

APPENDIX B

LABORATORY TEST PROCEDURES AND RESULTS

LABORATORY TEST RESULTS BY NEBLETT AND ASSOCIATES, INC.

LABORATORY TEST PROCEDURES AND RESULTS

The samples obtained during the field investigation were transported to the laboratory for testing and analysis. The results of tests performed on selected samples are presented herein. The laboratory testing program consisted of the following:

In-Situ Moisture Content and Dry Density

The in-situ moisture content and dry density of representative soil samples were determined in accordance with ASTM: D 2216 and 2937 test procedures, respectively. The test results are shown on the logs of borings.

Grain Size

Selected bulk sample was tested in accordance with ASTM: D 422 to determine soil particle size as an aid in classification of soil types. The test results are presented as Plates B-1 through B-7.

Direct Shear

Direct shear tests were performed on representative remolded and undisturbed samples of the subsurface materials with a direct shear machine of the strain-controlled type in which the rate of strain is 0.04 inches per minute. The samples were remolded to 90 percent relative compaction (ASTM: D1557). Remolded and undisturbed samples were soaked in a confined state prior to shearing. Each sample was sheared under varied normal loads ranging from 1.0 ksf to 4.0 ksf. The test results are plotted on Plates B-8 through B-10.

Consolidation

Consolidation test was performed on a representative, undisturbed sample of the soils to determine the compressibility characteristics. The samples were soaked during the tests to simulate possible adverse field conditions. The test results are presented on Plates B-11 through B-13.

Maximum Dry Density and Optimum Moisture Content

Maximum dry density and optimum moisture content tests were performed on representative bulk samples in accordance with ASTM: D 1557. The results are presented in Table 1.

Table 1

Location	Maximum Dry Density (pcf)	Optimum Moisture Content (%)
NB-1 @ 0-7.5ft.	140.0	6.5
NB-5 @ 0-5 ft.	133.5	8.5

Sulfate Content

Selected bulk samples were tested for soluble sulfate content in accordance with California Test 417. Cement type and water-cement ratio should conform to the guidelines in UBC Table 19-A-4. The test results are presented in Table 2.

Table 2

Sample	Water Soluble Sulfate In Soil (Percentage by weight)	Sulfate Exposure (UBC Table 19-A-4)
NB-1 @ 0-7.5 ft.	0.0044	Negligible
NB-5 @ 0-5 ft.	0.0058	Negligible

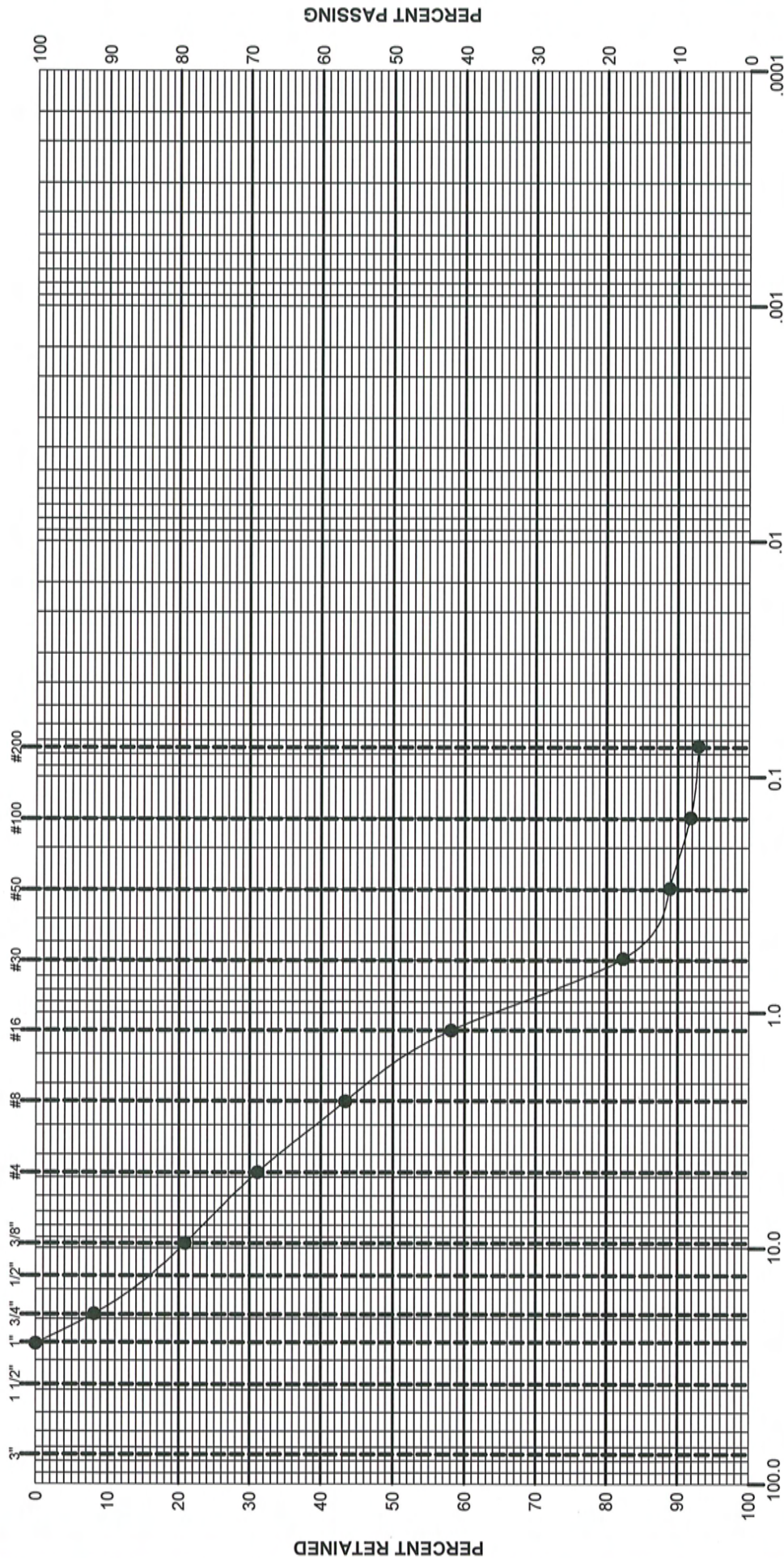
Expansion Index:

Representative bulk soil samples were tested for expansion potential following the ASTM D-4829 Test Procedure. Test results are presented in the following Table 3.

Table 3

Location	Expansion Index	Expansion Potential (UBC 18-1-B)
NB-1 @ 0-7.5 ft.	0	Very Low
NB-5 @ 0-5 ft.	0	Very Low

ASTM SIEVE DESIGNATION



GRAVEL	SAND			SILT	CLAY	COLLOIDS
	COARSE	MEDIUM	FINE			

Symbol	Boring or Trench	Depth (ft.)	L.L.	P.L.	P.I.	% Passing #200 sieve	Group Symbol	Typical Names
●	NB-2	15.00				7.1	SW	

GRAIN SIZE DISTRIBUTION

NEBLETT & ASSOCIATES, INC.

4911 WARNER AVENUE, SUITE 218

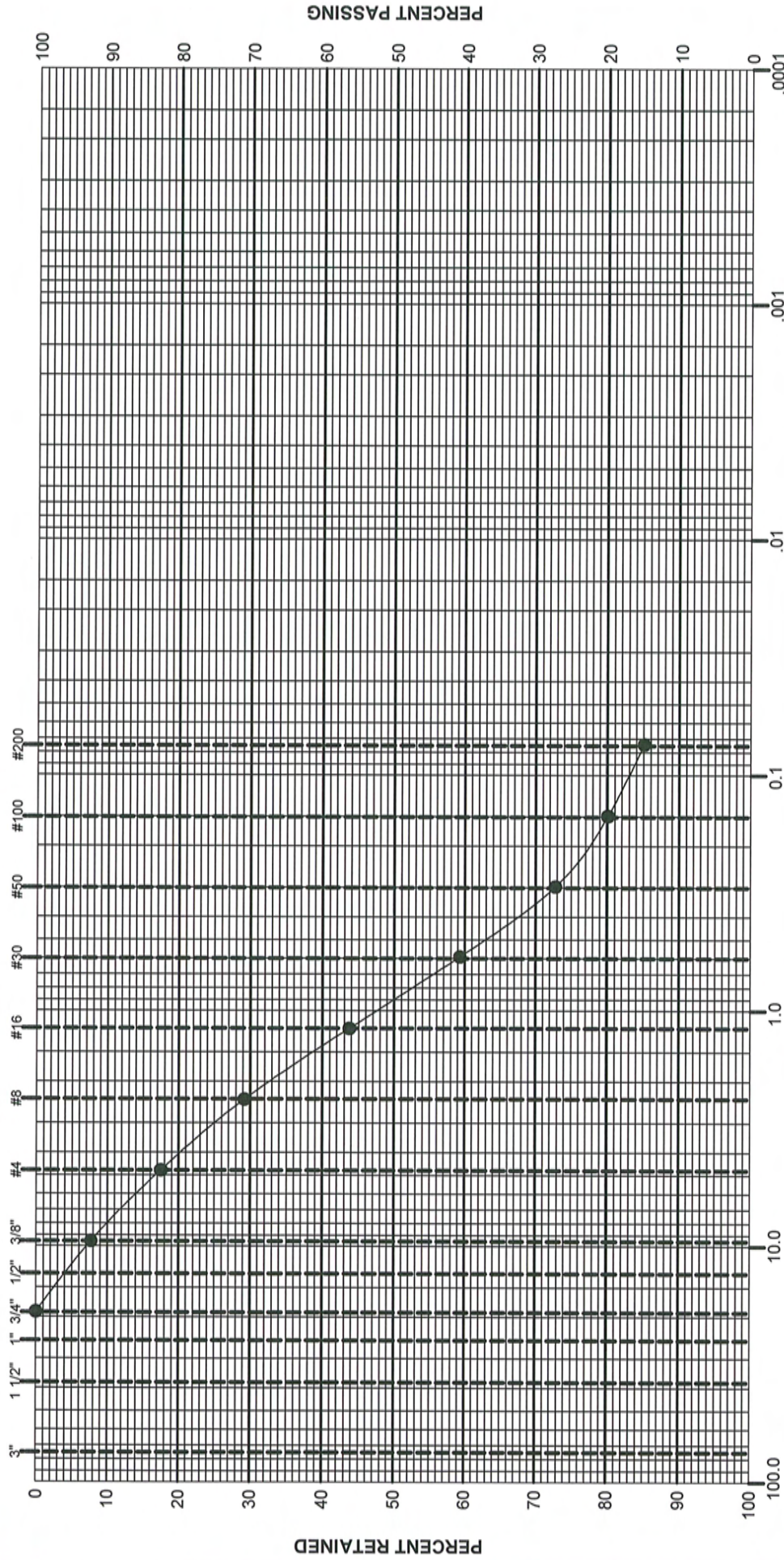
HUNTINGTON BEACH, CA, 92649

714 840-8286

P.N. 690-000-03

DATE 11/13/08

ASTM SIEVE DESIGNATION

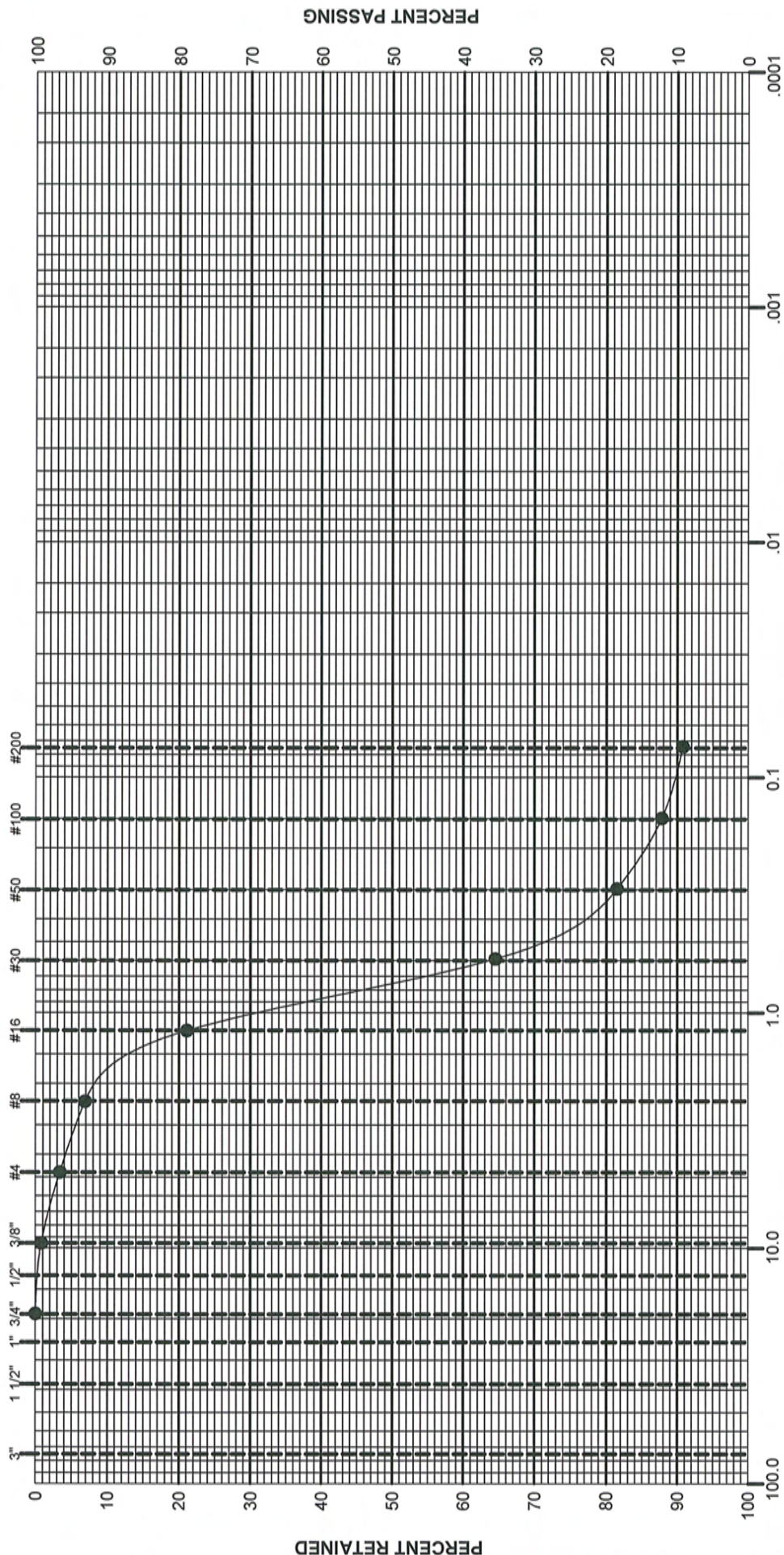


GRAVEL		SAND		SILT	CLAY	COLLOIDS
		COARSE	MEDIUM	FINE		

GRAIN SIZE DISTRIBUTION					Typical Names	
Symbol	Boring or Trench	Depth (ft.)	L.L.	P.L.	P.I.	% Passing #200 sieve
●	NB-2	35.00				14.9
						SW

