FINAL DATA REPORT Rev 0
GEOTECHNICAL EXPLORATION AND TESTING

EXELON TEXAS COL PROJECT
VICTORIA COUNTY, TEXAS
POWER BLOCK

July 10, 2008

VOLUME 3
Appendix E – Laboratory Test Data

Prepared By:

MACTEC Engineering and Consulting, Inc.
Raleigh, North Carolina

MACTEC Project No. 6468-07-1777

Prepared For:

Bechtel Power Corporation
Subcontract No. 25352-102-HC4-CY00-00001

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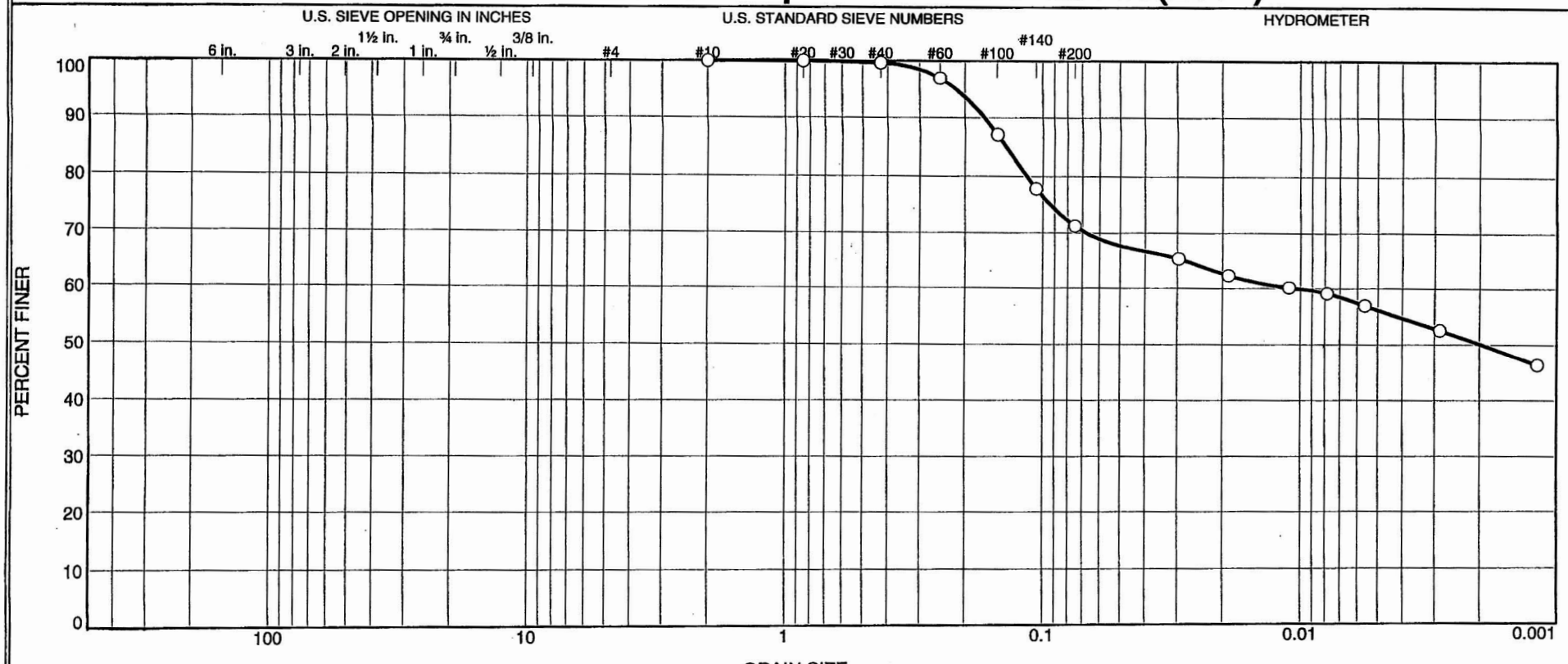
Soil Index Test Results – Split Spoon Samples

Boring B-2151

Particle Size Distribution Report / ASTM D 422-63(2002)e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.3	28.5	15.1	56.1

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2151	SS-1	0-1.5	12-13-07	CH	Very Dark Gray Fat CLAY with sand	20.7	57	17

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity = 2.683 (ASTM D854-06)
Organic Content = 2.4% (ASTM D2794-07)

Tested By: CS **Checked By:** LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 0-1.5 **Sample Number:** SS-1
Material Description: Very Dark Gray Fat CLAY with sand
Date: 12-13-07 **Natural Moisture:** 20.7
Liquid Limit: 57 **Plastic Limit:** 17 **USCS Class.:** CH
Testing Remarks: Specific Gravity = 2.683 (ASTM D854-06)
Organic Content = 2.4% (ASTM D2794-07)
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
218.98	0.00	0.00	#10	0.00	100.0
49.37	0.00	0.00	#20	0.01	100.0
			#40	0.16	99.7
			#60	1.48	97.0
			#100	6.31	87.2
			#140	10.94	77.8
			#200	14.20	71.2

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =49.37
Hygroscopic moisture correction:
Moist weight and tare = 28.17
Dry weight and tare = 27.72
Tare weight = 15.45
Hygroscopic moisture = 3.7%
Table of composite correction values:

Temp., deg. C:	12.3	27.3
Comp. corr.:	-8.0	-3.0

Meniscus correction only = 1.0
Specific gravity of solids = 2.683
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.4	36.0	31.4	0.0131	37.0	10.2	0.0297	65.4
5.00	22.5	34.5	29.9	0.0131	35.5	10.5	0.0190	62.3
15.00	22.4	33.5	28.9	0.0131	34.5	10.6	0.0110	60.2
30.00	22.4	33.0	28.4	0.0131	34.0	10.7	0.0078	59.1
60.00	22.2	32.0	27.3	0.0132	33.0	10.9	0.0056	56.9
240.00	21.9	30.0	25.2	0.0132	31.0	11.2	0.0029	52.5
1440.00	22.0	27.0	22.2	0.0132	28.0	11.7	0.0012	46.3

MACTEC, Inc.

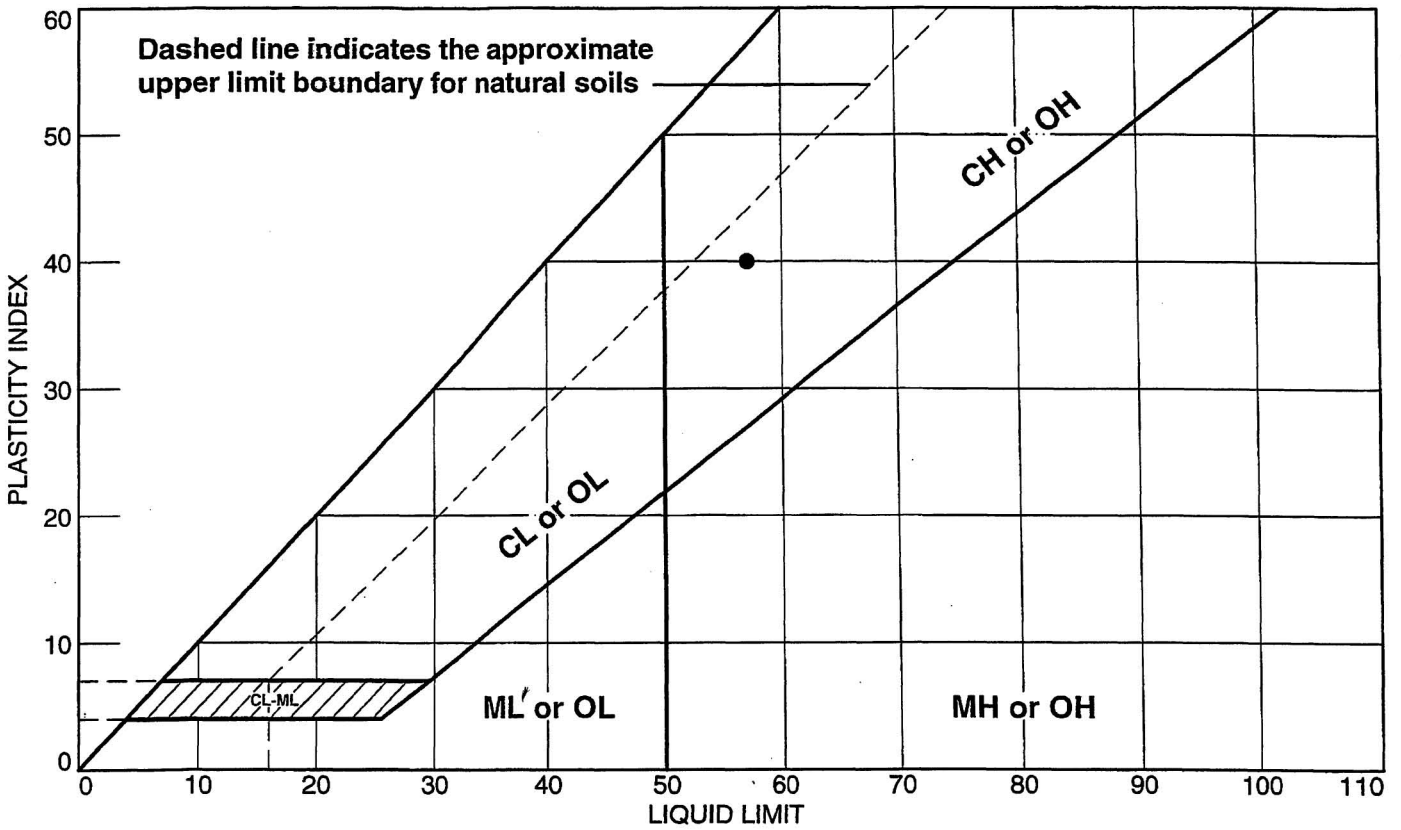
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.3	28.5	28.8	15.1	56.1	71.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0020	0.0103	0.1153	0.1381	0.1679	0.2161

Fineness Modulus
0.14

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring B-2151	SS-1	0-1.5	20.7	17	57	40	CH

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria) **Project No.:** 6468071777 **Figure** NA

Tested By: CS **Checked By:** LBJ DSC 1-25-08

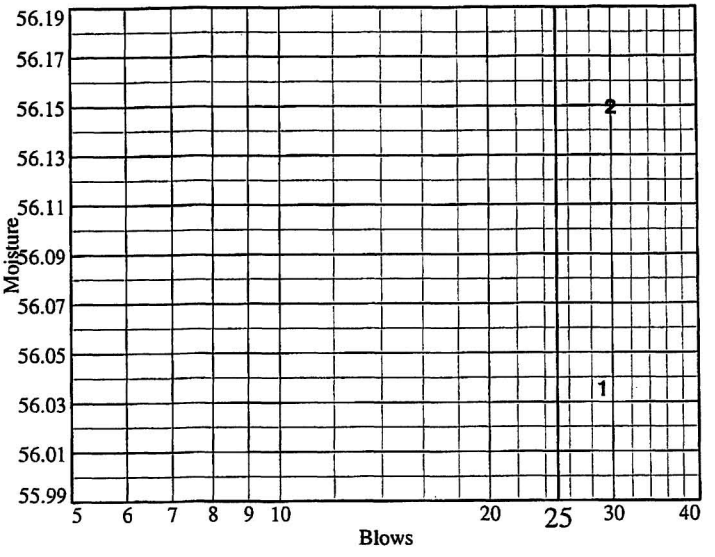
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 0-1.5 **Sample Number:** SS-1
Material Description: Very Dark Gray Fat CLAY with sand
USCS: CH **AASHTO:** A-7-6(27)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	27.86	22.83				
Dry+Tare	23.45	18.63				
Tare	15.58	11.15				
# Blows	29	30				
Moisture	56.0	56.1				



Liquid Limit= 57
Plastic Limit= 17
Plasticity Index= 40
Natural Moisture= 20.7
Liquidity Index= 0.1

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	22.75	19.54			
Dry+Tare	21.70	18.30			
Tare	15.63	11.06			
Moisture	17.3	17.1			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
138.93	116.68	9.10	20.7

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MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

REPORT OF THE STANDARD TEST METHOD FOR SPECIFIC GRAVITY OF SOILS
Performed in General Accordance with ASTM D 854-06 (Method B)

PROJECT NAME:EXELON COL PROJECT [VICTORIA]

PROJECT NUMBER: 6468071777

DATE: 12/24/07

SAMPLE IDENTIFICATION: B-2151 SS-1

(A) Mass of oven-dried soil, grams:		49.97
(B) Mass of pycnometer filled with water at test temperature (T), grams:		656.69
(C) Mass of pycnometer, water and soil, grams:		688.04
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		22.4
(G) Specific Gravity at observed temperature:	A / [A + (B - C)]	2.684
(F)	***Correction factor:***	0.99947
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.683

MATERIAL TESTED: [X] **- # 4** [ ] **- # 10**

PREPARATION METHOD: [X] **DRY** [ ] **WET (dispersed)**

REMARKS: Estimated % Passing # 4 : 100%
Fat CLAY with sand (CH)

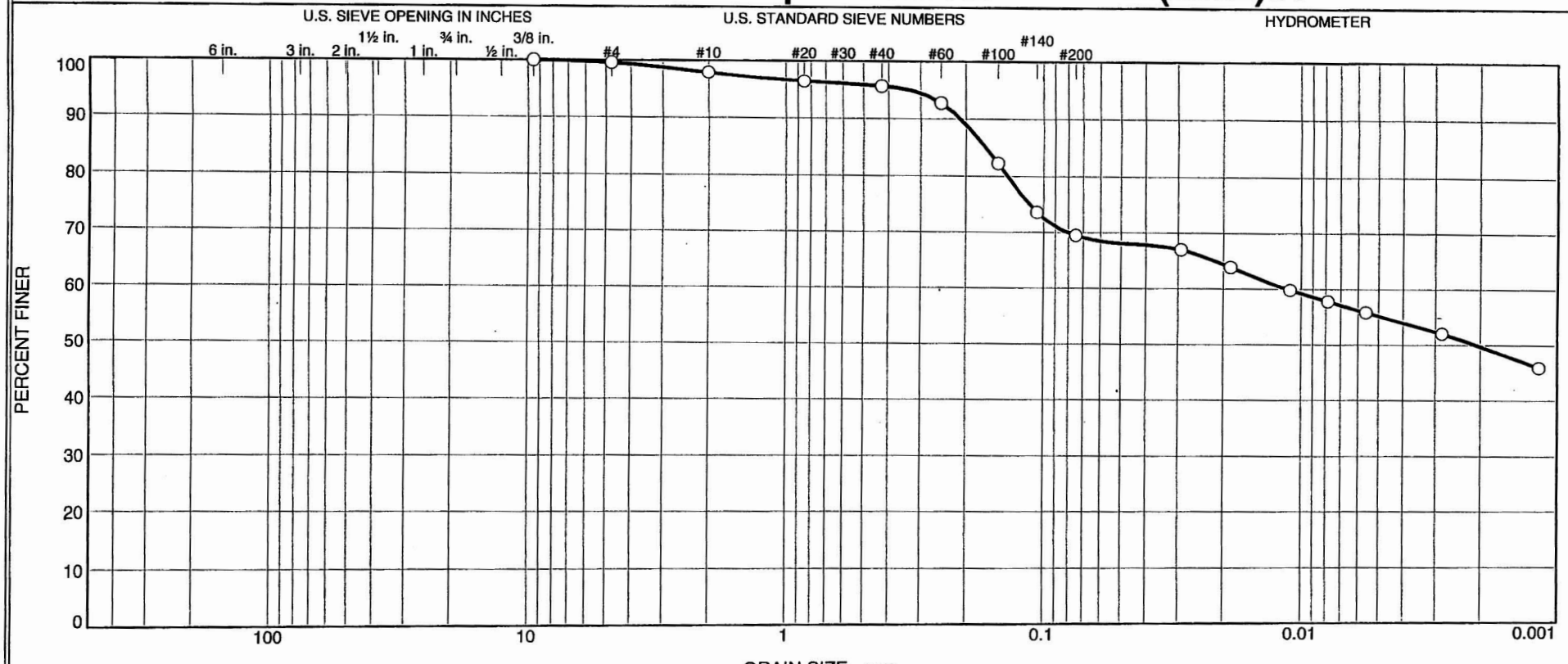
EQUIPMENT USED
SCALES : 3.1.99
OVEN : 5.1.16
THERMOMETER : 5.1.01
PYCNOMETER : P-6

TESTED BY: CS

\Test Reports\Soils\SPECIFIC GRAVITY(ref).xls

REVIEWED BY: **Brian Johnson**
DSC 1-25-08

Particle Size Distribution Report / ASTM D 422-63(2002)e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.4	1.7	2.3	26.1	14.3	55.2

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2151	SS-2	3.5-5	12-13-07	CL	Dark Gray Sandy Lean CLAY	16.4	46	20

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

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Raleigh, North Carolina

○ Specific Gravity is assumed

Tested By: CS Checked By: LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 3.5-5 **Sample Number:** SS-2
Material Description: Dark Gray Sandy Lean CLAY
Date: 12-13-07 **Natural Moisture:** 16.4
Liquid Limit: 46 **Plastic Limit:** 20 **USCS Class.:** CL
Testing Remarks: Specific Gravity is assumed
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
207.74	0.00	0.00	3/8"	0.00	100.0
			#4	0.87	99.6
			#10	4.34	97.9
49.44	0.00	0.00	#20	0.77	96.4
			#40	1.19	95.6
			#60	2.63	92.7
			#100	7.88	82.3
			#140	12.28	73.6
			#200	14.36	69.5

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 97.9
Weight of hydrometer sample =49.44
Hygroscopic moisture correction:
Moist weight and tare = 27.90
Dry weight and tare = 27.50
Tare weight = 15.60
Hygroscopic moisture = 3.4%
Table of composite correction values:

Temp., deg. C:	12.3	27.3
Comp. corr.:	-7.0	-3.0

Meniscus correction only = 1.0
Specific gravity of solids = 2.700
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.1	37.5	33.1	0.0131	38.5	10.0	0.0293	67.0
5.00	22.0	36.0	31.6	0.0131	37.0	10.2	0.0188	63.9
15.00	21.9	34.0	29.6	0.0131	35.0	10.6	0.0110	59.8
30.00	21.9	33.0	28.6	0.0131	34.0	10.7	0.0078	57.8
60.00	21.9	32.0	27.6	0.0131	33.0	10.9	0.0056	55.8
240.00	22.4	30.0	25.7	0.0131	31.0	11.2	0.0028	52.0
1440.00	22.3	27.0	22.7	0.0131	28.0	11.7	0.0012	45.9

MACTEC, Inc.

