40	NonLiqble.
2-CPT7	9.62	6	11.3	0.55	125	1203	977	15.8	21.9	5.14	2.9	50.4	0.80	63.3	79.1	0.432	0.126	0.181	0.42	NonLiqble.
2-CPT7	9.71	6	12	0.6	125	1214	982	16.8	23.2	5.27	2.9	49.7	0.80	67.0	83.8	0.434	0.135	0.194	0.45	NonLiqble.
2-CPT7	9.8	6	13.5	0.71	125	1225	988	18.8	26.1	5.51	2.8	48.3	0.80	75.2	94.0	0.435	0.157	0.226	0.52	NonLiqble.
2-CPT7	9.9	6	15.7	0.87	125	1238	994	21.8	30.3	5.77	2.8	46.4	0.80	87.1	108.9	0.437	0.200	0.288	0.66	NonLiqble.
2-CPT7	9.99	6	16.1	0.97	125	1249	1000	22.3	30.9	6.27	2.8	47.5	0.80	89.1	111.4	0.438	0.209	0.300	0.68	NonLiqble.
2-CPT7	10.08	6	16	0.98	125	1260	1005	22.1	30.6	6.38	2.8	48.1	0.80	88.3	110.4	0.431	0.205	0.295	0.69	NonLiqble.
2-CPT7	10.17	6	15.2	0.92	125	1271	1011	20.9	28.8	6.32	2.9	49.0	0.80	83.7	104.6	0.433	0.186	0.268	0.62	NonLiqble.
2-CPT7	10.26	6	13.8	0.88	125	1283	1017	18.9	25.9	6.69	2.9	52.1	0.80	75.7	94.7	0.434	0.159	0.229	0.53	NonLiqble.
2-CPT7	10.36	6	13.2	0.81	125	1295	1023	18.1	24.5	6.45	2.9	52.4	0.80	72.2	90.3	0.435	0.148	0.214	0.49	NonLiqble.
2-CPT7	10.45	6	12.3	0.75	125	1306	1029	16.8	22.6	6.44	2.9	54.0	0.80	67.1	83.9	0.437	0.135	0.194	0.44	NonLiqble.
2-CPT7	10.54	6	12	0.7	125	1318	1034	16.3	21.9	6.17	2.9	53.8	0.80	65.3	81.6	0.438	0.131	0.188	0.43	NonLiqble.
2-CPT7	10.64	6	10.9	0.61	125	1330	1040	14.8	19.7	5.96	3.0	55.3	0.80	59.1	73.9	0.440	0.118	0.169	0.39	NonLiqble.
2-CPT7	10.73	6	9.5	0.53	125	1341	1046	12.9	16.9	6.00	3.0	58.7	0.80	51.4	64.3	0.441	0.105	0.151	0.34	NonLiqble.
2-CPT7	10.82	6	9.7	0.47	115	1244	944	13.8	19.2	5.18	2.9	53.2	0.80	55.3	69.1	0.454	0.111	0.159	0.35	NonLiqble.
2-CPT7	10.92	6	9.8	0.48	115	1256	949	13.9	19.3	5.23	2.9	53.3	0.80	55.7	69.6	0.455	0.111	0.160	0.35	NonLiqble.
2-CPT7	11.01	6	10.3	0.5	125	1376	1064	13.8	18.1	5.20	2.9	54.6	0.80	55.3	69.1	0.445	0.111	0.159	0.36	NonLiqble.
2-CPT7	11.1	6	10.6	0.52	125	1388	1069	14.2	18.5	5.25	2.9	54.2	0.80	56.7	70.9	0.446	0.113	0.163	0.37	NonLiqble.
2-CPT7	11.2	6	11.4	0.56	125	1400	1076	15.2	19.9	5.23	2.9	52.7	0.80	60.8	76.0	0.448	0.121	0.174	0.39	NonLiqble.
2-CPT7	11.28	6	11.8	0.58	125	1410	1081	15.7	20.5	5.23	2.9	52.0	0.80	62.8	78.5	0.449	0.125	0.180	0.40	NonLiqble.
2-CPT7	11.38	6	12	0.6	125	1423	1087	15.9	20.8	5.32	2.9	52.1	0.80	63.7	79.6	0.450	0.127	0.183	0.41	NonLiqble.
2-CPT7	11.47	6	12.2	0.6	125	1434	1092	16.2	21.0	5.23	2.9	51.5	0.80	64.6	80.8	0.451	0.129	0.186	0.41	NonLiqble.
2-CPT7	11.57	6	12.4	0.6	125	1446	1099	16.4	21.2	5.14	2.9	51.0	0.80	65.5	81.8	0.453	0.131	0.189	0.42	NonLiqble.
2-CPT7	11.66	6	12.5	0.6	125	1458	1104	16.5	21.3	5.10	2.9	50.8	0.80	65.8	82.3	0.454	0.132	0.190	0.42	NonLiqble.
2-CPT7	11.75	6	12.7	0.62	125	1469	1110	16.7	21.6	5.18	2.9	50.9	0.80	66.7	83.4	0.455	0.134	0.193	0.42	NonLiqble.
2-CPT7	11.84	6	12.9	0.62	125	1480	1116	16.9	21.8	5.10	2.9	50.4	0.80	67.6	84.5	0.456	0.136	0.196	0.43	NonLiqble.
2-CPT7	11.94	6	13.1	0.63	125	1493	1122	17.1	22.0	5.10	2.9	50.2	0.80	68.5	85.6	0.458	0.138	0.199	0.44	NonLiqble.
2-CPT7	12.03	6	12.5	0.63	125	1504	1127	16.3	20.8	5.36	2.9	52.2	0.80	65.2	81.4	0.459	0.130	0.188	0.41	NonLiqble.
2-CPT7	12.12	6	12.2	0.56	125	1515	1133	15.9	20.2	4.89	2.9	51.2	0.80	63.4	79.3	0.460	0.126	0.182	0.40	NonLiqble.
2-CPT7	12.22	6	11.3	0.55	125	1528	1139	14.6	18.5	5.22	2.9	54.1	0.80	58.6	73.2	0.461	0.117	0.168	0.36	NonLiqble.
2-CPT7	12.31	6	10.4	0.48	125	1539	1145	13.4	16.8	4.98	3.0	55.3	0.80	53.8	67.2	0.462	0.108	0.156	0.34	NonLiqble.
2-CPT7	12.4	6	10.3	0.38	115	1426	1027	14.1	18.7	3.96	2.9	49.1	0.80	56.3	70.3	0.478	0.112	0.162	0.34	NonLiqble.
2-CPT7	12.43	6	10	0.36	115	1429	1028	13.6	18.1	3.88	2.9	49.4	0.80	54.6	68.2	0.478	0.110	0.158	0.33	NonLiqble.
2-CPT7	12.5	6	11.4	0.35	115	1438	1032	15.5	20.7	3.28	2.8	44.1	0.80	62.1	77.6	0.479	0.124	0.178	0.37	NonLiqble.
2-CPT7	12.62	6	11	0.37	115	1451	1038	14.9	19.8	3.60	2.8	46.4	0.80	59.7	74.7	0.481	0.119	0.171	0.36	NonLiqble.
2-CPT7	12.7	6	10.5	0.39	115	1461	1042	14.2	18.7	3.99	2.9	49.2	0.80	56.9	71.1	0.482	0.113	0.163	0.34	NonLiqble.
2-CPT7	12.8	6	10.6	0.41	115	1472	1048	14.3	18.8	4.16	2.9	49.8	0.80	57.3	71.6	0.483	0.114	0.164	0.34	NonLiqble.
2-CPT7	12.89	6	10.2	0.42	115	1482	1052	13.8	18.0	4.44	2.9	51.8	0.80	55.0	68.8	0.485	0.110	0.159	0.33	NonLiqble.
2-CPT7	12.98	6	10.5	0.42	115	1493	1057	14.1	18.4	4.31	2.9	50.8	0.80	56.5	70.6	0.486	0.113	0.162	0.33	NonLiqble.
2-CPT7	13.08	6	10.1	0.41	115	1504	1062	13.6	17.6	4.39	2.9	52.1	0.80	54.2	67.8	0.487	0.109	0.157	0.32	NonLiqble.
2-CPT7	13.17	6	10.5	0.39	115	1515	1067	14.1	18.3	4.00	2.9	49.7	0.80							

Project Name:	SVRT - Yard & Shops
Project Number:	6600.300.102
Date:	4-Feb-08
CPT Number:	2-CPT7
Depth to Groundwater:	6 ft

EQ Magnitude (M_w):	6.5
PGA (g):	0.54
MSF:	1.44

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Frict. (TSF)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip Q_{tip}	Corr. Tip Q	Friction Ratio F	Ic	F.C. (%)	K_{CPT}	ΔQ_{tip}	(Q_{tip}) ^s	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments
2-CPT7	14.28	6	10.6	0.46	115	1642	1126	13.8	17.4	4.70	2.9	53.6	0.80	55.3	69.1	0.502	0.111	0.159	0.32	NonLiqble.
2-CPT7	14.38	6	10.4	0.43	115	1654	1131	13.5	16.9	4.49	2.9	53.3	0.80	54.1	67.7	0.503	0.109	0.157	0.31	NonLiqble.
2-CPT7	14.47	6	10.5	0.39	115	1664	1136	13.6	17.0	4.03	2.9	51.3	0.80	54.5	68.2	0.504	0.109	0.158	0.31	NonLiqble.
2-CPT7	14.56	6	11.1	0.35	115	1674	1140	14.4	18.0	3.41	2.8	47.4	0.80	57.5	71.9	0.505	0.115	0.165	0.33	NonLiqble.
2-CPT7	14.66	6	10.7	0.31	115	1686	1146	13.8	17.2	3.15	2.8	47.1	0.80	55.3	69.2	0.506	0.111	0.160	0.32	NonLiqble.
2-CPT7	14.75	6	11.5	0.31	115	1696	1150	14.8	18.5	2.91	2.8	44.4	0.80	59.3	74.2	0.507	0.118	0.170	0.33	NonLiqble.
2-CPT7	14.84	6	11.2	0.3	115	1707	1155	14.4	17.9	2.90	2.8	45.0	0.80	57.7	72.1	0.508	0.115	0.165	0.33	NonLiqble.
2-CPT7	14.94	6	11.2	0.31	115	1718	1160	14.4	17.8	3.00	2.8	45.6	0.80	57.5	71.9	0.509	0.115	0.165	0.32	NonLiqble.
2-CPT7	15.03	6	12.3	0.35	115	1728	1165	15.8	19.6	3.06	2.8	44.1	0.80	63.1	78.8	0.510	0.126	0.181	0.35	NonLiqble.
2-CPT7	15.12	6	13.2	0.38	115	1739	1170	16.9	21.1	3.08	2.7	42.8	0.80	67.5	84.4	0.511	0.136	0.196	0.38	NonLiqble.
2-CPT7	15.21	6	14	0.42	125	1901	1327	16.8	19.7	3.22	2.8	44.8	0.80	67.3	84.1	0.493	0.135	0.195	0.40	NonLiqble.
2-CPT7	15.3	6	16.3	0.44	125	1913	1332	19.5	23.0	2.87	2.7	40.1	0.80	78.2	97.7	0.494	0.167	0.240	0.49	NonLiqble.
2-CPT7	15.4	6	17.1	0.42	125	1925	1338	20.5	24.1	2.60	2.7	38.0	0.80	81.8	102.3	0.495	0.179	0.258	0.52	NonLiqble.
2-CPT7	15.49	6	16	0.46	125	1936	1344	19.1	22.4	3.06	2.7	41.6	0.80	76.4	95.5	0.496	0.161	0.232	0.47	NonLiqble.
2-CPT7	15.58	6	13.6	0.45	125	1948	1350	16.2	18.7	3.56	2.8	47.4	0.80	64.8	81.0	0.496	0.129	0.186	0.38	NonLiqble.
2-CPT7	15.64	6	12.3	0.43	125	1955	1353	14.6	16.7	3.80	2.9	50.7	0.80	58.5	73.1	0.497	0.116	0.168	0.34	NonLiqble.
2-CPT7	15.71	6	13	0.4	125	1964	1358	15.4	17.7	3.33	2.8	47.4	0.80	61.7	77.2	0.497	0.123	0.177	0.36	NonLiqble.
2-CPT7	15.81	6	11.9	0.39	115	1818	1206	15.0	18.2	3.55	2.8	47.8	0.80	60.0	75.0	0.519	0.119	0.172	0.33	NonLiqble.
2-CPT7	15.91	6	10.8	0.36	115	1830	1211	13.6	16.3	3.64	2.9	50.5	0.80	54.3	67.9	0.520	0.109	0.157	0.30	NonLiqble.
2-CPT7	15.99	6	10.5	0.35	115	1839	1215	13.2	15.8	3.65	2.9	51.3	0.80	52.7	65.9	0.520	0.107	0.154	0.29	NonLiqble.
2-CPT7	16.09	6	10.6	0.36	115	1850	1221	13.3	15.8	3.72	2.9	51.5	0.80	53.1	66.4	0.521	0.107	0.154	0.30	NonLiqble.
2-CPT7	16.19	6	9.9	0.38	115	1862	1226	12.4	14.6	4.24	3.0	55.4	0.80	49.5	61.9	0.522	0.102	0.147	0.28	NonLiqble.
2-CPT7	16.28	6	10.4	0.4	115	1872	1231	13.0	15.4	4.23	2.9	54.3	0.80	51.9	64.9	0.523	0.105	0.152	0.29	NonLiqble.
2-CPT7	16.36	6	10.4	0.42	115	1881	1235	12.9	15.3	4.44	3.0	55.2	0.80	51.8	64.7	0.524	0.105	0.152	0.29	NonLiqble.
2-CPT7	16.44	6	10.7	0.42	115	1891	1239	13.3	15.7	4.31	2.9	54.1	0.80	53.2	66.5	0.525	0.107	0.155	0.29	NonLiqble.
2-CPT7	16.52	6	11.7	0.42	115	1900	1243	14.5	17.3	3.91	2.9	50.5	0.80	58.1	72.6	0.526	0.116	0.166	0.32	NonLiqble.
2-CPT7	16.62	6	11.5	0.42	115	1911	1249	14.2	16.9	3.98	2.9	51.3	0.80	57.0	71.2	0.527	0.114	0.164	0.31	NonLiqble.
2-CPT7	16.71	6	11.7	0.41	115	1922	1253	14.5	17.1	3.82	2.9	50.3	0.80	57.8	72.3	0.527	0.115	0.166	0.31	NonLiqble.
2-CPT7	16.79	6	11.9	0.42	115	1931	1258	14.7	17.4	3.84	2.9	50.1	0.80	58.7	73.4	0.528	0.117	0.168	0.32	NonLiqble.
2-CPT7	16.88	6	11.8	0.44	125	2110	1431	13.6	15.0	4.10	2.9	54.3	0.80	54.6	68.2	0.507	0.110	0.158	0.31	NonLiqble.
2-CPT7	16.97	6	11.7	0.45	125	2121	1437	13.5	14.8	4.23	2.9	55.1	0.80	54.0	67.5	0.508	0.109	0.156	0.31	NonLiqble.
2-CPT7	17.06	6	11.7	0.43	115	1962	1272	14.4	16.8	4.01	2.9	51.4	0.80	57.4	71.8	0.531	0.114	0.165	0.31	NonLiqble.
2-CPT7	17.15	6	11.7	0.43	115	1972	1276	14.3	16.8	4.01	2.9	51.5	0.80	57.3	71.6	0.531	0.114	0.164	0.31	NonLiqble.
2-CPT7	17.24	6	11.5	0.41	115	1983	1281	14.1	16.4	3.90	2.9	51.5	0.80	56.2	70.3	0.532	0.112	0.162	0.30	NonLiqble.
2-CPT7	17.33	6	11.9	0.4	115	1993	1286	14.5	17.0	3.67	2.9	49.8	0.80	58.1	72.6	0.533	0.116	0.166	0.31	NonLiqble.
2-CPT7	17.42	6	12.4	0.4	115	2003	1291	15.1	17.7	3.51	2.8	48.3	0.80	60.4	75.5	0.534	0.120	0.173	0.32	NonLiqble.
2-CPT7	17.51	6	11.4	0.4	115	2014	1295	13.9	16.0	3.85	2.9	51.8	0.80	55.4	69.3	0.535	0.111	0.160	0.30	NonLiqble.
2-CPT7	17.6	6	11.7	0.41	115	2024	1300	14.2	16.4	3.84	2.9	51.2	0.80	56.8	71.0	0.535	0.113	0.163	0.30	NonLiqble.
2-CPT7	17.69	6	12.5	0.42	125	2211	1482	14.2	15.4	3.69	2.9	51.9	0.80	56.8	71.0	0.513	0.113	0.163	0.32	NonLiqble.
2-CPT7	17.78	6	13.6	0.43	125	2223	1487	15.4	16.8	3.44	2.9	49.0	0.80	61.7	77.1	0.514	0.123	0.177	0.34	NonLiqble.
2-CPT7	17.88	6	13.7	0.44	125	2235	1494	15.5	16.8	3.50	2.9	49.2	0.80	62.0	77.5	0.515	0.123	0.178	0.35	NonLiqble.
2-CPT7	17.97	6	13.4	0.44	125	2246	1499	15.1	16.4	3.58	2.9	50.2	0.80	60.6	75.7	0.515	0.120	0.173	0.34	NonLiqble.
2-CPT7	18.06	6	13.9	0.44	125	2258	1505	15.7	17.0	3.45	2.8	48.8	0.80	62.7	78.4	0.516	0.125	0.180	0.35	NonLiqble.
2-CPT7	18.16	6	13.8	0.43	125	2270	1511	15.5	16.8	3.40	2.8	48.8	0.80	62.1	77.7	0.517	0.124	0.178	0.34	NonLiqble.
2-CPT7	18.25	6	13	0.42	125	2281	1517	14.6	15.6	3.54	2.9	50.9	0.80	58.4	73.0	0.517	0.116	0.167	0.32	NonLiqble.
2-CPT7	18.34	6	14.7	0.42	125	2293	1522	16.5	17.8	3.10	2.8	46.1	0.80	65.9	82.4	0.518	0.132	0.190	0.37	NonLiqble.
2-CPT7	18.44	6	12	0.42	115	2121	1344	14.3	16.3	3.84	2.9	51.4	0.80	57.3	71.6	0.543	0.114	0.164	0.30	NonLiqble.
2-CPT7	18.53	6	11.6	0.43	115	2131	1349	13.8	15.6	4.08	2.9	53.3	0.80	55.3	69.1	0.543	0.111	0.159	0.29	NonLiqble.
2-CPT7	18.62	6	10.4	0.45	115	2141	1354	12.4	13.8	4.82	3.0	59.1	0.80	49.5	61.8	0.544	0.102	0.147	0.27	NonLiqble.
2-CPT7	18.72	6	9.1	0.43	115	2153	1359	10.8	11.8	5.36	3.1	64.8	0.80	43.2	54.0	0.545	0.095	0.136	0.25	NonLiqble.
2-CPT7	18.81	6	9.3	0.39	115	2163	1364	11.0	12.0	4.75	3.1	61.9	0.80	44.1	55.1	0.546	0.096	0.138	0.25	NonLiqble.
2-CPT7	18.86	6	10.4	0.37	115	2169	1366	12.3	13.6	3.97	3.0	55.9	0.80	49.2	61.5	0.546	0.102	0.146	0.27	NonLiqble.
2-CPT7	18.95	6	12.8	0.36	115	2179	1371	15.1	17.1	3.07	2.8	46.9	0.80	60.5	75.6	0.547	0.120	0.173	0.32	NonLiqble.
2-CPT7	19.04	6	13.9	0.37	115	2190	1376	16.4	18.6	2.89	2.8	44.2	0.80	65.6	82.0	0.547	0.131	0.189	0.35	NonLiqble.
2-CPT7	19.13	6	15.1	0.4	125	2391	1572	16.7	17.7	2.88	2.8	45.2	0.80	66.7	83.3	0.523	0.134	0.193	0.37	NonLiqble.
2-CPT7	19.22	6	15.9	0.44	125	2403	1578	17.5	18.6	2.99	2.8	44.7	0.80	70.1	87.6	0.524	0.142	0.205	0.39	NonLiqble.
2-CPT7	19.31	6	16.7	0.47	125	2414	1583	18.4	19.6	3.03	2.8	44.0	0.80	73.5	91.8	0.524	0.152	0.219	0.42	NonLiqble.
2-CPT7	19.4	6	17.3	0.48	125	2425	1589	19.0	20.2	2.98	2.7	43.1	0.80	76.0	94.9	0.525	0.160	0.230	0.44	NonLiqble.
2-CPT7	19.49	6	17.6	0.48	125	2436	1594	19.3	20.5	2.93	2.7	42.5	0.80	77.1	96.4	0.526	0.163	0.235	0.45	NonLiqble.
2-CPT7	19.57	6	17.7	0.48	125	2446	1599	19.4	20.6	2.91	2.7	42.4	0.80	77.5	96.8	0.526	0.164	0.237	0.45	NonLiqble.
2-CPT7	19.66	6	18.6	0.47	125	2458	1605	20.3	21.6	2.71	2.7	40.4	0.80	81.3	101.6	0.527	0.177	0.256	0.49	NonLiqble.
2-CPT7																				

Project Name: SVRT - Yard & Shops
Project Number: 6600.300.102
Date: 4-Feb-08
CPT Number: 2-CPT7
Depth to Groundwater: 6 ft

EQ Magnitude (M_w): 6.5
PGA (g): 0.54
MSF: 1.44

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Frict. (TSF)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip Q _{tn}	Corr. Tip Q	Friction Ratio F	Ic	F.C. (%)	K _{CPT}	ΔQ_{tn}	(Q _{tn}) _s	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments
2-CPT7	20.83	6	17.4	0.36	125	2604	1678	18.6	19.2	2.24	2.7	40.0	0.80	74.3	92.9	0.523	0.155	0.223	0.43	NonLiqble.
2-CPT7	20.92	6	18.2	0.38	125	2615	1684	19.4	20.1	2.25	2.7	39.3	0.80	77.6	97.0	0.523	0.165	0.238	0.45	NonLiqble.
2-CPT7	21.01	6	18.6	0.38	125	2626	1690	19.8	20.5	2.20	2.7	38.6	0.80	79.2	99.0	0.524	0.170	0.245	0.47	NonLiqble.
2-CPT7	21.1	6	18.2	0.38	125	2638	1695	19.3	19.9	2.25	2.7	39.4	0.80	77.4	96.7	0.524	0.164	0.236	0.45	NonLiqble.
2-CPT7	21.2	6	18.6	0.37	125	2650	1702	19.7	20.3	2.14	2.7	38.4	0.80	78.9	98.6	0.525	0.169	0.244	0.46	NonLiqble.
2-CPT7	21.29	6	17.7	0.35	125	2661	1707	18.7	19.2	2.14	2.7	39.4	0.80	75.0	93.7	0.525	0.157	0.225	0.43	NonLiqble.
2-CPT7	21.38	6	17.6	0.37	125	2673	1713	18.6	19.0	2.28	2.7	40.5	0.80	74.4	93.0	0.526	0.155	0.223	0.42	NonLiqble.
2-CPT7	21.47	6	20	0.42	125	2684	1718	21.1	21.7	2.25	2.7	37.9	0.80	84.4	105.5	0.526	0.189	0.273	0.52	NonLiqble.
2-CPT7	21.56	6	22.3	0.45	125	2695	1724	23.5	24.3	2.15	2.6	35.3	0.80	94.0	117.5	0.527	0.231	0.332	0.63	Liquefaction
2-CPT7	21.65	6	26.9	0.56	125	2706	1730	28.3	29.5	2.19	2.5	32.4	0.73	76.7	105.0	0.527	0.188	0.270	0.51	Liquefaction
2-CPT7	21.74	6	28	0.76	135	2935	1953	27.7	27.2	2.86	2.6	37.2	0.80	110.9	138.6	0.506	0.328	0.472	0.93	NonLiqble.
2-CPT7	21.84	6	30.3	0.89	135	2948	1960	29.9	29.4	3.09	2.6	37.0	0.80	119.8	149.7	0.507	0.392	0.565	1.11	NonLiqble.
2-CPT7	21.9	6	27.7	1.1	135	2957	1964	27.3	26.7	4.20	2.8	43.3	0.80	109.4	136.7	0.507	0.318	0.458	0.90	NonLiqble.
2-CPT7	21.97	6	41.6	1.29	135	2966	1969	41.0	40.7	3.22	2.5	32.4	0.73	112.3	153.3	0.507	0.415	0.597	1.18	Low F.S.
2-CPT7	22.04	6	41.7	1.45	135	2975	1975	41.1	40.7	3.61	2.6	34.0	0.78	141.6	182.7	0.508	0.647	0.932	1.84	FS>1.3
2-CPT7	22.13	6	46.7	1.56	135	2988	1981	45.9	45.6	3.45	2.5	31.8	0.71	114.9	160.8	0.508	0.466	0.672	1.32	FS>1.3
2-CPT7	22.17	6	49.6	1.57	135	2993	1984	48.7	48.5	3.26	2.5	30.2	0.67	99.6	148.3	0.508	0.384	0.552	1.09	Low F.S.
2-CPT7	22.2	6	54.3	1.54	135	2997	1986	53.3	53.1	2.92	2.4	27.5	0.60	79.8	133.1	0.508	0.299	0.431	0.85	Liquefaction
2-CPT7	22.28	6	48.9	1.41	135	3008	1992	47.9	47.6	2.97	2.5	29.2	0.65	87.4	135.4	0.509	0.311	0.447	0.88	Liquefaction
2-CPT7	22.38	6	43.3	1.53	135	3021	1999	42.4	41.8	3.66	2.6	33.9	0.77	142.4	184.8	0.509	0.667	0.960	1.89	FS>1.3
2-CPT7	22.47	6	42.1	1.89	135	3033	2006	41.1	40.4	4.66	2.7	38.0	0.80	164.5	205.7	0.510	0.889	1.280	2.51	NonLiqble.
2-CPT7	22.56	6	48.5	2.25	135	3046	2012	47.3	46.7	4.79	2.6	36.2	0.80	189.2	236.5	0.510	1.311	1.887	3.70	NonLiqble.
2-CPT7	22.65	6	57.5	2.33	135	3058	2019	56.0	55.4	4.16	2.5	31.7	0.71	139.1	195.1	0.510	0.770	1.109	2.17	FS>1.3
2-CPT7	22.73	6	67	2.71	135	3069	2025	65.2	64.6	4.14	2.5	29.6	0.66	124.7	189.9	0.511	0.717	1.032	2.02	FS>1.3
2-CPT7	22.78	6	77.7	2.99	135	3075	2028	75.5	75.1	3.93	2.4	27.0	0.59	107.9	183.3	0.511	0.653	0.941	1.84	FS>1.3
2-CPT7	22.84	6	82.3	3.22	135	3083	2033	79.9	79.4	3.99	2.4	26.6	0.58	108.6	188.5	0.511	0.702	1.011	1.98	FS>1.3
2-CPT7	22.93	6	85.3	3.61	135	3096	2039	82.7	82.1	4.31	2.4	27.3	0.59	121.1	203.7	0.512	0.866	1.247	2.44	FS>1.3
2-CPT7	23.01	6	77.8	3.71	135	3106	2045	75.3	74.5	4.87	2.5	30.1	0.67	153.8	229.1	0.512	1.198	1.725	3.37	FS>1.3
2-CPT7	23.09	6	74	3.75	135	3117	2051	71.5	70.6	5.18	2.5	31.7	0.71	178.6	250.1	0.512	1.536	2.211	4.32	FS>1.3
2-CPT7	23.18	6	87.7	3.65	135	3129	2057	84.6	83.7	4.24	2.4	26.8	0.58	117.8	202.4	0.513	0.852	1.226	2.39	FS>1.3
2-CPT7	23.25	6	114.4	3.45	135	3139	2062	110.2	109.4	3.06	2.2	19.9	0.40	72.7	182.9	0.513	0.649	0.935	1.82	FS>1.3
2-CPT7	23.32	6	133	3.16	135	3148	2067	128.0	127.1	2.40	2.1	15.9	0.29	52.8	180.8	0.513	0.630	0.907	1.77	FS>1.3
2-CPT7	23.39	6	142.1	3.01	135	3158	2073	136.6	135.5	2.14	2.0	14.3	0.25	45.0	181.6	0.513	0.637	0.917	1.79	FS>1.3
2-CPT7	23.45	6	146.7	2.87	135	3166	2077	140.8	139.7	1.98	2.0	13.3	0.22	40.2	181.0	0.514	0.632	0.910	1.77	FS>1.3
2-CPT7	23.49	6	145.8	2.83	135	3171	2080	139.9	138.6	1.96	2.0	13.3	0.22	39.9	179.7	0.514	0.620	0.893	1.74	FS>1.3
2-CPT7	23.53	6	149.5	2.91	135	3177	2083	143.3	142.0	1.97	2.0	13.1	0.22	39.8	183.1	0.514	0.651	0.938	1.82	FS>1.3
2-CPT7	23.59	6	151.4	3	135	3185	2087	145.0	143.5	2.00	2.0	13.2	0.22	40.8	185.8	0.514	0.676	0.974	1.89	FS>1.3
2-CPT7	23.67	6	146.8	3.07	135	3195	2093	140.4	138.7	2.11	2.0	14.0	0.24	44.3	184.7	0.514	0.666	0.959	1.86	FS>1.3
2-CPT7	23.76	6	146	2.85	135	3208	2099	139.4	137.5	1.97	2.0	13.4	0.22	40.4	179.9	0.515	0.621	0.894	1.74	FS>1.3
2-CPT7	23.85	6	150.4	2.85	135	3220	2106	143.4	141.2	1.92	2.0	12.9	0.21	38.6	182.0	0.515	0.641	0.923	1.79	FS>1.3
2-CPT7	23.93	6	165.6	3.03	135	3231	2112	157.7	155.2	1.85	2.0	11.9	0.18	35.7	193.4	0.515	0.753	1.084	2.10	FS>1.3
2-CPT7	24	6	169.1	2.69	135	3240	2117	160.8	158.2	1.61	1.9	10.6	0.15	28.5	189.3	0.516	0.711	1.023	1.98	FS>1.3
2-CPT7	24.07	6	173.6	2.48	135	3249	2122	164.9	162.0	1.44	1.9	9.6	0.12	23.3	188.2	0.516	0.700	1.008	1.95	FS>1.3
2-CPT7	24.15	6	157.7	2.35	135	3260	2128	149.6	146.6	1.51	1.9	10.7	0.15	26.7	176.3	0.516	0.589	0.849	1.64	FS>1.3
2-CPT7	24.21	6	146.7	2.2	135	3268	2132	139.0	136.0	1.52	1.9	11.3	0.17	28.0	167.0	0.517	0.513	0.739	1.43	FS>1.3
2-CPT7	24.28	6	133	2.25	135	3278	2137	125.9	122.9	1.71	2.0	13.1	0.22	34.6	160.5	0.517	0.464	0.669	1.29	Low F.S.
2-CPT7	24.35	6	119	2.2	135	3287	2142	112.5	109.5	1.87	2.1	14.8	0.26	40.1	152.6	0.517	0.411	0.591	1.14	Low F.S.
2-CPT7	24.42	6	101.2	2.17	135	3297	2147	95.6	92.7	2.18	2.2	17.8	0.34	49.9	145.4	0.517	0.366	0.527	1.02	Low F.S.
2-CPT7	24.49	6	83.8	2.04	135	3306	2152	79.0	76.3	2.48	2.3	21.2	0.43	60.5	139.5	0.518	0.332	0.479	0.92	Liquefaction
2-CPT7	24.56	6	69.3	1.3	135	3316	2157	65.3	62.7	1.92	2.2	20.7	0.42	47.1	112.4	0.518	0.212	0.305	0.59	Liquefaction
2-CPT7	24.63	6	56.3	1.36	135	3325	2163	53.0	50.5	2.49	2.4	26.2	0.57	68.9	121.9	0.518	0.248	0.358	0.69	Liquefaction
2-CPT7	24.7	6	49.4	1.5	135	3335	2168	46.4	44.0	3.14	2.5	31.0	0.69	105.3	151.7	0.518	0.405	0.583	1.12	Low F.S.
2-CPT7	24.77	6	47.9	1.8	135	3344	2173	45.0	42.5	3.89	2.6	34.5	0.79	166.6	211.6	0.519	0.961	1.384	2.67	FS>1.3
2-CPT7	24.83	6	52.6	2.18	135	3352	2177	49.3	46.8	4.28	2.6	34.5	0.79	183.0	232.4	0.519	1.247	1.795	3.46	FS>1.3
2-CPT7	24.87	6	68	2.39	135	3357	2180	63.7	60.8	3.60	2.4	28.5	0.63	107.0	170.7	0.519	0.542	0.781	1.51	FS>1.3
2-CPT7	24.91	6	80.1	2.64	135	3363	2183	75.0	71.8	3.37	2.4	25.5	0.55	91.1	166.1	0.519	0.506	0.729	1.40	FS>1.3
2-CPT7	24.99	6	86.3	3.11	135	3374	2189	80.7	77.3	3.68	2.4	25.8	0.56	101.0	181.7	0.519	0.638	0.919	1.77	FS>1.3
2-CPT7	25.08	6	98.9	3.34	135	3386	2195	92.4	88.5	3.44	2.3	23.4	0.49	89.6	181.9	0.520	0.640	0.921	1.77	FS>1.3
2-CPT7	25.16	6	138.5	3.48	135	3397	2201	129.2	124.3	2.54	2.1	16.7	0.31	58.8	188.0	0.520	0.698	1.004	1.93	FS>1.3
2-CPT7	25.24	6	199.5	3.36	135	3407	2207	185.8	179.2	1.70	1.9	10.2	0.14	30.1	215.9	0.520	1.016	1.463	2.81	FS>1.3
2-CPT7	25.33	6	255.8	2.92	125	3166	1960	252.8	259.3	1.15	1.7	5.4	0.01	2.6	255.4	0.544</				

Project Name: SVRT - Yard & Shops
Project Number: 6600.300.102
Date: 4-Feb-08
CPT Number: 2-CPT7
Depth to Groundwater: 6 ft

EQ Magnitude (M_w): 6.5
PGA (g): 0.54
MSF: 1.44

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Frict. (TSF)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip Q_{t-n}	Corr. Tip Q	Friction Ratio F	I_c	F.C. (%)	K_{CPT}	ΔQ_{t-n}	$(Q_{t-n})_s$	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments
2-CPT7	26.44	6	49	1.12	135	3569	2294	44.8	41.1	2.37	2.4	28.4	0.62	74.3	119.1	0.524	0.237	0.341	0.65	Liquefaction
2-CPT7	26.53	6	36.2	1.15	135	3582	2300	33.0	29.9	3.34	2.6	37.8	0.80	132.1	165.1	0.525	0.499	0.718	1.37	NonLiqble.
2-CPT7	26.61	6	26.6	1.05	135	3592	2306	24.2	21.5	4.23	2.8	47.4	0.80	96.9	121.2	0.525	0.245	0.353	0.67	NonLiqble.
2-CPT7	26.7	6	21.2	0.93	135	3605	2313	19.3	16.8	4.79	2.9	54.7	0.80	77.2	96.4	0.525	0.163	0.235	0.45	NonLiqble.
2-CPT7	26.78	6	17.4	0.75	125	3348	2051	16.8	15.3	4.77	3.0	56.5	0.80	67.2	84.1	0.550	0.135	0.195	0.35	NonLiqble.
2-CPT7	26.87	6	14.8	0.6	125	3359	2056	14.3	12.8	4.57	3.0	59.9	0.80	57.1	71.4	0.550	0.114	0.164	0.30	NonLiqble.
2-CPT7	26.96	6	12.9	0.47	125	3370	2062	12.4	10.9	4.19	3.1	62.1	0.80	49.7	62.1	0.551	0.102	0.147	0.27	NonLiqble.
2-CPT7	27.04	6	12.3	0.4	115	3110	1797	12.7	12.0	3.72	3.0	57.7	0.80	50.8	63.5	0.583	0.104	0.149	0.26	NonLiqble.
2-CPT7	27.13	6	11.6	0.35	115	3120	1801	12.0	11.1	3.49	3.0	58.2	0.80	47.8	59.8	0.584	0.100	0.144	0.25	NonLiqble.
2-CPT7	27.22	6	11.5	0.31	115	3130	1806	11.8	11.0	3.12	3.0	56.7	0.80	47.4	59.2	0.584	0.099	0.143	0.24	NonLiqble.
2-CPT7	27.3	6	10.7	0.3	115	3140	1810	11.0	10.1	3.29	3.0	59.6	0.80	44.0	55.0	0.584	0.095	0.137	0.24	NonLiqble.
2-CPT7	27.39	6	10.9	0.3	115	3150	1815	11.2	10.3	3.22	3.0	58.8	0.80	44.8	56.0	0.585	0.096	0.139	0.24	NonLiqble.
2-CPT7	27.48	6	9.9	0.29	115	3160	1820	10.2	9.1	3.49	3.1	63.1	0.80	40.6	50.8	0.585	0.092	0.133	0.23	NonLiqble.
2-CPT7	27.57	6	9.8	0.28	115	3171	1825	10.0	9.0	3.41	3.1	63.0	0.80	40.2	50.2	0.586	0.092	0.132	0.23	NonLiqble.
2-CPT7	27.66	6	9.9	0.28	115	3181	1829	10.1	9.1	3.37	3.1	62.6	0.80	40.5	50.6	0.586	0.092	0.133	0.23	NonLiqble.
2-CPT7	27.75	6	10	0.27	115	3191	1834	10.2	9.2	3.21	3.0	61.6	0.80	40.9	51.1	0.586	0.092	0.133	0.23	NonLiqble.
2-CPT7	27.84	6	10	0.27	115	3202	1839	10.2	9.1	3.21	3.0	61.7	0.80	40.8	51.0	0.587	0.092	0.133	0.23	NonLiqble.
2-CPT7	27.93	6	10.7	0.26	115	3212	1844	10.9	9.9	2.86	3.0	57.8	0.80	43.6	54.5	0.587	0.095	0.137	0.23	NonLiqble.
2-CPT7	28.02	6	10.1	0.25	105	2942	1568	11.2	11.0	2.90	3.0	55.5	0.80	44.6	55.8	0.632	0.096	0.138	0.22	NonLiqble.
2-CPT7	28.11	6	10	0.17	105	2952	1572	11.0	10.8	1.99	2.9	50.2	0.80	44.1	55.2	0.633	0.096	0.138	0.22	NonLiqble.
2-CPT7	28.21	6	9.4	0.09	95	2680	1294	11.4	12.5	1.12	2.7	40.0	0.80	45.7	57.2	0.698	0.097	0.140	0.20	NonLiqble.
2-CPT7	28.3	6	10.4	0.1	95	2689	1297	12.6	14.0	1.10	2.6	37.7	0.80	50.5	63.2	0.698	0.103	0.149	0.21	NonLiqble.
2-CPT7	28.5	6	11.8	0.16	105	2993	1589	13.0	13.0	1.55	2.7	43.0	0.80	51.8	64.8	0.635	0.105	0.152	0.24	NonLiqble.
2-CPT7	28.59	6	12	0.15	105	3002	1592	13.2	13.2	1.43	2.7	41.7	0.80	52.6	65.8	0.635	0.106	0.153	0.24	NonLiqble.
2-CPT7	28.68	6	12.2	0.15	105	3011	1596	13.4	13.4	1.40	2.7	41.1	0.80	53.4	66.8	0.636	0.108	0.155	0.24	NonLiqble.
2-CPT7	28.77	6	12.4	0.15	105	3021	1600	13.6	13.6	1.38	2.7	40.6	0.80	54.3	67.8	0.636	0.109	0.157	0.25	NonLiqble.
2-CPT7	28.86	6	12.3	0.18	105	3030	1604	13.4	13.4	1.67	2.8	43.2	0.80	53.8	67.2	0.637	0.108	0.156	0.24	NonLiqble.
2-CPT7	28.96	6	12.7	0.21	105	3041	1608	13.9	13.9	1.88	2.8	44.0	0.80	55.4	69.3	0.637	0.111	0.160	0.25	NonLiqble.
2-CPT7	29.05	6	13.4	0.24	115	3341	1902	13.4	12.3	2.05	2.8	47.7	0.80	53.8	67.2	0.592	0.108	0.156	0.26	NonLiqble.
2-CPT7	29.14	6	14.1	0.28	115	3351	1907	14.1	13.0	2.25	2.8	47.9	0.80	56.5	70.6	0.592	0.113	0.162	0.27	NonLiqble.
2-CPT7	29.23	6	13.9	0.32	115	3361	1912	13.9	12.8	2.62	2.9	50.5	0.80	55.6	69.5	0.592	0.111	0.160	0.27	NonLiqble.
2-CPT7	29.33	6	14.5	0.4	125	3666	2210	13.5	11.5	3.16	3.0	55.9	0.80	54.0	67.5	0.559	0.109	0.156	0.28	NonLiqble.
2-CPT7	29.42	6	15.9	0.5	125	3678	2216	14.8	12.7	3.56	3.0	55.6	0.80	59.1	73.9	0.559	0.118	0.169	0.30	NonLiqble.
2-CPT7	29.51	6	18.3	0.55	125	3689	2222	17.0	14.8	3.34	2.9	51.1	0.80	67.9	84.9	0.559	0.137	0.197	0.35	NonLiqble.
2-CPT7	29.6	6	20.8	0.57	125	3700	2227	19.3	17.0	3.01	2.8	46.6	0.80	77.1	96.4	0.560	0.163	0.235	0.42	NonLiqble.
2-CPT7	29.7	6	22.6	0.51	125	3713	2234	20.9	18.6	2.46	2.7	41.9	0.80	83.7	104.6	0.560	0.186	0.269	0.48	NonLiqble.
2-CPT7	29.78	6	23.3	0.44	125	3723	2239	21.5	19.1	2.05	2.7	38.9	0.80	86.2	107.7	0.560	0.196	0.283	0.50	NonLiqble.
2-CPT7	29.88	6	21.2	0.45	125	3735	2245	19.6	17.2	2.33	2.7	42.6	0.80	78.3	97.9	0.561	0.167	0.241	0.43	NonLiqble.
2-CPT7	29.97	6	17.7	0.43	125	3746	2251	16.3	14.1	2.72	2.9	49.0	0.80	65.3	81.6	0.561	0.131	0.188	0.34	NonLiqble.
2-CPT7	30.06	6	15.6	0.39	125	3758	2256	14.4	12.2	2.84	2.9	52.9	0.80	57.5	71.8	0.538	0.114	0.165	0.31	NonLiqble.
2-CPT7	30.16	6	15.6	0.36	125	3770	2262	14.4	12.1	2.63	2.9	51.7	0.80	57.4	71.8	0.538	0.114	0.165	0.31	NonLiqble.
2-CPT7	30.25	6	15.5	0.34	115	3479	1966	15.3	14.0	2.47	2.8	47.7	0.80	61.2	76.5	0.572	0.122	0.175	0.31	NonLiqble.
2-CPT7	30.34	6	15.3	0.32	115	3489	1970	15.1	13.8	2.36	2.8	47.4	0.80	60.3	75.4	0.572	0.120	0.173	0.30	NonLiqble.
2-CPT7	30.43	6	15	0.34	115	3499	1975	14.8	13.4	2.57	2.9	49.1	0.80	59.1	73.8	0.572	0.117	0.169	0.30	NonLiqble.
2-CPT7	30.52	6	14.7	0.39	125	3815	2285	13.5	11.2	3.05	3.0	55.9	0.80	53.8	67.3	0.539	0.108	0.156	0.29	NonLiqble.
2-CPT7	30.61	6	15.3	0.47	125	3826	2291	14.0	11.7	3.51	3.0	57.2	0.80	55.9	69.9	0.539	0.112	0.161	0.30	NonLiqble.
2-CPT7	30.7	6	16.1	0.53	125	3838	2296	14.7	12.3	3.74	3.0	57.0	0.80	58.8	73.5	0.540	0.117	0.168	0.31	NonLiqble.
2-CPT7	30.77	6	17.7	0.51	125	3846	2301	16.1	13.7	3.23	2.9	52.3	0.80	64.6	80.7	0.540	0.129	0.186	0.34	NonLiqble.
2-CPT7	30.85	6	19.3	0.44	125	3856	2306	17.6	15.1	2.53	2.8	46.5	0.80	70.3	87.9	0.540	0.143	0.206	0.38	NonLiqble.
2-CPT7	30.93	6	20.2	0.37	125	3866	2311	18.4	15.8	2.03	2.7	42.4	0.80	73.5	91.9	0.540	0.152	0.219	0.41	NonLiqble.
2-CPT7	31.02	6	18.3	0.33	115	3567	2006	17.9	16.5	2.00	2.7	41.5	0.80	71.5	89.4	0.574	0.146	0.211	0.37	NonLiqble.
2-CPT7	31.11	6	16.7	0.33	115	3578	2011	16.3	14.8	2.21	2.8	44.9	0.80	65.2	81.5	0.575	0.130	0.188	0.33	NonLiqble.
2-CPT7	31.2	6	16.2	0.32	115	3588	2016	15.8	14.3	2.22	2.8	45.7	0.80	63.2	78.9	0.575	0.126	0.181	0.32	NonLiqble.
2-CPT7	31.29	6	17.7	0.3	115	3598	2020	17.2	15.7	1.89	2.7	41.6	0.80	68.9	86.2	0.575	0.139	0.201	0.35	NonLiqble.
2-CPT7	31.37	6	18.8	0.29	115	3608	2024	18.3	16.8	1.71	2.7	39.1	0.80	73.1	91.4	0.575	0.151	0.217	0.38	NonLiqble.
2-CPT7	31.46	6	19.8	0.27	115	3618	2029	19.2	17.7	1.50	2.6	36.5	0.80	76.9	96.2	0.576	0.163	0.234	0.41	NonLiqble.
2-CPT7	31.55	6	19.7	0.28	115	3628	2034	19.1	17.6	1.57	2.6	37.2	0.80	76.4	95.6	0.576	0.161	0.232	0.40	NonLiqble.
2-CPT7	31.64	6	19.3	0.33	115	3639	2039	18.7	17.1	1.89	2.7	39.9	0.80	74.8	93.5	0.576	0.156	0.225	0.39	NonLiqble.
2-CPT7	31.73	6	18.1	0.34	115	3649	2043	17.5	15.9	2.09	2.7	42.7	0.80	70.1	87.6	0.577	0.143	0.205	0.36	NonLiqble.
2-CPT7	31.79	6	15.6	0.36	125	3974	2364	14.0	11.5	2.64	2.9	53.0	0.80	56.1	70.2	0.543	0.112	0.162	0.30	NonLiqble.
2-CPT7	31.87	6	22.2	0.36	125	3984	2369	20.0	17.0	1.78	2.7	39.3	0.80	79.8	99.8	0.543	0.172	0.248	0.46	NonLiqble.
2-CPT7	31.95	6	21.4	0.37	125	3994	2374	19.2	16.3	1.91	2.7	41.0	0.80	76.9						

Project Name:	SVRT - Yard & Shops
Project Number:	6600.300.102
Date:	4-Feb-08
CPT Number:	2-CPT7
Depth to Groundwater:	6 ft