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P.N. 690-000-03 DATE 11/13/08

ASTM SIEVE DESIGNATION



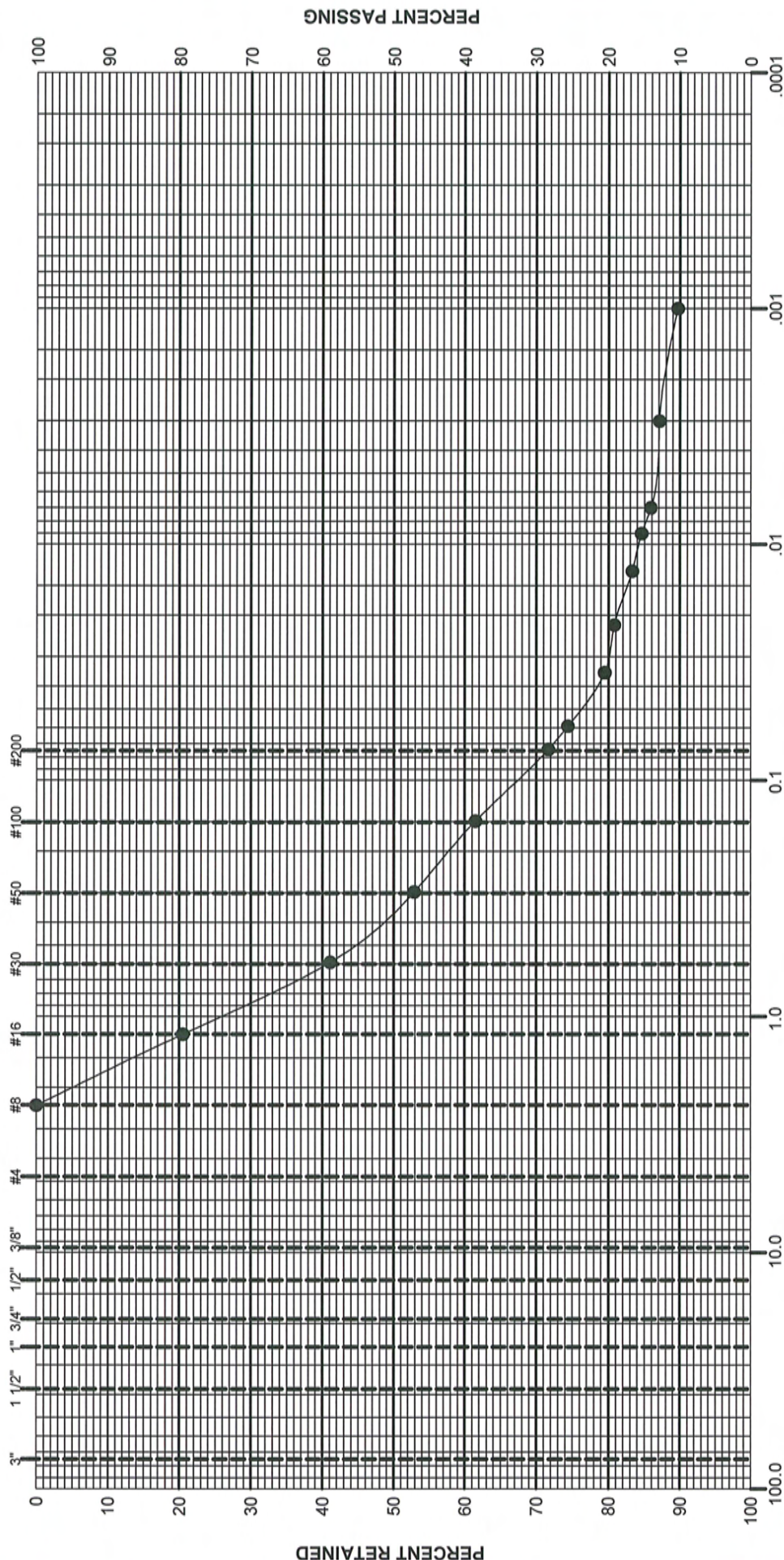
GRAVEL	SAND			SILT	CLAY	COLLOIDS
	COARSE	MEDIUM	FINE			

Symbol	Boring or Trench	Depth (ft.)	L.L.	P.L.	P.I.	% Passing #200 sieve	Group Symbol	Typical Names
●	NB-3	15.00				9.2	SM	

GRAIN SIZE DISTRIBUTION

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ASTM SIEVE DESIGNATION



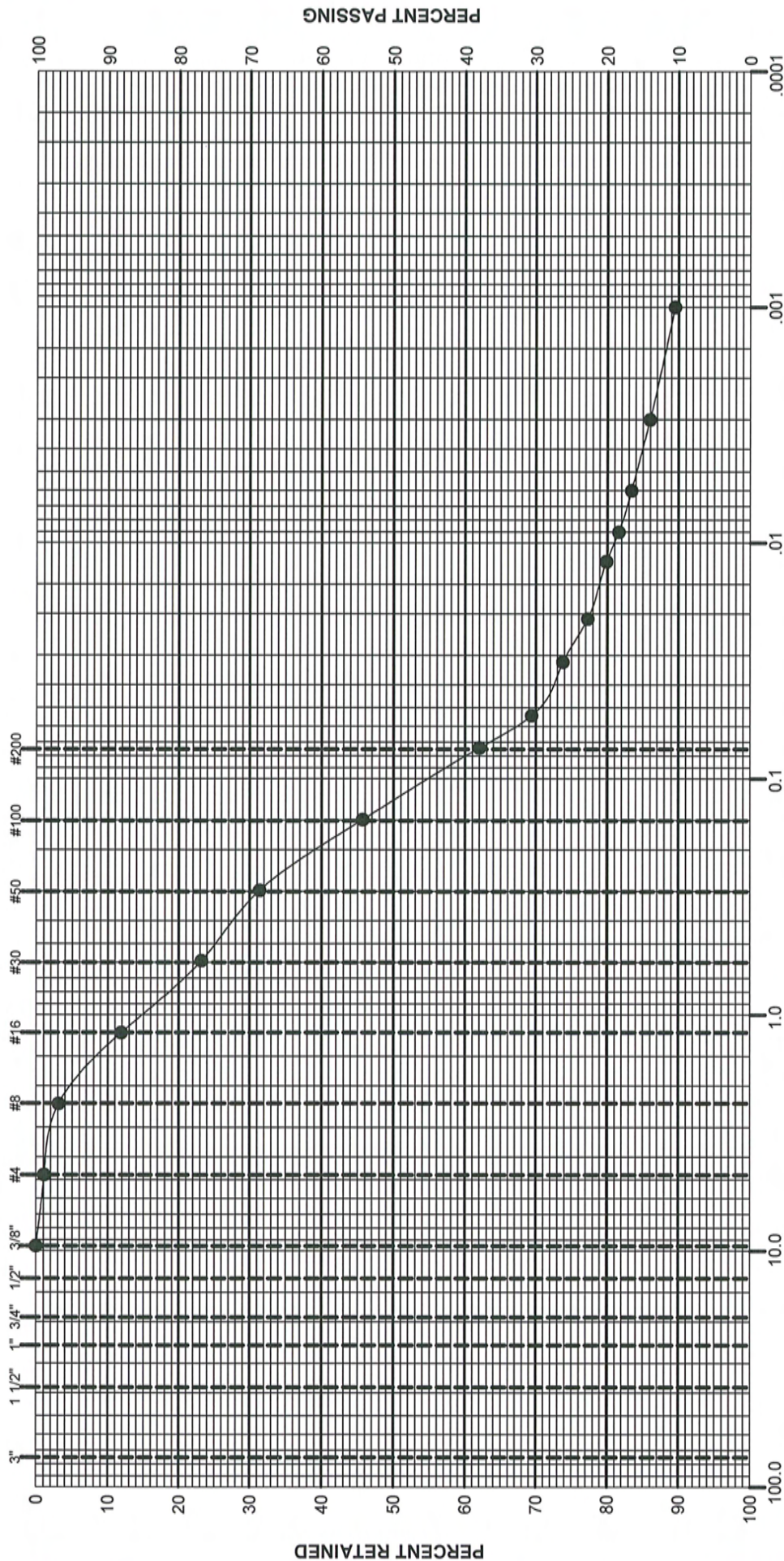
GRAVEL	SAND			SILT	CLAY	COLLOIDS
	COARSE	MEDIUM	FINE			

Symbol	Boring or Trench	Depth (ft.)	L.L.	P.L.	P.I.	% Passing #200 sieve	Group Symbol	Typical Names
●	NB-3	40.00				28.3	SM	

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ASTM SIEVE DESIGNATION



GRAVEL	SAND			SILT	CLAY	COLLOIDS
	COARSE	MEDIUM	FINE			

Symbol	Boring or Trench	Depth (ft.)	L.L.	P.L.	P.I.	% Passing #200 sieve	Group Symbol	Typical Names
●	NB-5	30.00				38.0	SM	

GRAIN SIZE DISTRIBUTION

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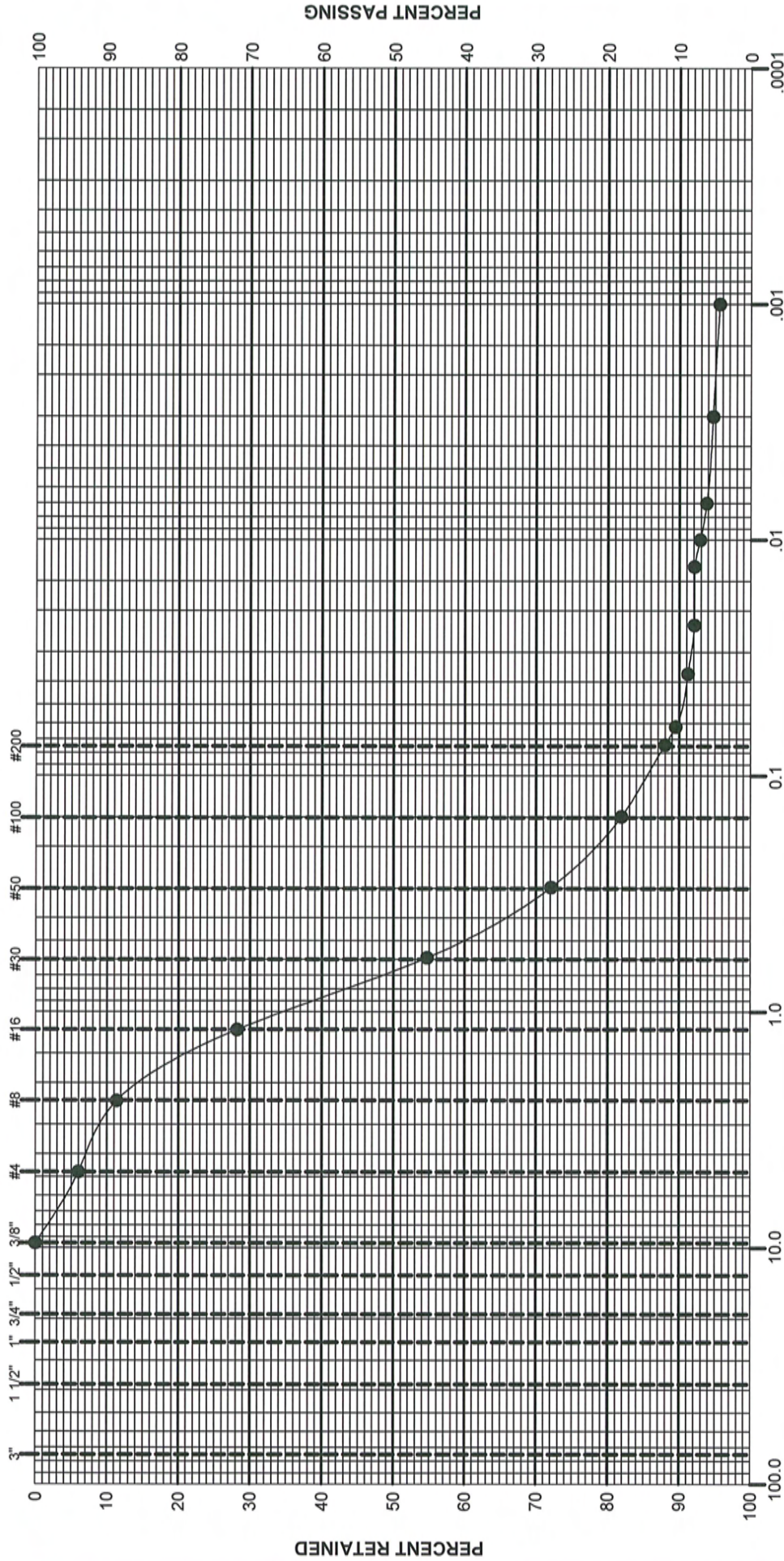
HUNTINGTON BEACH, CA, 92649

714 840-8286

P.N. 690-000-03

DATE 11/13/08

ASTM SIEVE DESIGNATION



GRAVEL	SAND			SILT	CLAY	COLLOIDS
	COARSE	MEDIUM	FINE			

Symbol	Boring or Trench	Depth (ft.)	L.L.	P.L.	P.I.	% Passing #200 sieve	Group Symbol	Typical Names
●	NB-5	40.00				12.0	SW	