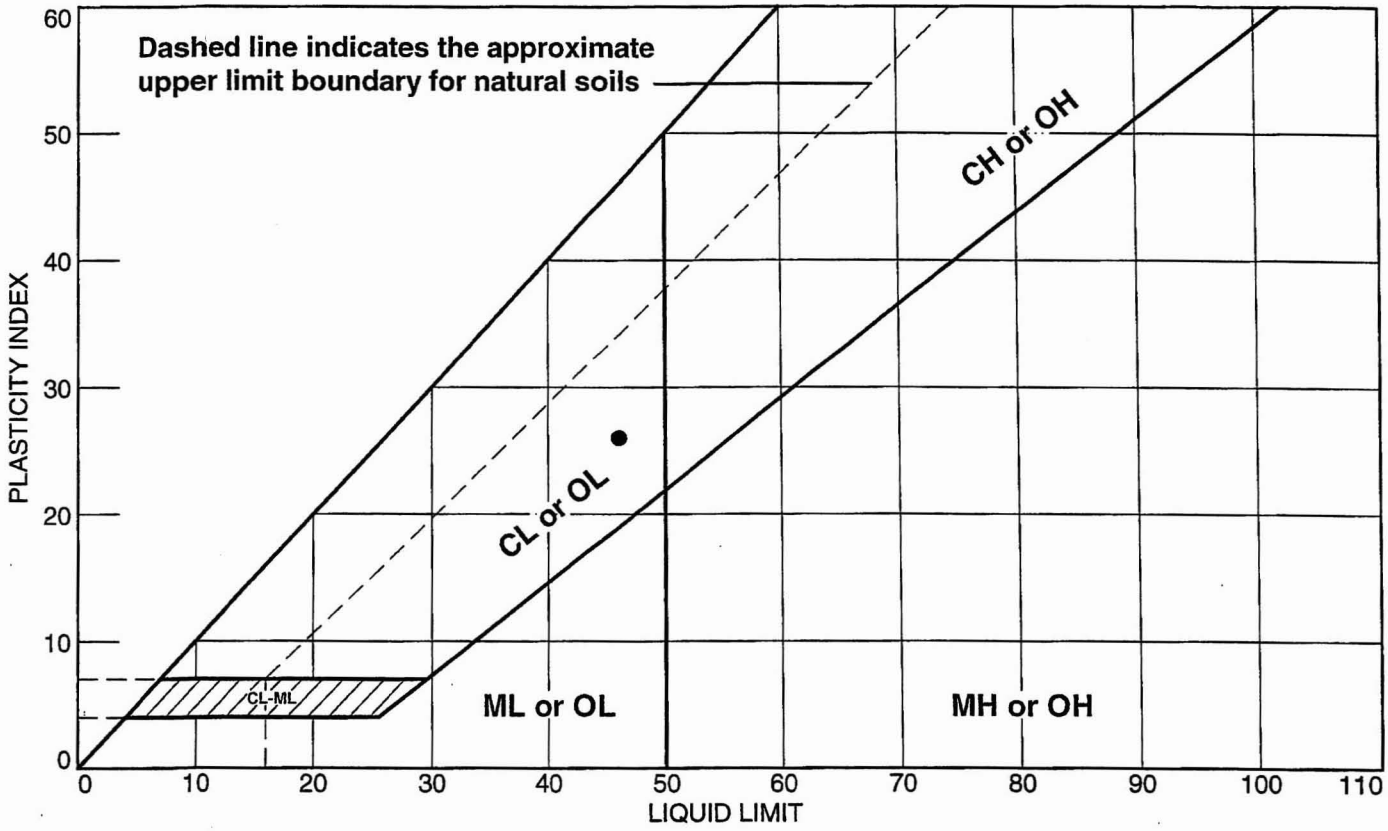
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.4	0.4	1.7	2.3	26.1	30.1	14.3	55.2	69.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0021	0.0113	0.1377	0.1667	0.2101	0.3380

Fineness Modulus
0.33

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring B-2151	SS-2	3.5-5	16.4	20	46	26	CL

MACTEC, Inc.

Raleigh, North Carolina

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project No.: 6468071777 **Figure** NA

Tested By: CS **Checked By:** LBJ PSC 1-25-08

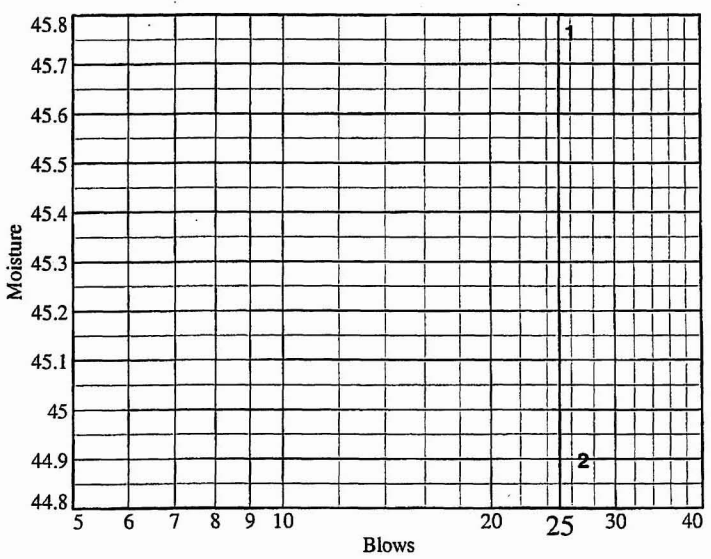
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 3.5-5 **Sample Number:** SS-2
Material Description: Dark Gray Sandy Lean CLAY
USCS: CL **AASHTO:** A-7-6(17)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	32.23	31.10				
Dry+Tare	26.99	26.26				
Tare	15.54	15.48				
# Blows	26	27				
Moisture	45.8	44.9				



Liquid Limit= 46
Plastic Limit= 20
Plasticity Index= 26
Natural Moisture= 16.4
Liquidity Index= -0.1

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	22.84	22.47			
Dry+Tare	21.66	21.33			
Tare	15.65	15.50			
Moisture	19.6	19.6			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
105.75	92.12	9.24	16.4

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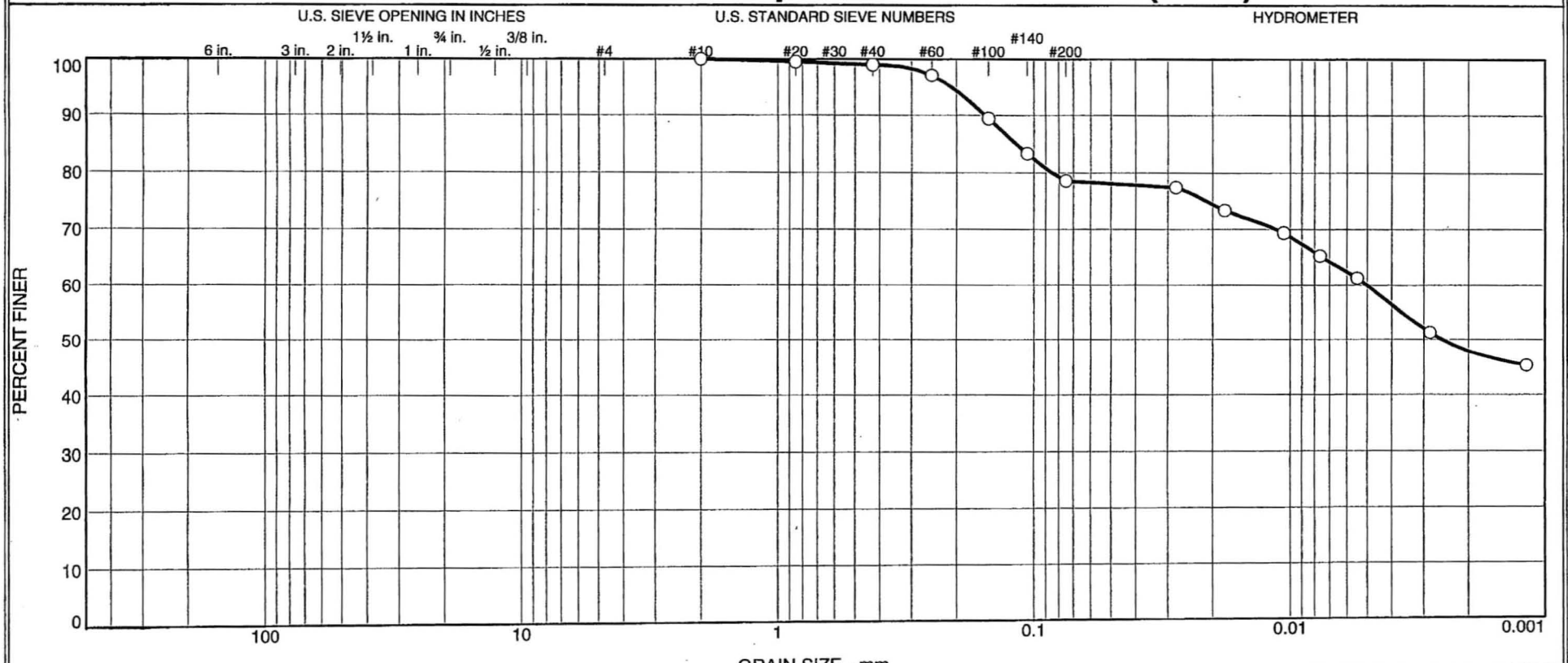
Particle Size Distribution Report / ASTM D 422-63(2002)e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	1.0	20.4	18.6	60.0

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2151	SS-3	6-7.5	12-13-07	CH	Light Brownish Gray Fat CLAY with sand	19.4	54	24

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Organic content =1.5% (ASTM D2794-07)
Specific gravity is assumed

Tested By: CS **Checked By:** LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 6-7.5 **Sample Number:** SS-3
Material Description: Light Brownish Gray Fat CLAY with sand
Date: 12-13-07 **Natural Moisture:** 19.4
Liquid Limit: 54 **Plastic Limit:** 24 **USCS Class.:** CH
Testing Remarks: Organic content =1.5% (ASTM D2794-07)
Specific gravity is assumed
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
213.33	0.00	0.00	#10	0.00	100.0
50.11	0.00	0.00	#20	0.23	99.5
			#40	0.48	99.0
			#60	1.41	97.2
			#100	5.29	89.4
			#140	8.32	83.4
			#200	10.73	78.6

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =51.11
Hygroscopic moisture correction:
Moist weight and tare = 27.80
Dry weight and tare = 27.37
Tare weight = 15.40
Hygroscopic moisture = 3.6%
Table of composite correction values:

Temp., deg. C:	12.3	27.3
Comp. corr.:	-7.0	-3.0

Meniscus correction only = 1.0
Specific gravity of solids = 2.700
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.2	43.0	38.6	0.0131	44.0	9.1	0.0279	77.4
5.00	22.1	41.0	36.6	0.0131	42.0	9.4	0.0180	73.4
15.00	22.1	39.0	34.6	0.0131	40.0	9.7	0.0106	69.4
30.00	21.9	37.0	32.6	0.0131	38.0	10.1	0.0076	65.3
60.00	21.9	35.0	30.6	0.0131	36.0	10.4	0.0055	61.3
240.00	22.0	30.0	25.6	0.0131	31.0	11.2	0.0028	51.3
1440.00	22.0	27.0	22.6	0.0131	28.0	11.7	0.0012	45.3

MACTEC, Inc.

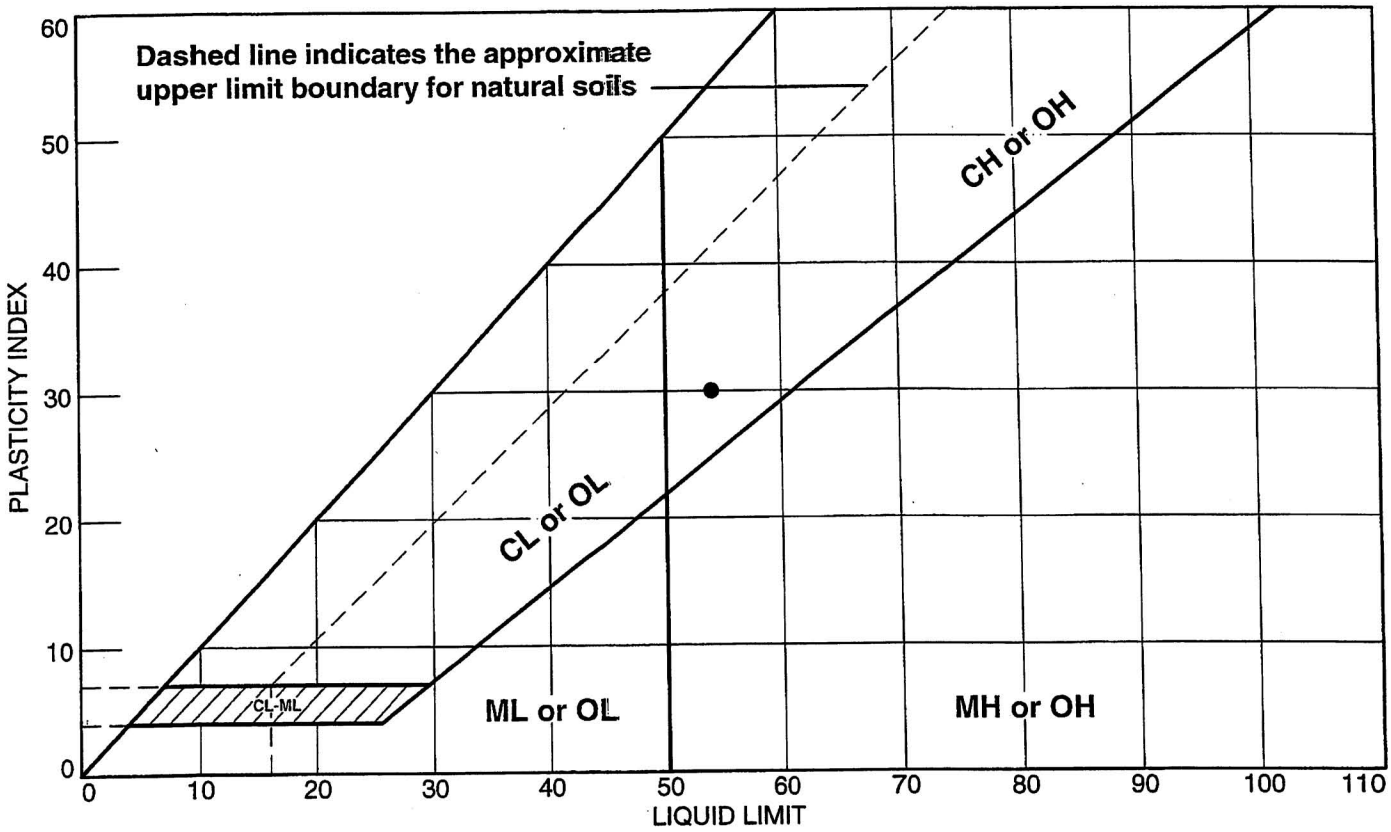
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	1.0	20.4	21.4	18.6	60.0	78.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0025	0.0050	0.0851	0.1165	0.1548	0.2088

Fineness Modulus
0.13

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring B-2151	SS-3	6-7.5	19.4	24	54	30	CH

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria) **Project No.:** 6468071777 **Figure** NA

Tested By: CS **Checked By:** LBJ DSC 1-25-08

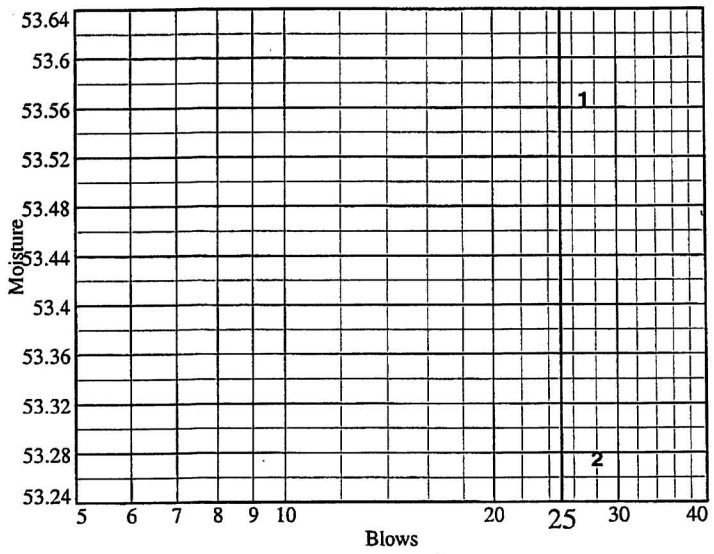
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 6-7.5 **Sample Number:** SS-3
Material Description: Light Brownish Gray Fat CLAY with sand
USCS: CH **AASHTO:** A-7-6(25)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	26.86	26.45				
Dry+Tare	22.88	22.79				
Tare	15.45	15.92				
# Blows	27	28				
Moisture	53.6	53.3				



Liquid Limit= 54
Plastic Limit= 24
Plasticity Index= 30
Natural Moisture= 19.4
Liquidity Index= -0.2

Plastic Limit Data

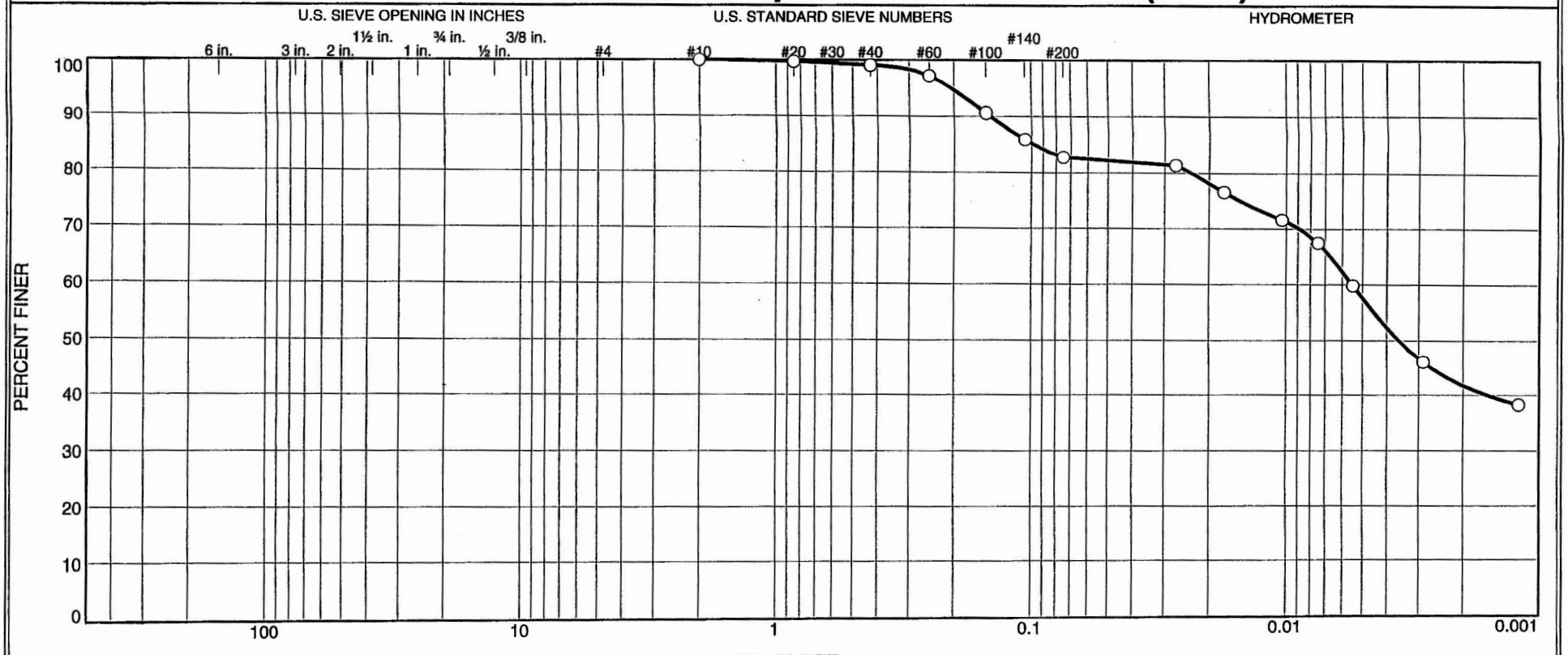
Run No.	1	2	3	4	
Wet+Tare	22.13	23.37			
Dry+Tare	20.89	21.81			
Tare	15.76	15.45			
Moisture	24.2	24.5			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
121.75	103.10	6.91	19.4

MACTEC, Inc.

