UNIVERSITY OF CALIFORNIA, SANTA BARBARA

BERKELEY • DAVIS • IRVINE • LOS ANGELES • MERCED • RIVERSIDE • SAN DIEGO • SAN FRANCISCO

SANTA BARBARA • SANTA CRUZ

OFFICE OF DESIGN & CONSTRUCTION SERVICES and PHYSICAL FACILITIES

CONTRACTING SERVICES
Building 439
Santa Barbara, California 93106-1030
Telephone (805) 893-3356
Fax (805) 893-8592

SENT VIA:
- ☐ FAX ON THIS DATE
- ☐ HAND DELIVERY ON THIS DATE
- ☒ FEDERAL EXPRESS ON THIS DATE
- ☐ UNITED PARCEL SERVICE ON THIS DATE

HOLDERS OF PLANS AND SPECIFICATIONS:

Greenhouse Replacement Project
Project No. FM110575L/248-09
Addendum No. 02

February 23, 2012

Enclosed is **ADDENDUM NO. 02** to the Construction Documents on the above-captioned project.

Bid date has been changed from Tuesday, February 28, 2012 at 2:30 PM to **Wednesday, February 29, 2012 at 2:30 PM** to be held at:

CONTRACTING SERVICES
Facilities Management, Bldg. 439,
Door #E, Reception Counter
University of California, Santa Barbara
Santa Barbara, CA 93106-1030.

Late arrivals shall be disqualified. Please allow time for unforeseen traffic delays, securing a parking permit and potential parking problems.

Greg Moore,
Associate Director, Contracting Services

ADDENDUM NUMBER No. 2

to the

CONSTRUCTION DOCUMENTS

February 23, 2012

GENERAL

The following changes, additions or deletions shall be made to the following document(s) as Indicated; all other conditions shall remain the same.

I. ADVERTISEMENT

Item No.

1. Advertisement for Bids, Second Page, First Sentence, **CHANGE** to read in its entirety as follows:

   "Bid Deadline: Sealed Bids must be received on or before 2:30PM, Wednesday, February 29, 2012."

II. SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

Item No.

1. Supplementary Instructions to Bidders, Number 4, **CHANGE** to read in its entirety:

   "Bids will be received on or before the Bid Deadline: 2:30PM, Wednesday, February 29, 2012, and only at: Contracting Services, Facilities Management, Building 439, Door E, Reception Counter, University of California, Santa Barbara, Santa Barbara, CA 93106-1030."

Item No.

2. Supplementary Instructions to Bidders, 7.Instruction to Bidders (Article 3-Bidder's Representations); **Add** to read in its entirety:

   "7. Instructions to Bidders (Article 5- Bidding Procedures):
   Change paragraph 5.4.4 to read as follows:
   B. Bids may not be modified, withdrawn, or canceled within 90 days after the Bid Deadline……."

Item No.

3. Supplementary Instructions to Bidders, 7.Instruction to Bidders (Article 3-Bidder's Representations); **Add** to read in its entirety:

"9. Instructions to Bidders (Article 6- Consideration of Bids):
C. Change paragraph 6.3.5 to read as follows:
University will select the apparent lowest responsive and responsible Bidder and notify such Bidder on University's form within 80 days……"

I. INFORMATION AVAILABLE TO BIDDERS

Item No.

1. Information Available to Bidders, Reports; **Add** new Item 6 to read in its entirety:

"6. **Reports**:

Preliminary Foundation Investigation, dated February 21, 2008, by Pacific Materials Laboratory of Santa Barbara, Inc., 39 pages attached."

II. BID FORM

Item No.

1. Bid Form: **Replace** in its entirety with Revised Bid Form per Addendum 2, 9 pages attached. Any Bids not submitted on the "Revised Bid Form Revised per Addendum No. 2", will be rejected as non-responsive.

III. SPECIFICATIONS

Item No.

1. Section 01010 - "Summary of Work"; Paragraph 1.01.A.1; **Change** second sentence to read in its entirety:

"Work includes demolition of two existing CMU building foundations, outfitting of two existing greenhouse modules and fire lane improvements."

Item No.

2. Section 01500 – Construction Facilities and Temporary Controls; Paragraph 1.01.H.8; **Change** to read in its entirety:

"8. Temporary Project identification signs and bulletin boards. Provide large project sign PS-1 as shown on Sketch PS-1, dated March 3, 2011. Attached"

Item No.

3. Section 01500 – Construction Facilities and Temporary Controls; Paragraph 1.01.I.3; **Change** to read in its entirety:

"3. Enclosure fence for the site, provide as shown on Sketch SK-1, dated February 16, 2012. Attached"

Item No.

4. Section 02050 - "Demolition"; Paragraph 1.01.A.1; **Change** to read in its entirety:

"1. Perform demolition and removal of all portions of the existing structure foundations, underground utilities and site improvements required to facilitate and allow completion of all new work indicated on drawings and specifications, but not limited to:

a. Completely demolish and remove entire building foundation (approx. 400 sf), north of existing Head House, including floor slabs, footings and all utilities thereto, and all associated paving and site improvements.
b. Completely demolish and remove entire building foundation (approx. 1,000 sf) north of Animal House, including floor slabs, footings and all utilities thereto.
c. Sawcut and removal of portions of existing concrete and asphalt paving, curbs, gutters, fencing, site walls, and all other improvements shown or required."

Item No.

5. Section 02050 – "Demolition; Paragraph 3.03.A.1; **Change** first sentence to read in its entirety:

"1. Remove existing foundations and portions of site improvements noted on Drawings and necessary to facilitate new construction."

Item No.

6. Section 02050 – "Demolition; Paragraph 3.05; **Add** to read in its entirety:

"3.05 ASBESTOS CEMENT PRODUCTS

A. Contractor shall remove asbestos-cement (transite) pipes intact and dispose of in the University provided roll-off waste bin.

B. Contractor shall line roll-off waste bin with 6 millimeter poly and properly package waste for disposal.

C. If in the event the asbestos-cement (transite) pipes break, become damaged, or become friable, contractor shall call University Representative immediately to make other accommodations.

D. It is the responsibility of the Contractor to know the current regulations controlling work and to perform related work in accordance with such regulations that provide for worker and public safety against asbestos exposure.

1. Work shall be in compliance with, but not limited to, the following regulations:

   a. Title 8 1529 Construction Industry Safety Orders – Asbestos
   b. Rule 1001 National Emissions Standards for Hazardous Air Pollutants (NESHAPS)"

Item No.

7. Section 02750 – "Portland Cement Concrete Paving; Paragraph 3.03; **Change** subparagraphs A, B, C and D as follows:

"A. Not Used.
B. Not Used.
C. Not Used.
D. Reinforce all concrete walks with reinforcing bars as shown on Drawings."

Item No.

8. Section 13120 – "Greenhouse", Paragraph 2.01.B; **Change** last sentence to read in its entirety:

"The University preapproved greenhouse manufacturers for the project are Nexus National Greenhouse Systems, Rough Brothers, Inc., Ludy Greenhouse Manufacturing Corporation and Stuppy Greenhouse MFG., Inc., or equal.

V. DRAWINGS

Item No.

1. DRAWING NO. C1.2 (GRADING AND DRAINAGE PLAN); **Change** Grading Construction Note 8 to read:

"Remove existing foundation complete and dispose of off-campus. (Building demolition above top of foundation by University prior to contract.)"

Item No.

2. DRAWING NO. C1.2 (GRADING AND DRAINAGE PLAN); **Clarify** that at one location only of Grading Construction Note 6, in east-west planting strip between north curb of (N) fire lane and new sidewalk, the University will not be providing planting. Contractor shall treat this area per keynote 1 on Drwg. A1.1.

Item No.

3. DRAWING NO. A1.0 (DEMOLITION PLAN); **Change** Demolition Keynote 1 to read: "Demolish and remove (E) building slab on grade, footings and foundations complete, including all underground building utilities. (University will demolish and remove building from top of slab up prior to contract.)

Item No.

4. DRAWING NO. A1.0 (DEMOLITION PLAN); **Change** Demolition Keynote 2 to read: "Demolish and remove (E) building slab on grade, footings and foundations complete, including all underground building utilities. (University will demolish and remove building from top of slab up prior to contract.)

Item No.

5. DRAWING NO. A1.0 (DEMOLITION PLAN); **Change** Demolition Keynote 6 to read: "8" CMU Screen wall to be removed by University prior to contract."

Item No.

6. DRAWING NO. A1.0 (DEMOLITION PLAN); **Change** Demolition Keynote 9 to read: "See Keynotes 9 & 10, Drwg. ED1.1."

Item No.

7. DRAWING NO. A1.0 (DEMOLITION PLAN); **Delete** Demolition Keynote 20. [Existing curb may remain. ADA parking space no longer part of project.]

Item No.

8. DRAWING NO. A1.1 (SITE PLAN); **Add** note to north wall and south wall of (N) 3-Bay Greenhouse, approximately 32' from west wall, to read:

"Note: (E) north-south high voltage line crosses line of new footing at this point at an approximate depth of 44". Pothole to verify depth. Carefully excavate and expose high voltage line for 5' length at both north and south footing and place new concrete slurry cap, 12" thick, 36" wide, 2 sack mix with red dye, per campus standards."

Item No.

9. DRAWING NO. A1.1 (SITE PLAN); **Delete** detectable warning surface, ADA parking sign and ADA parking striping at pavement area west of (N) Alpine House. See Drwg. C1.2 for new striping work in this area. Relocate (E) wheel stops to align with new striping and repair asphalt pavement as required.

Item No.

10. DRAWING NO. A2.3 (FLOOR PLAN – TECHNICAL GREENHOUSE FITOUT);

a. Keynote 10: **Change** to read:

"10. Provide (N) environmental control panel. Locate at (E) conduit rough-in. Mount on floor-supported unistrut stand. Make all connections to power panel, to contactor panel and to host computer in head house. See specifications for required contacts (same outputs/control points as for (N) 3-Bay Greenhouse Modules). See also Dwg. E3.2."

b. Keynote 11: **Change** to read:
"11. Infill trench drain catch basin sump w/ lean mix concrete to within 2" of invert of drain pipe. Provide (N) stainless steel strainer basket full dimension of catch basin."

c. Keynote 16: **Change** to read:
"16. Underground the final horizontal component of (E) downspouts, typical of 3 locations. See also Drwg. C1.2."

Item No.

11. DRAWING NO. ED1.1 (SITE DEMOLITION PLAN-ELECTRICAL);

a. Sheet Keynote 1: **Change** to read: "University will demolish and remove building from top of slab up prior to contract. University will turn off, lock out and identify as "spare" the building's electrical service source switchboard feeder circuit breaker."

b. Sheet Keynote 2: **Note:** University will cut off feeders at building perimeter when building demolition is carried out. Contractor shall be responsible for balance of work specified in this keynote.

c. Sheet Keynote 3: **Note:** University will cut off feeders at building perimeter when building demolition is carried out. Contractor shall be responsible for balance of work specified in this keynote.

d. Sheet Keynote 8: **Change** to read: "University will demolish and remove building from top of slab up prior to contract."

END OF ADDENDUM NO. 2

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E-mail: pml@pml.sbcoxmail.com

PRELIMINARY FOUNDATION INVESTIGATION

Proposed Technical Greenhouse

FM08032/981530

University of California, Santa Barbara

Santa Barbara, California

CLIENT
U. C. Santa Barbara
Attn: Croft Yjader
Facilities Management, Building 439
Santa Barbara, CA 93106

February 21, 2008
Lab No: 78803-2
File No: 08-12857-2

3-7-08

Feb. 5 12.08

TABLE OF CONTENTS

INTRODUCTION

This report presents the results of a preliminary foundation investigation performed at the Technical Greenhouse, University of California Santa Barbara, in the City of Santa Barbara, California. Existing at this site are greenhouse structures of timber frame construction. It is proposed to remove the existing greenhouse and build a new greenhouse with a steel frame. The site is approximately level.

SCOPE OF WORK

It is the purpose of this investigation to classify the soil disclosed by the exploratory borings and excavations by observation and tests on selected samples. In addition, this study includes laboratory tests to evaluate soil strength, the effect of moisture variation on the soil-bearing capacity, compressibility, liquefaction, and expansiveness. Based upon this information, we will provide preliminary grading and foundation recommendations for the proposed Technical Greenhouse.

The scope of this investigation does not include the analyses of the corrosive potential of the soil, previous site construction, or analyses of geologic structures and their associated features, such as faults, fractures, bedding planes, strike and dip angles, ancient landslides, potential for earth movement in undisturbed or natural soil formations sloped or level, or other sources of potential instability which relate to the geologic conditions, as these items should be addressed by a qualified Engineering Geologist.

This exploration was conducted in accordance with presently accepted geotechnical engineering procedures currently applied in the local community in order to provide the appropriate geotechnical design characteristics of the foundations soils and of the proposed fill soils in order to properly evaluate the proposed structure with respect to differential settlement based upon the anticipated soil characteristics at the time of construction.

LIMITATIONS

This Laboratory's basic assumption is that the soil boring presented herein is representative of the entire footprint of the proposed development, however, no warranty is implied. If, during the course of construction, soil conditions are encountered which vary from those presented herein, please contact this Laboratory immediately so appropriate field modifications may be expeditiously proposed.

It is your responsibility to contact our office, providing at least 48 hours of notice for grading or footing excavation observations and testing. The observation of excavations during the construction phase represents an opportunity by our firm to either confirm soil conditions estimated by the exploratory borings or to discover soil conditions which have not been addressed. When such undisclosed conditions are encountered, opinions and recommendations addressing these conditions will be rendered at that time.

This report is considered preliminary and no person should consider the recommendations or soil conditions described herein as conclusive. The recommendations and conclusions of this report are considered preliminary until all excavations have been observed during the construction phase, after which a final report will be issued stating that the grading and foundation works accomplished and installed are appropriate for the soil conditions encountered.

FIELD INVESTIGATION

The subsurface soil conditions were explored by one truck-mounted auger boring, which was drilled to a depth of 25 feet, supplemented by one field density test. One Cone Penetrometer Test Sounding (CPT) was advanced to depths of up to 50 feet. The CPT sounding was performed in conformance with ASTM D-3441. The locations of the boring and sounding were selected as appropriate and representative. Representative relatively "undisturbed" tube soil samples were obtained during the drilling operation by the California split spoon tube sampling method. Laboratory tests and analyses of representative soil samples, obtained during the drilling operation, were performed to estimate the engineering properties and determine the soil classification of earth materials encountered. The locations of the boring and sounding are shown on Plate 1. The boring log data is presented in Appendix A, "Field Investigation", while the results of the laboratory tests are provided in Appendix B, "Laboratory Tests".

The CPT sounding was accomplished by placing a cylindrical cone tipped probe into the soil deposit while simultaneously recording the resulting penetration resistance. The probe is attached to the end of a string of steel pipe segments, each 1 meter long, and pushed into the ground by means of heavy hydraulic rams, mounted inside the rear compartment of a three-axle truck. The weight of the truck provides the reaction force. Each downward stroke of the hydraulic ram pushes the string down one pipe length at a time, during which a constant penetration rate of 2 centimeters per second is maintained. A pause of a few seconds is necessary after each stroke to add a new section of pipe and raise the rams for the next downward push. An electric cable, which is strung through all of the steel segments in advance, connects the CPT probe to a computer controlled data acquisition system located inside the CPT rig.

The recorded sounding is presented graphically in Appendix C. The results of this sounding has been correlated to estimate engineering properties of the soils, including soil behavior type, Standard Penetration Test (SPT), equivalent relative density, undrained shear strength and internal angle of friction. These values accompany each graphic depiction of the soundings and are contained in Appendix C.

SOIL CONDITIONS

1. A perched groundwater was encountered at a depth of 13 feet. The soil profile consists of a 14-foot thick sand layer over the green Sisquoc shale. Water infiltrates from the surface through the sand layer and perches on the shale layer. It should be recognized that water table elevations, even seasonal perched water tables, might fluctuate with time, being dependent upon seasonal precipitation, irrigation, land use, and climatic conditions, as well as other factors. Therefore, water level observations at the time of the field investigation may vary from those encountered during the construction phase of the project. The evaluation of such factors is beyond the scope of this report.

2. The surface soils were found to have a relative compaction of 90% at a depth of 12 inches.

3. The results of the soundings indicate the sand layer is very dense from the depth of 12 inches to the Sisquoc shale layer; therefore, the potential for liquefaction is considered to be very low.

4. The surface sand soils were found to have a very low potential for expansion.

5. The soil profile at this site is judged to be stiff soil corresponding to a Site Class D as defined by Table 1613.5.2 of the International Building Code (IBC). This estimate is based on the borings which encountered the geologic formation known as the Sisquoc, which is widely regarded as a Type D soil profile since the Standard Penetration Resistance typically results in blow counts having a range of between 15 to 50.

PRELIMINARY CONCLUSIONS AND RECOMMENDATIONS

It is the opinion of this Laboratory the proposed grading and construction are feasible from a soil-engineering perspective provided the recommendations contained in this soil engineering report are incorporated into the design and implemented during construction.