GRAIN SIZE DISTRIBUTION

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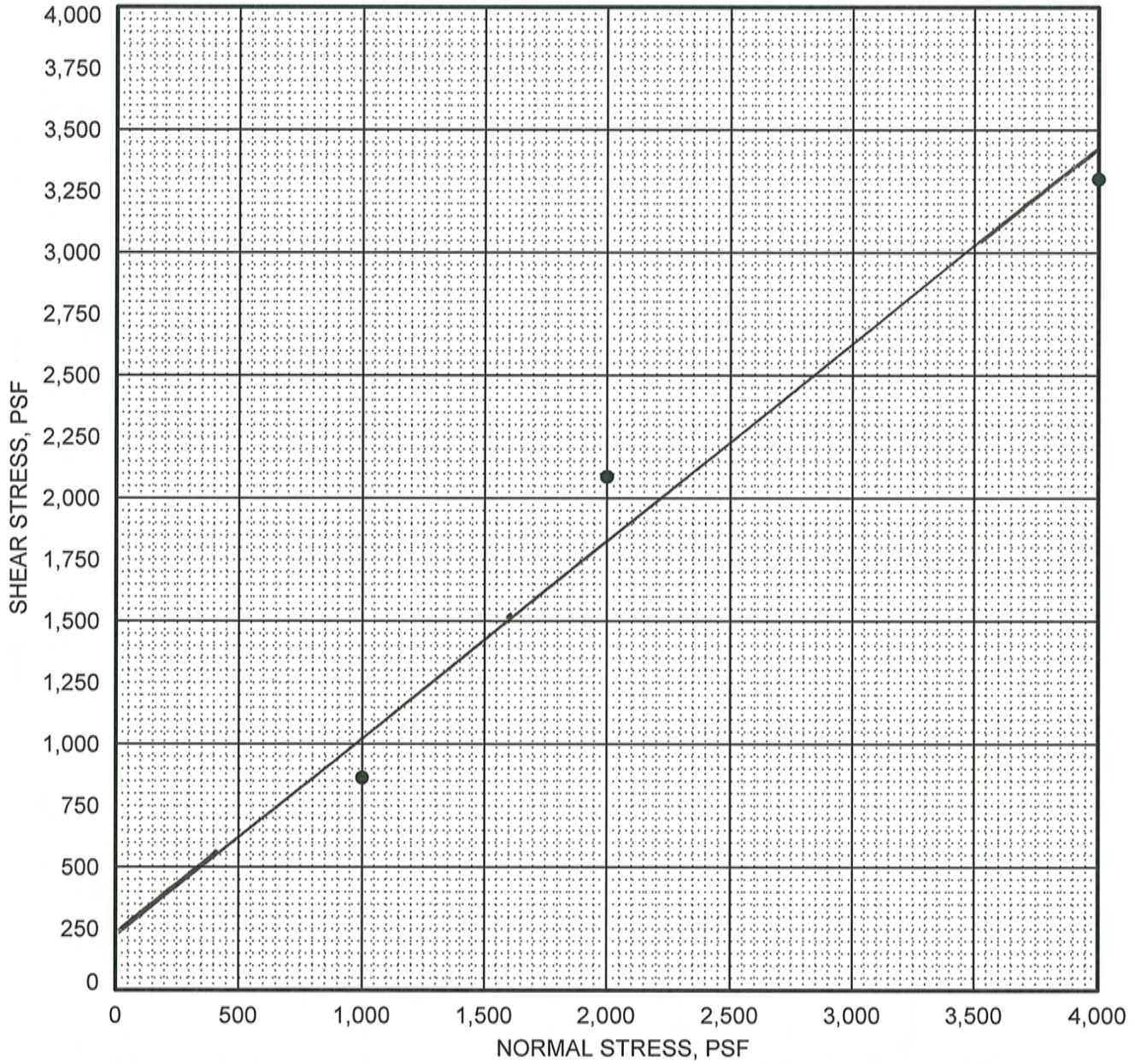
4911 WARNER AVENUE, SUITE 218

HUNTINGTON BEACH, CA, 92649 714 840-8286

P.N. 690-000-03 DATE 11/13/08

DIRECT SHEAR TEST

Undisturbed



		COHESION	258 psf.
		FRICTION ANGLE	38.0 degrees

symbol	boring	depth (ft.)	symbol	boring	depth (ft.)
●	NB-1	7.5			

DIRECT SHEAR TEST



NEBLETT & ASSOCIATES, INC.

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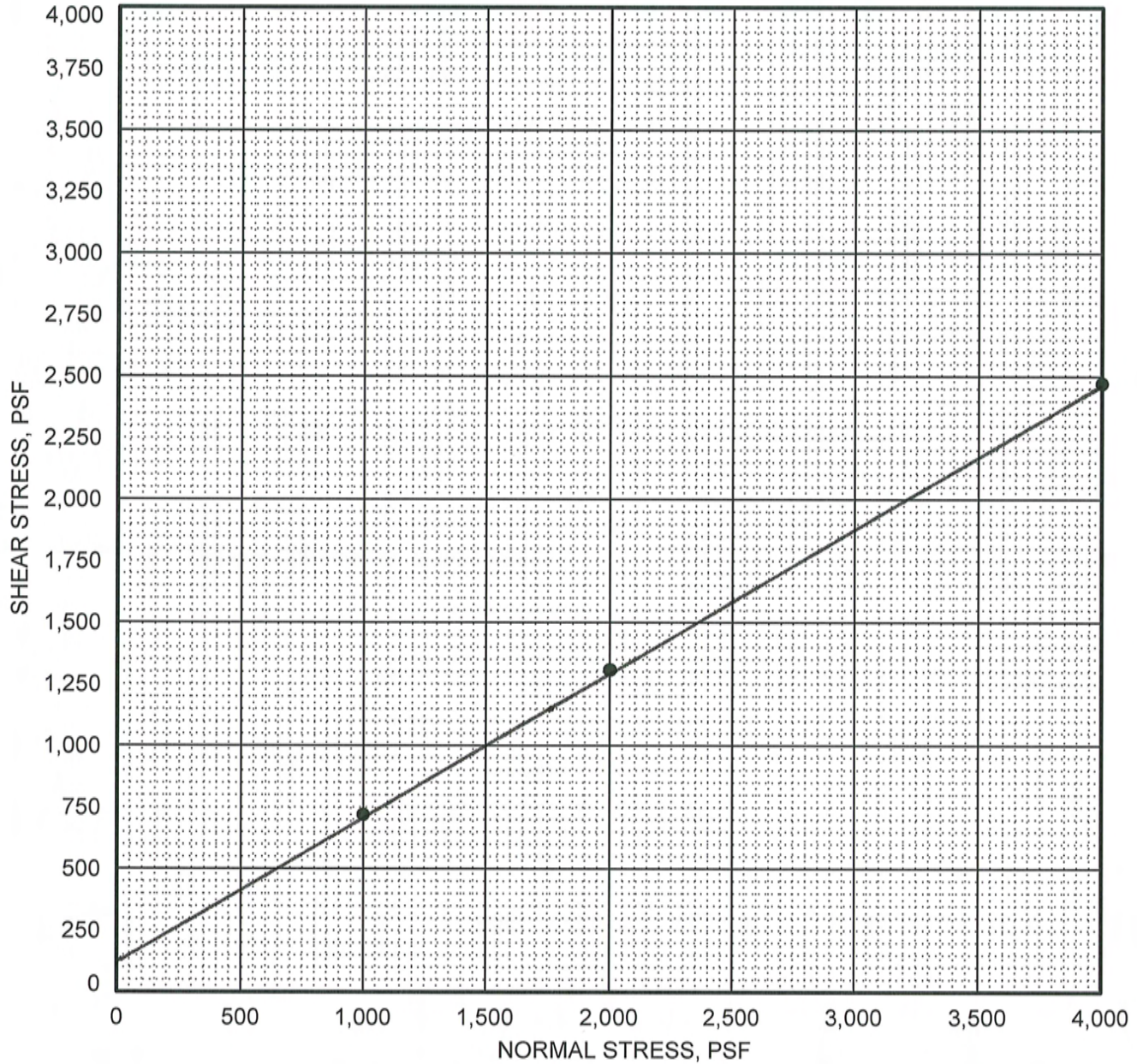
P.N. 690-000-03

DATE 11/13/08

PLATE B-8

DIRECT SHEAR TEST

Undisturbed



	COHESION	138 psf.
	FRICTION ANGLE	30.0 degrees

symbol	boring	depth (ft.)	symbol	boring	depth (ft.)
●	NB-5	2.5			

DIRECT SHEAR TEST



NEBLETT & ASSOCIATES, INC.

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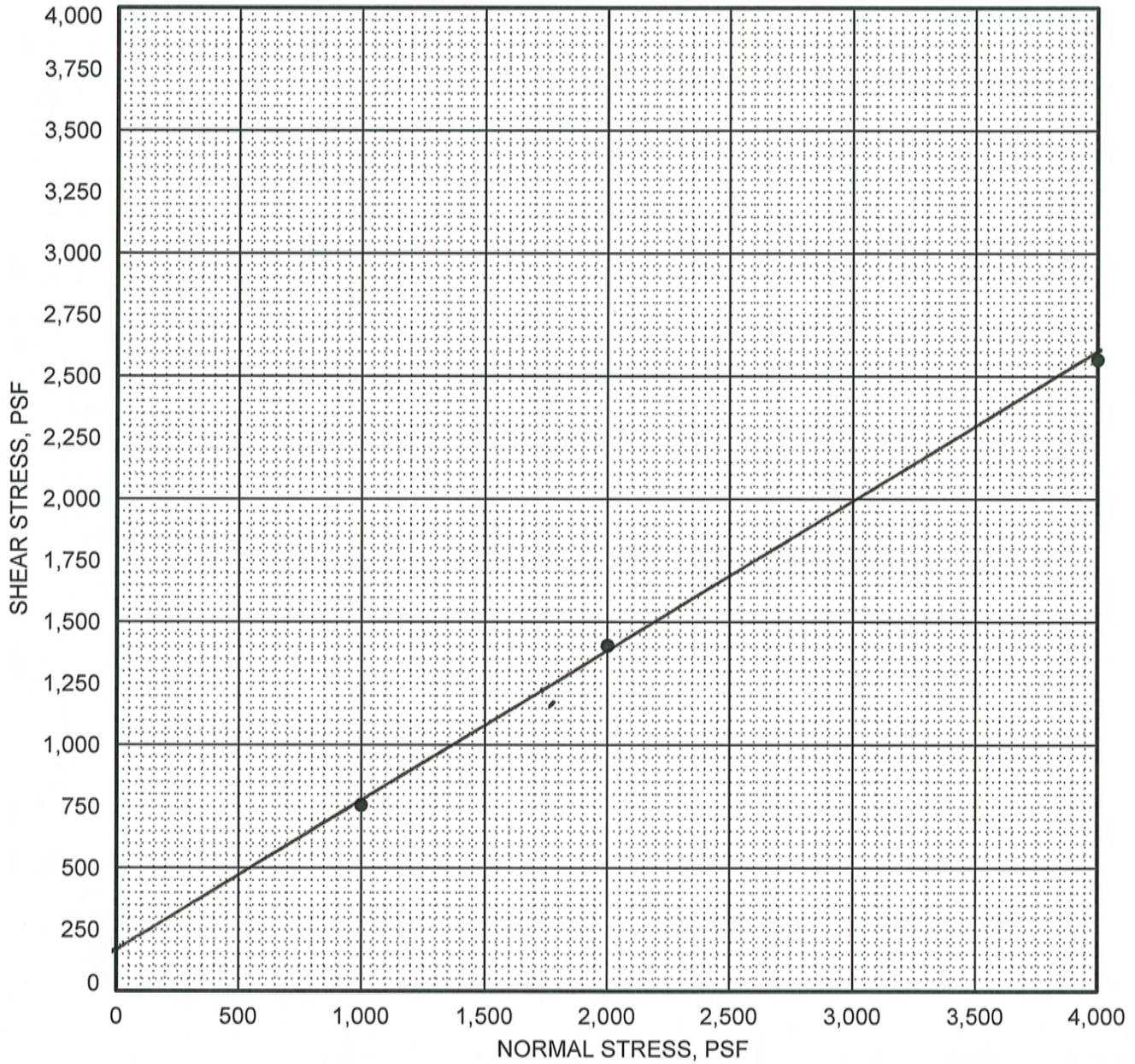
P.N. 690-000-03

DATE 11/13/08

PLATE B-9

DIRECT SHEAR TEST

Undisturbed



		COHESION	174 psf.
		FRICTION ANGLE	31.0 degrees

symbol	boring	depth (ft.)	symbol	boring	depth (ft.)
●	NB-6	5.0			

DIRECT SHEAR TEST



NEBLETT & ASSOCIATES, INC.