Particle Size Distribution Report / ASTM D 422-63(2002)e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.9	16.3	25.2	57.6

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2151	SS-4	8.5-10.1	12-13-07	CL	Light Brownish Gray Lean CLAY with sand	14.3	44	14

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific gravity is assumed

Tested By: CS **Checked By:** LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 8.5-10.1 **Sample Number:** SS-4
Material Description: Light Brownish Gray Lean CLAY with sand
Date: 12-13-07 **Natural Moisture:** 14.3
Liquid Limit: 44 **Plastic Limit:** 14 **USCS Class.:** CL
Testing Remarks: Specific gravity is assumed
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
239.00	0.00	0.00	#10	0.00	100.0
52.24	0.00	0.00	#20	0.14	99.7
			#40	0.48	99.1
			#60	1.45	97.2
			#100	4.94	90.5
			#140	7.32	86.0
			#200	9.00	82.8

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =52.24
Hygroscopic moisture correction:
Moist weight and tare = 29.45
Dry weight and tare = 29.01
Tare weight = 15.40
Hygroscopic moisture = 3.2%
Table of composite correction values:

Temp., deg. C:	12.3	27.3
Comp. corr.:	-7.0	-3.0

Meniscus correction only = 1.0
Specific gravity of solids = 2.700
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.2	46.0	41.6	0.0131	47.0	8.6	0.0271	81.4
5.00	22.3	43.5	39.2	0.0131	44.5	9.0	0.0175	76.5
15.00	22.2	41.0	36.6	0.0131	42.0	9.4	0.0104	71.6
30.00	21.9	39.0	34.6	0.0131	40.0	9.7	0.0075	67.5
60.00	22.1	35.0	30.6	0.0131	36.0	10.4	0.0055	59.8
240.00	22.0	28.0	23.6	0.0131	29.0	11.5	0.0029	46.1
1440.00	22.0	24.0	19.6	0.0131	25.0	12.2	0.0012	38.3

MACTEC, Inc.

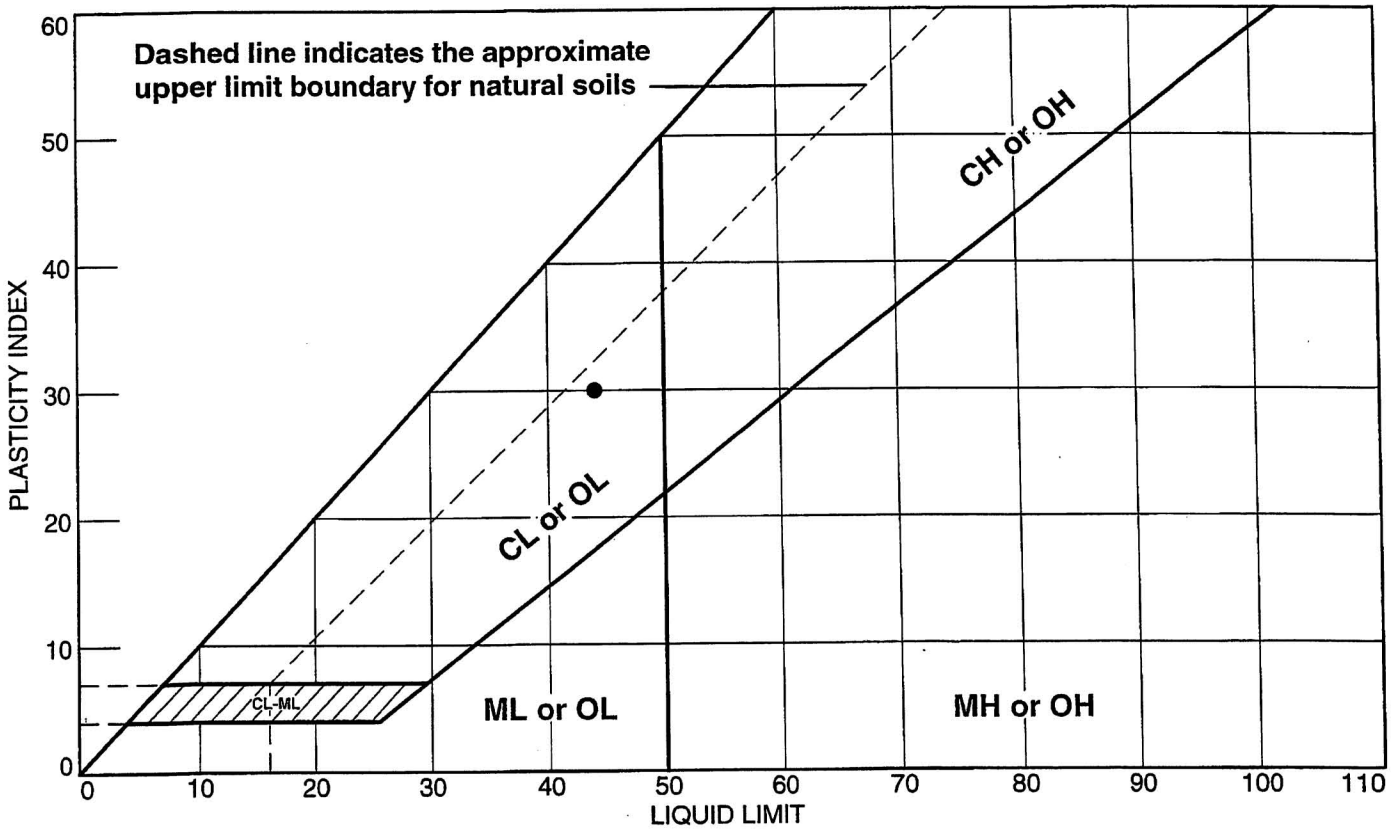
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.9	16.3	17.2	25.2	57.6	82.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0036	0.0055	0.0234	0.0972	0.1444	0.2047

Fineness Modulus
0.12

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring B-2151	SS-4	8.5-10.1	14.3	14	44	30	CL

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria) **Project No.:** 6468071777 **Figure** NA

Tested By: CS **Checked By:** LBJ DSC 1-25-08

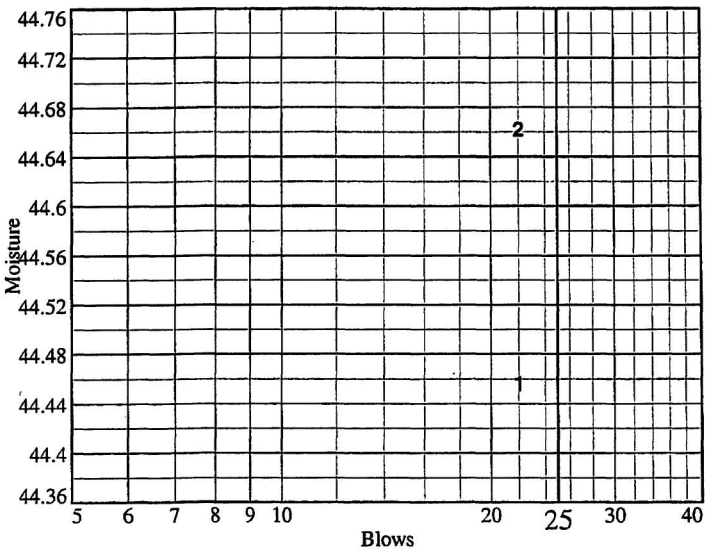
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 8.5-10.1 **Sample Number:** SS-4
Material Description: Light Brownish Gray Lean CLAY with sand
USCS: CL **AASHTO:** A-7-6(24)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	24.24	32.65				
Dry+Tare	20.19	27.42				
Tare	11.08	15.71				
# Blows	22	22				
Moisture	44.5	44.7				



Liquid Limit= 44
Plastic Limit= 14
Plasticity Index= 30
Natural Moisture= 14.3
Liquidity Index= 0.0

Plastic Limit Data

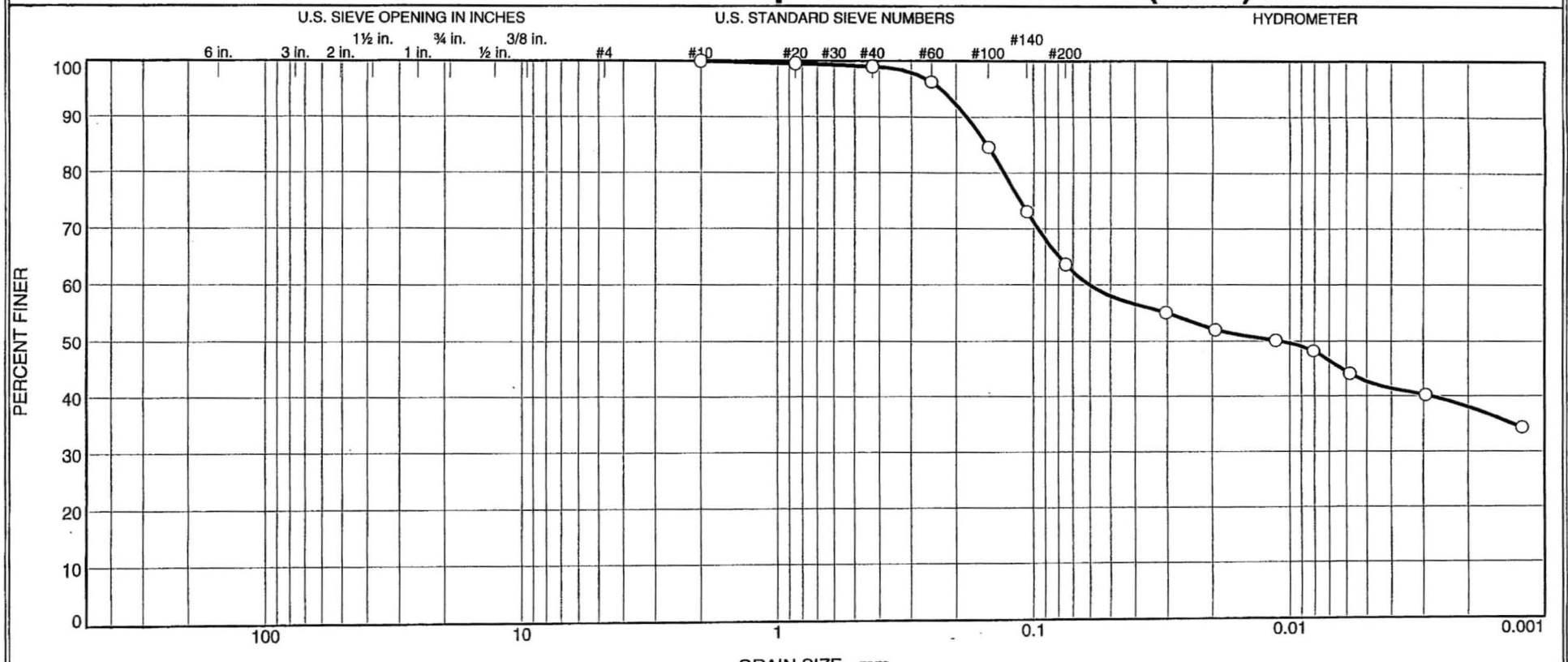
Run No.	1	2	3	4	
Wet+Tare	22.69	24.94			
Dry+Tare	21.81	23.76			
Tare	15.60	15.49			
Moisture	14.2	14.3			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
121.51	107.19	6.76	14.3

MACTEC, Inc.

Particle Size Distribution Report / ASTM D 422-63(2002)e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	1.0	35.4	20.9	42.7

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2151	SS-5	11.0-12.5	12-13-07	CL	Light Brownish Gray Sandy Lean CLAY	43.5	39	13

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Organic content = 2.5% (ASTM D2794-07)
Specific gravity is assumed

Tested By: CS **Checked By:** LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 11.0-12.5 **Sample Number:** SS-5
Material Description: Light Brownish Gray Sandy Lean CLAY
Date: 12-13-07 **Natural Moisture:** 43.5
Liquid Limit: 39 **Plastic Limit:** 13 **USCS Class.:** CL
Testing Remarks: Organic content = 2.5% (ASTM D2794-07)
Specific gravity is assumed
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
207.41	0.00	0.00	#10	0.00	100.0
51.10	0.00	0.00	#20	0.22	99.6
			#40	0.49	99.0
			#60	1.89	96.3
			#100	7.90	84.5
			#140	13.76	73.1
			#200	18.59	63.6

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =51.1
Hygroscopic moisture correction:
Moist weight and tare = 25.00
Dry weight and tare = 24.87
Tare weight = 11.08
Hygroscopic moisture = 0.9%
Table of composite correction values:

Temp., deg. C:	12.3	27.3
Comp. corr.:	-7.0	-3.0

Meniscus correction only = 1.0
Specific gravity of solids = 2.700
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.4	32.5	28.2	0.0131	33.5	10.8	0.0303	55.1
5.00	22.2	31.0	26.6	0.0131	32.0	11.0	0.0194	52.0
15.00	22.3	30.0	25.7	0.0131	31.0	11.2	0.0113	50.1
30.00	22.3	29.0	24.7	0.0131	30.0	11.4	0.0080	48.2
60.00	21.9	27.0	22.6	0.0131	28.0	11.7	0.0058	44.1
240.00	22.0	25.0	20.6	0.0131	26.0	12.0	0.0029	40.2
1440.00	22.0	22.0	17.6	0.0131	23.0	12.5	0.0012	34.4

MACTEC, Inc.

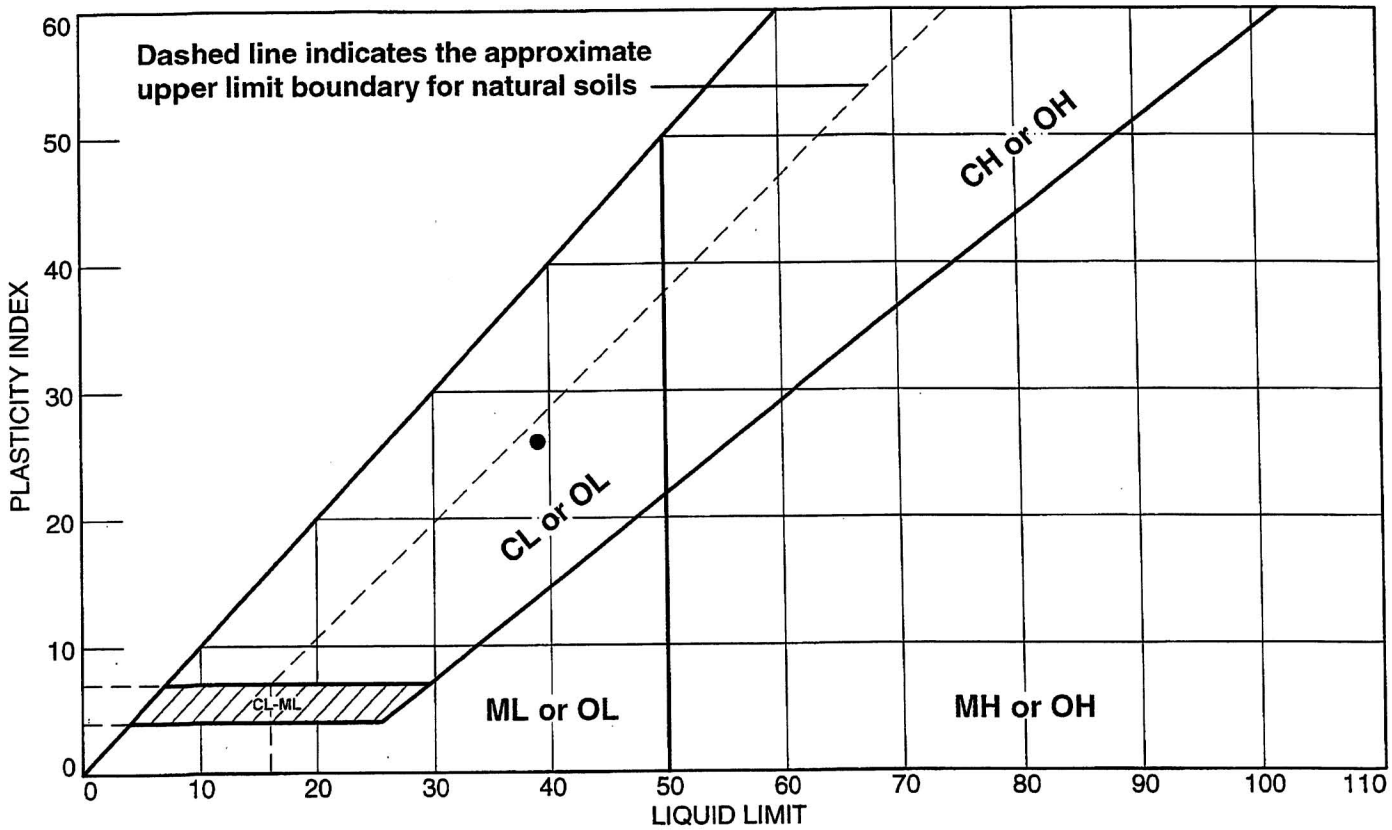
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	1.0	35.4	36.4	20.9	42.7	63.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0108	0.0604	0.1305	0.1522	0.1816	0.2293