It is the understanding of this Laboratory the proposed technical greenhouse will be a one-story steel frame structure with concrete slab-on-grade floors. Based upon this understanding, we present the following preliminary recommendations:

GRADING

1. The area to be graded shall be cleared of surface vegetation, including roots and root structures.

2. If, during the removal and scarification process, excessive root structures are encountered, these areas shall be deep ripped in two directions to the depth of the root structure, after which the disturbed soils and the roots shall be completely removed, and the resulting cavities shall be scarified and processed to receive fill in accordance with recommendations contained in this section.

3. If, during the grading operations, previously placed undocumented fill material is encountered, this fill material shall be removed under the direction of this Laboratory prior to commencement of the filling operations.

4. The footings of the proposed structure shall be supported completely by a **uniform** thickness of compacted fill. **The structures shall not be supported over a cut/fill transition.**

5. Beneath the proposed structure and for a minimum distance of 5 feet beyond the exterior perimeters where possible, the loose topsoil, compressible surface soils, and the soil disturbed by the demolition of the previous structure shall be removed and observed by a representative of our firm. Upon approval of excavation, the exposed ground surface shall be scarified an additional 6 to 8 inches, moistened or dried to near the optimum moisture content, and compacted to 90% of the relative compaction. We anticipate the depth of the surface soil removal to be from 12 to 18 inches below the existing grade. The minimum depth of removal shall be at least 12 inches below the bottom of the proposed footings.

6. The removed surface soils and/or imported approved fill may then be placed in loose lifts of approximately 6 inches, thoroughly mixed, moistened or dried to near optimum moisture content, and compacted to a minimum of 90% relative compaction.

7. Rocks greater than 6 inches in size shall be removed from the soil being spread for compaction.

8. Import soils, if required for structural fill, shall be granular, non-expansive soils which are equal to or superior in quality to the on-site soils as determined by this Laboratory prior to importation of the fill material to the site.

9. The compaction standard shall be the latest adoption of the ASTM D-1557 method of compaction.

10. Positive surface drainage shall direct water away from all slopes and away from the foundation system of the proposed structure.

FOUNDATIONS

1. These recommendations assume a uniform thickness of compacted soil will support the proposed footings.

2. All continuous interior and exterior footings shall extend a minimum of 18 inches below compacted ground surface.

3. All footings shall contain a minimum of two No. 4 horizontal rebar placed one in the base and one in the stem of the footing. The Project Civil or Structural Engineer shall specify the foundation steel reinforcement.

4. Isolated piers may be utilized and shall extend a minimum of 18 inches below compacted ground surface.

5. Concrete slab-on-grade floors shall be placed over a subgrade soil conforming to the GRADING recommendations of this report, and may assume a modulus of subgrade reaction (*k*) of 240 pci.

6. As a minimum, concrete slabs on grade shall be a full 4 inches thick and shall contain No. 3 rebar spaced 24 inches on center each way. The steel reinforcement shall be placed near the center of the slab. The slab shall be underlain with a minimum 4-inch coarse washed concrete sand layer in which a 10-mil or heavier impervious membrane is embedded at the lower quarter of the sand blanket, creating at least a 3-inch cover of sand. These concrete slab-on-grade requirements shall be modified as needed by the designers for surcharge loads, wheel loads, concentrated loads, or for moisture control. The floor covering supplier or manufacturer should be contacted for their specifications for design features which will result in a successful bond between the concrete slab and floor covering. Floor flatness and shrinkage crack control must be addressed by a competent contractor experienced in the skill of concrete placement. The owners or their agents shall inform those designing, building, and installing the concrete slab on grade and flooring of the performance and aesthetics expected.

7. Concrete slabs on grade shall be doweled into all adjacent footings using No. 3 rebar spaced 24 inches on center.

8. This Laboratory shall be requested to inspect the footing excavation prior to placement of reinforcing steel and timber form boards.

9. Based upon compliance with the above recommendations, an allowable soil bearing value for compacted soil of 1,500 psf for 18-inch deep footings with a one-third increase when considering wind or seismic forces may be assumed.

ADJACENT LOADS

Where footings are placed at varying elevations, the effect of adjacent loads may be calculated using the widely published Formulas for Stresses in Semi-infinite Elastic Foundations or the Boussinesq figures and equations for both vertical and horizontal surcharge loads.

SETTLEMENT

It is the intent of the recommendations contained in this report to achieve angular distortions[1] of approximately 1/480. A total settlement of approximately 1 inch or less is anticipated for foundations supported on the undisturbed native soil and approximately 1% to 1.5% of the fill height is the anticipated total settlement at areas where compacted fill soil is placed in accordance with the GRADING recommendations provided in this soil engineering report. The soil bearing values and estimated settlements contained in this report are preliminary and may need to be modified after the foundation and grading plans are substantially complete.

CONSTRUCTION OBSERVATION

The owner or his agent shall request the Project Geotechnical Engineer to observe all excavations prior to placement of compacted soil, gravel backfill, or rebar and concrete.

PLAN REVIEW

We request the grading and foundation plans be submitted to our office for a general review to verify substantial compliance to the recommendations contained in this report.

CLOSURE

The recommendations contained herein are for the sole use of our client and are based upon this Laboratory's understanding of the project which has been described herein. If the project scope, location, or conceptual design is subsequently altered, this Laboratory shall be requested to modify, as necessary, the recommendations contained herein as is appropriate for the new development concept. If the recommendations of this report are not implemented within one year, we recommend an update and review of the contents of this report be performed by this Laboratory.

The recommendations contained herein are based upon the assumption that Pacific Materials Laboratory shall be requested to perform the testing and observation services which will be required during the grading and foundation operations in order to verify that the actual

[1] Angular distortion is the ratio of the vertical differential settlement divided by the horizontal distance over which the vertical differential is measured.

ADJACENT LOADS

Where footings are placed at varying elevations, the effect of adjacent loads may be calculated using the widely published Formulas for Stresses in Semi-infinite Elastic Foundations or the Boussinesq figures and equations for both vertical and horizontal surcharge loads.

SETTLEMENT

It is the intent of the recommendations contained in this report to achieve angular distortions[1] of approximately 1/480. A total settlement of approximately 1 inch or less is anticipated for foundations supported on the undisturbed native soil and approximately 1% to 1.5% of the fill height is the anticipated total settlement at areas where compacted fill soil is placed in accordance with the GRADING recommendations provided in this soil engineering report. The soil bearing values and estimated settlements contained in this report are preliminary and may need to be modified after the foundation and grading plans are substantially complete.

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The recommendations contained herein are based upon the assumption that Pacific Materials Laboratory shall be requested to perform the testing and observation services which will be required during the grading and foundation operations in order to verify that the actual

[1] Angular distortion is the ratio of the vertical differential settlement divided by the horizontal distance over which the vertical differential is measured.

soil conditions encountered and the construction procedures are consistent with the recommendations contained herein. If this service is performed by others, only the technical correctness of the actual analytical soil tests described here is attested to by this Laboratory.

Thank you for the opportunity of providing this service. If you have any questions regarding this matter, please do not hesitate to call.

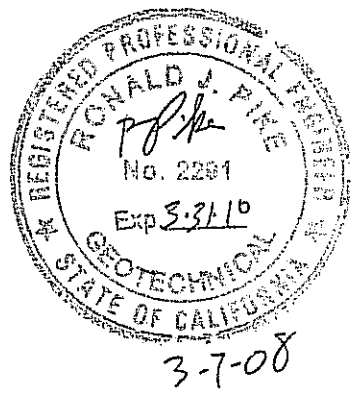
Respectfully submitted,

PACIFIC MATERIALS LABORATORY, INC.

Ronald J. Pike
Geotechnical Engineer, G. E. 2291

RJP:vlh

cc: Addressee (3)



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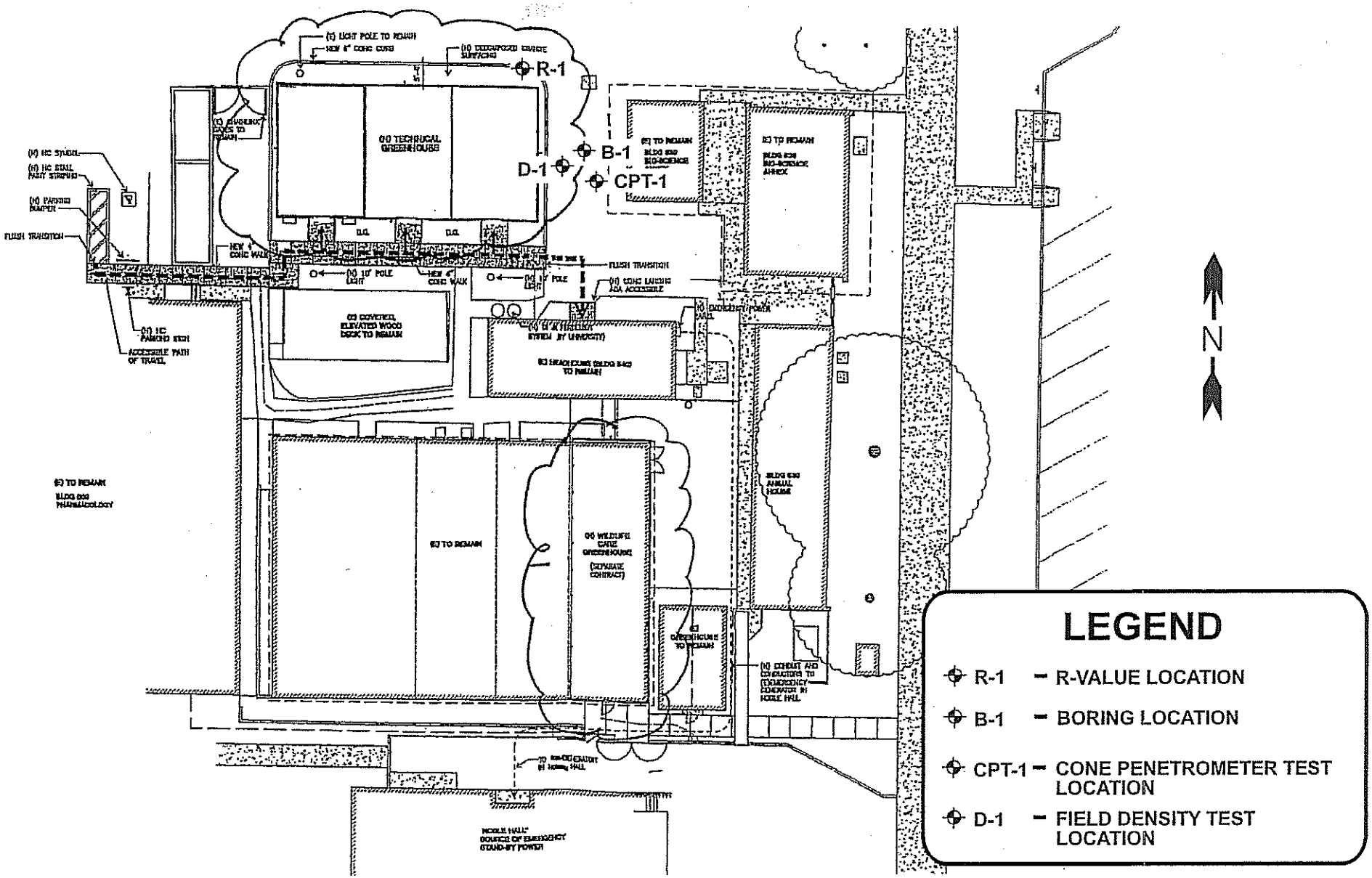


SITE PLAN

Technical Greenhouse
University of California Santa Barbara

Pacific Materials Laboratory, Inc.

Scale: none	Plate 1
	Lab No: 78803-2
	File No: 08-12857-2
	Date: February 21, 2008

APPENDIX A

FIELD INVESTIGATION

February 21, 2008

Lab No: 78803-2

File No: 08-12857-2

Lab No: 78803-2
File No: 08-12857-2

BORING LOG DATA

BORING NO. B-1

Field Technician: Kump Date Drilled: 2/06/08

Blow Counts	Dry Density (pcf)	Moisture Content (%)	Depth (ft)	Soil Log	Soil Description
			0		Brown silty SAND, moist and soft
		9.9			
					Light brown-tan silty SAND, moist and medium dense
15	86.3	7.2	5		
					Yellow-brown SAND, moist and medium dense
28	89.4	27.4	10		
					Brown SAND
					Green-gray SHALE, firm
34	71.0	37.1	15		
>50	59.4	62.6	20		
40	67.7	62.7	25		

LEGEND

■ - Split-Barrel Sample ASTM D-1586

NOTE: Perched water encountered at 13 feet

APPENDIX B

LABORATORY TESTS

February 21, 2008

Lab No: 78803-2

File No: 08-12857-2

MOISTURE DENSITY DETERMINATIONS (ASTM D-1557)

Maximum Density-Optimum Moisture data were determined in the laboratory from soil samples using the ASTM D-1557 Method of Compaction. The results of the Maximum Density-Optimum Moisture tests are tabulated below:

SOIL TYPE	SOIL DESCRIPTION	MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE (%)
I	Brown SAND	105.5	12.5

Curve Points: (105.3 @ 12.9) (104.1 @ 15.4) (104.8 @ 10.0)

FIELD DENSITY SUMMARY (Sand Cone Method ASTM D-1556)

SAMPLE LOCATION	DEPTH (in.)	SOIL TYPE	FIELD MOIST. CONTENT (%)	DRY DENSITY (pcf)	% OF MAX. DRY DENSITY
D-1	12	I	10.1	103.3	97.9

MECHANICAL ANALYSES (Values in Percent Passing ASTM D-422)

SIEVE SIZE	D-1 @ 1'
1/2 Inch	100.0
3/8 Inch	99.3
No. 4	98.2
No. 8	97.2
No. 16	96.5
No. 30	96.0
No. 50	94.9
No. 100	68.4
No. 200	25.8

SAND-SILT-CLAY (By Hydrometer ASTM D 422)

SAMPLE LOCATION	DEPTH (ft.)	SAND %	SILT %	CLAY %	SOIL DESCRIPTION
D-1	1	68	12	20	Silty SAND

EXPANSION TESTS (UBC 18-2)

The Expansive Soil Index was determined by the present UBC 18-2 Expansion Determination Procedure. The results are tabulated below:

SAMPLE LOCATION	DEPTH (ft.)	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	EXPANSION INDEX	POTENTIAL FOR EXPANSION
D-1	1	103.2	11.5	0	Very low

ATTERBERG LIMITS (ASTM D-4318)

SAMPLE LOCATION	DEPTH (ft.)	SOIL TYPE	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
D-1	1	NP	--	--	--

R-VALUE DETERMINATION (ASTM D-2844)

Sample Location: R-1
Depth: Surface
Soil Description: Silty SAND

ITEM	SAMPLE NO. 1	SAMPLE NO. 2	SAMPLE NO. 3
INITIAL SOIL MOISTURE (%)	17.8	17.8	14.1
COMPACTED SOIL MOISTURE (%)	18.0	18.5	17.2
DRY DENSITY (pcf)	100.5	95.7	100.7
R-Value	65.3	64.0	66.0
EXUDATION PRESSURE (psi)	533	104	570
EXPANSION PRESSURE (psf)	0	0	0

R-Value By Exudation Pressure: 65

APPENDIX C

CONE PENETROMETER TESTS

February 21, 2008

Lab No: 78803-2

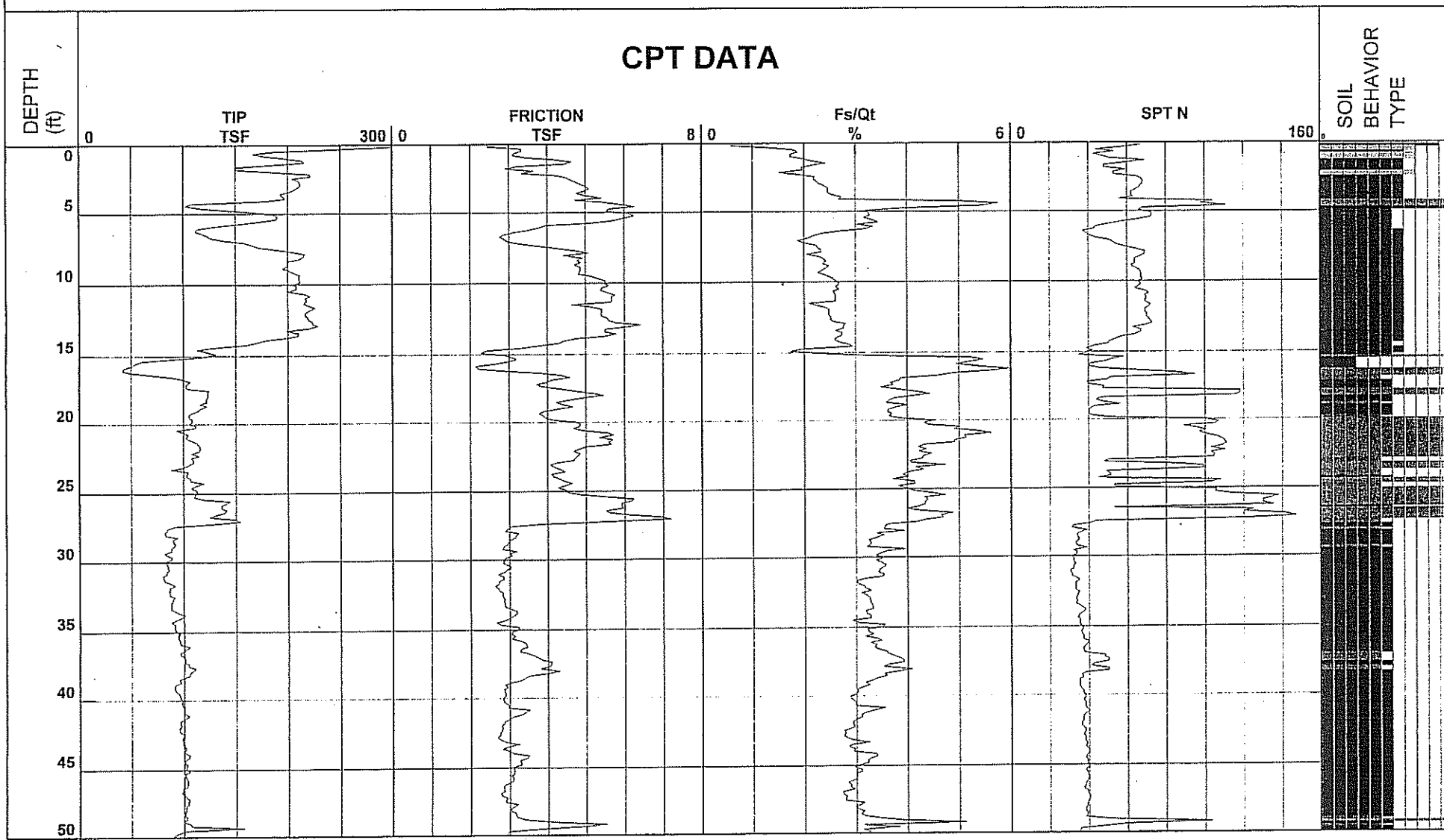
File No: 08-12857-2

Pacific Materials Laboratory of Santa Barbara, Inc.