4911 WARNER AVENUE, SUITE 218

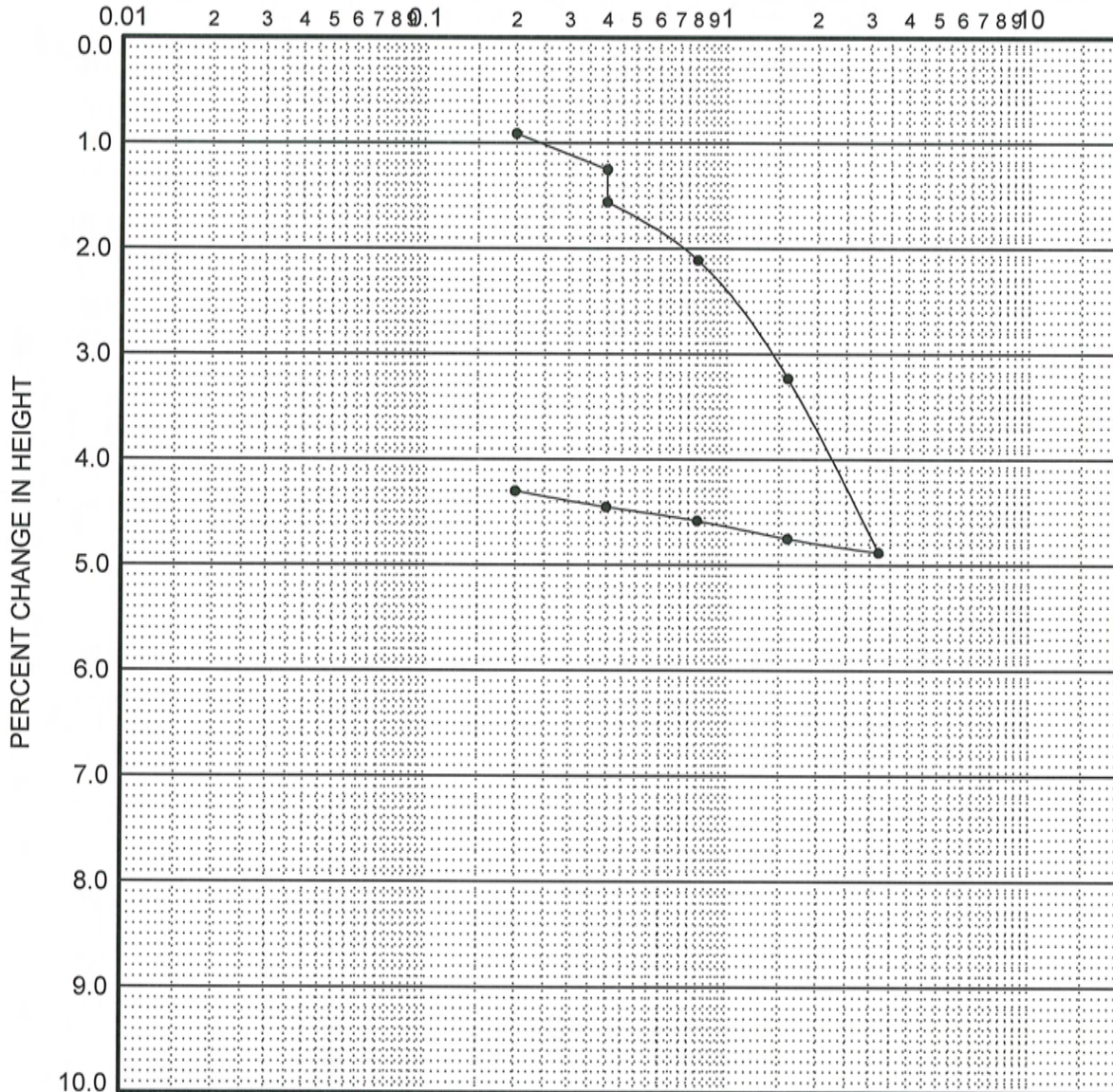
HUNTINGTON BEACH, CA, 92649 714 840-8286

P.N. 690-000-03

DATE 11/13/08

PLATE B10

COMPRESSIVE STRESS IN TSF



Boring	Depth(ft.)	Dry Density	in situ Moist.	-200 sieve	Group Symbol	Soil Description
NB-1	7.5	113.7	10.3		SC	

WATER ADDED AT 0.4 TSF.

CONSOLIDATION CURVE



NEBLETT & ASSOCIATES, INC.

4911 WARNER AVENUE, SUITE 218
HUNTINGTON BEACH, CA, 92649

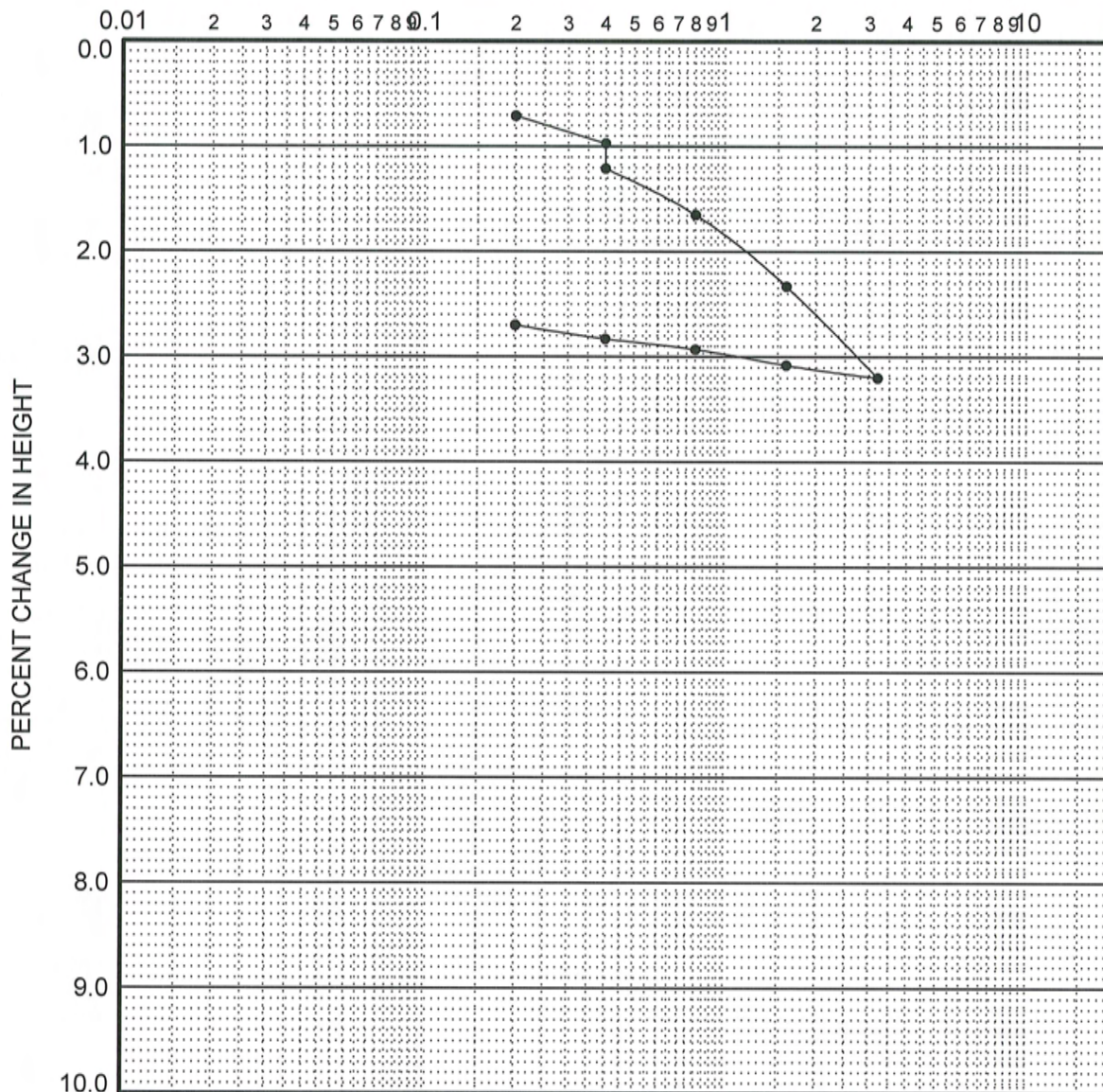
714 840-8286

PN 690-000-03

DATE 11/13/08

PLATE B-11

COMPRESSION STRESS IN TSF



Boring	Depth(ft.)	Dry Density	in situ Moist.	-200 sieve	Group Symbol	Soil Description
NB-3	20.0	117.5	5.9		SM	

WATER ADDED AT 0.4 TSF.

CONSOLIDATION CURVE



NEBLETT & ASSOCIATES, INC.

4911 WARNER AVENUE, SUITE 218

HUNTINGTON BEACH, CA, 92649

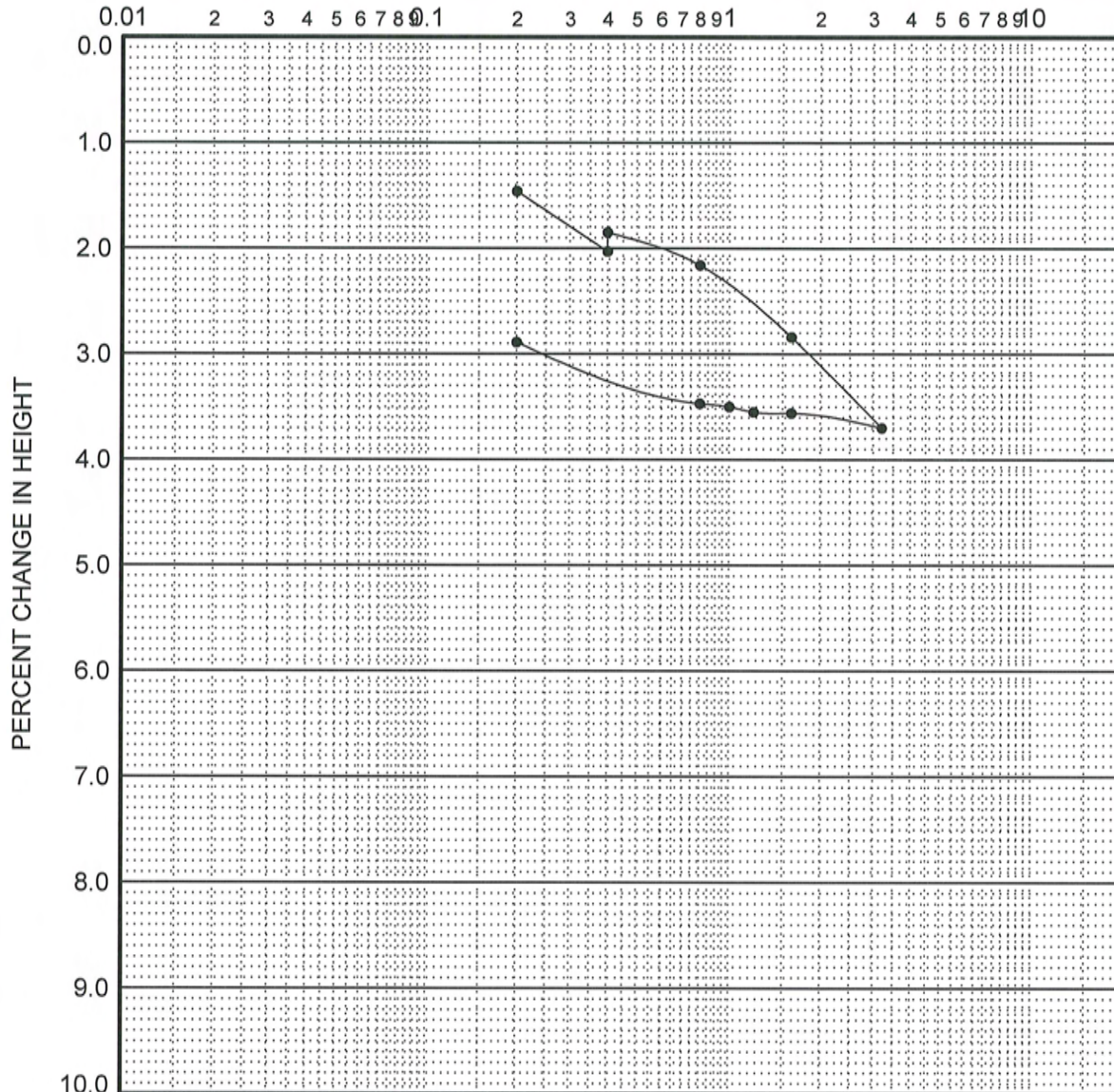
714 840-8286

PN 690-000-03

DATE 11/13/08

PLATE B-12

COMPRESSIVE STRESS IN TSF



Boring	Depth(ft.)	Dry Density	in situ Moist.	-200 sieve	Group Symbol	Soil Description
NB-6	5.0	120.8	10.6		SM	

WATER ADDED AT 0.4 TSF.

CONSOLIDATION CURVE



NEBLETT & ASSOCIATES, INC.

4911 WARNER AVENUE, SUITE 218
HUNTINGTON BEACH, CA, 92649

714 840-8286

PN 690-000-03

DATE 11/13/08

PLATE B-13

LABORATORY TEST RESULTS BY SOUTH COAST GEOLOGIC SERVICES, INC.