Fineness Modulus
0.18

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring B-2151	SS-5	11.0-12.5	43.5	13	39	26	CL

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria) **Project No.:** 6468071777 **Figure** NA

Tested By: CS **Checked By:** LBJ DSC 1-25-08

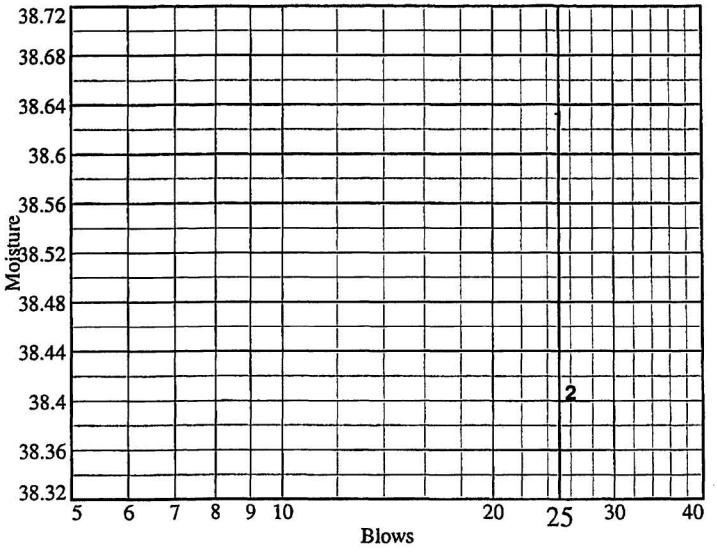
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 11.0-12.5 **Sample Number:** SS-5
Material Description: Light Brownish Gray Sandy Lean CLAY
USCS: CL **AASHTO:** A-6(13)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	28.85	29.01				
Dry+Tare	25.13	25.20				
Tare	15.50	15.28				
# Blows	25	26				
Moisture	38.6	38.4				



Liquid Limit= 39
Plastic Limit= 13
Plasticity Index= 26
Natural Moisture= 43.5
Liquidity Index= 1.2

Plastic Limit Data

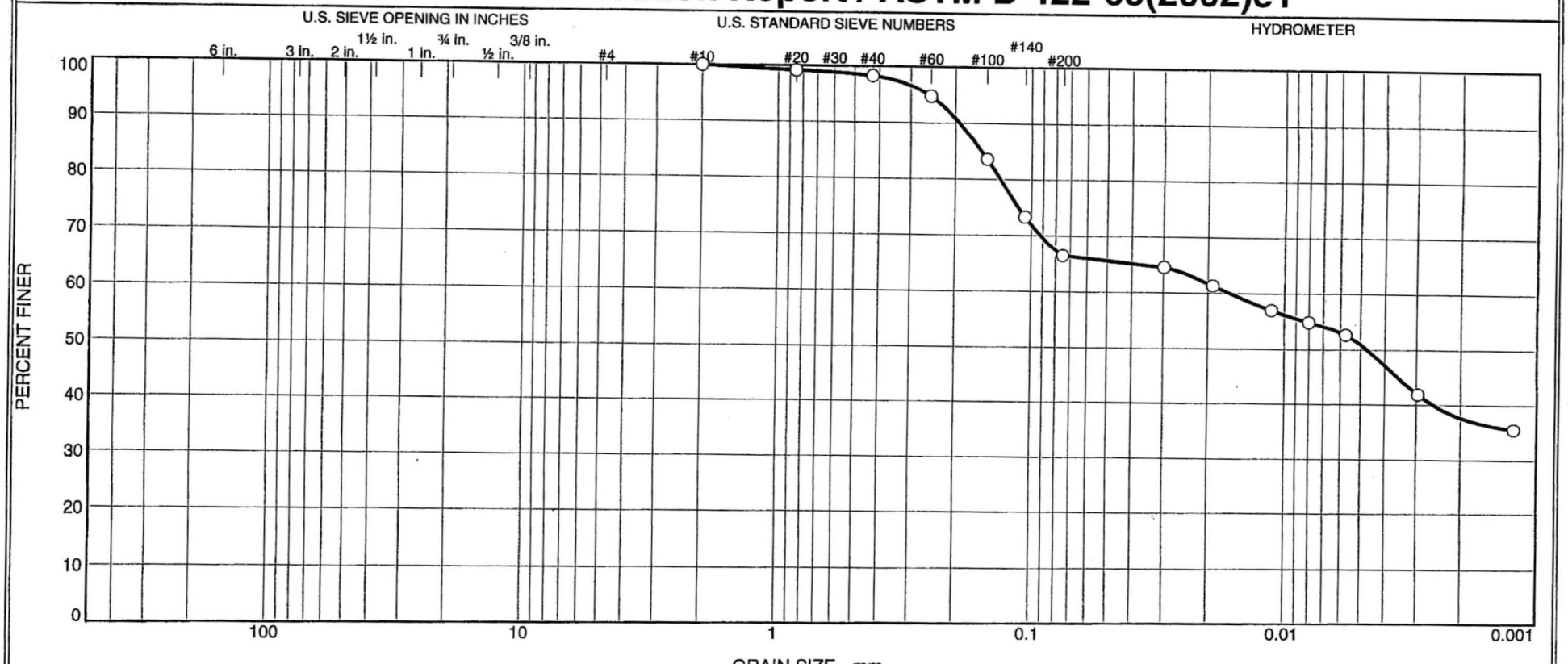
Run No.	1	2	3	4	
Wet+Tare	23.22	22.73			
Dry+Tare	22.36	21.90			
Tare	15.47	15.63			
Moisture	12.5	13.2			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
161.15	114.38	6.82	43.5

MACTEC, Inc.

Particle Size Distribution Report / ASTM D 422-63(2002)e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	1.7	31.8	15.5	51.0

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2151	SS-6	13.5-15	12-13-07	CL	Light Brownish Gray Sandy Lean CLAY	12.7	34	13

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific gravity is assumed

Tested By: CS **Checked By:** LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 13.5-15 **Sample Number:** SS-6
Material Description: Light Brownish Gray Sandy Lean CLAY
Date: 12-13-07 **Natural Moisture:** 12.7
Liquid Limit: 34 **Plastic Limit:** 13 **USCS Class.:** CL
Testing Remarks: Specific gravity is assumed
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
243.33	0.00	0.00	#10	0.00	100.0
47.55	0.00	0.00	#20	0.39	99.2
			#40	0.80	98.3
			#60	2.50	94.7
			#100	7.79	83.6
			#140	12.66	73.4
			#200	15.92	66.5

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =47.55
Hygroscopic moisture correction:
Moist weight and tare = 27.30
Dry weight and tare = 26.97
Tare weight = 15.56
Hygroscopic moisture = 2.9%
Table of composite correction values:

Temp., deg. C:	12.3	27.3
Comp. corr.:	-7.0	-3.0

Meniscus correction only = 1.0
Specific gravity of solids = 2.700
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.4	34.5	30.2	0.0131	35.5	10.5	0.0299	64.6
5.00	22.3	33.0	28.7	0.0131	34.0	10.7	0.0191	61.3
15.00	22.2	31.0	26.6	0.0131	32.0	11.0	0.0112	57.0
30.00	22.2	30.0	25.6	0.0131	31.0	11.2	0.0080	54.9
60.00	22.1	29.0	24.6	0.0131	30.0	11.4	0.0057	52.7
240.00	21.9	24.0	19.6	0.0131	25.0	12.2	0.0030	41.9
1440.00	22.1	21.0	16.6	0.0131	22.0	12.7	0.0012	35.6

MACTEC, Inc.

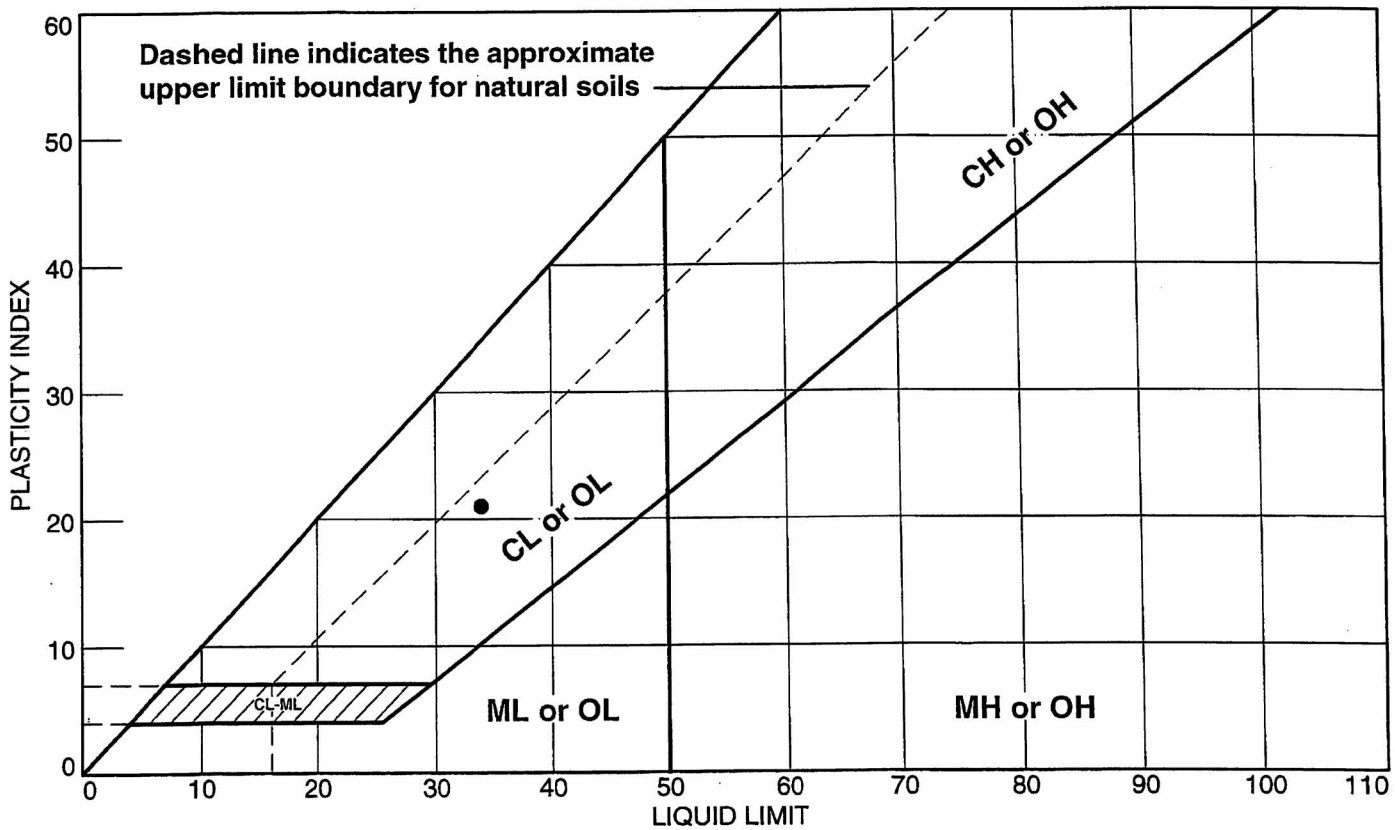
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	1.7	31.8	33.5	15.5	51.0	66.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0047	0.0164	0.1329	0.1575	0.1923	0.2549

Fineness Modulus
0.21

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring B-2151	SS-6	13.5-15	12.7	13	34	21	CL

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria) **Project No.:** 6468071777 **Figure** NA

Tested By: CS **Checked By:** LBJ DSC 1-25-08

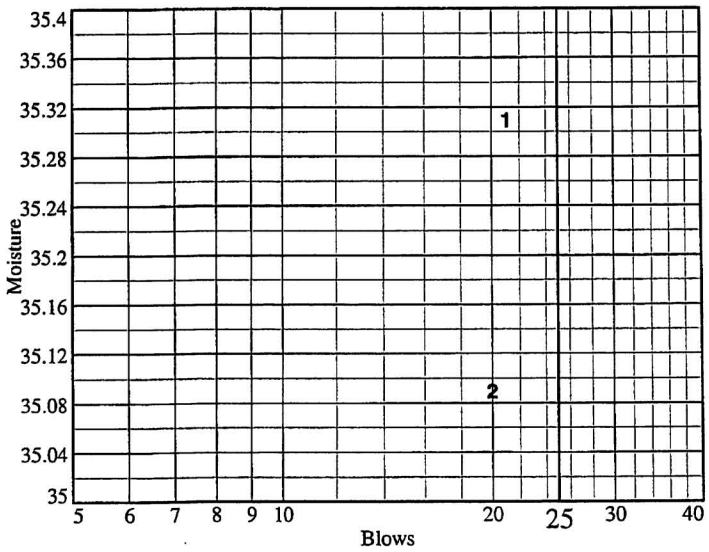
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 13.5-15 **Sample Number:** SS-6
Material Description: Light Brownish Gray Sandy Lean CLAY
USCS: CL **AASHTO:** A-6(11)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	25.77	34.92				
Dry+Tare	23.09	29.86				
Tare	15.50	15.44				
# Blows	21	20				
Moisture	35.3	35.1				



Liquid Limit= 34
Plastic Limit= 13
Plasticity Index= 21
Natural Moisture= 12.7
Liquidity Index= 0.0

Plastic Limit Data

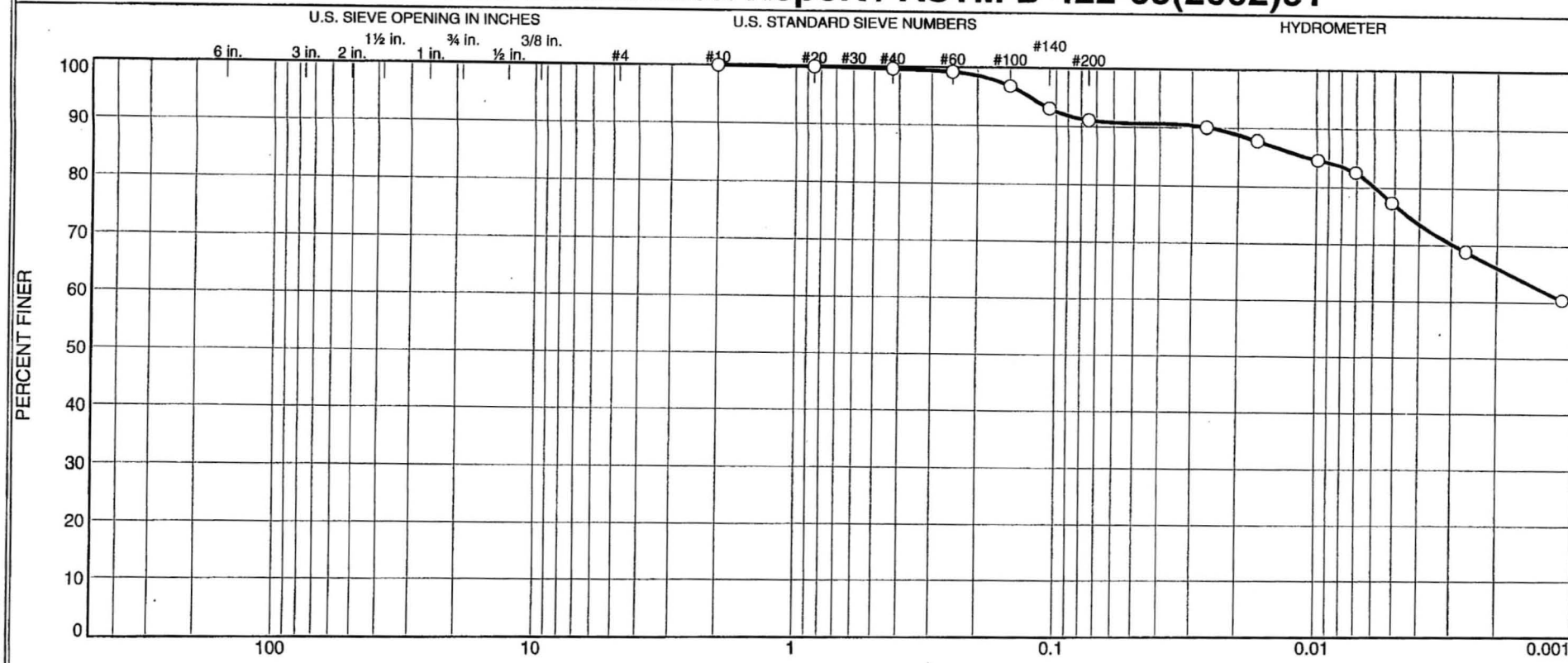
Run No.	1	2	3	4	
Wet+Tare	23.88	22.70			
Dry+Tare	22.90	21.89			
Tare	15.54	15.30			
Moisture	13.3	12.3			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
134.18	119.85	6.76	12.7

MACTEC, Inc.