EQ Magnitude (M_w):	6.5
PGA (g):	0.54
MSF:	1.44

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Frict. (TSF)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip Q _n	Corr. Tip Q	Friction Ratio F	I _c	F.C. (%)	K _{CPT}	ΔQ_{n-s}	(Q _{n-s}) _s	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments
2-CPT7	33.03	6	12.3	0.18	105	3468	1781	12.8	11.9	1.70	2.8	46.1	0.80	51.0	63.8	0.629	0.104	0.150	0.24	NonLiqfble.
2-CPT7	33.12	6	11.4	0.16	105	3478	1785	11.8	10.8	1.66	2.8	47.7	0.80	47.2	59.0	0.629	0.099	0.143	0.23	NonLiqfble.
2-CPT7	33.21	6	10.8	0.16	105	3487	1789	11.2	10.1	1.77	2.9	50.1	0.80	44.7	55.9	0.629	0.096	0.139	0.22	NonLiqfble.
2-CPT7	33.31	6	10.9	0.17	105	3498	1793	11.3	10.2	1.86	2.9	50.6	0.80	45.0	56.3	0.630	0.097	0.139	0.22	NonLiqfble.
2-CPT7	33.4	6	10.9	0.17	105	3507	1797	11.2	10.2	1.86	2.9	50.6	0.80	45.0	56.2	0.630	0.097	0.139	0.22	NonLiqfble.
2-CPT7	33.49	6	11.7	0.16	105	3516	1801	12.1	11.0	1.61	2.8	46.9	0.80	48.2	60.3	0.630	0.100	0.145	0.23	NonLiqfble.
2-CPT7	33.58	6	11.7	0.16	105	3526	1805	12.0	11.0	1.61	2.8	47.0	0.80	48.2	60.2	0.631	0.100	0.144	0.23	NonLiqfble.
2-CPT7	33.67	6	11.5	0.16	105	3535	1809	11.8	10.8	1.64	2.8	47.7	0.80	47.3	59.2	0.631	0.099	0.143	0.23	NonLiqfble.
2-CPT7	33.77	6	10.7	0.15	105	3546	1813	11.0	9.8	1.68	2.9	50.0	0.80	44.0	55.0	0.632	0.095	0.137	0.22	NonLiqfble.
2-CPT7	33.86	6	10.5	0.13	95	3217	1478	11.9	12.0	1.46	2.8	43.8	0.80	47.8	59.7	0.703	0.100	0.144	0.20	NonLiqfble.
2-CPT7	33.95	6	9.9	0.12	95	3225	1481	11.3	11.2	1.45	2.8	45.3	0.80	45.0	56.3	0.703	0.097	0.139	0.20	NonLiqfble.
2-CPT7	34.04	6	10.7	0.11	95	3234	1484	12.2	12.2	1.21	2.7	41.3	0.80	48.6	60.8	0.704	0.101	0.145	0.21	NonLiqfble.
2-CPT7	34.13	6	9.9	0.09	95	3242	1487	11.2	11.1	1.09	2.7	42.1	0.80	44.9	56.2	0.704	0.096	0.139	0.20	NonLiqfble.
2-CPT7	34.23	6	9.9	0.08	95	3252	1490	11.2	11.1	0.97	2.7	40.9	0.80	44.9	56.1	0.705	0.096	0.139	0.20	Check PI
2-CPT7	34.32	6	9.6	0.08	95	3260	1493	10.9	10.7	1.00	2.7	42.1	0.80	43.5	54.3	0.705	0.095	0.137	0.19	NonLiqfble.
2-CPT7	34.41	6	9	0.07	95	3269	1496	10.2	9.8	0.95	2.8	43.2	0.80	40.7	50.9	0.706	0.092	0.133	0.19	Check PI
2-CPT7	34.5	6	8.9	0.07	95	3278	1499	10.1	9.7	0.96	2.8	43.8	0.80	40.2	50.3	0.706	0.092	0.132	0.19	Check PI
2-CPT7	34.59	6	9.6	0.08	95	3286	1502	10.8	10.6	1.01	2.7	42.3	0.80	43.4	54.2	0.706	0.095	0.137	0.19	NonLiqfble.
2-CPT7	34.69	6	10.1	0.05	88	3053	1262	12.4	13.6	0.58	2.5	32.3	0.73	33.7	46.1	0.781	0.089	0.128	0.16	Liquefaction
2-CPT7	34.78	6	9.7	0.09	95	3304	1508	10.9	10.7	1.12	2.8	43.3	0.80	43.7	54.6	0.707	0.095	0.137	0.19	NonLiqfble.
2-CPT7	34.87	6	10.1	0.1	95	3313	1511	11.4	11.2	1.18	2.7	42.9	0.80	45.5	56.8	0.708	0.097	0.140	0.20	NonLiqfble.
2-CPT7	34.96	6	9.9	0.11	95	3321	1514	11.1	10.9	1.34	2.8	44.9	0.80	44.5	55.7	0.708	0.096	0.138	0.20	NonLiqfble.
2-CPT7	35.01	6	10.8	0.11	95	3326	1516	12.1	12.1	1.20	2.7	41.5	0.80	48.6	60.7	0.709	0.101	0.145	0.20	NonLiqfble.
2-CPT7	35.08	6	11.7	0.11	95	3333	1518	13.1	13.2	1.10	2.7	38.7	0.80	52.6	65.7	0.709	0.106	0.153	0.22	NonLiqfble.
2-CPT7	35.17	6	11.9	0.1	95	3341	1521	13.4	13.4	0.98	2.6	37.1	0.80	53.4	66.8	0.709	0.108	0.155	0.22	Check PI
2-CPT7	35.26	6	11.9	0.11	95	3350	1524	13.3	13.4	1.08	2.7	38.2	0.80	53.4	66.7	0.710	0.108	0.155	0.22	NonLiqfble.
2-CPT7	35.35	6	12.1	0.1	95	3358	1527	13.5	13.6	0.96	2.6	36.7	0.80	54.2	67.7	0.710	0.109	0.157	0.22	Check PI
2-CPT7	35.45	6	12.4	0.11	95	3368	1530	13.9	14.0	1.03	2.6	36.8	0.80	55.5	69.4	0.711	0.111	0.160	0.22	NonLiqfble.
2-CPT7	35.54	6	12.8	0.11	95	3376	1533	14.3	14.5	0.99	2.6	35.8	0.80	57.2	71.5	0.711	0.114	0.164	0.23	Check PI
2-CPT7	35.64	6	12.4	0.11	95	3386	1536	13.8	13.9	1.03	2.6	36.9	0.80	55.4	69.2	0.712	0.111	0.160	0.22	NonLiqfble.
2-CPT7	35.73	6	12.3	0.11	95	3394	1539	13.7	13.8	1.04	2.6	37.3	0.80	54.9	68.6	0.712	0.110	0.158	0.22	NonLiqfble.
2-CPT7	35.82	6	11.8	0.11	95	3403	1542	13.1	13.1	1.09	2.7	38.8	0.80	52.6	65.7	0.713	0.106	0.153	0.22	NonLiqfble.
2-CPT7	35.91	6	11.9	0.11	95	3411	1545	13.2	13.2	1.08	2.7	38.5	0.80	53.0	66.2	0.713	0.107	0.154	0.22	NonLiqfble.
2-CPT7	36	6	12.3	0.1	95	3420	1548	13.7	13.7	0.94	2.6	36.5	0.80	54.7	68.4	0.713	0.110	0.158	0.22	Check PI
2-CPT7	36.09	6	12.1	0.1	95	3429	1551	13.4	13.4	0.96	2.6	37.1	0.80	53.8	67.2	0.714	0.108	0.156	0.22	Check PI
2-CPT7	36.19	6	12.4	0.11	95	3438	1554	13.8	13.7	1.03	2.6	37.2	0.80	55.0	68.8	0.714	0.110	0.159	0.22	NonLiqfble.
2-CPT7	36.28	6	12.2	0.11	95	3447	1557	13.5	13.4	1.05	2.6	37.8	0.80	54.1	67.6	0.715	0.109	0.157	0.22	NonLiqfble.
2-CPT7	36.37	6	12.1	0.11	95	3455	1560	13.4	13.3	1.06	2.7	38.2	0.80	53.6	67.0	0.715	0.108	0.156	0.22	NonLiqfble.
2-CPT7	36.47	6	12.1	0.11	95	3465	1563	13.4	13.3	1.06	2.7	38.2	0.80	53.6	66.9	0.716	0.108	0.155	0.22	NonLiqfble.
2-CPT7	36.56	6	12.2	0.12	95	3473	1566	13.5	13.4	1.15	2.7	38.9	0.80	54.0	67.4	0.716	0.109	0.156	0.22	NonLiqfble.
2-CPT7	36.65	6	12.2	0.13	95	3482	1569	13.5	13.3	1.24	2.7	39.9	0.80	53.9	67.4	0.717	0.108	0.156	0.22	NonLiqfble.
2-CPT7	36.74	6	12.6	0.14	95	3490	1572	13.9	13.8	1.29	2.7	39.6	0.80	55.6	69.5	0.717	0.111	0.160	0.22	NonLiqfble.
2-CPT7	36.83	6	13.1	0.15	105	3867	1943	13.0	11.5	1.34	2.8	43.8	0.80	52.0	65.0	0.643	0.106	0.152	0.24	NonLiqfble.
2-CPT7	36.93	6	13.2	0.17	105	3878	1948	13.1	11.6	1.51	2.8	45.1	0.80	52.3	65.4	0.643	0.106	0.153	0.24	NonLiqfble.
2-CPT7	37.02	6	13.5	0.19	105	3887	1951	13.4	11.8	1.64	2.8	45.6	0.80	53.5	66.9	0.643	0.108	0.155	0.24	NonLiqfble.
2-CPT7	37.11	6	13.7	0.19	105	3897	1955	13.6	12.0	1.62	2.8	45.1	0.80	54.2	67.8	0.644	0.109	0.157	0.24	NonLiqfble.
2-CPT7	37.21	6	13.8	0.18	105	3907	1960	13.6	12.1	1.52	2.8	44.2	0.80	54.6	68.2	0.644	0.110	0.158	0.24	NonLiqfble.
2-CPT7	37.3	6	12.9	0.17	105	3917	1963	12.7	11.1	1.55	2.8	46.2	0.80	51.0	63.7	0.644	0.104	0.150	0.23	NonLiqfble.
2-CPT7	37.39	6	12.5	0.15	105	3926	1967	12.3	10.7	1.42	2.8	46.0	0.80	49.3	61.7	0.644	0.102	0.147	0.23	NonLiqfble.
2-CPT7	37.48	6	12	0.14	95	3561	1596	13.1	12.8	1.37	2.7	41.8	0.80	52.6	65.7	0.720	0.106	0.153	0.21	NonLiqfble.
2-CPT7	37.58	6	11.9	0.14	95	3570	1600	13.0	12.6	1.38	2.7	42.2	0.80	52.1	65.1	0.721	0.106	0.152	0.21	NonLiqfble.
2-CPT7	37.67	6	11.8	0.14	95	3579	1602	12.9	12.5	1.40	2.7	42.5	0.80	51.6	64.5	0.721	0.105	0.151	0.21	NonLiqfble.
2-CPT7	37.76	6	11.7	0.13	95	3587	1605	12.8	12.3	1.31	2.7	42.0	0.80	51.1	63.9	0.722	0.104	0.150	0.21	NonLiqfble.
2-CPT7	37.85	6	11.9	0.13	95	3596	1608	13.0	12.6	1.29	2.7	41.4	0.80	51.9	64.9	0.722	0.105	0.152	0.21	NonLiqfble.
2-CPT7	37.95	6	11.7	0.13	95	3605	1612	12.8	12.3	1.31	2.7	42.1	0.80	51.0	63.8	0.722	0.104	0.150	0.21	NonLiqfble.
2-CPT7	38.04	6	11.2	0.12	95	3614	1615	12.2	11.6	1.28	2.7	42.9	0.80	48.8	61.0	0.723	0.101	0.146	0.20	NonLiqfble.
2-CPT7	38.13	6	10.9	0.11	95	3622	1617	11.9	11.2	1.21	2.7	43.1	0.80	47.4	59.3	0.723	0.099	0.143	0.20	NonLiqfble.
2-CPT7	38.22	6	11.1	0.1	95	3631	1620	12.1	11.5	1.08	2.7	41.4	0.80	48.3	60.3	0.724	0.100	0.145	0.20	NonLiqfble.
2-CPT7	38.32	6	11.5	0.09	95	3640	1624	12.5	11.9	0.93	2.7	39.0	0.80	49.9	62.4	0.724	0.103	0.148	0.20	Check PI
2-CPT7	38.41	6	11.1	0.09	95	3649	1627	12.0	11.4	0.97	2.7	40.4	0.80	48.2	60.2	0.724	0.100	0.144	0.20	Check PI
2-CPT7	38.59	6	12.8	0.09	95	3666	1632	13.9	13.4	0.82	2.6	35.5	0.80	55.4	69.3	0.725	0.111	0.160	0.22	Check PI
2-CPT7	38.69	6																		

Project Name: SVRT - Yard & Shops
Project Number: 6600.300.102
Date: 4-Feb-08
CPT Number: 2-CPT7
Depth to Groundwater: 6 ft

EQ Magnitude (M_w): 6.5
PGA (g): 0.54
MSF: 1.44

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Frict. (TSF)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip Q_{eN}	Corr. Tip Q	Friction Ratio F	Ic	F.C. (%)	K_{CPT}	ΔQ_{eN}	$(Q_{eN})_s$	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments
2-CPT7	39.82	6	17.3	0.26	115	4579	2469	15.2	12.2	1.73	2.8	45.8	0.80	60.9	76.2	0.599	0.121	0.174	0.29	NonLiqble.
2-CPT7	39.91	6	18.6	0.29	115	4590	2474	16.4	13.2	1.78	2.8	44.4	0.80	65.5	81.8	0.599	0.131	0.189	0.31	NonLiqble.
2-CPT7	40	6	18.7	0.32	115	4600	2478	16.4	13.2	1.95	2.8	45.5	0.80	65.7	82.2	0.554	0.132	0.190	0.34	NonLiqble.
2-CPT7	40.09	6	19.7	0.36	125	5011	2884	16.1	11.9	2.09	2.8	48.7	0.80	64.2	80.3	0.518	0.128	0.184	0.36	NonLiqble.
2-CPT7	40.19	6	19.9	0.38	125	5024	2890	16.2	12.0	2.19	2.9	49.2	0.80	64.8	81.0	0.519	0.129	0.186	0.36	NonLiqble.
2-CPT7	40.28	6	20.9	0.41	125	5035	2896	17.0	12.7	2.23	2.8	48.3	0.80	68.0	85.0	0.519	0.137	0.197	0.38	NonLiqble.
2-CPT7	40.37	6	21.2	0.42	125	5046	2902	17.2	12.9	2.25	2.8	48.1	0.80	68.9	86.1	0.519	0.139	0.201	0.39	NonLiqble.
2-CPT7	40.47	6	21.2	0.4	125	5059	2908	17.2	12.8	2.14	2.8	47.5	0.80	68.8	86.0	0.519	0.139	0.200	0.39	NonLiqble.
2-CPT7	40.55	6	20.9	0.37	125	5069	2913	16.9	12.6	2.01	2.8	47.0	0.80	67.8	84.7	0.519	0.137	0.197	0.38	NonLiqble.
2-CPT7	40.64	6	20.7	0.37	125	5080	2918	16.8	12.4	2.04	2.8	47.4	0.80	67.1	83.8	0.519	0.135	0.194	0.37	NonLiqble.
2-CPT7	40.74	6	19.8	0.41	125	5093	2925	16.0	11.8	2.38	2.9	50.8	0.80	64.1	80.1	0.519	0.128	0.184	0.35	NonLiqble.
2-CPT7	40.83	6	18.7	0.56	125	5104	2930	15.1	11.0	3.47	3.0	58.4	0.80	60.5	75.6	0.520	0.120	0.173	0.33	NonLiqble.
2-CPT7	40.92	6	20.9	0.63	125	5115	2936	16.9	12.5	3.43	3.0	55.3	0.80	67.5	84.4	0.520	0.136	0.196	0.38	NonLiqble.
2-CPT7	41.02	6	28.3	0.62	125	5128	2942	22.8	17.5	2.41	2.7	42.8	0.80	91.3	114.1	0.520	0.218	0.314	0.60	NonLiqble.
2-CPT7	41.1	6	37.8	0.57	125	5138	2947	30.5	23.9	1.62	2.5	32.2	0.73	80.7	111.2	0.520	0.208	0.299	0.58	Liquefaction
2-CPT7	41.2	6	43.8	0.52	125	5150	2954	35.3	27.9	1.26	2.4	27.1	0.59	50.8	86.1	0.520	0.139	0.201	0.39	Liquefaction
2-CPT7	41.29	6	45.7	0.51	125	5161	2959	36.8	29.1	1.18	2.4	25.9	0.56	46.2	82.9	0.520	0.133	0.192	0.37	Liquefaction
2-CPT7	41.38	6	40.9	0.57	125	5173	2965	32.9	25.8	1.49	2.5	30.0	0.67	66.0	98.9	0.521	0.170	0.245	0.47	Liquefaction
2-CPT7	41.47	6	34.7	0.77	135	5598	3385	26.1	18.8	2.41	2.7	41.4	0.80	104.4	130.5	0.493	0.287	0.413	0.84	NonLiqble.
2-CPT7	41.57	6	29.9	0.82	135	5612	3392	22.5	16.0	3.03	2.8	48.0	0.80	89.8	112.3	0.494	0.212	0.305	0.62	NonLiqble.
2-CPT7	41.66	6	36.6	0.87	135	5624	3399	27.5	19.9	2.57	2.7	41.3	0.80	109.9	137.3	0.494	0.321	0.462	0.94	NonLiqble.
2-CPT7	41.74	6	47.4	0.81	135	5635	3405	35.5	26.2	1.82	2.5	32.0	0.72	92.2	127.7	0.494	0.274	0.394	0.80	Liquefaction
2-CPT7	41.95	6	42.9	0.68	125	5244	3000	34.3	26.8	1.69	2.5	30.8	0.69	75.8	110.0	0.521	0.204	0.294	0.56	Liquefaction
2-CPT7	42.05	6	31.4	0.65	125	5256	3007	25.1	19.1	2.26	2.7	40.2	0.80	100.2	125.3	0.522	0.263	0.379	0.73	NonLiqble.
2-CPT7	42.14	6	22.6	0.58	125	5268	3012	18.0	13.2	2.91	2.9	51.3	0.80	72.1	90.1	0.522	0.148	0.213	0.41	NonLiqble.
2-CPT7	42.23	6	17.4	0.53	125	5279	3018	13.9	9.8	3.59	3.0	61.9	0.80	55.4	69.3	0.522	0.111	0.160	0.31	NonLiqble.
2-CPT7	42.31	6	15.4	0.43	125	5289	3023	12.3	8.4	3.37	3.1	64.5	0.80	49.0	61.3	0.522	0.101	0.146	0.28	NonLiqble.
2-CPT7	42.4	6	14.5	0.31	115	4876	2605	12.4	9.3	2.57	3.0	57.6	0.80	49.7	62.2	0.559	0.102	0.147	0.26	NonLiqble.
2-CPT7	42.49	6	14.2	0.27	115	4886	2609	12.2	9.0	2.30	3.0	56.6	0.80	48.7	60.8	0.559	0.101	0.145	0.26	NonLiqble.
2-CPT7	42.58	6	12.9	0.26	115	4897	2614	11.0	8.0	2.49	3.0	60.8	0.80	44.2	55.2	0.559	0.096	0.138	0.25	NonLiqble.
2-CPT7	42.67	6	11.9	0.26	115	4907	2619	10.2	7.2	2.75	3.1	65.1	0.80	40.7	50.9	0.559	0.092	0.133	0.24	NonLiqble.
2-CPT7	42.75	6	11.9	0.26	115	4916	2623	10.2	7.2	2.75	3.1	65.2	0.80	40.7	50.8	0.559	0.092	0.133	0.24	NonLiqble.
2-CPT7	42.84	6	12.7	0.26	115	4927	2628	10.8	7.8	2.54	3.0	61.8	0.80	43.4	54.2	0.559	0.095	0.137	0.24	NonLiqble.
2-CPT7	42.93	6	12.6	0.26	115	4937	2633	10.7	7.7	2.57	3.1	62.2	0.80	43.0	53.7	0.560	0.094	0.136	0.24	NonLiqble.
2-CPT7	43.02	6	13.7	0.29	115	4947	2637	11.7	8.5	2.58	3.0	59.8	0.80	46.7	58.4	0.560	0.098	0.142	0.25	NonLiqble.
2-CPT7	43.11	6	13.7	0.3	115	4958	2642	11.7	8.5	2.67	3.0	60.4	0.80	46.6	58.3	0.560	0.098	0.142	0.25	NonLiqble.
2-CPT7	43.2	6	14.1	0.31	115	4968	2647	12.0	8.8	2.67	3.0	59.6	0.80	48.0	60.0	0.560	0.100	0.144	0.26	NonLiqble.
2-CPT7	43.29	6	14.5	0.32	115	4978	2651	12.3	9.1	2.66	3.0	58.8	0.80	49.3	61.6	0.560	0.102	0.147	0.26	NonLiqble.
2-CPT7	43.38	6	15.2	0.32	115	4989	2656	12.9	9.6	2.52	3.0	56.5	0.80	51.6	64.5	0.560	0.105	0.151	0.27	NonLiqble.
2-CPT7	43.48	6	13.9	0.29	115	5000	2661	11.8	8.6	2.54	3.0	59.4	0.80	47.2	58.9	0.561	0.099	0.143	0.25	NonLiqble.
2-CPT7	43.57	6	13.6	0.28	115	5011	2666	11.5	8.3	2.52	3.0	60.0	0.80	46.1	57.6	0.561	0.098	0.141	0.25	NonLiqble.
2-CPT7	43.66	6	14	0.27	115	5021	2671	11.9	8.6	2.35	3.0	58.0	0.80	47.4	59.3	0.561	0.099	0.143	0.26	NonLiqble.
2-CPT7	43.75	6	13.3	0.26	115	5031	2676	11.3	8.1	2.41	3.0	60.1	0.80	45.0	56.3	0.561	0.097	0.139	0.25	NonLiqble.
2-CPT7	43.84	6	13.2	0.27	115	5042	2680	11.2	8.0	2.53	3.0	61.1	0.80	44.6	55.8	0.561	0.096	0.138	0.25	NonLiqble.
2-CPT7	43.93	6	12.9	0.27	115	5052	2685	10.9	7.7	2.60	3.1	62.4	0.80	43.6	54.5	0.561	0.095	0.137	0.24	NonLiqble.
2-CPT7	44.03	6	13.7	0.25	115	5063	2690	11.6	8.3	2.24	3.0	58.2	0.80	46.2	57.8	0.562	0.098	0.141	0.25	NonLiqble.
2-CPT7	44.12	6	14.3	0.23	105	4633	2254	13.2	10.6	1.92	2.9	50.1	0.80	52.7	65.9	0.613	0.107	0.154	0.25	NonLiqble.
2-CPT7	44.22	6	13.9	0.24	115	5085	2700	11.7	8.4	2.11	3.0	57.0	0.80	46.8	58.5	0.562	0.099	0.142	0.25	NonLiqble.
2-CPT7	44.31	6	13.7	0.23	105	4653	2262	12.6	10.1	2.02	2.9	52.1	0.80	50.4	63.0	0.614	0.103	0.149	0.24	NonLiqble.
2-CPT7	44.35	6	12.6	0.24	115	5100	2707	10.6	7.4	2.39	3.1	62.0	0.80	42.4	53.0	0.562	0.094	0.135	0.24	NonLiqble.
2-CPT7	44.42	6	14.6	0.25	115	5108	2711	12.3	8.9	2.08	3.0	55.4	0.80	49.1	61.3	0.562	0.101	0.146	0.26	NonLiqble.
2-CPT7	44.51	6	15.3	0.27	115	5119	2716	12.8	9.4	2.12	2.9	54.4	0.80	51.4	64.2	0.562	0.105	0.151	0.27	NonLiqble.
2-CPT7	44.6	6	15.7	0.26	115	5129	2720	13.2	9.7	1.98	2.9	52.7	0.80	52.7	65.9	0.563	0.107	0.153	0.27	NonLiqble.

Project Name:	SVRT - Yard & Shops
Project Number:	6600.300.102
Date:	4-Feb-08
CPT Number:	2-CPT7
Depth to Groundwater:	6 ft

EQ Magnitude (M_w):	6.5
PGA (g):	0.54
MSF:	1.44

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Frict. (TSF)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip Q _n	Corr. Tip Q	Friction Ratio F	Ic	F.C. (%)	K _{CPT}	Δq_{eN}	(q _{eN}) _s	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments
2-CPT7	44.69	6	16	0.27	115	5139	2725	13.4	9.9	2.01	2.9	52.5	0.80	53.6	67.1	0.563	0.108	0.156	0.28	NonLiqble.
2-CPT7	44.79	6	16.3	0.29	115	5151	2730	13.6	10.0	2.11	2.9	52.7	0.80	54.6	68.2	0.563	0.110	0.158	0.28	NonLiqble.
2-CPT7	44.88	6	16.4	0.3	115	5161	2735	13.7	10.1	2.17	2.9	53.0	0.80	54.9	68.6	0.563	0.110	0.158	0.28	NonLiqble.
2-CPT7	44.97	6	16.8	0.31	115	5172	2740	14.0	10.4	2.18	2.9	52.5	0.80	56.2	70.2	0.563	0.112	0.162	0.29	NonLiqble.
2-CPT7	45.06	6	17.1	0.3	115	5182	2745	14.3	10.6	2.07	2.9	51.3	0.80	57.1	71.4	0.563	0.114	0.164	0.29	NonLiqble.
2-CPT7	45.15	6	17.3	0.3	115	5192	2749	14.4	10.7	2.04	2.9	50.8	0.80	57.7	72.2	0.563	0.115	0.166	0.29	NonLiqble.
2-CPT7	45.24	6	17.3	0.3	115	5203	2754	14.4	10.7	2.04	2.9	50.9	0.80	57.7	72.1	0.564	0.115	0.165	0.29	NonLiqble.
2-CPT7	45.34	6	18.3	0.34	115	5214	2759	15.2	11.4	2.17	2.9	50.3	0.80	61.0	76.2	0.564	0.121	0.174	0.31	NonLiqble.
2-CPT7	45.43	6	19	0.36	125	5679	3218	14.7	10.0	2.23	2.9	53.5	0.80	58.6	73.3	0.526	0.117	0.168	0.32	NonLiqble.
2-CPT7	45.52	6	20.6	0.38	125	5690	3224	15.9	11.0	2.14	2.9	50.8	0.80	63.5	79.4	0.527	0.127	0.182	0.35	NonLiqble.
2-CPT7	45.61	6	23.6	0.41	125	5701	3230	18.2	12.8	1.98	2.8	46.3	0.80	72.7	90.9	0.527	0.150	0.216	0.41	NonLiqble.
2-CPT7	45.7	6	25.6	0.46	125	5713	3235	19.7	14.1	2.02	2.8	44.8	0.80	78.8	98.5	0.527	0.169	0.243	0.46	NonLiqble.
2-CPT7	45.79	6	27.2	0.49	125	5724	3241	20.9	15.0	2.01	2.8	43.8	0.80	83.6	104.5	0.527	0.186	0.268	0.51	NonLiqble.
2-CPT7	45.89	6	31.2	0.43	125	5736	3247	24.0	17.4	1.52	2.6	37.0	0.80	95.8	119.8	0.527	0.240	0.345	0.66	NonLiqble.
2-CPT7	45.98	6	31	0.39	125	5748	3253	23.8	17.3	1.39	2.6	36.1	0.80	95.1	118.9	0.527	0.236	0.340	0.65	NonLiqble.
2-CPT7	46.07	6	26.1	0.39	125	5759	3258	20.0	14.2	1.68	2.7	42.1	0.80	80.0	100.0	0.527	0.173	0.249	0.47	NonLiqble.
2-CPT7	46.16	6	24.2	0.4	125	5770	3264	18.5	13.1	1.88	2.8	45.3	0.80	74.1	92.7	0.527	0.154	0.222	0.42	NonLiqble.
2-CPT7	46.25	6	25.5	0.41	125	5781	3270	19.5	13.8	1.81	2.8	43.7	0.80	78.0	97.6	0.528	0.166	0.240	0.45	NonLiqble.
2-CPT7	46.35	6	25.1	0.41	125	5794	3276	19.2	13.5	1.85	2.8	44.3	0.80	76.8	95.9	0.528	0.162	0.233	0.44	NonLiqble.
2-CPT7	46.44	6	25.1	0.42	125	5805	3282	19.2	13.5	1.89	2.8	44.7	0.80	76.7	95.9	0.528	0.162	0.233	0.44	NonLiqble.
2-CPT7	46.53	6	26.4	0.43	125	5816	3287	20.1	14.3	1.83	2.7	43.1	0.80	80.6	100.7	0.528	0.175	0.252	0.48	NonLiqble.
2-CPT7	46.62	6	27	0.45	125	5828	3293	20.6	14.6	1.87	2.7	42.9	0.80	82.3	102.9	0.528	0.181	0.261	0.49	NonLiqble.
2-CPT7	46.71	6	26.8	0.47	125	5839	3298	20.4	14.5	1.97	2.8	43.8	0.80	81.7	102.1	0.528	0.179	0.258	0.49	NonLiqble.
2-CPT7	46.8	6	26.6	0.49	125	5850	3304	20.2	14.3	2.07	2.8	44.7	0.80	81.0	101.2	0.528	0.176	0.254	0.48	NonLiqble.
2-CPT7	46.89	6	26.6	0.5	125	5861	3310	20.2	14.3	2.11	2.8	45.0	0.80	80.9	101.2	0.528	0.176	0.254	0.48	NonLiqble.
2-CPT7	46.98	6	25.9	0.51	125	5873	3315	19.7	13.8	2.22	2.8	46.4	0.80	78.7	98.4	0.528	0.169	0.243	0.46	NonLiqble.
2-CPT7	47.08	6	26.5	0.53	125	5885	3322	20.1	14.2	2.25	2.8	46.1	0.80	80.5	100.6	0.529	0.175	0.252	0.48	NonLiqble.
2-CPT7	47.17	6	27.3	0.52	125	5896	3327	20.7	14.6	2.14	2.8	44.7	0.80	82.8	103.5	0.529	0.183	0.264	0.50	NonLiqble.
2-CPT7	47.26	6	25.9	0.5	125	5908	3333	19.6	13.8	2.18	2.8	46.2	0.80	78.5	98.1	0.529	0.168	0.242	0.46	NonLiqble.
2-CPT7	47.35	6	25.2	0.49	125	5919	3339	19.1	13.3	2.20	2.8	47.1	0.80	76.3	95.4	0.529	0.161	0.232	0.44	NonLiqble.
2-CPT7	47.44	6	24.2	0.46	125	5930	3344	18.3	12.7	2.17	2.8	47.9	0.80	73.2	91.6	0.529	0.151	0.218	0.41	NonLiqble.
2-CPT7	47.53	6	23.7	0.41	125	5941	3350	17.9	12.4	1.98	2.8	47.2	0.80	71.7	89.6	0.529	0.147	0.211	0.40	NonLiqble.
2-CPT7	47.62	6	23.1	0.37	125	5953	3355	17.4	12.0	1.84	2.8	46.8	0.80	69.8	87.2	0.529	0.142	0.204	0.39	NonLiqble.
2-CPT7	47.71	6	22	0.34	125	5964	3361	16.6	11.3	1.79	2.8	47.7	0.80	66.4	83.0	0.529	0.133	0.192	0.36	NonLiqble.
2-CPT7	47.8	6	21.7	0.37	125	5975	3367	16.4	11.1	1.98	2.9	49.5	0.80	65.5	81.8	0.529	0.131	0.189	0.36	NonLiqble.
2-CPT7	47.89	6	20.9	0.36	125	5986	3372	15.7	10.6	2.01	2.9	50.8	0.80	63.0	78.7	0.530	0.125	0.181	0.34	NonLiqble.
2-CPT7	47.95	6	17.8	0.35	125	5994	3376	13.4	8.8	2.36	3.0	57.7	0.80	53.6	67.0	0.530	0.108	0.156	0.29	NonLiqble.
2-CPT7	48.06	6	21.6	0.34	125	6008	3383	16.2	11.0	1.83	2.8	48.7	0.80	65.0	81.2	0.530	0.130	0.187	0.35	NonLiqble.
2-CPT7	48.15	6	20.9	0.35	125	6019	3389	15.7	10.6	1.96	2.9	50.5	0.80	62.8	78.5	0.530	0.125	0.180	0.34	NonLiqble.
2-CPT7	48.24	6	21.4	0.4	125	6030	3394	16.1	10.8	2.18	2.9	51.4	0.80	64.3	80.4	0.530	0.128	0.185	0.35	NonLiqble.
2-CPT7	48.33	6	24	0.48	125	6041	3400	18.0	12.3	2.29	2.9	49.3	0.80	72.0	90.0	0.530	0.148	0.213	0.40	NonLiqble.
2-CPT7	48.42	6	26.6	0.57	125	6053	3405	19.9	13.8	2.42	2.8	47.6	0.80	79.8	99.7	0.530	0.172	0.248	0.47	NonLiqble.
2-CPT7	48.52	6	29.3	0.62	125	6065	3412	21.9	15.4	2.36	2.8	45.1	0.80	87.8	109.7	0.530	0.203	0.292	0.55	NonLiqble.
2-CPT7	48.61	6	32.5	0.7	125	6076	3417	24.3	17.2	2.38	2.7	42.9	0.80	97.3	121.6	0.530	0.247	0.356	0.67	NonLiqble.
2-CPT7	48.7	6	32.4	0.87	135	6575	3910	22.7	14.9	2.99	2.9	49.2	0.80	90.7	113.4	0.502	0.215	0.310	0.62	NonLiqble.
2-CPT7	48.79	6	35.4	0.88	135	6587	3917	24.7	16.4	2.74	2.8	46.0	0.80	99.0	123.7	0.502	0.256	0.369	0.74	NonLiqble.
2-CPT7	48.88	6	41.6	0.91	135	6599	3923	29.1	19.5	2.38	2.7	40.5	0.80	116.2	145.3	0.502	0.365	0.526	1.05	NonLiqble.
2-CPT7	48.98	6	40.2	1.01	135	6612	3930	28.1	18.8	2.74	2.8	43.3	0.80	112.2	140.3	0.502	0.337	0.485	0.97	NonLiqble.
2-CPT7	49.07	6	34.8	1.12	135	6624	3937	24.3	16.0	3.56	2.9	50.5	0.80	97.1	121.3	0.502	0.246	0.354	0.71	NonLiqble.
2-CPT7	49.17	6	38	1.14	135	6638	3944	26.5	17.6	3.29	2.8	47.3	0.80	105.9	132.4	0.502	0.296	0.426	0.85	NonLiqble.
2-CPT7	49.3	6	41.5	1.01	135	6656	3954	28.9	19.3	2.65	2.7	42.2	0.80	115.5	144.4	0.502	0.360	0.518	1.03	NonLiqble.
2-CPT7	49.39	6	42.2	0.93	135	6668	3960	29.3	19.6	2.39	2.7	40.5	0.80	117.4	146.7	0.502	0.374	0.538	1.07	NonLiqble.
2-CPT7	49.48	6	36.1	1	135	6680	3967	25.1	16.5	3.05	2.8	47.4	0.80	100.3	125.4	0.502	0.263	0.379	0.75	NonLiqble.
2-CPT7	49.57	6	32.7	0.84	135	6692	3973	22.7	14.8	2.86	2.8	48.7	0.80	90.8	113.5	0.503	0.216	0.311	0.62	NonLiqble.
2-CPT7	49.66	6	31.2	0.71	125	6208	3483	23.1	16.1	2.53	2.8	45.1	0.80	92.5	115.7	0.532	0.224	0.322	0.61	NonLiqble.
2-CPT7	49.75	6	28.2	0.64	125	6219	3489	20.9	14.4	2.55	2.8	47.6	0.80	83.6	104.4	0.532	0.186	0.268	0.50	NonLiqble.
2-CPT7	49.84	6	25.6	0.61	125	6230	3494	18.9	12.9	2.71	2.9	50.9	0.80	75.8	94.7	0.532	0.159	0.229	0.43	NonLiqble.
2-CPT7	49.93	6	25.1	0.56	125	6241	3500	18.6	12.6	2.55	2.9	50.5	0.80	74.3	92.8	0.532	0.154	0.222	0.42	NonLiqble.
2-CPT7	50.02	6	24.9	0.52	125	6253	3506	18.4	12.4	2.39	2.9	49.7	0.80	73.6	92.0	0.470	0.152	0.219	0.47	NonLiqble.
2-CPT7	50.11	6	24.6	0.51	125	6264	3511	18.2	12.2	2.38	2.9	50.0	0.80	72.7	90.8	0.470	0.150	0.216	0.46	NonLiqble.
2-CPT7	50.21	6	24	0.48	125	6276	3518	17.7	11.9	2.30	2.9	50								

Project Name:	SVRT - Yard & Shops
Project Number:	6600.300.102
Date:	4-Feb-08
CPT Number:	2-CPT7
Depth to Groundwater:	6 ft

EQ Magnitude (M _w):	6.5
PGA (g):	0.54
MSF:	1.44

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Frict. (TSF)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip Q _{ts}	Corr. Tip Q	Friction Ratio F	Ic	F.C. (%)	K _{CPT}	ΔQ _{ts}	(Q _{ts}) _s	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments
2-CPT7	51.37	6	20.1	0.46	125	6421	3590	14.7	9.4	2.72	3.0	58.2	0.80	58.7	73.4	0.471	0.117	0.168	0.36	NonLiqble.
2-CPT7	51.46	6	20.3	0.49	125	6433	3596	14.8	9.5	2.87	3.0	58.8	0.80	59.2	74.1	0.471	0.118	0.170	0.36	NonLiqble.
2-CPT7	51.53	6	18.1	0.5	125	6441	3600	13.2	8.3	3.36	3.1	65.0	0.80	52.8	66.0	0.471	0.107	0.154	0.33	NonLiqble.
2-CPT7	51.57	6	20.3	0.51	125	6446	3603	14.8	9.5	2.99	3.0	59.5	0.80	59.2	74.0	0.471	0.118	0.169	0.36	NonLiqble.
2-CPT7	51.63	6	21.1	0.53	125	6454	3606	15.4	9.9	2.97	3.0	58.3	0.80	61.5	76.9	0.471	0.122	0.176	0.37	NonLiqble.
2-CPT7	51.73	6	21.3	0.55	125	6466	3613	15.5	10.0	3.04	3.0	58.5	0.80	62.0	77.5	0.471	0.123	0.178	0.38	NonLiqble.
2-CPT7	51.81	6	21.1	0.54	125	6476	3618	15.3	9.9	3.02	3.0	58.7	0.80	61.4	76.7	0.471	0.122	0.176	0.37	NonLiqble.
2-CPT7	51.91	6	20.4	0.52	125	6489	3624	14.8	9.5	3.03	3.0	59.8	0.80	59.3	74.1	0.471	0.118	0.170	0.36	NonLiqble.
2-CPT7	52	6	20.1	0.51	125	6500	3630	14.6	9.3	3.03	3.0	60.2	0.80	58.4	73.0	0.471	0.116	0.167	0.35	NonLiqble.
2-CPT7	52.09	6	20	0.52	125	6511	3635	14.5	9.2	3.11	3.0	60.9	0.80	58.1	72.6	0.472	0.116	0.166	0.35	NonLiqble.
2-CPT7	52.18	6	19.8	0.5	125	6523	3641	14.4	9.1	3.02	3.0	60.8	0.80	57.4	71.8	0.472	0.114	0.165	0.35	NonLiqble.
2-CPT7	52.27	6	19.9	0.49	125	6534	3647	14.4	9.1	2.95	3.0	60.2	0.80	57.7	72.1	0.472	0.115	0.165	0.35	NonLiqble.
2-CPT7	52.36	6	19.4	0.5	125	6545	3652	14.0	8.8	3.10	3.0	61.9	0.80	56.2	70.2	0.472	0.112	0.162	0.34	NonLiqble.
2-CPT7	52.45	6	19.2	0.48	125	6556	3658	13.9	8.7	3.01	3.0	61.8	0.80	55.6	69.5	0.472	0.111	0.160	0.34	NonLiqble.
2-CPT7	52.54	6	18.9	0.47	125	6568	3663	13.7	8.5	3.01	3.1	62.3	0.80	54.7	68.3	0.472	0.110	0.158	0.33	NonLiqble.
2-CPT7	52.63	6	19.1	0.48	125	6579	3669	13.8	8.6	3.04	3.1	62.2	0.80	55.2	69.0	0.472	0.111	0.159	0.34	NonLiqble.
2-CPT7	52.72	6	19.1	0.49	125	6590	3675	13.8	8.6	3.10	3.1	62.6	0.80	55.1	68.9	0.472	0.110	0.159	0.34	NonLiqble.
2-CPT7	52.82	6	19.7	0.51	125	6603	3681	14.2	8.9	3.11	3.0	61.7	0.80	56.8	71.0	0.472	0.113	0.163	0.35	NonLiqble.
2-CPT7	52.91	6	19.5	0.54	125	6614	3687	14.1	8.8	3.34	3.1	63.3	0.80	56.2	70.3	0.472	0.112	0.162	0.34	NonLiqble.
2-CPT7	53	6	20.3	0.56	125	6625	3692	14.6	9.2	3.30	3.1	61.9	0.80	58.5	73.1	0.472	0.116	0.167	0.35	NonLiqble.
2-CPT7	53.09	6	20.6	0.57	125	6636	3698	14.8	9.3	3.30	3.0	61.5	0.80	59.3	74.1	0.472	0.118	0.170	0.36	NonLiqble.
2-CPT7	53.18	6	20.8	0.58	125	6648	3703	15.0	9.4	3.32	3.0	61.4	0.80	59.8	74.8	0.473	0.119	0.171	0.36	NonLiqble.
2-CPT7	53.27	6	20.5	0.58	125	6659	3709	14.7	9.3	3.38	3.1	62.2	0.80	58.9	73.6	0.473	0.117	0.169	0.36	NonLiqble.
2-CPT7	53.36	6	20.9	0.58	125	6670	3715	15.0	9.5	3.30	3.0	61.3	0.80	60.0	75.0	0.473	0.119	0.172	0.36	NonLiqble.
2-CPT7	53.45	6	20.8	0.58	125	6681	3720	14.9	9.4	3.32	3.0	61.6	0.80	59.7	74.6	0.473	0.119	0.171	0.36	NonLiqble.
2-CPT7	53.54	6	20.9	0.61	125	6693	3726	15.0	9.4	3.48	3.1	62.2	0.80	59.9	74.9	0.473	0.119	0.171	0.36	NonLiqble.
2-CPT7	53.63	6	21.7	0.65	125	6704	3732	15.5	9.8	3.54	3.0	61.5	0.80	62.2	77.7	0.473	0.124	0.178	0.38	NonLiqble.
2-CPT7	53.72	6	23	0.72	125	6715	3737	16.5	10.5	3.67	3.0	60.5	0.80	65.8	82.3	0.473	0.132	0.190	0.40	NonLiqble.
2-CPT7	53.82	6	24.8	0.88	135	7266	4282	16.6	9.9	4.16	3.1	64.3	0.80	66.3	82.9	0.447	0.133	0.192	0.43	NonLiqble.
2-CPT7	53.9	6	27.9	1.11	135	7277	4288	18.6	11.3	4.58	3.1	62.8	0.80	74.6	93.2	0.447	0.155	0.224	0.50	NonLiqble.
2-CPT7	54	6	32.2	1.23	135	7290	4295	21.5	13.3	4.31	3.0	57.9	0.80	86.0	107.5	0.447	0.196	0.282	0.63	NonLiqble.
2-CPT7	54.09	6	33.8	1.24	135	7302	4301	22.5	14.0	4.11	3.0	55.8	0.80	90.2	112.7	0.447	0.213	0.307	0.69	NonLiqble.
2-CPT7	54.17	6	32.5	1.23	135	7313	4307	21.7	13.4	4.26	3.0	57.5	0.80	86.7	108.3	0.447	0.198	0.285	0.64	NonLiqble.
2-CPT7	54.27	6	31.2	1.16	135	7326	4314	20.8	12.8	4.21	3.0	58.4	0.80	83.1	103.9	0.447	0.184	0.265	0.59	NonLiqble.
2-CPT7	54.36	6	31.1	1.16	135	7339	4321	20.7	12.7	4.23	3.0	58.6	0.80	82.8	103.5	0.447	0.183	0.264	0.59	NonLiqble.
2-CPT7	54.45	6	33.4	1.22	135	7351	4327	22.2	13.7	4.10	3.0	56.3	0.80	88.9	111.1	0.447	0.207	0.299	0.67	NonLiqble.
2-CPT7	54.54	6	37.4	1.55	135	7363	4334	24.9	15.6	4.60	3.0	55.5	0.80	99.4	124.3	0.447	0.259	0.372	0.83	NonLiqble.
2-CPT7	54.63	6	38.6	1.83	135	7375	4341	25.6	16.1	5.24	3.0	57.2	0.80	102.5	128.2	0.447	0.276	0.397	0.89	NonLiqble.
2-CPT7	54.71	6	39.6	1.79	135	7386	4346	26.3	16.5	4.99	3.0	55.7	0.80	105.1	131.4	0.447	0.291	0.419	0.94	NonLiqble.
2-CPT7	54.75	6	53.5	1.71	135	7391	4349	35.5	22.9	3.43	2.7	42.9	0.80	142.0	177.5	0.447	0.600	0.864	1.93	NonLiqble.
2-CPT7	54.84	6	43.2	1.53	135	7403	4356	28.6	18.1	3.87	2.9	49.3	0.80	114.6	143.2	0.447	0.353	0.508	1.14	NonLiqble.
2-CPT7	54.93	6	39	1.51	135	7416	4362	25.8	16.2	4.28	2.9	53.4	0.80	103.3	129.2	0.448	0.280	0.404	0.90	NonLiqble.
2-CPT7	55.02	6	37.9	1.4	135	7428	4369	25.1	15.6	4.10	2.9	53.4	0.80	100.4	125.4	0.448	0.264	0.380	0.85	NonLiqble.
2-CPT7	55.11	6	39.4	1.32	135	7440	4375	26.1	16.3	3.70	2.9	50.8	0.80	104.2	130.3	0.448	0.286	0.412	0.92	NonLiqble.
2-CPT7	55.2	6	42.3	1.37	135	7452	4382	28.0	17.6	3.55	2.8	48.5	0.80	111.8	139.8	0.448	0.334	0.481	1.07	NonLiqble.
2-CPT7	55.29	6	42.4	1.39	135	7464	4388	28.0	17.6	3.59	2.8	48.7	0.80	112.0	140.0	0.448	0.335	0.483	1.08	NonLiqble.
2-CPT7	55.38	6	41.8	1.48	135	7476	4395	27.6	17.3	3.89	2.9	50.3	0.80	110.4	137.9	0.448	0.324	0.467	1.04	NonLiqble.
2-CPT7	55.47	6	43.5	1.57	135	7488	4402	28.7	18.1	3.95	2.9	49.7	0.80	114.8	143.4	0.448	0.354	0.510	1.14	NonLiqble.
2-CPT7	55.56	6	44.1	1.57	135	7501	4408	29.1	18.3	3.89	2.9	49.2	0.80	116.2	145.3	0.448	0.365	0.526	1.17	NonLiqble.
2-CPT7	55.65	6	47.3	1.4	135	7513	4415	31.1	19.7	3.22	2.8	44.7	0.80	124.6	155.7	0.448	0.431	0.621	1.39	NonLiqble.
2-CPT7	55.74	6	52.4	1.24	135	7525	4421	34.5	22.0	2.55	2.7	39.3	0.80	137.9	172.4	0.448	0.557	0.801	1.79	NonLiqble.
2-CPT7	55.83	6	57.4	1.07	135	7537	4428	37.7	24.2	2.00	2.6	34.4	0.79	138.6	176.3	0.448	0.590	0.849	1.90	F&S>1.3
2-CPT7	55.91	6	52.8	0.9	135	7548	4433	34.7	22.1	1.84	2.6	35.0	0.80	139.1	173.8	0.448	0.568	0.818	1.83	F&S>1.3
2-CPT7	56	6	45.2	1.02	135	7560	4440	29.7	18.6	2.46	2.7	41.9	0.80	118.7	148.4	0.448	0.384	0.553	1.23	NonLiqble.
2-CPT7	56.09	6	36.7	1.25	135	7572	4447	24.1	14.8	3.80	2.9	53.3	0.80	96.3	120.4	0.448	0.242	0.349	0.78	NonLiqble.
2-CPT7	56.18	6	35.6	1.34	135	7584	4453	23.3	14.3	4.21	3.0	55.8	0.80	93.4	116.7	0.448	0.228	0.328	0.73	NonLiqble.
2-CPT7	56.27	6	42.2	1.5	135	7596	4460	27.6	17.2	3.91	2.9	50.5	0.80	110.6	138.2	0.448	0.326	0.469	1.05	NonLiqble.
2-CPT7	56.35	6	46.7	1.65	135	7607	4465	30.6	19.2	3.85	2.8	48.1	0.80	122.3	152.9	0.448	0.412	0.594	1.32	NonLiqble.
2-CPT7	56.44	6	42.9	1.72	135	7619	4472	28.1	17.5	4.40	2.9	52.3	0.80	112.3	140.3	0.449	0.337	0.485	1.08	NonLiqble.
2-CPT7	56.53	6	50.3	1.71	135	7632	4478	32.9	20.7	3.68	2.8	45.8	0.80	131.5	164.4	0.449	0.493	0.711	1.58	NonLiqble.
2-CPT7	56.61	6	60.4	1.73	135	7642	4484	39.5	25.2	3.06	2.7	39.4	0.80	157.9	197.3	0.449	0.795	1.144	2.55	NonLiqble.
2-CPT7																				

Project Name:	SVRT - Yard & Shops
Project Number:	6600.300.102
Date:	4-Feb-08
CPT Number:	2-CPT7
Depth to Groundwater:	6 ft

EQ Magnitude (M_w):	6.5
PGA (g):	0.54
MSF:	1.44

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Frict. (TSF)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip Q _n	Corr. Tip Q	Friction Ratio F	Ic	F.C. (%)	K _{CPT}	ΔQ_{eN}	(Q _{eN}) _s	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments
2-CPT7	57.58	6	97.2	2.19	135	7773	4555	63.0	41.0	2.35	2.4	28.3	0.62	103.8	166.9	0.449	0.512	0.737	1.64	FS>1.3
2-CPT7	57.62	6	84.3	2.51	135	7779	4558	54.6	35.3	3.12	2.6	34.2	0.78	193.1	247.8	0.449	1.494	2.152	4.79	FS>1.3
2-CPT7	57.65	6	90.1	2.67	135	7783	4560	58.4	37.8	3.10	2.6	33.0	0.75	173.7	232.0	0.449	1.242	1.788	3.98	FS>1.3
2-CPT7	57.69	6	102.6	2.82	135	7788	4563	66.5	43.2	2.86	2.5	30.0	0.67	133.3	199.7	0.449	0.821	1.182	2.63	FS>1.3
2-CPT7	57.74	6	103.6	2.97	135	7795	4566	67.1	43.6	2.98	2.5	30.4	0.68	141.4	208.5	0.449	0.923	1.329	2.96	FS>1.3
2-CPT7	57.83	6	98.4	3.07	135	7807	4573	63.7	41.3	3.25	2.5	32.4	0.73	172.6	236.3	0.449	1.307	1.881	4.19	FS>1.3
2-CPT7	57.91	6	97.2	2.96	135	7818	4579	62.9	40.7	3.17	2.5	32.2	0.73	167.7	230.6	0.449	1.220	1.757	3.91	FS>1.3
2-CPT7	58	6	98.9	2.38	135	7830	4585	63.9	41.4	2.51	2.5	28.9	0.64	113.3	177.2	0.450	0.598	0.861	1.91	FS>1.3
2-CPT7	58.09	6	93.4	1.71	135	7842	4592	60.3	39.0	1.91	2.4	26.6	0.58	82.5	142.8	0.450	0.351	0.505	1.12	Low F.S.
2-CPT7	58.18	6	83.8	1.51	135	7854	4598	54.1	34.7	1.89	2.4	28.1	0.62	87.5	141.6	0.450	0.344	0.495	1.10	Low F.S.
2-CPT7	58.26	6	71.1	1.45	135	7865	4604	45.8	29.2	2.16	2.5	32.4	0.73	124.3	170.2	0.450	0.538	0.775	1.72	FS>1.3
2-CPT7	58.35	6	56.2	1.52	135	7877	4611	36.2	22.7	2.91	2.7	40.6	0.80	144.9	181.1	0.450	0.632	0.910	2.02	NonLiqble.
2-CPT7	58.43	6	42.2	1.91	135	7888	4616	27.2	16.6	4.99	3.0	55.7	0.80	108.7	135.9	0.450	0.313	0.451	1.00	NonLiqble.
2-CPT7	58.52	6	45.6	2.1	135	7900	4623	29.3	18.0	5.04	2.9	54.1	0.80	117.4	146.7	0.450	0.374	0.538	1.20	NonLiqble.
2-CPT7	58.6	6	47.6	2.04	135	7911	4629	30.6	18.8	4.67	2.9	51.8	0.80	122.4	153.1	0.450	0.413	0.595	1.32	NonLiqble.
2-CPT7	58.69	6	103.2	2.19	135	7923	4635	66.3	42.8	2.21	2.4	27.0	0.59	94.1	160.4	0.450	0.464	0.668	1.49	FS>1.3
2-CPT7	58.77	6	163.8	2.26	135	7934	4641	105.2	68.8	1.41	2.1	16.8	0.31	48.2	153.4	0.450	0.416	0.599	1.33	FS>1.3
2-CPT7	58.85	6	208.2	2.24	125	7356	4058	143.0	100.7	1.10	1.9	11.2	0.17	28.4	171.4	0.477	0.549	0.790	1.66	FS>1.3
2-CPT7	58.93	6	241.4	2.29	125	7366	4063	165.7	117.0	0.96	1.8	9.2	0.11	20.8	186.5	0.477	0.683	0.984	2.06	FS>1.3
2-CPT7	59.02	6	248.9	2.25	125	7378	4069	170.7	120.5	0.92	1.8	8.6	0.10	18.4	189.2	0.477	0.709	1.022	2.14	FS>1.3
2-CPT7	59.1	6	255.8	2.26	125	7388	4074	175.3	123.7	0.90	1.8	8.3	0.09	17.0	192.4	0.477	0.742	1.069	2.24	FS>1.3
2-CPT7	59.18	6	260.6	1.96	115	6806	3487	193.1	147.4	0.76	1.7	6.2	0.03	6.5	199.6	0.514	0.819	1.180	2.30	FS>1.3
2-CPT7	59.26	6	286.1	1.94	115	6815	3491	211.9	161.9	0.69	1.6	5.1	0.00	0.7	212.5	0.514	0.973	1.401	2.73	FS>1.3
2-CPT7	59.34	6	303.4	1.91	115	6824	3496	224.5	171.6	0.64	1.6	4.4	0.00	0.0	224.5	0.514	1.133	1.631	3.17	FS>1.3
2-CPT7	59.42	6	316.1	1.64	115	6833	3500	233.8	178.6	0.52	1.5	3.4	0.00	0.0	233.8	0.514	1.268	1.826	3.55	FS>1.3
2-CPT7	59.5	6	331.7	1.52	105	6248	2909	269.1	225.8	0.46	1.4	1.8	0.00	0.0	269.1	0.565	1.892	2.724	4.82	FS>1.3
2-CPT7	59.58	6	321.4	1.5	105	6256	2913	260.6	218.5	0.47	1.4	2.0	0.00	0.0	260.6	0.565	1.725	2.485	4.39	FS>1.3
2-CPT7	59.67	6	314	1.67	115	6862	3513	231.8	176.7	0.54	1.5	3.6	0.00	0.0	231.8	0.514	1.238	1.783	3.47	FS>1.3
2-CPT7	59.75	6	305	1.64	115	6871	3517	225.0	171.4	0.54	1.6	3.8	0.00	0.0	225.0	0.514	1.140	1.641	3.19	FS>1.3
2-CPT7	59.83	6	288.7	1.47	115	6880	3521	212.9	161.9	0.52	1.6	3.8	0.00	0.0	212.9	0.514	0.977	1.407	2.74	FS>1.3
2-CPT7	59.92	6	263.3	1.73	115	6891	3526	194.0	147.3	0.67	1.7	5.5	0.01	2.8	196.8	0.514	0.789	1.136	2.21	FS>1.3
2-CPT7	60	6	240.7	2.01	125	7500	4130	163.9	114.7	0.85	1.8	8.5	0.09	17.1	180.9	0.421	0.631	0.908	2.16	FS>1.3
2-CPT7	60.08	6	229.8	2.11	125	7510	4135	156.4	109.3	0.93	1.9	9.5	0.12	21.3	177.6	0.421	0.601	0.866	2.06	FS>1.3
2-CPT7	60.16	6	217.8	2.18	125	7520	4140	148.1	103.3	1.02	1.9	10.5	0.15	25.5	173.6	0.421	0.566	0.816	1.94	FS>1.3
2-CPT7	60.25	6	197	2.28	125	7531	4146	133.9	93.2	1.18	2.0	12.4	0.20	33.1	166.9	0.421	0.513	0.738	1.75	FS>1.3
2-CPT7	60.33	6	185.5	2.39	135	8145	4754	117.7	76.3	1.32	2.1	15.1	0.27	43.7	161.4	0.397	0.471	0.678	1.71	FS>1.3
2-CPT7	60.41	6	182.9	2.48	135	8155	4760	116.0	75.1	1.39	2.1	15.7	0.29	46.5	162.5	0.397	0.479	0.690	1.74	FS>1.3
2-CPT7	60.5	6	185.9	2.21	125	7563	4162	126.1	87.5	1.21	2.0	13.2	0.22	35.3	161.4	0.421	0.471	0.678	1.61	FS>1.3
2-CPT7	60.58	6	185.8	1.92	125	7573	4167	125.9	87.3	1.05	2.0	12.2	0.19	29.8	155.7	0.421	0.431	0.621	1.47	FS>1.3
2-CPT7	60.66	6	185.6	1.81	125	7583	4172	125.7	87.1	1.00	2.0	11.8	0.18	27.8	153.5	0.421	0.416	0.600	1.42	FS>1.3
2-CPT7	60.74	6	183.4	1.5	125	7593	4177	124.2	86.0	0.84	1.9	10.7	0.15	22.4	146.6	0.421	0.373	0.537	1.27	Low F.S.
2-CPT7	60.77	6	177.2	1.58	125	7596	4179	119.9	83.0	0.91	1.9	11.6	0.18	25.7	145.6	0.421	0.367	0.529	1.26	Low F.S.
2-CPT7	60.8	6	177.8	1.65	125	7600	4180	120.3	83.2	0.95	2.0	11.8	0.18	26.9	147.2	0.421	0.377	0.543	1.29	Low F.S.
2-CPT7	60.87	6	178.3	1.77	125	7609	4185	120.6	83.4	1.01	2.0	12.3	0.19	29.2	149.8	0.421	0.393	0.565	1.34	FS>1.3
2-CPT7	60.92	6	186.5	1.85	125	7615	4188	126.1	87.2	1.01	2.0	11.9	0.18	28.4	154.5	0.421	0.423	0.609	1.45	FS>1.3
2-CPT7	60.99	6	198	1.88	125	7624	4192	133.8	92.6	0.97	1.9	11.1	0.16	25.8	159.6	0.421	0.458	0.660	1.57	FS>1.3
2-CPT7	61.07	6	206.8	1.91	125	7634	4197	139.7	96.7	0.94	1.9	10.5	0.15	24.1	163.8	0.421	0.488	0.703	1.67	FS>1.3
2-CPT7	61.13	6	210	1.91	125	7641	4201	141.8	98.1	0.93	1.9	10.3	0.14	23.3	165.1	0.421	0.498	0.718	1.70	FS>1.3
2-CPT7	61.21	6	219.3	1.85	125	7651	4206	147.9	102.4	0.86	1.9	9.5	0.12	20.0	168.0	0.421	0.521	0.750	1.78	FS>1.3
2-CPT7	61.27	6	223.2	1.83	125	7659	4210	150.5	104.2	0.83	1.8	9.2	0.11	18.8	169.3	0.421	0.531	0.765	1.82	FS>1.3
2-CPT7	61.34	6	230.5	1.87	125	7668	4214	155.4	107.5	0.83	1.8	8.8	0.10	17.8	173.1	0.421	0.563	0.810	1.92	FS>1.3
2-CPT7	61.41	6	236.3	1.86	125	7676	4219	159.2	110.2	0.80	1.8	8.5	0.09	16.3	175.5	0.422	0.583	0.839	1.99	FS>1.3
2-CPT7	61.46	6	238.5	1.85	125	7683	4222	160.6	111.1	0.79	1.8	8.3	0.09	15.7	176.3	0.422	0.590	0.849	2.01	FS>1.3
2-CPT7	61.5	6	246.8	1.92	125	7688	4224	166.1	115.0	0.79	1.8	8.1	0.08	15.0	181.1	0.422	0.633	0.911	2.16	FS>1.3
2-CPT7	61.55	6	254.2	2.12	125	7694	4227	171.1	118.4	0.85	1.8	8.3	0.09	16.5	187.5	0.422	0.693	0.998	2.37	FS>1.3
2-CPT7	61.59	6	260.2	2.26	125	7699	4230	175.0	121.2	0.88	1.8	8.4	0.09	17.3	192.3	0.422	0.742	1.068	2.53	FS>1.3
2-CPT7	61.63	6	266.8	2.07	125	7704	4232	179.4	124.2	0.79	1.8	7.5	0.07	13.0	192.4	0.422	0.743	1.069	2.54	FS>1.3
2-CPT7	61.67	6	267.8	2.07	125	7709	4235	180.1	124.6	0.78	1.8	7.5	0.07	12.8	192.8	0.422	0.747	1.076	2.55	FS>1.3
2-CPT7	61.71	6	264.1	2.12	125	7714	4237	177.5	122.8	0.81	1.8	7.8	0.07	14.4	191.9	0.422	0.737	1.061	2.52	FS>1.3
2-CPT7	61.75	6	256.4	2.26	125	7719	4240	172.3	119.1	0.89	1.8	8.6	0.10	18.2	190.5					