Pacific Ma rials Laboratory

Location	UCSB Greenhouse	Operator	VO/CW	Filename	SDF(520).cpt
Job Number		Cone Number	DSG0906	GPS	3424.7896N, 11950.5997W
Hole Number	CPT-01	Date and Time	2/8/2008 9:37:45 AM	Maximum Depth	50.36 ft
Water Table Depth	12.00 ft	CPT Cone Tip= 10 squared cm		Net Area Ration= .8	

CPT DATA



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

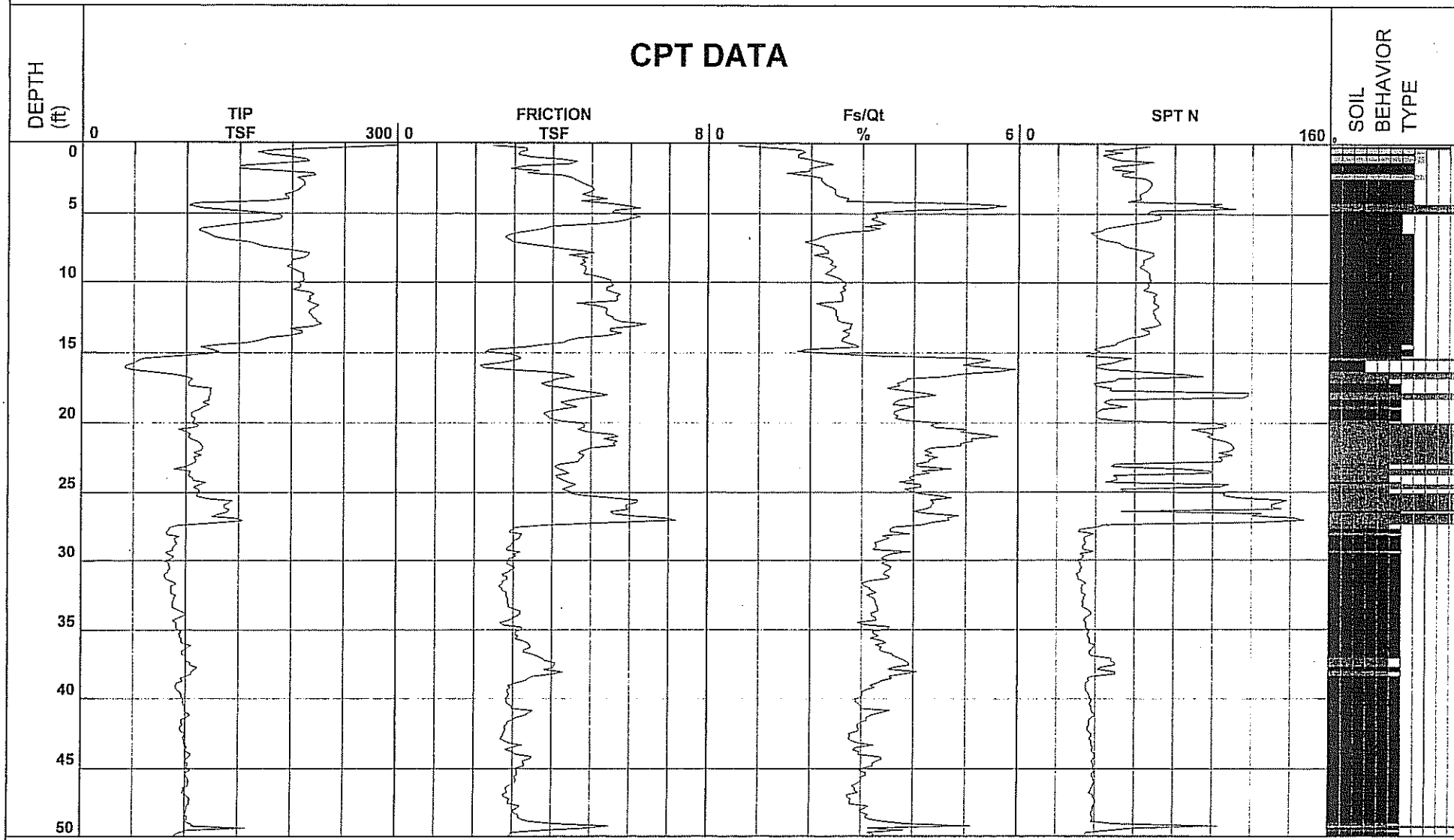
Depth Increment

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

Pacific M[illegible]rials Laboratory

Location	UCSB Greenhouse	Operator	VO/CW	Filename	SDF(520).cpt
Job Number		Cone Number	DSG0906	GPS	3424.7896N, 11950.5997W
Hole Number	CPT-01	Date and Time	2/8/2008 9:37:45 AM	Maximum Depth	50.36 ft
Water Table Depth	12.00 ft	CPT Cone Tip= 10 squared cm		Net Area Ration=	.8

CPT DATA



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

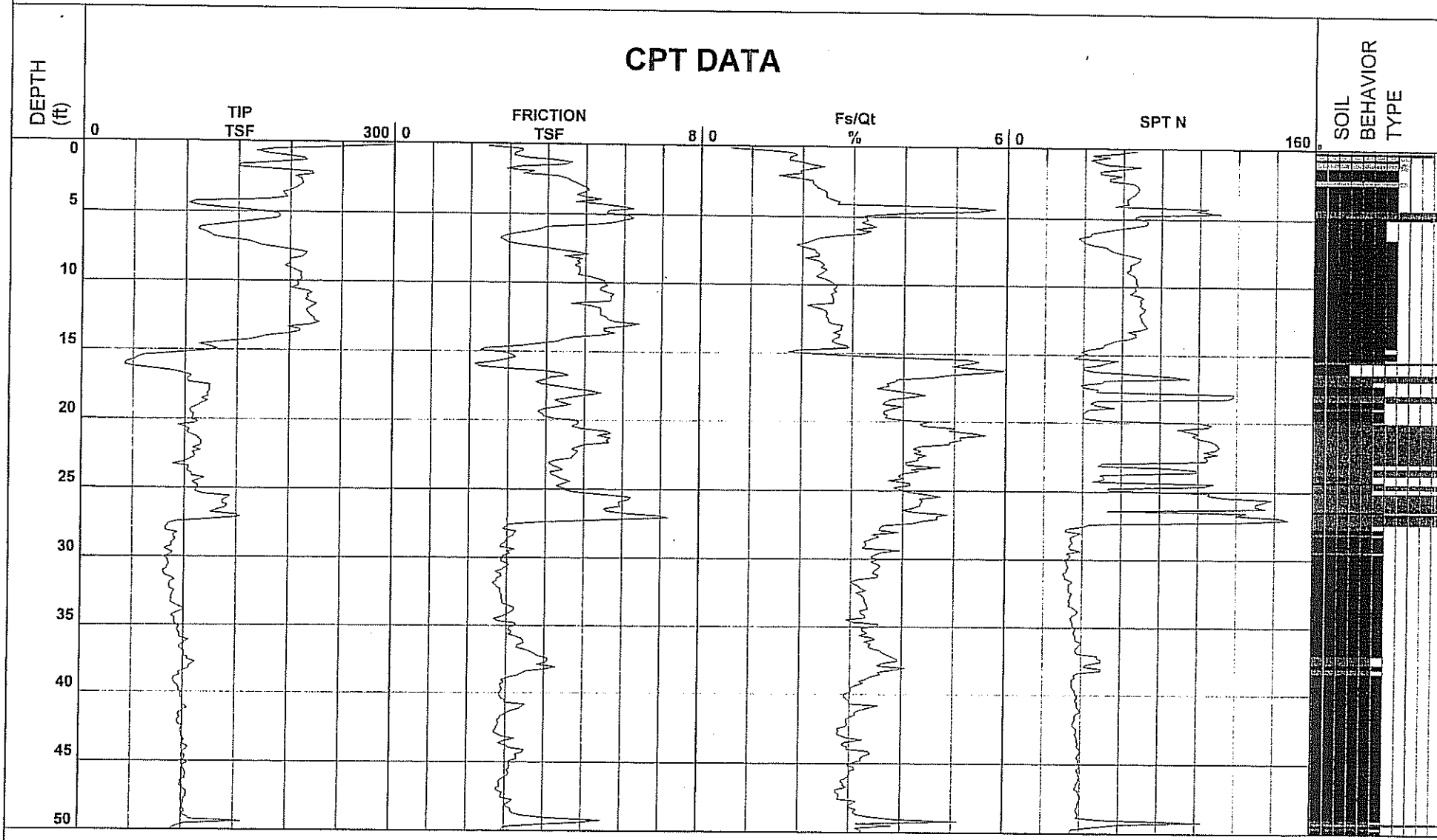
Depth Increment

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

Pacific M. erials Laboratory

Location	UCSB Greenhouse	Operator	VO/CW	Filename	SDF(520).cpt
Job Number		Cone Number	DSG0906	GPS	3424.7896N, 11950.5997W
Hole Number	CPT-01	Date and Time	2/8/2008 9:37:45 AM	Maximum Depth	50.36 ft
Water Table Depth	12.00 ft	CPT Cone Tip= 10 squared cm		Net Area Ration= .8	

CPT DATA



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

Depth Increment

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

Project ID: PML
Data File: SDF(520).cpt
CPT Date: 2/8/2008 9:37:45 AM
GW During Test: 12 ft

Sounding ID: CPT-01
Project No:
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qcln PS -	qlncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
0.33	242.9	389.5	389.5	3.3	0.3	1.4	clean SAND to silty SAND	125	5.0	78	49	95	48	-	16
0.49	184.6	296.1	323.9	3.3	0.4	1.8	clean SAND to silty SAND	125	5.0	59	37	95	48	-	16
0.66	167.4	268.5	301.4	3.1	0.4	1.9	clean SAND to silty SAND	125	5.0	54	33	95	48	-	16
0.82	177.8	285.2	311.4	3.1	0.5	1.7	clean SAND to silty SAND	125	5.0	57	36	95	48	-	16
0.98	198.3	318.0	340.9	3.4	0.5	1.7	clean SAND to silty SAND	125	5.0	64	40	95	48	-	16
1.15	213.2	342.0	373.6	4.2	0.6	2.0	clean SAND to silty SAND	125	5.0	68	43	95	48	-	16
1.31	216.0	346.4	385.4	4.6	0.6	2.1	clean SAND to silty SAND	125	5.0	69	43	95	48	-	16
1.48	183.6	294.5	347.5	4.4	0.6	2.4	stiff SAND to clayy SAND	115	1.0	100	100	-	-	12.2	16
1.64	150.9	242.0	286.5	3.2	0.6	2.1	clean SAND to silty SAND	125	5.0	48	30	95	48	-	16
1.80	149.3	239.4	276.9	2.9	0.7	2.0	clean SAND to silty SAND	125	5.0	48	30	95	48	-	16
1.97	183.8	294.8	329.8	3.6	0.7	2.0	clean SAND to silty SAND	125	5.0	59	37	95	48	-	16
2.13	220.1	352.9	361.1	3.3	0.8	1.5	clean SAND to silty SAND	125	5.0	71	44	95	48	-	16
2.30	222.1	356.3	384.0	4.2	0.8	1.9	clean SAND to silty SAND	125	5.0	71	44	95	48	-	16
2.46	204.3	327.7	370.4	4.5	0.9	2.2	clean SAND to silty SAND	125	5.0	66	41	95	48	-	16
2.62	209.9	336.7	378.4	4.6	0.9	2.2	clean SAND to silty SAND	125	5.0	67	42	95	48	-	16
2.79	211.6	339.3	383.3	4.7	0.9	2.2	clean SAND to silty SAND	125	5.0	68	42	95	48	-	16
2.95	211.9	339.9	386.2	4.9	0.9	2.3	stiff SAND to clayy SAND	115	1.0	100	100	-	-	14.0	16
3.12	209.1	335.3	386.2	5.0	0.9	2.4	stiff SAND to clayy SAND	115	1.0	100	100	-	-	13.8	16
3.28	205.4	329.5	383.7	5.1	1.0	2.5	stiff SAND to clayy SAND	115	1.0	100	100	-	-	13.6	16
3.45	200.5	321.5	375.8	4.9	1.0	2.5	stiff SAND to clayy SAND	115	1.0	100	100	-	-	13.3	16
3.61	192.7	309.1	363.8	4.8	1.0	2.5	stiff SAND to clayy SAND	115	1.0	100	100	-	-	12.8	16
3.77	195.0	312.8	370.7	5.0	1.0	2.5	stiff SAND to clayy SAND	115	1.0	100	100	-	-	12.9	16
3.94	197.6	316.9	382.8	5.4	1.1	2.7	stiff SAND to clayy SAND	115	1.0	100	100	-	-	13.1	16
4.10	176.6	283.3	347.3	4.7	1.1	2.7	stiff SAND to clayy SAND	115	1.0	100	100	-	-	11.7	16
4.27	108.4	173.8	328.6	5.4	1.1	5.0	very stiff fine SOIL	120	2.0	87	54	85	48	-	30
4.43	102.2	164.0	345.2	5.9	1.2	5.8	very stiff fine SOIL	120	2.0	82	51	83	48	-	30
4.59	115.9	185.9	358.0	6.2	1.5	5.4	very stiff fine SOIL	120	2.0	93	58	87	48	-	30
4.76	141.2	226.5	343.9	5.6	1.7	4.0	stiff SAND to clayy SAND	115	1.0	100	100	-	-	9.3	16
4.92	172.6	276.8	363.4	5.5	1.8	3.2	stiff SAND to clayy SAND	115	1.0	100	100	-	-	11.4	16
5.09	187.8	301.3	390.1	6.1	1.9	3.3	stiff SAND to clayy SAND	115	1.0	100	100	-	-	12.4	16
5.25	190.3	305.2	395.6	6.2	1.6	3.3	stiff SAND to clayy SAND	115	1.0	100	100	-	-	12.6	16
5.41	188.5	302.4	387.3	6.0	1.6	3.2	stiff SAND to clayy SAND	115	1.0	100	100	-	-	12.5	16
5.58	170.9	274.1	366.3	5.7	1.6	3.3	stiff SAND to clayy SAND	115	1.0	100	100	-	-	11.3	16
5.74	149.8	240.3	336.4	5.2	1.5	3.4	stiff SAND to clayy SAND	115	1.0	100	100	-	-	9.9	16
5.91	130.1	208.6	288.2	4.0	1.5	3.0	stiff SAND to clayy SAND	115	1.0	100	100	-	-	8.6	16
6.07	114.1	183.0	274.1	3.8	1.4	3.3	stiff SAND to clayy SAND	115	1.0	100	100	-	-	7.5	16
6.23	111.0	176.7	260.6	3.5	1.4	3.2	stiff SAND to clayy SAND	115	1.0	100	100	-	-	7.3	16
6.40	117.3	184.3	250.0	3.1	1.3	2.7	silty SAND to sandy SILT	120	4.0	46	29	87	47	-	16
6.56	122.7	190.3	244.0	2.9	1.3	2.3	silty SAND to sandy SILT	120	4.0	48	31	88	47	-	16
6.73	125.9	192.8	241.8	2.8	1.3	2.2	clean SAND to silty SAND	125	5.0	39	25	89	48	-	16
6.89	138.7	209.9	253.9	2.9	1.3	2.1	clean SAND to silty SAND	125	5.0	42	28	91	48	-	16
7.05	158.2	236.4	271.7	3.0	1.2	1.9	clean SAND to silty SAND	125	5.0	47	32	95	48	-	16
7.22	166.2	245.4	285.9	3.4	1.2	2.0	clean SAND to silty SAND	125	5.0	49	33	95	48	-	16
7.38	171.7	250.5	298.2	3.8	1.2	2.2	clean SAND to silty SAND	125	5.0	50	34	95	48	-	16
7.55	188.9	272.5	320.5	4.3	1.2	2.3	clean SAND to silty SAND	125	5.0	54	38	95	48	-	16
7.71	204.9	292.4	341.7	4.8	1.2	2.3	clean SAND to silty SAND	125	5.0	58	41	95	48	-	16
7.87	216.3	305.3	355.0	5.1	1.2	2.3	clean SAND to silty SAND	125	5.0	61	43	95	48	-	16
8.04	214.7	299.7	338.1	4.4	1.2	2.1	clean SAND to silty SAND	125	5.0	60	43	95	48	-	16
8.20	211.2	291.8	341.2	4.9	1.2	2.3	clean SAND to silty SAND	125	5.0	58	42	95	48	-	16
8.37	200.2	273.7	326.2	4.8	1.3	2.4	clean SAND to silty SAND	125	5.0	55	40	95	48	-	16
8.53	199.5	270.1	324.7	4.9	1.3	2.4	clean SAND to silty SAND	125	5.0	54	40	95	48	-	16
8.69	199.5	267.4	319.3	4.7	1.3	2.4	clean SAND to silty SAND	125	5.0	53	40	95	48	-	16
8.86	194.9	258.7	315.9	4.8	1.3	2.5	stiff SAND to clayy SAND	115	1.0	100	100	-	-	12.9	16
9.02	200.9	264.4	318.7	4.9	1.4	2.4	clean SAND to silty SAND	125	5.0	53	40	95	48	-	16
9.19	205.3	267.8	319.5	4.8	1.4	2.4	clean SAND to silty SAND	125	5.0	54	41	95	48	-	16
9.35	211.1	272.8	320.9	4.8	1.4	2.3	clean SAND to silty SAND	125	5.0	55	42	95	48	-	16
9.51	210.8	269.9	323.9	5.1	1.4	2.4	clean SAND to silty SAND	125	5.0	54	42	95	48	-	16
9.68	210.5	267.2	325.8	5.3	1.4	2.5	stiff SAND to clayy SAND	115	1.0	100	100	-	-	13.9	16
9.84	211.9	266.8	328.1	5.5	1.5	2.6	stiff SAND to clayy SAND	115	1.0	100	100	-	-	14.0	16
10.01	205.8	257.1	321.5	5.5	1.5	2.7	stiff SAND to clayy SAND	115	1.0	100	100	-	-	13.6	16
10.17	208.5	258.4	323.2	5.6	1.5	2.7	stiff SAND to clayy SAND	115	1.0	100	100	-	-	13.8	16
10.34	207.2	255.0	317.2	5.4	1.5	2.6	stiff SAND to clayy SAND	115	1.0	100	100	-	-	13.7	16
10.50	200.8	245.1	310.3	5.4	1.6	2.7	stiff SAND to clayy SAND	115	1.0	100	100	-	-	13.3	16
10.66	216.4	262.3	322.5	5.6	1.6	2.6	stiff SAND to clayy SAND	115	1.0	100	100	-	-	14.3	16