Particle Size Distribution Report / ASTM D 422-63(2002)e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.4	8.5	14.3	76.8

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2151	SS-7	19.5-21.0	12-13-07	CH	Light Gray Fat CLAY	22.8	69	19

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific gravity = 2.750 (ASTM D854-06)
Organic content = 4.4% (ASTM D2794-07)

Tested By: CS **Checked By:** LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 19.5-21.0 **Sample Number:** SS-7
Material Description: Light Gray Fat CLAY
Date: 12-13-07 **Natural Moisture:** 22.8
Liquid Limit: 69 **Plastic Limit:** 19 **USCS Class.:** CH
Testing Remarks: Specific gravity = 2.750 (ASTM D854-06)
Organic content = 4.4% (ASTM D2794-07)
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
170.72	0.00	0.00	#10	0.00	100.0
48.41	0.00	0.00	#20	0.07	99.9
			#40	0.19	99.6
			#60	0.39	99.2
			#100	1.53	96.8
			#140	3.37	93.0
			#200	4.29	91.1

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =48.41
Hygroscopic moisture correction:
Moist weight and tare = 26.72
Dry weight and tare = 26.26
Tare weight = 15.53
Hygroscopic moisture = 4.3%
Table of composite correction values:

Temp., deg. C:	11.2	27.3
Comp. corr.:	-7.0	-3.0

Meniscus correction only = 1.0
Specific gravity of solids = 2.750
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.3	47.0	42.8	0.0129	48.0	8.4	0.0264	90.1
5.00	22.2	46.0	41.7	0.0129	47.0	8.6	0.0169	88.0
15.00	22.2	44.5	40.2	0.0129	45.5	8.8	0.0099	84.8
30.00	22.1	43.5	39.2	0.0129	44.5	9.0	0.0071	82.6
60.00	21.9	41.0	36.7	0.0129	42.0	9.4	0.0051	77.3
240.00	22.1	37.0	32.7	0.0129	38.0	10.1	0.0026	68.9
1440.00	22.0	33.0	28.7	0.0129	34.0	10.7	0.0011	60.5

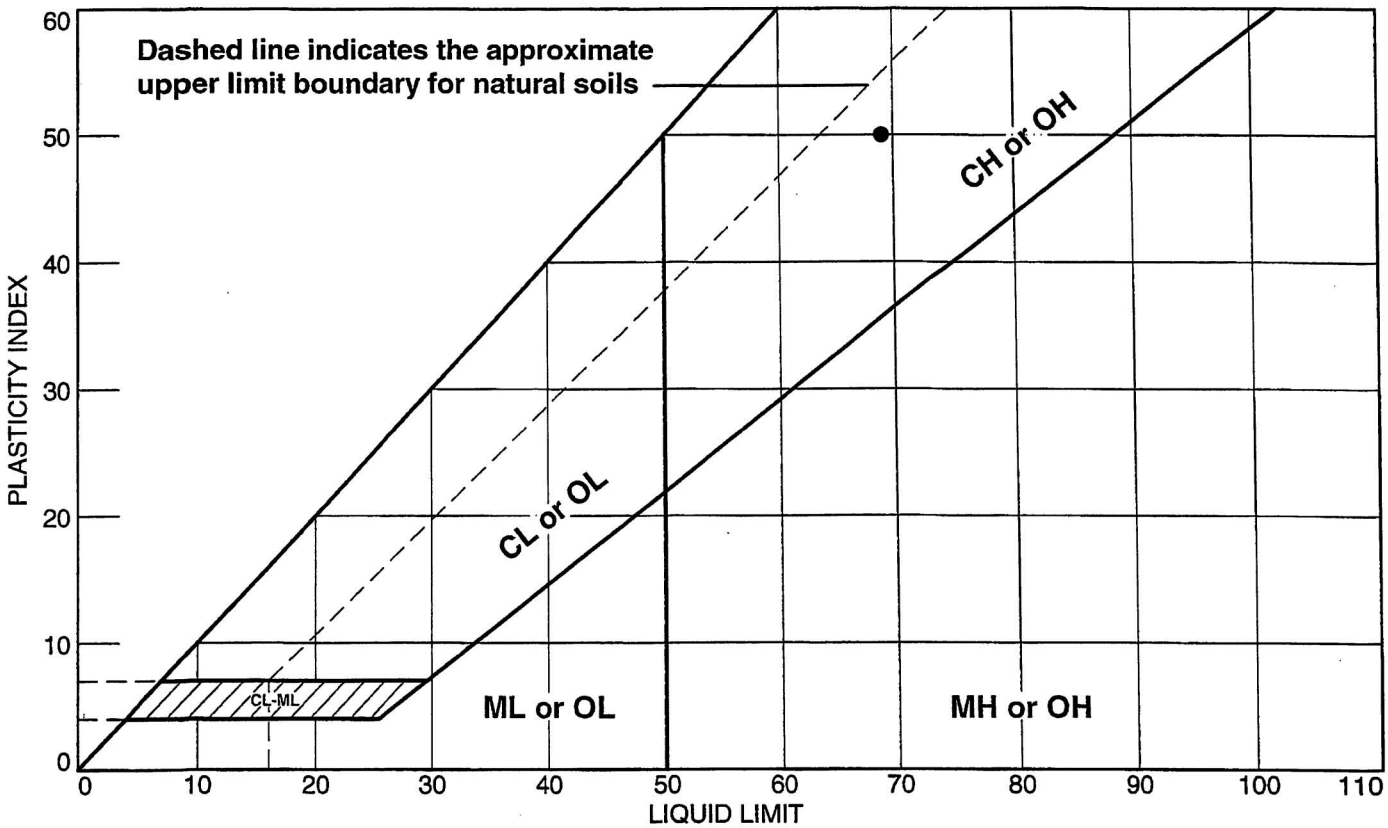
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.4	8.5	8.9	14.3	76.8	91.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0060	0.0103	0.0254	0.1269

Fineness Modulus
0.04

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring B-2151	SS-7	19.5-21.0	22.8	19	69	50	CH

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria) **Project No.:** 6468071777 **Figure** NA

Tested By: CS **Checked By:** LBJ DSC 1-25-08

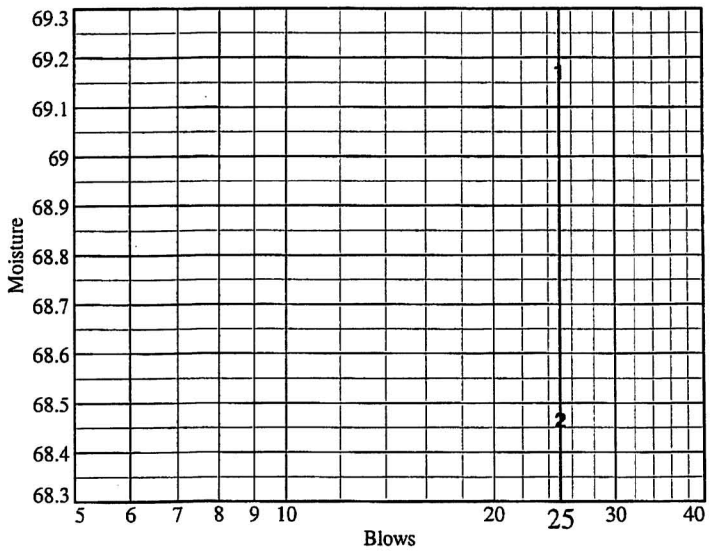
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 19.5-21.0 **Sample Number:** SS-7
Material Description: Light Gray Fat CLAY
USCS: CH **AASHTO:** A-7-6(50)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	26.52	27.36				
Dry+Tare	22.01	22.54				
Tare	15.49	15.50				
# Blows	25	25				
Moisture	69.2	68.5				



Liquid Limit= 69
Plastic Limit= 19
Plasticity Index= 50
Natural Moisture= 22.8
Liquidity Index= 0.1

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	23.38	23.83			
Dry+Tare	22.11	22.49			
Tare	15.50	15.60			
Moisture	19.2	19.4			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
149.75	123.71	9.47	22.8

MACTEC, Inc.

MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

REPORT OF THE STANDARD TEST METHOD FOR SPECIFIC GRAVITY OF SOILS
Performed in General Accordance with ASTM D 854-06 (Method B)

PROJECT NAME:EXELON COL PROJECT [VICTORIA]

PROJECT NUMBER: 6468071777

DATE: 12/24/07

SAMPLE IDENTIFICATION: B-2151 SS-7

(A) Mass of oven-dried soil, grams:		48.00
(B) Mass of pycnometer filled with water at test temperature (T), grams:		654.89
(C) Mass of pycnometer, water and soil, grams:		685.45
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		22.5
(G) Specific Gravity at observed temperature:	A / [A + (B - C)]	2.752
(F)	***Correction factor:***	0.99945
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.750

MATERIAL TESTED: [X] **- # 4** [ ] **- # 10**

PREPARATION METHOD: [X] **DRY** [ ] **WET (dispersed)**

REMARKS: Estimated % Passing # 4 : 100%

Fat CLAY (CH)

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

THERMOMETER : 5.1.01

PYCNOMETER : P-5

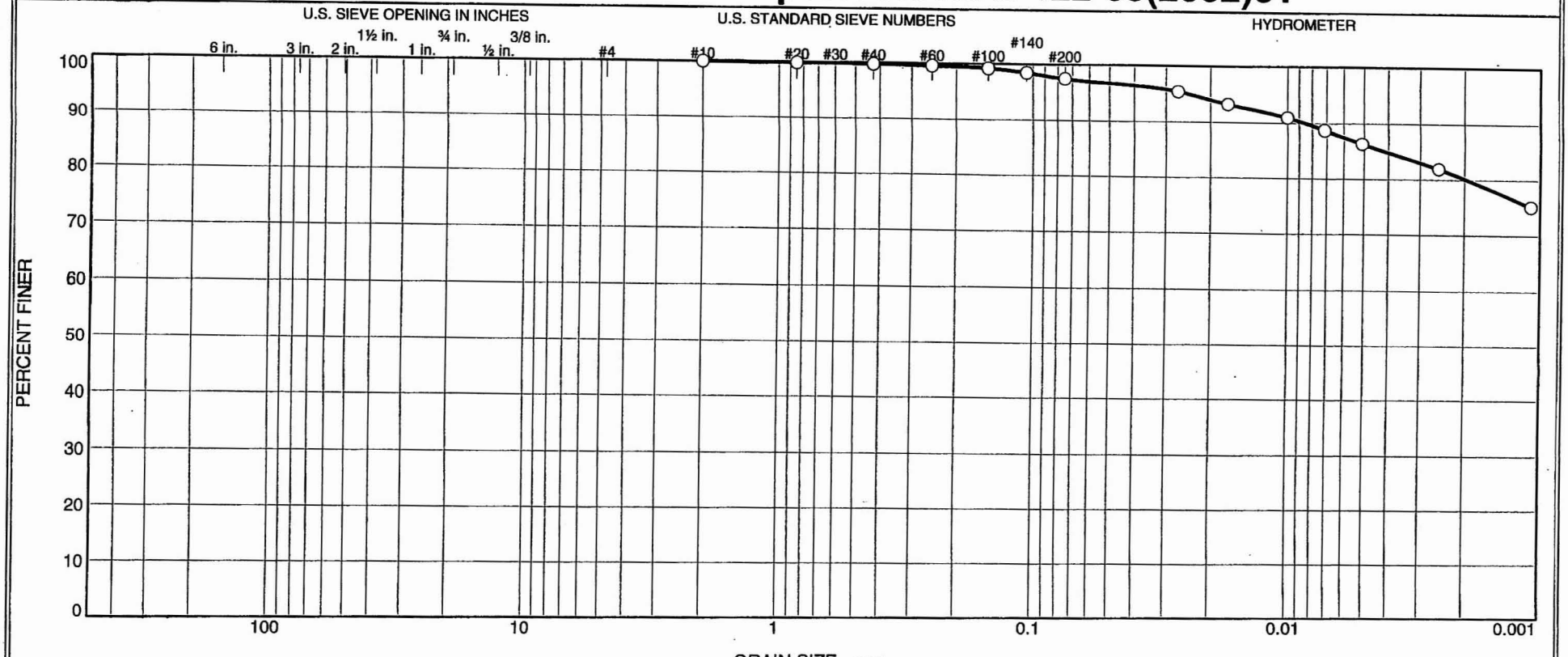
TESTED BY: CS

\Test Reports\Soils\SPECIFIC GRAVITY(ref).xls

REVIEWED BY: **Brian Johnson**

DSC 1-25-08

Particle Size Distribution Report / ASTM D 422-63(2002)e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.2	2.3	11.2	86.3

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2151	SS-8	24.5-26	12-13-07	CH	Brownish Yellow Fat CLAY	26.8	82	26

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific gravity is assumed

Tested By: CS **Checked By:** LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 24.5-26 **Sample Number:** SS-8
Material Description: Brownish Yellow Fat CLAY
Date: 12-13-07 **Natural Moisture:** 26.8
Liquid Limit: 82 **Plastic Limit:** 26 **USCS Class.:** CH
Testing Remarks: Specific gravity is assumed
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
185.80	0.00	0.00	#10	0.00	100.0
46.64	0.00	0.00	#20	0.06	99.9
			#40	0.10	99.8
			#60	0.19	99.6
			#100	0.36	99.2
			#140	0.70	98.5
			#200	1.15	97.5

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =46.64
Hygroscopic moisture correction:
Moist weight and tare = 27.37
Dry weight and tare = 26.73
Tare weight = 15.28
Hygroscopic moisture = 5.6%
Table of composite correction values:

Temp., deg. C:	12.3	27.3
Comp. corr.:	-7.0	-3.0

Meniscus correction only = 1.0
Specific gravity of solids = 2.700
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.2	47.0	42.6	0.0131	48.0	8.4	0.0269	95.5
5.00	22.3	46.0	41.7	0.0131	47.0	8.6	0.0171	93.3
15.00	22.2	45.0	40.6	0.0131	46.0	8.8	0.0100	91.0
30.00	22.3	44.0	39.7	0.0131	45.0	8.9	0.0071	88.8
60.00	22.1	43.0	38.6	0.0131	44.0	9.1	0.0051	86.4
252.00	22.0	41.0	36.6	0.0131	42.0	9.4	0.0025	81.9
1440.00	21.9	38.0	33.6	0.0131	39.0	9.9	0.0011	75.1

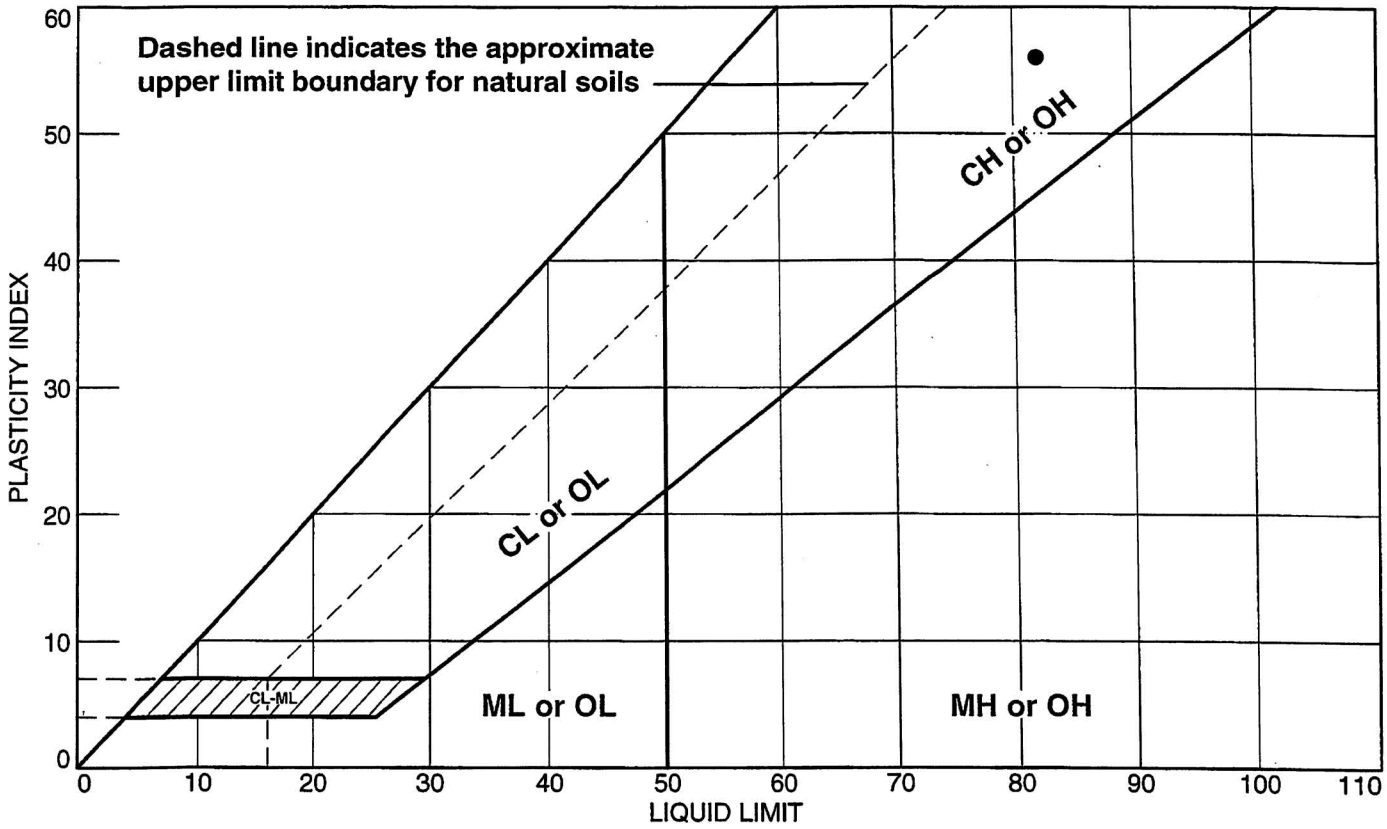
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.2	2.3	2.5	11.2	86.3	97.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0020	0.0041	0.0085	0.0242

Fineness Modulus
0.01

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring B-2151	SS-8	24.5-26	26.8	26	82	56	CH

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria) **Project No.:** 6468071777 **Figure** NA

Tested By: CS **Checked By:** LBJ PSC 1-25-08

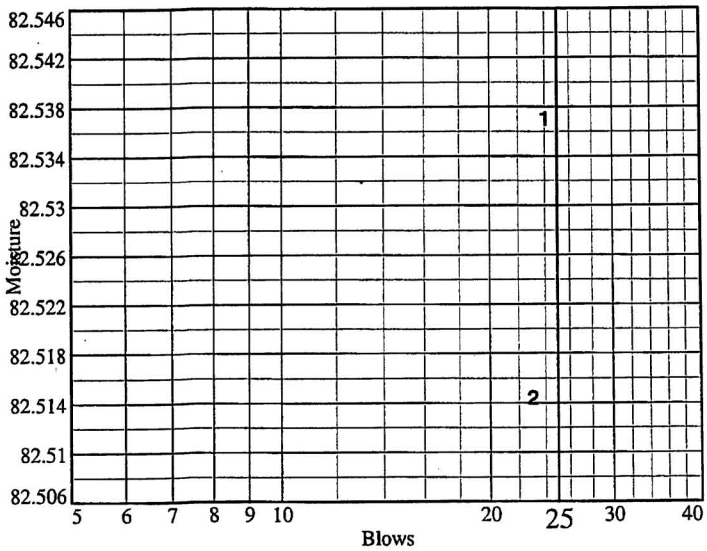
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 24.5-26 **Sample Number:** SS-8
Material Description: Brownish Yellow Fat CLAY
USCS: CH **AASHTO:** A-7-6(64)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	26.58	28.24				
Dry+Tare	21.57	22.53				
Tare	15.50	15.61				
# Blows	24	23				
Moisture	82.5	82.5				



Liquid Limit= 82
Plastic Limit= 26
Plasticity Index= 56
Natural Moisture= 26.8
Liquidity Index= 0.0