Project Name:	SVRT - Yard & Shops
Project Number:	6600.300.102
Date:	4-Feb-08
CPT Number:	2-CPT7
Depth to Groundwater:	6 ft

EQ Magnitude (M _w):	6.5
PGA (g):	0.54
MSF:	1.44

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Frict. (TSF)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip Q _{ns}	Corr. Tip Q	Friction Ratio F	Ic	F.C. (%)	K _{CPT}	ΔQ_{ns}	(Q _{ns}) _s	Ratio	Induced Stress M7.5	Liquef. Stress M6.50	Liquef. Stress M5.50	Factor of Safety	Comments
2-CPT7	62.38	6	184.9	2.08	125	7798	4279	123.7	84.6	1.15	2.0	13.1	0.22	34.0	157.7	0.422	0.445	0.640	1.52	FS>1.3	
2-CPT7	62.42	6	188.2	2.04	125	7803	4282	125.8	86.0	1.11	2.0	12.6	0.20	32.3	158.1	0.422	0.448	0.645	1.53	FS>1.3	
2-CPT7	62.46	6	192.4	2.01	125	7808	4284	128.6	88.0	1.07	2.0	12.2	0.19	30.5	159.1	0.422	0.455	0.655	1.55	FS>1.3	
2-CPT7	62.49	6	201.2	2.02	125	7811	4286	134.5	92.0	1.02	1.9	11.5	0.17	28.2	162.7	0.422	0.481	0.692	1.64	FS>1.3	
2-CPT7	62.53	6	210.9	1.98	125	7816	4289	140.9	96.5	0.96	1.9	10.6	0.15	25.0	165.9	0.422	0.504	0.726	1.72	FS>1.3	
2-CPT7	62.56	6	222.5	1.94	125	7820	4291	148.6	101.8	0.89	1.9	9.7	0.13	21.4	170.0	0.422	0.537	0.773	1.83	FS>1.3	
2-CPT7	62.6	6	237.1	2	125	7825	4293	158.3	108.6	0.86	1.8	9.0	0.11	19.0	177.3	0.422	0.598	0.862	2.04	FS>1.3	
2-CPT7	62.63	6	249.6	2.19	125	7829	4295	166.6	114.4	0.89	1.8	8.9	0.10	19.1	185.8	0.422	0.676	0.974	2.31	FS>1.3	
2-CPT7	62.66	6	260.9	2.2	125	7833	4297	174.1	119.6	0.86	1.8	8.3	0.09	16.7	190.9	0.422	0.727	1.047	2.48	FS>1.3	
2-CPT7	62.69	6	272.5	2.28	125	7836	4299	181.8	124.9	0.85	1.8	7.9	0.08	15.4	197.2	0.422	0.794	1.143	2.71	FS>1.3	
2-CPT7	62.72	6	283.4	2.5	125	7840	4301	189.1	129.9	0.89	1.8	8.0	0.08	16.2	205.3	0.422	0.885	1.274	3.02	FS>1.3	
2-CPT7	62.75	6	291.4	2.79	125	7844	4303	194.4	133.6	0.97	1.8	8.3	0.09	18.6	212.9	0.422	0.978	1.408	3.33	FS>1.3	
2-CPT7	62.79	6	292.9	3.11	125	7849	4305	195.3	134.2	1.08	1.8	8.9	0.10	22.7	218.0	0.422	1.043	1.503	3.56	FS>1.3	
2-CPT7	62.82	6	296.4	3.39	125	7853	4307	197.6	135.8	1.16	1.9	9.3	0.12	25.7	223.3	0.422	1.116	1.607	3.80	FS>1.3	
2-CPT7	62.87	6	318.4	3.78	135	8487	4939	198.2	127.2	1.20	1.9	10.1	0.13	30.9	229.1	0.398	1.199	1.726	4.34	FS>1.3	
2-CPT7	62.92	6	328.4	3.87	135	8494	4942	204.4	131.1	1.19	1.9	9.8	0.13	29.8	234.2	0.398	1.275	1.836	4.61	FS>1.3	
2-CPT7	62.96	6	346.7	3.88	125	7870	4316	230.9	158.8	1.13	1.8	8.1	0.08	20.7	251.6	0.422	1.562	2.249	5.32	FS>1.3	
2-CPT7	63	6	357.9	3.87	125	7875	4318	238.3	163.9	1.09	1.8	7.7	0.07	18.2	256.5	0.422	1.649	2.375	5.62	FS>1.3	
2-CPT7	63.03	6	352.5	3.92	125	7879	4320	234.7	161.3	1.12	1.8	7.9	0.08	20.0	254.6	0.422	1.615	2.326	5.51	FS>1.3	
2-CPT7	63.07	6	328.9	4.02	135	8514	4953	204.5	131.0	1.24	1.9	10.0	0.13	31.7	236.2	0.398	1.306	1.880	4.72	FS>1.3	
2-CPT7	63.11	6	327.8	3.86	135	8520	4956	203.7	130.5	1.19	1.9	9.8	0.13	29.9	233.7	0.398	1.267	1.824	4.58	FS>1.3	
2-CPT7	63.15	6	318.4	3.77	135	8525	4959	197.8	126.6	1.20	1.9	10.1	0.14	30.9	228.8	0.398	1.193	1.718	4.31	FS>1.3	
2-CPT7	63.19	6	308.6	3.71	135	8531	4962	191.7	122.6	1.22	1.9	10.4	0.14	32.4	224.1	0.398	1.127	1.623	4.07	FS>1.3	
2-CPT7	63.24	6	299.6	2.61	125	7905	4333	199.1	136.4	0.88	1.8	7.5	0.07	14.5	213.7	0.423	0.987	1.421	3.36	FS>1.3	
2-CPT7	63.3	6	296.4	2.34	125	7913	4337	196.9	134.8	0.80	1.7	7.1	0.06	11.5	208.4	0.423	0.922	1.327	3.14	FS>1.3	
2-CPT7	63.36	6	287.4	2.26	125	7920	4341	190.9	130.5	0.80	1.8	7.3	0.06	12.2	203.1	0.423	0.859	1.237	2.93	FS>1.3	
2-CPT7	63.42	6	282.6	2.38	125	7928	4344	187.6	128.2	0.85	1.8	7.8	0.07	15.0	202.6	0.423	0.853	1.229	2.91	FS>1.3	
2-CPT7	63.45	6	280.5	2.5	125	7931	4346	186.2	127.2	0.90	1.8	8.2	0.08	17.2	203.4	0.423	0.862	1.242	2.94	FS>1.3	
2-CPT7	63.48	6	281.5	2.53	125	7935	4348	186.8	127.6	0.91	1.8	8.2	0.09	17.4	204.2	0.423	0.872	1.256	2.97	FS>1.3	
2-CPT7	63.52	6	279.8	2.54	125	7940	4351	185.6	126.7	0.92	1.8	8.3	0.09	18.0	203.6	0.423	0.865	1.245	2.95	FS>1.3	
2-CPT7	63.56	6	276.4	2.64	125	7945	4353	183.3	125.1	0.97	1.8	8.7	0.10	20.2	203.5	0.423	0.864	1.244	2.94	FS>1.3	
2-CPT7	63.61	6	267.9	2.78	125	7951	4356	177.6	121.1	1.05	1.9	9.5	0.12	24.2	201.8	0.423	0.845	1.216	2.88	FS>1.3	
2-CPT7	63.67	6	256.3	2.31	125	7959	4360	169.8	115.7	0.92	1.8	8.9	0.11	19.9	189.8	0.423	0.715	1.030	2.44	FS>1.3	
2-CPT7	63.74	6	242.3	1.24	115	7330	3727	173.7	128.0	0.52	1.7	5.3	0.01	1.2	174.9	0.456	0.577	0.832	1.83	FS>1.3	
2-CPT7	63.82	6	235.6	1.38	115	7339	3731	168.8	124.3	0.60	1.7	6.1	0.03	5.0	173.7	0.456	0.568	0.817	1.79	FS>1.3	
2-CPT7	63.9	6	225.1	1.49	115	7349	3736	161.1	118.5	0.67	1.7	7.0	0.05	9.1	170.3	0.456	0.539	0.776	1.70	FS>1.3	
2-CPT7	63.95	6	201.8	1.52	115	7354	3738	144.4	106.0	0.77	1.8	8.5	0.09	15.0	159.4	0.456	0.457	0.658	1.44	FS>1.3	
2-CPT7	64.04	6	192.6	1.66	125	8005	4383	127.3	86.0	0.88	1.9	11.1	0.16	24.6	151.8	0.423	0.406	0.584	1.38	FS>1.3	
2-CPT7	64.13	6	142.4	1.81	135	8658	5030	87.8	54.9	1.31	2.2	18.6	0.36	49.9	137.8	0.399	0.323	0.465	1.17	Low F.S.	
2-CPT7	64.22	6	93.9	1.89	135	8670	5037	57.9	35.5	2.11	2.5	29.1	0.64	104.1	162.0	0.399	0.476	0.685	1.72	FS>1.3	
2-CPT7	64.3	6	57.5	1.68	135	8681	5043	35.4	21.1	3.16	2.8	43.2	0.80	141.7	177.1	0.399	0.597	0.860	2.16	NonLiqble.	
2-CPT7	64.39	6	47.2	1.42	135	8693	5049	29.1	17.0	3.31	2.8	48.2	0.80	116.3	145.3	0.399	0.365	0.526	1.32	NonLiqble.	
2-CPT7	64.47	6	38	1.1	135	8703	5055	23.4	13.3	3.27	2.9	53.1	0.80	93.5	116.9	0.399	0.229	0.329	0.83	NonLiqble.	
2-CPT7	64.56	6	31.8	0.83	135	8716	5061	19.6	10.8	3.02	3.0	56.5	0.80	78.2	97.8	0.399	0.167	0.240	0.60	NonLiqble.	
2-CPT7	64.64	6	32	0.58	125	8080	4421	21.1	12.6	2.07	2.8	47.3	0.80	84.2	105.3	0.423	0.189	0.272	0.64	NonLiqble.	
2-CPT7	64.73	6	32.3	0.48	125	8091	4426	21.2	12.8	1.70	2.8	44.5	0.80	85.0	106.2	0.423	0.191	0.276	0.65	NonLiqble.	
2-CPT7	64.81	6	28.8	0.46	125	8101	4432	18.9	11.2	1.86	2.8	48.5	0.80	75.7	94.6	0.423	0.159	0.229	0.54	NonLiqble.	
2-CPT7	64.9	6	28.1	0.45	125	8113	4437	18.5	10.8	1.87	2.9	49.3	0.80	73.8	92.3	0.424	0.153	0.220	0.52	NonLiqble.	
2-CPT7	64.98	6	28.1	0.46	125	8123	4442	18.4	10.8	1.91	2.9	49.6	0.80	73.8	92.2	0.424	0.153	0.220	0.52	NonLiqble.	
2-CPT7	65.07	6	27.2	0.48	125	8134	4448	17.8	10.4	2.08	2.9	51.7	0.80	71.4	89.2	0.424	0.146	0.210	0.50	NonLiqble.	
2-CPT7	65.15	6	28.2	0.5	125	8144	4453	18.5	10.8	2.07	2.9	50.7	0.80	74.0	92.5	0.424	0.153	0.221	0.52	NonLiqble.	
2-CPT7	65.24	6	28.4	0.53	125	8155	4458	18.6	10.9	2.18	2.9	51.3	0.80	74.4	93.0	0.424	0.155	0.223	0.53	NonLiqble.	
2-CPT7	65.32	6	27.9	0.55	125	8165	4463	18.3	10.7	2.31	2.9	52.7	0.80	73.1	91.4	0.424	0.151	0.217	0.51	NonLiqble.	
2-CPT7	65.4	6	27.6	0.57	125	8175	4468	18.1	10.5	2.42	2.9	53.7	0.80	72.3	90.3	0.424	0.149	0.214	0.50	NonLiqble.	
2-CPT7	65.49	6	27.5	0.59	125	8186	4474	18.0	10.5	2.52	2.9	54.4	0.80	72.0	89.9	0.424	0.148	0.213	0.50	NonLiqble.	
2-CPT7	65.58	6	27.5	0.63	125	8198	4480	18.0	10.4	2.69	3.0	55.5	0.80	71.9	89.9	0.424	0.148	0.212	0.50	NonLiqble.	
2-CPT7	65.67	6	27.8	0.76	135	8865	5142	17.0	9.1	3.25	3.1	62.0	0.80	67.9	84.8	0.399	0.137	0.197	0.49	NonLiqble.	
2-CPT7	65.75	6	28.6	0.79	135	8876	5148	17.4	9.4	3.27	3.0	61.3	0.80	69.8	87.2	0.399	0.142	0.204	0.51	NonLiqble.	
2-CPT7	65.84	6	30.4	0.7	125	8230	4496	19.8	11.7	2.66	2.9	52.7	0.80	79.3	99.2	0.424	0.171	0.246	0.58	NonLiqble.	
2-CPT7	65.93	6	29.5	0.7	125	8241	4502	19.2	11.3	2.76	2.9	54.1	0.80	77.0	96.2	0.424	0.163	0.234	0.55	NonLiqble.	
2-CPT7	66.02	6	26.8	0.77	135</																

Project Name:	SVRT - Yard & Shops
Project Number:	6600.300.102
Date:	4-Feb-08
CPT Number:	2-CPT7
Depth to Groundwater:	6 ft

EQ Magnitude (M_w):	6.5
PGA (g):	0.54
MSF:	1.44

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Frict. (TSF)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip Q_{in}	Corr. Tip Q	Friction Ratio F	Ic	F.C. (%)	K _{CPT}	ΔQ_{in}	(Q_{in}) _s	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments
2-CPT7	67.19	6	77.8	4.06	135	9071	5252	47.0	27.9	5.54	2.8	47.2	0.80	187.9	234.8	0.400	1.285	1.850	4.62	NonLiqble.
2-CPT7	67.28	6	96.2	4.71	135	9083	5259	58.0	34.8	5.14	2.7	42.0	0.80	232.2	290.2	0.400	2.353	3.388	8.47	NonLiqble.
2-CPT7	67.49	6	151.2	5.04	135	9111	5274	91.1	55.6	3.44	2.5	29.0	0.64	162.5	253.6	0.400	1.597	2.299	5.75	FS>1.3
2-CPT7	67.54	6	160	4.66	135	9118	5278	96.4	58.9	3.00	2.4	26.5	0.57	129.7	226.1	0.400	1.155	1.663	4.16	FS>1.3
2-CPT7	67.6	6	178.6	4.32	135	9126	5282	107.5	65.9	2.48	2.3	22.9	0.48	98.2	205.8	0.400	0.890	1.282	3.20	FS>1.3
2-CPT7	67.64	6	199	3.89	135	9131	5285	119.8	73.5	2.00	2.2	19.3	0.38	74.3	194.1	0.400	0.760	1.094	2.73	FS>1.3
2-CPT7	67.71	6	208.4	3.33	135	9141	5290	125.4	77.0	1.63	2.1	16.9	0.32	58.4	183.8	0.400	0.657	0.947	2.37	FS>1.3
2-CPT7	67.74	6	223.1	3.75	135	9145	5292	134.2	82.5	1.72	2.1	16.7	0.31	60.7	194.9	0.400	0.769	1.107	2.76	FS>1.3
2-CPT7	67.78	6	234	4.2	135	9150	5295	140.7	86.6	1.83	2.1	16.8	0.32	64.7	205.4	0.400	0.886	1.276	3.19	FS>1.3
2-CPT7	67.81	6	240	4.14	135	9154	5297	144.3	88.8	1.76	2.1	16.2	0.30	61.4	205.7	0.400	0.889	1.280	3.20	FS>1.3
2-CPT7	67.85	6	238.4	3.77	135	9160	5300	143.3	88.2	1.61	2.1	15.5	0.28	55.6	198.8	0.400	0.811	1.168	2.92	FS>1.3
2-CPT7	67.88	6	251.3	3.53	135	9164	5302	151.0	93.0	1.43	2.0	14.0	0.24	47.4	198.4	0.400	0.806	1.161	2.90	FS>1.3
2-CPT7	67.91	6	260.8	3.28	135	9168	5305	156.7	96.6	1.28	2.0	12.7	0.21	40.7	197.4	0.400	0.796	1.146	2.86	FS>1.3
2-CPT7	67.94	6	266.6	3.01	125	8493	4627	171.5	113.3	1.15	1.9	10.6	0.15	30.1	201.6	0.425	0.842	1.212	2.85	FS>1.3
2-CPT7	67.97	6	272.4	3.31	135	9176	5309	163.6	100.8	1.24	2.0	12.1	0.19	38.2	201.8	0.400	0.844	1.215	3.03	FS>1.3
2-CPT7	68.01	6	289.5	3.54	135	9181	5312	173.8	107.2	1.24	1.9	11.6	0.18	37.3	211.1	0.400	0.955	1.375	3.43	FS>1.3
2-CPT7	68.04	6	266.5	3.63	135	9185	5314	160.0	98.5	1.39	2.0	13.2	0.22	44.7	204.7	0.400	0.877	1.263	3.15	FS>1.3
2-CPT7	68.08	6	264.4	3.35	135	9191	5317	158.7	97.7	1.29	2.0	12.7	0.21	41.0	199.6	0.400	0.820	1.180	2.95	FS>1.3
2-CPT7	68.13	6	264.1	3.11	135	9198	5321	158.4	97.5	1.20	2.0	12.1	0.19	37.3	195.8	0.400	0.778	1.120	2.80	FS>1.3
2-CPT7	68.18	6	267	2.92	125	8523	4642	171.5	113.1	1.11	1.9	10.4	0.14	28.8	200.2	0.425	0.827	1.190	2.80	FS>1.3
2-CPT7	68.23	6	271.5	2.61	125	8529	4646	174.3	115.0	0.98	1.9	9.4	0.12	23.1	197.4	0.425	0.796	1.146	2.69	FS>1.3
2-CPT7	68.28	6	252.3	2.28	125	8535	4649	161.9	106.7	0.92	1.9	9.6	0.12	22.5	184.4	0.425	0.664	0.955	2.25	FS>1.3
2-CPT7	68.33	6	242.9	2.18	125	8541	4652	155.8	102.6	0.91	1.9	9.8	0.13	23.2	179.0	0.425	0.613	0.883	2.08	FS>1.3
2-CPT7	68.36	6	247.8	2.02	125	8545	4654	158.9	104.6	0.83	1.8	9.1	0.11	19.5	178.4	0.425	0.608	0.876	2.06	FS>1.3
2-CPT7	68.4	6	253	1.86	115	7866	3972	175.6	125.4	0.75	1.8	7.2	0.06	10.8	186.4	0.459	0.683	0.983	2.14	FS>1.3
2-CPT7	68.43	6	262.6	1.65	115	7869	3974	182.3	130.1	0.64	1.7	6.1	0.03	5.5	187.8	0.459	0.696	1.002	2.18	FS>1.3
2-CPT7	68.46	6	269.1	1.48	115	7873	3975	186.7	133.3	0.56	1.7	5.3	0.01	1.6	188.4	0.459	0.702	1.010	2.20	FS>1.3
2-CPT7	68.49	6	276.2	1.51	115	7876	3977	191.6	136.9	0.55	1.6	5.1	0.00	0.7	192.3	0.459	0.741	1.068	2.33	FS>1.3
2-CPT7	68.54	6	285.2	1.5	115	7882	3980	197.8	141.3	0.53	1.6	4.8	0.00	0.0	197.8	0.459	0.800	1.152	2.51	FS>1.3
2-CPT7	68.58	6	285.7	1.63	115	7887	3982	198.1	141.5	0.58	1.6	5.1	0.00	0.6	198.7	0.459	0.810	1.166	2.54	FS>1.3
2-CPT7	68.62	6	293.2	1.7	115	7891	3984	203.3	145.2	0.59	1.6	5.0	0.00	0.2	203.4	0.459	0.863	1.243	2.71	FS>1.3
2-CPT7	68.66	6	286.9	1.57	115	7896	3986	198.8	141.9	0.55	1.6	4.9	0.00	0.0	198.8	0.459	0.811	1.168	2.54	FS>1.3
2-CPT7	68.71	6	294	1.38	105	7215	3301	223.9	175.8	0.48	1.5	3.1	0.00	0.0	223.9	0.506	1.124	1.618	3.20	FS>1.3
2-CPT7	68.74	6	293.5	1.44	105	7218	3303	223.5	175.5	0.50	1.5	3.3	0.00	0.0	223.5	0.506	1.118	1.609	3.18	FS>1.3
2-CPT7	68.77	6	295.1	1.5	115	7909	3992	204.4	145.8	0.52	1.6	4.4	0.00	0.0	204.4	0.459	0.874	1.258	2.74	FS>1.3
2-CPT7	68.81	6	295.3	1.56	115	7913	3994	204.4	145.8	0.54	1.6	4.6	0.00	0.0	204.4	0.459	0.875	1.260	2.74	FS>1.3
2-CPT7	68.85	6	312.3	1.62	115	7918	3996	216.2	154.3	0.53	1.6	4.2	0.00	0.0	216.2	0.459	1.019	1.468	3.20	FS>1.3
2-CPT7	68.88	6	325.3	1.68	115	7921	3997	225.1	160.7	0.52	1.6	3.9	0.00	0.0	225.1	0.459	1.141	1.643	3.58	FS>1.3
2-CPT7	68.91	6	336.9	1.73	115	7925	3999	233.1	166.4	0.52	1.6	3.7	0.00	0.0	233.1	0.459	1.258	1.811	3.95	FS>1.3
2-CPT7	68.96	6	363.6	2.05	115	7930	4002	251.5	179.7	0.57	1.6	3.7	0.00	0.0	251.5	0.459	1.559	2.245	4.89	FS>1.3
2-CPT7	69	6	383.3	2.32	115	7935	4004	265.0	189.4	0.61	1.6	3.7	0.00	0.0	265.0	0.459	1.812	2.609	5.68	FS>1.3
2-CPT7	69.03	6	385.5	2.52	115	7938	4005	266.5	190.4	0.66	1.6	4.0	0.00	0.0	266.5	0.459	1.841	2.650	5.77	FS>1.3
2-CPT7	69.07	6	393.1	2.76	115	7943	4007	271.7	194.1	0.71	1.6	4.3	0.00	0.0	271.7	0.459	1.945	2.801	6.10	FS>1.3
2-CPT7	69.24	6	428.3	3.25	125	8655	4709	273.1	180.0	0.77	1.6	5.1	0.00	0.5	273.6	0.426	1.984	2.857	6.71	FS>1.3
2-CPT7	69.27	6	441.8	3.25	125	8659	4711	281.6	185.7	0.74	1.6	4.7	0.00	0.0	281.6	0.426	2.158	3.107	7.30	FS>1.3
2-CPT7	69.3	6	444.7	3.27	125	8663	4713	283.4	186.8	0.74	1.6	4.7	0.00	0.0	283.4	0.426	2.198	3.165	7.43	FS>1.3
2-CPT7	69.35	6	454.3	3.66	125	8669	4716	289.5	190.8	0.81	1.6	5.1	0.00	0.4	289.9	0.426	2.345	3.376	7.93	FS>1.3
2-CPT7	69.38	6	459.9	4.02	125	8673	4718	293.0	193.1	0.88	1.7	5.4	0.01	3.3	296.3	0.426	2.499	3.598	8.45	FS>1.3
2-CPT7	69.42	6	464.4	4.11	125	8678	4720	295.8	194.9	0.89	1.7	5.4	0.01	3.5	299.2	0.426	2.571	3.703	8.69	FS>1.3
2-CPT7	69.47	6	474	4.05	125	8684	4723	301.8	198.8	0.86	1.6	5.1	0.00	1.1	302.9	0.426	2.663	3.835	9.00	FS>1.3
2-CPT7	69.53	6	462.4	3.58	125	8691	4727	294.3	193.7	0.78	1.6	4.8	0.00	0.0	294.3	0.426	2.450	3.528	8.28	FS>1.3
2-CPT7	69.6	6	449.1	3.67	125	8700	4731	285.7	187.9	0.83	1.6	5.2	0.01	1.6	287.3	0.426	2.285	3.290	7.72	FS>1.3
2-CPT7	69.67	6	413.2	3.84	125	8709	4736	262.7	172.6	0.94	1.7	6.4	0.04	10.3	273.0	0.426	1.972	2.840	6.67	FS>1.3
2-CPT7	69.74	6	408.2	3.55	125	8718	4740	259.4	170.3	0.88	1.7	6.1	0.03	8.0	267.4	0.426	1.858	2.675	6.28	FS>1.3
2-CPT7	69.81	6	385	3.46	125	8726	4745	244.6	160.4	0.91	1.7	6.7	0.04	11.4	256.0	0.426	1.640	2.361	5.54	FS>1.3
2-CPT7	69.88	6	355.8	2.77	125	8735	4749	225.9	147.9	0.79	1.7	6.4	0.04	8.6	234.5	0.426	1.280	1.843	4.32	FS>1.3
2-CPT7	69.96	6	355.3	3.11	125	8745	4754	225.5	147.6	0.89	1.7	7.0	0.05	13.0	238.5	0.426	1.342	1.932	4.53	FS>1.3
2-CPT7	70.03	6	358.6	3.55	125	8754	4758	227.5	148.8	1.00	1.8	7.7	0.07	17.9	245.4	0.426	1.454	2.093	4.91	FS>1.3
2-CPT7	70.1	6	364.4	3.62	125	8763	4763	231.0	151.1	1.01	1.8	7.7	0.07	17.6	248.6	0.426	1.509	2.174	5.10	FS>1.3
2-CPT7	70.17	6	387.7	3.82	125	8771	4767	245.7	160.8	1.00	1.8	7.2	0.06	15.3	261.0	0.426	1.734			

Project Name:	SVRT - Yard & Shops
Project Number:	6600.300.102
Date:	4-Feb-08
CPT Number:	2-CPT10
Depth to Groundwater:	6 ft

EQ Magnitude (M _w):	6.5
PGA (g):	0.54
MSF:	1.44

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Frict. (TSF)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip (PSF)	Corr. Tip Q	Friction Ratio F	Ic	F.C. (%)	K _{Crp}	Δq _{ts}	(q _{ts}) _s	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments
2-CPT10	1.04	6	25.3	1.36	135	140	140	48.5	359.2	5.39	2.2	17.5	0.33	24.4	72.8	0.351	0.116	0.167	0.48	Above W.T.
2-CPT10	1.12	6	67.8	1.96	135	151	151	129.9	895.5	2.89	1.8	7.3	0.06	8.4	138.3	0.351	0.326	0.469	1.34	Above W.T.
2-CPT10	1.2	6	82.2	2.63	135	162	162	157.4	1013.4	3.20	1.8	7.8	0.08	12.9	170.4	0.351	0.540	0.777	2.21	Above W.T.
2-CPT10	1.29	6	55.8	3.19	135	174	174	106.9	639.6	5.73	2.1	15.4	0.28	41.1	148.0	0.351	0.381	0.549	1.56	Above W.T.
2-CPT10	1.37	6	61.8	3.43	135	185	185	118.4	667.0	5.56	2.1	14.9	0.26	42.4	160.7	0.351	0.466	0.671	1.91	Above W.T.
2-CPT10	1.45	6	68.9	3.32	135	196	196	132.0	702.7	4.83	2.0	13.0	0.21	36.0	168.0	0.351	0.521	0.750	2.14	Above W.T.
2-CPT10	1.54	6	77.6	3.04	135	208	208	148.6	745.2	3.92	1.9	10.6	0.15	26.3	174.9	0.351	0.577	0.831	2.37	Above W.T.
2-CPT10	1.62	6	63.4	3.91	135	219	219	121.4	578.5	6.18	2.1	16.8	0.31	55.7	177.2	0.351	0.597	0.860	2.45	Above W.T.
2-CPT10	1.71	6	55.7	3.55	135	231	231	106.7	481.4	6.39	2.2	18.1	0.35	57.4	164.1	0.351	0.491	0.707	2.01	Above W.T.
2-CPT10	1.79	6	55.5	3.45	135	242	242	106.3	458.2	6.23	2.2	18.0	0.35	56.7	163.0	0.351	0.483	0.695	1.98	Above W.T.
2-CPT10	1.86	6	98.9	3.08	135	251	251	189.4	786.4	3.12	1.8	8.3	0.09	18.2	207.6	0.351	0.912	1.314	3.74	Above W.T.
2-CPT10	1.94	6	73.8	4.84	135	262	262	141.3	562.3	6.57	2.2	17.7	0.34	72.6	214.0	0.351	0.991	1.427	4.07	Above W.T.
2-CPT10	2.02	6	74.7	4.34	135	273	273	143.1	546.6	5.82	2.1	16.3	0.30	61.7	204.8	0.351	0.879	1.265	3.61	Above W.T.
2-CPT10	2.07	6	76.8	3.67	135	279	279	147.1	548.4	4.79	2.0	13.9	0.24	46.1	193.2	0.351	0.751	1.081	3.08	Above W.T.
2-CPT10	2.15	6	63.8	3.59	135	290	290	122.2	438.4	5.64	2.1	17.0	0.32	57.5	179.7	0.351	0.620	0.892	2.54	Above W.T.
2-CPT10	2.23	6	91.9	3.33	135	301	301	176.0	609.3	3.63	1.9	10.6	0.15	30.7	206.7	0.351	0.902	1.298	3.70	Above W.T.
2-CPT10	2.29	6	108.7	3	135	309	309	208.2	701.9	-2.76	1.8	7.6	0.07	15.5	223.7	0.351	1.120	1.613	4.60	Above W.T.
2-CPT10	2.37	6	77.2	2.52	135	320	320	147.9	481.4	3.27	1.9	10.5	0.15	25.5	173.4	0.351	0.565	0.813	2.32	Above W.T.
2-CPT10	2.45	6	77.1	2.56	135	331	331	147.7	465.0	3.33	1.9	10.8	0.16	27.2	174.9	0.351	0.578	0.832	2.37	Above W.T.
2-CPT10	2.52	6	79.1	2.53	135	340	340	151.5	463.8	3.21	1.9	10.5	0.15	26.0	177.5	0.351	0.600	0.864	2.46	Above W.T.
2-CPT10	2.6	6	67.4	2.36	135	351	351	129.1	382.9	3.51	2.0	12.3	0.19	31.2	160.3	0.351	0.463	0.667	1.90	Above W.T.
2-CPT10	2.68	6	46.7	2.2	135	362	362	89.4	257.0	4.73	2.2	18.0	0.35	47.8	137.2	0.351	0.320	0.461	1.31	Above W.T.
2-CPT10	2.76	6	38.8	2.06	135	373	373	74.3	207.2	5.33	2.3	21.2	0.43	56.5	130.8	0.351	0.288	0.415	1.18	Above W.T.
2-CPT10	2.83	6	32.9	1.94	135	382	382	63.0	171.2	5.93	2.3	24.2	0.51	66.6	129.6	0.351	0.283	0.407	1.16	Above W.T.
2-CPT10	2.89	6	24.8	1.73	135	390	390	47.5	126.1	7.03	2.5	29.8	0.66	92.8	140.3	0.351	0.337	0.485	1.38	Above W.T.
2-CPT10	2.95	6	27.3	1.58	135	398	398	52.3	136.0	5.83	2.4	26.1	0.56	67.8	120.1	0.351	0.241	0.347	0.99	Above W.T.
2-CPT10	3.04	6	21.4	1.48	135	410	410	41.0	103.2	6.98	2.5	31.9	0.72	103.9	144.9	0.351	0.363	0.522	1.49	Above W.T.
2-CPT10	3.12	6	18.9	1.34	135	421	421	36.2	88.7	7.17	2.6	34.1	0.78	125.9	162.1	0.351	0.476	0.686	1.95	Above W.T.
2-CPT10	3.18	6	17	1.38	135	429	429	32.6	78.2	8.22	2.7	38.1	0.80	130.2	162.8	0.351	0.481	0.693	1.97	Above W.T.
2-CPT10	3.25	6	17.6	1.33	135	439	439	33.7	79.2	7.65	2.6	36.6	0.80	134.8	168.5	0.351	0.525	0.756	2.15	Above W.T.
2-CPT10	3.32	6	17.8	1.35	135	448	448	34.1	78.4	7.68	2.6	36.8	0.80	136.4	170.5	0.351	0.541	0.778	2.22	Above W.T.
2-CPT10	3.39	6	16.4	1.39	135	458	458	31.4	70.6	8.60	2.7	40.2	0.80	125.6	157.0	0.351	0.440	0.634	1.81	Above W.T.
2-CPT10	3.46	6	17.1	1.44	135	467	467	32.7	72.2	8.54	2.7	39.8	0.80	131.0	163.7	0.351	0.488	0.703	2.00	Above W.T.
2-CPT10	3.55	6	16.7	1.48	135	479	479	32.0	68.7	8.99	2.7	41.5	0.80	127.9	159.9	0.351	0.460	0.663	1.89	Above W.T.
2-CPT10	3.63	6	15.9	1.48	135	490	490	30.5	63.9	9.45	2.8	43.5	0.80	121.8	152.3	0.351	0.408	0.588	1.67	Above W.T.
2-CPT10	3.71	6	16.1	1.46	135	501	501	30.8	63.3	9.21	2.7	43.1	0.80	123.3	154.2	0.351	0.421	0.606	1.73	Above W.T.
2-CPT10	3.79	6	16.1	1.44	135	512	512	30.8	61.9	9.09	2.7	43.2	0.80	123.3	154.2	0.351	0.421	0.606	1.73	Above W.T.
2-CPT10	3.87	6	15.9	1.43	135	522	522	30.4	59.8	9.14	2.8	43.8	0.80	121.7	152.2	0.351	0.408	0.587	1.67	Above W.T.
2-CPT10	3.95	6	16.4	1.45	135	533	533	31.1	60.5	8.99	2.8	43.3	0.80	124.3	155.4	0.351	0.429	0.617	1.76	Above W.T.
2-CPT10	4.04	6	17.1	1.48	135	545	545	32.0	61.7	8.80	2.7	42.6	0.80	128.1	160.2	0.351	0.462	0.666	1.90	Above W.T.
2-CPT10	4.12	6	17.9	1.52	135	556	556	33.2	63.3	8.63	2.7	41.8	0.80	132.8	166.0	0.351	0.506	0.728	2.07	Above W.T.
2-CPT10	4.2	6	18.1	1.53	135	567	567	33.3	62.8	8.59	2.7	41.9	0.80	133.0	166.3	0.351	0.508	0.731	2.08	Above W.T.
2-CPT10	4.29	6	17.7	1.52	135	579	579	32.2	60.1	8.73	2.7	42.8	0.80	128.7	160.9	0.351	0.467	0.673	1.92	Above W.T.
2-CPT10	4.37	6	17.9	1.5	135	590	590	32.2	59.7	8.52	2.7	42.5	0.80	129.0	161.2	0.351	0.470	0.676	1.93	Above W.T.
2-CPT10	4.45	6	17.8	1.46	135	601	601	31.8	58.2	8.34	2.7	42.5	0.80	127.1	158.9	0.351	0.453	0.652	1.86	Above W.T.
2-CPT10	4.54	6	17.9	1.42	135	613	613	31.6	57.4	8.07	2.7	42.1	0.80	126.5	158.2	0.351	0.448	0.645	1.84	Above W.T.
2-CPT10	4.62	6	17.2	1.37	135	624	624	30.1	54.1	8.11	2.7	43.0	0.80	120.5	150.7	0.351	0.398	0.573	1.63	Above W.T.
2-CPT10	4.71	6	17	1.31	135	636	636	29.5	52.4	7.85	2.7	42.9	0.80	118.0	147.5	0.351	0.378	0.545	1.55	Above W.T.
2-CPT10	4.79	6	17.2	1.24	135	647	647	29.6	52.2	7.35	2.7	41.8	0.80	118.4	148.0	0.351	0.381	0.549	1.56	Above W.T.
2-CPT10	4.88	6	16.8	1.07	135	659	659	28.6	50.0	6.50	2.7	40.2	0.80	114.6	143.2	0.351	0.353	0.508	1.45	Above W.T.
2-CPT10	4.96	6	16.3	0.93	125	620	620	28.6	51.6	5.82	2.7	37.9	0.80	114.6	143.2	0.351	0.353	0.509	1.45	Above W.T.
2-CPT10	5.04	6	16.3	0.91	125	630	630	28.4	50.7	5.69	2.6	37.8	0.80	113.7	142.1	0.351	0.347	0.499	1.42	Above W.T.
2-CPT10	5.12	6	15.3	0.91	125	640	640	26.5	46.8	6.07	2.7	40.1	0.80	105.8	132.3	0.351	0.295	0.425	1.21	Above W.T.
2-CPT10	5.21	6	17	0.92	125	651	651	29.1	51.2	5.52	2.6	37.1	0.80	116.6	145.7	0.351	0.368	0.530	1.51	Above W.T.
2-CPT10	5.29	6	16.9	0.93	125	661	661	28.8	50.1	5.61	2.6	37.7	0.80	115.0	143.8	0.351	0.356	0.513	1.46	Above W.T.
2-CPT10	5.37	6	16.7	0.94	125	671	671	28.2	48.7	5.74	2.7	38.5	0.80	112.8	141.0	0.351	0.341	0.491	1.40	Above W.T.
2-CPT10	5.46	6	17	0.97	135	737	737	27.4	45.1	5.83	2.7	40.0	0.80	109.6	137.0	0.351	0.319	0.459	1.31	Above W.T.
2-CPT10	5.54	6	16.6	0.99	135	748	748	26.6	43.4	6.10	2.7	41.4	0.80	106.2	132.8	0.351	0.298	0.429	1.22	Above W.T.
2-CPT10	5.63	6	16.7	1.01	135	760	760	26.5	42.9	6.19	2.7	41.8	0.80	106.0	132.5	0.351	0.296	0.427	1.22	Above W.T.
2-CPT10	5.71	6	16.6	1.02	135	771	771	26.2	42.1	6.29	2.7	42.4	0.80	104.6	130.8	0.351	0.288	0.415	1.18	Above W.T.
2-CPT10	5.79	6	16.9	1.02	135	782	782	26.4	42.2	6.18	2.7	42.0	0.80	105.8	132.2	0.351	0.295	0.425	1.21	Above W.T.
2-CPT10	5.88	6	16.6	1.01	135	794	794	25.8	40											

Project Name:	SVRT - Yard & Shops
Project Number:	6600.300.102
Date:	4-Feb-08
CPT Number:	2-CPT10
Depth to Groundwater:	6 ft

EQ Magnitude (M _w):	6.5
PGA (g):	0.54
MSF:	1.44

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Frict. (TSF)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip q_{tN}	Corr. Tip Q	Friction Ratio F	Ic	F.C. (%)	K _{CRP}	Δq_{tN}	(q_{tN}) _s	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments
2-CPT10	6.9	6	13.8	0.78	125	863	806	21.3	33.1	5.83	2.8	45.0	0.80	85.1	106.3	0.375	0.192	0.276	0.74	NonLiqfble.
2-CPT10	6.98	6	14.2	0.79	125	873	811	21.8	33.9	5.74	2.8	44.3	0.80	87.2	109.1	0.377	0.201	0.289	0.77	NonLiqfble.
2-CPT10	7.06	6	13.7	0.78	125	883	816	21.0	32.5	5.88	2.8	45.5	0.80	83.9	104.9	0.379	0.187	0.270	0.71	NonLiqfble.
2-CPT10	7.15	6	13.3	0.71	125	894	822	20.3	31.3	5.52	2.8	45.1	0.80	81.2	101.5	0.382	0.177	0.255	0.67	NonLiqfble.
2-CPT10	7.23	6	12.2	0.61	125	904	827	18.6	28.4	5.19	2.8	45.7	0.80	74.2	92.8	0.384	0.154	0.222	0.58	NonLiqfble.
2-CPT10	7.32	6	11.3	0.53	125	915	833	17.1	26.0	4.89	2.8	46.3	0.80	68.5	85.7	0.386	0.138	0.199	0.52	NonLiqfble.
2-CPT10	7.4	6	11.7	0.5	125	925	838	17.7	26.8	4.45	2.8	44.1	0.80	70.8	88.4	0.388	0.144	0.208	0.54	NonLiqfble.
2-CPT10	7.49	6	11.5	0.51	125	936	843	17.3	26.2	4.62	2.8	45.2	0.80	69.3	86.6	0.390	0.140	0.202	0.52	NonLiqfble.
2-CPT10	7.57	6	11.2	0.54	125	946	848	16.8	25.3	5.03	2.8	47.3	0.80	67.3	84.1	0.392	0.135	0.195	0.50	NonLiqfble.
2-CPT10	7.66	6	11	0.57	125	958	854	16.5	24.6	5.42	2.9	49.1	0.80	65.9	82.4	0.394	0.132	0.190	0.48	NonLiqfble.
2-CPT10	7.74	6	10.8	0.58	125	968	859	16.1	24.0	5.62	2.9	50.3	0.80	64.5	80.6	0.395	0.129	0.185	0.47	NonLiqfble.
2-CPT10	7.83	6	10.3	0.57	125	979	865	15.3	22.7	5.81	2.9	52.0	0.80	61.3	76.6	0.397	0.122	0.175	0.44	NonLiqfble.
2-CPT10	7.91	6	10.8	0.49	125	989	870	16.0	23.7	4.75	2.8	47.5	0.80	64.1	80.1	0.399	0.128	0.184	0.46	NonLiqfble.
2-CPT10	8	6	10.3	0.4	115	920	795	16.0	24.7	4.07	2.8	44.1	0.80	63.9	79.9	0.406	0.127	0.184	0.45	NonLiqfble.
2-CPT10	8.08	6	9.2	0.32	115	929	799	14.2	21.8	3.66	2.8	44.8	0.80	56.9	71.2	0.408	0.114	0.164	0.40	NonLiqfble.
2-CPT10	8.17	6	6.8	0.26	105	858	722	11.1	17.6	4.08	2.9	50.8	0.80	44.3	55.3	0.417	0.096	0.138	0.33	NonLiqfble.
2-CPT10	8.25	6	6.1	0.21	105	866	726	9.9	15.6	3.71	2.9	51.7	0.80	39.6	49.5	0.419	0.091	0.131	0.31	NonLiqfble.
2-CPT10	8.34	6	5.9	0.12	95	792	646	10.2	17.0	2.18	2.7	42.0	0.80	40.6	50.8	0.430	0.092	0.133	0.31	NonLiqfble.
2-CPT10	8.42	6	5	0.08	95	800	649	8.6	14.2	1.74	2.7	42.6	0.80	34.4	42.9	0.433	0.087	0.126	0.29	NonLiqfble.
2-CPT10	8.51	6	4.6	0.09	95	808	652	7.9	12.9	2.15	2.8	47.4	0.80	31.5	39.4	0.435	0.086	0.123	0.28	NonLiqfble.
2-CPT10	8.59	6	4.1	0.12	95	816	654	7.0	11.3	3.25	3.0	56.8	0.80	28.0	35.1	0.438	0.084	0.121	0.28	NonLiqfble.
2-CPT10	8.67	6	4.7	0.16	95	824	657	8.0	13.0	3.73	3.0	55.8	0.80	32.1	40.1	0.440	0.086	0.124	0.28	NonLiqfble.
2-CPT10	8.75	6	5.2	0.19	105	919	747	8.3	12.7	4.01	3.0	57.6	0.80	33.3	41.6	0.432	0.087	0.125	0.29	NonLiqfble.
2-CPT10	8.84	6	6.8	0.22	105	928	751	10.9	16.9	3.47	2.9	49.0	0.80	43.4	54.3	0.434	0.095	0.137	0.31	NonLiqfble.
2-CPT10	8.93	6	7.5	0.26	105	938	755	11.9	18.6	3.70	2.8	48.0	0.80	47.8	59.7	0.436	0.100	0.144	0.33	NonLiqfble.
2-CPT10	9.01	6	8.2	0.28	105	946	758	13.0	20.4	3.62	2.8	45.9	0.80	52.1	65.1	0.438	0.106	0.152	0.35	NonLiqfble.
2-CPT10	9.09	6	8	0.29	115	1045	853	12.0	17.5	3.88	2.9	50.0	0.80	48.0	59.9	0.430	0.100	0.144	0.33	NonLiqfble.
2-CPT10	9.18	6	9.3	0.3	115	1056	857	13.9	20.5	3.42	2.8	45.0	0.80	55.6	69.5	0.432	0.111	0.160	0.37	NonLiqfble.
2-CPT10	9.26	6	9.3	0.3	115	1065	861	13.9	20.3	3.42	2.8	45.1	0.80	55.5	69.3	0.434	0.111	0.160	0.37	NonLiqfble.
2-CPT10	9.35	6	10.3	0.3	115	1075	866	15.3	22.5	3.07	2.7	41.5	0.80	61.2	76.6	0.436	0.122	0.175	0.40	NonLiqfble.
2-CPT10	9.45	6	11	0.29	115	1087	871	16.3	24.0	2.77	2.7	38.9	0.80	65.2	81.5	0.438	0.130	0.188	0.43	NonLiqfble.
2-CPT10	9.55	6	9.1	0.28	115	1098	877	13.4	19.5	3.27	2.8	45.2	0.80	53.8	67.2	0.440	0.108	0.156	0.35	NonLiqfble.
2-CPT10	9.65	6	9.7	0.27	115	1110	882	14.3	20.7	2.95	2.7	42.5	0.80	57.2	71.5	0.442	0.114	0.164	0.37	NonLiqfble.
2-CPT10	9.74	6	10.4	0.28	115	1120	887	15.3	22.2	2.85	2.7	40.7	0.80	61.1	76.4	0.443	0.121	0.175	0.39	NonLiqfble.
2-CPT10	9.85	6	10	0.34	115	1133	893	14.6	21.1	3.60	2.8	45.2	0.80	58.6	73.2	0.445	0.117	0.168	0.38	NonLiqfble.
2-CPT10	9.95	6	10.5	0.4	115	1144	898	15.3	22.1	4.03	2.8	46.1	0.80	61.3	76.7	0.447	0.122	0.176	0.39	NonLiqfble.
2-CPT10	10.04	6	11.5	0.45	125	1255	1003	15.9	21.7	4.14	2.8	46.9	0.80	63.6	79.4	0.430	0.127	0.182	0.42	NonLiqfble.
2-CPT10	10.12	6	12.2	0.47	125	1265	1008	16.8	22.9	4.06	2.8	45.5	0.80	67.3	84.1	0.432	0.135	0.195	0.45	NonLiqfble.
2-CPT10	10.21	6	12.2	0.49	125	1276	1014	16.8	22.8	4.24	2.8	46.3	0.80	67.1	83.8	0.433	0.135	0.194	0.45	NonLiqfble.
2-CPT10	10.29	6	11.6	0.49	125	1286	1019	15.9	21.5	4.47	2.8	48.4	0.80	63.6	79.5	0.434	0.127	0.183	0.42	NonLiqfble.
2-CPT10	10.38	6	10.6	0.47	115	1194	920	15.3	21.7	4.70	2.9	49.0	0.80	61.2	76.4	0.446	0.122	0.175	0.39	NonLiqfble.
2-CPT10	10.46	6	11	0.47	125	1308	1029	15.0	20.1	4.54	2.9	50.0	0.80	60.0	75.0	0.437	0.119	0.172	0.39	NonLiqfble.
2-CPT10	10.55	6	11.4	0.47	125	1319	1035	15.5	20.7	4.38	2.8	48.7	0.80	62.0	77.5	0.438	0.123	0.178	0.41	NonLiqfble.
2-CPT10	10.63	6	10.4	0.46	115	1222	934	14.9	21.0	4.70	2.9	49.7	0.80	59.6	74.5	0.450	0.118	0.170	0.38	NonLiqfble.
2-CPT10	10.72	6	11.3	0.48	125	1340	1045	15.3	20.3	4.52	2.9	49.6	0.80	61.2	76.5	0.441	0.122	0.175	0.40	NonLiqfble.
2-CPT10	10.8	6	11.4	0.5	125	1350	1050	15.4	20.4	4.66	2.9	50.1	0.80	61.6	76.9	0.442	0.122	0.176	0.40	NonLiqfble.
2-CPT10	10.89	6	9.9	0.52	125	1361	1056	13.3	17.5	5.64	3.0	56.8	0.80	53.3	66.6	0.443	0.108	0.155	0.35	NonLiqfble.
2-CPT10	10.97	6	11	0.54	125	1371	1061	14.8	19.4	5.24	2.9	53.2	0.80	59.1	73.9	0.445	0.117	0.169	0.38	NonLiqfble.
2-CPT10	11.06	6	10.7	0.56	125	1383	1067	14.3	18.8	5.60	2.9	55.1	0.80	57.3	71.7	0.446	0.114	0.165	0.37	NonLiqfble.
2-CPT10	11.14	6	9.3	0.56	125	1393	1072	12.4	16.0	6.51	3.0	61.5	0.80	49.7	62.1	0.447	0.102	0.147	0.33	NonLiqfble.
2-CPT10	11.22	6	9.4	0.55	125	1403	1077	12.5	16.1	6.32	3.0	60.7	0.80	50.1	62.7	0.448	0.103	0.148	0.33	NonLiqfble.
2-CPT10	11.29	6	9.8	0.54	125	1411	1081	13.0	16.8	5.94	3.0	58.6	0.80	52.2	65.2	0.449	0.106	0.152	0.34	NonLiqfble.
2-CPT10	11.38	6	10.2	0.54	125	1423	1087	13.5	17.5	5.69	3.0	57.0	0.80	54.2	67.7	0.450	0.109	0.157	0.35	NonLiqfble.
2-CPT10	11.46	6	9.9	0.55	125	1433	1092	13.1	16.8	5.99	3.0	58.8	0.80	52.4	65.5	0.451	0.106	0.153	0.34	NonLiqfble.
2-CPT10	11.55	6	11	0.56	125	1444	1097	14.5	18.7	5.45	2.9	54.7	0.80	58.1	72.6	0.453	0.116	0.167	0.37	NonLiqfble.
2-CPT10	11.63	6	10.3	0.57	125	1454	1102	13.6	17.4	5.95	3.0	58.0	0.80	54.3	67.9	0.454	0.109	0.157	0.35	NonLiqfble.
2-CPT10	11.72	6	10.9	0.59	125	1465	1108	14.3	18.3	5.80	3.0	56.3	0.80	57.3	71.6	0.455	0.114	0.164	0.36	NonLiqfble.
2-CPT10	11.8	6	10.5	0.61	125	1475	1113	13.8	17.5	6.25	3.0	58.7	0.80	55.1	68.9	0.456	0.110	0.159	0.35	NonLiqfble.
2-CPT10	11.89	6	10.1	0.59	125	1486	1119	13.2	16.7	6.31	3.0	59.9	0.80	52.8	66.1	0.457	0.107	0.154	0.34	NonLiqfble.
2-CPT10	11.97	6	10.2	0.57	125	1496	1124	13.3	16.8	6.03	3.0	58.9	0.80	53.3	66.6	0.458	0.107	0.155	0.34	NonLiqfble.
2-CPT10	12.07	6	10.1	0.56	125	1509	1130	13.1	16.5	5.99	3.0	59.2	0.80	52.6	65.7	0.459	0.106	0.153	0.33	NonLiqfble.
2-CPT10	12.16	6	9.8	0.55																