Job No. 90069.1 Date 11/09/90
Project Railroad Canyon - Lake Elsinore, California

Source of Material TH-2 0.0
Description of Material Tan Silty SAND with clay
Test Method ASTM D1557

TEST RESULTS

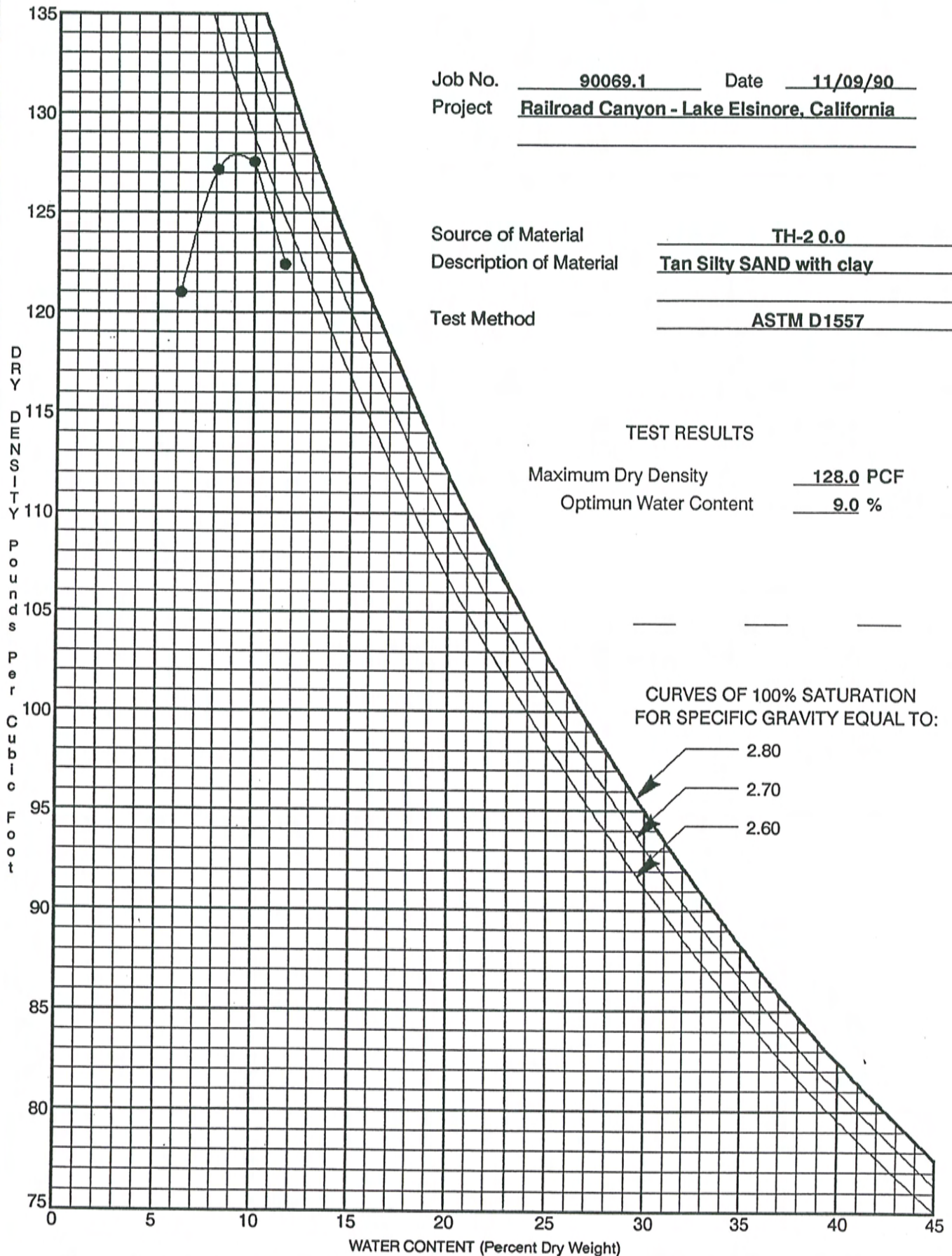
Maximum Dry Density 128.0 PCF
Optimum Water Content 9.0 %

CURVES OF 100% SATURATION
FOR SPECIFIC GRAVITY EQUAL TO:

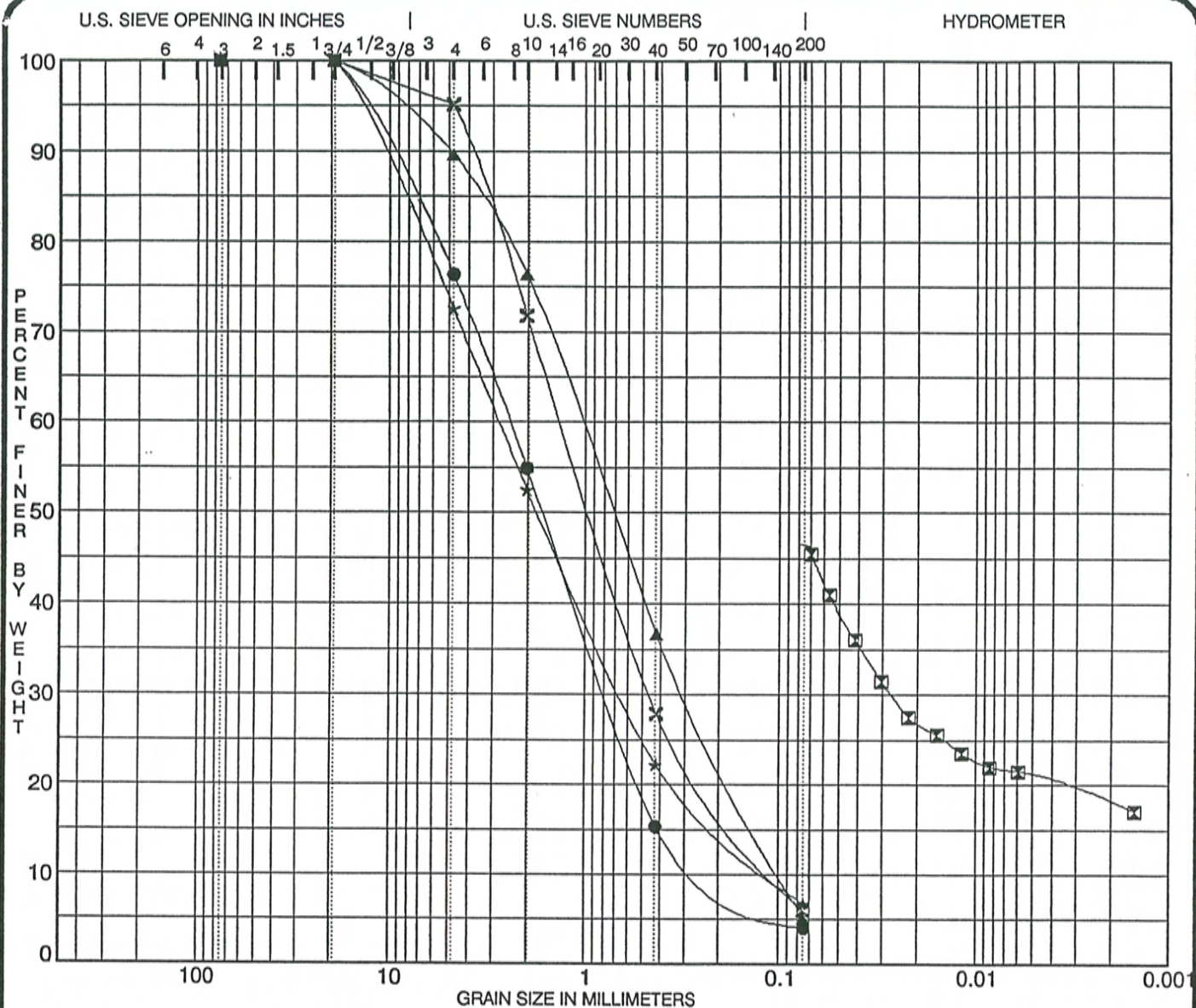
2.80

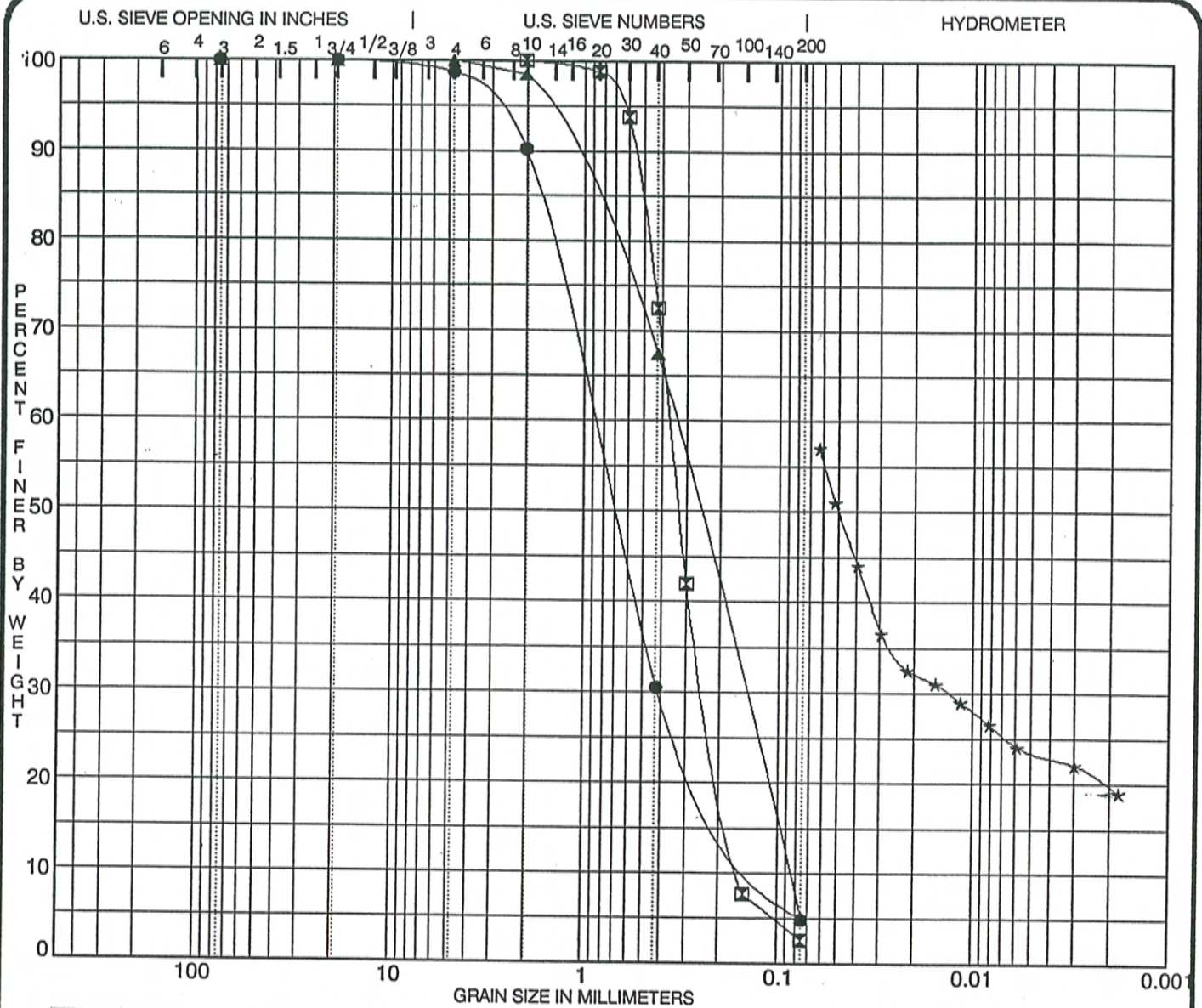
2.70

2.60



MOISTURE-DENSITY RELATIONSHIP
SOUTH COAST GEOLOGIC SERVICES
Dana Point, California





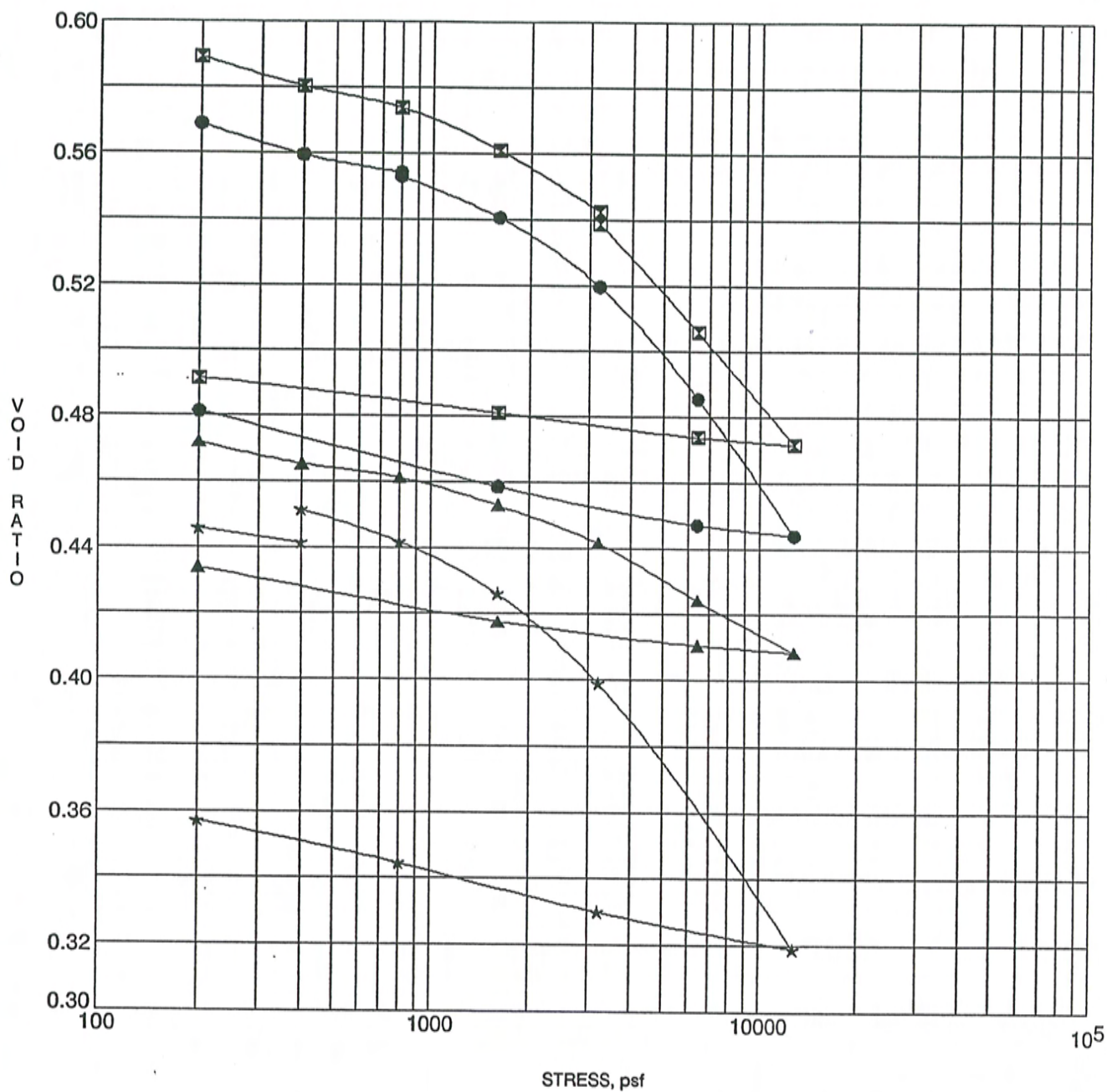
COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification			Classification				MC%	LL	PL	PI	Cc	Cu
●	TH-4	20.0	SAND				5	NP	NP	NP		
☒	TH-5	17.5	SAND				6	NP	NP	NP	0.96	2.3
▲	TH-5	30.0	SAND				4	NP	NP	NP		
★	TH-5	50.0	Silty SAND with clay									
Specimen Identification			D100	D60	D30	D10	%Gravel	%Sand	%Silt		%Clay	
●	TH-4	20.0	19.05	0.91	0.411	0.1060	1.3	93.8	4.9			
☒	TH-5	17.5	2.00	0.37	0.235	0.1571	0.0	97.4	2.6			
▲	TH-5	30.0	4.75	0.35	0.150	0.0857	0.0	94.8	5.2			
★	TH-5	50.0			0.013		0.0	43.0	38.0	19.0		