Plastic Limit Data

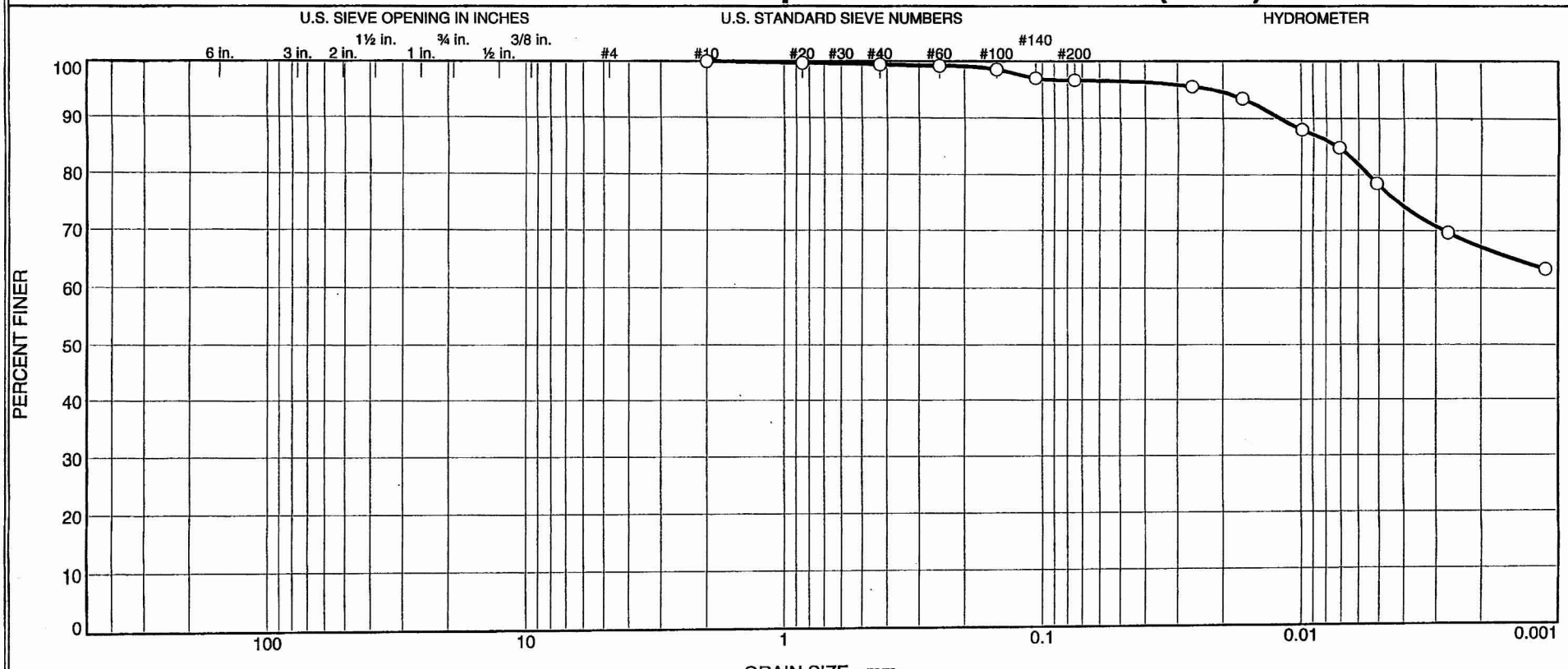
Run No.	1	2	3	4	
Wet+Tare	23.20	22.65			
Dry+Tare	21.65	21.23			
Tare	15.77	15.64			
Moisture	26.4	25.4			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
105.35	85.02	9.30	26.8

MACTEC, Inc.

Particle Size Distribution Report / ASTM D 422-63(2002)e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.5	2.9	18.5	78.1

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2151	SS-9	29.5-31	12-13-07	CH	Light Yellowish Brown Fat CLAY	22.8	69	22

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Organic content = 5.3% (ASTM D2794-07)
Specific Gravity is assumed.

Tested By: CS Checked By: LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 29.5-31 **Sample Number:** SS-9
Material Description: Light Yellowish Brown Fat CLAY
Date: 12-13-07 **Natural Moisture:** 22.8
Liquid Limit: 69 **Plastic Limit:** 22 **USCS Class.:** CH
Testing Remarks: Organic content = 5.3% (ASTM D2794-07)
Specific Gravity is assumed.
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
183.27	0.00	0.00	#10	0.00	100.0
48.34	0.00	0.00	#20	0.14	99.7
			#40	0.26	99.5
			#60	0.38	99.2
			#100	0.69	98.6
			#140	1.44	97.0
			#200	1.62	96.6

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =48.34
Hygroscopic moisture correction:
Moist weight and tare = 28.92
Dry weight and tare = 28.33
Tare weight = 15.52
Hygroscopic moisture = 4.6%
Table of composite correction values:

Temp., deg. C:	12.3	27.3
Comp. corr.:	-7.0	-3.0

Meniscus correction only = 1.0
Specific gravity of solids = 2.700
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.2	49.0	44.6	0.0131	50.0	8.1	0.0263	95.5
5.00	22.2	48.0	43.6	0.0131	49.0	8.3	0.0168	93.4
15.00	22.3	45.5	41.2	0.0131	46.5	8.7	0.0099	88.1
30.00	22.4	44.0	39.7	0.0131	45.0	8.9	0.0071	84.9
62.00	22.3	41.0	36.7	0.0131	42.0	9.4	0.0051	78.5
240.00	21.9	37.0	32.6	0.0131	38.0	10.1	0.0027	69.7
1440.00	22.2	34.0	29.6	0.0131	35.0	10.6	0.0011	63.4

MACTEC, Inc.

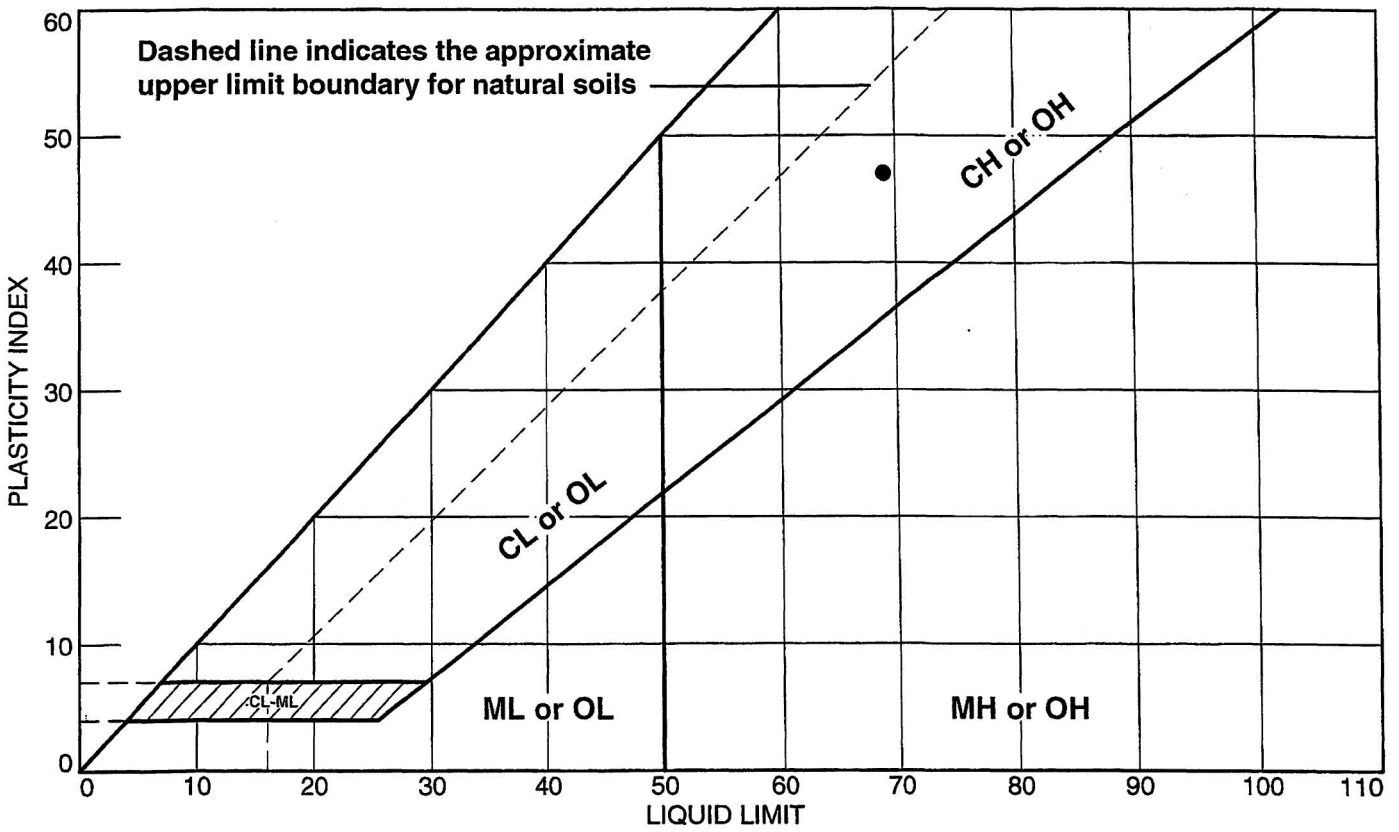
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.5	2.9	3.4	18.5	78.1	96.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0055	0.0071	0.0120	0.0223

Fineness Modulus
0.03

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring B-2151	SS-9	29.5-31	22.8	22	69	47	CH

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria) **Project No.:** 6468071777 **Figure** NA

Tested By: CS **Checked By:** LBJ DSC 1-25-08

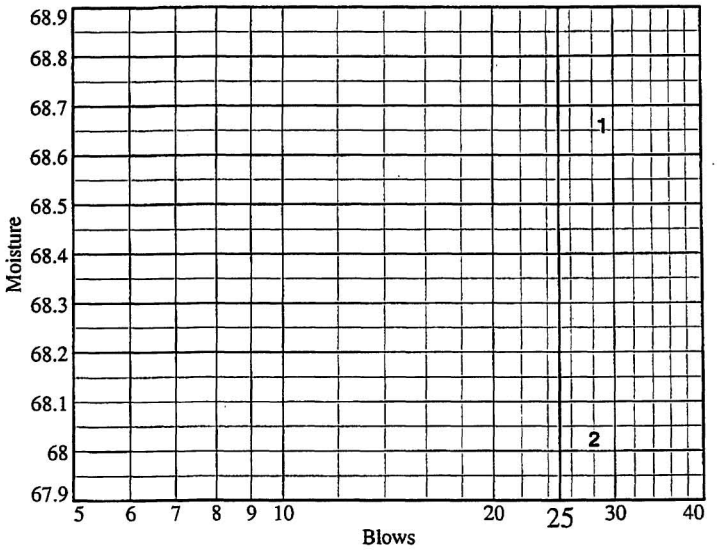
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 29.5-31 **Sample Number:** SS-9
Material Description: Light Yellowish Brown Fat CLAY
USCS: CH **AASHTO:** A-7-6(52)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	28.42	28.69				
Dry+Tare	23.14	23.35				
Tare	15.45	15.50				
# Blows	29	28				
Moisture	68.7	68.0				



Liquid Limit= 69
Plastic Limit= 22
Plasticity Index= 47
Natural Moisture= 22.8
Liquidity Index= 0.0

Plastic Limit Data

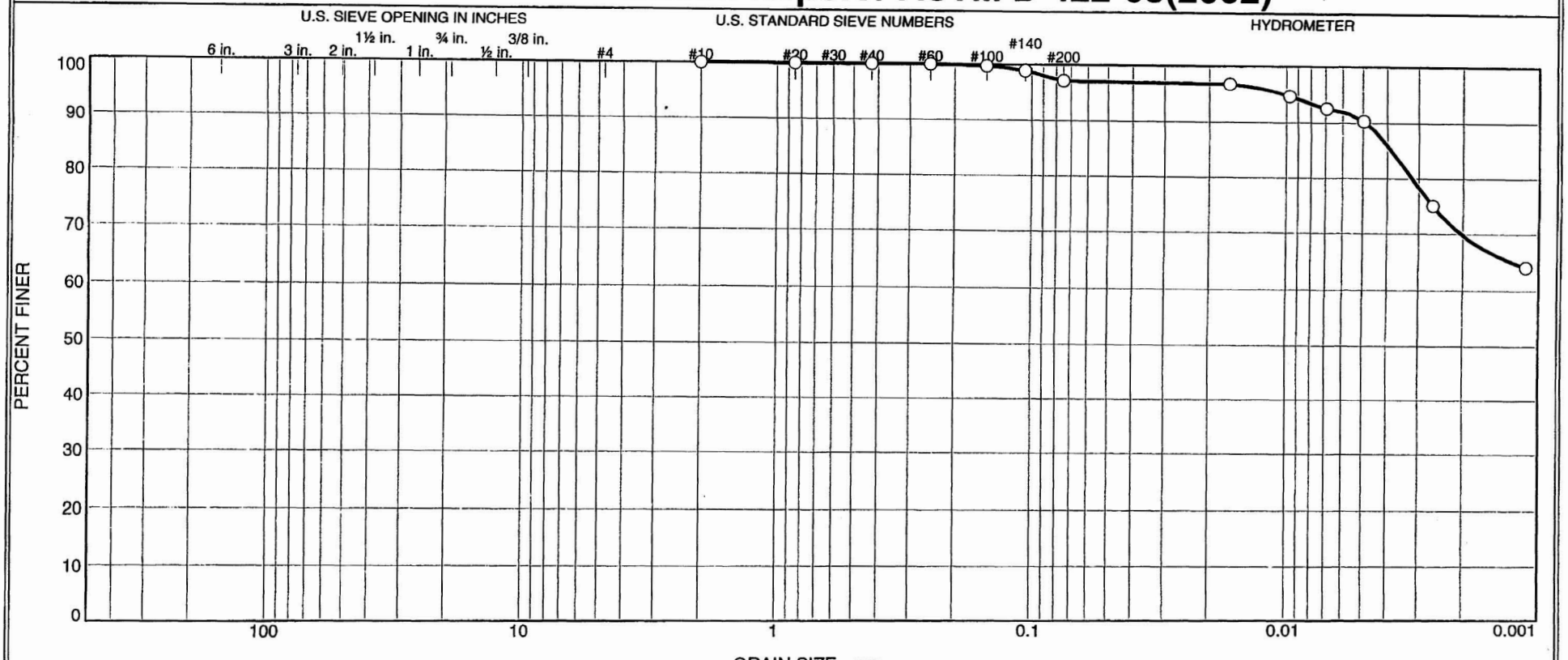
Run No.	1	2	3	4	
Wet+Tare	23.92	17.72			
Dry+Tare	22.39	16.50			
Tare	15.49	11.07			
Moisture	22.2	22.5			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
111.93	92.84	9.23	22.8

MACTEC, Inc.

Particle Size Distribution Report / ASTM D 422-63(2002)



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.1	2.7	6.7	90.5

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2151	SS-10	34.5-36	12-13-07	CH	Strong Brown Fat CLAY	23.8	69	21

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity is assumed
To preserve continuity the first hydrometer data point with % finer=98.9% has been neglected.

Tested By: CS **Checked By:** LBJ ZHU 4/30/08

GRAIN SIZE DISTRIBUTION TEST DATA

4/25/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 34.5-36 **Sample Number:** SS-10
Material Description: Strong Brown Fat CLAY
Date: 12-13-07 **Natural Moisture:** 23.8
Liquid Limit: 69 **Plastic Limit:** 21 **USCS Class.:** CH
Testing Remarks: Specific Gravity is assumed
To preserve continuity the first hydrometer data point with % finer=98.9% has been neglected.
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
203.09	0.00	0.00	#10	0.00	100.0
47.80	0.00	0.00	#20	0.02	100.0
			#40	0.03	99.9
			#60	0.03	99.9
			#100	0.16	99.7
			#140	0.54	98.9
			#200	1.34	97.2

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =47.80
Hygroscopic moisture correction:
Moist weight and tare = 27.16
Dry weight and tare = 26.63
Tare weight = 15.49
Hygroscopic moisture = 4.8%
Table of composite correction values:

Temp., deg. C:	12.3	27.3
Comp. corr.:	-7.0	-3.0

Meniscus correction only = 1.0
Specific gravity of solids = 2.700
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
5.00	22.3	49.0	44.7	0.0131	50.0	8.1	0.0166	96.8
15.00	22.4	48.0	43.7	0.0131	49.0	8.3	0.0097	94.7
30.00	22.4	47.0	42.7	0.0131	48.0	8.4	0.0069	92.5
60.00	22.3	46.0	41.7	0.0131	47.0	8.6	0.0049	90.3
240.00	22.1	39.0	34.6	0.0131	40.0	9.7	0.0026	75.0
1440.00	22.1	34.0	29.6	0.0131	35.0	10.6	0.0011	64.2

MACTEC, Inc.