Project Name:	SVRT - Yard & Shops
Project Number:	6600.300.102
Date:	4-Feb-08
CPT Number:	2-CPT10
Depth to Groundwater:	6 ft

EQ Magnitude (M_w):	6.5
PGA (g):	0.54
MSF:	1.44

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Frict. (TSF)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip q_{tN}	Corr. Tip Q	Friction Ratio F	I_c	F.C. (%)	K_{CPT}	Δq_{tN}	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments	
2-CPT10	13.18	6	8.6	0.45	115	1516	1068	11.5	14.7	5.74	3.0	61.0	0.80	46.1	57.6	0.488	0.098	0.141	0.29	NonLiqfble.
2-CPT10	13.27	6	8.5	0.44	115	1526	1072	11.4	14.4	5.69	3.0	61.2	0.80	45.4	56.8	0.489	0.097	0.140	0.29	NonLiqfble.
2-CPT10	13.35	6	9.5	0.44	115	1535	1077	12.7	16.2	5.04	3.0	56.3	0.80	50.7	63.3	0.491	0.104	0.149	0.30	NonLiqfble.
2-CPT10	13.43	6	10	0.46	115	1544	1081	13.3	17.1	4.99	2.9	55.0	0.80	53.2	66.5	0.492	0.107	0.155	0.31	NonLiqfble.
2-CPT10	13.52	6	9	0.46	115	1555	1086	12.0	15.1	5.59	3.0	59.8	0.80	47.8	59.8	0.493	0.100	0.144	0.29	NonLiqfble.
2-CPT10	13.6	6	8.4	0.46	115	1564	1090	11.1	14.0	6.04	3.1	63.1	0.80	44.5	55.7	0.494	0.096	0.138	0.28	NonLiqfble.
2-CPT10	13.69	6	9.6	0.45	115	1574	1094	12.7	16.1	5.11	3.0	56.7	0.80	50.8	63.5	0.495	0.104	0.149	0.30	NonLiqfble.
2-CPT10	13.78	6	7.8	0.44	115	1585	1099	10.3	12.7	6.28	3.1	66.1	0.80	41.2	51.5	0.496	0.093	0.133	0.27	NonLiqfble.
2-CPT10	13.86	6	8.1	0.43	115	1594	1103	10.7	13.2	5.89	3.1	63.9	0.80	42.7	53.3	0.497	0.094	0.136	0.27	NonLiqfble.
2-CPT10	13.95	6	8.5	0.42	115	1604	1108	11.2	13.9	5.46	3.0	61.3	0.80	44.7	55.9	0.498	0.096	0.139	0.28	NonLiqfble.
2-CPT10	14.03	6	7.2	0.41	115	1613	1112	9.4	11.5	6.41	3.1	69.1	0.80	37.8	47.2	0.499	0.090	0.129	0.26	NonLiqfble.
2-CPT10	14.11	6	8.3	0.42	115	1623	1117	10.9	13.4	5.61	3.1	62.6	0.80	43.5	54.3	0.500	0.095	0.137	0.27	NonLiqfble.
2-CPT10	14.2	6	8.1	0.43	115	1633	1121	10.6	13.0	5.90	3.1	64.4	0.80	42.3	52.9	0.501	0.094	0.135	0.27	NonLiqfble.
2-CPT10	14.29	6	9.4	0.41	115	1643	1126	12.3	15.2	4.78	3.0	56.7	0.80	49.0	61.3	0.502	0.101	0.146	0.29	NonLiqfble.
2-CPT10	14.37	6	10.7	0.39	115	1653	1130	13.9	17.5	3.95	2.9	50.4	0.80	55.7	69.6	0.503	0.111	0.160	0.32	NonLiqfble.
2-CPT10	14.46	6	13	0.39	115	1663	1135	16.9	21.4	3.21	2.7	43.1	0.80	67.5	84.4	0.504	0.136	0.196	0.39	NonLiqfble.
2-CPT10	14.54	6	11.2	0.41	115	1672	1139	14.5	18.2	3.96	2.9	49.6	0.80	58.1	72.6	0.505	0.116	0.166	0.33	NonLiqfble.
2-CPT10	14.63	6	10.7	0.43	115	1682	1144	13.8	17.2	4.36	2.9	52.4	0.80	55.4	69.2	0.506	0.111	0.160	0.32	NonLiqfble.
2-CPT10	14.71	6	10.9	0.45	115	1692	1148	14.1	17.5	4.48	2.9	52.5	0.80	56.3	70.4	0.507	0.112	0.162	0.32	NonLiqfble.
2-CPT10	14.8	6	11.5	0.47	125	1850	1301	14.0	16.3	4.44	2.9	54.0	0.80	55.8	69.8	0.489	0.112	0.161	0.33	NonLiqfble.
2-CPT10	14.88	6	11.6	0.46	125	1860	1306	14.0	16.3	4.31	2.9	53.3	0.80	56.2	70.2	0.490	0.112	0.162	0.33	NonLiqfble.
2-CPT10	14.97	6	11.4	0.38	115	1722	1162	14.6	18.1	3.61	2.8	48.2	0.80	58.5	73.2	0.510	0.116	0.168	0.33	NonLiqfble.
2-CPT10	15.05	6	11.2	0.39	115	1731	1166	14.4	17.7	3.77	2.9	49.4	0.80	57.4	71.8	0.511	0.114	0.165	0.32	NonLiqfble.
2-CPT10	15.14	6	11	0.38	115	1741	1171	14.1	17.3	3.75	2.9	49.8	0.80	56.3	70.3	0.512	0.112	0.162	0.32	NonLiqfble.
2-CPT10	15.22	6	10.2	0.37	115	1750	1175	13.0	15.9	3.97	2.9	52.5	0.80	52.1	65.1	0.512	0.106	0.152	0.30	NonLiqfble.
2-CPT10	15.29	6	8.5	0.39	115	1758	1179	10.8	12.9	5.12	3.0	61.7	0.80	43.3	54.2	0.513	0.095	0.136	0.27	NonLiqfble.
2-CPT10	15.35	6	12.1	0.42	125	1919	1335	14.5	16.7	3.77	2.9	50.6	0.80	58.0	72.4	0.494	0.115	0.166	0.34	NonLiqfble.
2-CPT10	15.43	6	11.9	0.45	125	1929	1340	14.2	16.3	4.12	2.9	52.6	0.80	56.9	71.1	0.495	0.113	0.163	0.33	NonLiqfble.
2-CPT10	15.52	6	12.5	0.46	125	1940	1346	14.9	17.1	3.99	2.9	51.0	0.80	59.6	74.5	0.496	0.119	0.171	0.34	NonLiqfble.
2-CPT10	15.6	6	13	0.49	125	1950	1351	15.5	17.8	4.07	2.9	50.6	0.80	61.9	77.4	0.497	0.123	0.177	0.36	NonLiqfble.
2-CPT10	15.69	6	13.7	0.52	125	1961	1357	16.3	18.7	4.09	2.9	49.6	0.80	65.1	81.4	0.497	0.130	0.187	0.38	NonLiqfble.
2-CPT10	15.77	6	12.6	0.54	125	1971	1362	14.9	17.1	4.65	2.9	53.8	0.80	59.8	74.7	0.498	0.119	0.171	0.34	NonLiqfble.
2-CPT10	15.85	6	13.4	0.55	125	1981	1367	15.9	18.2	4.43	2.9	51.6	0.80	63.4	79.3	0.499	0.126	0.182	0.36	NonLiqfble.
2-CPT10	15.94	6	13.2	0.56	125	1993	1372	15.6	17.8	4.59	2.9	52.6	0.80	62.4	78.0	0.499	0.124	0.179	0.36	NonLiqfble.
2-CPT10	16.03	6	13	0.58	125	2004	1378	15.3	17.4	4.83	2.9	54.0	0.80	61.3	76.6	0.500	0.122	0.175	0.35	NonLiqfble.
2-CPT10	16.11	6	12.7	0.59	125	2014	1383	14.9	16.9	5.05	3.0	55.4	0.80	59.8	74.7	0.501	0.119	0.171	0.34	NonLiqfble.
2-CPT10	16.19	6	13.1	0.6	125	2024	1388	15.4	17.4	4.96	2.9	54.5	0.80	61.5	76.9	0.502	0.122	0.176	0.35	NonLiqfble.
2-CPT10	16.28	6	13.4	0.6	125	2035	1394	15.7	17.8	4.85	2.9	53.6	0.80	62.8	78.5	0.502	0.125	0.180	0.36	NonLiqfble.
2-CPT10	16.36	6	11.9	0.57	125	2045	1399	13.9	15.5	5.24	3.0	57.9	0.80	55.7	69.6	0.503	0.111	0.160	0.32	NonLiqfble.
2-CPT10	16.45	6	11.3	0.54	125	2056	1404	13.2	14.6	5.26	3.0	59.4	0.80	52.8	66.0	0.504	0.107	0.154	0.31	NonLiqfble.
2-CPT10	16.54	6	11.3	0.49	125	2068	1410	13.2	14.6	4.77	3.0	57.7	0.80	52.7	65.8	0.504	0.107	0.153	0.30	NonLiqfble.
2-CPT10	16.62	6	10.2	0.44	115	1911	1249	12.6	14.8	4.76	3.0	57.2	0.80	50.5	63.1	0.527	0.103	0.149	0.28	NonLiqfble.
2-CPT10	16.7	6	10.8	0.42	115	1921	1253	13.4	15.7	4.27	2.9	54.0	0.80	53.4	66.8	0.527	0.108	0.155	0.29	NonLiqfble.
2-CPT10	16.79	6	11.3	0.41	115	1931	1258	13.9	16.4	3.97	2.9	51.8	0.80	55.8	69.7	0.528	0.112	0.161	0.30	NonLiqfble.
2-CPT10	16.88	6	9.5	0.38	115	1941	1262	11.7	13.5	4.46	3.0	58.1	0.80	46.8	58.5	0.529	0.099	0.142	0.27	NonLiqfble.
2-CPT10	16.96	6	9.6	0.36	115	1950	1266	11.8	13.6	4.17	3.0	56.8	0.80	47.2	59.0	0.530	0.099	0.143	0.27	NonLiqfble.
2-CPT10	17.05	6	10.4	0.35	115	1961	1271	12.8	14.8	3.72	2.9	52.9	0.80	51.1	63.8	0.531	0.104	0.150	0.28	NonLiqfble.
2-CPT10	17.13	6	9.9	0.33	115	1970	1275	12.1	14.0	3.70	2.9	54.1	0.80	48.5	60.6	0.531	0.101	0.145	0.27	NonLiqfble.
2-CPT10	17.22	6	9.1	0.31	115	1980	1280	11.1	12.7	3.82	3.0	56.8	0.80	44.5	55.6	0.532	0.096	0.138	0.26	NonLiqfble.
2-CPT10	17.3	6	10.8	0.3	115	1990	1284	13.2	15.3	3.06	2.9	49.1	0.80	52.7	65.9	0.533	0.107	0.154	0.29	NonLiqfble.
2-CPT10	17.38	6	10.5	0.31	115	1999	1289	12.8	14.7	3.26	2.9	50.8	0.80	51.2	64.0	0.534	0.104	0.150	0.28	NonLiqfble.
2-CPT10	17.47	6	9.9	0.33	115	2009	1293	12.0	13.7	3.71	2.9	54.5	0.80	48.2	60.2	0.534	0.100	0.144	0.27	NonLiqfble.
2-CPT10	17.56	6	11.3	0.34	115	2019	1298	13.7	15.8	3.30	2.9	49.5	0.80	54.9	68.6	0.535	0.110	0.158	0.30	NonLiqfble.
2-CPT10	17.64	6	12.1	0.34	115	2029	1302	14.7	17.0	3.07	2.8	46.9	0.80	58.7	73.4	0.536	0.117	0.168	0.31	NonLiqfble.
2-CPT10	17.73	6	12.8	0.37	115	2039	1307	15.5	18.0	3.14	2.8	46.1	0.80	62.0	77.5	0.537	0.123	0.177	0.33	NonLiqfble.
2-CPT10	17.81	6	14.6	0.41	125	2226	1489	16.6	18.1	3.04	2.8	45.5	0.80	66.2	82.8	0.514	0.133	0.191	0.37	NonLiqfble.
2-CPT10	17.9	6	13.9	0.44	125	2238	1495	15.7	17.1	3.44	2.8	48.6	0.80	62.9	78.6	0.515	0.125	0.180	0.35	NonLiqfble.
2-CPT10	17.98	6	14	0.47	125	2248	1500	15.8	17.2	3.65	2.9	49.5	0.80	63.3	79.1	0.515	0.126	0.181	0.35	NonLiqfble.
2-CPT10	18.06	6	14.1	0.49	125	2258	1505	15.9	17.2	3.78	2.9	50.0	0.80	63.6	79.5	0.516	0.127	0.183	0.35	NonLiqfble.
2-CPT10	18.15	6	14.3	0.47	125	2269	1511	16.1	17.4	3.57	2.8	48.8	0.80	64.4	80.5	0.517	0.128	0.185	0.36	NonLiqfble.
2-CPT10	18.23	6	14.9	0.44	125	2279	1516	16.7	18.2	3.20	2.8	46.2	0.80	67.0						

Project Name: SVRT - Yard & Shops
 Project Number: 6600.300.102
 Date: 4-Feb-08
 CPT Number: 2-CPT10
 Depth to Groundwater: 6 ft

EQ Magnitude (M_w): 6.5
 PGA (g): 0.54
 MSF: 1.44

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Frict. (TSF)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip q_{tN}	Corr. Tip Q	Friction Ratio F	Ic	F.C. (%)	K_{CPT}	Δq_{tN}	(q_{tN}) _s Ratio	Induced Stress M7.5	Liquef. Stress M6.50	Liquef. Stress M6.50	Factor of Safety	Comments
2-CPT10	19.22	6	5.5	0.26	105	2018	1193	7.0	7.5	5.79	3.3	78.1	0.80	27.9	34.8	0.582	0.084	0.121	0.21	NonLiqfble.
2-CPT10	19.3	6	5.5	0.24	105	2027	1197	7.0	7.5	5.35	3.2	76.6	0.80	27.8	34.8	0.583	0.084	0.121	0.21	NonLiqfble.
2-CPT10	19.38	6	6.9	0.24	105	2035	1200	8.7	9.8	4.08	3.1	64.1	0.80	34.9	43.6	0.583	0.088	0.126	0.22	NonLiqfble.
2-CPT10	19.47	6	8	0.24	105	2044	1204	10.1	11.6	3.44	3.0	57.1	0.80	40.4	50.4	0.584	0.092	0.132	0.23	NonLiqfble.
2-CPT10	19.56	6	7.8	0.25	105	2054	1208	9.8	11.2	3.69	3.0	59.1	0.80	39.3	49.1	0.585	0.091	0.131	0.22	NonLiqfble.
2-CPT10	19.64	6	8.4	0.25	105	2062	1211	10.6	12.2	3.39	3.0	55.7	0.80	42.2	52.8	0.586	0.094	0.135	0.23	NonLiqfble.
2-CPT10	19.73	6	8.6	0.27	105	2072	1215	10.8	12.4	3.57	3.0	56.1	0.80	43.2	54.0	0.587	0.095	0.136	0.23	NonLiqfble.
2-CPT10	19.82	6	10.1	0.31	115	2279	1417	11.7	12.6	3.46	3.0	55.2	0.80	47.0	58.7	0.553	0.099	0.142	0.26	NonLiqfble.
2-CPT10	19.9	6	11.6	0.34	115	2289	1421	13.5	14.7	3.25	2.9	50.8	0.80	53.9	67.3	0.554	0.108	0.156	0.28	NonLiqfble.
2-CPT10	19.99	6	11.9	0.35	115	2299	1426	13.8	15.1	3.26	2.9	50.3	0.80	55.2	68.9	0.555	0.110	0.159	0.29	NonLiqfble.
2-CPT10	20.07	6	11.9	0.34	115	2308	1430	13.8	15.0	3.16	2.9	50.0	0.80	55.1	68.8	0.544	0.110	0.159	0.29	NonLiqfble.
2-CPT10	20.15	6	12.2	0.35	115	2317	1434	14.1	15.4	3.17	2.9	49.5	0.80	56.4	70.5	0.544	0.113	0.162	0.30	NonLiqfble.
2-CPT10	20.24	6	12.4	0.35	115	2328	1439	14.3	15.6	3.12	2.8	48.9	0.80	57.2	71.5	0.545	0.114	0.164	0.30	NonLiqfble.
2-CPT10	20.32	6	12.1	0.34	115	2337	1443	13.9	15.1	3.11	2.9	49.5	0.80	55.7	69.7	0.546	0.111	0.161	0.29	NonLiqfble.
2-CPT10	20.4	6	12.8	0.35	115	2346	1447	14.7	16.1	3.01	2.8	47.8	0.80	58.9	73.6	0.546	0.117	0.169	0.31	NonLiqfble.
2-CPT10	20.49	6	12.7	0.35	115	2356	1452	14.6	15.9	3.04	2.8	48.2	0.80	58.3	72.9	0.547	0.116	0.167	0.31	NonLiqfble.
2-CPT10	20.57	6	12.6	0.35	115	2366	1456	14.4	15.7	3.07	2.8	48.6	0.80	57.8	72.2	0.547	0.115	0.166	0.30	NonLiqfble.
2-CPT10	20.65	6	13.1	0.35	115	2375	1461	15.0	16.3	2.94	2.8	47.1	0.80	60.0	75.0	0.548	0.119	0.172	0.31	NonLiqfble.
2-CPT10	20.74	6	13.1	0.35	115	2385	1465	15.0	16.2	2.94	2.8	47.2	0.80	59.9	74.9	0.548	0.119	0.171	0.31	NonLiqfble.
2-CPT10	20.83	6	13.3	0.35	115	2395	1470	15.2	16.5	2.89	2.8	46.7	0.80	60.7	75.9	0.549	0.121	0.174	0.32	NonLiqfble.
2-CPT10	20.91	6	14.1	0.37	125	2614	1683	15.0	15.2	2.89	2.8	48.3	0.80	60.1	75.2	0.523	0.120	0.172	0.33	NonLiqfble.
2-CPT10	20.99	6	14.2	0.37	125	2624	1688	15.1	15.3	2.87	2.8	48.1	0.80	60.5	75.6	0.524	0.120	0.173	0.33	NonLiqfble.
2-CPT10	21.07	6	14.1	0.35	115	2423	1483	16.0	17.4	2.72	2.8	44.6	0.80	64.1	80.1	0.551	0.128	0.184	0.33	NonLiqfble.
2-CPT10	21.14	6	13.5	0.34	115	2431	1486	15.3	16.5	2.77	2.8	45.9	0.80	61.3	76.6	0.551	0.122	0.175	0.32	NonLiqfble.
2-CPT10	21.22	6	13.4	0.32	115	2440	1491	15.2	16.3	2.63	2.8	45.4	0.80	60.7	75.9	0.552	0.121	0.174	0.32	NonLiqfble.
2-CPT10	21.31	6	13.5	0.28	115	2451	1495	15.3	16.4	2.28	2.8	43.3	0.80	61.1	76.4	0.552	0.121	0.175	0.32	NonLiqfble.
2-CPT10	21.39	6	14.2	0.36	115	2460	1500	16.0	17.3	2.78	2.8	45.1	0.80	64.2	80.2	0.553	0.128	0.184	0.33	NonLiqfble.
2-CPT10	21.47	6	14.6	0.36	125	2684	1718	15.4	15.4	2.72	2.8	47.0	0.80	61.6	77.1	0.526	0.123	0.176	0.34	NonLiqfble.
2-CPT10	21.54	6	14.5	0.35	115	2477	1507	16.3	17.6	2.64	2.8	44.0	0.80	65.4	81.7	0.554	0.131	0.188	0.34	NonLiqfble.
2-CPT10	21.57	6	14	0.35	115	2481	1509	15.8	16.9	2.74	2.8	45.3	0.80	63.1	78.8	0.554	0.126	0.181	0.33	NonLiqfble.
2-CPT10	21.65	6	16	0.35	115	2490	1513	18.0	19.5	2.37	2.7	40.5	0.80	72.0	90.0	0.554	0.148	0.213	0.38	NonLiqfble.
2-CPT10	21.73	6	15.4	0.36	125	2716	1735	16.2	16.2	2.56	2.8	45.2	0.80	64.7	80.9	0.528	0.129	0.186	0.35	NonLiqfble.
2-CPT10	21.82	6	14.4	0.36	115	2509	1522	16.1	17.3	2.74	2.8	44.9	0.80	64.6	80.7	0.555	0.129	0.186	0.33	NonLiqfble.
2-CPT10	21.9	6	13.9	0.36	115	2519	1526	15.6	16.6	2.85	2.8	46.3	0.80	62.3	77.8	0.556	0.124	0.178	0.32	NonLiqfble.
2-CPT10	21.98	6	14.4	0.36	115	2528	1531	16.1	17.2	2.74	2.8	45.0	0.80	64.4	80.5	0.556	0.129	0.185	0.33	NonLiqfble.
2-CPT10	22.07	6	14.3	0.36	115	2538	1535	16.0	17.0	2.76	2.8	45.4	0.80	63.9	79.8	0.557	0.127	0.183	0.33	NonLiqfble.
2-CPT10	22.15	6	13.4	0.36	115	2547	1539	14.9	15.7	2.97	2.8	48.0	0.80	59.8	74.7	0.558	0.119	0.171	0.31	NonLiqfble.
2-CPT10	22.24	6	12.2	0.35	115	2558	1544	13.6	14.1	3.20	2.9	51.4	0.80	54.3	67.9	0.558	0.109	0.157	0.28	NonLiqfble.
2-CPT10	22.32	6	11.8	0.34	115	2567	1548	13.1	13.6	3.23	2.9	52.5	0.80	52.5	65.6	0.559	0.106	0.153	0.27	NonLiqfble.
2-CPT10	22.4	6	11.6	0.32	115	2576	1553	12.9	13.3	3.10	2.9	52.3	0.80	51.5	64.4	0.559	0.105	0.151	0.27	NonLiqfble.
2-CPT10	22.49	6	12.2	0.31	115	2586	1557	13.5	14.0	2.84	2.9	49.8	0.80	54.1	67.6	0.560	0.109	0.157	0.28	NonLiqfble.
2-CPT10	22.58	6	11	0.29	115	2597	1562	12.2	12.4	2.99	2.9	53.2	0.80	48.7	60.9	0.560	0.101	0.145	0.26	NonLiqfble.
2-CPT10	22.66	6	11.8	0.26	115	2606	1566	13.0	13.4	2.48	2.8	48.6	0.80	52.2	65.2	0.561	0.106	0.152	0.27	NonLiqfble.
2-CPT10	22.75	6	13.8	0.31	115	2616	1571	15.2	15.9	2.48	2.8	45.1	0.80	60.9	76.2	0.561	0.121	0.174	0.31	NonLiqfble.
2-CPT10	22.83	6	14	0.34	115	2625	1575	15.4	16.1	2.68	2.8	46.0	0.80	61.7	77.2	0.562	0.123	0.177	0.31	NonLiqfble.
2-CPT10	22.9	6	14.9	0.33	115	2634	1579	16.4	17.2	2.43	2.8	43.3	0.80	65.6	82.0	0.562	0.131	0.189	0.34	NonLiqfble.
2-CPT10	22.95	6	14.6	0.34	115	2639	1582	16.1	16.8	2.56	2.8	44.5	0.80	64.3	80.3	0.562	0.128	0.185	0.33	NonLiqfble.
2-CPT10	23.02	6	15.8	0.34	115	2647	1585	17.4	18.3	2.35	2.7	41.6	0.80	69.5	86.8	0.563	0.141	0.203	0.36	NonLiqfble.
2-CPT10	23.11	6	16.1	0.35	115	2658	1590	17.7	18.6	2.37	2.7	41.4	0.80	70.7	88.3	0.563	0.144	0.207	0.37	NonLiqfble.
2-CPT10	23.22	6	15.4	0.33	115	2670	1596	16.9	17.6	2.35	2.7	42.3	0.80	67.5	84.3	0.564	0.136	0.196	0.35	NonLiqfble.
2-CPT10	23.34	6	15.9	0.3	115	2684	1602	17.4	18.2	2.06	2.7	40.0	0.80	69.5	86.9	0.565	0.141	0.203	0.36	NonLiqfble.
2-CPT10	23.43	6	16.3	0.28	115	2694	1607	17.8	18.6	1.87	2.7	38.3	0.80	71.2	89.0	0.565	0.145	0.209	0.37	NonLiqfble.
2-CPT10	23.56	6	15.5	0.27	115	2709	1614	16.9	17.5	1.91	2.7	39.7	0.80	67.5	84.4	0.566	0.136	0.196	0.35	NonLiqfble.
2-CPT10	23.67	6	15.5	0.28	115	2722	1619	16.9	17.5	1.98	2.7	40.2	0.80	67.4	84.3	0.566	0.136	0.195	0.34	NonLiqfble.
2-CPT10	23.78	6	16.1	0.31	115	2735	1625	17.5	18.1	2.10	2.7	40.3	0.80	69.9	87.4	0.567	0.142	0.205	0.36	NonLiqfble.
2-CPT10	23.86	6	15.5	0.33	115	2744	1629	16.8	17.3	2.34	2.7	42.6	0.80	67.2	84.0	0.567	0.135	0.195	0.34	NonLiqfble.
2-CPT10	23.97	6	16.1	0.33	115	2757	1635	17.4	18.0	2.24	2.7	41.3	0.80	69.7	87.1	0.568	0.141	0.204	0.36	NonLiqfble.
2-CPT10	24.07	6	14.6	0.33	115	2768	1640	15.8	16.1	2.50	2.8	44.9	0.80	63.1	78.9	0.569	0.126	0.181	0.32	NonLiqfble.
2-CPT10	24.18	6	15.2	0.32	115	2781	1646	16.4	16.8	2.32	2.7	43.1	0.80	65.6	82.0	0.569	0.131	0.189	0.33	NonLiqfble.
2-CPT10	24.31	6	15.3	0.31	115	2796	1653	16.5	16.8	2.23	2.7	42.5	0.80	65.9	82.3	0.570	0.132	0.190	0.33	NonLiqfble.
2-CPT10	24.41	6	15.2	0.32	115	2807	1658	16.3	16.6	2.32	2.8	43.3	0.80	65.3	81.7	0.570	0.131	0.188	0.33	NonLiqfble.
2-CPT10	24.49	6	16</																	

Project Name:	SVRT - Yard & Shops
Project Number:	6600.300.102
Date:	4-Feb-08
CPT Number:	2-CPT10
Depth to Groundwater:	6 ft

EQ Magnitude (M_w):	6.5
PGA (g):	0.54
MSF:	1.44

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Frict. (TSF)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip q_{eN}	Corr. Tip Q	Friction Ratio F	I_c	F.C. (%)	K_{CPT}	Δq_{eN}	$(q_{eN})_s$	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments
2-CPT10	25.44	6	13.2	0.24	115	2926	1713	14.0	13.7	2.04	2.8	45.4	0.80	55.8	69.8	0.576	0.112	0.161	0.28	NonLiqfble.
2-CPT10	25.53	6	12.5	0.2	105	2681	1462	14.3	15.3	1.79	2.7	41.5	0.80	57.2	71.5	0.618	0.114	0.164	0.27	NonLiqfble.
2-CPT10	25.61	6	11.9	0.17	105	2689	1465	13.6	14.4	1.61	2.7	41.3	0.80	54.4	68.0	0.618	0.109	0.157	0.25	NonLiqfble.
2-CPT10	25.7	6	11.1	0.16	105	2699	1469	12.7	13.3	1.64	2.8	43.2	0.80	50.7	63.4	0.619	0.104	0.149	0.24	NonLiqfble.
2-CPT10	25.78	6	11.7	0.15	105	2707	1473	13.3	14.0	1.45	2.7	40.6	0.80	53.4	66.7	0.619	0.108	0.155	0.25	NonLiqfble.
2-CPT10	25.86	6	11.4	0.16	105	2715	1476	13.0	13.6	1.59	2.7	42.4	0.80	51.9	64.9	0.620	0.105	0.152	0.24	NonLiqfble.
2-CPT10	25.95	6	12.3	0.17	105	2725	1480	14.0	14.8	1.55	2.7	40.4	0.80	56.0	69.9	0.620	0.112	0.161	0.26	NonLiqfble.
2-CPT10	26.03	6	13.4	0.19	105	2733	1483	15.2	16.2	1.58	2.7	38.8	0.80	60.9	76.1	0.621	0.121	0.174	0.28	NonLiqfble.
2-CPT10	26.12	6	13.1	0.21	105	2743	1487	14.9	15.8	1.79	2.7	40.9	0.80	59.5	74.3	0.621	0.118	0.170	0.27	NonLiqfble.
2-CPT10	26.2	6	13.4	0.23	105	2751	1491	15.2	16.1	1.91	2.7	41.3	0.80	60.7	75.9	0.622	0.121	0.174	0.28	NonLiqfble.
2-CPT10	26.28	6	13.9	0.24	115	3022	1757	14.5	14.1	1.94	2.8	44.1	0.80	58.0	72.6	0.580	0.116	0.166	0.29	NonLiqfble.
2-CPT10	26.37	6	14.5	0.24	115	3033	1761	15.1	14.7	1.85	2.7	42.6	0.80	60.5	75.6	0.580	0.120	0.173	0.30	NonLiqfble.
2-CPT10	26.45	6	14.8	0.24	115	3042	1766	15.4	15.0	1.81	2.7	41.9	0.80	61.6	77.1	0.580	0.123	0.176	0.30	NonLiqfble.
2-CPT10	26.54	6	15.5	0.26	115	3052	1770	16.1	15.8	1.86	2.7	41.4	0.80	64.5	80.6	0.581	0.129	0.185	0.32	NonLiqfble.
2-CPT10	26.61	6	16.1	0.27	115	3060	1774	16.7	16.4	1.85	2.7	40.5	0.80	66.9	83.6	0.581	0.134	0.194	0.33	NonLiqfble.
2-CPT10	26.67	6	16.6	0.29	115	3067	1777	17.2	16.9	1.92	2.7	40.4	0.80	68.9	86.1	0.582	0.139	0.201	0.35	NonLiqfble.
2-CPT10	26.72	6	16.6	0.3	115	3073	1780	17.2	16.9	1.99	2.7	40.9	0.80	68.9	86.1	0.582	0.139	0.201	0.34	NonLiqfble.
2-CPT10	26.77	6	16.4	0.32	115	3079	1783	17.0	16.7	2.15	2.7	42.2	0.80	68.0	85.0	0.582	0.137	0.197	0.34	NonLiqfble.
2-CPT10	26.81	6	16.9	0.33	115	3083	1785	17.5	17.2	2.15	2.7	41.6	0.80	70.0	87.5	0.582	0.142	0.205	0.35	NonLiqfble.
2-CPT10	26.87	6	17	0.34	115	3090	1788	17.6	17.3	2.20	2.7	41.8	0.80	70.4	88.0	0.582	0.143	0.206	0.35	NonLiqfble.
2-CPT10	26.91	6	18	0.35	125	3364	2059	17.4	15.8	2.14	2.7	43.1	0.80	69.4	86.8	0.550	0.141	0.203	0.37	NonLiqfble.
2-CPT10	26.95	6	18.1	0.34	115	3099	1792	18.7	18.5	2.05	2.7	39.6	0.80	74.8	93.5	0.583	0.156	0.225	0.39	NonLiqfble.
2-CPT10	27	6	18.4	0.35	125	3375	2065	17.7	16.2	2.09	2.7	42.4	0.80	70.9	88.6	0.551	0.145	0.208	0.38	NonLiqfble.
2-CPT10	27.05	6	18.3	0.35	125	3381	2068	17.6	16.1	2.11	2.7	42.6	0.80	70.4	88.0	0.551	0.143	0.207	0.37	NonLiqfble.
2-CPT10	27.1	6	17.7	0.35	125	3388	2071	17.0	15.5	2.19	2.8	43.9	0.80	68.1	85.1	0.551	0.137	0.198	0.36	NonLiqfble.
2-CPT10	27.14	6	16.6	0.34	115	3121	1802	17.1	16.7	2.26	2.7	42.8	0.80	68.4	85.6	0.584	0.138	0.199	0.34	NonLiqfble.
2-CPT10	27.2	6	16.1	0.35	115	3128	1805	16.6	16.1	2.41	2.8	44.4	0.80	66.3	82.9	0.584	0.133	0.191	0.33	NonLiqfble.
2-CPT10	27.25	6	15.3	0.34	115	3134	1808	15.7	15.2	2.48	2.8	46.0	0.80	63.0	78.7	0.584	0.125	0.181	0.31	NonLiqfble.
2-CPT10	27.3	6	14.2	0.32	115	3140	1810	14.6	13.9	2.53	2.8	48.1	0.80	58.4	73.0	0.584	0.116	0.167	0.29	NonLiqfble.
2-CPT10	27.36	6	14	0.3	115	3146	1814	14.4	13.7	2.41	2.8	47.8	0.80	57.5	71.9	0.585	0.115	0.165	0.28	NonLiqfble.
2-CPT10	27.41	6	13.3	0.3	115	3152	1816	13.7	12.9	2.56	2.9	49.9	0.80	54.6	68.3	0.585	0.110	0.158	0.27	NonLiqfble.
2-CPT10	27.47	6	13.4	0.29	115	3159	1819	13.7	13.0	2.45	2.9	49.2	0.80	55.0	68.7	0.585	0.110	0.159	0.27	NonLiqfble.
2-CPT10	27.53	6	13.8	0.29	115	3166	1822	14.1	13.4	2.37	2.8	48.0	0.80	56.6	70.7	0.585	0.113	0.163	0.28	NonLiqfble.
2-CPT10	27.58	6	14.2	0.27	115	3172	1825	14.5	13.8	2.14	2.8	45.9	0.80	58.2	72.7	0.586	0.116	0.167	0.28	NonLiqfble.
2-CPT10	27.64	6	14.2	0.23	105	2902	1552	15.8	16.4	1.80	2.7	40.2	0.80	63.1	78.9	0.630	0.126	0.181	0.29	NonLiqfble.
2-CPT10	27.7	6	14.1	0.21	105	2909	1554	15.6	16.3	1.66	2.7	39.3	0.80	62.6	78.2	0.630	0.125	0.179	0.28	NonLiqfble.
2-CPT10	27.77	6	12.7	0.23	105	2916	1557	14.1	14.4	2.05	2.8	44.4	0.80	56.3	70.4	0.631	0.112	0.162	0.26	NonLiqfble.
2-CPT10	27.82	6	11.8	0.21	105	2921	1560	13.1	13.3	2.03	2.8	46.1	0.80	52.3	65.4	0.631	0.106	0.153	0.24	NonLiqfble.
2-CPT10	27.88	6	11	0.19	105	2927	1562	12.2	12.2	1.99	2.8	47.5	0.80	48.7	60.9	0.631	0.101	0.145	0.23	NonLiqfble.
2-CPT10	27.94	6	11.4	0.17	105	2934	1565	12.6	12.7	1.71	2.8	44.7	0.80	50.4	63.0	0.632	0.103	0.149	0.24	NonLiqfble.
2-CPT10	28	6	12.5	0.16	105	2940	1567	13.8	14.1	1.45	2.7	40.5	0.80	55.3	69.1	0.632	0.111	0.159	0.25	NonLiqfble.
2-CPT10	28.07	6	12.4	0.22	105	2947	1570	13.7	13.9	2.01	2.8	44.9	0.80	54.8	68.5	0.632	0.110	0.158	0.25	NonLiqfble.
2-CPT10	28.14	6	12.3	0.25	115	3236	1855	12.5	11.5	2.34	2.9	51.1	0.80	50.0	62.5	0.588	0.103	0.148	0.25	NonLiqfble.
2-CPT10	28.2	6	12.1	0.26	115	3243	1858	12.3	11.3	2.48	2.9	52.5	0.80	49.1	61.4	0.588	0.102	0.146	0.25	NonLiqfble.
2-CPT10	28.25	6	10.3	0.27	115	3249	1860	10.4	9.3	3.11	3.0	60.6	0.80	41.8	52.2	0.588	0.093	0.134	0.23	NonLiqfble.
2-CPT10	28.28	6	15.6	0.27	115	3252	1862	15.8	15.0	1.93	2.7	42.8	0.80	63.3	79.1	0.589	0.126	0.181	0.31	NonLiqfble.
2-CPT10	28.33	6	16.1	0.26	115	3258	1865	16.3	15.5	1.80	2.7	41.2	0.80	65.3	81.6	0.589	0.130	0.188	0.32	NonLiqfble.
2-CPT10	28.41	6	15.1	0.25	115	3267	1869	15.3	14.4	1.86	2.7	43.1	0.80	61.1	76.4	0.589	0.121	0.175	0.30	NonLiqfble.
2-CPT10	28.49	6	14.8	0.23	105	2991	1588	16.2	16.7	1.73	2.7	39.3	0.80	65.0	81.2	0.635	0.130	0.187	0.29	NonLiqfble.
2-CPT10	28.57	6	14.4	0.21	105	3000	1591	15.8	16.2	1.63	2.7	39.2	0.80	63.2	79.0	0.635	0.126	0.181	0.29	NonLiqfble.
2-CPT10	28.66	6	14.9	0.21	105	3009	1595	16.3	16.8	1.57	2.7	38.1	0.80	65.3	81.6	0.636	0.131	0.188	0.30	NonLiqfble.
2-CPT10	28.74	6	14.3	0.21	105	3018	1599	15.6	16.0	1.64	2.7	39.5	0.80	62.6	78.2	0.636	0.125	0.179	0.28	NonLiqfble.
2-CPT10	28.83	6	15.1	0.22	105	3027	1603	16.5	16.9	1.62	2.7	38.3	0.80	66.0	82.5	0.637	0.132	0.190	0.30	NonLiqfble.
2-CPT10	28.91	6	16.4	0.21	105	3036	1606	17.9	18.5	1.41	2.6	35.0	0.80	71.6	89.5	0.637	0.147	0.211	0.33	Liquefaction
2-CPT10	28.99	6	16.4	0.2	105	3044	1609	17.9	18.5	1.34	2.6	34.5	0.79	66.8	84.7	0.637	0.136	0.197	0.31	Liquefaction
2-CPT10	29.07	6	15.4	0.23	105	3052	1613	16.8	17.2	1.66	2.7	38.3	0.80	67.1	83.9	0.638	0.135	0.194	0.30	NonLiqfble.
2-CPT10	29.15	6	16	0.37	125	3644	2199	14.9	12.9	2.61	2.9	50.3	0.80	59.7	74.6	0.558	0.119	0.171	0.31	NonLiqfble.
2-CPT10	29.24	6	16.9	0.39	125	3655	2205	15.7	13.7	2.59	2.8	48.9	0.80	63.0	78.7	0.559	0.125	0.181	0.32	NonLiqfble.
2-CPT10	29.31	6	22	0.39	125	3664	2209	20.5	18.2	1.93	2.7	39.1	0.80	81.9	102.4	0.559	0.180	0.259	0.46	NonLiqfble.
2-CPT10	29.38	6	25.2	0.47	125	3673	2214	23.4	21.1	2.01	2.6	36.9	0.80	93.7	117.2	0.559	0.230	0.331	0.59	NonLiqfble.
2-CPT10	29.45	6	22.5	0.66	125	3681	2218	20.9	18.6	3.19	2.8	45.7								

Project Name:	SVRT - Yard & Shops
Project Number:	6600.300.102
Date:	4-Feb-08
CPT Number:	2-CPT10
Depth to Groundwater:	6 ft

EQ Magnitude (M_w):	6.5
PGA (g):	0.54
MSF:	1.44

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Frict. (TSF)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip q_{eN}	Corr. Tip Q	Friction Ratio F	Ic	F.C. (%)	K_{CPT}	Δq_{eN}	(q_{eN})s Ratio	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments
2-CPT10	30.22	6	21.4	0.46	125	3778	2266	19.7	17.2	2.36	2.7	42.8	0.80	78.7	98.3	0.538	0.168	0.243	0.45	NonLiqfble.
2-CPT10	30.3	6	17.3	0.5	125	3788	2271	15.9	13.6	3.25	2.9	52.6	0.80	63.5	79.4	0.539	0.127	0.182	0.34	NonLiqfble.
2-CPT10	30.38	6	16	0.63	125	3798	2276	14.7	12.4	4.47	3.0	60.2	0.80	58.7	73.4	0.539	0.117	0.168	0.31	NonLiqfble.
2-CPT10	30.45	6	16	0.7	125	3806	2281	14.7	12.4	4.97	3.1	62.2	0.80	58.6	73.3	0.539	0.117	0.168	0.31	NonLiqfble.
2-CPT10	30.52	6	19.9	0.85	125	3815	2285	18.2	15.7	4.72	3.0	55.8	0.80	72.9	91.1	0.539	0.150	0.216	0.40	NonLiqfble.
2-CPT10	30.57	6	25.6	0.93	135	4127	2594	22.0	18.1	3.95	2.9	49.7	0.80	88.0	110.0	0.514	0.204	0.293	0.57	NonLiqfble.
2-CPT10	30.61	6	32.4	0.99	135	4132	2597	27.8	23.4	3.26	2.7	41.8	0.80	111.3	139.1	0.514	0.330	0.476	0.93	NonLiqfble.
2-CPT10	30.64	6	39.1	0.93	135	4136	2599	33.6	28.5	2.51	2.6	34.7	0.79	127.8	161.3	0.514	0.471	0.678	1.32	FS>1.3
2-CPT10	30.68	6	49.2	0.86	135	4142	2602	42.2	36.2	1.82	2.4	27.1	0.59	61.1	103.3	0.514	0.182	0.263	0.51	Liquefaction
2-CPT10	30.73	6	48.7	0.84	125	3841	2298	44.4	40.7	1.37	2.3	22.6	0.47	39.4	83.9	0.540	0.135	0.194	0.36	Liquefaction
2-CPT10	30.82	6	43.3	0.65	125	3853	2304	39.5	35.9	1.57	2.4	25.7	0.55	48.6	88.1	0.540	0.144	0.207	0.38	Liquefaction
2-CPT10	30.9	6	38.1	0.8	135	4172	2618	32.6	27.5	2.22	2.6	33.7	0.77	106.2	138.8	0.515	0.329	0.473	0.92	Liquefaction
2-CPT10	30.98	6	33.5	0.92	135	4182	2624	28.6	23.9	2.93	2.7	39.7	0.80	114.5	143.1	0.515	0.352	0.507	0.99	NonLiqfble.
2-CPT10	31.03	6	28.7	0.97	135	4189	2627	24.5	20.2	3.65	2.8	46.2	0.80	98.0	122.5	0.515	0.251	0.361	0.70	NonLiqfble.
2-CPT10	31.09	6	32.7	0.98	135	4197	2632	27.9	23.2	3.20	2.7	41.6	0.80	111.6	139.5	0.515	0.332	0.478	0.93	NonLiqfble.
2-CPT10	31.14	6	33	0.96	135	4204	2635	28.1	23.4	3.11	2.7	41.0	0.80	112.5	140.6	0.515	0.339	0.488	0.95	NonLiqfble.
2-CPT10	31.19	6	34.2	0.96	135	4211	2639	29.1	24.3	2.99	2.7	39.8	0.80	116.5	145.6	0.515	0.367	0.529	1.03	NonLiqfble.
2-CPT10	31.23	6	37.9	0.96	135	4216	2642	32.3	27.1	2.68	2.6	36.4	0.80	129.1	161.3	0.515	0.470	0.677	1.31	NonLiqfble.
2-CPT10	31.27	6	42.2	0.96	135	4221	2645	35.9	30.3	2.39	2.6	33.1	0.75	107.1	143.1	0.515	0.352	0.507	0.98	Liquefaction
2-CPT10	31.32	6	43.9	0.99	135	4228	2648	37.3	31.5	2.37	2.5	32.3	0.73	100.2	137.5	0.516	0.322	0.464	0.90	Liquefaction
2-CPT10	31.36	6	44.1	0.99	135	4234	2651	37.5	31.7	2.36	2.5	32.2	0.73	99.0	136.5	0.516	0.317	0.456	0.88	Liquefaction
2-CPT10	31.42	6	42.6	0.93	135	4242	2655	36.2	30.5	2.30	2.5	32.4	0.73	99.1	135.3	0.516	0.310	0.447	0.87	Liquefaction
2-CPT10	31.49	6	39.8	0.76	135	4251	2661	33.8	28.3	2.02	2.5	32.0	0.72	87.3	121.1	0.516	0.245	0.353	0.68	Liquefaction
2-CPT10	31.56	6	38.2	0.69	125	3945	2350	34.5	30.8	1.90	2.5	30.0	0.67	69.3	103.8	0.542	0.184	0.265	0.49	Liquefaction
2-CPT10	31.63	6	34.3	0.66	125	3954	2354	30.9	27.4	2.04	2.5	32.7	0.74	87.3	118.2	0.542	0.234	0.336	0.62	Liquefaction
2-CPT10	31.7	6	28.8	0.64	125	3963	2359	25.9	22.7	2.39	2.6	37.8	0.80	103.8	129.7	0.542	0.283	0.408	0.75	NonLiqfble.
2-CPT10	31.78	6	23.5	0.63	125	3973	2364	21.1	18.2	2.93	2.8	44.9	0.80	84.6	105.7	0.543	0.190	0.274	0.50	NonLiqfble.
2-CPT10	31.85	6	20.6	0.56	125	3981	2368	18.5	15.7	3.01	2.8	48.2	0.80	74.1	92.6	0.543	0.154	0.222	0.41	NonLiqfble.
2-CPT10	31.92	6	19.8	0.47	125	3990	2373	17.8	15.0	2.64	2.8	47.2	0.80	71.1	88.9	0.543	0.145	0.209	0.39	NonLiqfble.
2-CPT10	31.99	6	20.6	0.41	125	3999	2377	18.5	15.6	2.20	2.8	43.8	0.80	73.9	92.4	0.543	0.153	0.221	0.41	NonLiqfble.
2-CPT10	32.07	6	18.1	0.34	115	3688	2061	17.4	15.8	2.09	2.7	42.9	0.80	69.8	87.2	0.578	0.142	0.204	0.35	NonLiqfble.
2-CPT10	32.15	6	14.4	0.28	115	3697	2065	13.9	12.1	2.23	2.9	42.9	0.80	55.5	69.3	0.578	0.111	0.160	0.28	NonLiqfble.
2-CPT10	32.23	6	11.9	0.23	105	3384	1747	12.5	11.7	2.25	2.9	50.2	0.80	49.8	62.3	0.625	0.102	0.148	0.24	NonLiqfble.
2-CPT10	32.32	6	10.8	0.21	105	3394	1751	11.3	10.4	2.31	2.9	53.2	0.80	45.2	56.5	0.626	0.097	0.139	0.22	NonLiqfble.
2-CPT10	32.4	6	10.6	0.19	105	3402	1755	11.1	10.1	2.14	2.9	52.7	0.80	44.3	55.4	0.626	0.096	0.138	0.22	NonLiqfble.
2-CPT10	32.48	6	10.5	0.17	105	3410	1758	11.0	10.0	1.93	2.9	51.6	0.80	43.8	54.8	0.626	0.095	0.137	0.22	NonLiqfble.
2-CPT10	32.56	6	10.4	0.17	105	3419	1761	10.8	9.9	1.96	2.9	52.1	0.80	43.4	54.2	0.627	0.095	0.137	0.22	NonLiqfble.
2-CPT10	32.65	6	10.4	0.17	105	3428	1765	10.8	9.8	1.96	2.9	52.1	0.80	43.3	54.2	0.627	0.095	0.136	0.22	NonLiqfble.
2-CPT10	32.73	6	10.1	0.17	105	3437	1769	10.5	9.5	2.03	2.9	53.5	0.80	42.0	52.5	0.627	0.093	0.135	0.21	NonLiqfble.
2-CPT10	32.81	6	10	0.16	105	3445	1772	10.4	9.3	1.93	2.9	53.2	0.80	41.6	52.0	0.628	0.093	0.134	0.21	NonLiqfble.
2-CPT10	32.9	6	9.8	0.16	105	3455	1776	10.2	9.1	1.98	2.9	54.2	0.80	40.7	50.9	0.628	0.092	0.133	0.21	NonLiqfble.
2-CPT10	32.98	6	9.8	0.16	105	3463	1779	10.2	9.1	1.98	2.9	54.2	0.80	40.7	50.8	0.628	0.092	0.133	0.21	NonLiqfble.
2-CPT10	33.06	6	9.6	0.15	105	3471	1783	9.9	8.8	1.91	2.9	54.3	0.80	39.8	49.7	0.629	0.091	0.132	0.21	NonLiqfble.
2-CPT10	33.15	6	9.6	0.14	95	3149	1455	11.0	11.0	1.74	2.8	48.0	0.80	44.0	55.1	0.699	0.096	0.138	0.20	NonLiqfble.
2-CPT10	33.23	6	9.5	0.14	95	3157	1458	10.9	10.9	1.77	2.8	48.5	0.80	43.5	54.4	0.699	0.095	0.137	0.20	NonLiqfble.
2-CPT10	33.31	6	9.9	0.14	95	3164	1460	11.3	11.4	1.68	2.8	46.8	0.80	45.3	56.7	0.700	0.097	0.140	0.20	NonLiqfble.
2-CPT10	33.4	6	10.1	0.14	95	3173	1463	11.6	11.6	1.64	2.8	46.0	0.80	46.2	57.8	0.700	0.098	0.141	0.20	NonLiqfble.
2-CPT10	33.48	6	10	0.13	95	3181	1466	11.4	11.5	1.55	2.8	45.5	0.80	45.7	57.1	0.701	0.097	0.140	0.20	NonLiqfble.
2-CPT10	33.56	6	10.3	0.13	95	3188	1468	11.8	11.9	1.49	2.8	44.4	0.80	47.0	58.8	0.701	0.099	0.142	0.20	NonLiqfble.
2-CPT10	33.65	6	10.3	0.13	95	3197	1471	11.7	11.8	1.49	2.8	44.5	0.80	47.0	58.7	0.702	0.099	0.142	0.20	NonLiqfble.
2-CPT10	33.73	6	10.3	0.13	95	3204	1474	11.7	11.8	1.49	2.8	44.5	0.80	47.0	58.7	0.702	0.099	0.142	0.20	NonLiqfble.
2-CPT10	33.82	6	11	0.12	95	3213	1477	12.5	12.7	1.28	2.7	41.1	0.80	50.1	62.6	0.702	0.103	0.148	0.21	NonLiqfble.
2-CPT10	33.9	6	10.9	0.08	95	3221	1480	12.4	12.6	0.86	2.6	37.2	0.80	49.6	62.0	0.703	0.102	0.147	0.21	Check PI
2-CPT10	33.99	6	11.1	0.06	88	2991	1245	13.8	15.4	0.62	2.5	30.6	0.68	29.6	43.4	0.776	0.088	0.126	0.16	Liquefaction
2-CPT10	34.07	6	10.5	0.06	88	2998	1247	13.0	14.4	0.67	2.5	32.3	0.73	35.0	48.0	0.777	0.090	0.130	0.17	Liquefaction
2-CPT10	34.25	6	11.2	0.07	95	3254	1491	12.7	12.8	0.73	2.6	35.3	0.80	50.8	63.5	0.705	0.104	0.149	0.21	Liquefaction
2-CPT10	34.34	6	11.3	0.07	95	3262	1494	12.8	12.9	0.72	2.6	35.0	0.80	51.2	64.0	0.705	0.104	0.150	0.21	Liquefaction
2-CPT10	34.42	6	11.5	0.07	95	3270	1496	13.0	13.2	0.71	2.6	34.5	0.79	48.4	61.4	0.706	0.102	0.146	0.21	Liquefaction
2-CPT10	34.5	6	11.6	0.07	95	3278	1499	13.1	13.3	0.70	2.6	34.3	0.78	47.0	60.1	0.706	0.100	0.144	0.20	Liquefaction
2-CPT10	34.58	6	11.8	0.07	88	3043	1260	14.5	16.3	0.68	2.5	30.3	0.68	30.2	44.8	0.780	0.088	0.127	0.16	Liquefaction
2-CPT10	34.67	6	11.5	0.07	95	3294	1505	13.0	13.1	0.71	2.6	34.7	0.79	49.3	62.3	0.707	0.102			