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

Middle Earth Geo Testing

Project ID: PML
Data File: SDF(520).cpt
CPT Date: 2/8/2008 9:37:45 AM
GW During Test: 12 ft

Sounding ID: CPT-01
Project No:
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qcln PS -	qlncs PS -	Slv Stss tsf	pore prss (psi)	Frct Ratio %	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
10.83	221.1	266.0	327.5	5.7	1.6	2.6	stiff SAND to clayy SAND	115	1.0	100	100	-	-	14.6	16
10.99	216.4	258.5	320.7	5.7	1.6	2.6	stiff SAND to clayy SAND	115	1.0	100	100	-	-	14.3	16
11.16	218.0	258.6	320.5	5.7	1.7	2.6	stiff SAND to clayy SAND	115	1.0	100	100	-	-	14.4	16
11.32	215.0	253.3	316.0	5.6	1.7	2.6	stiff SAND to clayy SAND	115	1.0	100	100	-	-	14.2	16
11.48	220.1	257.5	299.9	4.6	1.7	2.1	clean SAND to silty SAND	125	5.0	51	44	95	48	-	16
11.65	225.9	262.3	310.4	5.1	1.7	2.3	clean SAND to silty SAND	125	5.0	52	45	95	48	-	16
11.81	221.3	255.1	310.3	5.4	1.5	2.4	clean SAND to silty SAND	125	5.0	51	44	95	48	-	16
11.98	217.5	249.0	306.6	5.4	1.4	2.5	clean SAND to silty SAND	125	5.0	50	44	95	48	-	16
12.14	216.1	246.5	304.2	5.4	1.3	2.5	clean SAND to silty SAND	125	5.0	49	43	95	48	-	16
12.30	218.2	248.0	305.0	5.4	1.3	2.5	clean SAND to silty SAND	125	5.0	50	44	95	48	-	16
12.47	220.0	249.1	308.1	5.5	1.2	2.5	stiff SAND to clayy SAND	115	1.0	100	100	-	-	14.5	16
12.63	222.8	251.5	309.9	5.6	1.2	2.5	stiff SAND to clayy SAND	115	1.0	100	100	-	-	14.7	16
12.80	224.3	252.5	313.4	5.8	1.1	2.6	stiff SAND to clayy SAND	115	1.0	100	100	-	-	14.8	16
12.96	228.3	256.3	326.6	6.4	1.1	2.8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	15.1	16
13.12	219.6	245.8	314.4	6.1	1.1	2.8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	14.5	16
13.29	198.5	221.6	290.8	5.5	1.1	2.8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	13.1	16
13.45	209.7	233.4	296.4	5.5	1.1	2.6	stiff SAND to clayy SAND	115	1.0	100	100	-	-	13.9	16
13.62	210.1	233.2	301.5	5.8	1.1	2.8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	13.9	16
13.78	198.9	220.2	287.8	5.4	1.1	2.7	stiff SAND to clayy SAND	115	1.0	100	100	-	-	13.1	16
13.94	178.1	196.6	261.6	4.7	1.1	2.7	silty SAND to sandy SILT	120	4.0	49	45	89	47	-	16
14.11	169.9	187.0	250.5	4.4	1.1	2.6	silty SAND to sandy SILT	120	4.0	47	42	88	46	-	16
14.27	159.9	175.4	242.6	4.3	1.1	2.7	silty SAND to sandy SILT	120	4.0	44	40	86	46	-	16
14.44	130.5	142.7	217.4	3.7	1.0	2.9	silty SAND to sandy SILT	120	4.0	36	33	79	45	-	16
14.60	113.2	123.4	201.1	3.3	1.0	3.0	silty SAND to sandy SILT	120	4.0	31	28	74	44	-	16
14.76	123.5	134.2	179.2	2.4	1.0	2.0	silty SAND to sandy SILT	120	4.0	34	31	77	45	-	16
14.93	130.7	141.7	179.4	2.3	1.0	1.8	clean SAND to silty SAND	125	5.0	28	26	79	45	-	16
15.09	119.0	128.6	189.5	2.9	0.7	2.5	silty SAND to sandy SILT	120	4.0	32	30	75	45	-	16
15.26	92.3	99.5	189.9	3.1	0.5	3.4	silty SAND to sandy SILT	120	4.0	25	23	67	43	-	16
15.42	60.5	65.0	201.7	3.2	0.4	5.3	clayy SILT to silty CLAY	115	2.0	33	30	-	-	4.2	15
15.58	54.5	61.5	201.1	3.0	0.3	5.6	clayy SILT to silty CLAY	115	2.0	31	27	-	-	3.8	15
15.75	51.1	57.4	189.7	2.7	0.2	5.3	clayy SILT to silty CLAY	115	2.0	29	26	-	-	3.6	15
15.91	43.3	52.1	-	2.1	0.2	5.1	clayy SILT to silty CLAY	115	2.0	26	22	-	-	3.0	15
16.08	41.3	49.5	-	2.2	0.2	5.5	silty CLAY to CLAY	115	1.5	33	28	-	-	2.9	15
16.24	48.4	57.6	-	2.9	0.4	6.1	silty CLAY to CLAY	115	1.5	38	32	-	-	3.4	15
16.40	68.2	72.1	219.4	3.8	0.3	5.7	very stiff fine SOIL	120	2.0	36	34	56	41	-	30
16.57	88.9	93.8	230.0	4.3	0.3	4.9	very stiff fine SOIL	120	2.0	47	44	65	43	-	30
16.73	99.4	104.6	234.4	4.6	0.3	4.6	very stiff fine SOIL	120	2.0	52	50	68	43	-	30
16.90	106.1	111.3	219.4	4.1	0.3	3.9	stiff SAND to clayy SAND	115	1.0	100	100	-	-	7.0	16
17.06	103.5	108.3	215.4	4.0	0.5	3.9	stiff SAND to clayy SAND	115	1.0	100	100	-	-	6.8	16
17.23	101.3	105.7	207.2	3.7	0.5	3.7	silty SAND to sandy SILT	120	4.0	26	25	69	43	-	16
17.39	103.8	108.0	211.3	3.9	0.6	3.8	silty SAND to sandy SILT	120	4.0	27	26	70	43	-	16
17.55	124.2	128.9	225.1	4.3	0.6	3.5	silty SAND to sandy SILT	120	4.0	32	31	75	44	-	16
17.72	122.9	127.2	234.0	4.7	0.6	3.8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	8.1	16
17.88	123.5	127.5	246.8	5.1	0.6	4.2	very stiff fine SOIL	120	2.0	64	62	75	44	-	30
18.05	122.7	126.4	254.2	5.4	0.6	4.5	very stiff fine SOIL	120	2.0	63	61	75	44	-	30
18.21	121.0	124.3	240.2	4.9	0.5	4.1	very stiff fine SOIL	120	2.0	62	60	74	44	-	30
18.37	122.0	125.0	229.8	4.6	0.5	3.8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	8.0	16
18.54	115.7	118.3	219.6	4.2	0.5	3.7	silty SAND to sandy SILT	120	4.0	30	29	73	44	-	16
18.70	121.8	124.2	223.9	4.4	0.5	3.6	silty SAND to sandy SILT	120	4.0	31	30	74	44	-	16
18.87	116.0	118.0	230.8	4.6	0.5	4.0	very stiff fine SOIL	120	2.0	59	58	72	44	-	30
19.03	113.3	114.9	220.5	4.3	0.5	3.8	stiff SAND to clayy SAND	115	1.0	100	100	-	-	7.5	16
19.19	107.4	108.6	209.2	3.9	0.5	3.7	silty SAND to sandy SILT	120	4.0	27	27	70	43	-	16
19.36	104.6	105.5	205.1	3.8	0.5	3.6	silty SAND to sandy SILT	120	4.0	26	26	69	43	-	16
19.52	105.1	105.8	208.1	3.9	0.5	3.7	silty SAND to sandy SILT	120	4.0	26	26	69	43	-	16
19.69	108.3	108.7	209.4	3.9	0.5	3.7	silty SAND to sandy SILT	120	4.0	27	27	70	43	-	16
19.85	107.3	107.5	215.8	4.2	0.5	3.9	stiff SAND to clayy SAND	115	1.0	100	100	-	-	7.1	16
20.01	105.5	105.4	232.8	4.7	0.4	4.5	very stiff fine SOIL	120	2.0	53	53	69	43	-	30
20.18	112.0	111.7	234.6	4.8	0.4	4.4	very stiff fine SOIL	120	2.0	56	56	71	43	-	30
20.34	109.2	108.6	233.5	4.8	0.4	4.5	very stiff fine SOIL	120	2.0	54	55	70	43	-	30
20.51	93.1	92.3	232.3	4.7	0.4	5.1	very stiff fine SOIL	120	2.0	46	47	64	42	-	30
20.67	100.3	99.3	237.8	4.9	0.4	5.0	very stiff fine SOIL	120	2.0	50	50	67	42	-	30
20.83	104.2	102.9	255.6	5.6	0.4	5.4	very stiff fine SOIL	120	2.0	51	52	68	43	-	30
21.00	101.4	99.8	259.5	5.7	0.4	5.7	very stiff fine SOIL	120	2.0	50	51	67	42	-	30
21.16	104.5	102.7	248.2	5.3	0.4	5.2	very stiff fine SOIL	120	2.0	51	52	68	43	-	30
21.33	110.6	108.4	256.1	5.7	0.4	5.2	very stiff fine SOIL	120	2.0	54	55	70	43	-	30

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

Project ID: PML
Data File: SDF(520).cpt
CPT Date: 2/8/2008 9:37:45 AM
GW During Test: 12 ft