PROJECT Railroad Canyon - Lake Elsinore, California

JOB NO. 90069.1
DATE 11/09/90

GRADATION CURVES
SOUTH COAST GEOLOGIC SERVICES
Dana Point, California



Specimen Identification			Classification	DD	MC%
●	TH-1	10.0		105	15
◻	TH-1	30.0		103	8
▲	TH-10	15.0		112	14
★	TH-2	2.5		114	9

PROJECT Railroad Canyon - Lake Elsinore, California

JOB NO. 90069.1
DATE 11/08/90

CONSOLIDATION TEST
SOUTH COAST GEOLOGIC SERVICES
Dana Point, California

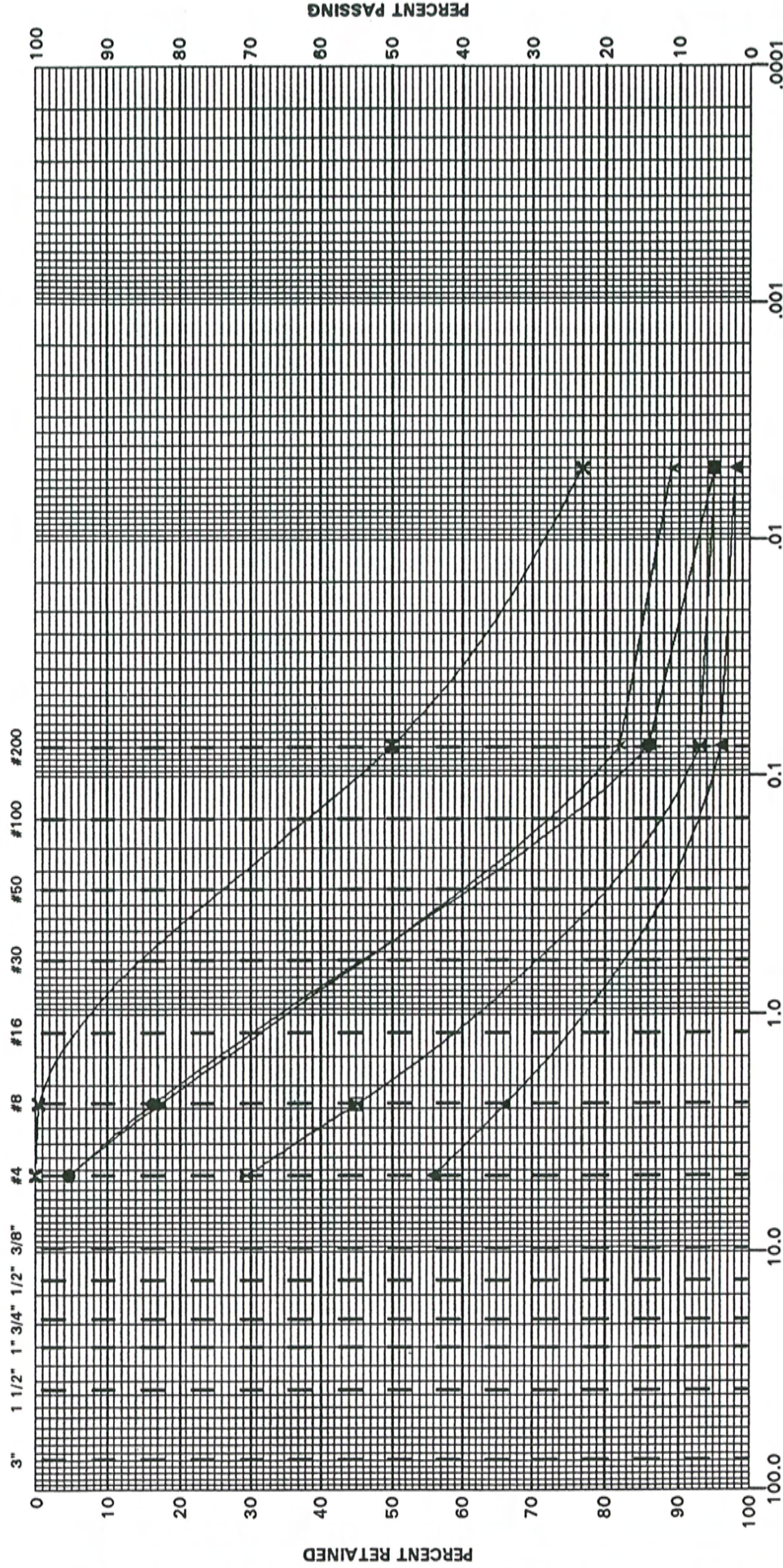
LABORATORY TEST RESULTS BY PACIFIC SOILS ENGINEERING, INC.

WORK ORDER 101872-GP

*Values shown are rounded to nearest percent

*Values shown are rounded to nearest percent

ASTM SIEVE NUMBERS



GRAVEL		SAND			SILT		CLAY	COLLOIDS
		COARSE	MEDIUM	FINE				

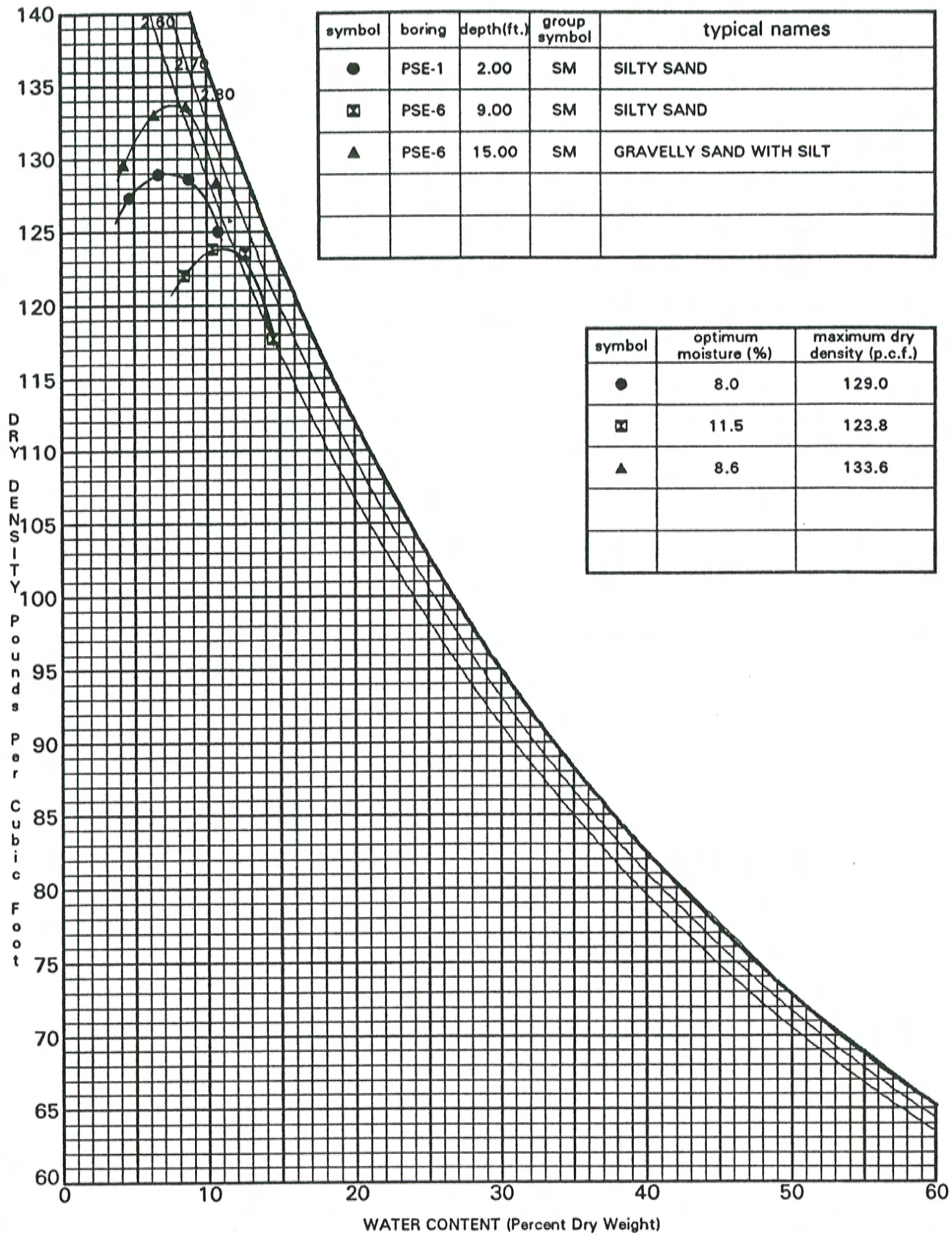
symbol	boring or trench	depth(ft.)	L.L.	P.L.	P.I.	% passing #200 sieve	group symbol	typical names
●	PSE-1	2.00				14.0	SM	SILTY SAND
☒	PSE-10	10.00				7.0	SM	GRAVELLY SAND WITH SILT
▲	PSE-10	13.00				4.0	GW	SANDY GRAVEL
*	PSE-4	5.00				18.0	SM	SILTY SAND
X	PSE-5	5.00				49.9	SM	SILTY SAND

GRAIN SIZE DISTRIBUTION



PACIFIC SOILS ENGINEERING, INC.
10653 PROGRESS WY. CYPRESS, CA 90630 714-220-0770

W.O. 101872-GP DATE 7/2/93



MOISTURE-DENSITY RELATIONSHIP



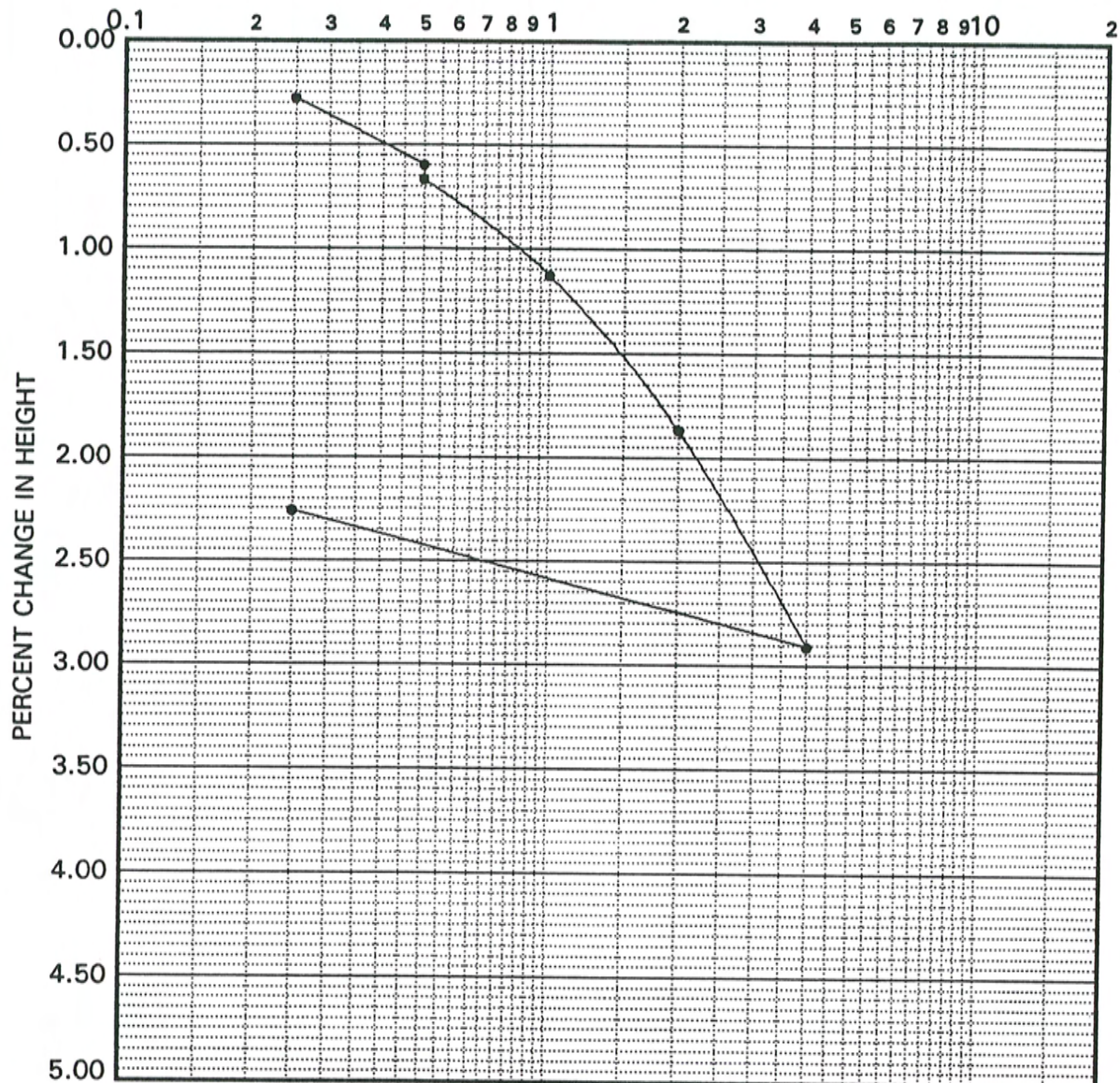
PACIFIC SOILS ENGINEERING, INC.

10653 PROGRESS WY. CYPRESS, CA 90630 714-220-0770

W.O. 101872-GP DATE 7/2/93

PLATE C-3

COMPRESSIVE STRESS IN TSF



boring	depth(ft.)	LL (%)	PL (%)	PI (%)	group symbol	typical names
PSE-4	5.00				SM	SILTY SAND

REMARKS:

CONSOLIDATION CURVE



PACIFIC SOILS ENGINEERING, INC.