Project Name:	SVRT - Yard & Shops
Project Number:	6600.300.102
Date:	4-Feb-08
CPT Number:	2-CPT10
Depth to Groundwater:	6 ft

EQ Magnitude (M_w):	6.5
PGA (g):	0.54
MSF:	1.44

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Frict. (TSF)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip q_{tN}	Corr. Tip Q	Friction Ratio F	I_c	F.C. (%)	K_{CPT}	Δq_{tN}	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.5	Factor of Safety	Comments	
2-CPT10	35.77	6	15.3	0.19	105	3756	1898	15.4	14.1	1.42	2.7	40.2	0.80	61.5	76.8	0.639	0.122	0.176	0.28	NonLiqfble.
2-CPT10	35.85	6	14.1	0.19	105	3764	1902	14.1	12.8	1.56	2.8	43.2	0.80	56.6	70.7	0.639	0.113	0.163	0.25	NonLiqfble.
2-CPT10	35.94	6	14.1	0.19	105	3774	1905	14.1	12.8	1.56	2.8	43.3	0.80	56.5	70.7	0.640	0.113	0.162	0.25	NonLiqfble.
2-CPT10	36.02	6	13.6	0.18	105	3782	1909	13.6	12.3	1.54	2.8	44.1	0.80	54.5	68.1	0.640	0.109	0.157	0.25	NonLiqfble.
2-CPT10	36.1	6	12.8	0.17	105	3791	1912	12.8	11.4	1.56	2.8	45.8	0.80	51.2	64.0	0.640	0.104	0.150	0.23	NonLiqfble.
2-CPT10	36.19	6	13.1	0.16	105	3800	1916	13.1	11.7	1.43	2.8	44.2	0.80	52.4	65.5	0.640	0.106	0.153	0.24	NonLiqfble.
2-CPT10	36.27	6	12.4	0.14	95	3446	1557	13.8	13.7	1.31	2.7	39.9	0.80	55.0	68.8	0.715	0.110	0.159	0.22	NonLiqfble.
2-CPT10	36.36	6	11.9	0.13	95	3454	1560	13.2	13.0	1.28	2.7	40.6	0.80	52.7	65.9	0.715	0.107	0.154	0.21	NonLiqfble.
2-CPT10	36.44	6	12.1	0.12	95	3462	1562	13.4	13.3	1.16	2.7	39.1	0.80	53.6	67.0	0.716	0.108	0.155	0.22	NonLiqfble.
2-CPT10	36.52	6	11.7	0.1	95	3469	1565	12.9	12.7	1.00	2.7	38.5	0.80	51.8	64.7	0.716	0.105	0.151	0.21	NonLiqfble.
2-CPT10	36.61	6	11.9	0.09	95	3478	1568	13.1	13.0	0.89	2.6	36.9	0.80	52.6	65.7	0.716	0.106	0.153	0.21	Check PI
2-CPT10	36.69	6	11.4	0.08	95	3486	1570	12.6	12.3	0.83	2.6	37.3	0.80	50.3	62.9	0.717	0.103	0.149	0.21	Check PI
2-CPT10	36.78	6	11.7	0.08	95	3494	1573	12.9	12.6	0.80	2.6	36.4	0.80	51.6	64.5	0.717	0.105	0.151	0.21	Check PI
2-CPT10	36.86	6	11.5	0.08	95	3502	1576	12.7	12.4	0.82	2.6	37.1	0.80	50.7	63.4	0.717	0.104	0.149	0.21	Check PI
2-CPT10	36.94	6	11.2	0.08	95	3509	1579	12.3	12.0	0.85	2.7	38.0	0.80	49.3	61.7	0.718	0.102	0.147	0.20	Check PI
2-CPT10	37.03	6	11.1	0.07	95	3518	1582	12.2	11.8	0.75	2.6	37.1	0.80	48.8	61.1	0.718	0.101	0.146	0.20	Check PI
2-CPT10	37.11	6	10.7	0.07	95	3525	1584	11.8	11.3	0.78	2.7	38.5	0.80	47.0	58.8	0.719	0.099	0.142	0.20	Check PI
2-CPT10	37.2	6	11.5	0.07	95	3534	1587	12.6	12.3	0.72	2.6	36.0	0.80	50.5	63.2	0.719	0.103	0.149	0.21	Check PI
2-CPT10	37.28	6	10.7	0.07	95	3542	1590	11.7	11.2	0.78	2.7	38.6	0.80	47.0	58.7	0.719	0.099	0.142	0.20	Check PI
2-CPT10	37.37	6	10.6	0.07	95	3550	1593	11.6	11.1	0.79	2.7	39.0	0.80	46.5	58.1	0.720	0.098	0.141	0.20	Check PI
2-CPT10	37.45	6	10.5	0.07	95	3558	1595	11.5	10.9	0.80	2.7	39.3	0.80	46.0	57.5	0.720	0.098	0.141	0.20	Check PI
2-CPT10	37.54	6	11.1	0.07	95	3566	1598	12.1	11.7	0.75	2.6	37.4	0.80	48.6	60.7	0.721	0.101	0.145	0.20	Check PI
2-CPT10	37.79	6	12.2	0.07	88	3326	1342	14.6	15.7	0.66	2.5	30.8	0.69	32.1	46.7	0.800	0.089	0.129	0.16	Liquefaction
2-CPT10	37.87	6	11.9	0.1	95	3598	1609	13.0	12.5	0.99	2.7	38.6	0.80	51.9	64.9	0.722	0.105	0.152	0.21	Check PI
2-CPT10	37.94	6	13.2	0.11	95	3604	1611	14.4	14.1	0.97	2.6	36.0	0.80	57.6	71.9	0.722	0.115	0.165	0.23	Check PI
2-CPT10	38.02	6	14.3	0.11	95	3612	1614	15.6	15.5	0.88	2.6	33.5	0.76	49.3	64.9	0.723	0.105	0.152	0.21	Liquefaction
2-CPT10	38.1	6	15.1	0.11	95	3620	1616	16.4	16.4	0.83	2.5	31.8	0.72	41.4	57.9	0.723	0.098	0.141	0.20	Liquefaction
2-CPT10	38.18	6	14.8	0.11	95	3627	1619	16.1	16.0	0.85	2.5	32.5	0.73	44.3	60.4	0.723	0.100	0.145	0.20	Liquefaction
2-CPT10	38.26	6	14.7	0.13	95	3635	1622	16.0	15.9	1.01	2.6	34.3	0.78	57.4	73.4	0.724	0.117	0.168	0.23	Liquefaction
2-CPT10	38.35	6	14.5	0.15	105	4027	2008	14.2	12.4	1.20	2.7	40.9	0.80	56.6	70.8	0.648	0.113	0.163	0.25	NonLiqfble.
2-CPT10	38.43	6	15.5	0.16	105	4035	2012	15.1	13.4	1.19	2.7	39.2	0.80	60.5	75.6	0.648	0.120	0.173	0.27	NonLiqfble.
2-CPT10	38.5	6	16.9	0.15	105	4043	2015	16.5	14.8	1.01	2.6	35.6	0.80	65.9	82.4	0.648	0.132	0.190	0.29	NonLiqfble.
2-CPT10	38.58	6	16.7	0.18	105	4051	2018	16.3	14.5	1.23	2.7	38.0	0.80	65.1	81.3	0.648	0.130	0.187	0.29	NonLiqfble.
2-CPT10	38.66	6	16.8	0.26	115	4446	2408	15.0	12.1	1.78	2.8	46.2	0.80	59.9	74.9	0.596	0.119	0.171	0.29	NonLiqfble.
2-CPT10	38.74	6	18.4	0.32	115	4455	2412	16.4	13.4	1.98	2.8	45.5	0.80	65.6	82.0	0.596	0.131	0.189	0.32	NonLiqfble.
2-CPT10	38.81	6	23.8	0.35	125	4851	2804	19.7	15.2	1.64	2.7	40.4	0.80	78.7	98.3	0.559	0.168	0.243	0.43	NonLiqfble.
2-CPT10	38.88	6	27.9	0.38	125	4860	2808	23.0	18.1	1.49	2.6	36.1	0.80	92.1	115.2	0.559	0.222	0.320	0.57	NonLiqfble.
2-CPT10	38.95	6	30.3	0.44	125	4869	2813	25.0	19.8	1.58	2.6	35.1	0.80	100.0	125.0	0.559	0.262	0.377	0.67	Liquefaction
2-CPT10	39.03	6	29.5	0.52	125	4879	2818	24.3	19.2	1.92	2.7	38.0	0.80	97.3	121.6	0.559	0.247	0.356	0.64	NonLiqfble.
2-CPT10	39.1	6	30.7	0.59	125	4888	2822	25.3	20.0	2.09	2.7	38.3	0.80	101.1	126.4	0.559	0.268	0.386	0.69	NonLiqfble.
2-CPT10	39.19	6	31.6	0.68	125	4899	2828	26.0	20.6	2.33	2.7	39.3	0.80	104.0	130.0	0.559	0.284	0.409	0.73	NonLiqfble.
2-CPT10	39.26	6	32.3	0.8	135	5300	3225	24.9	18.4	2.70	2.8	43.5	0.80	99.5	124.4	0.531	0.259	0.373	0.70	NonLiqfble.
2-CPT10	39.33	6	34.3	0.88	135	5310	3230	26.4	19.6	2.78	2.7	42.7	0.80	105.6	132.0	0.531	0.294	0.423	0.80	NonLiqfble.
2-CPT10	39.4	6	36.7	0.91	135	5319	3235	28.2	21.0	2.67	2.7	40.8	0.80	112.9	141.2	0.531	0.342	0.492	0.93	NonLiqfble.
2-CPT10	39.46	6	39.4	0.94	135	5327	3239	30.3	22.7	2.56	2.7	38.8	0.80	121.2	151.4	0.531	0.403	0.580	1.09	NonLiqfble.
2-CPT10	39.5	6	40.9	1	135	5333	3242	31.4	23.6	2.62	2.7	38.4	0.80	125.7	157.1	0.531	0.441	0.635	1.20	NonLiqfble.
2-CPT10	39.56	6	41.5	1.03	135	5341	3246	31.9	23.9	2.65	2.7	38.4	0.80	127.5	159.3	0.531	0.456	0.657	1.24	NonLiqfble.
2-CPT10	39.62	6	42.7	1.02	135	5349	3251	32.8	24.6	2.55	2.6	37.3	0.80	131.1	163.8	0.531	0.489	0.704	1.33	NonLiqfble.
2-CPT10	39.68	6	43.2	0.99	135	5357	3255	33.1	24.9	2.44	2.6	36.6	0.80	132.5	165.6	0.531	0.503	0.724	1.36	NonLiqfble.
2-CPT10	39.73	6	43.4	0.97	135	5364	3259	33.3	25.0	2.38	2.6	36.2	0.80	133.1	166.3	0.531	0.508	0.731	1.38	NonLiqfble.
2-CPT10	39.78	6	42	0.96	135	5370	3262	32.2	24.1	2.44	2.6	37.1	0.80	128.7	160.9	0.532	0.467	0.673	1.27	NonLiqfble.
2-CPT10	39.84	6	40.1	0.96	135	5378	3267	30.7	22.9	2.57	2.7	38.7	0.80	122.8	153.5	0.532	0.416	0.599	1.13	NonLiqfble.
2-CPT10	39.9	6	39.1	0.97	135	5387	3271	29.9	22.2	2.66	2.7	39.7	0.80	119.6	149.6	0.532	0.391	0.563	1.06	NonLiqfble.
2-CPT10	39.96	6	39.4	0.98	135	5395	3275	30.1	22.4	2.67	2.7	39.6	0.80	120.5	150.6	0.532	0.398	0.573	1.08	NonLiqfble.
2-CPT10	40.01	6	40.4	1	135	5401	3279	30.9	23.0	2.65	2.7	39.1	0.80	123.5	154.3	0.491	0.422	0.608	1.24	NonLiqfble.
2-CPT10	40.06	6	40.4	1.03	135	5408	3283	30.9	23.0	2.73	2.7	39.5	0.80	123.4	154.3	0.492	0.421	0.607	1.23	NonLiqfble.
2-CPT10	40.12	6	40.6	1.07	135	5416	3287	31.0	23.0	2.82	2.7	39.9	0.80	123.9	154.9	0.492	0.426	0.613	1.25	NonLiqfble.
2-CPT10	40.17	6	39.9	1.13	135	5423	3291	30.4	22.6	3.04	2.7	41.3	0.80	121.7	152.2	0.492	0.408	0.587	1.19	NonLiqfble.
2-CPT10	40.22	6	40.6	1.18	135	5430	3294	30.9	23.0	3.11	2.7	41.4	0.80	123.8	154.7	0.492	0.425	0.611	1.24	NonLiqfble.
2-CPT10	40.28	6	41.5	1.24	135	5438	3299	31.6	23.5	3.20	2.7	41.3	0.80	126.5	158.1	0.492	0.447	0.644	1.31	NonLiqfble.
2-CPT10	40.33	6	42.5	1.29	135	5445	3302	32.4	24.1	3.24	2.7	41.1	0.80	129.4	161.8	0				

Project Name: SVRT - Yard & Shops
 Project Number: 6600.300.102
 Date: 4-Feb-08
 CPT Number: 2-CPT10
 Depth to Groundwater: 6 ft

EQ Magnitude (M_w): 6.5
 PGA (g): 0.54
 MSF: 1.44

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Frict. (TSF)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip q_{eN}	Corr. Tip Q	Friction Ratio F	Ic	F.C. (%)	K_{CPT}	Δq_{eN}	(q_{eN})s	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments
2-CPT10	41.34	6	79.3	2.03	135	5581	3376	59.7	45.3	2.65	2.4	28.4	0.62	99.5	159.2	0.493	0.455	0.656	1.33	FS>1.3
2-CPT10	41.42	6	80.4	1.81	135	5592	3381	60.5	45.9	2.33	2.4	26.7	0.58	83.1	143.6	0.493	0.356	0.512	1.04	Low F.S.
2-CPT10	41.5	6	88.2	1.65	135	5603	3387	66.3	50.4	1.93	2.3	23.4	0.49	63.7	130.0	0.493	0.284	0.409	0.83	Liquefaction
2-CPT10	41.58	6	95	1.69	135	5613	3393	71.4	54.3	1.83	2.3	21.9	0.45	58.6	129.9	0.494	0.284	0.409	0.83	Liquefaction
2-CPT10	41.65	6	96.2	1.69	135	5623	3398	72.2	54.9	1.81	2.3	21.6	0.44	57.6	129.8	0.494	0.283	0.408	0.83	Liquefaction
2-CPT10	41.71	6	100.6	1.64	135	5631	3403	75.5	57.5	1.68	2.2	20.3	0.41	52.3	127.7	0.494	0.274	0.394	0.80	Liquefaction
2-CPT10	41.79	6	102.1	1.55	135	5642	3408	76.5	58.2	1.56	2.2	19.5	0.39	48.3	124.8	0.494	0.261	0.375	0.76	Liquefaction
2-CPT10	41.86	6	101.1	1.41	135	5651	3413	75.7	57.6	1.43	2.2	18.8	0.37	44.4	120.1	0.494	0.241	0.347	0.70	Liquefaction
2-CPT10	41.92	6	101	1.68	135	5659	3418	75.6	57.4	1.71	2.2	20.5	0.41	53.6	129.2	0.494	0.280	0.404	0.82	Liquefaction
2-CPT10	41.99	6	98.4	1.98	135	5669	3423	73.6	55.8	2.07	2.3	22.8	0.48	67.0	140.6	0.494	0.338	0.487	0.99	Liquefaction
2-CPT10	42.07	6	97.2	1.85	135	5679	3429	72.6	55.0	1.96	2.3	22.4	0.47	63.2	135.8	0.494	0.313	0.451	0.91	Liquefaction
2-CPT10	42.15	6	97	2.18	135	5690	3434	72.4	54.8	2.32	2.3	24.3	0.52	77.0	149.4	0.494	0.390	0.562	1.14	Low F.S.
2-CPT10	42.22	6	102.6	2.48	135	5700	3440	76.5	58.0	2.49	2.4	24.4	0.52	82.5	159.0	0.494	0.454	0.654	1.32	FS>1.3
2-CPT10	42.25	6	116	2.57	135	5704	3442	86.5	65.7	2.27	2.3	21.9	0.45	71.3	157.8	0.494	0.445	0.641	1.30	Low F.S.
2-CPT10	42.29	6	125.9	2.55	135	5709	3445	93.9	71.4	2.07	2.2	20.0	0.40	62.8	156.7	0.494	0.438	0.630	1.27	Low F.S.
2-CPT10	42.34	6	139.9	2.44	135	5716	3448	104.2	79.5	1.78	2.2	17.4	0.33	51.6	155.8	0.495	0.432	0.622	1.26	Low F.S.
2-CPT10	42.37	6	144.6	2.3	135	5720	3450	107.7	82.1	1.62	2.1	16.2	0.30	46.0	153.7	0.495	0.418	0.602	1.22	Low F.S.
2-CPT10	42.43	6	147	2.05	135	5728	3455	109.4	83.4	1.42	2.1	14.9	0.26	39.4	148.8	0.495	0.386	0.556	1.12	Low F.S.
2-CPT10	42.5	6	144.7	1.82	135	5738	3460	107.6	82.0	1.28	2.0	14.2	0.25	35.2	142.8	0.495	0.351	0.506	1.02	Low F.S.
2-CPT10	42.55	6	143.7	1.71	125	5319	3038	114.1	92.8	1.21	2.0	12.7	0.20	29.3	143.4	0.522	0.354	0.510	0.98	Liquefaction
2-CPT10	42.62	6	140.2	1.61	125	5328	3042	111.2	90.4	1.17	2.0	12.6	0.20	28.4	139.6	0.522	0.333	0.480	0.92	Liquefaction
2-CPT10	42.68	6	133.5	1.48	125	5335	3046	105.8	85.9	1.13	2.0	12.8	0.21	28.0	133.8	0.523	0.303	0.436	0.83	Liquefaction
2-CPT10	42.75	6	121.2	1.32	125	5344	3051	96.0	77.7	1.11	2.0	13.6	0.23	28.8	124.8	0.523	0.261	0.375	0.72	Liquefaction
2-CPT10	42.82	6	104.7	1.28	125	5353	3055	82.9	66.8	1.25	2.1	16.1	0.30	34.8	117.7	0.523	0.231	0.333	0.64	Liquefaction
2-CPT10	42.89	6	86.9	1.25	135	5790	3488	64.4	48.1	1.49	2.3	21.3	0.43	49.5	113.9	0.495	0.217	0.313	0.63	Liquefaction
2-CPT10	42.96	6	69.9	1.21	135	5800	3493	51.7	38.3	1.81	2.4	26.2	0.57	67.7	119.5	0.495	0.239	0.344	0.69	Liquefaction
2-CPT10	43.02	6	53	1.11	135	5808	3498	39.2	28.6	2.22	2.6	33.0	0.75	115.8	155.0	0.495	0.426	0.614	1.24	Low F.S.
2-CPT10	43.09	6	41.3	0.96	135	5817	3503	30.5	21.9	2.50	2.7	39.1	0.80	122.1	152.7	0.495	0.411	0.592	1.19	NonLiqfble.
2-CPT10	43.16	6	30.1	0.79	135	5827	3508	22.2	15.5	2.91	2.8	48.0	0.80	88.9	111.2	0.496	0.208	0.299	0.60	NonLiqfble.
2-CPT10	43.23	6	22.9	0.63	125	5404	3081	18.1	13.1	3.12	2.9	52.7	0.80	72.2	90.3	0.523	0.148	0.214	0.41	NonLiqfble.
2-CPT10	43.3	6	19.9	0.58	125	5413	3085	15.7	11.1	3.37	3.0	57.7	0.80	62.7	78.4	0.523	0.125	0.180	0.34	NonLiqfble.
2-CPT10	43.53	6	14.1	0.24	115	5006	2664	12.0	8.7	2.07	3.0	55.8	0.80	47.8	59.8	0.561	0.100	0.144	0.26	NonLiqfble.
2-CPT10	43.59	6	13.3	0.19	105	4577	2231	12.3	9.9	1.73	2.9	50.3	0.80	49.3	61.6	0.612	0.102	0.146	0.24	NonLiqfble.
2-CPT10	43.65	6	13.3	0.16	105	4583	2234	12.3	9.9	1.45	2.8	48.1	0.80	49.2	61.6	0.612	0.102	0.146	0.24	NonLiqfble.
2-CPT10	43.72	6	13	0.14	95	4153	1800	13.4	12.1	1.28	2.7	42.1	0.80	53.6	67.0	0.689	0.108	0.156	0.23	NonLiqfble.
2-CPT10	43.79	6	13.2	0.15	105	4598	2240	12.2	9.7	1.38	2.8	47.7	0.80	48.8	61.0	0.612	0.101	0.146	0.24	NonLiqfble.
2-CPT10	43.84	6	13	0.14	95	4165	1804	13.4	12.1	1.28	2.7	42.2	0.80	53.6	67.0	0.689	0.108	0.155	0.23	NonLiqfble.
2-CPT10	43.89	6	12.8	0.12	95	4170	1805	13.2	11.9	1.12	2.7	41.0	0.80	52.7	65.9	0.689	0.107	0.154	0.22	NonLiqfble.
2-CPT10	43.94	6	13.4	0.11	95	4174	1807	13.8	12.5	0.97	2.7	38.5	0.80	55.2	69.0	0.689	0.111	0.159	0.23	Check PI
2-CPT10	43.98	6	13.1	0.08	95	4178	1808	13.5	12.2	0.73	2.6	36.3	0.80	53.9	67.4	0.689	0.108	0.156	0.23	Check PI
2-CPT10	44.04	6	13.7	0.07	88	3876	1502	15.5	15.7	0.60	2.5	29.9	0.67	30.8	46.3	0.770	0.089	0.128	0.17	Liquefaction
2-CPT10	44.11	6	13.3	0.07	88	3882	1504	15.0	15.1	0.62	2.5	30.8	0.69	33.4	48.4	0.770	0.091	0.130	0.17	Liquefaction
2-CPT10	44.17	6	13	0.07	88	3887	1505	14.7	14.7	0.63	2.5	31.6	0.71	35.8	50.4	0.770	0.092	0.132	0.17	Liquefaction
2-CPT10	44.21	6	13.2	0.08	95	4200	1816	13.6	12.2	0.72	2.6	36.1	0.80	54.2	67.8	0.690	0.109	0.157	0.23	Check PI
2-CPT10	44.27	6	13.5	0.1	95	4206	1818	13.9	12.5	0.88	2.6	37.4	0.80	55.4	69.3	0.690	0.111	0.160	0.23	Check PI
2-CPT10	44.32	6	13.5	0.12	95	4210	1819	13.8	12.5	1.05	2.7	39.3	0.80	55.4	69.2	0.690	0.111	0.160	0.23	NonLiqfble.
2-CPT10	44.37	6	13.9	0.13	95	4215	1821	14.3	12.9	1.10	2.7	39.1	0.80	57.0	71.3	0.691	0.114	0.164	0.24	NonLiqfble.
2-CPT10	44.45	6	14.8	0.14	95	4223	1823	15.2	13.9	1.10	2.6	37.7	0.80	60.7	75.8	0.691	0.121	0.174	0.25	NonLiqfble.
2-CPT10	44.53	6	14.9	0.14	95	4230	1826	15.3	14.0	1.10	2.6	37.5	0.80	61.0	76.3	0.691	0.121	0.175	0.25	NonLiqfble.
2-CPT10	44.61	6	15	0.15	105	4684	2275	13.8	11.1	1.19	2.7	43.0	0.80	55.0	68.8	0.614	0.110	0.159	0.26	NonLiqfble.
2-CPT10	44.69	6	15.1	0.16	105	4692	2278	13.8	11.2	1.25	2.8	43.5	0.80	55.4	69.2	0.615	0.111	0.160	0.26	NonLiqfble.
2-CPT10	44.77	6	14.6	0.16	105	4701	2282	13.4	10.7	1.31	2.8	44.9	0.80	53.5	66.9	0.615	0.108	0.155	0.25	NonLiqfble.
2-CPT10	44.86	6	15.2	0.16	105	4710	2285	13.9	11.2	1.25	2.8	43.4	0.80	55.6	69.6	0.615	0.111	0.160	0.26	NonLiqfble.
2-CPT10	44.94	6	14.8	0.16	105	4719	2289	13.5	10.9	1.29	2.8	44.5	0.80	54.1	67.7	0.615	0.109	0.157	0.25	NonLiqfble.
2-CPT10	45.02	6	14.6	0.18	105	4727	2292	13.3	10.7	1.47	2.8	46.5	0.80	53.4	66.7	0.615	0.108	0.155	0.25	NonLiqfble.
2-CPT10	45.1	6	14.2	0.2	105	4736	2296	13.0	10.3	1.69	2.9	49.1	0.80	51.9	64.8	0.615	0.105	0.152	0.25	NonLiqfble.
2-CPT10	45.19	6	14.7	0.22	105	4745	2299	13.4	10.7	1.78	2.8	48.9	0.80	53.7	67.1	0.616	0.108	0.156	0.25	NonLiqfble.
2-CPT10	45.27	6	15.3	0.25	115	5206	2756	12.8	9.2	1.97	2.9	53.7	0.80	51.0	63.8	0.564	0.104	0.150	0.27	NonLiqfble.
2-CPT10	45.36	6	15.6	0.28	115	5216	2760	13.0	9.4	2.16	2.9	54.6	0.80	52.0	65.0	0.564	0.105	0.152	0.27	NonLiqfble.
2-CPT10	45.44	6	15.7	0.31	115	5226	2765	13.1	9.5	2.37	3.0	55.8	0.80	52.3	65.3	0.564	0.106	0.153	0.27	NonLiqfble.
2-CPT10	45.53	6	16.3	0.34	115	5236	2769	13.6	9.9	2.49	3.0	55.6	0.80	54.2	67.8	0.564	0.109	0.157	0.28	NonLiqfble.
2-CPT10	45.61	6	17.1	0.36	125	5701	3230	13.2	8											

Project Name:

SVRT - Yard & Shops

Project Number:

6600.300.102

Date:

4-Feb-08

CPT Number:

2-CPT10

Depth to Groundwater:

6 ft

EQ Magnitude (M_w):

6.5

PGA (g):

0.54

MSF:

1.44

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Frict. (TSF)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip Q _{eN}	Corr. Tip Q	Friction Ratio F	Ic	F.C. (%)	K _{CPT}	ΔQ _{eN}	(Q _{eN}) _s	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments
2-CPT10	46.62	6	16.3	0.29	115	5361	2827	13.4	9.6	2.13	2.9	53.8	0.80	53.7	67.1	0.566	0.108	0.156	0.27	NonLiqfble.
2-CPT10	46.7	6	16.6	0.3	115	5371	2831	13.7	9.8	2.16	2.9	53.5	0.80	54.6	68.3	0.566	0.110	0.158	0.28	NonLiqfble.
2-CPT10	46.79	6	16.9	0.32	115	5381	2836	13.9	10.0	2.25	2.9	53.7	0.80	55.5	69.4	0.566	0.111	0.160	0.28	NonLiqfble.
2-CPT10	46.87	6	17.5	0.32	115	5390	2840	14.4	10.4	2.16	2.9	52.2	0.80	57.5	71.8	0.566	0.114	0.165	0.29	NonLiqfble.
2-CPT10	46.96	6	18	0.3	115	5400	2844	14.8	10.8	1.96	2.9	50.1	0.80	59.1	73.8	0.566	0.117	0.169	0.30	NonLiqfble.
2-CPT10	47.04	6	17.8	0.29	115	5410	2849	14.6	10.6	1.92	2.9	50.2	0.80	58.4	73.0	0.567	0.116	0.167	0.30	NonLiqfble.
2-CPT10	47.12	6	16.9	0.26	115	5419	2853	13.8	9.9	1.83	2.9	51.0	0.80	55.4	69.2	0.567	0.111	0.160	0.28	NonLiqfble.
2-CPT10	47.21	6	16.5	0.22	105	4957	2386	14.8	11.7	1.57	2.8	45.2	0.80	59.1	73.9	0.620	0.118	0.169	0.27	NonLiqfble.
2-CPT10	47.29	6	16.7	0.07	88	4162	1585	18.4	18.4	0.48	2.4	25.6	0.55	22.5	40.9	0.783	0.086	0.124	0.16	Liquefaction
2-CPT10	47.37	6	17.4	0.13	95	4500	1919	17.4	15.8	0.86	2.5	32.9	0.74	50.5	67.9	0.700	0.109	0.157	0.22	Liquefaction
2-CPT10	47.46	6	17.5	0.14	95	4509	1922	17.5	15.9	0.92	2.6	33.4	0.76	54.9	72.4	0.700	0.115	0.166	0.24	Liquefaction
2-CPT10	47.51	6	15.8	0.15	105	4989	2398	14.1	11.1	1.13	2.7	42.5	0.80	56.5	70.6	0.621	0.113	0.162	0.26	NonLiqfble.
2-CPT10	47.55	6	13.7	0.17	105	4993	2400	12.2	9.3	1.52	2.9	49.9	0.80	48.9	61.2	0.621	0.101	0.146	0.24	NonLiqfble.
2-CPT10	47.59	6	17.4	0.19	105	4997	2402	15.5	12.4	1.28	2.7	41.6	0.80	62.1	77.7	0.621	0.124	0.178	0.29	NonLiqfble.
2-CPT10	47.66	6	19	0.2	105	5004	2405	17.0	13.7	1.21	2.7	39.0	0.80	67.8	84.8	0.621	0.137	0.197	0.32	NonLiqfble.
2-CPT10	47.74	6	19	0.19	105	5013	2408	16.9	13.7	1.15	2.7	38.5	0.80	67.8	84.7	0.621	0.137	0.197	0.32	NonLiqfble.
2-CPT10	47.81	6	18.7	0.18	105	5020	2411	16.7	13.4	1.11	2.7	38.5	0.80	66.7	83.3	0.621	0.134	0.193	0.31	NonLiqfble.
2-CPT10	47.89	6	17.5	0.19	105	5028	2415	15.6	12.4	1.27	2.7	41.5	0.80	62.3	77.9	0.621	0.124	0.179	0.29	NonLiqfble.
2-CPT10	47.96	6	17	0.19	105	5036	2417	15.1	12.0	1.31	2.7	42.6	0.80	60.5	75.6	0.621	0.120	0.173	0.28	NonLiqfble.
2-CPT10	48.04	6	16.4	0.18	105	5044	2421	14.6	11.5	1.30	2.8	43.4	0.80	58.3	72.9	0.622	0.116	0.167	0.27	NonLiqfble.
2-CPT10	48.12	6	16.4	0.16	105	5053	2424	14.6	11.4	1.15	2.7	42.1	0.80	58.3	72.9	0.622	0.116	0.167	0.27	NonLiqfble.
2-CPT10	48.2	6	16	0.15	105	5061	2428	14.2	11.1	1.11	2.7	42.4	0.80	56.8	71.0	0.622	0.113	0.163	0.26	NonLiqfble.
2-CPT10	48.28	6	15.6	0.15	105	5069	2431	13.8	10.7	1.15	2.8	43.4	0.80	55.4	69.2	0.622	0.111	0.160	0.26	NonLiqfble.
2-CPT10	48.35	6	15.5	0.13	95	4593	1951	15.4	13.5	0.98	2.6	37.1	0.80	61.4	76.8	0.703	0.122	0.176	0.25	Check PI
2-CPT10	48.43	6	15.2	0.11	95	4601	1953	15.0	13.2	0.85	2.6	36.1	0.80	60.2	75.2	0.703	0.120	0.172	0.25	Check PI
2-CPT10	48.52	6	15.1	0.1	95	4609	1956	14.9	13.1	0.78	2.6	35.5	0.80	59.8	74.7	0.703	0.119	0.171	0.24	Check PI
2-CPT10	48.6	6	14.5	0.1	95	4617	1959	14.3	12.4	0.82	2.6	36.9	0.80	57.3	71.7	0.703	0.114	0.165	0.23	Check PI
2-CPT10	48.68	6	15	0.09	95	4625	1961	14.8	12.9	0.71	2.6	34.9	0.80	58.4	73.3	0.703	0.117	0.168	0.24	Liquefaction
2-CPT10	48.76	6	14.9	0.09	95	4632	1964	14.7	12.8	0.72	2.6	35.1	0.80	58.8	73.6	0.704	0.117	0.168	0.24	Liquefaction
2-CPT10	48.84	6	14.7	0.1	95	4640	1967	14.5	12.6	0.81	2.6	36.6	0.80	58.0	72.5	0.704	0.115	0.166	0.24	Check PI
2-CPT10	48.92	6	14.3	0.1	95	4647	1969	14.1	12.2	0.84	2.6	37.6	0.80	56.4	70.5	0.704	0.113	0.162	0.23	Check PI
2-CPT10	49.01	6	14.8	0.11	95	4656	1972	14.6	12.6	0.88	2.6	37.3	0.80	58.3	72.9	0.704	0.116	0.167	0.24	Check PI
2-CPT10	49.09	6	14.8	0.12	95	4664	1975	14.6	12.6	0.96	2.7	38.2	0.80	58.3	72.9	0.705	0.116	0.167	0.24	Check PI
2-CPT10	49.17	6	15.7	0.13	95	4671	1977	15.4	13.5	0.97	2.6	37.0	0.80	61.8	77.2	0.705	0.123	0.177	0.25	Check PI
2-CPT10	49.26	6	16	0.15	105	5172	2473	14.1	10.8	1.12	2.7	42.9	0.80	56.3	70.4	0.624	0.112	0.162	0.26	NonLiqfble.
2-CPT10	49.34	6	16.5	0.16	105	5181	2476	14.5	11.2	1.15	2.7	42.5	0.80	58.0	72.5	0.624	0.115	0.166	0.27	NonLiqfble.
2-CPT10	49.42	6	16	0.17	105	5189	2480	14.1	10.8	1.27	2.8	44.4	0.80	56.2	70.3	0.624	0.112	0.162	0.26	NonLiqfble.
2-CPT10	49.5	6	16.4	0.18	105	5198	2483	14.4	11.1	1.30	2.8	44.2	0.80	57.6	72.0	0.624	0.115	0.165	0.26	NonLiqfble.
2-CPT10	49.58	6	16.8	0.19	105	5206	2487	14.7	11.4	1.34	2.8	43.9	0.80	59.0	73.7	0.625	0.117	0.169	0.27	NonLiqfble.
2-CPT10	49.66	6	17.6	0.2	105	5214	2490	15.4	12.0	1.33	2.7	42.7	0.80	61.7	77.2	0.625	0.123	0.177	0.28	NonLiqfble.
2-CPT10	49.74	6	17.6	0.22	105	5223	2493	15.4	12.0	1.47	2.8	43.9	0.80	61.7	77.1	0.625	0.123	0.177	0.28	NonLiqfble.
2-CPT10	49.83	6	18.9	0.25	115	5730	2995	15.1	10.7	1.56	2.8	47.2	0.80	60.4	75.5	0.571	0.120	0.173	0.30	NonLiqfble.
2-CPT10	49.91	6	18.9	0.29	115	5740	3000	15.1	10.7	1.81	2.9	49.2	0.80	60.4	75.5	0.571	0.120	0.173	0.30	NonLiqfble.
2-CPT10	49.99	6	19.8	0.48	125	6249	3504	14.6	9.5	2.88	3.0	58.8	0.80	58.5	73.2	0.532	0.116	0.168	0.32	NonLiqfble.
2-CPT10	50.07	6	22.1	0.64	125	6259	3509	16.3	10.8	3.37	3.0	58.4	0.80	65.3	81.6	0.470	0.131	0.188	0.40	NonLiqfble.
2-CPT10	50.15	6	32	0.62	125	6269	3514	23.6	16.4	2.15	2.7	42.5	0.80	94.5	118.1	0.470	0.233	0.336	0.71	NonLiqfble.
2-CPT10	50.23	6	36.9	0.54	125	6279	3519	27.2	19.2	1.60	2.6	35.8	0.80	108.9	136.1	0.470	0.314	0.453	0.96	NonLiqfble.
2-CPT10	50.31	6	31.4	0.5	125	6289	3524	23.1	16.0	1.77	2.7	40.4	0.80	92.6	115.7	0.470	0.224	0.323	0.69	NonLiqfble.
2-CPT10	50.39	6	27	0.59	125	6299	3529	19.9	13.5	2.47	2.8	48.4	0.80	79.5	99.4	0.470	0.171	0.247	0.53	NonLiqfble.
2-CPT10	50.47	6	24.6	0.7	125	6309	3534	18.1	12.1	3.26	2.9	55.1	0.80	72.4	90.5	0.470	0.149	0.215	0.46	NonLiqfble.
2-CPT10	50.55	6	28.2	0.76	135	6824	4044	19.4	12.3	3.07	2.9	53.9	0.80	77.6	97.0	0.444	0.165	0.237	0.53	NonLiqfble.
2-CPT10	50.64	6	43.1	0.82	135	6836	4051	29.6	19.6	2.07	2.7	38.6	0.80	118.5	148.1	0.444	0.382	0.551	1.24	NonLiqfble.
2-CPT10	50.71	6	56.7	0.91	135	6846	4056	39.0	26.3	1.71	2.5	31.3	0.70	91.5	130.4	0.444	0.286	0.412	0.93	Liquefaction
2-CPT10	50.95	6	34.1	0.7	125	6369	3564	25.0	17.3	2.26	2.7	42.1	0.80	100.0	125.0	0.470	0.261	0.377	0.80	NonLiqfble.
2-CPT10	51.03	6	29.2	0.64	125	6379	3569	21.4	14.6	2.46	2.8	46.8	0.80	85.5	106.9	0.471	0.194	0.279	0.59	NonLiqfble.
2-CPT10	51.1	6	23.8	0.56	125	6388	3573	17.4	11.5	2.72	2.9	53.4	0.80	69.7	87.1	0.471	0.141	0.204	0.43	NonLiqfble.
2-CPT10	51.18	6	22	0.49	125	6398	3578	16.1	10.5	2.61	2.9	54.9	0.80	64.4	80.5	0.471	0.128	0.185	0.39	NonLiqfble.
2-CPT10	51.27	6	20.4	0.44	125	6409	3584	14.9	9.6	2.56	3.0	56.7	0.80	59.6	74.5	0.471	0.119	0.171	0.36	NonLiqfble.
2-CPT10	51.35	6	20.6	0.4	125	6419	3589	15.0	9.7	2.30	2.9	54.8	0.80	60.2	75.2	0.471	0.120	0.172	0.37	NonLiqfble.
2-CPT10	51.43	6	19.7	0.37	125	6429	3594	14												

Project Name:

SVRT - Yard & Shops

EQ Magnitude (M_w):

6.5

Project Number:

6600.300.102

PGA (g):

0.54

Date:

4-Feb-08

MSF:

1.44

CPT Number:

2-CPT10

Depth to Groundwater:

6 ft

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Frict. (TSF)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip q_{tN}	Corr. Tip Q	Friction Ratio F	I_c	F.C. (%)	K_{CPT}	Δq_{tN}	(q_{tN}) _s	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments
2-CPT10	52.55	6	20.7	0.52	125	6569	3664	15.0	9.5	2.99	3.0	59.4	0.80	59.9	74.8	0.472	0.119	0.171	0.36	NonLiqfble.
2-CPT10	52.63	6	20.2	0.52	125	6579	3669	14.6	9.2	3.08	3.0	60.7	0.80	58.4	73.0	0.472	0.116	0.167	0.35	NonLiqfble.
2-CPT10	52.71	6	20	0.5	125	6589	3674	14.4	9.1	2.99	3.0	60.6	0.80	57.7	72.2	0.472	0.115	0.166	0.35	NonLiqfble.
2-CPT10	52.79	6	19.4	0.46	125	6599	3679	14.0	8.7	2.86	3.0	60.7	0.80	56.0	70.0	0.472	0.112	0.161	0.34	NonLiqfble.
2-CPT10	52.88	6	18.3	0.42	125	6610	3685	13.2	8.1	2.80	3.1	62.3	0.80	52.8	66.0	0.472	0.107	0.154	0.33	NonLiqfble.
2-CPT10	52.96	6	17.3	0.38	125	6620	3690	12.5	7.6	2.72	3.1	63.6	0.80	49.8	62.3	0.472	0.102	0.148	0.31	NonLiqfble.
2-CPT10	53.04	6	17	0.35	125	6630	3695	12.2	7.4	2.56	3.1	63.2	0.80	48.9	61.2	0.472	0.101	0.146	0.31	NonLiqfble.
2-CPT10	53.12	6	16.9	0.32	115	6109	3169	13.1	8.7	2.31	3.0	57.4	0.80	52.5	65.7	0.508	0.106	0.153	0.30	NonLiqfble.
2-CPT10	53.21	6	17.2	0.31	115	6119	3173	13.4	8.9	2.19	3.0	56.1	0.80	53.4	66.8	0.508	0.108	0.155	0.31	NonLiqfble.
2-CPT10	53.29	6	17.4	0.32	115	6128	3177	13.5	9.0	2.23	3.0	56.1	0.80	54.0	67.5	0.508	0.109	0.156	0.31	NonLiqfble.
2-CPT10	53.37	6	17.3	0.32	115	6138	3182	13.4	8.9	2.25	3.0	56.4	0.80	53.7	67.1	0.508	0.108	0.156	0.31	NonLiqfble.
2-CPT10	53.46	6	17.2	0.32	115	6148	3186	13.3	8.9	2.27	3.0	56.7	0.80	53.3	66.7	0.508	0.108	0.155	0.30	NonLiqfble.
2-CPT10	53.54	6	17.6	0.33	115	6157	3191	13.6	9.1	2.27	3.0	56.2	0.80	54.5	68.2	0.508	0.109	0.155	0.31	NonLiqfble.
2-CPT10	53.63	6	18.1	0.35	125	6704	3732	13.0	7.9	2.37	3.0	60.3	0.80	51.9	64.8	0.473	0.105	0.152	0.32	NonLiqfble.
2-CPT10	53.71	6	18.5	0.36	125	6714	3737	13.2	8.1	2.38	3.0	59.7	0.80	53.0	66.2	0.473	0.107	0.154	0.33	NonLiqfble.
2-CPT10	53.79	6	18.8	0.36	125	6724	3742	13.4	8.2	2.33	3.0	59.0	0.80	53.8	67.2	0.473	0.108	0.156	0.33	NonLiqfble.
2-CPT10	53.87	6	18.7	0.37	125	6734	3747	13.4	8.2	2.41	3.0	59.7	0.80	53.5	66.8	0.473	0.108	0.155	0.33	NonLiqfble.
2-CPT10	53.96	6	18.3	0.38	125	6745	3752	13.1	8.0	2.55	3.0	61.3	0.80	52.3	65.4	0.473	0.106	0.153	0.32	NonLiqfble.
2-CPT10	54.04	6	18	0.38	125	6755	3757	12.8	7.8	2.60	3.1	62.2	0.80	51.4	64.2	0.473	0.105	0.151	0.32	NonLiqfble.
2-CPT10	54.13	6	18.1	0.38	125	6766	3763	12.9	7.8	2.58	3.1	61.9	0.80	51.6	64.6	0.473	0.105	0.151	0.32	NonLiqfble.
2-CPT10	54.21	6	18	0.4	125	6776	3768	12.8	7.8	2.74	3.1	63.1	0.80	51.3	64.2	0.473	0.105	0.151	0.32	NonLiqfble.
2-CPT10	54.45	6	20	0.47	125	6806	3783	14.2	8.8	2.83	3.0	60.5	0.80	56.9	71.1	0.474	0.113	0.163	0.35	NonLiqfble.
2-CPT10	54.53	6	19.2	0.47	125	6816	3788	13.6	8.3	2.98	3.1	62.7	0.80	54.6	68.2	0.474	0.110	0.158	0.33	NonLiqfble.
2-CPT10	54.61	6	19.3	0.46	125	6826	3793	13.7	8.4	2.90	3.1	62.1	0.80	54.8	68.6	0.474	0.110	0.158	0.33	NonLiqfble.
2-CPT10	54.69	6	19.7	0.47	125	6836	3798	14.0	8.6	2.89	3.0	61.4	0.80	55.9	69.9	0.474	0.112	0.161	0.34	NonLiqfble.
2-CPT10	54.78	6	20	0.48	125	6848	3804	14.2	8.7	2.90	3.0	61.1	0.80	56.8	70.9	0.474	0.113	0.163	0.34	NonLiqfble.
2-CPT10	54.86	6	20.9	0.51	125	6858	3809	14.8	9.2	2.92	3.0	59.9	0.80	59.3	74.1	0.474	0.118	0.170	0.36	NonLiqfble.
2-CPT10	54.95	6	21.5	0.56	125	6869	3814	15.2	9.5	3.10	3.0	60.1	0.80	60.9	76.2	0.474	0.121	0.174	0.37	NonLiqfble.
2-CPT10	55.03	6	21.9	0.6	125	6879	3819	15.5	9.7	3.25	3.0	60.5	0.80	62.0	77.5	0.474	0.123	0.178	0.37	NonLiqfble.
2-CPT10	55.11	6	22.7	0.63	125	6889	3824	16.1	10.1	3.27	3.0	59.6	0.80	64.2	80.3	0.474	0.128	0.185	0.39	NonLiqfble.
2-CPT10	55.19	6	23.2	0.68	125	6899	3829	16.4	10.3	3.44	3.0	59.9	0.80	65.6	82.0	0.474	0.131	0.189	0.40	NonLiqfble.
2-CPT10	55.28	6	23.5	0.74	125	6910	3835	16.6	10.4	3.69	3.0	60.8	0.80	66.4	83.0	0.474	0.133	0.192	0.40	NonLiqfble.
2-CPT10	55.36	6	23.4	0.77	135	7474	4394	15.4	8.9	3.92	3.1	65.7	0.80	61.8	77.2	0.448	0.123	0.177	0.40	NonLiqfble.
2-CPT10	55.44	6	24.1	0.79	135	7484	4399	15.9	9.3	3.88	3.1	64.7	0.80	63.6	79.5	0.448	0.127	0.182	0.41	NonLiqfble.
2-CPT10	55.53	6	24	0.82	135	7497	4406	15.8	9.2	4.05	3.1	65.6	0.80	63.3	79.1	0.448	0.126	0.181	0.41	NonLiqfble.
2-CPT10	55.59	6	23.6	0.84	135	7505	4410	15.5	9.0	4.23	3.1	67.0	0.80	62.2	77.7	0.448	0.124	0.178	0.40	NonLiqfble.
2-CPT10	55.69	6	24	0.88	135	7518	4417	15.8	9.2	4.35	3.1	67.1	0.80	63.2	79.0	0.448	0.126	0.181	0.40	NonLiqfble.
2-CPT10	55.78	6	24.7	0.93	135	7530	4424	16.2	9.5	4.44	3.1	66.6	0.80	65.0	81.2	0.448	0.130	0.187	0.42	NonLiqfble.
2-CPT10	55.86	6	25.4	0.97	135	7541	4430	16.7	9.8	4.48	3.1	66.0	0.80	66.8	83.5	0.448	0.134	0.193	0.43	NonLiqfble.
2-CPT10	55.94	6	25.9	0.99	135	7552	4436	17.0	10.0	4.48	3.1	65.4	0.80	68.1	85.1	0.448	0.137	0.198	0.44	NonLiqfble.
2-CPT10	56.02	6	25.9	1.02	135	7563	4441	17.0	10.0	4.61	3.1	66.1	0.80	68.0	85.0	0.448	0.137	0.198	0.44	NonLiqfble.
2-CPT10	56.1	6	25.9	1.03	135	7574	4447	17.0	9.9	4.66	3.1	66.3	0.80	68.0	85.0	0.448	0.137	0.197	0.44	NonLiqfble.
2-CPT10	56.18	6	26.8	1.05	135	7584	4453	17.6	10.3	4.56	3.1	64.9	0.80	70.3	87.9	0.448	0.143	0.206	0.46	NonLiqfble.
2-CPT10	56.26	6	27.2	1.04	135	7595	4459	17.8	10.5	4.44	3.1	64.0	0.80	71.3	89.1	0.448	0.146	0.210	0.47	NonLiqfble.
2-CPT10	56.35	6	28.4	1.18	135	7607	4465	18.6	11.0	4.80	3.1	64.3	0.80	74.4	93.0	0.448	0.155	0.223	0.50	NonLiqfble.
2-CPT10	56.43	6	30.2	1.52	135	7618	4471	19.8	11.8	5.76	3.1	66.2	0.80	79.0	98.8	0.449	0.170	0.244	0.54	NonLiqfble.
2-CPT10	56.51	6	39.7	2.24	135	7629	4477	26.0	16.0	6.24	3.0	60.7	0.80	103.8	129.8	0.449	0.283	0.408	0.91	NonLiqfble.
2-CPT10	56.57	6	69.7	2.79	135	7637	4481	45.6	29.4	4.23	2.7	41.7	0.80	182.2	227.8	0.449	1.179	1.698	3.78	NonLiqfble.
2-CPT10	56.6	6	79.3	2.82	135	7641	4484	51.8	33.7	3.74	2.6	37.5	0.80	207.3	259.1	0.449	1.697	2.444	5.45	FS>1.3
2-CPT10	56.66	6	95.2	3.02	135	7649	4488	62.2	40.7	3.31	2.5	32.8	0.74	179.4	241.6	0.449	1.392	2.004	4.47	FS>1.3
2-CPT10	56.71	6	102.9	3.26	135	7656	4492	67.2	44.1	3.29	2.5	31.6	0.71	164.4	231.6	0.449	1.235	1.779	3.96	FS>1.3
2-CPT10	56.76	6	101	3.42	135	7663	4495	65.9	43.2	3.52	2.5	32.8	0.74	190.2	256.1	0.449	1.642	2.364	5.27	FS>1.3
2-CPT10	56.81	6	103.7	3.55	135	7669	4499	67.6	44.4	3.55	2.5	32.6	0.74	188.6	256.3	0.449	1.645	2.369	5.28	FS>1.3
2-CPT10	56.87	6	103.9	3.41	135	7677	4503	67.7	44.4	3.41	2.5	32.0	0.72	174.2	241.9	0.449	1.397	2.011	4.48	FS>1.3
2-CPT10	56.92	6	115.6	3.2	135	7684	4507	75.3	49.6	2.86	2.4	28.1	0.62	121.8	197.2	0.449	0.793	1.142	2.54	FS>1.3
2-CPT10	56.97	6	122.7	3.03	135	7691	4510	79.9	52.7	2.55	2.4	25.9	0.56	101.1	181.1	0.449	0.632	0.910	2.03	FS>1.3
2-CPT10	57.01	6	147.6	2.89	135	7696	4513	96.1	63.7	2.01	2.3	21.0	0.43	71.5	167.6	0.449	0.518	0.746	1.66	FS>1.3
2-CPT10	57.07	6	169.6	2.74	135	7704	4518	110.4	73.3	1.65	2.2	17.5	0.33	55.4	165.8	0.449	0.504	0.726	1.62	FS>1.3
2-CPT10	57.1	6	180.3	2.62	135	7709	4520	117.3	78.0	1.48	2.1	15.9	0.29							