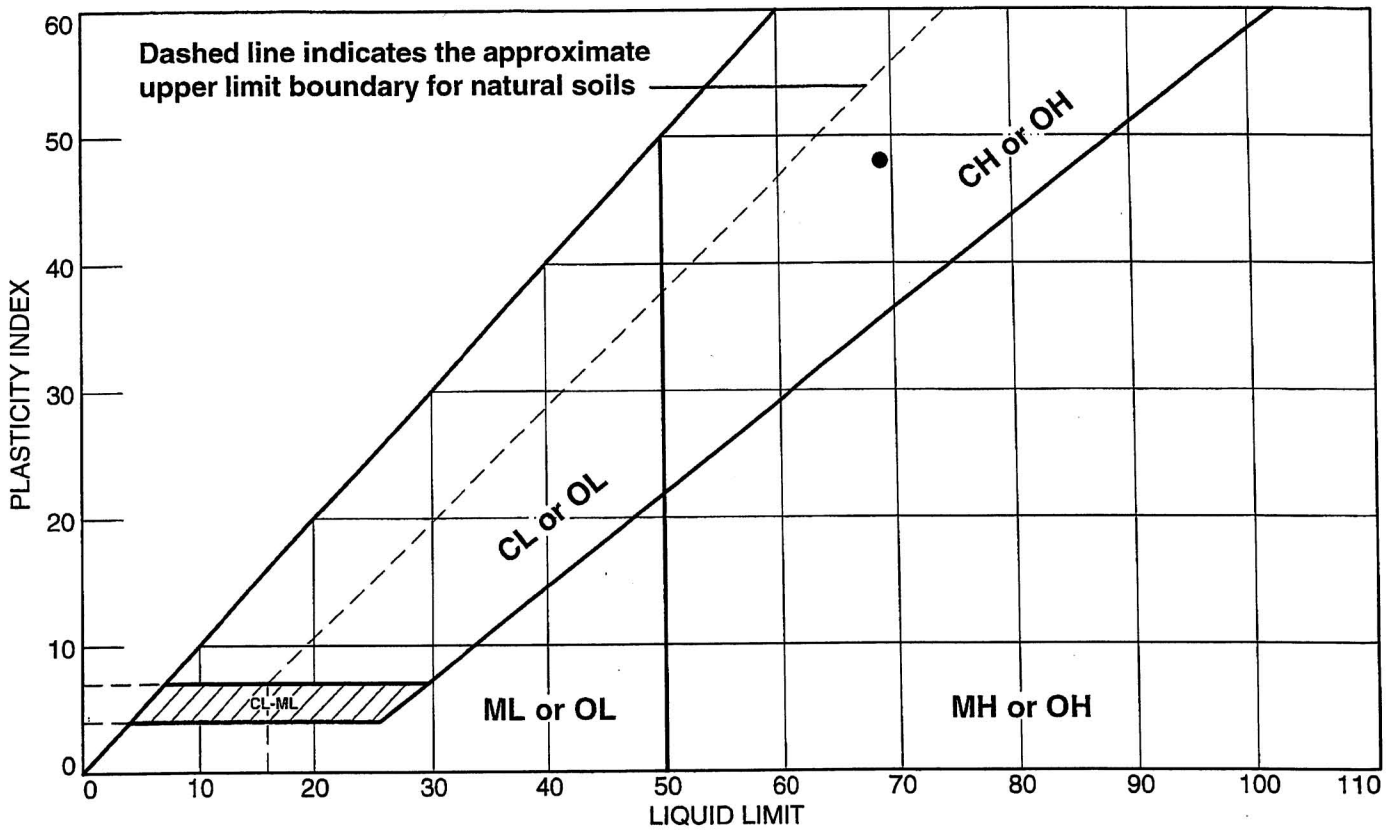
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	2.7	2.8	6.7	90.5	97.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0032	0.0038	0.0048	0.0102

Fineness Modulus
0.00

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring B-2151	SS-10	34.5-36	23.8	21	69	48	CH

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria) **Project No.:** 6468071777 **Figure** NA

Tested By: CS **Checked By:** LBJ DSC 1-25-08

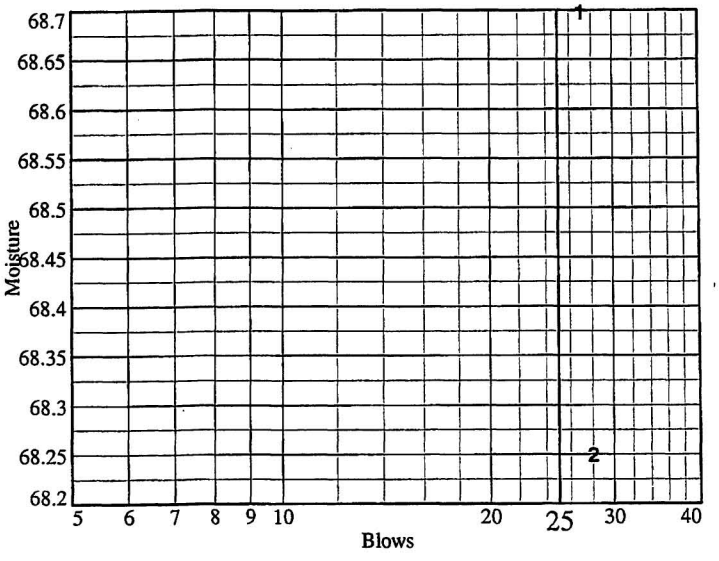
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 34.5-36 **Sample Number:** SS-10
Material Description: Strong Brown Fat CLAY
USCS: CH **AASHTO:** A-7-6(53)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	27.70	28.85				
Dry+Tare	22.74	23.39				
Tare	15.52	15.39				
# Blows	27	28				
Moisture	68.7	68.3				



Liquid Limit= 69
Plastic Limit= 21
Plasticity Index= 48
Natural Moisture= 23.8
Liquidity Index= 0.1

Plastic Limit Data

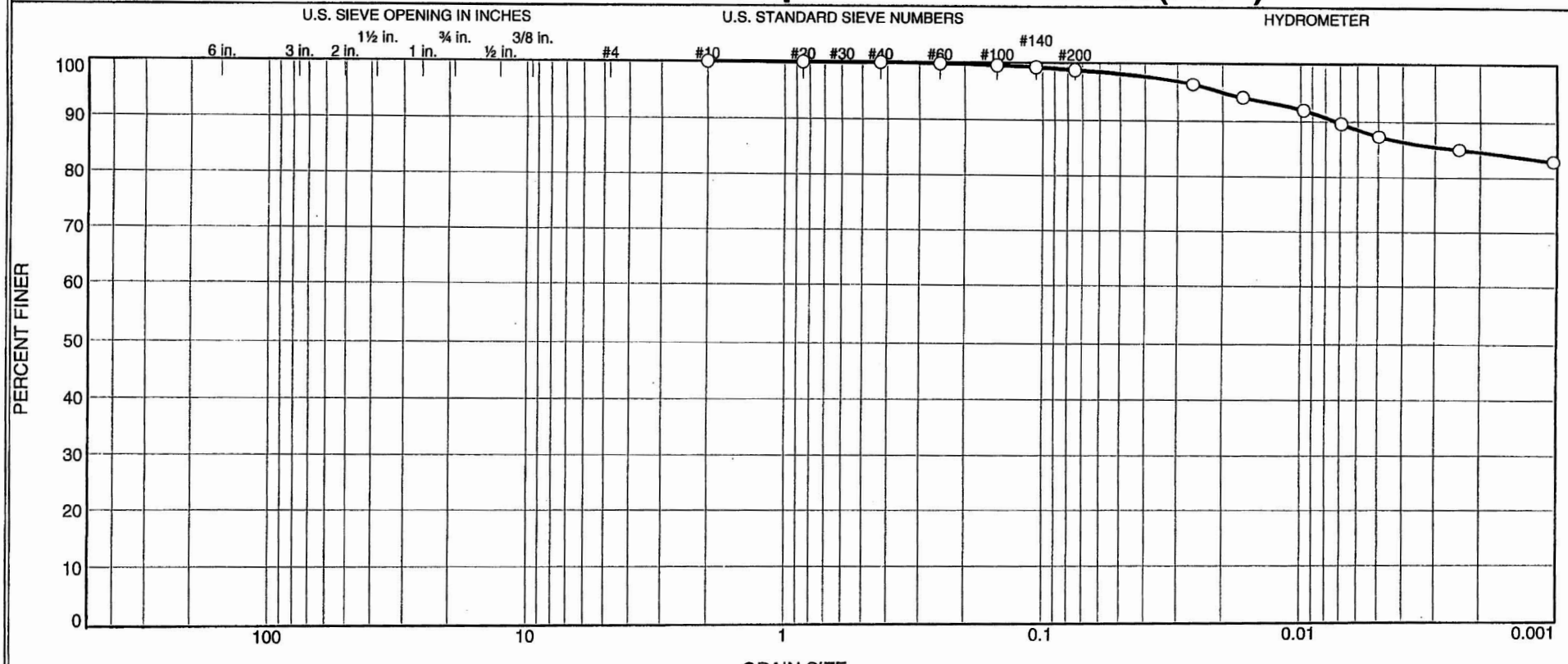
Run No.	1	2	3	4	
Wet+Tare	23.15	24.31			
Dry+Tare	21.86	22.76			
Tare	15.49	15.44			
Moisture	20.3	21.2			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
126.05	103.09	6.70	23.8

MACTEC, Inc.

Particle Size Distribution Report / ASTM D 422-63(2002)e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.1	1.1	11.3	87.5

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2151	SS-11	39.5-41	12-13-07	CH	Strong Brown Fat CLAY	32.6	96	41

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity = 2.750 (ASTM D854-06)
Organic content = 6.9% (ASTM D2794-07)

Tested By: CS **Checked By:** LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 39.5-41 **Sample Number:** SS-11
Material Description: Strong Brown Fat CLAY
Date: 12-13-07 **Natural Moisture:** 32.6
Liquid Limit: 96 **Plastic Limit:** 41 **USCS Class.:** CH
Testing Remarks: Specific Gravity = 2.750 (ASTM D854-06)
Organic content = 6.9% (ASTM D2794-07)
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
185.44	0.00	0.00	#10	0.00	100.0
47.50	0.00	0.00	#20	0.02	100.0
			#40	0.03	99.9
			#60	0.08	99.8
			#100	0.22	99.5
			#140	0.35	99.3
			#200	0.57	98.8

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =47.05
Hygroscopic moisture correction:
Moist weight and tare = 29.63
Dry weight and tare = 28.82
Tare weight = 15.47
Hygroscopic moisture = 6.1%
Table of composite correction values:

Temp., deg. C:	12.3	27.3
Comp. corr.:	-7.0	-3.0

Meniscus correction only = 1.0
Specific gravity of solids = 2.750
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.4	48.0	43.7	0.0129	49.0	8.3	0.0261	96.4
5.00	22.3	47.0	42.7	0.0129	48.0	8.4	0.0167	94.1
15.00	22.4	46.0	41.7	0.0129	47.0	8.6	0.0097	92.0
30.00	22.3	45.0	40.7	0.0129	46.0	8.8	0.0070	89.7
60.00	22.2	44.0	39.6	0.0129	45.0	8.9	0.0050	87.4
261.00	22.0	43.0	38.6	0.0129	44.0	9.1	0.0024	85.1
1440.00	22.1	42.0	37.6	0.0129	43.0	9.2	0.0010	83.0

MACTEC, Inc.

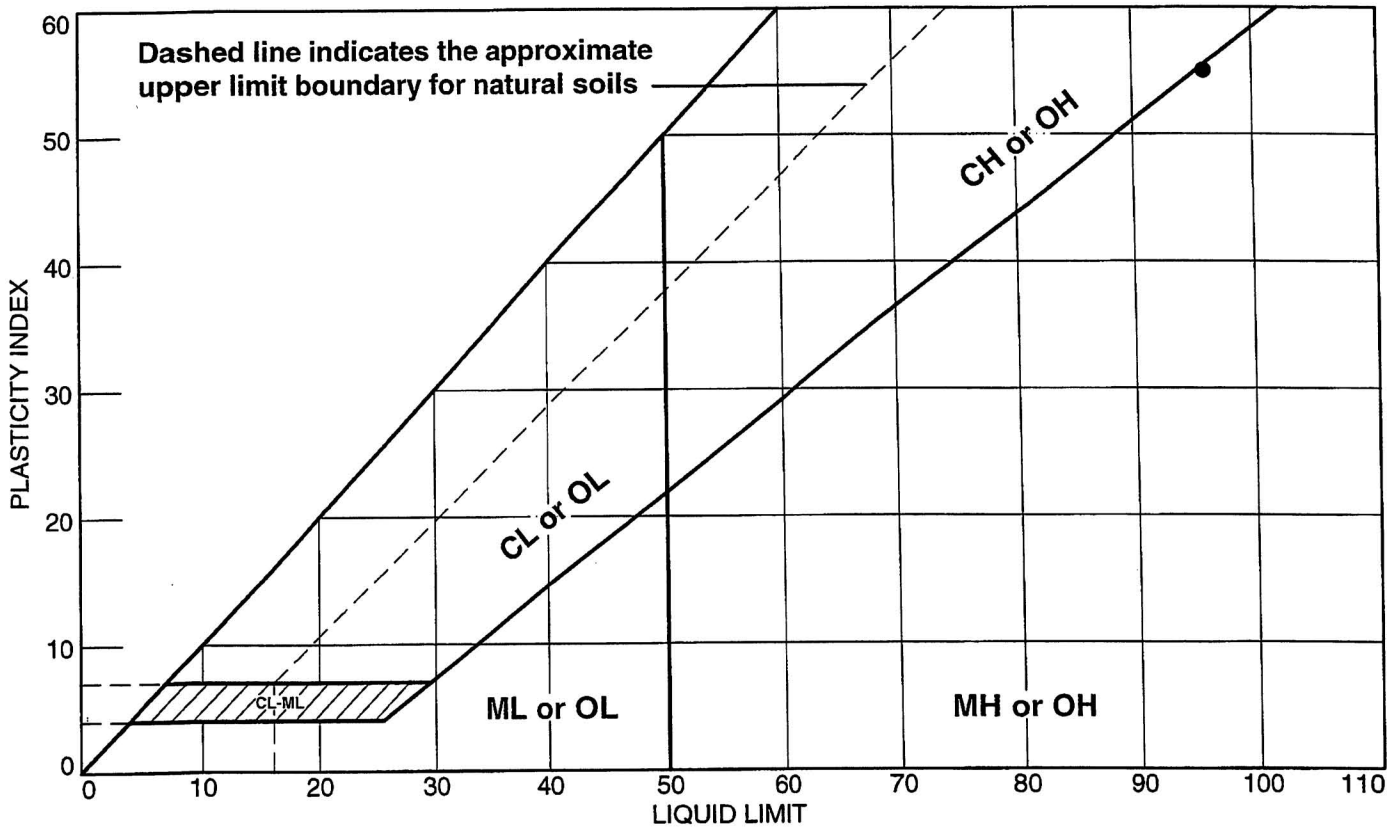
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	1.1	1.2	11.3	87.5	98.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
							0.0023	0.0072	0.0200

Fineness Modulus
0.01

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring B-2151	SS-11	39.5-41	32.6	41	96	55	CH

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria) **Project No.:** 6468071777 **Figure** NA

Tested By: CS **Checked By:** LBJ DSC 1-25-08

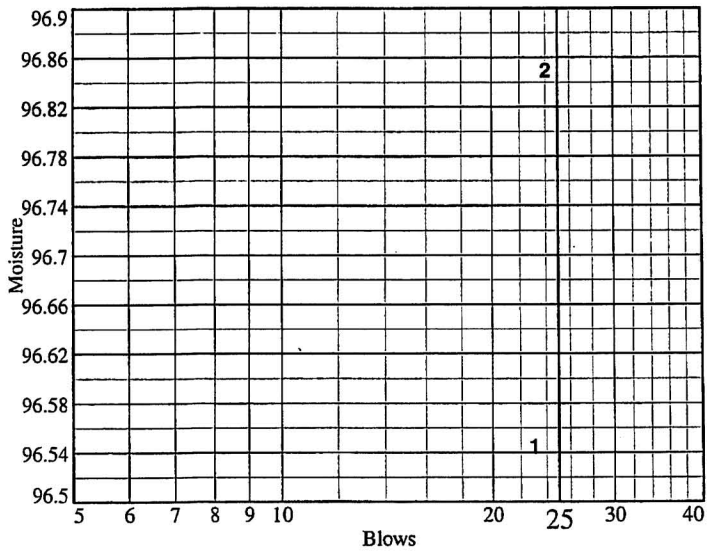
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 39.5-41 **Sample Number:** SS-11
Material Description: Strong Brown Fat CLAY
USCS: CH **AASHTO:** A-7-5(69)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	21.33	25.63				
Dry+Tare	16.30	20.71				
Tare	11.09	15.63				
# Blows	23	24				
Moisture	96.5	96.9				



Liquid Limit= 96
Plastic Limit= 41
Plasticity Index= 55
Natural Moisture= 32.6
Liquidity Index= -0.2

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	23.00	22.59			
Dry+Tare	20.89	20.49			
Tare	15.75	15.35			
Moisture	41.1	40.9			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
147.50	113.51	9.18	32.6

MACTEC, Inc.

MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

REPORT OF THE STANDARD TEST METHOD FOR SPECIFIC GRAVITY OF SOILS
Performed in General Accordance with ASTM D 854-06 (Method B)

PROJECT NAME:EXELON COL PROJECT [VICTORIA]

PROJECT NUMBER: 6468071777

DATE: 12/24/07

SAMPLE IDENTIFICATION: B-2151 SS-11

(A) Mass of oven-dried soil, grams:		45.58
(B) Mass of pycnometer filled with water at test temperature (T), grams:		655.07
(C) Mass of pycnometer, water and soil, grams:		684.08
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		21.7
(G) Specific Gravity at observed temperature:	A / [A + (B - C)]	2.751
(F)	***Correction factor:***	0.99963
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.750

MATERIAL TESTED: [X] **- # 4** [ ] **- # 10**

PREPARATION METHOD: [X] **DRY** [ ] **WET (dispersed)**

REMARKS: Estimated % Passing # 4 : 100%

Fat CLAY (CH)

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

THERMOMETER : 5.1.01

PYCNOMETER : P-4

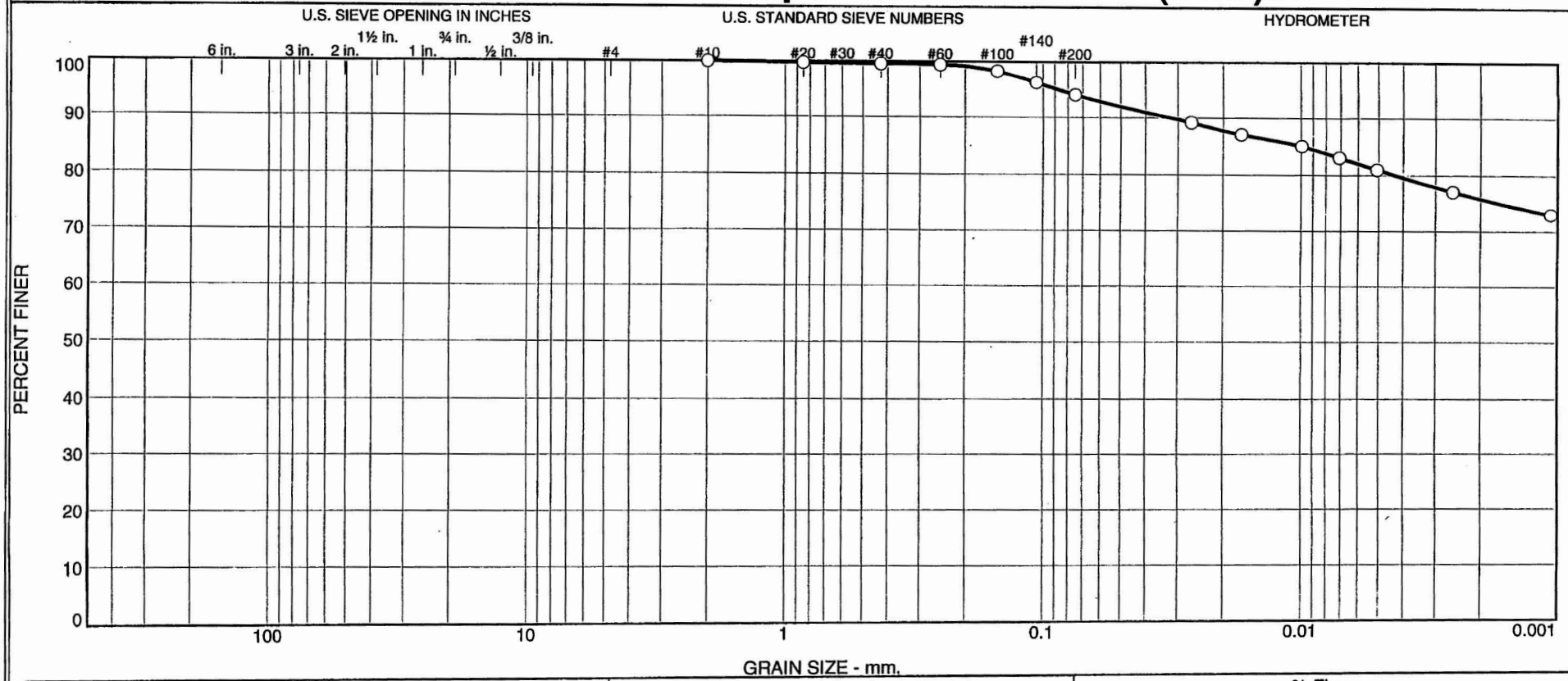
TESTED BY: CS

\Test Reports\Soils\SPECIFIC GRAVITY(ref).xls

REVIEWED BY: **Brian Johnson**

DSC 1-25-08

Particle Size Distribution Report / ASTM D 422-63(2002)e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.4	5.5	13.2	80.9