10653 PROGRESS WY. CYPRESS, CA 90630 714-220-0770

W.O. 101872-GP DATE 7/2/93

PLATE C-4

APPENDIX C

2007 CBC SEISMIC DESIGN PARAMETERS

JIC-CP - Elsinore

CBC SEISMIC DESIGN PARAMETERS

Calculated using Earthquake Ground Motion Parameters Computer Program
Version 5.0.9 Revised 10/06/08 USGS

Conterminous 48 States

2005 ASCE 7 Standard

Latitude = 33.6564

Longitude = -117.3011

Spectral Response Accelerations Ss and S1

Ss and S1 = Mapped Spectral Acceleration Values

Site Class B - $F_a = 1.0$, $F_v = 1.0$

Data are based on a 0.01 deg grid spacing

Period Sa

(sec) (g)

0.2 1.600 (Ss, Site Class B)

1.0 0.601 (S1, Site Class B)

Conterminous 48 States

2005 ASCE 7 Standard

Latitude = 33.6564

Longitude = -117.3011

Spectral Response Accelerations SMs and SM1

SMs = $F_a \times S_s$ and SM1 = $F_v \times S_1$

Site Class D - $F_a = 1.0$, $F_v = 1.5$

Period Sa

(sec) (g)

0.2 1.600 (SMs, Site Class D)

1.0 0.901 (SM1, Site Class D)

Conterminous 48 States

2005 ASCE 7 Standard

Latitude = 33.6564

Longitude = -117.3011

Design Spectral Response Accelerations SDs and SD1

SDs = $2/3 \times SMs$ and SD1 = $2/3 \times SM1$

Site Class D - $F_a = 1.0$, $F_v = 1.5$

Period Sa

(sec) (g)

0.2 1.067 (SDs, Site Class D)

1.0 0.601 (SD1, Site Class D)

JIC-CP - Elsinore
PEAK GROUND ACCELERATION DATA
Calculated using Earthquake Ground Motion Parameters Computer Program
Version 5.0.9 Revised 10/06/08 USGS

Conterminous 48 States

2002 Data

Hazard Curve for PGA

Latitude = 33.6564

Longitude = -117.3011

Data are based on a 0.05 deg grid spacing

Frequency of Exceedance values less than
 1E-4 should be used with caution.

Ground Motion	Frequency of Exceedance
(g)	(per year)
0.005	8.7261E-01
0.007	7.7918E-01
0.010	6.6345E-01
0.014	5.3291E-01
0.019	3.9943E-01
0.027	2.8031E-01
0.038	1.8747E-01
0.053	1.2078E-01
0.074	7.5064E-02
0.103	4.3934E-02
0.145	2.3682E-02
0.203	1.3104E-02
0.284	7.9981E-03
0.397	4.9418E-03
0.556	2.6091E-03
0.778	1.0373E-03
1.090	2.8281E-04
1.520	4.8052E-05
2.130	3.0017E-06

<u>Ground Motion</u>	<u>Freq. of Exceed.</u>	<u>Return Pd.</u>	<u>P.E.</u>	<u>Exp. Time</u>
(g)	(per year)	(years)	%	(years)
0.6012	2.1053E-03	475.0	10.00	50.0

APPENDIX D

LIQUEFACTION ANALYSES

APPENDIX D

LIQUEFACTION ANALYSES

Methodology for Evaluating Liquefaction Potential

Liquefaction analyses for the project site were performed on the CPT data provided by Gregg Exploration for the subject site utilizing CPT-ANALYST (Version 6.1), a computer program developed by Mr. Ned B. Larson for the data reduction and liquefaction analysis using the cone penetration test results.

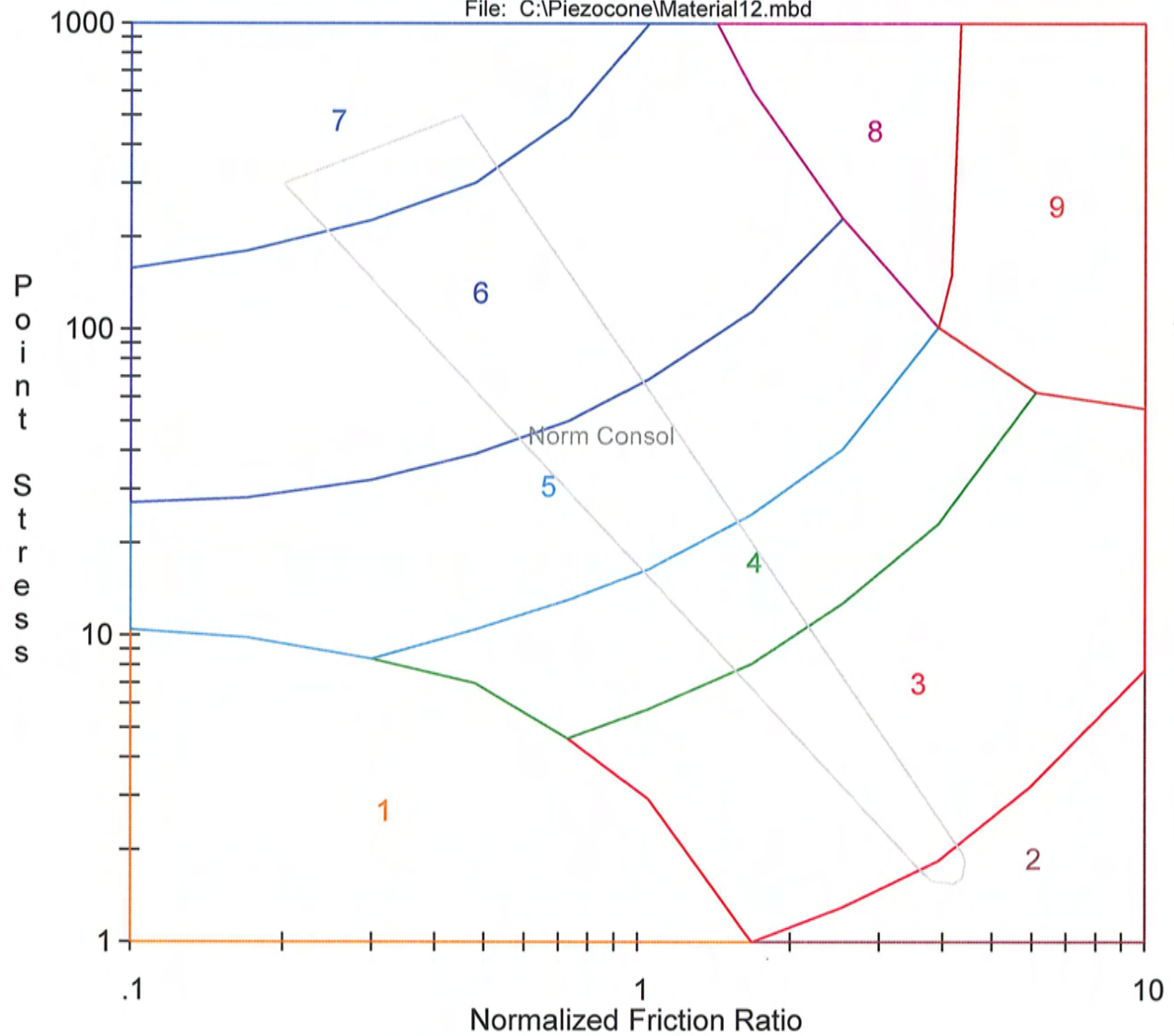
The following design earthquake parameters were considered in the analyses:

- Magnitude (M) = 6.8
- Average magnitude weighted peak horizontal ground acceleration = 0.6 g

The results of the computer analysis are attached in this Appendix D.

Material Behavior Type Zones

File: C:\Piezocone\Material12.mbd



1. sensitive fine SOIL
2. Organic SOILS - Peats
3. silty CLAY to CLAY
4. clayey SILT to silty CLAY
5. silty SAND to sandy SILT
6. clean SAND to silty SAND
7. grvly SAND to dense SAND
8. stiff SAND to clayey SAND
9. very stiff fine SOIL

690CPT-01
Diamond Development

Project ID: Gregg Exploration
Data File: 690CPT-01.cor
CPT Date: :10:08 07:53 GR
GW During Test: 40 ft
GW Liquefaction: 25 ft
Max Depth Correction: 1.7
EQ Mag & Scaling Factor: 6.8 1.28

Sounding ID: CPT-01
Project No: 690-000-03
Cone/Rig: DIAMOND DEV. NEBLETT & A
Pts. ignored at layers: 1
Min Depth Correction: .4
Earthquake Acceleration: .6

Lyr No.	Depth ft	Qn PS	Slv tsf	Pore Prss tsf	Frct Ratio %	Mat Typ	Material Behavior Description	Rel Den %	Fin IC %	IC SBT Indx	Li FS	Li FS	Tot Stlmt 0.05
1	1.48	284.5	0.8	4.5	0.5	7	grvly SAND to dense SAND	95	5	1.35	N/A	N/A	0.00
2	5.25	435.3	2.1	9.3	0.8	6	clean SAND to silty SAND	95	5	1.39	N/A	N/A	0.00
3	7.22	674.7	2.7	4.1	0.6	7	grvly SAND to dense SAND	95	5	1.19	N/A	N/A	0.00
4	9.51	315.0	2.9	0.0	1.2	6	clean SAND to silty SAND	95	5	1.63	N/A	N/A	0.00
5	10.34	486.8	2.2	1.1	0.6	7	grvly SAND to dense SAND	95	5	1.25	N/A	N/A	0.00
6	18.21	203.3	1.8	-0.6	0.9	6	clean SAND to silty SAND	91	5	1.65	N/A	N/A	0.00
7	18.87	49.6	1.9	-1.1	3.5	4	clay SILT to silty CLAY	-	31	2.50	N/A	N/A	0.00
8	25.00	128.2	2.0	-1.2	1.3	6	clean SAND to silty SAND	75	11	1.91	N/A	N/A	0.01
9	26.41	107.5	2.3	-1.1	1.7	5	silty SAND to sandy SILT	70	14	2.03	1.11	0.01	0.01
10	28.87	87.5	2.1	-0.9	1.8	5	silty SAND to sandy SILT	63	17	2.12	0.86	0.03	0.03
11	36.58	152.5	2.1	-0.6	0.9	6	clean SAND to silty SAND	81	7	1.76	9.99	0.00	0.00

* 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.
Neblett & Associates, Inc.

690CPT-02
Diamond Development

Project ID: Gregg Exploration
 Data File: 690CPT-02.cor
 CPT Date: 10:08 08:25 GR
 GW During Test: 40 ft
 GW Liquefaction: 25 ft
 Max Depth Correction: 1.7
 EQ Mag & Scaling Factor: 6.8 1.28

Sounding ID: CPT-02
 Project No: 690-000-03
 Cone/Rig: DIAMOND DEV.
 Pts. ignored at layers: 1
 Min Depth Correction: .4
 Earthquake Acceleration: .6

Lyr No.	Depth ft	* Qn PS	Sly Stss tsf	Pore Prss tsf	* Frct Rat %	* Mat Typ	* Material Behavior Description	* Rel Den %	* Fin Ic %	* Ic SBT	* Liq FS	* Tot stlmt
1	2.30	728.4	3.1	3.9	0.7	7	grvly SAND to dense SAND	95	5	1.21	N/A	0.00
2	12.47	277.6	1.3	2.8	0.7	6	clean SAND to silty SAND	95	5	1.47	N/A	0.00
3	13.78	457.5	2.7	0.9	0.6	7	grvly SAND to dense SAND	95	5	1.31	N/A	0.00
4	16.40	244.3	1.4	0.9	0.6	6	clean SAND to silty SAND	95	5	1.46	N/A	0.00
5	17.55	73.7	1.6	0.8	2.1	5	silty SAND to sandy SILT	57	20	2.22	N/A	0.00
6	20.18	155.5	1.0	0.6	0.6	6	clean SAND to silty SAND	82	5	1.60	N/A	0.00
7	21.98	44.8	1.9	0.4	3.6	4	clay SILT to silty CLAY	-	33	2.55	N/A	0.00
8	22.97	235.8	2.1	0.8	0.7	6	clean SAND to silty SAND	95	5	1.55	N/A	0.00
9	23.79	33.8	2.6	1.1	5.2	3	silty CLAY to CLAY	-	43	2.74	N/A	-
10	25.00	221.6	1.8	1.6	0.6	6	clean SAND to silty SAND	93	5	1.52	N/A	0.00
11	29.86	201.7	2.1	1.7	0.8	6	clean SAND to silty SAND	90	5	1.60	9.99	0.00
12	31.01	38.1	2.7	2.2	3.8	4	clay SILT to silty CLAY	-	36	2.61	-	-
13	35.60	159.1	3.0	2.2	1.3	6	clean SAND to silty SAND	83	9	1.84	9.99	0.00
14	38.55	135.4	5.2	2.6	2.5	5	silty SAND to sandy SILT	77	16	2.09	9.99	0.00
15	39.54	243.3	5.3	-0.4	1.4	6	clean SAND to silty SAND	95	7	1.74	9.99	0.00
16	41.83	123.6	4.1	9.5	2.0	5	silty SAND to sandy SILT	74	15	2.06	9.99	0.00
17	43.47	227.7	4.2	4.2	1.1	6	clean SAND to silty SAND	94	6	1.69	9.99	0.00
18	45.11	159.8	5.6	-1.5	2.1	5	silty SAND to sandy SILT	83	13	2.00	9.99	0.00
19	45.77	71.3	5.1	2.0	4.3	4	clay SILT to silty CLAY	-	29	2.46	9.99	0.00
20	47.08	245.9	2.4	2.2	0.6	6	clean SAND to silty SAND	95	5	1.46	9.99	0.00

* 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.
 Neblett & Associates, Inc.