Project Name:	SVRT - Yard & Shops
Project Number:	6600.300.102
Date:	4-Feb-08
CPT Number:	2-CPT10
Depth to Groundwater:	6 ft

EQ Magnitude (M _w):	6.5
PGA (g):	0.54
MSF:	1.44

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Fric. (TSF)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip Q _{eN}	Corr. Tip Q	Friction Ratio F	I _c	F.C. (%)	K _{CPT}	ΔQ _{eN}	(Q _{eN}) _s	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments
2-CPT10	57.67	6	236.7	0.85	105	6055	2831	194.6	165.0	0.36	1.5	2.5	0.00	0.0	194.6	0.563	0.766	1.103	1.96	FS>1.3
2-CPT10	57.7	6	229.5	0.74	95	5482	2255	211.4	201.0	0.33	1.4	1.3	0.00	0.0	211.4	0.640	0.959	1.381	2.16	FS>1.3
2-CPT10	57.74	6	227.3	0.81	105	6063	2834	186.8	158.2	0.36	1.5	2.7	0.00	0.0	186.8	0.563	0.686	0.988	1.75	FS>1.3
2-CPT10	57.77	6	223.7	0.96	105	6066	2835	183.8	155.6	0.44	1.5	3.4	0.00	0.0	183.8	0.563	0.658	0.947	1.68	FS>1.3
2-CPT10	57.8	6	221.7	1.08	105	6069	2837	182.1	154.1	0.49	1.6	4.0	0.00	0.0	182.1	0.563	0.642	0.924	1.64	FS>1.3
2-CPT10	57.84	6	218.1	1.08	105	6073	2838	179.1	151.5	0.50	1.6	4.1	0.00	0.0	179.1	0.563	0.614	0.885	1.57	FS>1.3
2-CPT10	57.88	6	215.6	1.12	115	6656	3419	161.3	124.1	0.53	1.7	5.5	0.01	2.3	163.6	0.513	0.487	0.702	1.37	FS>1.3
2-CPT10	57.93	6	217.3	1.47	115	6662	3422	162.5	125.0	0.69	1.7	6.7	0.05	7.9	170.5	0.513	0.541	0.779	1.52	FS>1.3
2-CPT10	57.97	6	223	1.63	115	6667	3424	166.8	128.3	0.74	1.7	7.0	0.05	9.3	176.1	0.513	0.588	0.846	1.65	FS>1.3
2-CPT10	58	6	224.8	1.41	115	6670	3425	168.1	129.3	0.64	1.7	6.1	0.03	5.3	173.3	0.513	0.564	0.813	1.59	FS>1.3
2-CPT10	58.04	6	235.8	1.45	115	6675	3427	176.2	135.6	0.62	1.7	5.7	0.02	3.5	179.7	0.513	0.620	0.893	1.74	FS>1.3
2-CPT10	58.08	6	234.6	1.64	115	6679	3429	175.3	134.8	0.71	1.7	6.4	0.04	6.9	182.1	0.513	0.642	0.924	1.80	FS>1.3
2-CPT10	58.12	6	244	1.74	115	6684	3432	182.2	140.2	0.72	1.7	6.3	0.03	6.3	188.6	0.513	0.704	1.013	1.98	FS>1.3
2-CPT10	58.15	6	244.8	1.8	115	6687	3433	182.8	140.6	0.75	1.7	6.4	0.04	7.1	189.9	0.513	0.717	1.032	2.01	FS>1.3
2-CPT10	58.19	6	239.7	1.77	115	6692	3435	178.9	137.5	0.75	1.7	6.6	0.04	7.8	186.8	0.513	0.686	0.987	1.93	FS>1.3
2-CPT10	58.24	6	242.9	1.67	115	6698	3438	181.3	139.3	0.70	1.7	6.1	0.03	5.5	186.8	0.513	0.686	0.988	1.93	FS>1.3
2-CPT10	58.3	6	272.2	1.62	115	6705	3441	203.0	156.2	0.60	1.6	4.7	0.00	0.0	203.0	0.513	0.858	1.236	2.41	FS>1.3
2-CPT10	58.38	6	287.7	1.85	115	6714	3445	214.5	165.0	0.65	1.6	4.8	0.00	0.0	214.5	0.513	0.997	1.436	2.80	FS>1.3
2-CPT10	58.46	6	297.5	1.85	115	6723	3449	221.6	170.5	0.63	1.6	4.4	0.00	0.0	221.6	0.513	1.092	1.573	3.07	FS>1.3
2-CPT10	58.53	6	315.7	2.05	115	6731	3453	235.1	180.8	0.66	1.6	4.3	0.00	0.0	235.1	0.513	1.288	1.855	3.61	FS>1.3
2-CPT10	58.6	6	327.8	2.21	115	6739	3457	243.9	187.6	0.68	1.6	4.3	0.00	0.0	243.9	0.513	1.430	2.059	4.01	FS>1.3
2-CPT10	58.68	6	345.5	2.05	115	6748	3461	257.0	197.6	0.60	1.5	3.4	0.00	0.0	257.0	0.513	1.658	2.387	4.65	FS>1.3
2-CPT10	58.75	6	348.6	2.05	115	6756	3465	259.1	199.2	0.59	1.5	3.4	0.00	0.0	259.1	0.513	1.698	2.445	4.76	FS>1.3
2-CPT10	58.82	6	326	2.68	125	7353	4057	224.0	158.8	0.83	1.7	6.2	0.03	7.6	231.5	0.477	1.234	1.777	3.73	FS>1.3
2-CPT10	58.9	6	291.5	2.46	125	7363	4062	200.1	141.7	0.85	1.8	7.1	0.06	11.9	212.1	0.477	0.967	1.392	2.92	FS>1.3
2-CPT10	58.98	6	275.1	3.11	125	7373	4067	188.8	133.4	1.15	1.9	9.4	0.12	24.9	213.6	0.477	0.986	1.420	2.98	FS>1.3
2-CPT10	59.05	6	271.4	2.87	125	7381	4071	186.1	131.5	1.07	1.8	9.0	0.11	22.4	208.5	0.477	0.923	1.328	2.78	FS>1.3
2-CPT10	59.13	6	275.4	2.79	125	7391	4076	188.7	133.3	1.03	1.8	8.6	0.10	20.3	209.0	0.477	0.930	1.339	2.80	FS>1.3
2-CPT10	59.2	6	290.8	2.41	125	7400	4080	199.2	140.7	0.84	1.7	7.0	0.05	11.5	210.7	0.477	0.950	1.368	2.87	FS>1.3
2-CPT10	59.27	6	306.8	2.25	115	6816	3492	227.2	173.7	0.74	1.6	5.1	0.00	0.6	227.8	0.514	1.179	1.698	3.30	FS>1.3
2-CPT10	59.34	6	328.3	1.87	115	6824	3496	243.0	185.8	0.58	1.6	3.6	0.00	0.0	243.0	0.514	1.414	2.036	3.96	FS>1.3
2-CPT10	59.41	6	341.1	2.11	115	6832	3499	252.3	192.9	0.62	1.6	3.7	0.00	0.0	252.3	0.514	1.573	2.266	4.41	FS>1.3
2-CPT10	59.48	6	356	2.06	115	6840	3503	263.2	201.2	0.58	1.5	3.2	0.00	0.0	263.2	0.514	1.775	2.556	4.97	FS>1.3
2-CPT10	59.55	6	354.2	2.19	115	6848	3507	261.7	200.0	0.62	1.5	3.5	0.00	0.0	261.7	0.514	1.747	2.516	4.89	FS>1.3
2-CPT10	59.63	6	359.8	2.44	115	6857	3511	265.7	202.9	0.68	1.6	3.9	0.00	0.0	265.7	0.514	1.824	2.627	5.11	FS>1.3
2-CPT10	59.7	6	352.6	2.13	115	6866	3515	260.2	198.6	0.61	1.5	3.5	0.00	0.0	260.2	0.514	1.719	2.475	4.81	FS>1.3
2-CPT10	59.77	6	345.1	1.87	115	6874	3518	254.6	194.1	0.55	1.5	3.1	0.00	0.0	254.6	0.514	1.614	2.324	4.52	FS>1.3
2-CPT10	59.84	6	342	1.34	105	6283	2924	276.7	231.7	0.40	1.4	1.2	0.00	0.0	276.7	0.566	2.051	2.954	5.22	FS>1.3
2-CPT10	59.91	6	329	1.17	105	6291	2927	266.1	222.6	0.36	1.4	1.1	0.00	0.0	266.1	0.566	1.832	2.638	4.66	FS>1.3
2-CPT10	59.98	6	343.7	0.99	95	5698	2330	311.6	292.5	0.29	1.2	0.0	0.00	0.0	311.6	0.644	2.893	4.165	6.47	FS>1.3
2-CPT10	60.03	6	354.9	0.94	95	5703	2331	321.6	301.9	0.27	1.2	0.0	0.00	0.0	321.6	0.567	3.173	4.570	8.06	FS>1.3
2-CPT10	60.06	6	324.7	0.89	95	5706	2332	294.2	275.9	0.28	1.2	0.0	0.00	0.0	294.2	0.567	2.447	3.524	6.22	FS>1.3
2-CPT10	60.09	6	305.1	0.95	95	5709	2333	276.4	259.0	0.31	1.3	0.2	0.00	0.0	276.4	0.567	2.043	2.942	5.19	FS>1.3
2-CPT10	60.14	6	273.5	0.95	105	6315	2936	220.8	184.1	0.35	1.4	1.9	0.00	0.0	220.8	0.498	1.082	1.557	3.13	FS>1.3
2-CPT10	60.18	6	289.4	0.91	95	5717	2336	262.0	245.2	0.32	1.3	0.4	0.00	0.0	262.0	0.567	1.752	2.523	4.45	FS>1.3
2-CPT10	60.22	6	316.8	0.82	95	5721	2338	286.7	268.5	0.26	1.2	0.0	0.00	0.0	286.7	0.567	2.271	3.271	5.77	FS>1.3
2-CPT10	60.26	6	334.6	0.9	95	5725	2339	302.7	283.6	0.27	1.2	0.0	0.00	0.0	302.7	0.567	2.660	3.830	6.76	FS>1.3
2-CPT10	60.29	6	331	1.02	95	5728	2340	299.4	280.4	0.31	1.2	0.0	0.00	0.0	299.4	0.567	2.576	3.709	6.54	FS>1.3
2-CPT10	60.32	6	323.3	1.09	95	5730	2341	292.4	273.7	0.34	1.3	0.2	0.00	0.0	292.4	0.567	2.404	3.462	6.11	FS>1.3
2-CPT10	60.36	6	315.6	1.14	105	6338	2946	254.4	212.0	0.36	1.4	1.3	0.00	0.0	254.4	0.498	1.612	2.321	4.66	FS>1.3
2-CPT10	60.39	6	311.5	1.14	105	6341	2947	251.1	209.2	0.37	1.4	1.4	0.00	0.0	251.1	0.498	1.552	2.235	4.48	FS>1.3
2-CPT10	60.42	6	304.4	1.13	105	6344	2948	245.3	204.3	0.38	1.4	1.6	0.00	0.0	245.3	0.498	1.452	2.092	4.20	FS>1.3
2-CPT10	60.45	6	295.2	1.22	105	6347	2950	237.8	197.9	0.42	1.4	2.1	0.00	0.0	237.8	0.499	1.331	1.917	3.84	FS>1.3
2-CPT10	60.49	6	281.2	1.25	105	6351	2951	226.5	188.3	0.45	1.5	2.6	0.00	0.0	226.5	0.499	1.160	1.671	3.35	FS>1.3
2-CPT10	60.55	6	276.4	1.21	105	6358	2954	222.5	184.9	0.44	1.5	2.6	0.00	0.0	222.5	0.499	1.105	1.591	3.19	FS>1.3
2-CPT10	60.59	6	267.4	1.26	105	6362	2956	215.2	178.7	0.48	1.5	3.0	0.00	0.0	215.2	0.499	1.007	1.450	2.91	FS>1.3
2-CPT10	60.63	6	259.8	1.19	105	6366	2957	209.0	173.5	0.46	1.5	3.1	0.00	0.0	209.0	0.499	0.929	1.338	2.68	FS>1.3
2-CPT10	60.67	6	254.9	1.28	105	6370	2959	205.0	170.1	0.51	1.5	3.5	0.00	0.0	205.0	0.499	0.882	1.269	2.55	FS>1.3
2-CPT10	60.7	6	251.5	1.35	115	6981	3567	184.2	139.0	0.54	1.6	5.0	0.00	0.0	184.2	0.453	0.662	0.953	2.10	FS>1.3
2-CPT10	60.74	6	248.4	1.26	105	6378	2962	19												

Project Name:	SVRT - Yard & Shops
Project Number:	6600.300.102
Date:	4-Feb-08
CPT Number:	2-CPT10
Depth to Groundwater:	6 ft

EQ Magnitude (M_w):	6.5
PGA (g):	0.54
MSF:	1.44

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Frict. (TSF)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip q_{eN}	Corr. Tip Q	Friction Ratio F	Ic	F.C. (%)	K_{CPT}	Δq_{eN}	$(q_{eN})_s$	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments
2-CPT10	61.3	6	187.5	1.45	115	7050	3599	136.8	102.2	0.79	1.8	9.0	0.11	16.2	152.9	0.454	0.413	0.594	1.31	FS>1.3
2-CPT10	61.33	6	184.1	1.48	125	7666	4214	124.1	85.5	0.82	1.9	10.7	0.15	22.1	146.2	0.421	0.370	0.534	1.27	Low F.S.
2-CPT10	61.38	6	176.2	1.41	125	7673	4217	118.7	81.7	0.82	1.9	11.0	0.16	22.8	141.5	0.422	0.343	0.495	1.17	Low F.S.
2-CPT10	61.41	6	171.1	1.43	125	7676	4219	115.3	79.3	0.85	1.9	11.6	0.18	24.6	139.8	0.422	0.334	0.481	1.14	Low F.S.
2-CPT10	61.44	6	168.9	1.49	125	7680	4221	113.8	78.2	0.90	2.0	12.1	0.19	26.5	140.2	0.422	0.336	0.484	1.15	Low F.S.
2-CPT10	61.48	6	165	1.48	125	7685	4223	111.1	76.3	0.92	2.0	12.4	0.20	27.4	138.5	0.422	0.327	0.471	1.12	Low F.S.
2-CPT10	61.51	6	160.2	1.48	125	7689	4225	107.8	74.0	0.95	2.0	12.9	0.21	28.9	136.7	0.422	0.318	0.457	1.08	Low F.S.
2-CPT10	61.55	6	157.3	1.47	125	7694	4227	105.9	72.6	0.96	2.0	13.2	0.22	29.5	135.4	0.422	0.311	0.448	1.06	Low F.S.
2-CPT10	61.59	6	159.6	1.47	125	7699	4230	107.4	73.6	0.94	2.0	12.9	0.21	28.9	136.2	0.422	0.315	0.454	1.08	Low F.S.
2-CPT10	61.62	6	160	1.48	125	7703	4232	107.6	73.8	0.95	2.0	12.9	0.21	29.0	136.6	0.422	0.317	0.456	1.08	Low F.S.
2-CPT10	61.66	6	161.1	1.48	125	7708	4234	108.3	74.2	0.94	2.0	12.8	0.21	28.6	137.0	0.422	0.319	0.459	1.09	Low F.S.
2-CPT10	61.7	6	160.6	1.48	125	7713	4237	108.0	74.0	0.94	2.0	12.9	0.21	28.8	136.8	0.422	0.318	0.458	1.09	Low F.S.
2-CPT10	61.74	6	160.1	1.48	125	7718	4239	107.6	73.7	0.95	2.0	12.9	0.21	29.0	136.6	0.422	0.317	0.456	1.08	Low F.S.
2-CPT10	61.77	6	159	1.47	125	7721	4241	106.8	73.1	0.95	2.0	13.0	0.21	29.1	135.9	0.422	0.314	0.452	1.07	Low F.S.
2-CPT10	61.81	6	159.5	1.46	125	7726	4244	107.1	73.3	0.94	2.0	12.9	0.21	28.8	135.9	0.422	0.313	0.451	1.07	Low F.S.
2-CPT10	61.85	6	162.4	1.46	125	7731	4246	109.0	74.6	0.92	2.0	12.6	0.20	27.9	136.9	0.422	0.319	0.459	1.09	Low F.S.
2-CPT10	61.89	6	165.5	1.46	125	7736	4249	111.1	76.1	0.90	2.0	12.3	0.20	27.0	138.1	0.422	0.325	0.468	1.11	Low F.S.
2-CPT10	61.94	6	172.5	1.49	125	7743	4252	115.7	79.3	0.88	2.0	11.8	0.18	25.7	141.4	0.422	0.343	0.494	1.17	Low F.S.
2-CPT10	62.01	6	179.8	1.46	125	7751	4256	120.6	82.6	0.83	1.9	11.0	0.16	23.1	143.7	0.422	0.356	0.513	1.21	Low F.S.
2-CPT10	62.09	6	184.2	1.4	115	7140	3640	133.6	99.2	0.78	1.8	9.1	0.11	16.4	150.0	0.454	0.394	0.567	1.25	Low F.S.
2-CPT10	62.16	6	188	1.43	115	7148	3644	136.3	101.2	0.78	1.8	8.9	0.11	16.0	152.3	0.454	0.409	0.588	1.29	Low F.S.
2-CPT10	62.24	6	193.5	1.29	115	7158	3648	140.2	104.1	0.68	1.8	8.0	0.08	12.1	152.3	0.455	0.409	0.588	1.29	Low F.S.
2-CPT10	62.31	6	200.1	1.15	115	7166	3652	144.9	107.6	0.59	1.7	7.0	0.05	8.1	153.0	0.455	0.413	0.594	1.31	FS>1.3
2-CPT10	62.38	6	207.6	1.07	115	7174	3656	150.2	111.6	0.52	1.7	6.2	0.03	5.0	155.2	0.455	0.428	0.616	1.36	FS>1.3
2-CPT10	62.45	6	208.4	1.1	115	7182	3659	150.7	111.9	0.54	1.7	6.3	0.03	5.4	156.1	0.455	0.434	0.625	1.37	FS>1.3
2-CPT10	62.65	6	194.3	0.74	105	6578	3043	154.1	125.5	0.39	1.6	4.2	0.00	0.0	154.1	0.501	0.420	0.605	1.21	Low F.S.
2-CPT10	62.69	6	196.2	0.74	105	6582	3045	155.6	126.7	0.38	1.6	4.1	0.00	0.0	155.6	0.501	0.430	0.619	1.24	Low F.S.
2-CPT10	62.74	6	192	0.75	105	6588	3047	152.2	123.8	0.40	1.6	4.4	0.00	0.0	152.2	0.501	0.408	0.587	1.17	Low F.S.
2-CPT10	62.79	6	190.3	0.76	105	6593	3049	150.8	122.6	0.41	1.6	4.5	0.00	0.0	150.8	0.501	0.399	0.574	1.15	Low F.S.
2-CPT10	62.84	6	182.4	0.71	105	6598	3051	144.5	117.3	0.40	1.6	4.7	0.00	0.0	144.5	0.501	0.360	0.519	1.04	Low F.S.
2-CPT10	62.88	6	171.2	0.69	105	6602	3053	135.6	109.9	0.41	1.7	5.3	0.01	1.0	136.6	0.501	0.317	0.457	0.91	Liquefaction
2-CPT10	62.93	6	175.1	0.76	105	6608	3055	138.6	112.4	0.44	1.7	5.4	0.01	1.6	140.2	0.501	0.336	0.484	0.97	Liquefaction
2-CPT10	62.96	6	172.5	0.89	105	6611	3056	136.5	110.7	0.53	1.7	6.3	0.03	4.8	141.3	0.501	0.343	0.493	0.98	Liquefaction
2-CPT10	63	6	163.5	1.08	115	7245	3688	117.8	86.7	0.68	1.9	9.4	0.12	15.6	133.4	0.455	0.301	0.433	0.95	Liquefaction
2-CPT10	63.05	6	143.5	1.29	125	7881	4321	95.5	64.6	0.92	2.0	14.1	0.24	30.5	126.0	0.423	0.266	0.383	0.91	Liquefaction
2-CPT10	63.1	6	116.1	1.49	135	8519	4955	72.2	45.1	1.33	2.3	21.0	0.43	54.1	126.2	0.398	0.267	0.385	0.97	Liquefaction
2-CPT10	63.16	6	90	1.61	135	8527	4960	55.9	34.6	1.88	2.4	28.1	0.62	90.4	146.3	0.398	0.371	0.535	1.34	FS>1.3
2-CPT10	63.23	6	71.6	1.71	135	8536	4965	44.5	27.1	2.54	2.6	35.6	0.80	177.8	222.3	0.398	1.102	1.586	3.98	NonLiqble.
2-CPT10	63.31	6	58.1	1.59	135	8547	4971	36.1	21.6	2.95	2.7	41.7	0.80	144.2	180.3	0.398	0.625	0.900	2.26	NonLiqble.
2-CPT10	63.39	6	54.7	1.39	135	8558	4977	33.9	20.3	2.76	2.7	41.9	0.80	135.7	169.6	0.398	0.534	0.769	1.93	NonLiqble.
2-CPT10	63.46	6	50.3	1.16	135	8567	4982	31.2	18.5	2.52	2.7	42.4	0.80	124.7	155.9	0.398	0.432	0.623	1.56	NonLiqble.
2-CPT10	63.54	6	44.8	0.93	135	8578	4987	27.8	16.2	2.30	2.8	43.6	0.80	111.0	138.8	0.398	0.329	0.473	1.19	NonLiqble.
2-CPT10	63.62	6	41.1	0.82	135	8589	4993	25.4	14.7	2.23	2.8	45.1	0.80	101.8	127.2	0.398	0.272	0.391	0.98	NonLiqble.
2-CPT10	63.7	6	37.6	0.75	135	8600	4999	23.3	13.3	2.25	2.8	47.4	0.80	93.1	116.3	0.399	0.226	0.326	0.82	NonLiqble.
2-CPT10	63.78	6	34.7	0.7	125	7973	4367	23.0	14.1	2.28	2.8	46.4	0.80	91.9	114.9	0.423	0.221	0.318	0.75	NonLiqble.
2-CPT10	63.85	6	32.2	0.68	125	7981	4371	21.3	12.9	2.41	2.9	49.1	0.80	85.2	106.5	0.423	0.192	0.277	0.66	NonLiqble.
2-CPT10	63.93	6	29.8	0.65	125	7991	4376	19.7	11.8	2.52	2.9	51.7	0.80	78.8	98.5	0.423	0.169	0.243	0.58	NonLiqble.
2-CPT10	64.01	6	29.5	0.65	125	8001	4381	19.5	11.6	2.55	2.9	52.2	0.80	78.0	97.5	0.423	0.166	0.239	0.57	NonLiqble.
2-CPT10	64.08	6	28.8	0.65	125	8010	4386	19.0	11.3	2.62	2.9	53.3	0.80	76.1	95.1	0.423	0.160	0.231	0.54	NonLiqble.
2-CPT10	64.16	6	27.5	0.65	125	8020	4391	18.2	10.7	2.77	3.0	55.4	0.80	72.6	90.8	0.423	0.150	0.215	0.51	NonLiqble.
2-CPT10	64.24	6	26.1	0.62	125	8030	4396	17.2	10.0	2.81	3.0	57.1	0.80	68.9	86.1	0.423	0.139	0.201	0.47	NonLiqble.
2-CPT10	64.32	6	27.2	0.52	125	8040	4401	17.9	10.5	2.24	2.9	52.5	0.80	71.8	89.7	0.423	0.147	0.212	0.50	NonLiqble.
2-CPT10	64.4	6	24.7	0.32	115	7406	3762	17.6	11.2	1.52	2.8	46.0	0.80	70.5	88.1	0.456	0.144	0.207	0.45	NonLiqble.
2-CPT10	64.47	6	22.6	0.4	125	8059	4410	14.9	8.4	2.15	3.0	57.2	0.80	59.6	74.4	0.423	0.118	0.170	0.40	NonLiqble.
2-CPT10	64.55	6	22	0.4	125	8069	4415	14.5	8.1	2.23	3.0	58.6	0.80	57.9	72.4	0.423	0.115	0.166	0.39	NonLiqble.
2-CPT10	64.62	6	19.3	0.37	125	8078	4420	12.7	6.9	2.42	3.1	64.2	0.80	50.8	63.5	0.423	0.104	0.150	0.35	NonLiqble.
2-CPT10	64.65	6	19.6	0.35	125	8081	4421	12.9	7.0	2.25	3.1	62.5	0.80	51.6	64.5	0.423	0.105	0.151	0.36	NonLiqble.
2-CPT10	64.72	6	22.7	0.33	115	7443	3779	16.2	10.0	1.74	2.9	50.0	0.80	64.6	80.8	0.456	0.129	0.186	0.41	NonLiqble.
2-CPT10	64.77	6	22.5	0.32	115	7449	3781	16.0	9.9	1.70	2.9	50.0	0.80	64.0	80.0	0.456	0.128	0.184	0.40	NonLiqble.
2-CPT10	64.83	6	22.7	0.32	115	7455	3784	16.1	10.0	1.69	2.9	49.7	0.80	64.6	80.7	0.456	0.129	0.186	0.41	NonLiqble.
2-CPT10	64.9	6	21.7	0.31	115	7464	3788	15.4	9.5	1.73										

Project Name:	SVRT - Yard & Shops
Project Number:	6600.300.102
Date:	4-Feb-08
CPT Number:	2-CPT10
Depth to Groundwater:	6 ft

EQ Magnitude (M_w):	6.5
PGA (g):	0.54
MSF:	1.44

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Fric. (TSF)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip q_{tN}	Corr. Tip Q	Friction Ratio F	Ic	F.C. (%)	K_{CPT}	Δq_{tN}	(q_{tN}) _s	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments
2-CPT10	65.94	6	24.3	0.34	125	8243	4502	15.8	9.0	1.69	2.9	52.2	0.80	63.4	79.2	0.424	0.126	0.182	0.43	NonLiqfble.
2-CPT10	66.03	6	25.1	0.38	125	8254	4508	16.4	9.3	1.81	2.9	52.3	0.80	65.4	81.8	0.424	0.131	0.188	0.44	NonLiqfble.
2-CPT10	66.11	6	26	0.43	125	8264	4513	16.9	9.7	1.97	2.9	52.5	0.80	67.7	84.7	0.424	0.136	0.196	0.46	NonLiqfble.
2-CPT10	66.19	6	26.8	0.51	125	8274	4518	17.4	10.0	2.25	2.9	53.7	0.80	69.8	87.2	0.424	0.142	0.204	0.48	NonLiqfble.
2-CPT10	66.27	6	28.7	0.6	125	8284	4523	18.7	10.9	2.44	2.9	53.1	0.80	74.7	93.4	0.424	0.156	0.224	0.53	NonLiqfble.
2-CPT10	66.36	6	29.3	0.63	125	8295	4529	19.1	11.1	2.50	2.9	53.0	0.80	76.2	95.3	0.424	0.160	0.231	0.54	NonLiqfble.
2-CPT10	66.44	6	29.7	0.65	125	8305	4534	19.3	11.3	2.54	2.9	52.9	0.80	77.2	96.5	0.424	0.164	0.236	0.56	NonLiqfble.
2-CPT10	66.52	6	30.2	0.66	125	8315	4539	19.6	11.5	2.53	2.9	52.4	0.80	78.5	98.1	0.424	0.168	0.242	0.57	NonLiqfble.
2-CPT10	66.6	6	29.3	0.67	125	8325	4544	19.0	11.1	2.67	2.9	54.0	0.80	76.1	95.1	0.424	0.160	0.230	0.54	NonLiqfble.
2-CPT10	66.69	6	27.8	0.69	125	8336	4549	18.0	10.4	2.92	3.0	56.9	0.80	72.1	90.2	0.425	0.148	0.213	0.50	NonLiqfble.
2-CPT10	66.77	6	26.8	0.71	135	9014	5222	16.2	8.5	3.19	3.1	63.2	0.80	64.9	81.1	0.400	0.130	0.187	0.47	NonLiqfble.
2-CPT10	66.85	6	25.5	0.7	125	8356	4559	16.5	9.3	3.28	3.0	61.4	0.80	66.1	82.6	0.425	0.132	0.191	0.45	NonLiqfble.
2-CPT10	66.93	6	24.4	0.68	125	8366	4564	15.8	8.9	3.36	3.1	63.2	0.80	63.2	79.0	0.425	0.126	0.181	0.43	NonLiqfble.
2-CPT10	67.02	6	23.4	0.63	125	8378	4570	15.1	8.4	3.28	3.1	64.1	0.80	60.6	75.7	0.425	0.120	0.173	0.41	NonLiqfble.
2-CPT10	67.1	6	22.5	0.58	125	8388	4575	14.6	8.0	3.17	3.1	64.8	0.80	58.2	72.8	0.425	0.116	0.167	0.39	NonLiqfble.
2-CPT10	67.18	6	21.8	0.45	125	8398	4580	14.1	7.7	2.56	3.1	62.2	0.80	56.4	70.5	0.425	0.113	0.162	0.38	NonLiqfble.
2-CPT10	67.27	6	21.1	0.44	125	8409	4586	13.6	7.4	2.60	3.1	63.6	0.80	54.5	68.2	0.425	0.109	0.158	0.37	NonLiqfble.
2-CPT10	67.35	6	20.6	0.53	125	8419	4591	13.3	7.1	3.23	3.1	68.2	0.80	53.2	66.5	0.425	0.107	0.155	0.36	NonLiqfble.
2-CPT10	67.43	6	20.4	0.56	125	8429	4596	13.2	7.0	3.46	3.2	69.8	0.80	52.7	65.8	0.425	0.107	0.153	0.36	NonLiqfble.
2-CPT10	67.48	6	18.4	0.57	125	8435	4599	11.9	6.2	4.02	3.2	76.3	0.80	47.5	59.4	0.425	0.099	0.143	0.34	NonLiqfble.
2-CPT10	67.51	6	21	0.56	125	8439	4601	13.5	7.3	3.34	3.1	68.2	0.80	54.2	67.7	0.425	0.109	0.157	0.37	NonLiqfble.
2-CPT10	67.56	6	25.3	0.55	125	8445	4604	16.3	9.2	2.61	3.0	58.2	0.80	65.3	81.6	0.425	0.130	0.188	0.44	NonLiqfble.
2-CPT10	67.62	6	26.2	0.56	125	8453	4607	16.9	9.5	2.55	3.0	56.8	0.80	67.6	84.4	0.425	0.136	0.196	0.46	NonLiqfble.
2-CPT10	67.7	6	26.8	0.59	125	8463	4612	17.3	9.8	2.61	3.0	56.6	0.80	69.1	86.3	0.425	0.140	0.201	0.47	NonLiqfble.
2-CPT10	67.78	6	27.2	0.75	135	9150	5295	16.4	8.5	3.32	3.1	63.9	0.80	65.4	81.8	0.400	0.131	0.188	0.47	NonLiqfble.
2-CPT10	67.86	6	28.4	1.07	135	9161	5301	17.1	9.0	4.49	3.1	68.2	0.80	68.3	85.3	0.400	0.138	0.198	0.50	NonLiqfble.
2-CPT10	67.94	6	42.7	1.57	135	9172	5307	25.6	14.4	4.12	3.0	55.3	0.80	102.6	128.2	0.400	0.276	0.398	0.99	NonLiqfble.
2-CPT10	68.02	6	54.6	2.14	135	9183	5313	32.8	18.8	4.28	2.9	50.3	0.80	131.1	163.9	0.400	0.489	0.705	1.76	NonLiqfble.
2-CPT10	68.1	6	67.2	2.6	135	9194	5318	40.3	23.5	4.15	2.8	45.4	0.80	161.3	201.6	0.400	0.842	1.212	3.03	NonLiqfble.
2-CPT10	68.18	6	68.2	3.02	135	9204	5324	40.9	23.9	4.75	2.8	47.4	0.80	163.6	204.5	0.400	0.875	1.260	3.15	NonLiqfble.
2-CPT10	68.26	6	72.3	3.45	135	9215	5330	43.3	25.4	5.10	2.8	47.4	0.80	173.3	216.6	0.401	1.026	1.477	3.69	NonLiqfble.
2-CPT10	68.34	6	70	3.85	135	9226	5336	41.9	24.5	5.89	2.9	50.7	0.80	167.7	209.6	0.401	0.937	1.349	3.37	NonLiqfble.
2-CPT10	68.42	6	77.1	4.4	135	9237	5342	46.2	27.1	6.07	2.9	49.3	0.80	184.6	230.8	0.401	1.223	1.761	4.40	NonLiqfble.
2-CPT10	68.5	6	82.9	4.91	140	9590	5690	48.1	27.4	6.29	2.9	49.8	0.80	192.3	240.4	0.390	1.373	1.976	5.06	NonLiqfble.
2-CPT10	68.59	6	88.6	5.41	140	9603	5697	51.4	29.4	6.46	2.9	49.0	0.80	205.4	256.8	0.390	1.655	2.383	6.10	NonLiqfble.
2-CPT10	68.66	6	102.7	5.8	140	9612	5702	59.5	34.3	5.92	2.8	44.7	0.80	238.0	297.5	0.391	2.529	3.642	9.33	NonLiqfble.
2-CPT10	68.75	6	119.7	5.9	140	9625	5709	69.3	40.2	5.14	2.7	39.6	0.80	277.3	346.6	0.391	3.951	5.690	14.57	NonLiqfble.
2-CPT10	68.82	6	146.7	5.98	140	9635	5715	84.9	49.6	4.21	2.6	33.4	0.76	266.9	351.8	0.391	4.131	5.948	15.23	FSS>1.3
2-CPT10	68.9	6	152	5.65	140	9646	5721	87.9	51.4	3.84	2.5	31.6	0.71	214.6	302.5	0.391	2.655	3.824	9.79	FSS>1.3
2-CPT10	68.98	6	163.9	4.95	135	9312	5382	97.7	59.1	3.11	2.4	26.9	0.58	137.5	235.2	0.401	1.291	1.858	4.64	FSS>1.3
2-CPT10	69.06	6	165.3	4.61	135	9323	5388	98.5	59.6	2.87	2.4	25.8	0.56	123.0	221.5	0.401	1.091	1.571	3.92	FSS>1.3
2-CPT10	69.13	6	165.1	4.55	135	9333	5393	98.4	59.5	2.84	2.4	25.7	0.55	121.3	219.6	0.401	1.065	1.534	3.83	FSS>1.3
2-CPT10	69.21	6	160.3	4.56	135	9343	5399	95.5	57.6	2.93	2.4	26.5	0.57	128.3	223.7	0.401	1.122	1.615	4.03	FSS>1.3
2-CPT10	69.29	6	162.2	4.46	135	9354	5405	96.5	58.3	2.83	2.4	25.9	0.56	122.1	218.6	0.401	1.051	1.514	3.78	FSS>1.3
2-CPT10	69.36	6	178	4.6	135	9364	5410	105.9	64.0	2.65	2.3	24.0	0.51	108.8	214.7	0.401	1.001	1.441	3.59	FSS>1.3
2-CPT10	69.44	6	196.6	4.31	135	9374	5416	116.9	70.8	2.25	2.3	21.0	0.43	86.7	203.6	0.401	0.865	1.245	3.11	FSS>1.3
2-CPT10	69.51	6	222.6	3.79	135	9384	5421	132.3	80.4	1.74	2.1	17.1	0.32	62.8	195.1	0.401	0.771	1.110	2.77	FSS>1.3
2-CPT10	69.58	6	237.9	3.64	135	9393	5426	141.3	85.9	1.56	2.1	15.4	0.28	54.5	195.8	0.401	0.778	1.121	2.80	FSS>1.3
2-CPT10	69.66	6	256.6	2.82	125	8708	4735	163.2	106.5	1.12	1.9	10.9	0.16	30.5	193.7	0.426	0.756	1.088	2.55	FSS>1.3
2-CPT10	69.73	6	268.2	3.04	125	8716	4739	170.5	111.3	1.15	1.9	10.8	0.15	31.0	201.5	0.426	0.841	1.211	2.84	FSS>1.3
2-CPT10	69.8	6	284.5	2.87	125	8725	4744	180.7	118.1	1.02	1.9	9.5	0.12	24.7	205.4	0.426	0.886	1.276	3.00	FSS>1.3
2-CPT10	69.88	6	301.8	3.53	135	9434	5448	178.9	109.0	1.19	1.9	11.2	0.16	35.2	214.1	0.401	0.992	1.429	3.56	FSS>1.3
2-CPT10	69.95	6	311.8	3.73	135	9443	5453	184.7	112.6	1.21	1.9	11.1	0.16	35.6	220.4	0.401	1.076	1.549	3.86	FSS>1.3
2-CPT10	70.02	6	322.4	3.63	125	8753	4758	204.5	133.6	1.14	1.9	9.3	0.12	26.7	231.2	0.426	1.229	1.770	4.15	FSS>1.3
2-CPT10	70.09	6	346	3.78	125	8761	4762	219.4	143.4	1.11	1.8	8.6	0.10	23.4	242.8	0.426	1.411	2.032	4.77	FSS>1.3
2-CPT10	70.16	6	325.4	3.54	125	8770	4766	206.2	134.6	1.10	1.8	9.0	0.11	24.9	231.1	0.426	1.228	1.768	4.15	FSS>1.3
2-CPT10	70.24	6	323.5	3.38	125	8780	4771	204.9	133.7	1.06	1.8	8.8	0.10	23.3	228.2	0.426	1.185	1.706	4.00	FSS>1.3
2-CPT10	70.31	6	321.9	3.03	125	8789	4776	203.8	132.9	0.95	1.8	8.2	0.09	19.0	222.8	0.426	1.109	1.596	3.74	FSS>1.3
2-CPT10	70.38	6	329	2.65	125	8798	4780	208.2	135.8	0.82	1.8	7.1	0.06	12.5	220.7	0.426	1.080	1.556	3.65	FSS>1.3
2-CPT10	70.44	6	341.4	3.45	125	8805	4784	216.0	140.8	1.02	1.8	8.2	0.09	20.4	236.4					

Project Name:	SVRT - Yard & Shops
Project Number:	6600.300.102
Date:	4-Feb-08
CPT Number:	2-CPT10
Depth to Groundwater:	6 ft

EQ Magnitude (M_w):	6.5
PGA (g):	0.54
MSF:	1.44

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Fric. (TSF)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip Q_{eN}	Corr. Tip Q	Friction Ratio F	Ic	F.C. (%)	K_{CPT}	ΔQ_{eN}	(Q_{eN})s	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments
2-CPT10	71.23	6	200.6	1.19	115	8191	4121	136.7	95.3	0.61	1.8	8.0	0.08	12.1	148.8	0.460	0.387	0.557	1.21	Low F.S.
2-CPT10	71.27	6	198.5	1.21	115	8196	4123	135.3	94.3	0.62	1.8	8.3	0.09	13.0	148.2	0.460	0.383	0.551	1.20	Low F.S.
2-CPT10	71.33	6	197.3	1.26	115	8203	4126	134.4	93.6	0.65	1.8	8.6	0.10	14.2	148.6	0.461	0.385	0.554	1.20	Low F.S.
2-CPT10	71.38	6	198.2	1.34	115	8209	4129	135.0	94.0	0.69	1.8	8.9	0.10	15.5	150.5	0.461	0.397	0.571	1.24	Low F.S.
2-CPT10	71.43	6	197.5	1.45	115	8214	4132	134.4	93.6	0.75	1.9	9.4	0.12	17.7	152.2	0.461	0.408	0.587	1.27	Low F.S.
2-CPT10	71.48	6	194	1.59	125	8935	4849	121.9	78.1	0.84	1.9	11.6	0.18	26.0	147.9	0.427	0.381	0.549	1.29	Low F.S.
2-CPT10	71.54	6	196.9	1.79	125	8943	4853	123.7	79.3	0.93	2.0	12.1	0.19	29.2	152.8	0.427	0.412	0.593	1.39	FS>1.3
2-CPT10	71.6	6	204.8	1.88	125	8950	4857	128.6	82.5	0.94	2.0	11.9	0.18	28.8	157.4	0.427	0.443	0.637	1.49	FS>1.3
2-CPT10	71.67	6	212.7	1.82	125	8959	4861	133.5	85.6	0.87	1.9	11.0	0.16	25.7	159.2	0.427	0.455	0.656	1.54	FS>1.3
2-CPT10	71.75	6	216.8	1.74	125	8969	4866	136.0	87.2	0.82	1.9	10.5	0.15	23.3	159.3	0.427	0.456	0.657	1.54	FS>1.3
2-CPT10	71.83	6	218.6	1.75	125	8979	4871	137.0	87.9	0.82	1.9	10.4	0.14	23.1	160.1	0.427	0.462	0.665	1.56	FS>1.3
2-CPT10	71.9	6	215.1	1.69	125	8988	4875	134.8	86.4	0.80	1.9	10.4	0.15	22.9	157.7	0.427	0.444	0.640	1.50	FS>1.3
2-CPT10	71.97	6	214	1.6	115	8277	4160	145.2	100.9	0.76	1.8	8.9	0.10	16.7	161.9	0.461	0.475	0.684	1.48	FS>1.3
2-CPT10	72.05	6	217.8	1.66	115	8286	4164	147.7	102.6	0.78	1.8	8.9	0.10	16.9	164.6	0.461	0.495	0.712	1.55	FS>1.3
2-CPT10	72.12	6	219	1.71	115	8294	4168	148.4	103.1	0.80	1.8	9.0	0.11	17.5	166.0	0.461	0.505	0.727	1.58	FS>1.3
2-CPT10	72.19	6	218.4	1.77	125	9024	4893	136.6	87.4	0.83	1.9	10.5	0.15	23.6	160.3	0.427	0.463	0.666	1.56	FS>1.3
2-CPT10	72.27	6	217.3	1.87	125	9034	4899	135.8	86.8	0.88	1.9	11.0	0.16	25.7	161.6	0.427	0.472	0.680	1.59	FS>1.3
2-CPT10	72.35	6	217.2	2.04	125	9044	4904	135.7	86.7	0.96	1.9	11.6	0.18	28.8	164.5	0.427	0.494	0.712	1.67	FS>1.3
2-CPT10	72.42	6	217.8	2.15	125	9053	4908	136.0	86.9	1.01	2.0	11.9	0.18	30.7	166.7	0.427	0.511	0.735	1.72	FS>1.3
2-CPT10	72.49	6	217.9	2.24	125	9061	4912	136.0	86.8	1.05	2.0	12.2	0.19	32.3	168.3	0.427	0.523	0.754	1.76	FS>1.3
2-CPT10	72.57	6	221.2	2.34	125	9071	4917	138.0	88.1	1.08	2.0	12.3	0.19	33.2	171.2	0.427	0.547	0.787	1.84	FS>1.3
2-CPT10	72.64	6	231.5	2.41	125	9080	4922	144.4	92.2	1.06	2.0	11.7	0.18	31.7	176.1	0.427	0.588	0.846	1.98	FS>1.3
2-CPT10	72.71	6	255.5	2.39	125	9089	4926	159.3	101.8	0.95	1.9	10.2	0.14	25.5	184.8	0.427	0.667	0.960	2.25	FS>1.3
2-CPT10	72.82	6	297.7	2.23	115	8374	4205	200.9	139.6	0.76	1.7	6.6	0.04	8.7	209.6	0.461	0.936	1.347	2.92	FS>1.3
2-CPT10	72.91	6	353	2.22	115	8385	4209	238.1	165.7	0.64	1.6	4.6	0.00	0.0	238.1	0.461	1.335	1.922	4.16	FS>1.3
2-CPT10	72.99	6	402.5	2.72	115	8394	4214	271.3	189.0	0.68	1.6	4.2	0.00	0.0	271.3	0.461	1.937	2.789	6.04	FS>1.3
2-CPT10	73.06	6	427.4	2.68	115	8402	4217	288.0	200.6	0.63	1.6	3.6	0.00	0.0	288.0	0.462	2.301	3.313	7.18	FS>1.3
2-CPT10	73.13	6	429.1	2.32	115	8410	4221	289.0	201.2	0.55	1.5	3.0	0.00	0.0	289.0	0.462	2.324	3.347	7.25	FS>1.3
2-CPT10	73.2	6	398.4	2.99	125	9150	4957	247.6	158.8	0.76	1.7	5.7	0.02	5.0	252.6	0.428	1.579	2.273	5.32	FS>1.3
2-CPT10	73.28	6	374.2	3.07	125	9160	4962	232.4	148.9	0.83	1.7	6.6	0.04	10.5	243.0	0.428	1.414	2.036	4.76	FS>1.3
2-CPT10	73.35	6	357.2	2.68	125	9169	4966	221.8	141.9	0.76	1.7	6.4	0.04	8.9	230.7	0.428	1.221	1.759	4.11	FS>1.3
2-CPT10	73.43	6	359.1	2.02	115	8444	4237	241.4	167.5	0.57	1.6	4.1	0.00	0.0	241.4	0.462	1.388	1.999	4.33	FS>1.3
2-CPT10	73.5	6	335.4	2.01	115	8453	4241	225.4	156.1	0.61	1.6	4.8	0.00	0.0	225.4	0.462	1.144	1.648	3.57	FS>1.3
2-CPT10	73.58	6	295.4	2.24	115	8462	4245	198.4	137.1	0.77	1.7	6.7	0.05	9.6	208.0	0.462	0.917	1.320	2.86	FS>1.3
2-CPT10	73.65	6	282.5	2.65	125	9206	4985	175.1	111.4	0.95	1.9	9.5	0.12	23.7	198.8	0.428	0.811	1.168	2.73	FS>1.3
2-CPT10	73.72	6	376.1	2.45	115	8478	4252	252.4	174.8	0.66	1.6	4.5	0.00	0.0	252.4	0.462	1.575	2.268	4.91	FS>1.3
2-CPT10	73.8	6	391.3	2.62	115	8487	4256	262.4	181.8	0.68	1.6	4.4	0.00	0.0	262.4	0.462	1.761	2.536	5.49	FS>1.3
2-CPT10	73.87	6	419.2	3.16	125	9234	4999	259.4	165.8	0.76	1.7	5.5	0.01	3.6	263.0	0.428	1.772	2.551	5.96	FS>1.3
2-CPT10	73.94	6	471.4	4.03	125	9243	5003	291.6	186.5	0.86	1.7	5.5	0.01	3.9	295.5	0.428	2.479	3.570	8.34	FS>1.3
2-CPT10	74.01	6	515.1	4.03	125	9251	5007	318.5	203.8	0.79	1.6	4.5	0.00	0.0	318.5	0.428	3.085	4.442	10.38	FS>1.3

Project Name: SVRT - Yard & Shops
Project Number: 6600.300.102
Date: 4-Feb-08
CPT Number: 2-CPT13
Depth to Groundwater: 4 ft