Sounding ID: CPT-01
Project No:
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qc1n PS - *	qi1ncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60% *	SPT R-N 60%	Rel Den % *	Ftn Ang deg *	Und Shr tsf	Nk -
21.49	113.3	110.8	252.2	5.6	0.4	5.0	very stiff fine SOIL	120	2.0	55	57	70	43	-	30
21.65	115.2	112.3	253.9	5.6	0.4	5.0	very stiff fine SOIL	120	2.0	56	58	71	43	-	30
21.82	115.7	112.5	235.6	5.0	0.4	4.4	very stiff fine SOIL	120	2.0	56	58	71	43	-	30
21.98	114.1	110.8	229.9	4.8	0.4	4.3	very stiff fine SOIL	120	2.0	55	57	70	43	-	30
22.15	107.3	103.9	226.7	4.7	0.4	4.4	very stiff fine SOIL	120	2.0	52	54	68	43	-	30
22.31	114.4	110.5	230.2	4.8	0.4	4.3	very stiff fine SOIL	120	2.0	55	57	70	43	-	30
22.47	107.1	103.2	229.3	4.8	0.4	4.5	very stiff fine SOIL	120	2.0	52	54	68	42	-	30
22.64	109.5	105.3	226.7	4.7	0.4	4.4	very stiff fine SOIL	120	2.0	53	55	69	43	-	30
22.80	108.7	104.3	225.3	4.7	0.4	4.3	very stiff fine SOIL	120	2.0	52	54	68	42	-	30
22.97	104.1	99.7	212.6	4.2	0.4	4.1	clayy SILT to silty CLAY	115	2.0	50	52	-	-	7.3	15
23.13	99.9	95.4	208.8	4.1	0.4	4.1	clayy SILT to silty CLAY	115	2.0	48	50	-	-	7.0	15
23.30	88.4	84.3	214.6	4.2	0.3	4.8	clayy SILT to silty CLAY	115	2.0	42	44	-	-	6.2	15
23.46	103.9	98.8	215.3	4.3	0.4	4.2	very stiff fine SOIL	120	2.0	49	52	67	42	-	30
23.62	103.1	97.8	218.4	4.4	0.3	4.4	very stiff fine SOIL	120	2.0	49	52	66	42	-	30
23.79	102.3	96.9	208.2	4.1	0.3	4.1	clayy SILT to silty CLAY	115	2.0	48	51	-	-	7.2	15
23.95	106.2	100.4	209.6	4.2	0.3	4.0	clayy SILT to silty CLAY	115	2.0	50	53	-	-	7.5	15
24.12	106.8	100.7	213.0	4.3	0.3	4.1	very stiff fine SOIL	120	2.0	50	53	67	42	-	30
24.28	118.7	111.7	215.6	4.4	0.3	3.8	silty SAND to sandy SILT	120	4.0	28	30	71	43	-	16
24.44	112.2	105.4	221.4	4.6	0.3	4.2	very stiff fine SOIL	120	2.0	53	56	69	42	-	30
24.61	107.0	100.3	216.3	4.4	0.3	4.2	very stiff fine SOIL	120	2.0	50	54	67	42	-	30
24.77	111.6	104.3	211.2	4.3	0.3	3.9	silty SAND to sandy SILT	120	4.0	26	28	68	42	-	16
24.94	112.7	105.1	216.0	4.5	0.3	4.0	very stiff fine SOIL	120	2.0	53	56	69	42	-	30
25.10	110.5	102.9	217.8	4.5	0.3	4.1	very stiff fine SOIL	120	2.0	51	55	68	42	-	30
25.26	109.9	102.1	227.9	4.9	0.3	4.5	very stiff fine SOIL	120	2.0	51	55	68	42	-	30
25.43	118.7	110.0	246.0	5.6	0.3	4.8	very stiff fine SOIL	120	2.0	55	59	70	42	-	30
25.59	143.9	133.1	258.8	6.2	0.3	4.4	very stiff fine SOIL	120	2.0	67	72	76	43	-	30
25.76	140.1	129.3	257.0	6.2	0.3	4.4	very stiff fine SOIL	120	2.0	65	70	75	43	-	30
25.92	136.2	125.4	251.1	5.9	0.3	4.4	very stiff fine SOIL	120	2.0	63	68	74	43	-	30
26.08	136.2	125.1	250.4	5.9	0.3	4.4	very stiff fine SOIL	120	2.0	63	68	74	43	-	30
26.25	141.2	129.5	251.4	6.0	0.3	4.3	very stiff fine SOIL	120	2.0	65	71	76	43	-	30
26.41	138.3	126.6	240.2	5.5	0.3	4.0	stiff SAND to clayy SAND	115	1.0	100	100	-	-	9.1	16
26.58	130.5	119.2	242.1	5.6	0.3	4.3	very stiff fine SOIL	120	2.0	60	65	73	43	-	30
26.74	124.8	113.8	254.9	6.1	0.3	4.9	very stiff fine SOIL	120	2.0	57	62	71	42	-	30
26.90	148.5	135.1	272.6	6.9	0.3	4.7	very stiff fine SOIL	120	2.0	68	74	77	43	-	30
27.07	153.6	139.4	278.7	7.2	0.4	4.7	very stiff fine SOIL	120	2.0	70	77	78	43	-	30
27.23	126.9	114.9	239.9	5.5	0.4	4.4	very stiff fine SOIL	120	2.0	57	63	72	42	-	30
27.40	91.9	83.1	198.2	3.8	0.4	4.3	clayy SILT to silty CLAY	115	2.0	42	46	-	-	6.4	15
27.56	84.8	76.5	175.4	3.1	0.3	3.7	clayy SILT to silty CLAY	115	2.0	38	42	-	-	5.9	15
27.72	83.2	75.0	172.1	3.0	0.4	3.6	clayy SILT to silty CLAY	115	2.0	37	42	-	-	5.8	15
27.89	81.5	73.2	169.8	2.9	0.4	3.6	clayy SILT to silty CLAY	115	2.0	37	41	-	-	5.7	15
28.05	82.5	74.0	181.0	3.2	0.4	4.0	clayy SILT to silty CLAY	115	2.0	37	41	-	-	5.8	15
28.22	93.4	83.6	176.8	3.2	0.3	3.5	silty SAND to sandy SILT	120	4.0	21	23	61	41	-	16
28.38	89.3	79.8	176.6	3.2	0.3	3.6	clayy SILT to silty CLAY	115	2.0	40	45	-	-	6.2	15
28.54	89.5	79.8	172.7	3.0	0.3	3.5	clayy SILT to silty CLAY	115	2.0	40	45	-	-	6.3	15
28.71	91.6	81.6	170.3	3.0	0.3	3.3	silty SAND to sandy SILT	120	4.0	20	23	60	41	-	16
28.87	89.5	79.5	169.5	2.9	0.3	3.4	silty SAND to sandy SILT	120	4.0	20	22	59	40	-	16
29.04	87.2	77.3	166.8	2.9	0.3	3.3	clayy SILT to silty CLAY	115	2.0	39	44	-	-	6.1	15
29.20	87.7	77.7	165.3	2.8	0.3	3.3	silty SAND to sandy SILT	120	4.0	19	22	59	40	-	16
29.36	80.8	71.4	178.6	3.2	0.3	4.0	clayy SILT to silty CLAY	115	2.0	36	40	-	-	5.6	15
29.53	83.9	74.0	172.0	3.0	0.3	3.7	clayy SILT to silty CLAY	115	2.0	37	42	-	-	5.9	15
29.69	88.7	78.1	173.0	3.1	0.3	3.5	clayy SILT to silty CLAY	115	2.0	39	44	-	-	6.2	15
29.86	85.8	75.4	167.8	2.9	0.3	3.5	clayy SILT to silty CLAY	115	2.0	38	43	-	-	6.0	15
30.02	80.8	70.9	167.2	2.9	0.3	3.6	clayy SILT to silty CLAY	115	2.0	35	40	-	-	5.6	15
30.19	83.9	73.5	166.0	2.8	0.3	3.5	clayy SILT to silty CLAY	115	2.0	37	42	-	-	5.9	15
30.35	84.1	73.5	168.9	2.9	0.3	3.6	clayy SILT to silty CLAY	115	2.0	37	42	-	-	5.9	15
30.51	85.4	74.5	172.4	3.1	0.3	3.7	clayy SILT to silty CLAY	115	2.0	37	43	-	-	6.0	15
30.68	83.5	72.7	169.2	2.9	0.3	3.6	clayy SILT to silty CLAY	115	2.0	36	42	-	-	5.8	15
30.84	82.9	72.1	166.8	2.9	0.3	3.5	clayy SILT to silty CLAY	115	2.0	36	41	-	-	5.8	15
31.01	79.2	68.8	162.1	2.7	0.3	3.5	clayy SILT to silty CLAY	115	2.0	34	40	-	-	5.5	15
31.17	80.2	69.5	166.1	2.8	0.3	3.6	clayy SILT to silty CLAY	115	2.0	35	40	-	-	5.6	15
31.33	81.7	70.7	166.3	2.9	0.3	3.6	clayy SILT to silty CLAY	115	2.0	35	41	-	-	5.7	15
31.50	87.0	75.2	161.3	2.7	0.3	3.2	silty SAND to sandy SILT	120	4.0	19	22	58	40	-	16
31.66	90.9	78.4	160.3	2.7	0.3	3.1	silty SAND to sandy SILT	120	4.0	20	23	59	40	-	16
31.83	86.3	74.3	157.5	2.6	0.3	3.1	silty SAND to sandy SILT	120	4.0	19	22	57	40	-	16
31.99	85.9	73.8	159.8	2.7	0.3	3.2	silty SAND to sandy SILT	120	4.0	18	21	57	40	-	16

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

Project ID: PML
Data File: SDF(520).cpt
CPT Date: 2/8/2008 9:37:45 AM
GW During Test: 12 ft

Sounding ID: CPT-01
Project No:
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qcln PS -	qincs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
32.15	85.9	73.7	160.9	2.7	0.3	3.3	clayy SILT to silty CLAY	115	2.0	37	43	-	-	6.0	15
32.32	86.4	73.9	163.9	2.8	0.3	3.4	clayy SILT to silty CLAY	115	2.0	37	43	-	-	6.0	15
32.48	90.8	77.6	162.5	2.8	0.3	3.2	silty SAND to sandy SILT	120	4.0	19	23	59	40	-	16
32.65	89.1	76.0	163.4	2.8	0.3	3.3	silty SAND to sandy SILT	120	4.0	19	22	58	40	-	16
32.81	88.6	75.4	164.4	2.9	0.3	3.3	clayy SILT to silty CLAY	115	2.0	38	44	-	-	6.2	15
32.97	87.2	74.1	163.9	2.9	0.3	3.4	clayy SILT to silty CLAY	115	2.0	37	44	-	-	6.1	15
33.14	88.3	74.9	164.5	2.9	0.3	3.3	clayy SILT to silty CLAY	115	2.0	37	44	-	-	6.2	15
33.30	87.1	73.8	164.3	2.9	0.3	3.4	clayy SILT to silty CLAY	115	2.0	37	44	-	-	6.1	15
33.47	90.9	76.9	167.7	3.0	0.4	3.4	clayy SILT to silty CLAY	115	2.0	38	45	-	-	6.3	15
33.63	95.5	80.6	172.1	3.2	0.4	3.4	silty SAND to sandy SILT	120	4.0	20	24	60	40	-	16
33.79	100.4	84.7	171.9	3.2	0.4	3.2	silty SAND to sandy SILT	120	4.0	21	25	61	40	-	16
33.96	97.4	82.0	169.7	3.1	0.4	3.3	silty SAND to sandy SILT	120	4.0	20	24	60	40	-	16
34.12	92.1	77.4	167.2	3.0	0.4	3.3	clayy SILT to silty CLAY	115	2.0	39	46	-	-	6.4	15
34.29	87.7	73.5	163.6	2.9	0.4	3.4	clayy SILT to silty CLAY	115	2.0	37	44	-	-	6.1	15
34.45	91.3	76.4	156.2	2.7	0.4	3.0	silty SAND to sandy SILT	120	4.0	19	23	58	40	-	16
34.61	91.3	76.3	159.6	2.8	0.4	3.1	silty SAND to sandy SILT	120	4.0	19	23	58	40	-	16
34.78	90.6	75.6	172.9	3.2	0.4	3.6	clayy SILT to silty CLAY	115	2.0	38	45	-	-	6.3	15
34.94	92.7	77.2	173.6	3.2	0.4	3.6	clayy SILT to silty CLAY	115	2.0	39	46	-	-	6.5	15
35.11	96.1	79.9	167.8	3.1	0.4	3.3	silty SAND to sandy SILT	120	4.0	20	24	60	40	-	16
35.27	93.8	77.9	167.0	3.0	0.4	3.3	silty SAND to sandy SILT	120	4.0	19	23	59	40	-	16
35.43	94.4	78.2	169.7	3.1	0.4	3.4	clayy SILT to silty CLAY	115	2.0	39	47	-	-	6.6	15
35.60	96.0	79.4	166.6	3.0	0.4	3.2	silty SAND to sandy SILT	120	4.0	20	24	59	40	-	16
35.76	95.5	78.9	172.4	3.2	0.4	3.5	clayy SILT to silty CLAY	115	2.0	39	48	-	-	6.7	15
35.93	97.2	80.2	176.1	3.4	0.4	3.6	clayy SILT to silty CLAY	115	2.0	40	49	-	-	6.8	15
36.09	105.0	86.5	176.6	3.4	0.4	3.3	silty SAND to sandy SILT	120	4.0	22	26	62	40	-	16
36.26	101.7	83.6	177.2	3.5	0.4	3.5	silty SAND to sandy SILT	120	4.0	21	25	61	40	-	16
36.42	98.4	80.8	172.9	3.3	0.4	3.4	clayy SILT to silty CLAY	115	2.0	40	49	-	-	6.9	15
36.58	95.6	78.3	172.3	3.3	0.4	3.5	clayy SILT to silty CLAY	115	2.0	39	48	-	-	6.7	15
36.75	97.3	79.6	178.3	3.5	0.4	3.7	clayy SILT to silty CLAY	115	2.0	40	49	-	-	6.8	15
36.91	100.0	81.7	181.9	3.6	0.4	3.7	clayy SILT to silty CLAY	115	2.0	41	50	-	-	7.0	15
37.08	100.4	81.9	185.2	3.7	0.4	3.8	clayy SILT to silty CLAY	115	2.0	41	50	-	-	7.0	15
37.24	100.2	81.6	187.8	3.8	0.4	3.9	clayy SILT to silty CLAY	115	2.0	41	50	-	-	7.0	15
37.40	104.4	84.9	193.4	4.1	0.4	4.0	clayy SILT to silty CLAY	115	2.0	42	52	-	-	7.3	15
37.57	103.8	84.3	193.4	4.1	0.4	4.0	clayy SILT to silty CLAY	115	2.0	42	52	-	-	7.3	15
37.73	111.1	90.1	190.9	4.0	0.4	3.7	clayy SILT to silty CLAY	115	2.0	45	56	-	-	7.8	15
37.90	108.0	87.5	185.1	3.8	0.4	3.6	clayy SILT to silty CLAY	115	2.0	44	54	-	-	7.6	15
38.06	105.2	85.1	198.6	4.3	0.5	4.2	clayy SILT to silty CLAY	115	2.0	43	53	-	-	7.4	15
38.22	105.1	84.9	191.3	4.0	0.4	3.9	clayy SILT to silty CLAY	115	2.0	42	53	-	-	7.3	15
38.39	99.5	80.2	177.9	3.5	0.5	3.6	clayy SILT to silty CLAY	115	2.0	40	50	-	-	6.9	15
38.55	95.1	76.5	175.5	3.4	0.5	3.7	clayy SILT to silty CLAY	115	2.0	38	48	-	-	6.6	15
38.72	97.3	78.2	171.7	3.3	0.5	3.5	clayy SILT to silty CLAY	115	2.0	39	49	-	-	6.8	15
38.88	91.9	73.8	165.2	3.1	0.5	3.4	clayy SILT to silty CLAY	115	2.0	37	46	-	-	6.4	15
39.04	90.6	72.6	159.9	2.9	0.5	3.3	clayy SILT to silty CLAY	115	2.0	36	45	-	-	6.3	15
39.21	90.8	72.6	162.2	3.0	0.5	3.3	clayy SILT to silty CLAY	115	2.0	36	45	-	-	6.3	15
39.37	92.4	73.8	158.9	2.9	0.5	3.2	silty SAND to sandy SILT	120	4.0	18	23	57	39	-	16
39.54	94.8	75.6	158.6	2.9	0.5	3.1	silty SAND to sandy SILT	120	4.0	19	24	58	39	-	16
39.70	96.1	76.6	159.6	2.9	0.5	3.1	silty SAND to sandy SILT	120	4.0	19	24	58	39	-	16
39.86	96.0	76.3	158.7	2.9	0.5	3.1	silty SAND to sandy SILT	120	4.0	19	24	58	39	-	16
40.03	98.2	78.0	157.0	2.8	0.5	3.0	silty SAND to sandy SILT	120	4.0	19	25	59	39	-	16
40.19	98.0	77.6	156.9	2.8	0.4	3.0	silty SAND to sandy SILT	120	4.0	19	24	59	39	-	16
40.36	97.7	77.3	158.3	2.9	0.4	3.0	silty SAND to sandy SILT	120	4.0	19	24	59	39	-	16
40.52	99.4	78.6	160.8	3.0	0.5	3.1	silty SAND to sandy SILT	120	4.0	20	25	59	39	-	16
40.68	99.4	78.4	160.6	3.0	0.4	3.1	silty SAND to sandy SILT	120	4.0	20	25	59	39	-	16
40.85	98.9	77.9	176.1	3.5	0.5	3.6	clayy SILT to silty CLAY	115	2.0	39	49	-	-	6.9	15
41.01	101.6	79.9	172.8	3.4	0.4	3.4	clayy SILT to silty CLAY	115	2.0	40	51	-	-	7.1	15
41.18	104.4	82.0	169.9	3.3	0.5	3.3	silty SAND to sandy SILT	120	4.0	21	26	60	40	-	16
41.34	99.9	78.4	163.6	3.1	0.5	3.2	silty SAND to sandy SILT	120	4.0	20	25	59	39	-	16
41.50	96.4	75.5	161.2	3.0	0.5	3.2	silty SAND to sandy SILT	120	4.0	19	24	58	39	-	16
41.67	95.4	74.6	157.5	2.9	0.5	3.1	silty SAND to sandy SILT	120	4.0	19	24	57	39	-	16
41.83	97.4	76.0	156.6	2.9	0.5	3.0	silty SAND to sandy SILT	120	4.0	19	24	58	39	-	16
42.00	95.2	74.2	154.7	2.8	0.5	3.0	silty SAND to sandy SILT	120	4.0	19	24	57	39	-	16
42.16	94.8	73.8	155.5	2.8	0.5	3.0	silty SAND to sandy SILT	120	4.0	18	24	57	39	-	16
42.32	96.2	74.8	155.0	2.8	0.5	3.0	silty SAND to sandy SILT	120	4.0	19	24	57	39	-	16
42.49	100.1	77.6	153.2	2.8	0.5	2.8	silty SAND to sandy SILT	120	4.0	19	25	59	39	-	16
42.65	98.6	76.4	153.0	2.7	0.5	2.9	silty SAND to sandy SILT	120	4.0	19	25	58	39	-	16

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

Project ID: PML
Data File: SDF(520).cpt
CPT Date: 2/8/2008 9:37:45 AM
GW During Test: 12 ft