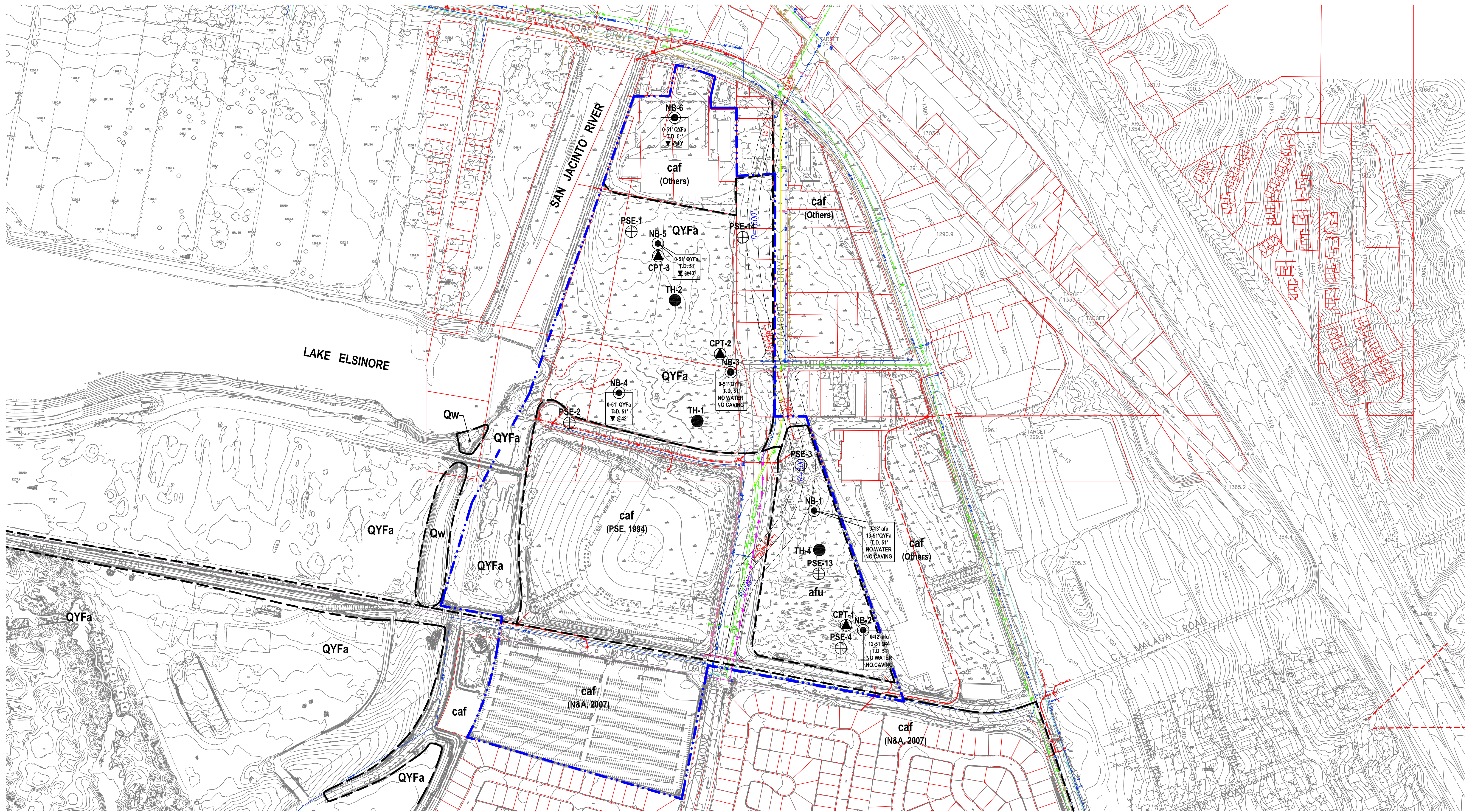
690CPT-03
Diamond Development

Project ID: Gregg Exploration
Data File: 690CPT-03.cor
CPT Date: :10:08 09:30 GR
GW During Test: 40 ft
GW Liquefaction: 25 ft
Max Depth Correction: 1.7
EQ Mag & Scaling Factor: 6.8 1.28

Sounding ID: CPT-03
Project No: 690-000-03
Cone/Rig: DIAMOND DEV. NEBLETT & A
Pts. ignored at layers: 1
Min Depth Correction: .4
Earthquake Acceleration: .6

Lyr No.	Depth ft	* Qn PS	Sly tsf	Stss tsf	Pore Prss tsf	Frct Rato %	* Mat Typ	* Material Behavior Description	* Rel Den %	* Fin Ic %	* Ic SBT Indx	* Liq FS	* Tot Stlmt 0.03
1	22.47	210.9	1.6	0.7	0.7	0.9	6	Clean SAND to silty SAND	92	5	1.63	N/A	0.01
2	24.12	116.6	3.0	-2.1	-2.1	2.1	5	silty SAND to sandy SILT	72	15	2.08	N/A	0.00
3	25.00	163.2	1.7	-2.2	-2.2	0.8	6	Clean SAND to silty SAND	83	6	1.69	N/A	0.00
4	28.05	139.1	1.5	-2.4	-2.4	0.8	6	Clean SAND to silty SAND	78	7	1.75	1.14	0.01
5	29.53	76.6	2.7	-2.4	-2.4	2.5	5	silty SAND to sandy SILT	59	21	2.27	1.03	0.01
6	31.17	30.9	2.5	-2.4	-2.4	4.3	4	clay SILT to silty CLAY	-	41	2.71	-	-
7	41.83	148.0	2.3	-1.5	-1.5	1.0	6	Clean SAND to silty SAND	80	8	1.78	9.99	0.00

* 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.
Neblett & Associates, Inc.



Explanation

caf	ENGINEERED FILL PLACED BY NEBLETT & ASSOCIATES, 2007	NB-4	APPROXIMATE LOCATION OF HOLLOWSTEM AUGER BORING BY NEBLETT & ASSOCIATES, PRESENT STUDY
caf	ENGINEERED FILL PLACED BY PACIFIC SOILS ENGINEERING, 1994	CPT-3	APPROXIMATE LOCATION OF CPT BY NEBLETT & ASSOCIATES, PRESENT STUDY
caf	ENGINEERED FILL BY OTHERS	PSE-2	APPROXIMATE LOCATION OF BUCKET AUGER BORING BY PACIFIC SOILS ENGINEERING, 1993
afu	UNDOCUMENTED ARTIFICIAL FILL (To be removed)	TH-1	APPROXIMATE LOCATION OF BORING BY SOUTH COAST GEOLOGIC, 1991
Qw	ALLUVIUM		
QYFa	YOUNGER FAN DEPOSITS		
- - -	GEOLOGIC CONTACT		
- . . -	APPROXIMATE PROJECT LIMITS		

LEGEND

-W-	EXISTING DOMESTIC WATER LINE
-RW-	EXISTING RECYCLED WATER LINE
-SS-	EXISTING SANITARY SEWER LINE
-SD-	EXISTING STORM DRAIN LINE
-TEL-	EXISTING TELEPHONE LINE
-G-	EXISTING GAS LINE
-E-	EXISTING ELECTRIC LINE

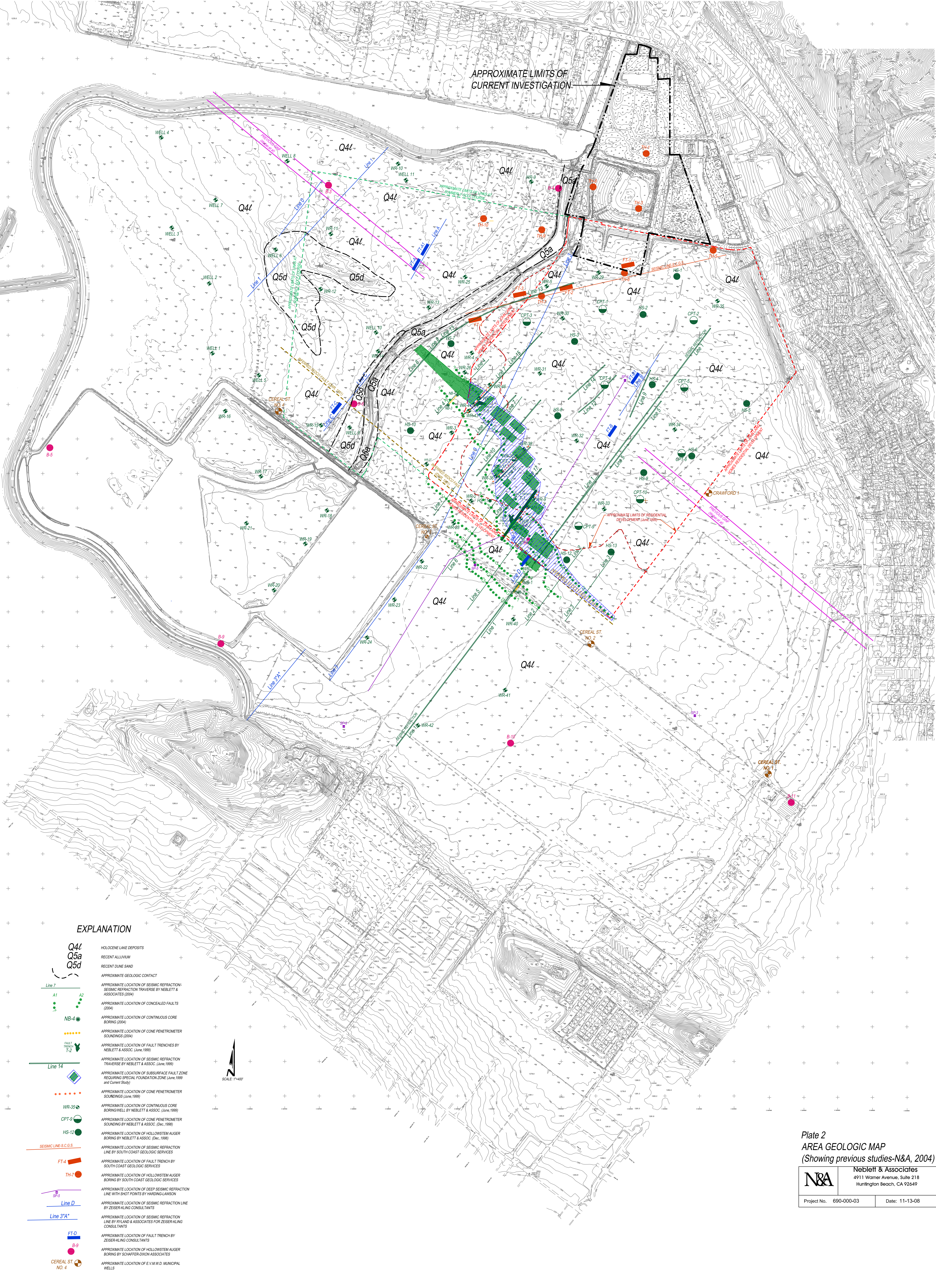
Plate 1 GEOLOGIC MAP

N&A	NEBLETT & ASSOCIATES	
	4911 Warner Avenue, Suite 218 Huntington Beach, CA 92649	
Project No. 690-000-03		Date: 11-13-08



JIC-CP DIAMOND DEVELOPMENT
CONSTRAINTS MAP
ALTERNATIVE PROJECT

SHEET 1
OF 1



EXPLANATION

- Q4L

Q5a

Q5d

Line 7

A1

A2

NB-4

Line 14

WR-35

CPT-9

HS-12

FT-4

TH-7

Line D

Line 3"A"

FT-D

B-9

CEREAL ST. NO. 4
- HOLOCENE LAKE DEPOSITS

RECENT ALLUVIUM

RECENT DUNE SAND

APPROXIMATE GEOLOGIC CONTACT

APPROXIMATE LOCATION OF SEISMIC REFRACTION-
SEISMIC REFRACTION TRAVERSE BY NEBLETT &
ASSOCIATES (2004)

APPROXIMATE LOCATION OF CONCEALED FAULTS
(2004)

APPROXIMATE LOCATION OF CONTINUOUS CORE
BORING (2004)

APPROXIMATE LOCATION OF CONE PENETROMETER
SOUNDINGS (2004)

APPROXIMATE LOCATION OF FAULT TRENCHES BY
NEBLETT & ASSOC. (June 1999)

APPROXIMATE LOCATION OF SEISMIC REFRACTION
TRAVERSE BY NEBLETT & ASSOC. (June 1999)

APPROXIMATE LOCATION OF SUBSURFACE FAULT ZONE
REQUIRING SPECIAL FOUNDATION ZONE (June 1999
and Current Study)

APPROXIMATE LOCATION OF CONE PENETROMETER
SOUNDINGS (June 1999)

APPROXIMATE LOCATION OF CONTINUOUS CORE
BORINGWELL BY NEBLETT & ASSOC. (June 1999)

APPROXIMATE LOCATION OF CONE PENETROMETER
SOUNDING BY NEBLETT & ASSOC. (Dec. 1998)

APPROXIMATE LOCATION OF HOLLOWSTEM AUGER
BORING BY NEBLETT & ASSOC. (Dec. 1998)

APPROXIMATE LOCATION OF SEISMIC REFRACTION
LINE BY SOUTH COAST GEOLOGIC SERVICES

APPROXIMATE LOCATION OF FAULT TRENCH BY
SOUTH COAST GEOLOGIC SERVICES

APPROXIMATE LOCATION OF HOLLOWSTEM AUGER
BORING BY SOUTH COAST GEOLOGIC SERVICES

APPROXIMATE LOCATION OF DEEP SEISMIC REFRACTION
LINE WITH SHOT POINTS BY HARDING-LAWSON

APPROXIMATE LOCATION OF SEISMIC REFRACTION LINE
BY ZEISER-KLING CONSULTANTS

APPROXIMATE LOCATION OF SEISMIC REFRACTION
LINE BY RYLAND & ASSOCIATES FOR ZEISER-KLING
CONSULTANTS

APPROXIMATE LOCATION OF FAULT TRENCH BY
ZEISER-KLING CONSULTANTS

APPROXIMATE LOCATION OF HOLLOWSTEM AUGER
BORING BY SCHAFFER-DIXON ASSOCIATES

APPROXIMATE LOCATION OF E.V.M.W.D. MUNICIPAL
WELLS

Plate 2

AREA GEOLOGIC MAP

(Showing previous studies-N&A, 2004)

N&A

Neblett & Associates

4911 Warner Avenue, Suite 218

Huntington Beach, CA 92649

Project No.

690-000-03

Date:

11-13-08