EQ Magnitude (M_w): 6.5
PGA (g): 0.54
MSF: 1.44

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Frict. (TSF)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip Q_{eN} (PSF)	Corr. Tip Q	Friction Ratio F	I_c	F.C. (%)	K_{CPT}	ΔQ_{eN}	(Q_{eN}) _s	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments
2-CPT13	1	4	75.6	0.89	125	125	125	144.8	1208.1	1.18	1.3	0.9	0.00	0.0	144.8	0.351	0.362	0.522	1.49	Above W.T.
2-CPT13	1.08	4	70.2	0.96	125	135	135	134.4	1038.6	1.37	1.4	1.9	0.00	0.0	134.4	0.351	0.306	0.441	1.26	Above W.T.
2-CPT13	1.17	4	61.3	0.96	135	158	158	117.4	774.9	1.57	1.5	3.3	0.00	0.0	117.4	0.351	0.230	0.332	0.95	Above W.T.
2-CPT13	1.25	4	61	0.85	125	156	156	116.8	779.5	1.40	1.5	2.6	0.00	0.0	116.8	0.351	0.228	0.329	0.94	Above W.T.
2-CPT13	1.33	4	57.5	0.77	125	166	166	110.1	690.4	1.34	1.5	2.7	0.00	0.0	110.1	0.351	0.204	0.294	0.84	Above W.T.
2-CPT13	1.42	4	54.4	0.77	125	178	178	104.2	611.7	1.42	1.5	3.3	0.00	0.0	104.2	0.351	0.185	0.267	0.76	Above W.T.
2-CPT13	1.5	4	50.1	0.73	125	188	188	96.0	533.2	1.46	1.6	3.9	0.00	0.0	96.0	0.351	0.162	0.234	0.67	Above W.T.
2-CPT13	1.58	4	46	0.64	125	198	198	88.1	464.6	1.39	1.6	4.1	0.00	0.0	88.1	0.351	0.144	0.207	0.59	Above W.T.
2-CPT13	1.66	4	41.4	0.54	125	208	208	79.3	397.9	1.31	1.6	4.3	0.00	0.0	79.3	0.351	0.126	0.182	0.52	Above W.T.
2-CPT13	1.75	4	37.5	0.51	125	219	219	71.8	341.7	1.36	1.6	5.2	0.00	0.3	72.1	0.351	0.115	0.165	0.47	Above W.T.
2-CPT13	1.83	4	32.9	0.38	115	210	210	63.0	311.5	1.16	1.6	4.6	0.00	0.0	63.0	0.351	0.103	0.149	0.42	Above W.T.
2-CPT13	1.91	4	29.4	0.27	105	201	201	56.3	292.1	0.92	1.6	3.6	0.00	0.0	56.3	0.351	0.097	0.139	0.40	Above W.T.
2-CPT13	1.99	4	23.2	0.22	105	209	209	44.4	221.0	0.95	1.6	5.1	0.00	0.1	44.6	0.351	0.088	0.127	0.36	Above W.T.
2-CPT13	2.07	4	19.6	0.17	105	217	217	37.5	179.3	0.87	1.7	5.8	0.02	0.8	38.3	0.351	0.085	0.123	0.35	Above W.T.
2-CPT13	2.12	4	19.1	0.15	95	201	201	36.6	188.6	0.79	1.6	5.0	0.00	0.0	36.6	0.351	0.085	0.122	0.35	Above W.T.
2-CPT13	2.29	4	19.4	0.33	115	263	263	37.2	146.3	1.71	2.0	11.7	0.18	8.1	45.3	0.351	0.089	0.128	0.36	Above W.T.
2-CPT13	2.37	4	19.7	0.47	125	296	296	37.7	131.9	-2.40	2.1	15.6	0.28	14.9	52.7	0.351	0.094	0.135	0.38	Above W.T.
2-CPT13	2.45	4	15.3	0.5	125	306	306	29.3	98.9	3.30	2.3	21.8	0.45	23.8	53.1	0.351	0.094	0.135	0.39	Above W.T.
2-CPT13	2.53	4	15.7	0.51	125	316	316	30.1	98.2	3.28	2.3	21.8	0.45	24.4	54.5	0.351	0.095	0.137	0.39	Above W.T.
2-CPT13	2.58	4	12.8	0.58	125	323	323	24.5	78.3	4.59	2.5	28.7	0.63	42.2	66.7	0.351	0.108	0.155	0.44	Above W.T.
2-CPT13	2.62	4	14.2	0.64	125	328	328	27.2	85.7	4.56	2.4	27.5	0.60	41.1	68.3	0.351	0.110	0.158	0.45	Above W.T.
2-CPT13	2.66	4	12.5	0.75	125	333	333	23.9	74.2	6.08	2.6	33.6	0.76	77.8	101.7	0.351	0.178	0.256	0.73	Above W.T.
2-CPT13	2.74	4	14.7	0.91	125	343	343	28.2	84.8	6.26	2.5	32.4	0.73	77.1	105.2	0.351	0.188	0.271	0.77	Above W.T.
2-CPT13	2.82	4	15.8	1.06	135	381	381	30.3	82.0	6.79	2.6	34.2	0.78	106.5	136.8	0.351	0.318	0.458	1.30	Above W.T.
2-CPT13	2.9	4	14.5	1.17	135	392	392	27.8	73.0	8.18	2.7	38.9	0.80	111.1	138.9	0.351	0.329	0.474	1.35	Above W.T.
2-CPT13	2.98	4	14.2	1.2	135	402	402	27.2	69.6	8.57	2.7	40.4	0.80	108.8	136.0	0.351	0.314	0.452	1.29	Above W.T.
2-CPT13	3.06	4	14.8	1.18	135	413	413	28.3	70.6	8.09	2.7	39.1	0.80	113.4	141.7	0.351	0.345	0.496	1.41	Above W.T.
2-CPT13	3.14	4	14.1	1.13	135	424	424	27.0	65.5	8.14	2.7	40.3	0.80	108.0	135.0	0.351	0.309	0.445	1.27	Above W.T.
2-CPT13	3.23	4	12.9	1.08	125	404	404	24.7	62.9	8.51	2.7	41.7	0.80	98.8	123.5	0.351	0.255	0.368	1.05	Above W.T.
2-CPT13	3.31	4	12.5	1.06	125	414	414	23.9	59.4	8.62	2.7	42.8	0.80	95.8	119.7	0.351	0.240	0.345	0.98	Above W.T.
2-CPT13	3.39	4	13.1	1.06	125	424	424	25.1	60.8	8.22	2.7	41.6	0.80	100.4	125.4	0.351	0.264	0.380	1.08	Above W.T.
2-CPT13	3.47	4	13.4	1.03	125	434	434	25.7	60.8	7.81	2.7	40.6	0.80	102.7	128.3	0.351	0.276	0.398	1.13	Above W.T.
2-CPT13	3.55	4	12.1	1	125	444	444	23.2	53.5	8.42	2.8	43.9	0.80	92.7	115.9	0.351	0.225	0.324	0.92	Above W.T.
2-CPT13	3.63	4	10.7	0.96	125	454	454	20.5	46.1	9.17	2.8	47.9	0.80	82.0	102.5	0.351	0.180	0.259	0.74	Above W.T.
2-CPT13	3.71	4	11	0.89	125	464	464	21.1	46.4	8.27	2.8	45.8	0.80	84.3	105.3	0.351	0.189	0.272	0.77	Above W.T.
2-CPT13	3.79	4	10.9	0.82	125	474	474	20.9	45.0	7.69	2.8	44.9	0.80	83.5	104.4	0.351	0.186	0.267	0.76	Above W.T.
2-CPT13	3.87	4	9.6	0.77	125	484	484	18.4	38.7	8.23	2.8	48.7	0.80	73.5	91.9	0.351	0.152	0.219	0.62	Above W.T.
2-CPT13	3.96	4	9.9	0.73	125	495	495	19.0	39.0	7.56	2.8	47.0	0.80	75.8	94.8	0.351	0.159	0.229	0.65	Above W.T.
2-CPT13	4.04	4	9.2	0.7	125	505	503	17.6	35.6	7.82	2.9	49.2	0.80	70.5	88.1	0.353	0.144	0.207	0.59	NonLiqfble.
2-CPT13	4.12	4	9.3	0.68	125	515	508	17.8	35.6	7.52	2.8	48.4	0.80	71.2	89.1	0.356	0.146	0.210	0.59	NonLiqfble.
2-CPT13	4.2	4	9.3	0.67	125	525	513	17.8	35.3	7.41	2.8	48.3	0.80	71.2	89.1	0.360	0.146	0.210	0.58	NonLiqfble.
2-CPT13	4.29	4	10	0.65	125	536	518	19.2	37.5	6.68	2.8	45.3	0.80	76.6	95.8	0.363	0.162	0.233	0.64	NonLiqfble.
2-CPT13	4.37	4	8.7	0.62	125	546	523	16.6	32.2	7.36	2.9	49.8	0.80	66.6	83.2	0.366	0.134	0.192	0.52	NonLiqfble.
2-CPT13	4.45	4	8.5	0.57	125	556	528	16.2	31.1	6.93	2.9	49.3	0.80	64.7	80.9	0.370	0.129	0.186	0.50	NonLiqfble.
2-CPT13	4.54	4	7.9	0.5	115	522	488	15.1	31.3	6.55	2.8	48.1	0.80	60.5	75.7	0.375	0.120	0.173	0.46	NonLiqfble.
2-CPT13	4.62	4	8.7	0.47	115	531	493	16.7	34.2	5.57	2.8	43.7	0.80	66.6	83.3	0.379	0.134	0.193	0.51	NonLiqfble.
2-CPT13	4.7	4	8	0.47	115	541	497	15.3	31.1	6.08	2.8	46.9	0.80	61.3	76.6	0.382	0.122	0.175	0.46	NonLiqfble.
2-CPT13	4.78	4	8.5	0.51	115	550	501	16.3	32.8	6.20	2.8	46.3	0.80	65.1	81.4	0.385	0.130	0.187	0.49	NonLiqfble.
2-CPT13	4.87	4	8.4	0.55	115	560	506	16.1	32.1	6.77	2.8	48.3	0.80	64.4	80.4	0.389	0.128	0.185	0.48	NonLiqfble.
2-CPT13	4.95	4	7.6	0.47	115	569	510	14.6	28.7	6.42	2.9	49.4	0.80	58.2	72.8	0.392	0.116	0.167	0.43	NonLiqfble.
2-CPT13	5.03	4	8.9	0.41	115	578	514	17.0	33.5	4.76	2.7	41.4	0.80	68.2	85.2	0.395	0.138	0.198	0.50	NonLiqfble.
2-CPT13	5.11	4	9.2	0.58	125	639	569	16.9	31.2	6.53	2.8	48.1	0.80	67.5	84.3	0.394	0.136	0.196	0.50	NonLiqfble.
2-CPT13	5.2	4	9.4	0.59	125	650	575	17.2	31.5	6.50	2.8	47.8	0.80	68.6	85.8	0.397	0.139	0.200	0.50	NonLiqfble.
2-CPT13	5.26	4	6.4	0.61	115	605	526	12.2	23.2	10.00	3.1	62.6	0.80	48.8	61.0	0.403	0.101	0.146	0.36	NonLiqfble.
2-CPT13	5.3	4	8.1	0.62	125	663	581	14.7	26.7	7.98	2.9	54.9	0.80	58.8	73.5	0.400	0.117	0.168	0.42	NonLiqfble.
2-CPT13	5.37	4	9.2	0.65	125	671	586	16.6	30.3	7.33	2.9	50.9	0.80	66.5	83.2	0.402	0.133	0.192	0.48	NonLiqfble.
2-CPT13	5.45	4	9.2	0.67	125	681	591	16.6	30.0	7.56	2.9	51.6	0.80	66.2	82.8	0.405	0.133	0.191	0.47	NonLiqfble.
2-CPT13	5.53	4	8.9	0.67	125	691	596	16.0	28.7	7.83	2.9	53.2	0.80	63.8	79.8	0.407	0.127	0.183	0.45	NonLiqfble.
2-CPT13	5.61	4	8.5	0.66	125	701	601	15.2	27.1	8.10	2.9	54.9	0.80	60.7	75.9	0.410	0.121	0.174	0.42	NonLiqfble.
2-CPT13	5.7	4	8.3	0.65	125	713	606	14.7	26.2	8.18	3.0	55.8	0.80	59.0	73.7	0.412	0.117	0.169	0.41	NonLiqfble.
2-CPT13	5.78	4	9.9	0.65	125	723	611	17.5	31.2	6.81	2.8	48.9	0.80	70.1	87.6	0.415	0.142	0.205	0.49	NonLiqfble.
2-CPT13	5.86	4	8.6	0.64	125	733	616	15.2	26.7	7.77	2.9	54.4	0.80	60.6	75.8	0.417	0.120	0.173	0.42	NonLiqfble.
2-CPT13	5.94	4	8.5	0.62	125	7														

Project Name:	SVRT - Yard & Shops
Project Number:	6600.300.102
Date:	4-Feb-08
CPT Number:	2-CPT13
Depth to Groundwater:	4 ft

EQ Magnitude (M_w):	6.5
PGA (g):	0.54
MSF:	1.44

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Fric. (TSF)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip Q_{tN}	Corr. Tip Q	Friction Ratio F	Ic	F.C. (%)	K_{CPT}	ΔQ_{tN}	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.5	Factor of Safety	Comments	
2-CPT13	6.86	4	9.9	0.72	125	858	679	16.6	27.9	7.60	2.9	53.1	0.80	66.5	83.1	0.443	0.133	0.192	0.43	NonLiqfble.
2-CPT13	6.94	4	10.9	0.73	125	868	684	18.2	30.6	6.97	2.9	49.7	0.80	72.9	91.2	0.445	0.150	0.217	0.49	NonLiqfble.
2-CPT13	7.02	4	11.3	0.74	125	878	689	18.8	31.5	6.81	2.8	48.7	0.80	75.3	94.2	0.447	0.158	0.227	0.51	NonLiqfble.
2-CPT13	7.1	4	10.1	0.75	125	888	694	16.8	27.8	7.77	2.9	53.6	0.80	67.1	83.9	0.449	0.135	0.194	0.43	NonLiqfble.
2-CPT13	7.19	4	10.1	0.76	125	899	700	16.7	27.6	7.88	2.9	54.0	0.80	66.8	83.5	0.451	0.134	0.193	0.43	NonLiqfble.
2-CPT13	7.27	4	11.4	0.76	125	909	705	18.8	31.1	6.94	2.9	49.4	0.80	75.2	93.9	0.453	0.157	0.226	0.50	NonLiqfble.
2-CPT13	7.35	4	11.1	0.76	125	919	710	18.2	30.0	7.14	2.9	50.5	0.80	72.9	91.2	0.454	0.150	0.217	0.48	NonLiqfble.
2-CPT13	7.43	4	10.2	0.75	125	929	715	16.7	27.2	7.70	2.9	53.8	0.80	66.8	83.5	0.456	0.134	0.193	0.42	NonLiqfble.
2-CPT13	7.52	4	10.3	0.72	125	940	720	16.8	27.3	7.32	2.9	52.8	0.80	67.2	84.0	0.458	0.135	0.194	0.42	NonLiqfble.
2-CPT13	7.6	4	10.5	0.7	125	950	725	17.1	27.6	6.98	2.9	51.6	0.80	68.2	85.3	0.460	0.138	0.198	0.43	NonLiqfble.
2-CPT13	7.68	4	10	0.67	125	960	730	16.2	26.1	7.04	2.9	52.9	0.80	64.8	80.9	0.461	0.129	0.186	0.40	NonLiqfble.
2-CPT13	7.77	4	8.5	0.64	125	971	736	13.7	21.8	7.99	3.0	59.1	0.80	54.8	68.5	0.463	0.110	0.158	0.34	NonLiqfble.
2-CPT13	7.85	4	8.2	0.6	125	981	741	13.2	20.8	7.78	3.0	59.5	0.80	52.7	65.9	0.465	0.107	0.154	0.33	NonLiqfble.
2-CPT13	7.93	4	7.6	0.58	115	912	667	12.9	21.4	8.12	3.0	59.7	0.80	51.5	64.4	0.480	0.105	0.151	0.31	NonLiqfble.
2-CPT13	8.02	4	8.8	0.57	125	1003	752	14.0	22.1	6.87	3.0	55.7	0.80	56.2	70.2	0.468	0.112	0.162	0.35	NonLiqfble.
2-CPT13	8.1	4	8.4	0.55	115	932	676	14.1	23.5	6.93	2.9	54.7	0.80	56.6	70.7	0.484	0.113	0.163	0.34	NonLiqfble.
2-CPT13	8.18	4	8	0.54	115	941	680	13.4	22.1	7.17	3.0	56.5	0.80	53.7	67.1	0.486	0.108	0.156	0.32	NonLiqfble.
2-CPT13	8.26	4	8.5	0.55	115	950	684	14.2	23.5	6.85	2.9	54.5	0.80	56.9	71.1	0.487	0.113	0.163	0.34	NonLiqfble.
2-CPT13	8.35	4	9.3	0.54	125	1044	772	14.6	22.7	6.15	2.9	53.0	0.80	58.6	73.2	0.474	0.116	0.168	0.35	NonLiqfble.
2-CPT13	8.43	4	9.3	0.46	115	969	693	15.5	25.4	5.22	2.8	47.8	0.80	61.8	77.3	0.491	0.123	0.177	0.36	NonLiqfble.
2-CPT13	8.51	4	8.4	0.51	115	979	697	13.9	22.7	6.45	2.9	53.9	0.80	55.7	69.6	0.493	0.111	0.160	0.33	NonLiqfble.
2-CPT13	8.6	4	8.7	0.5	115	989	702	14.4	23.4	6.09	2.9	52.3	0.80	57.5	71.8	0.495	0.114	0.165	0.33	NonLiqfble.
2-CPT13	8.67	4	7.4	0.48	115	997	706	12.2	19.6	6.96	3.0	58.5	0.80	48.8	60.9	0.496	0.101	0.146	0.29	NonLiqfble.
2-CPT13	8.71	4	7.5	0.47	115	1002	708	12.3	19.8	6.72	3.0	57.6	0.80	49.3	61.7	0.497	0.102	0.147	0.30	NonLiqfble.
2-CPT13	8.78	4	8.1	0.45	115	1010	711	13.3	21.3	5.92	2.9	53.6	0.80	53.1	66.4	0.498	0.107	0.154	0.31	NonLiqfble.
2-CPT13	8.87	4	8.1	0.41	115	1020	716	13.2	21.2	5.40	2.9	52.0	0.80	53.0	66.2	0.500	0.107	0.154	0.31	NonLiqfble.
2-CPT13	8.96	4	7.1	0.38	115	1030	721	11.6	18.3	5.77	3.0	56.3	0.80	46.3	57.9	0.502	0.098	0.141	0.28	NonLiqfble.
2-CPT13	9.05	4	6.9	0.38	115	1041	726	11.2	17.6	5.96	3.0	57.7	0.80	44.8	56.0	0.503	0.096	0.139	0.28	NonLiqfble.
2-CPT13	9.14	4	7.4	0.38	115	1051	730	12.0	18.8	5.53	2.9	54.8	0.80	47.9	59.9	0.505	0.100	0.144	0.29	NonLiqfble.
2-CPT13	9.23	4	7.4	0.37	115	1061	735	11.9	18.7	5.39	2.9	54.5	0.80	47.8	59.7	0.507	0.100	0.144	0.28	NonLiqfble.
2-CPT13	9.33	4	7.8	0.38	115	1073	740	12.5	19.6	5.23	2.9	53.0	0.80	50.2	62.7	0.509	0.103	0.148	0.29	NonLiqfble.
2-CPT13	9.42	4	8.9	0.37	115	1083	745	14.3	22.4	4.43	2.8	47.4	0.80	57.1	71.3	0.510	0.114	0.164	0.32	NonLiqfble.
2-CPT13	9.51	4	8.2	0.36	115	1094	750	13.1	20.4	4.70	2.9	50.3	0.80	52.4	65.5	0.512	0.106	0.153	0.30	NonLiqfble.
2-CPT13	9.6	4	8.5	0.37	115	1104	755	13.5	21.1	4.66	2.9	49.5	0.80	54.2	67.7	0.514	0.109	0.157	0.31	NonLiqfble.
2-CPT13	9.7	4	8.4	0.38	115	1116	760	13.3	20.6	4.85	2.9	50.6	0.80	53.3	66.7	0.515	0.108	0.155	0.30	NonLiqfble.
2-CPT13	9.79	4	9.5	0.39	115	1126	765	15.0	23.4	4.36	2.8	46.4	0.80	60.1	75.2	0.517	0.119	0.172	0.33	NonLiqfble.
2-CPT13	9.88	4	9.8	0.4	115	1136	769	15.5	24.0	4.33	2.8	45.7	0.80	61.8	77.3	0.518	0.123	0.177	0.34	NonLiqfble.
2-CPT13	9.97	4	9	0.41	115	1147	774	14.2	21.8	4.87	2.9	49.6	0.80	56.6	70.8	0.520	0.113	0.163	0.31	NonLiqfble.
2-CPT13	10.07	4	9.9	0.44	115	1158	779	15.5	23.9	4.72	2.8	47.2	0.80	62.1	77.6	0.511	0.123	0.178	0.35	NonLiqfble.
2-CPT13	10.16	4	9.5	0.46	115	1168	784	14.8	22.7	5.16	2.9	49.8	0.80	59.4	74.2	0.513	0.118	0.170	0.33	NonLiqfble.
2-CPT13	10.25	4	9.6	0.45	115	1179	789	15.0	22.8	4.99	2.9	49.1	0.80	59.8	74.8	0.514	0.119	0.171	0.33	NonLiqfble.
2-CPT13	10.34	4	9.8	0.46	115	1189	793	15.2	23.2	5.00	2.8	48.8	0.80	60.9	76.1	0.515	0.121	0.174	0.34	NonLiqfble.
2-CPT13	10.43	4	10.2	0.46	115	1199	798	15.8	24.0	4.79	2.8	47.4	0.80	63.2	79.0	0.517	0.126	0.181	0.35	NonLiqfble.
2-CPT13	10.53	4	9.4	0.43	115	1211	803	14.5	21.9	4.89	2.9	49.6	0.80	58.0	72.5	0.518	0.116	0.166	0.32	NonLiqfble.
2-CPT13	10.62	4	10.7	0.43	115	1221	808	16.5	25.0	4.26	2.8	44.7	0.80	65.9	82.3	0.520	0.132	0.190	0.37	NonLiqfble.
2-CPT13	10.71	4	11.4	0.44	115	1232	813	17.5	26.5	4.08	2.7	42.9	0.80	70.0	87.5	0.521	0.142	0.205	0.39	NonLiqfble.
2-CPT13	10.8	4	11.7	0.47	125	1350	926	16.8	23.8	4.26	2.8	45.6	0.80	67.3	84.1	0.502	0.135	0.195	0.39	NonLiqfble.
2-CPT13	10.9	4	11.8	0.5	125	1363	932	16.9	23.9	4.50	2.8	46.5	0.80	67.6	84.6	0.503	0.136	0.196	0.39	NonLiqfble.
2-CPT13	10.99	4	11.6	0.52	125	1374	938	16.6	23.3	4.77	2.8	47.9	0.80	66.3	82.9	0.504	0.133	0.191	0.38	NonLiqfble.
2-CPT13	11.1	4	12.7	0.55	125	1388	944	18.1	25.4	4.58	2.8	45.6	0.80	72.3	90.4	0.505	0.149	0.214	0.42	NonLiqfble.
2-CPT13	11.21	4	11.7	0.57	125	1401	951	16.6	23.1	5.18	2.9	49.5	0.80	66.4	83.0	0.507	0.133	0.192	0.38	NonLiqfble.
2-CPT13	11.3	4	12.6	0.59	125	1413	957	17.8	24.8	4.96	2.8	47.4	0.80	71.3	89.1	0.508	0.146	0.210	0.41	NonLiqfble.
2-CPT13	11.39	4	12.6	0.58	125	1424	963	17.8	24.7	4.88	2.8	47.2	0.80	71.1	88.8	0.509	0.145	0.209	0.41	NonLiqfble.
2-CPT13	11.48	4	13.7	0.56	125	1435	968	19.3	26.8	4.31	2.8	43.6	0.80	77.1	96.3	0.510	0.163	0.235	0.46	NonLiqfble.
2-CPT13	11.57	4	12.6	0.54	125	1446	974	17.7	24.4	4.55	2.8	46.2	0.80	70.7	88.3	0.511	0.144	0.207	0.41	NonLiqfble.
2-CPT13	11.67	4	12.2	0.53	125	1459	980	17.1	23.4	4.62	2.8	47.3	0.80	68.2	85.3	0.512	0.138	0.198	0.39	NonLiqfble.
2-CPT13	11.76	4	12	0.47	125	1470	986	16.7	22.8	4.17	2.8	46.0	0.80	66.9	83.6	0.513	0.134	0.193	0.38	NonLiqfble.
2-CPT13	11.85	4	12.3	0.51	125	1481	991	17.1	23.3	4.41	2.8	46.6	0.80	68.4	85.5	0.514	0.138	0.199	0.39	NonLiqfble.
2-CPT13	11.94	4	12.7	0.49	125	1493	997	17.6	24.0	4.10	2.8	44.8	0.80	70.4	88.0	0.515	0.143	0.206	0.40	NonLiqfble.
2-CPT13	12.03	4	11.9	0.49	125	1504	1003	16.4	22.2	4.40	2.8	47.4	0.80	65.8	82.2	0.516	0.132	0.190	0.37	NonLiqfble.
2-CPT13	12.09	4	13.8	0.49	125	1511	1006	19.0	25.9	3.76	2.7	42.0	0.80	76.1	95.2	0.517	0.160	0.231	0.45	NonLiqfble.
2-CPT13	12.18																			

Project Name:	SVRT - Yard & Shops
Project Number:	6600.300.102
Date:	4-Feb-08
CPT Number:	2-CPT13
Depth to Groundwater:	4 ft

EQ Magnitude (M _w):	6.5
PGA (g):	0.54
MSF:	1.44

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Frict. (TSF)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip Q _{eN}	Corr. Tip Q	Friction Ratio F	Ic	F.C. (%)	K _{CPT}	ΔQ _{eN}	(Q _{eN}) _s	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments
2-CPT13	13.17	4	12.8	0.41	125	1646	1074	17.1	22.3	3.42	2.8	43.3	0.80	68.4	85.4	0.527	0.138	0.199	0.38	NonLiqfble.
2-CPT13	13.26	4	12.3	0.37	115	1525	947	17.5	24.4	3.21	2.7	40.8	0.80	70.0	87.4	0.554	0.142	0.205	0.37	NonLiqfble.
2-CPT13	13.34	4	12.4	0.36	115	1534	951	17.6	24.4	3.09	2.7	40.2	0.80	70.4	88.0	0.555	0.143	0.206	0.37	NonLiqfble.
2-CPT13	13.42	4	12.3	0.37	115	1543	955	17.4	24.1	3.21	2.7	40.9	0.80	69.6	87.1	0.556	0.141	0.204	0.37	NonLiqfble.
2-CPT13	13.51	4	12.3	0.38	115	1554	960	17.4	24.0	3.30	2.7	41.4	0.80	69.5	86.8	0.557	0.141	0.203	0.36	NonLiqfble.
2-CPT13	13.59	4	11.3	0.38	115	1563	964	15.9	21.8	3.61	2.8	44.6	0.80	63.7	79.6	0.557	0.127	0.183	0.33	NonLiqfble.
2-CPT13	13.67	4	11.2	0.4	115	1572	969	15.7	21.5	3.84	2.8	45.8	0.80	63.0	78.7	0.558	0.125	0.181	0.32	NonLiqfble.
2-CPT13	13.75	4	11.1	0.42	115	1581	973	15.6	21.2	4.07	2.8	47.1	0.80	62.3	77.9	0.559	0.124	0.178	0.32	NonLiqfble.
2-CPT13	13.83	4	10.7	0.42	115	1590	977	15.0	20.3	4.24	2.8	48.6	0.80	59.9	74.9	0.560	0.119	0.171	0.31	NonLiqfble.
2-CPT13	13.91	4	9.6	0.42	115	1600	981	13.4	17.9	4.77	2.9	53.2	0.80	53.6	67.0	0.561	0.108	0.156	0.28	NonLiqfble.
2-CPT13	14	4	10.3	0.41	115	1610	986	14.4	19.3	4.32	2.9	50.0	0.80	57.4	71.8	0.562	0.114	0.165	0.29	NonLiqfble.
2-CPT13	14.08	4	9.5	0.4	115	1619	990	13.2	17.5	4.60	2.9	53.0	0.80	52.8	66.0	0.562	0.107	0.154	0.27	NonLiqfble.
2-CPT13	14.16	4	9.5	0.38	115	1628	994	13.2	17.5	4.38	2.9	52.2	0.80	52.7	65.9	0.563	0.107	0.154	0.27	NonLiqfble.
2-CPT13	14.25	4	9.4	0.35	115	1639	999	13.0	17.2	4.08	2.9	51.3	0.80	52.0	65.1	0.564	0.106	0.152	0.27	NonLiqfble.
2-CPT13	14.33	4	9.6	0.34	115	1648	1003	13.3	17.5	3.87	2.9	50.1	0.80	53.0	66.3	0.565	0.107	0.154	0.27	NonLiqfble.
2-CPT13	14.41	4	8.9	0.32	115	1657	1008	12.3	16.0	3.96	2.9	52.3	0.80	49.1	61.3	0.566	0.101	0.146	0.26	NonLiqfble.
2-CPT13	14.5	4	9.1	0.33	115	1668	1012	12.5	16.3	3.99	2.9	52.0	0.80	50.1	62.6	0.567	0.103	0.148	0.26	NonLiqfble.
2-CPT13	14.59	4	9.8	0.34	115	1678	1017	13.4	17.6	3.79	2.9	49.6	0.80	53.8	67.2	0.567	0.108	0.156	0.27	NonLiqfble.
2-CPT13	14.67	4	8.9	0.35	115	1687	1021	12.2	15.8	4.34	2.9	54.2	0.80	48.7	60.9	0.568	0.101	0.145	0.26	NonLiqfble.
2-CPT13	14.76	4	9.1	0.36	115	1697	1026	12.4	16.1	4.36	2.9	53.9	0.80	49.7	62.2	0.569	0.102	0.147	0.26	NonLiqfble.
2-CPT13	14.84	4	9.5	0.3	115	1707	1030	13.0	16.8	3.47	2.9	49.1	0.80	51.8	64.8	0.570	0.105	0.152	0.27	NonLiqfble.
2-CPT13	14.91	4	9.2	0.34	115	1715	1034	12.5	16.1	4.08	2.9	52.6	0.80	50.1	62.6	0.570	0.103	0.148	0.26	NonLiqfble.
2-CPT13	14.99	4	8.2	0.32	115	1724	1038	11.1	14.1	4.36	3.0	56.7	0.80	44.5	55.7	0.571	0.096	0.138	0.24	NonLiqfble.
2-CPT13	15.07	4	8.5	0.3	115	1733	1042	11.5	14.6	3.93	2.9	54.1	0.80	46.1	57.6	0.572	0.098	0.141	0.25	NonLiqfble.
2-CPT13	15.14	4	7.8	0.3	115	1741	1046	10.6	13.2	4.33	3.0	58.0	0.80	42.2	52.8	0.573	0.094	0.135	0.24	NonLiqfble.
2-CPT13	15.2	4	8.3	0.29	115	1748	1049	11.2	14.2	3.91	2.9	54.7	0.80	44.8	56.1	0.573	0.096	0.139	0.24	NonLiqfble.
2-CPT13	15.28	4	8.8	0.28	115	1757	1053	11.9	15.0	3.53	2.9	51.7	0.80	47.5	59.3	0.574	0.099	0.143	0.25	NonLiqfble.
2-CPT13	15.36	4	8.4	0.28	105	1613	904	12.2	16.8	3.69	2.9	50.1	0.80	48.9	61.1	0.574	0.101	0.146	0.24	NonLiqfble.
2-CPT13	15.45	4	9.1	0.28	115	1777	1062	12.2	15.5	3.41	2.9	50.6	0.80	48.9	61.1	0.575	0.101	0.146	0.25	NonLiqfble.
2-CPT13	15.53	4	9.1	0.28	115	1786	1066	12.2	15.4	3.41	2.9	50.7	0.80	48.8	61.0	0.576	0.101	0.146	0.25	NonLiqfble.
2-CPT13	15.61	4	8.6	0.27	105	1639	915	12.4	17.0	3.47	2.8	48.8	0.80	49.8	62.2	0.576	0.102	0.147	0.24	NonLiqfble.
2-CPT13	15.69	4	8.8	0.26	105	1647	918	12.7	17.4	3.26	2.8	47.4	0.80	50.8	63.5	0.577	0.104	0.150	0.24	NonLiqfble.
2-CPT13	15.78	4	9	0.26	105	1657	922	13.0	17.7	3.18	2.8	46.6	0.80	51.9	64.8	0.578	0.105	0.152	0.25	NonLiqfble.
2-CPT13	15.86	4	9	0.25	105	1665	925	12.9	17.6	3.06	2.8	46.1	0.80	51.8	64.7	0.579	0.105	0.152	0.24	NonLiqfble.
2-CPT13	15.94	4	9.1	0.23	105	1674	929	13.1	17.8	2.78	2.8	44.5	0.80	52.3	65.3	0.580	0.106	0.153	0.25	NonLiqfble.
2-CPT13	16.02	4	8.9	0.23	105	1682	932	12.8	17.3	2.85	2.8	45.5	0.80	51.0	63.8	0.581	0.104	0.150	0.24	NonLiqfble.
2-CPT13	16.11	4	9.2	0.23	105	1692	936	13.2	17.8	2.75	2.8	44.3	0.80	52.6	65.8	0.582	0.106	0.153	0.25	NonLiqfble.
2-CPT13	16.19	4	9.4	0.24	105	1700	939	13.4	18.2	2.81	2.8	44.2	0.80	53.7	67.1	0.583	0.108	0.156	0.25	NonLiqfble.
2-CPT13	16.27	4	9.6	0.25	105	1708	943	13.7	18.5	2.86	2.8	44.1	0.80	54.7	68.4	0.584	0.110	0.158	0.25	NonLiqfble.
2-CPT13	16.36	4	10.4	0.27	115	1881	1110	13.7	17.0	2.85	2.8	45.8	0.80	54.6	68.3	0.585	0.110	0.158	0.27	NonLiqfble.
2-CPT13	16.44	4	11.9	0.29	115	1891	1114	15.6	19.7	2.65	2.7	41.9	0.80	62.4	78.0	0.586	0.124	0.179	0.31	NonLiqfble.
2-CPT13	16.53	4	12.7	0.31	115	1901	1119	16.6	21.0	2.64	2.7	40.6	0.80	66.4	83.1	0.587	0.133	0.192	0.33	NonLiqfble.
2-CPT13	16.61	4	13	0.33	115	1910	1123	17.0	21.4	2.74	2.7	40.8	0.80	67.9	84.9	0.588	0.137	0.197	0.34	NonLiqfble.
2-CPT13	16.69	4	13.1	0.35	115	1919	1127	17.1	21.5	2.88	2.7	41.4	0.80	68.3	85.3	0.589	0.138	0.198	0.34	NonLiqfble.
2-CPT13	16.78	4	13.5	0.37	115	1930	1132	17.6	22.1	2.95	2.7	41.3	0.80	70.2	87.8	0.590	0.143	0.206	0.35	NonLiqfble.
2-CPT13	16.86	4	13.5	0.37	115	1939	1136	17.5	22.0	2.95	2.7	41.3	0.80	70.1	87.6	0.591	0.143	0.205	0.35	NonLiqfble.
2-CPT13	16.94	4	13.7	0.37	115	1948	1141	17.7	22.3	2.91	2.7	40.9	0.80	71.0	88.7	0.592	0.145	0.209	0.36	NonLiqfble.
2-CPT13	17.02	4	13	0.37	115	1957	1145	16.8	21.0	3.08	2.7	42.9	0.80	67.2	84.1	0.593	0.135	0.195	0.33	NonLiqfble.
2-CPT13	17.1	4	12.9	0.36	115	1967	1149	16.7	20.7	3.02	2.7	42.8	0.80	66.6	83.3	0.594	0.134	0.192	0.33	NonLiqfble.
2-CPT13	17.19	4	12.7	0.34	115	1977	1154	16.4	20.3	2.90	2.7	42.6	0.80	65.4	81.8	0.595	0.131	0.188	0.32	NonLiqfble.
2-CPT13	17.27	4	13	0.34	115	1986	1158	16.7	20.7	2.83	2.7	41.9	0.80	66.9	83.6	0.596	0.134	0.193	0.33	NonLiqfble.
2-CPT13	17.35	4	13.6	0.36	115	1995	1162	17.5	21.7	2.86	2.7	41.2	0.80	69.8	87.3	0.597	0.142	0.204	0.35	NonLiqfble.
2-CPT13	17.43	4	14.4	0.38	125	2179	1341	17.2	19.8	2.85	2.7	42.8	0.80	68.8	86.0	0.599	0.139	0.200	0.36	NonLiqfble.
2-CPT13	17.51	4	15.5	0.4	125	2189	1346	18.5	21.4	2.78	2.7	41.0	0.80	73.9	92.4	0.599	0.153	0.221	0.39	NonLiqfble.
2-CPT13	17.6	4	16.3	0.43	125	2200	1351	19.4	22.5	2.83	2.7	40.4	0.80	77.6	97.0	0.600	0.165	0.237	0.42	NonLiqfble.
2-CPT13	17.68	4	17.8	0.45	125	2210	1356	21.1	24.6	2.70	2.7	38.1	0.80	84.6	105.7	0.600	0.190	0.274	0.49	NonLiqfble.
2-CPT13	17.76	4	18	0.47	125	2220	1361	21.3	24.8	2.78	2.7	38.4	0.80	85.4	106.7	0.601	0.193	0.278	0.50	NonLiqfble.
2-CPT13	17.84	4	18.4	0.5	125	2230	1366	21.8	25.3	2.89	2.7	38.6	0.80	87.1	108.9	0.601	0.200	0.288	0.51	NonLiqfble.
2-CPT13	17.92	4	17.5	0.51	125	2240	1371	20.7	23.9	3.11	2.7	40.7	0.80	82.7	103.4	0.602	0.183	0.263	0.47	NonLiqfble.
2-CPT13	18.01	4	17.5	0.51	125	2251	1377	20.6	23.8	3.11	2.7	40.8	0.80	82.5	103.2	0.603	0.182	0.262	0.47	NonLiqfble.
2-CPT13	18.09	4	16.7	0.47	125	2261	1382	19.7	22.5	3.02	2.7	41.3	0.80	78.6	98.3	0.603	0.168			

Project Name:	SVRT - Yard & Shops
Project Number:	6600.300.102
Date:	4-Feb-08
CPT Number:	2-CPT13
Depth to Groundwater:	4 ft

EQ Magnitude (M_w):	6.5
PGA (g):	0.54
MSF:	1.44

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Frict. (TSF)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip q_{tN}	Corr. Tip Q	Friction Ratio F	Ic	F.C. (%)	K_{CPT}	Δq_{tN}	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.5	Factor of Safety	Comments	
2-CPT13	19.07	4	26.2	0.59	125	2384	1443	30.2	34.6	2.36	2.5	30.8	0.69	66.8	97.0	0.568	0.165	0.237	0.42	Liquefaction
2-CPT13	19.11	4	27.3	0.58	125	2389	1446	31.4	36.1	2.22	2.5	29.5	0.65	59.1	90.6	0.568	0.149	0.215	0.38	Liquefaction
2-CPT13	19.15	4	27.9	0.57	125	2394	1448	32.1	36.9	2.13	2.5	28.7	0.63	55.2	87.2	0.568	0.142	0.204	0.36	Liquefaction
2-CPT13	19.2	4	27.4	0.53	125	2400	1452	31.5	36.1	2.02	2.4	28.4	0.62	52.2	83.6	0.569	0.134	0.194	0.34	Liquefaction
2-CPT13	19.28	4	23.8	0.47	125	2410	1457	27.3	31.0	2.08	2.5	31.0	0.69	61.6	88.9	0.569	0.145	0.209	0.37	Liquefaction
2-CPT13	19.36	4	20.3	0.41	125	2420	1462	23.2	26.1	2.15	2.6	34.1	0.78	80.8	104.0	0.570	0.185	0.266	0.47	Liquefaction
2-CPT13	19.44	4	19	0.38	125	2430	1467	21.7	24.2	2.14	2.6	35.3	0.80	86.8	108.5	0.570	0.199	0.286	0.50	Liquefaction
2-CPT13	19.53	4	17.1	0.39	125	2441	1472	19.5	21.6	2.46	2.7	39.1	0.80	78.0	97.5	0.570	0.166	0.239	0.42	NonLiqfble.
2-CPT13	19.61	4	17.5	0.45	125	2451	1477	19.9	22.0	2.77	2.7	40.4	0.80	79.7	99.6	0.571	0.172	0.248	0.43	NonLiqfble.
2-CPT13	19.69	4	18	0.46	125	2461	1482	20.5	22.6	2.74	2.7	39.8	0.80	81.8	102.3	0.571	0.180	0.259	0.45	NonLiqfble.
2-CPT13	19.77	4	20.8	0.48	125	2471	1487	23.6	26.3	2.45	2.6	35.7	0.80	94.4	118.0	0.572	0.233	0.335	0.59	NonLiqfble.
2-CPT13	19.86	4	23.4	0.65	125	2483	1493	26.5	29.7	2.93	2.6	36.1	0.80	106.0	132.5	0.572	0.296	0.427	0.75	NonLiqfble.
2-CPT13	19.94	4	24.1	0.76	135	2692	1697	25.6	26.8	3.34	2.7	39.7	0.80	102.4	128.0	0.546	0.275	0.396	0.73	NonLiqfble.
2-CPT13	20.02	4	26.4	0.8	135	2703	1703	28.0	29.4	3.19	2.6	37.4	0.80	112.0	140.0	0.535	0.335	0.482	0.90	NonLiqfble.
2-CPT13	20.09	4	30.9	0.84	135	2712	1708	32.7	34.6	2.84	2.6	33.2	0.75	100.2	132.9	0.535	0.298	0.429	0.80	Liquefaction
2-CPT13	20.16	4	29.9	0.89	135	2722	1713	31.6	33.3	3.12	2.6	35.1	0.80	126.4	158.0	0.535	0.447	0.644	1.20	Low F.S.
2-CPT13	20.23	4	27.5	0.89	135	2731	1718	29.0	30.4	3.41	2.6	37.8	0.80	116.1	145.1	0.536	0.364	0.525	0.98	NonLiqfble.
2-CPT13	20.32	4	25.8	0.87	135	2743	1725	27.2	28.3	3.56	2.7	39.7	0.80	108.7	135.9	0.536	0.313	0.451	0.84	NonLiqfble.
2-CPT13	20.37	4	24.6	0.85	135	2750	1728	25.9	26.9	3.66	2.7	41.0	0.80	103.6	129.4	0.536	0.282	0.406	0.76	NonLiqfble.
2-CPT13	20.44	4	24.5	0.81	135	2759	1734	25.7	26.7	3.50	2.7	40.5	0.80	103.0	128.7	0.536	0.278	0.401	0.75	NonLiqfble.
2-CPT13	20.5	4	23.6	0.72	125	2563	1533	26.4	29.1	3.23	2.6	37.8	0.80	105.5	131.9	0.563	0.293	0.422	0.75	NonLiqfble.
2-CPT13	20.56	4	23	0.66	125	2570	1537	25.7	28.3	3.04	2.6	37.4	0.80	102.7	128.4	0.564	0.277	0.398	0.71	NonLiqfble.
2-CPT13	20.6	4	22.5	0.63	125	2575	1539	25.1	27.6	2.97	2.6	37.5	0.80	100.4	125.5	0.564	0.264	0.380	0.67	NonLiqfble.
2-CPT13	20.65	4	22.1	0.61	125	2581	1542	24.6	27.0	2.93	2.6	37.7	0.80	98.5	123.1	0.564	0.254	0.365	0.65	NonLiqfble.
2-CPT13	20.71	4	20.8	0.61	125	2589	1546	23.1	25.2	3.13	2.7	39.8	0.80	92.6	115.7	0.564	0.224	0.323	0.57	NonLiqfble.
2-CPT13	20.75	4	19.9	0.61	125	2594	1549	22.1	24.0	3.28	2.7	41.3	0.80	88.5	110.6	0.564	0.206	0.297	0.53	NonLiqfble.
2-CPT13	20.8	4	19.7	0.61	125	2600	1552	21.9	23.7	3.32	2.7	41.7	0.80	87.5	109.4	0.565	0.202	0.291	0.51	NonLiqfble.
2-CPT13	20.85	4	18.6	0.61	125	2606	1555	20.6	22.2	3.53	2.8	43.9	0.80	82.6	103.2	0.565	0.182	0.262	0.46	NonLiqfble.
2-CPT13	20.89	4	17.4	0.6	125	2611	1557	19.3	20.7	3.73	2.8	46.1	0.80	77.2	96.5	0.565	0.163	0.235	0.42	NonLiqfble.
2-CPT13	20.92	4	16.5	0.6	125	2615	1559	18.3	19.5	3.95	2.8	48.2	0.80	73.1	91.4	0.565	0.151	0.218	0.38	NonLiqfble.
2-CPT13	21.16	4	13.1	0.47	125	2645	1574	14.4	15.0	3.99	2.9	53.9	0.80	57.8	72.2	0.566	0.115	0.166	0.29	NonLiqfble.
2-CPT13	21.24	4	11	0.38	115	2443	1367	13.0	14.3	3.89	2.9	54.4	0.80	52.1	65.1	0.602	0.106	0.152	0.25	NonLiqfble.
2-CPT13	21.32	4	10.5	0.3	115	2452	1371	12.4	13.5	3.23	2.9	52.6	0.80	49.6	62.0	0.603	0.102	0.147	0.24	NonLiqfble.
2-CPT13	21.4	4	9.9	0.23	105	2247	1161	12.7	15.1	2.62	2.8	46.9	0.80	50.8	63.6	0.652	0.104	0.150	0.23	NonLiqfble.
2-CPT13	21.48	4	9.1	0.19	105	2255	1165	11.7	13.7	2.38	2.8	47.6	0.80	46.7	58.3	0.653	0.098	0.142	0.22	NonLiqfble.
2-CPT13	21.56	4	8.8	0.16	105	2264	1168	11.3	13.1	2.09	2.8	46.6	0.80	45.1	56.3	0.653	0.097	0.139	0.21	NonLiqfble.
2-CPT13	21.64	4	7.9	0.15	105	2272	1171	10.1	11.5	2.22	2.9	50.3	0.80	40.4	50.5	0.654	0.092	0.132	0.20	NonLiqfble.
2-CPT13	21.72	4	8.4	0.16	105	2281	1175	10.7	12.4	2.20	2.8	48.7	0.80	42.9	53.6	0.654	0.094	0.136	0.21	NonLiqfble.
2-CPT13	21.8	4	8.7	0.16	105	2289	1178	11.1	12.8	2.12	2.8	47.3	0.80	44.4	55.4	0.655	0.096	0.138	0.21	NonLiqfble.
2-CPT13	21.88	4	10.3	0.16	105	2297	1182	13.1	15.5	1.75	2.7	40.9	0.80	52.4	65.5	0.655	0.106	0.153	0.23	NonLiqfble.
2-CPT13	21.97	4	9.9	0.16	105	2307	1186	12.6	14.7	1.83	2.7	42.5	0.80	50.3	62.9	0.656	0.103	0.149	0.23	NonLiqfble.
2-CPT13	22.05	4	9.6	0.17	105	2315	1189	12.2	14.2	2.01	2.8	44.5	0.80	48.7	60.9	0.656	0.101	0.145	0.22	NonLiqfble.
2-CPT13	22.13	4	9.7	0.17	105	2324	1192	12.3	14.3	1.99	2.8	44.2	0.80	49.2	61.5	0.657	0.102	0.146	0.22	NonLiqfble.
2-CPT13	22.21	4	10.1	0.18	105	2332	1196	12.8	14.9	2.01	2.8	43.5	0.80	51.1	63.9	0.657	0.104	0.150	0.23	NonLiqfble.
2-CPT13	22.29	4	10.1	0.2	105	2340	1199	12.8	14.9	2.24	2.8	45.0	0.80	51.0	63.8	0.658	0.104	0.150	0.23	NonLiqfble.
2-CPT13	22.38	4	11.1	0.21	105	2350	1203	14.0	16.5	2.12	2.7	42.2	0.80	56.0	70.0	0.658	0.112	0.161	0.24	NonLiqfble.
2-CPT13	22.46	4	12.2	0.21	105	2358	1206	15.4	18.3	1.91	2.7	38.9	0.80	61.5	76.8	0.659	0.122	0.176	0.27	NonLiqfble.
2-CPT13	22.55	4	12.9	0.25	115	2593	1436	14.9	16.2	2.15	2.7	42.8	0.80	59.6	74.5	0.609	0.118	0.171	0.28	NonLiqfble.
2-CPT13	22.63	4	13.5	0.31	115	2602	1440	15.6	16.9	2.54	2.8	44.2	0.80	62.3	77.8	0.609	0.124	0.178	0.29	NonLiqfble.
2-CPT13	22.71	4	16.6	0.39	125	2839	1671	17.8	18.2	2.57	2.7	43.0	0.80	71.1	88.8	0.572	0.145	0.209	0.37	NonLiqfble.
2-CPT13	22.79	4	18.7	0.54	125	2849	1676	20.0	20.6	3.13	2.8	43.4	0.80	79.9	99.9	0.573	0.173	0.249	0.43	NonLiqfble.
2-CPT13	22.87	4	21.1	0.72	125	2859	1681	22.5	23.4	3.66	2.8	43.5	0.80	90.1	112.6	0.573	0.213	0.306	0.53	NonLiqfble.
2-CPT13	22.96	4	25.1	0.81	135	3100	1916	25.1	24.6	3.44	2.7	41.6	0.80	100.3	125.4	0.545	0.264	0.379	0.70	NonLiqfble.
2-CPT13	23.04	4	28.5	0.78	135	3110	1922	28.4	28.0	2.89	2.6	36.9	0.80	113.8	142.2	0.545	0.347	0.500	0.92	NonLiqfble.
2-CPT13	23.12	4	27.1	0.74	135	3121	1928	27.0	26.5	2.90	2.6	37.8	0.80	108.0	135.0	0.545	0.309	0.445	0.82	NonLiqfble.
2-CPT13	23.2	4	25	0.73	135	3132	1934	24.9	24.2	3.12	2.7	40.4	0.80	99.5	124.4	0.546	0.259	0.373	0.68	NonLiqfble.
2-CPT13	23.29	4	24.6	0.76	135	3144	1940	24.4	23.7	3.30	2.7	41.6	0.80	97.7	122.2	0.546	0.250	0.359	0.66	NonLiqfble.
2-CPT13	23.37	4	24.5	0.72	125	2921	1713	25.9	26.9	3.13	2.7	38.6	0.80	103.6	129.5	0.575	0.282	0.406	0.71	NonLiqfble.
2-CPT13	23.45	4	25.5	0.59	125	2931	1718	26.9	28.0	2.45	2.6	34.7	0.79	102.5	129.4	0.575	0.282	0.405	0.71	Liquefaction
2-CPT13	23.53	4	24.8	0.52	125	2941	1723	26.1	27.1	2.23	2.6	34.0	0.77	89.1	115.3	0.575	0.223	0.320	0.56	Liquefaction
2-CPT13	23.62	4	22.6	0.54	125	2953	1728	23.8	24.4	2.56										

Project Name: SVRT - Yard & Shops
 Project Number: 6600.300.102
 Date: 4-Feb-08
 CPT Number: 2-CPT13
 Depth to Groundwater: 4 ft