Sounding ID: CPT-01
Project No:
Cone/Rig: DSG0906

Depth ft	qc PS tsf	qcln PS -	qlncs PS -	Slv Stss tsf	pore prss (psi)	Frct Rato %	Material Behavior Description	Unit Wght pcf	Qc to N	SPT R-N1 60%	SPT R-N 60%	Rel Den %	Ftn Ang deg	Und Shr tsf	Nk -
42.82	97.6	75.5	151.1	2.7	0.5	2.8	silty SAND to sandy SILT	120	4.0	19	24	58	39	-	16
42.98	99.0	76.5	153.6	2.8	0.5	2.9	silty SAND to sandy SILT	120	4.0	19	25	58	39	-	16
43.15	98.7	76.1	157.4	2.9	0.5	3.0	silty SAND to sandy SILT	120	4.0	19	25	58	39	-	16
43.31	99.9	76.9	166.7	3.2	0.5	3.3	clayy SILT to silty CLAY	115	2.0	38	50	-	-	7.0	15
43.47	101.7	78.2	158.3	3.0	0.5	3.0	silty SAND to sandy SILT	120	4.0	20	25	59	39	-	16
43.64	98.9	76.0	154.3	2.8	0.5	2.9	silty SAND to sandy SILT	120	4.0	19	25	58	39	-	16
43.80	101.7	78.0	159.7	3.0	0.5	3.0	silty SAND to sandy SILT	120	4.0	20	25	59	39	-	16
43.97	105.2	80.5	161.5	3.1	0.5	3.0	silty SAND to sandy SILT	120	4.0	20	26	60	39	-	16
44.13	104.0	79.5	172.5	3.5	0.5	3.4	clayy SILT to silty CLAY	115	2.0	40	52	-	-	7.3	15
44.29	100.9	77.1	171.4	3.4	0.5	3.5	clayy SILT to silty CLAY	115	2.0	39	50	-	-	7.0	15
44.46	99.4	75.8	166.4	3.3	0.6	3.4	clayy SILT to silty CLAY	115	2.0	38	50	-	-	6.9	15
44.62	102.6	78.1	167.0	3.3	0.6	3.3	silty SAND to sandy SILT	120	4.0	20	26	59	39	-	16
44.79	102.0	77.6	166.8	3.3	0.6	3.3	silty SAND to sandy SILT	120	4.0	19	26	59	39	-	16
44.95	100.9	76.6	161.3	3.1	0.6	3.1	silty SAND to sandy SILT	120	4.0	19	25	58	39	-	16
45.11	105.1	79.7	161.1	3.1	0.6	3.0	silty SAND to sandy SILT	120	4.0	20	26	59	39	-	16
45.28	101.0	76.5	161.7	3.1	0.6	3.2	silty SAND to sandy SILT	120	4.0	19	25	58	39	-	16
45.44	100.3	75.8	161.7	3.1	0.6	3.2	silty SAND to sandy SILT	120	4.0	19	25	58	39	-	16
45.61	101.6	76.7	159.2	3.0	0.6	3.1	silty SAND to sandy SILT	120	4.0	19	25	58	39	-	16
45.77	102.5	77.3	160.5	3.1	0.6	3.1	silty SAND to sandy SILT	120	4.0	19	26	58	39	-	16
45.93	103.5	77.9	160.2	3.1	0.6	3.1	silty SAND to sandy SILT	120	4.0	19	26	59	39	-	16
46.10	102.7	77.2	157.8	3.0	0.6	3.0	silty SAND to sandy SILT	120	4.0	19	26	58	39	-	16
46.26	102.5	76.9	154.7	2.9	0.6	2.9	silty SAND to sandy SILT	120	4.0	19	26	58	39	-	16
46.43	98.2	73.6	153.3	2.8	0.6	3.0	silty SAND to sandy SILT	120	4.0	18	25	57	39	-	16
46.59	98.9	74.0	153.6	2.8	0.6	3.0	silty SAND to sandy SILT	120	4.0	19	25	57	39	-	16
46.75	97.3	72.7	154.3	2.9	0.6	3.0	silty SAND to sandy SILT	120	4.0	18	24	56	38	-	16
46.92	100.8	75.2	150.4	2.8	0.6	2.8	silty SAND to sandy SILT	120	4.0	19	25	58	39	-	16
47.08	102.7	76.6	152.0	2.8	0.6	2.8	silty SAND to sandy SILT	120	4.0	19	26	58	39	-	16
47.25	104.8	78.0	155.3	2.9	0.6	2.9	silty SAND to sandy SILT	120	4.0	19	26	59	39	-	16
47.41	103.5	76.9	153.9	2.9	0.6	2.9	silty SAND to sandy SILT	120	4.0	19	26	58	39	-	16
47.57	104.4	77.5	154.1	2.9	0.6	2.9	silty SAND to sandy SILT	120	4.0	19	26	59	39	-	16
47.74	101.8	75.5	162.5	3.2	0.6	3.2	silty SAND to sandy SILT	120	4.0	19	25	58	39	-	16
47.90	101.4	75.1	160.1	3.1	0.6	3.2	silty SAND to sandy SILT	120	4.0	19	25	58	39	-	16
48.07	101.7	75.2	157.4	3.0	0.6	3.1	silty SAND to sandy SILT	120	4.0	19	25	58	39	-	16
48.23	100.4	74.1	158.2	3.0	0.6	3.1	silty SAND to sandy SILT	120	4.0	19	25	57	38	-	16
48.39	99.9	73.7	161.0	3.1	0.6	3.2	clayy SILT to silty CLAY	115	2.0	37	50	-	-	7.0	15
48.56	102.5	75.5	160.8	3.2	0.6	3.2	silty SAND to sandy SILT	120	4.0	19	26	58	39	-	16
48.72	102.1	75.1	162.5	3.2	0.6	3.2	silty SAND to sandy SILT	120	4.0	19	26	58	39	-	16
48.89	99.7	73.2	168.1	3.4	0.6	3.5	clayy SILT to silty CLAY	115	2.0	37	50	-	-	6.9	15
49.05	105.5	77.4	185.4	4.1	0.7	4.0	clayy SILT to silty CLAY	115	2.0	39	53	-	-	7.4	15
49.22	107.4	78.7	220.6	5.5	0.6	5.3	clayy SILT to silty CLAY	115	2.0	39	54	-	-	7.5	15
49.38	157.3	115.1	201.6	4.9	0.7	3.2	silty SAND to sandy SILT	120	4.0	29	39	72	41	-	16
49.54	102.0	74.5	180.7	3.9	0.6	3.9	clayy SILT to silty CLAY	115	2.0	37	51	-	-	7.1	15
49.71	95.0	69.3	156.5	3.0	0.7	3.2	clayy SILT to silty CLAY	115	2.0	35	47	-	-	6.6	15
49.87	90.3	65.8	156.2	2.9	0.7	3.4	clayy SILT to silty CLAY	115	2.0	33	45	-	-	6.3	15
50.04	89.8	65.4	154.9	2.9	0.7	3.3	clayy SILT to silty CLAY	115	2.0	33	45	-	-	6.2	15

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

APPENDIX D

SEISMIC AND LIQUEFACTION ANALYSES

February 21, 2008

Lab No: 78803-2

File No: 08-12857-2

Pacific Materials Laboratory of Santa Barbara, Inc.

SEISMICITY AND LIQUEFACTION ANALYSES

An analysis of the seismicity and potential liquefaction of the site was performed using the computer program FRISKSP and the NCEER 1997 method to determine liquefaction potential.

FRISKSP

FRISKSP is a computer program for the probabilistic estimation of seismic hazard using faults as earthquake sources. The program uses a seismotectonic source model which uses information from nearby faults to estimate seismic hazard at a selected site. The program has been modified, updated, an enhanced from Robin McGuire's original FRISK program (McGuire 1978a) so that FRISKSP has the capability to utilize several of the more recently developed peak horizontal acceleration-attenuation relations. The computation of peak horizontal ground acceleration is based on the closest distance between the site and the ground rupture for each fault in the source model.

Each of the computations was performed using the same attenuation relationship (Campbell & Bozorgnia (1997 Rev.) Hor. – Alluvium).

GROUND MOTIONS

The probabilistic method of seismic analysis was performed using the computer program FRISKSP and the attenuation relationship of Campbell & Bozorgnia (1997 Rev.) Hor. – Alluvium. For a weighted earthquake magnitude of 7.5, the ground acceleration which would have a 10% probability of exceedence within a 50-year time period was determined to be 0.48g. An acceleration of 0.48g was used as the peak acceleration to perform the liquefaction.

LIQUEFACTION ANALYSIS

An analysis of the liquefaction potential of the soils at the site was performed using the computer program LIQUEFY2. The program uses the Seed and Others (1985) semi-empirical procedure for liquefaction analysis based on Standard Penetration Test results and grain-size data. The results indicated a low potential for settlement from liquefaction.

The input data and results of the analysis are presented on the following pages to the end of this Appendix. Soil profiles based on the CPT sounding were used to model soil conditions at the site.

```
*****************************************
*                                       *
*        FRISKSP - IBM-PC VERSION       *
*                                       *
*  Modified from *FRISK* (McGuire 1978) *
*   To Perform Probabilistic Earthquake *
*  Hazard Analyses Using Multiple Forms *
* of Ground-Motion-Attenuation Relations *
*                                       *
*   Modifications by:  Thomas F. Blake  *
*              - 1988-2000 -            *
*                                       *
*              VERSION 4.00             *
*             (Visual Fortran)          *
*****************************************
```

TITLE: UCSB Technical Greenhouse, CPT-1

IPR_FILE
0

IPLOT
0

SITE CONDITION
0.00

BASEMENT DEPTH (km)
5.00

RHGA FACTOR RHGA DIST (km)
1.000 0.000

NFLT	NSITE	NPROB	NATT	LCD
32	1	2	6	1

PROBLEM DATA:

CAMP. & BOZ. (1997 Rev.) AL 1 AMPLITUDES:

15 0.025 0.050 0.075 0.100 0.125 0.150 0.175
0.200 0.250 0.300
0.400 0.500 0.600 0.700 0.800

MAGNITUDE WEIGHTING FACTORS: MWF: 1 MWF MAGNITUDE: 7.50

CAMP. & BOZ. (1997 Rev.) AL 2 AMPLITUDES:

15 0.025 0.050 0.075 0.100 0.125 0.150 0.175
0.200 0.250 0.300
0.400 0.500 0.600 0.700 0.800

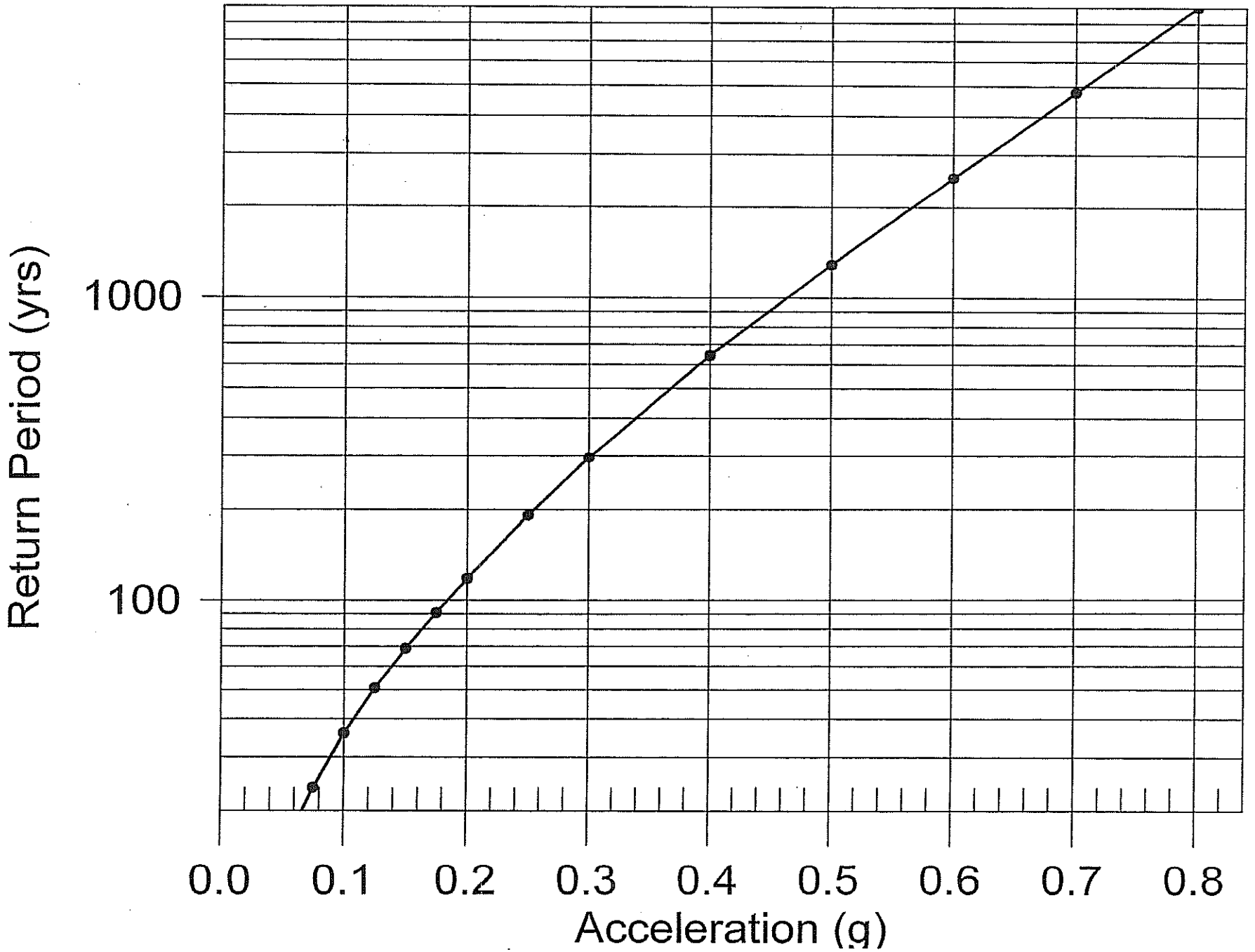
MAGNITUDE WEIGHTING FACTORS: MWF: 1 MWF MAGNITUDE: 7.50

RISKS SPECIFIED:
5 0.013900 0.010000 0.005000 0.002105 0.001000

SITE COORDINATES:
1 -119.8431 34.4131

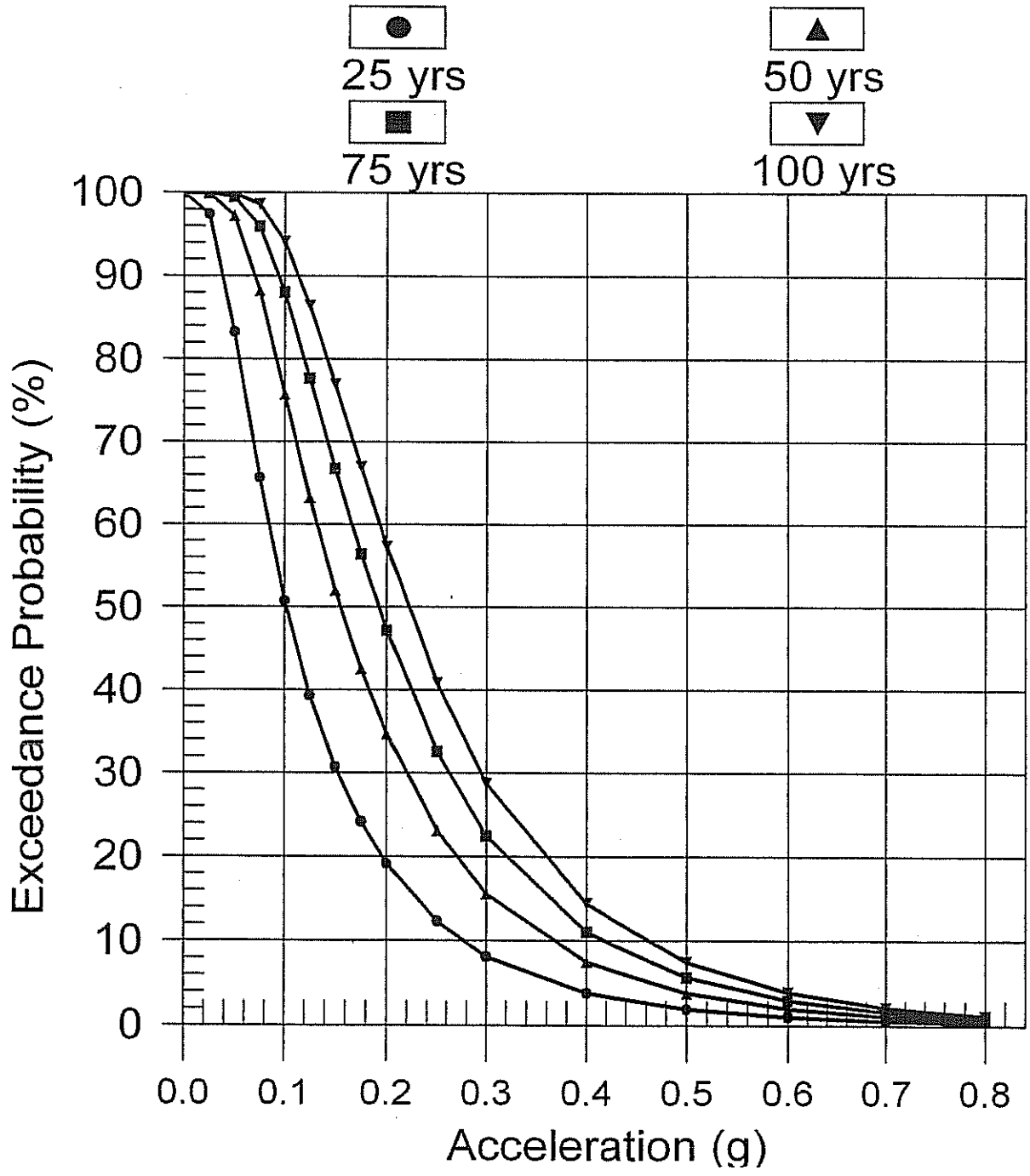
RETURN PERIOD vs. ACCELERATION

CAMP. & BOZ. (1997 Rev.) AL 1



PROBABILITY OF EXCEEDANCE

CAMP. & BOZ. (1997 Rev.) AL 1



```
*****************************
*                           *
*      L I Q U E F Y 2      *
*                           *
*       Version 1.50        *
*                           *
*****************************
```

EMPIRICAL PREDICTION OF
EARTHQUAKE-INDUCED LIQUEFACTION POTENTIAL

JOB NUMBER: DATE: 02-15-2008

JOB NAME: UCSB Technical Greenhouse, CPT-1 (Detailed Strata)

SOIL-PROFILE NAME: UCSBGdC1.LDW

BORING GROUNDWATER DEPTH: 0.00 ft

CALCULATION GROUNDWATER DEPTH: 0.00 ft

DESIGN EARTHQUAKE MAGNITUDE: 7.50 Mw

SITE PEAK GROUND ACCELERATION: 0.400 g

BOREHOLE DIAMETER CORRECTION FACTOR: 1.00

SAMPLER SIZE CORRECTION FACTOR: 1.00

N60 HAMMER CORRECTION FACTOR: 1.00

MAGNITUDE SCALING FACTOR METHOD: Idriss (1997, in press)

Magnitude Scaling Factor: 1.000

rd-CORRECTION METHOD: NCEER (1997)

FIELD SPT N-VALUES ARE CORRECTED FOR THE LENGTH OF THE DRIVE RODS.