EQ Magnitude (M_w): 6.5
 PGA (g): 0.54
 MSF: 1.44

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Frict. (TSF)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip q_{tN}	Corr. Tip Q	Friction Ratio F	Ic	F.C. (%)	K_{CPT}	Δq_{tN}	(q_{tN})s	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.5	Factor of Safety	Comments
2-CPT13	24.73	4	30.3	0.74	135	3339	2045	29.3	28.0	2.58	2.6	35.3	0.80	117.3	146.6	0.550	0.373	0.537	0.98	Liquefaction
2-CPT13	24.81	4	26.5	0.64	125	3101	1803	27.3	27.7	2.57	2.6	35.4	0.80	109.2	136.5	0.580	0.317	0.456	0.79	NonLiqfble.
2-CPT13	24.89	4	22.7	0.53	125	3111	1808	23.4	23.4	2.51	2.7	38.0	0.80	93.4	116.8	0.580	0.228	0.329	0.57	NonLiqfble.
2-CPT13	24.97	4	20.9	0.39	125	3121	1813	21.5	21.3	2.02	2.6	36.8	0.80	85.9	107.4	0.580	0.195	0.281	0.48	NonLiqfble.
2-CPT13	25.05	4	18.3	0.28	115	2881	1567	20.2	21.5	1.66	2.6	34.3	0.78	72.3	92.5	0.619	0.154	0.221	0.36	Liquefaction
2-CPT13	25.14	4	17.3	0.21	105	2640	1321	20.8	24.2	1.31	2.5	29.7	0.66	40.6	61.4	0.674	0.102	0.146	0.22	Liquefaction
2-CPT13	25.22	4	15.2	0.17	105	2648	1324	18.3	21.0	1.23	2.5	31.4	0.70	43.6	61.9	0.674	0.102	0.147	0.22	Liquefaction
2-CPT13	25.3	4	11.9	0.17	105	2657	1327	14.3	15.9	1.61	2.7	39.4	0.80	57.2	71.5	0.674	0.114	0.164	0.24	NonLiqfble.
2-CPT13	25.38	4	10.8	0.17	105	2665	1331	13.0	14.2	1.80	2.7	43.0	0.80	51.8	64.8	0.675	0.105	0.152	0.22	NonLiqfble.
2-CPT13	25.46	4	11.3	0.17	105	2673	1334	13.5	14.9	1.71	2.7	41.3	0.80	54.1	67.7	0.675	0.109	0.157	0.23	NonLiqfble.
2-CPT13	25.54	4	11	0.17	105	2682	1338	13.2	14.4	1.76	2.7	42.4	0.80	52.6	65.8	0.676	0.106	0.153	0.23	NonLiqfble.
2-CPT13	25.62	4	12.3	0.19	105	2690	1341	14.7	16.3	1.73	2.7	39.8	0.80	58.8	73.5	0.676	0.117	0.168	0.25	NonLiqfble.
2-CPT13	25.7	4	11.6	0.21	105	2699	1344	13.8	15.2	2.05	2.8	43.3	0.80	55.4	69.2	0.676	0.111	0.160	0.24	NonLiqfble.
2-CPT13	25.79	4	12.9	0.23	105	2708	1348	15.4	17.1	1.99	2.7	40.7	0.80	61.5	76.9	0.677	0.122	0.176	0.26	NonLiqfble.
2-CPT13	25.87	4	12.6	0.25	115	2975	1610	13.7	13.8	2.25	2.8	46.6	0.80	55.0	68.7	0.623	0.110	0.159	0.25	NonLiqfble.
2-CPT13	25.95	4	13.3	0.27	115	2984	1615	14.5	14.6	2.29	2.8	45.7	0.80	57.9	72.4	0.623	0.115	0.166	0.27	NonLiqfble.
2-CPT13	26.03	4	12.8	0.28	115	2993	1619	13.9	14.0	2.48	2.8	47.8	0.80	55.7	69.6	0.623	0.111	0.160	0.26	NonLiqfble.
2-CPT13	26.11	4	13.6	0.28	115	3003	1623	14.8	14.9	2.31	2.8	45.4	0.80	59.1	73.9	0.623	0.117	0.169	0.27	NonLiqfble.
2-CPT13	26.2	4	14.9	0.29	115	3013	1628	16.2	16.4	2.17	2.7	42.5	0.80	64.6	80.8	0.624	0.129	0.186	0.30	NonLiqfble.
2-CPT13	26.28	4	15	0.3	115	3022	1632	16.2	16.5	2.22	2.7	42.8	0.80	65.0	81.2	0.624	0.130	0.187	0.30	NonLiqfble.
2-CPT13	26.36	4	14.8	0.3	115	3031	1636	16.0	16.2	2.26	2.8	43.4	0.80	64.0	80.0	0.624	0.128	0.184	0.29	NonLiqfble.
2-CPT13	26.44	4	13.6	0.31	115	3041	1640	14.7	14.7	2.57	2.8	47.2	0.80	58.8	73.5	0.625	0.117	0.168	0.27	NonLiqfble.
2-CPT13	26.52	4	15	0.32	115	3050	1645	16.2	16.4	2.37	2.8	43.9	0.80	64.7	80.9	0.625	0.129	0.186	0.30	NonLiqfble.
2-CPT13	26.6	4	12.9	0.31	115	3059	1649	13.9	13.8	2.73	2.9	49.5	0.80	55.6	69.5	0.625	0.111	0.160	0.26	NonLiqfble.
2-CPT13	26.69	4	12.7	0.31	115	3069	1653	13.7	13.5	2.78	2.9	50.2	0.80	54.7	68.3	0.625	0.110	0.158	0.25	NonLiqfble.
2-CPT13	26.77	4	14.2	0.31	115	3079	1658	15.3	15.3	2.45	2.8	45.7	0.80	61.0	76.3	0.626	0.121	0.175	0.28	NonLiqfble.
2-CPT13	26.85	4	13	0.31	115	3088	1662	14.0	13.8	2.71	2.9	49.4	0.80	55.8	69.8	0.626	0.112	0.161	0.26	NonLiqfble.
2-CPT13	26.94	4	13.1	0.32	115	3098	1667	14.0	13.9	2.77	2.9	49.6	0.80	56.2	70.2	0.626	0.112	0.162	0.26	NonLiqfble.
2-CPT13	27.01	4	13.6	0.33	115	3106	1670	14.6	14.4	2.74	2.8	48.6	0.80	58.2	72.8	0.627	0.116	0.167	0.27	NonLiqfble.
2-CPT13	27.1	4	14.4	0.33	115	3117	1675	15.4	15.3	2.57	2.8	46.4	0.80	61.6	77.0	0.627	0.122	0.176	0.28	NonLiqfble.
2-CPT13	27.18	4	15.2	0.32	115	3126	1679	16.2	16.2	2.35	2.8	43.9	0.80	64.9	81.1	0.627	0.130	0.187	0.30	NonLiqfble.
2-CPT13	27.26	4	17.4	0.38	125	3408	1956	17.2	16.0	2.42	2.8	44.6	0.80	68.9	86.1	0.587	0.139	0.201	0.34	NonLiqfble.
2-CPT13	27.34	4	17.6	0.55	125	3418	1961	17.4	16.2	3.46	2.9	49.8	0.80	69.6	86.9	0.587	0.141	0.203	0.35	NonLiqfble.
2-CPT13	27.43	4	17.8	0.61	125	3429	1967	17.6	16.4	3.79	2.9	51.1	0.80	70.2	87.8	0.587	0.143	0.206	0.35	NonLiqfble.
2-CPT13	27.48	4	17.2	0.64	125	3435	1970	17.0	15.7	4.13	2.9	53.4	0.80	67.8	84.8	0.588	0.137	0.197	0.33	NonLiqfble.
2-CPT13	27.51	4	18.5	0.67	125	3439	1972	18.2	17.0	3.99	2.9	51.2	0.80	72.9	91.1	0.588	0.150	0.217	0.37	NonLiqfble.
2-CPT13	27.56	4	20.2	0.67	125	3445	1975	19.9	18.7	3.63	2.8	47.6	0.80	79.6	99.4	0.588	0.171	0.247	0.42	NonLiqfble.
2-CPT13	27.64	4	22.3	0.67	125	3455	1980	21.9	20.8	3.26	2.8	43.9	0.80	87.7	109.6	0.588	0.203	0.292	0.50	NonLiqfble.
2-CPT13	27.72	4	20.9	0.66	125	3465	1985	20.5	19.3	3.44	2.8	46.2	0.80	82.1	102.6	0.588	0.181	0.260	0.44	NonLiqfble.
2-CPT13	27.8	4	19.4	0.62	125	3475	1990	19.0	17.7	3.51	2.8	48.2	0.80	76.1	95.1	0.588	0.160	0.231	0.39	NonLiqfble.
2-CPT13	27.88	4	18	0.56	125	3485	1995	17.6	16.3	3.44	2.9	49.6	0.80	70.5	88.2	0.589	0.144	0.207	0.35	NonLiqfble.
2-CPT13	27.96	4	16.6	0.47	125	3495	2000	16.2	14.8	3.16	2.9	50.2	0.80	65.0	81.2	0.589	0.130	0.187	0.32	NonLiqfble.
2-CPT13	28.05	4	15.3	0.39	125	3506	2006	14.9	13.5	2.88	2.9	50.7	0.80	59.8	74.7	0.589	0.119	0.171	0.29	NonLiqfble.
2-CPT13	28.13	4	14.4	0.34	115	3235	1729	15.2	14.8	2.66	2.8	47.6	0.80	60.6	75.8	0.630	0.120	0.173	0.28	NonLiqfble.
2-CPT13	28.21	4	13.8	0.29	115	3244	1733	14.5	14.0	2.38	2.8	47.1	0.80	58.0	72.5	0.631	0.115	0.166	0.26	NonLiqfble.
2-CPT13	28.29	4	12.5	0.24	115	3253	1738	13.1	12.5	2.21	2.8	48.4	0.80	52.5	65.6	0.631	0.106	0.153	0.24	NonLiqfble.
2-CPT13	28.37	4	11.6	0.22	105	2979	1458	13.3	13.9	2.18	2.8	46.1	0.80	53.2	66.5	0.688	0.107	0.155	0.22	NonLiqfble.
2-CPT13	28.46	4	11.4	0.21	105	2988	1462	13.0	13.5	2.12	2.8	46.2	0.80	52.2	65.2	0.689	0.106	0.152	0.22	NonLiqfble.
2-CPT13	28.54	4	11.4	0.2	105	2997	1465	13.0	13.5	2.02	2.8	45.6	0.80	52.1	65.1	0.689	0.106	0.152	0.22	NonLiqfble.
2-CPT13	28.62	4	11.3	0.19	105	3005	1469	12.9	13.3	1.94	2.8	45.3	0.80	51.6	64.5	0.689	0.105	0.151	0.22	NonLiqfble.
2-CPT13	28.71	4	11.6	0.2	105	3015	1473	13.2	13.7	1.98	2.8	45.0	0.80	52.9	66.1	0.690	0.107	0.154	0.22	NonLiqfble.
2-CPT13	28.79	4	12.1	0.19	105	3023	1476	13.8	14.3	1.79	2.7	42.8	0.80	55.1	68.9	0.690	0.110	0.159	0.23	NonLiqfble.
2-CPT13	28.87	4	12.5	0.2	105	3031	1479	14.2	14.8	1.82	2.7	42.3	0.80	56.9	71.1	0.690	0.113	0.163	0.24	NonLiqfble.
2-CPT13	28.96	4	12.9	0.21	105	3041	1483	14.7	15.3	1.85	2.7	41.8	0.80	58.6	73.3	0.691	0.117	0.168	0.24	NonLiqfble.
2-CPT13	29.04	4	13.7	0.23	105	3049	1487	15.5	16.4	1.89	2.7	40.8	0.80	62.2	77.7	0.691	0.124	0.178	0.26	NonLiqfble.
2-CPT13	29.12	4	14.6	0.24	115	3349	1781	15.1	14.5	1.86	2.7	43.0	0.80	60.5	75.7	0.633	0.120	0.173	0.27	NonLiqfble.
2-CPT13	29.21	4	15.6	0.27	115	3359	1786	16.2	15.6	1.94	2.7	42.1	0.80	64.6	80.8	0.634	0.129	0.186	0.29	NonLiqfble.
2-CPT13	29.29	4	15.4	0.28	115	3368	1790	15.9	15.3	2.04	2.7	43.2	0.80	63.7	79.6	0.634	0.127	0.183	0.29	NonLiqfble.
2-CPT13	29.37	4	16.3	0.28	115	3378	1794	16.8	16.3	1.92	2.7	41.1	0.80	67.3	84.2	0.634	0.135	0.195	0.31	NonLiqfble.
2-CPT13	29.45	4	17.1	0.28	115	3387	1799	17.6	17.1	1.82	2.7	39.5	0.80	70.6	88.2	0.634	0.144	0.207	0.33	NonLiqfble.
2-CPT13	29.54	4	16.9	0.28	115	3397	1803	17.4	16.9	1.84	2.7	40.0	0.80	69.6	87.1	0.635	0.141	0.204	0.32	NonLiqfble.
2-CPT13	29.62	4																		

Project Name: SVRT - Yard & Shops
Project Number: 6600.300.102
Date: 4-Feb-08
CPT Number: 2-CPT13
Depth to Groundwater: 4 ft

EQ Magnitude (M_w): 6.5
PGA (g): 0.54
MSF: 1.44

Cone	Depth (FT)	Water Table (FT)	Tip Resist. (TSF)	Sleeve Frict. (TSF)	γ (PCF)	Total Stress (PSF)	Effective Stress (PSF)	Norm. Tip Q_{eN}	Corr. Tip Q	Friction Ratio F	I_c	F.C. (%)	K_{CPT}	ΔQ_{eN}	(Q_{eN}) _s	Induced Stress Ratio	Liquef. Stress M7.5	Liquef. Stress M6.50	Factor of Safety	Comments
2-CPT13	30.6	4	47.1	2.62	135	4131	2471	41.5	36.4	5.82	2.8	43.4	0.80	165.8	207.3	0.540	0.908	1.308	2.42	NonLiqfble.
2-CPT13	30.63	4	50.5	2.72	135	4135	2473	44.4	39.1	5.62	2.7	41.6	0.80	177.7	222.1	0.540	1.100	1.583	2.93	NonLiqfble.
2-CPT13	30.7	4	77.5	2.19	135	4145	2478	68.1	60.8	2.90	2.4	25.7	0.55	84.0	152.1	0.540	0.407	0.587	1.09	Low F.S.
2-CPT13	30.74	4	99.8	1.88	135	4150	2481	87.7	78.7	1.92	2.2	18.2	0.35	47.9	135.6	0.540	0.312	0.449	0.83	Liquefaction
2-CPT13	30.79	4	99.8	1.62	135	4157	2485	87.6	78.6	1.66	2.1	16.8	0.32	40.5	128.1	0.540	0.275	0.396	0.73	Liquefaction
2-CPT13	30.83	4	116.9	1.51	135	4162	2488	102.5	92.3	1.32	2.0	13.3	0.22	29.4	131.9	0.540	0.294	0.423	0.78	Liquefaction
2-CPT13	30.88	4	137	1.24	125	3860	2183	128.3	123.7	0.92	1.8	8.5	0.09	13.1	141.4	0.571	0.343	0.494	0.86	Liquefaction
2-CPT13	30.91	4	165.5	1.46	125	3864	2185	154.9	149.7	0.89	1.7	7.0	0.05	8.7	163.7	0.571	0.488	0.702	1.23	Low F.S.
2-CPT13	30.95	4	261.6	1.68	115	3559	1878	264.2	276.6	0.65	1.5	2.2	0.00	0.0	264.2	0.612	1.794	2.584	4.22	FS>1.3
2-CPT13	30.98	4	284.1	1.89	115	3563	1879	286.8	300.3	0.67	1.4	2.0	0.00	0.0	286.8	0.612	2.273	3.273	5.35	FS>1.3
2-CPT13	31.02	4	296.9	2.08	115	3567	1881	299.5	313.6	0.70	1.4	2.1	0.00	0.0	299.5	0.612	2.579	3.713	6.06	FS>1.3
2-CPT13	31.3	4	410.1	2.95	115	3600	1896	412.1	430.5	0.72	1.4	1.1	0.00	0.0	412.1	0.613	6.588	9.487	15.47	FS>1.3
2-CPT13	31.35	4	429.2	3.07	115	3605	1899	431.0	450.0	0.72	1.4	1.0	0.00	0.0	431.0	0.613	7.525	10.836	17.67	FS>1.3
2-CPT13	31.41	4	449.3	2.94	115	3612	1902	450.8	470.4	0.66	1.3	0.5	0.00	0.0	450.8	0.613	8.599	12.383	20.19	FS>1.3
2-CPT13	31.48	4	437.6	3.09	115	3620	1905	438.6	457.2	0.71	1.3	0.9	0.00	0.0	438.6	0.614	7.928	11.417	18.61	FS>1.3
2-CPT13	31.55	4	416.1	2.85	115	3628	1909	416.7	433.8	0.69	1.3	0.9	0.00	0.0	416.7	0.614	6.808	9.803	15.97	FS>1.3
2-CPT13	31.63	4	390.2	2.48	115	3637	1913	390.3	405.8	0.64	1.3	0.8	0.00	0.0	390.3	0.614	5.610	8.078	13.16	FS>1.3
2-CPT13	31.71	4	383.9	1.86	105	3330	1600	419.9	477.5	0.49	1.2	0.0	0.00	0.0	419.9	0.672	6.964	10.028	14.93	FS>1.3
2-CPT13	31.78	4	369.3	1.99	115	3655	1921	368.6	382.4	0.54	1.3	0.4	0.00	0.0	368.6	0.614	4.739	6.824	11.11	FS>1.3
2-CPT13	31.86	4	363.8	1.79	105	3345	1607	397.1	450.5	0.49	1.2	0.0	0.00	0.0	397.1	0.672	5.903	8.501	12.64	FS>1.3
2-CPT13	31.93	4	340.6	1.53	105	3353	1610	371.4	420.9	0.45	1.2	0.0	0.00	0.0	371.4	0.673	4.845	6.977	10.37	FS>1.3
2-CPT13	32.01	4	333.7	1.67	105	3361	1613	363.5	411.4	0.50	1.3	0.0	0.00	0.0	363.5	0.673	4.547	6.548	9.73	FS>1.3
2-CPT13	32.08	4	318.8	1.9	115	3689	1937	316.9	327.1	0.60	1.4	1.3	0.00	0.0	316.9	0.615	3.041	4.379	7.12	FS>1.3
2-CPT13	32.24	4	366.5	2.44	115	3708	1945	363.6	374.7	0.67	1.4	1.3	0.00	0.0	363.6	0.615	4.549	6.551	10.64	FS>1.3
2-CPT13	32.45	4	474.5	3.52	125	4056	2281	434.7	414.1	0.75	1.4	1.4	0.00	0.0	434.7	0.574	7.719	11.116	19.36	FS>1.3
2-CPT13	32.5	4	466.2	3.33	115	3738	1959	460.9	473.8	0.72	1.3	0.8	0.00	0.0	460.9	0.616	9.183	13.223	21.46	FS>1.3
2-CPT13	32.56	4	453	2.74	115	3744	1962	447.4	459.6	0.61	1.3	0.3	0.00	0.0	447.4	0.616	8.411	12.112	19.66	FS>1.3
2-CPT13	32.63	4	455.3	2.52	115	3752	1966	449.3	461.1	0.56	1.3	0.0	0.00	0.0	449.3	0.616	8.515	12.261	19.89	FS>1.3
2-CPT13	32.68	4	457.4	2.5	115	3758	1969	451.1	462.6	0.55	1.3	0.0	0.00	0.0	451.1	0.616	8.615	12.405	20.12	FS>1.3
2-CPT13	32.72	4	469.7	2.67	115	3763	1971	462.9	474.6	0.57	1.3	0.0	0.00	0.0	462.9	0.617	9.307	13.402	21.74	FS>1.3
2-CPT13	32.76	4	460.8	2.62	115	3767	1973	453.9	465.1	0.57	1.3	0.0	0.00	0.0	453.9	0.617	8.779	12.641	20.50	FS>1.3
2-CPT13	32.79	4	468.8	2.71	115	3771	1974	461.6	472.8	0.58	1.3	0.1	0.00	0.0	461.6	0.617	9.229	13.289	21.55	FS>1.3
2-CPT13	32.85	4	481.9	2.84	115	3778	1978	474.1	485.3	0.59	1.3	0.1	0.00	0.0	474.1	0.617	9.993	14.391	23.33	FS>1.3
2-CPT13	32.89	4	489.1	2.91	115	3782	1980	481.0	492.0	0.60	1.3	0.0	0.00	0.0	481.0	0.617	10.428	15.016	24.34	FS>1.3
2-CPT13	32.92	4	502.9	3.1	115	3786	1981	494.4	505.6	0.62	1.3	0.1	0.00	0.0	494.4	0.617	11.315	16.294	26.41	FS>1.3
2-CPT13	32.96	4	498.4	3.08	115	3790	1983	489.7	500.5	0.62	1.3	0.1	0.00	0.0	489.7	0.617	10.999	15.839	25.66	FS>1.3
2-CPT13	33.06	4	508.4	3.05	115	3802	1989	498.8	509.2	0.60	1.3	0.0	0.00	0.0	498.8	0.617	11.624	16.738	27.11	FS>1.3

7.5 APPENDIX E

ENGEO INCORPORATED

Settlement Analysis Spreadsheets

Project Name: SVRT - Yard and Shops
 Project No.: 6600300102
 Date: Nov-07

CR = 16.0% RR = 3.0%
 γ = 110 pcf
 eo = 0.8
 water level = 7 ft below found surface
 Pp = 3500

Existing Fill Thickness = 30 ft
 Existing Fill γ = 125 pcf
 Compressible Soil Thickness = 10 ft

Building	$\Delta\sigma$ (psf)	Predicted Settlement (ft)	Predicted Settlement (inches)
Pedestrian Bridge	250	0.01	0.15

Settlement Calculations

Layer	Layer Thickness	σ_{vo}	σ_{vf}	s	Total Settlement (ft)
1	1	2338.6	2588.6	0.00	
2	1	2386.2	2636.2	0.00	
3	1	2433.8	2683.8	0.00	
4	1	2481.4	2731.4	0.00	
5	1	2529	2779	0.00	
6	1	2576.6	2826.6	0.00	
7	1	2624.2	2874.2	0.00	
8	1	2671.8	2921.8	0.00	
9	1	2719.4	2969.4	0.00	
10	1	2767	3017	0.00	0.01

Project Name: SVRT - Yard and Shops
 Project No.: 6600300102
 Date: Nov-07

CR = 16.0% RR = 3.0%
 γ = 110 pcf
 eo = 0.8
 water level = 7 ft below found surface
 Pp = 3500

Existing Fill Thickness = 30 ft
 Existing Fill γ = 125 pcf
 Compressible Soil Thickness = 22 ft

Building	$\Delta\sigma$ (psf)	Predicted Settlement (ft)	Predicted Settlement (inches)
Surcharge Test Fill	625	0.06	0.73

Settlement Calculations

$\Delta\sigma =$ Layer	Layer Thickness	σ_{vo}	σ_{vf}	s	Total Settlement (ft)
		625			
1	2.2	2367.16	2992.16	0.01	
2	2.2	2471.88	3096.88	0.01	
3	2.2	2576.6	3201.6	0.01	
4	2.2	2681.32	3306.32	0.01	
5	2.2	2786.04	3411.04	0.01	
6	2.2	2890.76	3515.76	0.00	
7	2.2	2995.48	3620.48	0.00	
8	2.2	3100.2	3725.2	0.01	
9	2.2	3204.92	3829.92	0.01	
10	2.2	3309.64	3934.64	0.01	0.06

Project Name: SVRT - Yard and Shops
 Project No.: 6600300102
 Date: Mar-08

CR = 20.0% RR = 5.0%
 γ = 110 pcf
 e_o = 1.1
 water level = 10 ft below found surface
 OCR = 1

Existing Fill Thickness = 3.5 ft
 Existing Fill γ = 115 pcf
 Compressible Soil Thickness = 20 ft

Building	$\Delta\sigma$ (psf)	Predicted Settlement (ft)	Predicted Settlement (inches)
Revenue Processing Building (Opt A)	490	0.64	7.7
Revenue Processing Building (Opt B)	565	0.72	8.6

Settlement Calculations

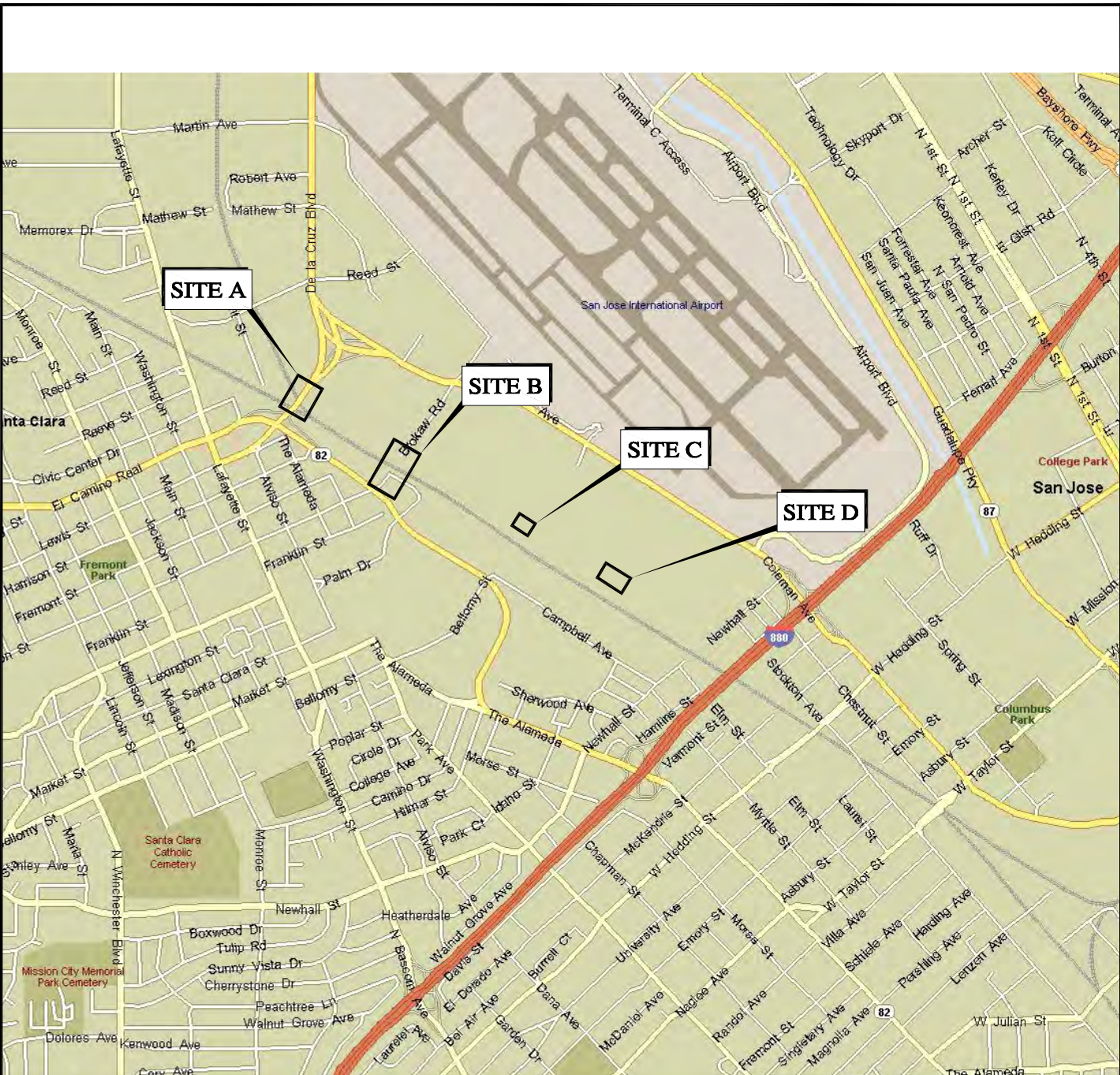
$\Delta\sigma =$ 490

Layer	Layer Thickness	σ_{vo}	σ_{vf}	s	Total Settlement (ft)
1	2	512.5	1002.5	0.12	
2	2	732.5	1222.5	0.09	
3	2	952.5	1442.5	0.07	
4	2	1141.3	1631.3	0.06	
5	2	1236.5	1726.5	0.06	
6	2	1331.7	1821.7	0.05	
7	2	1426.9	1916.9	0.05	
8	2	1522.1	2012.1	0.05	
9	2	1617.3	2107.3	0.05	
10	2	1712.5	2202.5	0.04	0.64

$\Delta\sigma =$ 565

Layer	Layer Thickness	σ_{vo}	σ_{vf}	s	Total Settlement (ft)
1	2	512.5	1077.5	0.13	
2	2	732.5	1297.5	0.10	
3	2	952.5	1517.5	0.08	
4	2	1141.3	1706.3	0.07	
5	2	1236.5	1801.5	0.07	
6	2	1331.7	1896.7	0.06	
7	2	1426.9	1991.9	0.06	
8	2	1522.1	2087.1	0.05	
9	2	1617.3	2182.3	0.05	
10	2	1712.5	2277.5	0.05	0.72

COPYRIGHT © 2007 BY ENGeo INCORPORATED. 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 INCORPORATED.



- NOTES: SITE A - DE LA CRUZ OVERPASS RETAINING STRUCTURE
- SITE B - PEDESTRIAN BRIDGE
- SITE C - TEST SURCHARGE FILL AREA AND REVENUE VEHICLE MAINTENANCE SHOP
- SITE D - REVENUE PROCESSING BUILDING



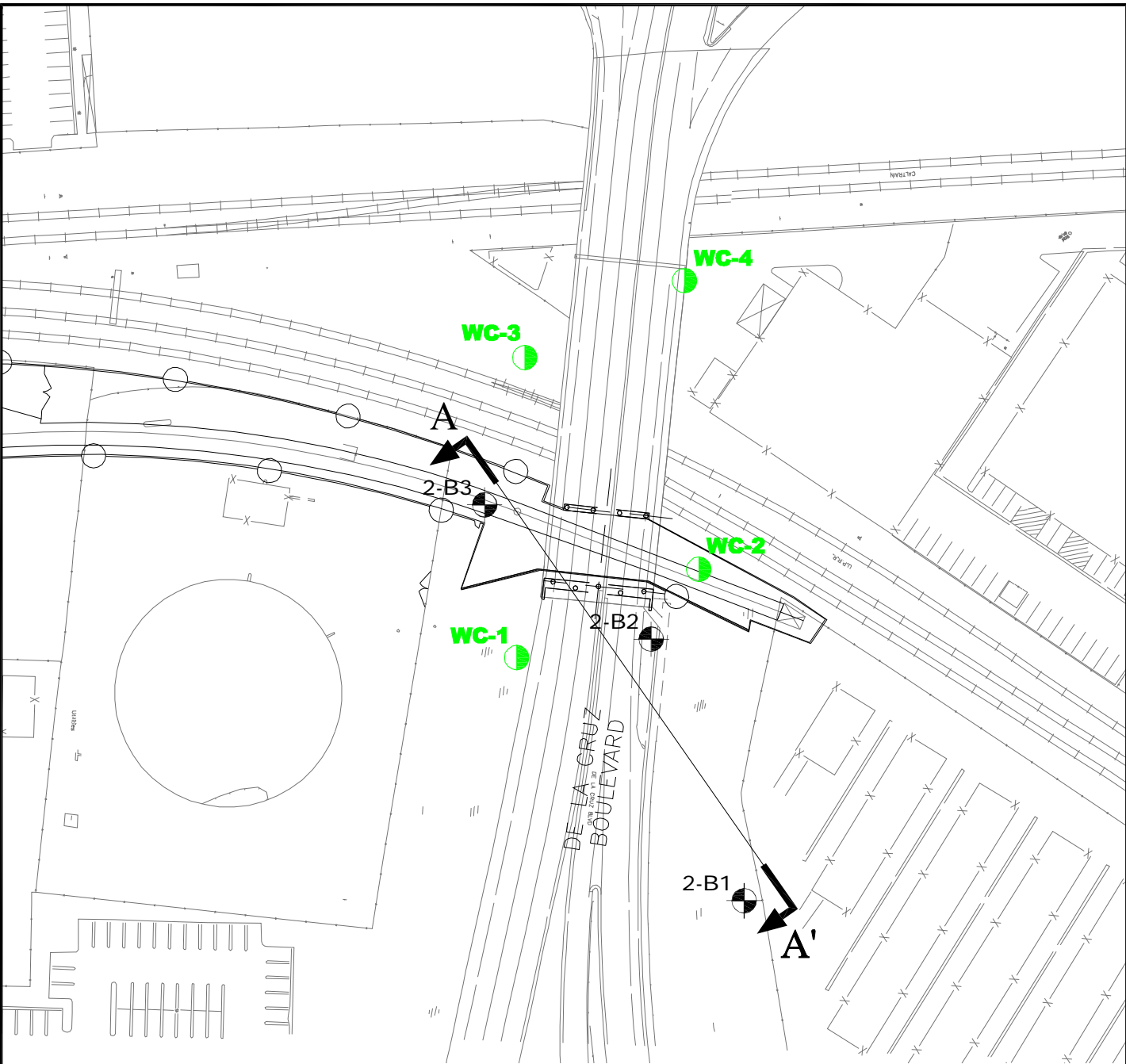
BASE MAP SOURCE: MS STREETS AND TRIPS






VICINITY MAP
YARD AND SHOPS
SANTA CLARA COUNTY, CALIFORNIA

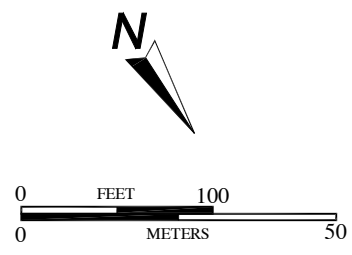
PROJECT NO.: 6600.300.102	1
DATE: AUGUST 2008	
DRAWN BY: RJS CHECKED BY: JK	

COPYRIGHT © 2007 BY ENGeo INCORPORATED. 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 INCORPORATED.



EXPLANATION

- 
2-B3
 APPROXIMATE LOCATION OF BORING (ENGeo, 2006)
- 
WC-4
 APPROXIMATE LOCATION OF BORING (WOODWARD, CLYDE, SHERARD & ASSOCIATES, 1959)
- 
A A'
 CROSS SECTION (SEE FIGURE 5)



BASE MAP SOURCE: STV

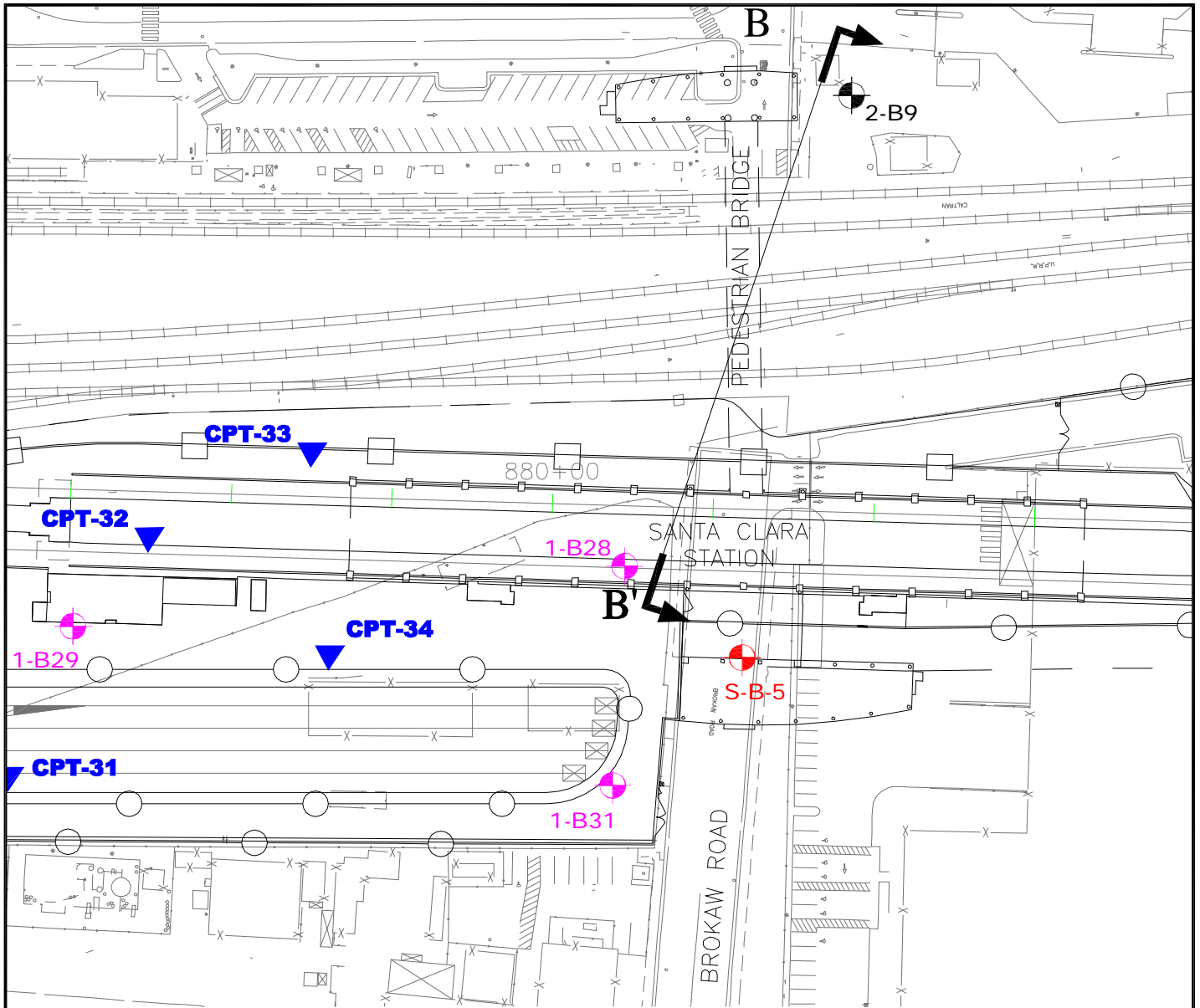


SITE PLAN A - DE LA CRUZ OVERPASS
RETAINING STRUCTURE
 YARD AND SHOPS
 SANTA CLARA COUNTY, CALIFORNIA





PROJECT NO.: 6600.300.102	2
DATE: AUGUST 2008	
DRAWN BY: RJS CHECKED BY: JK	

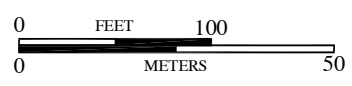
FIGURE NO.

COPYRIGHT © 2007 BY EN GEO INCORPORATED. 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 EN GEO INCORPORATED.



EXPLANATION

- 
2-B9 APPROXIMATE LOCATION OF BORING (EN GEO, 2007)
- 
1-B31 APPROXIMATE LOCATION OF BORING (EN GEO, 2006)
- 
CPT-30 APPROXIMATE LOCATION OF CONE PENETRATION TEST PROBE (EN GEO, 2005)
- 
S-B-5 APPROXIMATE LOCATION OF BORING (PARIKH CONSULTANTS, 2005)



CROSS SECTION (SEE FIGURE 6)

BASE MAP SOURCE: STV

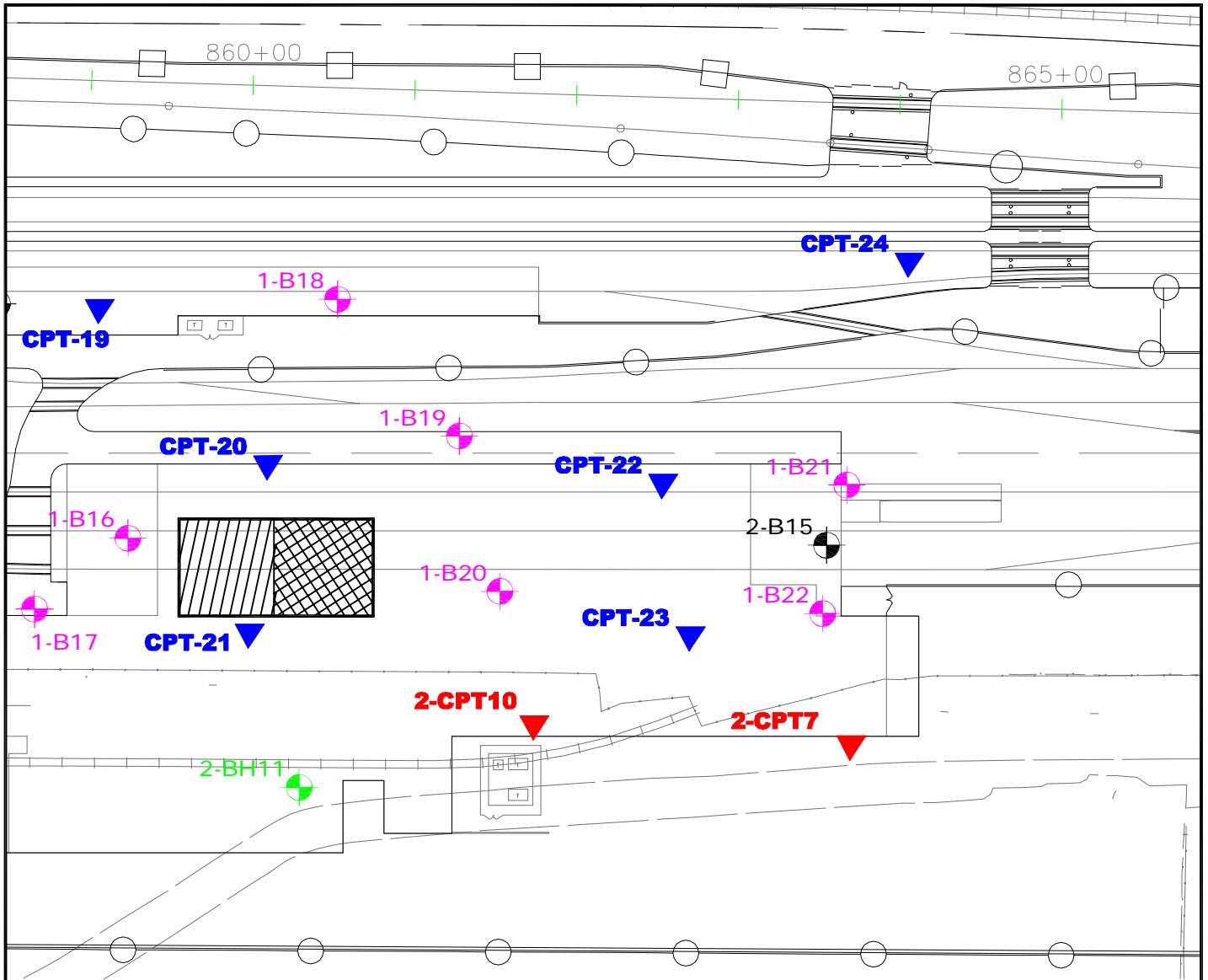


SITE PLAN B - PEDESTRIAN BRIDGE
 YARD AND SHOPS
 SANTA CLARA COUNTY, CALIFORNIA

PROJECT NO.: 6600.300.102	
DATE: AUGUST 2008	
DRAWN BY: RJS	CHECKED BY: JK

FIGURE NO.
3

COPYRIGHT © 2007 BY ENGEO INCORPORATED. 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 INCORPORATED.



EXPLANATION

- 2-CPT10** APPROXIMATE LOCATION OF CONE PENETRATION TEST PROBE (ENGEO, 2008)
- 2-BH11** APPROXIMATE LOCATION OF BORING (ENGEO, 2008)
- 2-B15** APPROXIMATE LOCATION OF BORING (ENGEO, 2007)
- 1-B22** APPROXIMATE LOCATION OF BORING (ENGEO, 2006)
- CPT-24** APPROXIMATE LOCATION OF CONE PENETRATION TEST PROBE (ENGEO, 2005)
- APPROXIMATE LOCATION OF TEST SURCHARGE FILL AREA



BASE MAP SOURCE: STV



**SITE PLAN C - TEST SURCHARGE FILL AREA
AND REVENUE VEHICLE MAINTENANCE SHOPS
YARD AND SHOPS
SANTA CLARA COUNTY, CALIFORNIA**

PROJECT NO.: 6600.300.102

DATE: AUGUST 2008

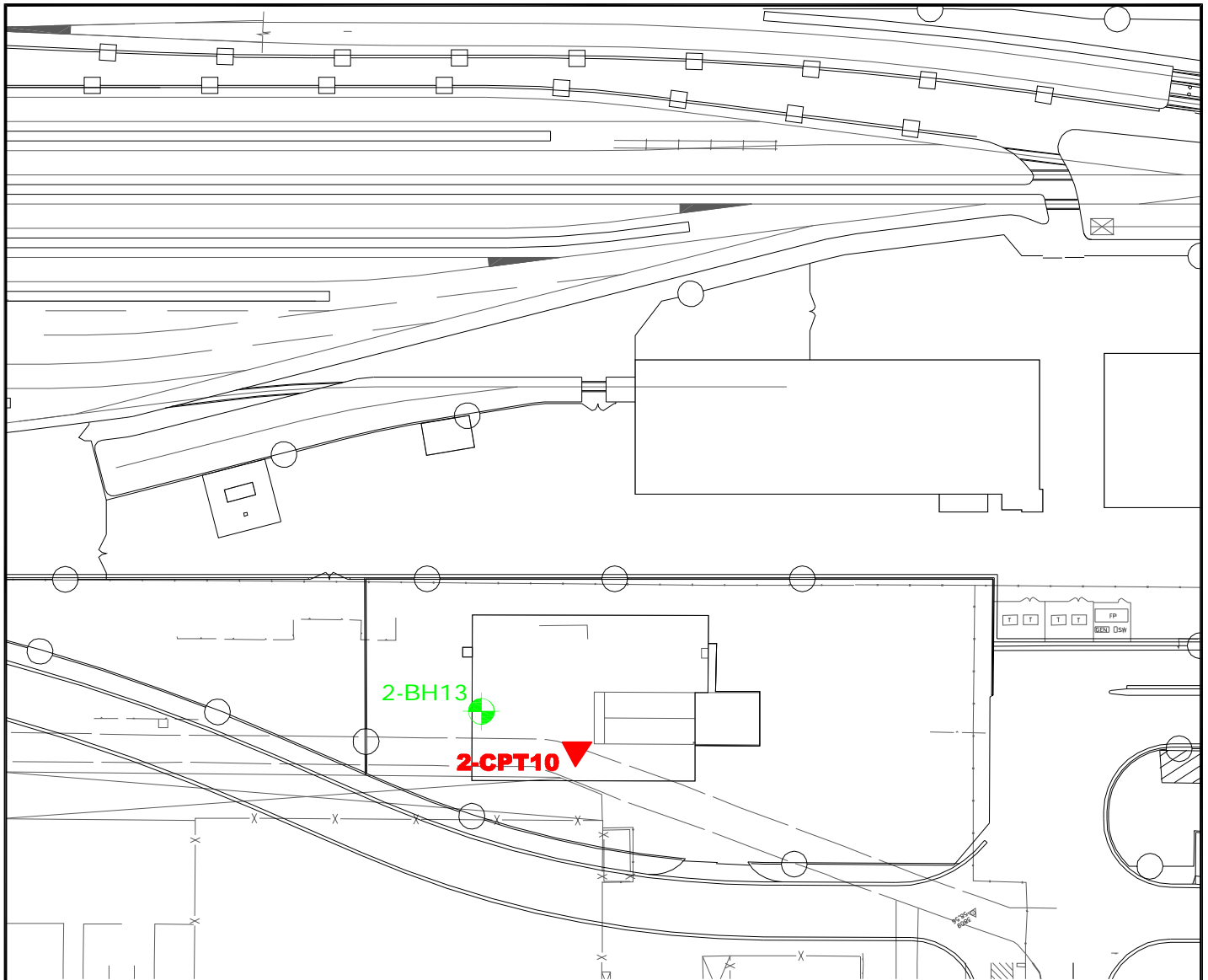
DRAWN BY: RJS

CHECKED BY: JK

FIGURE NO.

4

COPYRIGHT © 2007 BY ENGEO INCORPORATED. 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 INCORPORATED.



EXPLANATION

2-CPT10

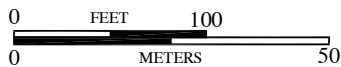


APPROXIMATE LOCATION OF CONE PENETRATION TEST PROBE (ENGEO, 2008)

2-BH11



APPROXIMATE LOCATION OF BORING (ENGEO, 2008)



BASE MAP SOURCE: STV



SITE PLAN D - REVENUE PROCESSING BUILDING
 YARD AND SHOPS
 SANTA CLARA COUNTY, CALIFORNIA

PROJECT NO.: 6600.300.102

DATE: AUGUST 2008

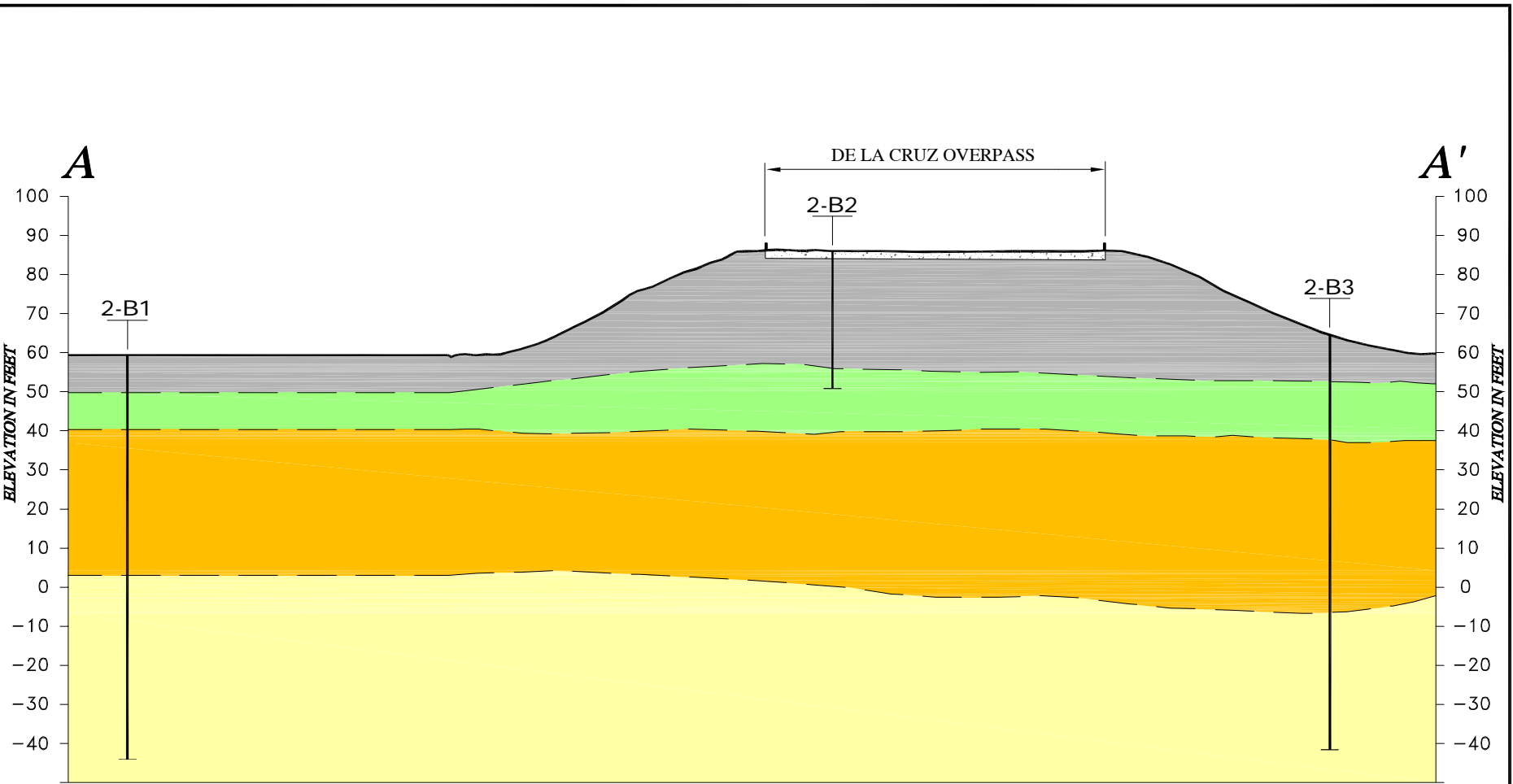
DRAWN BY: RJS

CHECKED BY: JK

FIGURE NO.

5

G:\Drafting\DRAWING2\DWG\6600\001\GEO\6600300102-6\CrossSectionA-A-0808.dwg 8-28-08 01:30:47 PM rsoils



EXPLANATION

- EMBANKMENT FILL (SANDY GRAVEL, SILTY SAND)

FINE GRAINED CLAYEY/SILTY DEPOSITS (MEDIUM STIFF TO STIFF)
- GRANULAR SILTY/SANDY DEPOSITS (LOOSE TO MEDIUM DENSE)

GRANULAR SANDY/SILTY DEPOSITS (DENSE/VERY STIFF)

NO VERTICAL EXAGGERATION
SCALE: 1"=40'

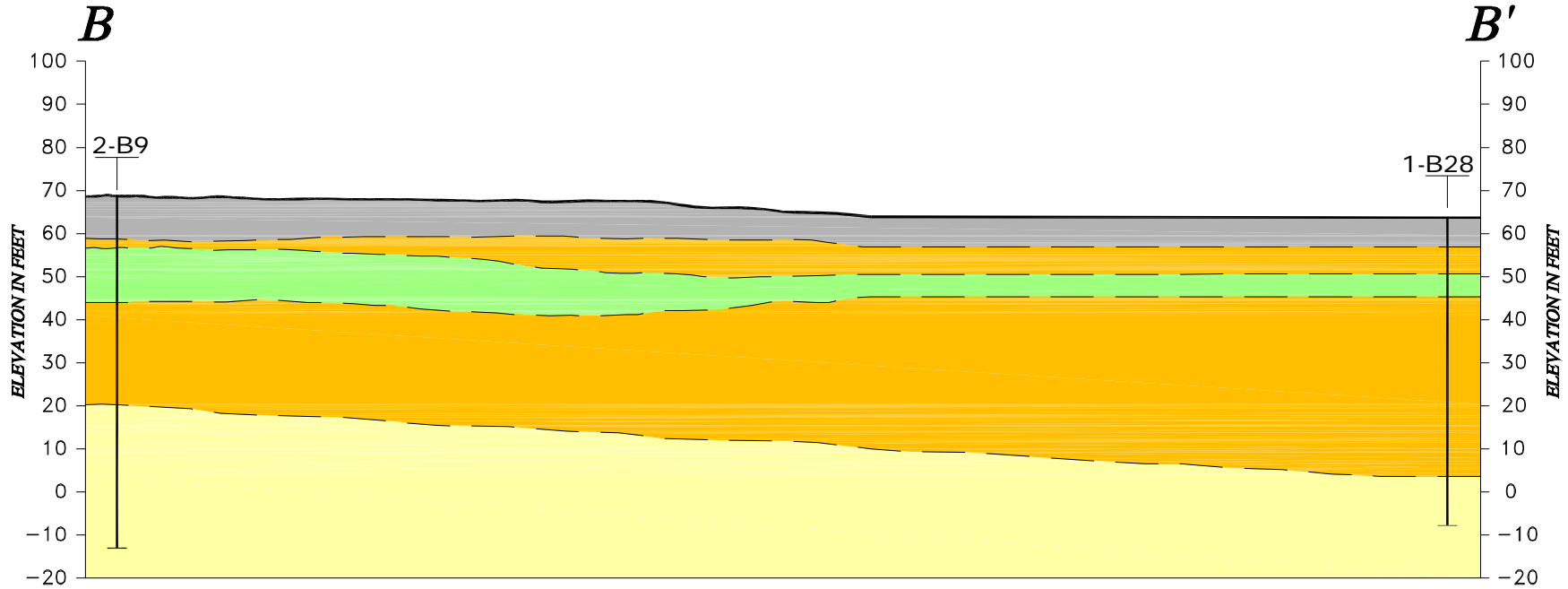


CROSS SECTION A-A'
YARD AND SHOPS
SANTA CLARA COUNTY, CALIFORNIA

PROJECT NO.: 6600.300.102	
DATE: AUGUST 2008	
DRAWN BY: RJS	CHECKED BY: JK

FIGURE NO.
6

G:\Drafting\DRAWINGZ\DWG\6600\001\GEX\6600300102-7\CrossSectionB-B-0808.dwg 8-28-08 01:29:47 PM rsoijs



EXPLANATION

- SURFICIAL FILL (SANDY GRAVEL, SILTY SAND)
- FINE GRAINED CLAYEY/SILTY DEPOSITS (MEDIUM STIFF TO STIFF)
- GRANULAR SILTY/SANDY DEPOSITS (LOOSE TO MEDIUM DENSE)
- GRANULAR SANDY/SILTY DEPOSITS (DENSE TO VERY STIFF)

NO VERTICAL EXAGGERATION
SCALE: 1"=40'

<p>ENGEO INCORPORATED EXCELLENT SERVICE SINCE 1971</p>	<p>CROSS SECTION B-B'</p> <p>YARD AND SHOPS</p> <p>SANTA CLARA COUNTY, CALIFORNIA</p>		<p>PROJECT NO.: 6600.300.102</p>	<p>7</p>
			<p>DATE: AUGUST 2008</p>	
			<p>DRAWN BY: RJS CHECKED BY: JK</p>	