Rod Stick-Up Above Ground: 3.0 ft

CN NORMALIZATION FACTOR: 1.044 tsf

MINIMUM CN VALUE: 0.6

NCEER [1997] Method — LIQUEFACTION ANALYSIS SUMMARY — PAGE 1

File Name: UCSBGdC1.OUT

SOIL NO.	CALC. DEPTH (ft)	TOTAL STRESS (tsf)	EFF. STRESS (tsf)	FIELD N (B/ft)	FC DELTA N1_60	C N	CORR. (N1)60 (B/ft)	LIQUE. RESIST RATIO	r d	INDUC. STRESS RATIO	LIQUE. SAFETY FACTOR
1	0.25	0.016	0.008	40	2.17	2.000	62.3	Infin	0.999	0.519	NonLiq
1	0.75	0.047	0.023	40	2.17	2.000	62.3	Infin	0.998	0.518	NonLiq
1	1.25	0.078	0.039	40	2.17	2.000	62.3	Infin	0.997	0.518	NonLiq
3	1.75	0.109	0.055	39	2.13	2.000	60.3	Infin	0.996	0.517	NonLiq
3	2.25	0.141	0.070	39	2.13	2.000	60.3	Infin	0.995	0.516	NonLiq
3	2.75	0.172	0.086	39	2.13	2.000	60.3	Infin	0.994	0.516	NonLiq
4	3.25	0.203	0.102	100	15.53	2.000	165.5	Infin	0.992	0.515	NonLiq
4	3.75	0.234	0.117	100	15.53	2.000	165.5	Infin	0.991	0.515	NonLiq
4	4.25	0.266	0.133	100	15.53	2.000	165.5	Infin	0.990	0.514	NonLiq
5	4.75	0.296	0.148	54	21.03	2.000	102.5	Infin	0.989	0.515	NonLiq
6	5.25	0.327	0.163	100	15.53	2.000	165.5	Infin	0.988	0.515	NonLiq
6	5.75	0.358	0.179	100	15.53	2.000	165.5	Infin	0.987	0.514	NonLiq
6	6.25	0.389	0.194	100	15.53	2.000	165.5	Infin	0.985	0.513	NonLiq
7	6.75	0.421	0.210	30	7.19	2.000	52.2	Infin	0.984	0.513	NonLiq
8	7.25	0.452	0.226	37	2.06	2.000	57.3	Infin	0.983	0.512	NonLiq
8	7.75	0.483	0.241	37	2.06	2.000	57.3	Infin	0.982	0.511	NonLiq
8	8.25	0.514	0.257	37	2.06	2.000	57.3	Infin	0.981	0.510	NonLiq
8	8.75	0.546	0.273	37	2.06	2.000	57.3	Infin	0.980	0.510	NonLiq
10	9.25	0.577	0.288	41	2.14	1.903	60.9	Infin	0.978	0.509	NonLiq
11	9.75	0.608	0.304	100	14.51	1.765	151.7	Infin	0.977	0.508	NonLiq
11	10.25	0.639	0.320	100	14.51	1.765	151.7	Infin	0.976	0.508	NonLiq
11	10.75	0.671	0.335	100	14.51	1.765	151.7	Infin	0.975	0.507	NonLiq
11	11.25	0.702	0.351	100	14.51	1.765	151.7	Infin	0.974	0.506	NonLiq
12	11.75	0.733	0.367	44	2.15	1.653	61.2	Infin	0.973	0.506	NonLiq
12	12.25	0.764	0.382	44	2.15	1.653	61.2	Infin	0.971	0.505	NonLiq
13	12.75	0.796	0.398	100	14.12	1.589	146.4	Infin	0.970	0.505	NonLiq
13	13.25	0.827	0.413	100	14.12	1.589	146.4	Infin	0.969	0.504	NonLiq
13	13.75	0.858	0.429	100	14.12	1.589	146.4	Infin	0.968	0.503	NonLiq
14	14.25	0.889	0.445	37	7.37	1.506	54.6	Infin	0.967	0.503	NonLiq
14	14.75	0.921	0.460	37	7.37	1.506	54.6	Infin	0.966	0.502	NonLiq
16	15.25	0.952	0.476	27	6.32	1.481	40.4	Infin	0.964	0.501	NonLiq
17	15.75	0.983	0.491	26	~	~	~	~	~	~	~~
18	16.25	1.013	0.506	30	~	~	~	~	~	~	~~
19	16.75	1.043	0.520	43	15.61	1.417	69.5	Infin	0.961	0.501	NonLiq
20	17.25	1.073	0.535	100	13.59	1.397	139.1	Infin	0.960	0.501	NonLiq
21	17.75	1.104	0.551	27	6.32	1.377	40.4	Infin	0.959	0.500	NonLiq
23	18.25	1.135	0.566	61	19.87	1.359	95.5	Infin	0.957	0.500	NonLiq
25	18.75	1.166	0.581	30	6.50	1.341	42.8	Infin	0.956	0.499	NonLiq
28	19.25	1.197	0.596	27	6.17	1.306	38.4	Infin	0.955	0.498	NonLiq
28	19.75	1.228	0.612	27	6.17	1.306	38.4	Infin	0.954	0.498	NonLiq
30	20.25	1.259	0.627	54	17.68	1.248	82.1	Infin	0.953	0.497	NonLiq
30	20.75	1.289	0.641	54	17.68	1.248	82.1	Infin	0.952	0.497	NonLiq
30	21.25	1.319	0.656	54	17.68	1.248	82.1	Infin	0.950	0.497	NonLiq

File Name: UCSBGdC1.OUT

SOIL NO.	CALC. DEPTH (ft)	TOTAL STRESS (tsf)	EFF. STRESS (tsf)	FIELD N (B/ft)	FC DELTA N1_60	C N	CORR. (N1)60 (B/ft)	LIQUE. RESIST RATIO	r d	INDUC. STRESS RATIO	LIQUE. SAFETY FACTOR
30	21.75	1.349	0.670	54	17.68	1.248	82.1	Infin	0.949	0.497	NonLiq
30	22.25	1.379	0.685	54	17.68	1.248	82.1	Infin	0.948	0.496	NonLiq
30	22.75	1.409	0.699	54	17.68	1.248	82.1	Infin	0.947	0.496	NonLiq
31	23.25	1.439	0.713	49	~	~	~	~	~	~	~~
32	23.75	1.469	0.728	52	16.91	1.198	77.5	Infin	0.945	0.496	NonLiq
34	24.25	1.499	0.742	53	17.08	1.186	78.5	Infin	0.943	0.495	NonLiq
36	24.75	1.529	0.757	55	17.47	1.175	80.9	Infin	0.942	0.495	NonLiq
38	25.25	1.559	0.771	64	19.33	1.153	92.1	Infin	0.941	0.495	NonLiq
38	25.75	1.589	0.785	64	19.33	1.153	92.1	Infin	0.940	0.494	NonLiq
38	26.25	1.619	0.800	64	19.33	1.153	92.1	Infin	0.939	0.494	NonLiq
40	26.75	1.649	0.814	68	20.06	1.123	96.6	Infin	0.938	0.494	NonLiq
40	27.25	1.679	0.829	68	20.06	1.123	96.6	Infin	0.936	0.493	NonLiq
41	27.75	1.709	0.843	42	~	~	~	~	~	~	~~
42	28.25	1.739	0.858	23	5.63	1.103	31.0	Infin	0.934	0.492	NonLiq
44	28.75	1.771	0.874	23	5.57	1.093	30.2	Infin	0.933	0.492	NonLiq
46	29.25	1.802	0.889	22	5.51	1.084	29.3	0.406	0.932	0.491	0.83
47	29.75	1.832	0.904	42	~	~	~	~	~	~	~~
47	30.25	1.862	0.919	42	~	~	~	~	~	~	~~
47	30.75	1.892	0.933	42	~	~	~	~	~	~	~~
47	31.25	1.922	0.947	42	~	~	~	~	~	~	~~
48	31.75	1.953	0.963	22	5.43	1.041	28.3	0.360	0.916	0.483	0.75
49	32.25	1.984	0.978	43	~	~	~	~	~	~	~~
50	32.75	2.014	0.993	23	5.45	1.026	28.5	0.366	0.907	0.479	0.76
51	33.25	2.045	1.008	44	~	~	~	~	~	~	~~
52	33.75	2.076	1.023	24	5.57	1.010	30.1	Infin	0.899	0.475	NonLiq
53	34.25	2.106	1.038	45	~	~	~	~	~	~	~~
54	34.75	2.137	1.053	23	5.43	0.996	28.3	0.358	0.891	0.470	0.76
56	35.25	2.168	1.068	24	5.46	0.989	28.7	0.370	0.887	0.468	0.79
58	35.75	2.199	1.084	24	5.49	0.981	29.0	0.384	0.883	0.466	0.82
60	36.25	2.231	1.100	26	5.59	0.974	30.4	Infin	0.879	0.464	NonLiq
61	36.75	2.261	1.115	50	~	~	~	~	~	~	~~
61	37.25	2.291	1.129	50	~	~	~	~	~	~	~~
61	37.75	2.321	1.143	50	~	~	~	~	~	~	~~
61	38.25	2.351	1.158	50	~	~	~	~	~	~	~~
61	38.75	2.381	1.172	50	~	~	~	~	~	~	~~
61	39.25	2.411	1.187	50	~	~	~	~	~	~	~~
62	39.75	2.442	1.202	24	5.40	0.926	27.8	0.335	0.851	0.449	0.74
62	40.25	2.473	1.217	24	5.40	0.926	27.8	0.335	0.846	0.447	0.75
62	40.75	2.504	1.233	24	5.40	0.926	27.8	0.335	0.842	0.445	0.75
64	41.25	2.536	1.249	25	5.37	0.903	27.5	0.324	0.838	0.443	0.73
64	41.75	2.567	1.264	25	5.37	0.903	27.5	0.324	0.834	0.440	0.74
64	42.25	2.598	1.280	25	5.37	0.903	27.5	0.324	0.830	0.438	0.74
64	42.75	2.629	1.296	25	5.37	0.903	27.5	0.324	0.826	0.436	0.74
64	43.25	2.661	1.311	25	5.37	0.903	27.5	0.324	0.822	0.434	0.75

File Name: UCSBGdC1.OUT

SOIL NO.	CALC. DEPTH (ft)	TOTAL STRESS (tsf)	EFF. STRESS (tsf)	FIELD N (B/ft)	FC DELTA N1_60	C N	CORR. (N1)60 (B/ft)	LIQUE. RESIST RATIO	r d	INDUC. STRESS RATIO	LIQUE. SAFETY FACTOR
66	43.75	2.692	1.327	25	5.39	0.887	27.7	0.328	0.818	0.431	0.76
67	44.25	2.722	1.342	51	~	~	~	~	~	~	~~
68	44.75	2.753	1.357	25	5.35	0.858	27.1	0.310	0.810	0.427	0.73
68	45.25	2.784	1.373	25	5.35	0.858	27.1	0.310	0.806	0.425	0.73
68	45.75	2.816	1.388	25	5.35	0.858	27.1	0.310	0.802	0.423	0.73
68	46.25	2.847	1.404	25	5.35	0.858	27.1	0.310	0.798	0.421	0.74
68	46.75	2.878	1.420	25	5.35	0.858	27.1	0.310	0.794	0.418	0.74
68	47.25	2.909	1.435	25	5.35	0.858	27.1	0.310	0.789	0.416	0.75
68	47.75	2.941	1.451	25	5.35	0.858	27.1	0.310	0.785	0.414	0.75
68	48.25	2.972	1.466	25	5.35	0.858	27.1	0.310	0.781	0.412	0.75
70	48.75	3.003	1.482	26	5.35	0.839	27.2	0.309	0.777	0.409	0.75
71	49.25	3.034	1.497	52	~	~	~	~	~	~	~~
73	49.75	3.064	1.512	47	~	~	~	~	~	~	~~

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*      L I Q U E F Y 2      *
*                           *
*       Version 1.50        *
*                           *
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EMPIRICAL PREDICTION OF
EARTHQUAKE-INDUCED LIQUEFACTION POTENTIAL

JOB NUMBER: DATE: 02-15-2008

JOB NAME: UCSB Technical Greenhouse, CPT-1 (Simplified Strata)

SOIL-PROFILE NAME: UCSBGsC1.LDW

BORING GROUNDWATER DEPTH: 0.00 ft

CALCULATION GROUNDWATER DEPTH: 0.00 ft

DESIGN EARTHQUAKE MAGNITUDE: 7.50 Mw

SITE PEAK GROUND ACCELERATION: 0.400 g

BOREHOLE DIAMETER CORRECTION FACTOR: 1.00

SAMPLER SIZE CORRECTION FACTOR: 1.00

N60 HAMMER CORRECTION FACTOR: 1.00

MAGNITUDE SCALING FACTOR METHOD: Idriss (1997, in press)

Magnitude Scaling Factor: 1.000

rd-CORRECTION METHOD: NCEER (1997)

FIELD SPT N-VALUES ARE CORRECTED FOR THE LENGTH OF THE DRIVE RODS.

Rod Stick-Up Above Ground: 3.0 ft

CN NORMALIZATION FACTOR: 1.044 tsf

MINIMUM CN VALUE: 0.6

NCEER [1997] Method — LIQUEFACTION ANALYSIS SUMMARY —

File Name: UCSBGsC1.OUT

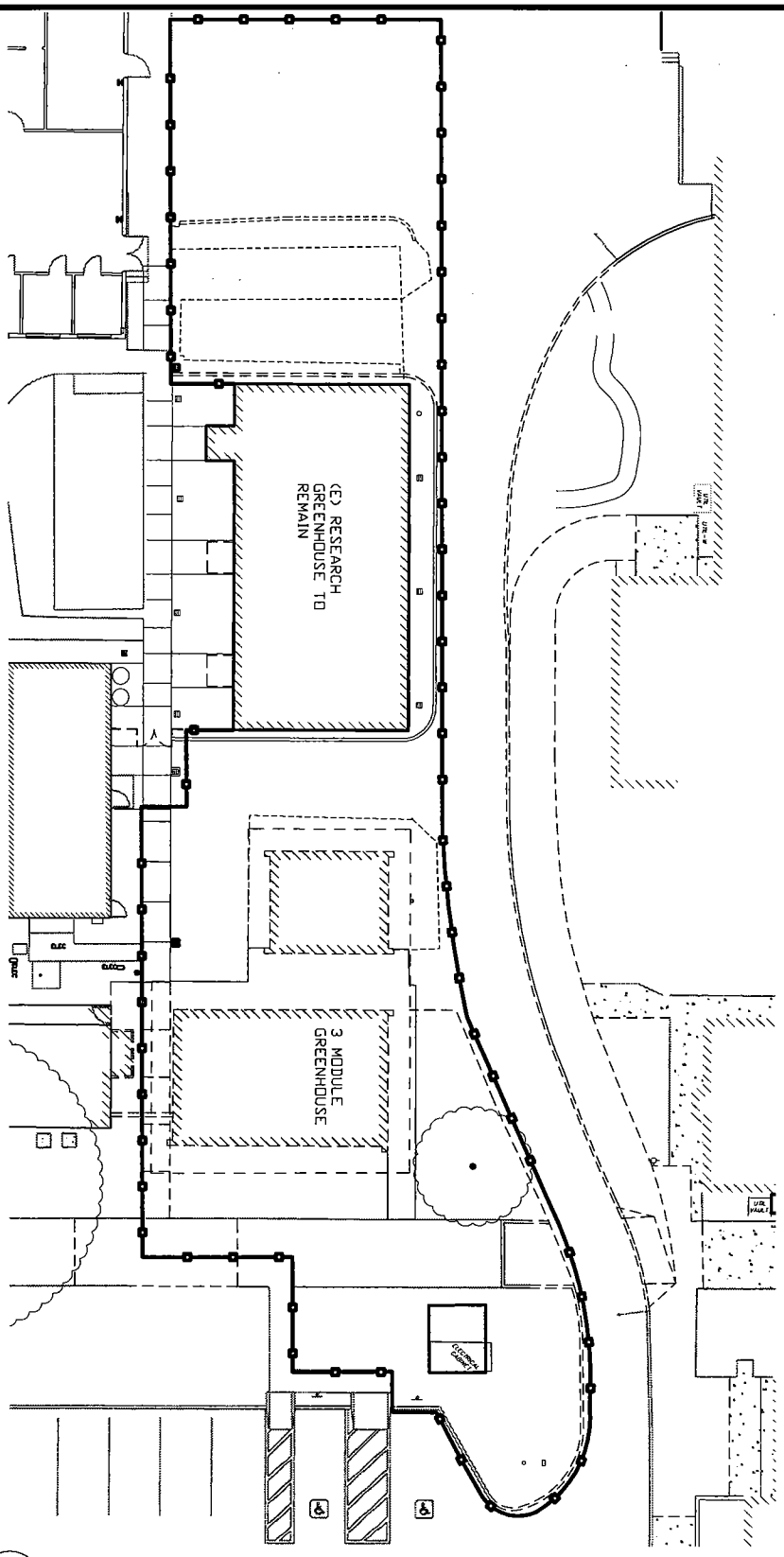
SOIL NO.	CALC. DEPTH (ft)	TOTAL STRESS (tsf)	EFF. STRESS (tsf)	FIELD N (B/ft)	FC DELTA N1_60	C N	CORR. (N1)60 (B/ft)	LIQUE. RESIST RATIO	r d	INDUC. STRESS RATIO	LIQUE. SAFETY FACTOR
1	0.25	0.016	0.008	65	11.41	2.000	109.5	Infin	0.999	0.519	NonLiq
1	0.75	0.047	0.023	65	11.41	2.000	109.5	Infin	0.998	0.518	NonLiq
1	1.25	0.078	0.039	65	11.41	2.000	109.5	Infin	0.997	0.518	NonLiq
1	1.75	0.109	0.055	65	11.41	2.000	109.5	Infin	0.996	0.517	NonLiq
1	2.25	0.141	0.070	65	11.41	2.000	109.5	Infin	0.995	0.516	NonLiq
1	2.75	0.172	0.086	65	11.41	2.000	109.5	Infin	0.994	0.516	NonLiq
1	3.25	0.203	0.102	65	11.41	2.000	109.5	Infin	0.992	0.515	NonLiq
1	3.75	0.234	0.117	65	11.41	2.000	109.5	Infin	0.991	0.515	NonLiq
1	4.25	0.266	0.133	65	11.41	2.000	109.5	Infin	0.990	0.514	NonLiq
1	4.75	0.297	0.149	65	11.41	2.000	109.5	Infin	0.989	0.513	NonLiq
1	5.25	0.328	0.164	65	11.41	2.000	109.5	Infin	0.988	0.513	NonLiq
1	5.75	0.359	0.180	65	11.41	2.000	109.5	Infin	0.987	0.512	NonLiq
1	6.25	0.391	0.196	65	11.41	2.000	109.5	Infin	0.985	0.512	NonLiq
1	6.75	0.422	0.211	65	11.41	2.000	109.5	Infin	0.984	0.511	NonLiq
1	7.25	0.453	0.227	65	11.41	2.000	109.5	Infin	0.983	0.510	NonLiq
1	7.75	0.484	0.243	65	11.41	2.000	109.5	Infin	0.982	0.510	NonLiq
1	8.25	0.516	0.258	65	11.41	2.000	109.5	Infin	0.981	0.509	NonLiq
1	8.75	0.547	0.274	65	11.41	2.000	109.5	Infin	0.980	0.509	NonLiq
1	9.25	0.578	0.290	65	11.41	2.000	109.5	Infin	0.978	0.508	NonLiq
1	9.75	0.609	0.305	65	11.41	2.000	109.5	Infin	0.977	0.507	NonLiq
1	10.25	0.641	0.321	65	11.41	2.000	109.5	Infin	0.976	0.507	NonLiq
1	10.75	0.672	0.336	65	11.41	2.000	109.5	Infin	0.975	0.506	NonLiq
1	11.25	0.703	0.352	65	11.41	2.000	109.5	Infin	0.974	0.506	NonLiq
1	11.75	0.734	0.368	65	11.41	2.000	109.5	Infin	0.973	0.505	NonLiq
1	12.25	0.766	0.383	65	11.41	2.000	109.5	Infin	0.971	0.504	NonLiq
1	12.75	0.797	0.399	65	11.41	2.000	109.5	Infin	0.970	0.504	NonLiq
1	13.25	0.828	0.415	65	11.41	2.000	109.5	Infin	0.969	0.503	NonLiq
1	13.75	0.859	0.430	65	11.41	2.000	109.5	Infin	0.968	0.503	NonLiq
1	14.25	0.891	0.446	65	11.41	2.000	109.5	Infin	0.967	0.502	NonLiq
1	14.75	0.922	0.462	65	11.41	2.000	109.5	Infin	0.966	0.501	NonLiq
1	15.25	0.953	0.477	65	11.41	2.000	109.5	Infin	0.964	0.501	NonLiq
2	15.75	0.984	0.492	28	~	~	~	~	~	~	~~
2	16.25	1.014	0.507	28	~	~	~	~	~	~	~~
3	16.75	1.044	0.521	55	18.15	1.311	85.0	Infin	0.961	0.500	NonLiq
3	17.25	1.074	0.536	55	18.15	1.311	85.0	Infin	0.960	0.500	NonLiq
3	17.75	1.104	0.550	55	18.15	1.311	85.0	Infin	0.959	0.500	NonLiq
3	18.25	1.134	0.564	55	18.15	1.311	85.0	Infin	0.957	0.500	NonLiq
3	18.75	1.164	0.579	55	18.15	1.311	85.0	Infin	0.956	0.500	NonLiq
3	19.25	1.194	0.593	55	18.15	1.311	85.0	Infin	0.955	0.500	NonLiq
3	19.75	1.224	0.608	55	18.15	1.311	85.0	Infin	0.954	0.500	NonLiq
3	20.25	1.254	0.622	55	18.15	1.311	85.0	Infin	0.953	0.499	NonLiq
3	20.75	1.284	0.636	55	18.15	1.311	85.0	Infin	0.952	0.499	NonLiq
3	21.25	1.314	0.651	55	18.15	1.311	85.0	Infin	0.950	0.499	NonLiq

File Name: UCSBGsC1.OUT

SOIL NO.	CALC. DEPTH (ft)	TOTAL STRESS (tsf)	EFF. STRESS (tsf)	FIELD N (B/ft)	FC DELTA N1_60	C N	CORR. (N1)60 (B/ft)	LIQUE. RESIST RATIO	r d	INDUC. STRESS RATIO	LIQUE. SAFETY FACTOR
3	21.75	1.344	0.665	55	18.15	1.311	85.0	Infin	0.949	0.499	NonLiq
3	22.25	1.374	0.680	55	18.15	1.311	85.0	Infin	0.948	0.498	NonLiq
3	22.75	1.404	0.694	55	18.15	1.311	85.0	Infin	0.947	0.498	NonLiq
4	23.25	1.434	0.708	49	~	~	~	~	~	~	~~
5	23.75	1.464	0.723	52	16.95	1.202	77.7	Infin	0.945	0.497	NonLiq
7	24.25	1.494	0.737	62	18.92	1.157	89.7	Infin	0.943	0.497	NonLiq
7	24.75	1.524	0.752	62	18.92	1.157	89.7	Infin	0.942	0.497	NonLiq
7	25.25	1.554	0.766	62	18.92	1.157	89.7	Infin	0.941	0.496	NonLiq
7	25.75	1.584	0.780	62	18.92	1.157	89.7	Infin	0.940	0.496	NonLiq
7	26.25	1.614	0.795	62	18.92	1.157	89.7	Infin	0.939	0.496	NonLiq
7	26.75	1.644	0.809	62	18.92	1.157	89.7	Infin	0.938	0.495	NonLiq
7	27.25	1.674	0.824	62	18.92	1.157	89.7	Infin	0.936	0.495	NonLiq
8	27.75	1.704	0.838	42	~	~	~	~	~	~	~~
9	28.25	1.734	0.853	23	5.64	1.106	31.1	Infin	0.934	0.494	NonLiq
11	28.75	1.766	0.869	23	5.57	1.096	30.2	Infin	0.933	0.493	NonLiq
13	29.25	1.797	0.884	22	5.51	1.087	29.4	0.411	0.932	0.492	0.83
14	29.75	1.827	0.899	42	~	~	~	~	~	~	~~
14	30.25	1.857	0.914	42	~	~	~	~	~	~	~~
14	30.75	1.887	0.928	42	~	~	~	~	~	~	~~
14	31.25	1.917	0.942	42	~	~	~	~	~	~	~~
15	31.75	1.948	0.958	22	5.44	1.044	28.4	0.362	0.916	0.484	0.75
16	32.25	1.979	0.973	43	~	~	~	~	~	~	~~
17	32.75	2.009	0.988	23	5.45	1.028	28.6	0.369	0.907	0.480	0.77
18	33.25	2.040	1.003	44	~	~	~	~	~	~	~~
19	33.75	2.071	1.018	24	5.57	1.013	30.2	Infin	0.899	0.476	NonLiq
20	34.25	2.101	1.033	45	~	~	~	~	~	~	~~
21	34.75	2.132	1.048	23	5.44	0.998	28.4	0.360	0.891	0.471	0.76
23	35.25	2.163	1.063	24	5.46	0.991	28.8	0.372	0.887	0.469	0.79
25	35.75	2.194	1.079	24	5.49	0.984	29.1	0.388	0.883	0.467	0.83
27	36.25	2.226	1.095	26	5.59	0.977	30.5	Infin	0.879	0.465	NonLiq
28	36.75	2.256	1.110	50	~	~	~	~	~	~	~~
28	37.25	2.286	1.124	50	~	~	~	~	~	~	~~
28	37.75	2.316	1.138	50	~	~	~	~	~	~	~~
28	38.25	2.346	1.153	50	~	~	~	~	~	~	~~
28	38.75	2.376	1.167	50	~	~	~	~	~	~	~~
28	39.25	2.406	1.182	50	~	~	~	~	~	~	~~
29	39.75	2.437	1.197	24	5.40	0.928	27.9	0.336	0.851	0.450	0.75
29	40.25	2.468	1.212	24	5.40	0.928	27.9	0.336	0.846	0.448	0.75
29	40.75	2.499	1.228	24	5.40	0.928	27.9	0.336	0.842	0.446	0.75
31	41.25	2.531	1.244	25	5.38	0.905	27.5	0.326	0.838	0.444	0.73
31	41.75	2.562	1.259	25	5.38	0.905	27.5	0.326	0.834	0.441	0.74
31	42.25	2.593	1.275	25	5.38	0.905	27.5	0.326	0.830	0.439	0.74
31	42.75	2.624	1.291	25	5.38	0.905	27.5	0.326	0.826	0.437	0.75
31	43.25	2.656	1.306	25	5.38	0.905	27.5	0.326	0.822	0.435	0.75

File Name: UCSBGsC1.OUT

SOIL NO.	CALC. DEPTH (ft)	TOTAL STRESS (tsf)	EFF. STRESS (tsf)	FIELD N (B/ft)	FC DELTA N1_60	C N	CORR. (N1)60 (B/ft)	LIQUE. RESIST RATIO	r d	INDUC. STRESS RATIO	LIQUE. SAFETY FACTOR
33	43.75	2.687	1.322	25	5.39	0.889	27.8	0.330	0.818	0.432	0.76
34	44.25	2.717	1.337	51	~	~	~	~	~	~	~~
35	44.75	2.748	1.352	25	5.35	0.859	27.2	0.311	0.810	0.428	0.73
35	45.25	2.779	1.368	25	5.35	0.859	27.2	0.311	0.806	0.426	0.73
35	45.75	2.811	1.383	25	5.35	0.859	27.2	0.311	0.802	0.424	0.73
35	46.25	2.842	1.399	25	5.35	0.859	27.2	0.311	0.798	0.421	0.74
35	46.75	2.873	1.415	25	5.35	0.859	27.2	0.311	0.794	0.419	0.74
35	47.25	2.904	1.430	25	5.35	0.859	27.2	0.311	0.789	0.417	0.75
35	47.75	2.936	1.446	25	5.35	0.859	27.2	0.311	0.785	0.415	0.75
35	48.25	2.967	1.461	25	5.35	0.859	27.2	0.311	0.781	0.412	0.75
37	48.75	2.998	1.477	26	5.35	0.841	27.2	0.310	0.777	0.410	0.76
38	49.25	3.029	1.492	52	~	~	~	~	~	~	~~
40	49.75	3.059	1.507	47	~	~	~	~	~	~	~~



NOTES:

FENCING

1. MAINTAIN ACCESS AT SERVICE DRIVE. PROVIDE 72 HOURS NOTICE TO UNIVERSITY PRIOR TO ANY INTERRUPTIONS.

2. MAINTAIN ACCESS TO (E) FIRE HYDRANTS.

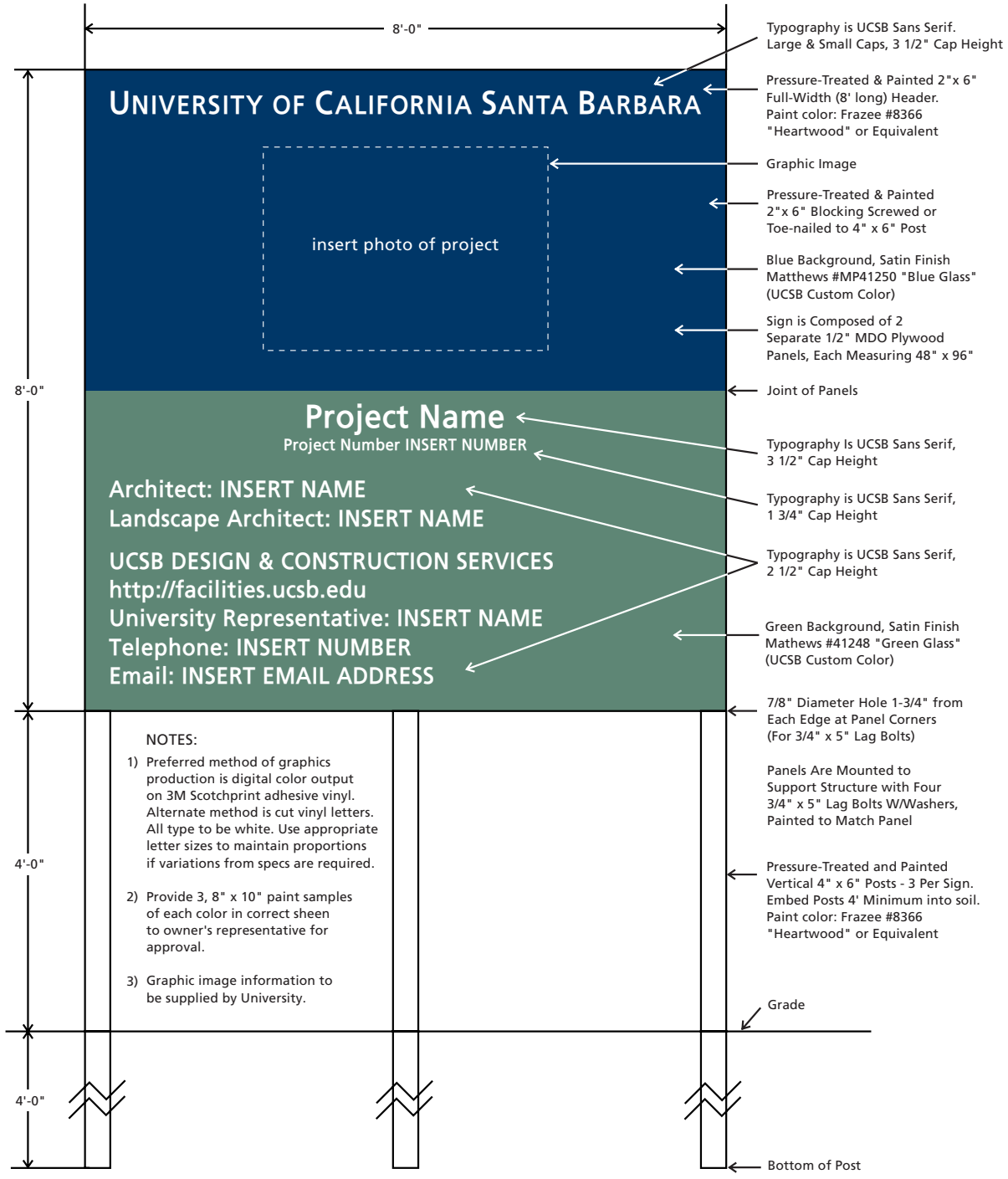
1 **LIMITS OF CONSTRUCTION FENCING - SK1**
SCALE: 1/64" = 1'-0"

N

MFDB ARCHITECTS
P: 916.972.0131
111 SCRIPPS DRIVE, SACRAMENTO, CA 95825

UNIVERSITY OF CALIFORNIA, SANTA BARBARA
REPLACEMENT GREENHOUSE
SANTA BARBARA
UCSB PROJECT NUMBER: FM110575L/248-09

Date 02/16/2012
Job No. 21017
Dwg. ADD2- A1.1
Ref. A1.1



PS-1: Large Project Site Sign - Master
Scale: 1/2" = 1'

Canyon Road Design, Inc T 818.889.5356 F 818.991.1685