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2151	SS-12	44.5-46	12-13-07	CH	Light Yellowish Brown Fat CLAY	26.5	79	29

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity is assumed

Tested By: CS Checked By: LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 44.5-46 **Sample Number:** SS-12
Material Description: Light Yellowish Brown Fat CLAY
Date: 12-13-07 **Natural Moisture:** 26.5
Liquid Limit: 79 **Plastic Limit:** 29 **USCS Class.:** CH
Testing Remarks: Specific Gravity is assumed
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
211.13	0.00	0.00	#10	0.00	100.0
50.03	0.00	0.00	#20	0.11	99.8
			#40	0.20	99.6
			#60	0.27	99.5
			#100	0.84	98.3
			#140	1.85	96.3
			#200	2.96	94.1

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =50.03
Hygroscopic moisture correction:
Moist weight and tare = 27.20
Dry weight and tare = 26.80
Tare weight = 15.50
Hygroscopic moisture = 3.5%
Table of composite correction values:

Temp., deg. C:	12.3	27.3
Comp. corr.:	-7.0	-3.0

Meniscus correction only = 1.0
Specific gravity of solids = 2.700
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.0	48.0	43.6	0.0131	49.0	8.3	0.0267	89.2
5.00	22.0	47.0	42.6	0.0131	48.0	8.4	0.0170	87.2
15.00	22.0	46.0	41.6	0.0131	47.0	8.6	0.0099	85.1
30.00	22.0	45.0	40.6	0.0131	46.0	8.8	0.0071	83.1
60.00	21.9	44.0	39.6	0.0131	45.0	8.9	0.0051	81.0
240.00	22.3	42.0	37.7	0.0131	43.0	9.2	0.0026	77.1
1440.00	22.4	40.0	35.7	0.0131	41.0	9.6	0.0011	73.0

MACTEC, Inc.

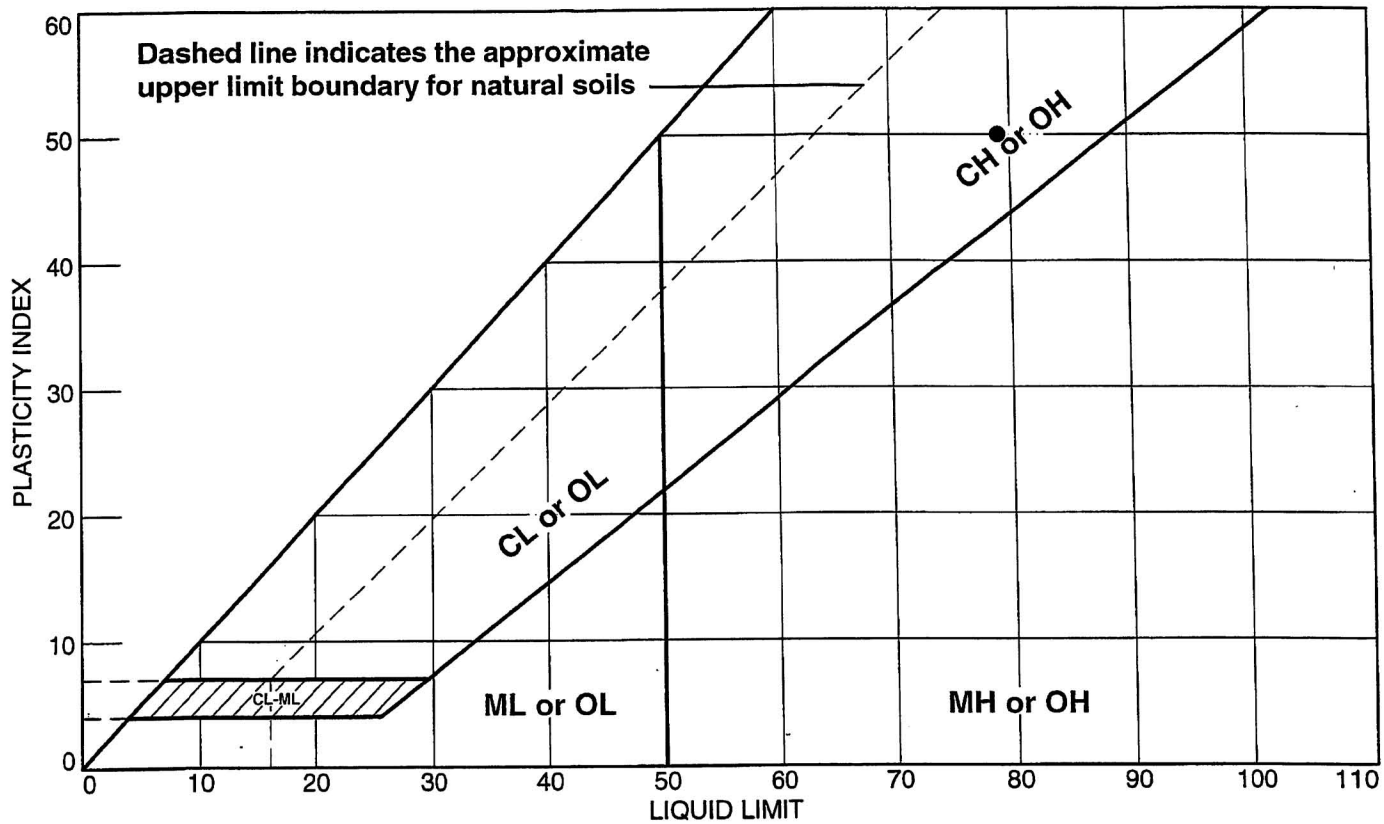
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.4	5.5	5.9	13.2	80.9	94.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0043	0.0097	0.0318	0.0869

Fineness Modulus
0.03

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring B-2151	SS-12	44.5-46	26.5	29	79	50	CH

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria) **Project No.:** 6468071777 **Figure** NA

Tested By: CS **Checked By:** LBJ DSC 1-25-08

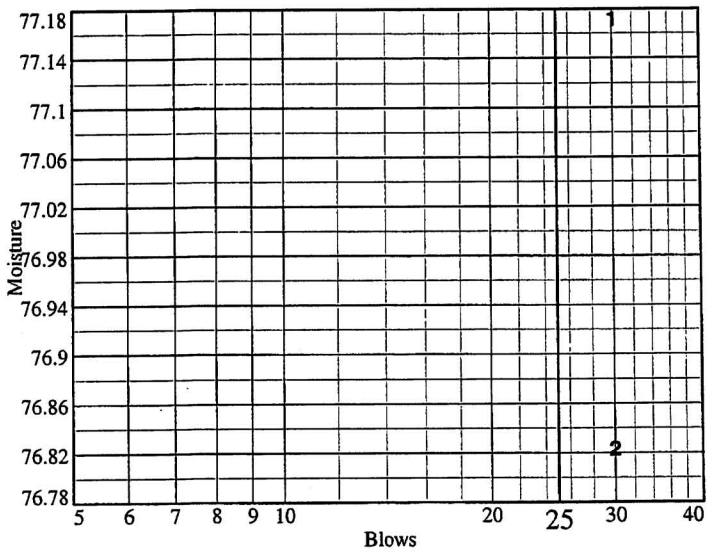
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 44.5-46
Sample Number: SS-12
Material Description: Light Yellowish Brown Fat CLAY
USCS: CH
AASHTO: A-7-6(55)
Tested by: CS
Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	27.47	28.14				
Dry+Tare	22.23	22.77				
Tare	15.44	15.78				
# Blows	30	30				
Moisture	77.2	76.8				



Liquid Limit= 79
Plastic Limit= 29
Plasticity Index= 50
Natural Moisture= 26.5
Liquidity Index= -0.1

Plastic Limit Data

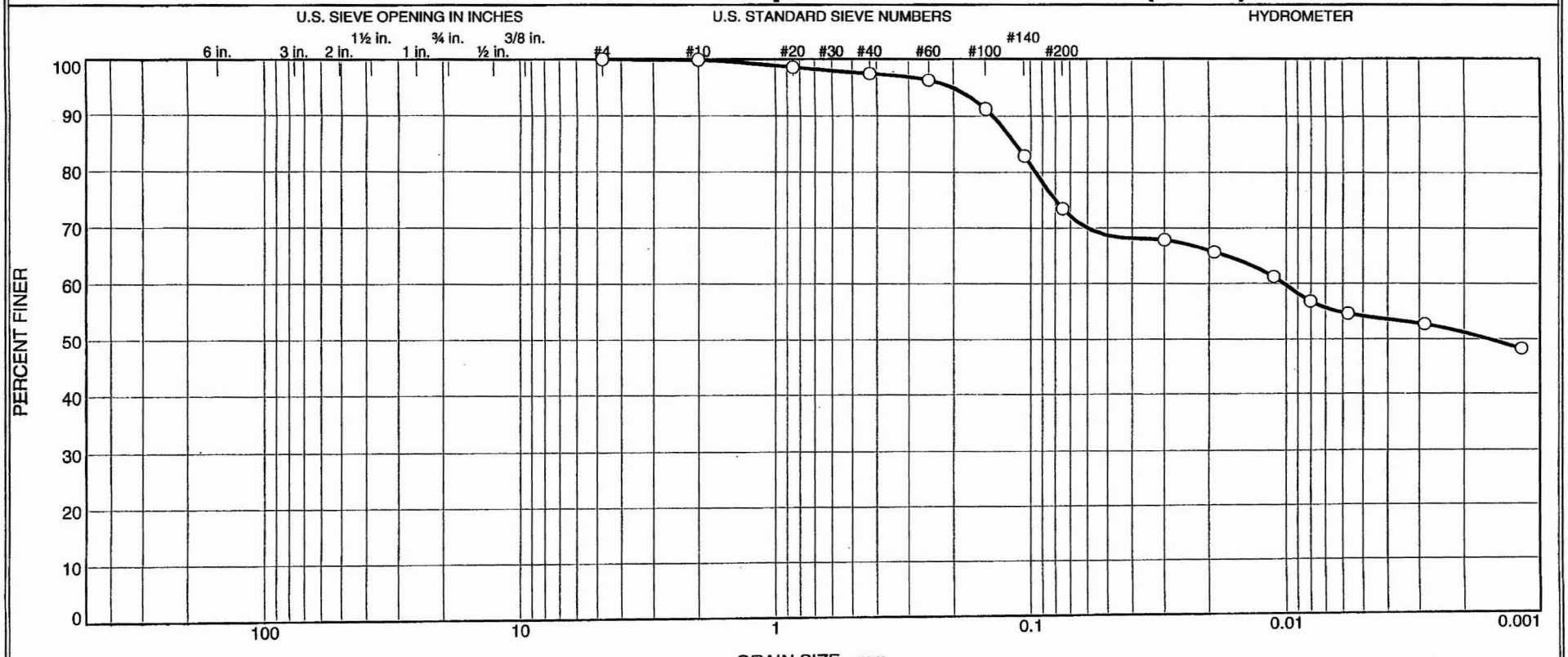
Run No.	1	2	3	4	
Wet+Tare	22.67	21.81			
Dry+Tare	21.02	20.43			
Tare	15.47	15.47			
Moisture	29.7	27.8			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
127.86	102.45	6.62	26.5

MACTEC, Inc.

Particle Size Distribution Report / ASTM D 422-63(2002)e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.1	2.5	23.9	19.3	54.2

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2151	SS-13	49.5-51	12-03-07	CL	Light Yellowish Brown Lean CLAY with sand	20.0	47	20

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Organic content = 3.9% (ASTM D2794-07)
Specific gravity is assumed

Tested By: CS **Checked By:** LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 49.5-51 **Sample Number:** SS-13
Material Description: Light Yellowish Brown Lean CLAY with sand
Date: 12-03-07 **Natural Moisture:** 20.0
Liquid Limit: 47 **Plastic Limit:** 20 **USCS Class.:** CL
Testing Remarks: Organic content = 3.9% (ASTM D2794-07)
Specific gravity is assumed
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
214.11	0.00	0.00	#4	0.00	100.0
			#10	0.20	99.9
46.82	0.00	0.00	#20	0.62	98.6
			#40	1.18	97.4
			#60	1.74	96.2
			#100	4.08	91.2
			#140	7.95	82.9
			#200	12.37	73.5

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 99.9
Weight of hydrometer sample =46.81
Hygroscopic moisture correction:
Moist weight and tare = 27.50
Dry weight and tare = 26.90
Tare weight = 15.60
Hygroscopic moisture = 5.3%
Table of composite correction values:

Temp., deg. C:	12.3	27.3
Comp. corr.:	-7.0	-3.0

Meniscus correction only = 1.0
Specific gravity of solids = 2.700
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.9	35.0	30.6	0.0131	36.0	10.4	0.0299	67.9
5.00	21.9	34.0	29.6	0.0131	35.0	10.6	0.0191	65.7
15.00	21.9	32.0	27.6	0.0131	33.0	10.9	0.0112	61.3
30.00	22.0	30.0	25.6	0.0131	31.0	11.2	0.0080	56.9
60.00	22.0	29.0	24.6	0.0131	30.0	11.4	0.0057	54.6
240.00	22.5	28.0	23.7	0.0130	29.0	11.5	0.0029	52.7
1440.00	22.4	26.0	21.7	0.0131	27.0	11.9	0.0012	48.2

MACTEC, Inc.

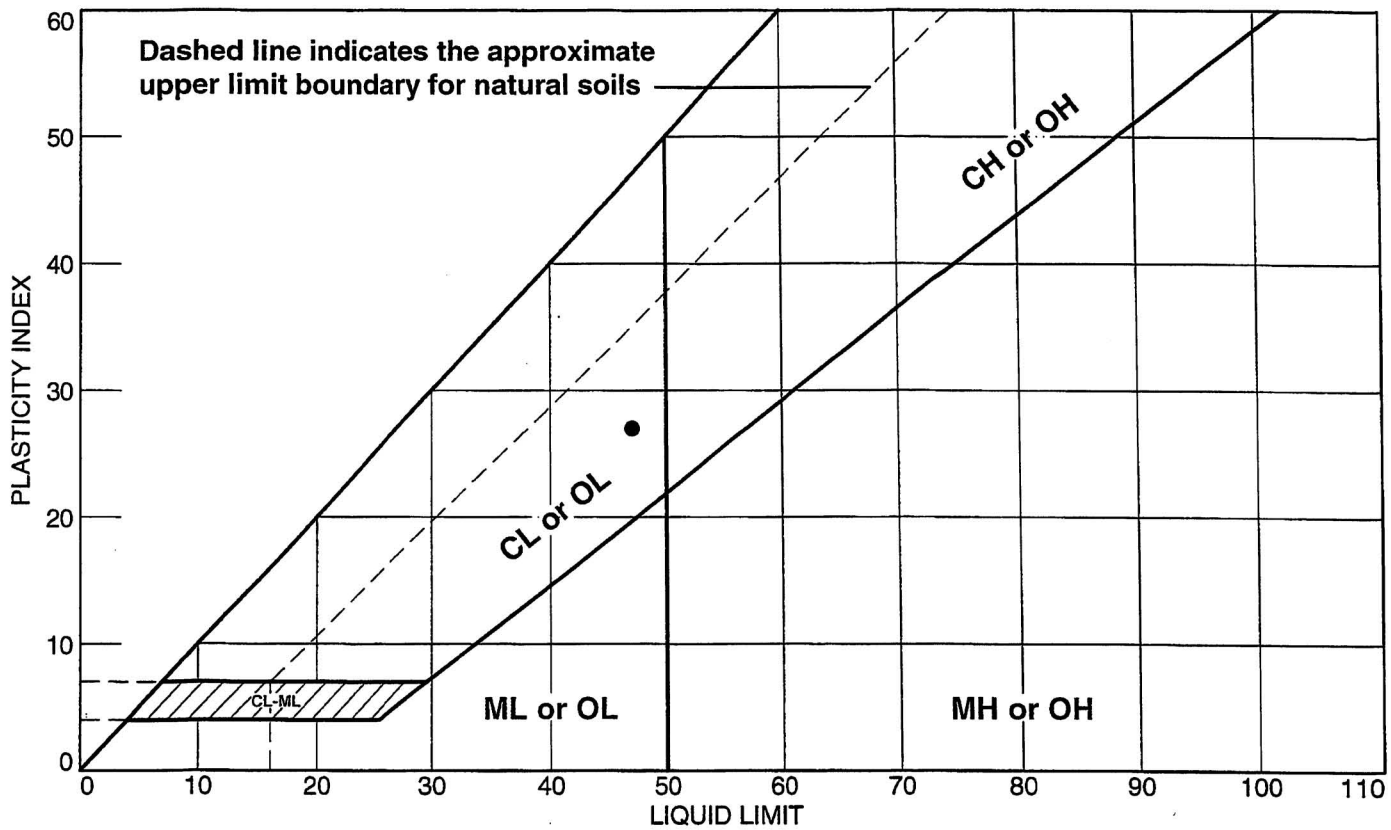
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	2.5	23.9	26.5	19.3	54.2	73.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0016	0.0102	0.0958	0.1142	0.1409	0.2038

Fineness Modulus
0.15

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring B-2151	SS-13	49.5-51	20.0	20	47	27	CL

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria) **Project No.:** 6468071777 **Figure** NA

Tested By: CS **Checked By:** LBJ DSC 1-25-08

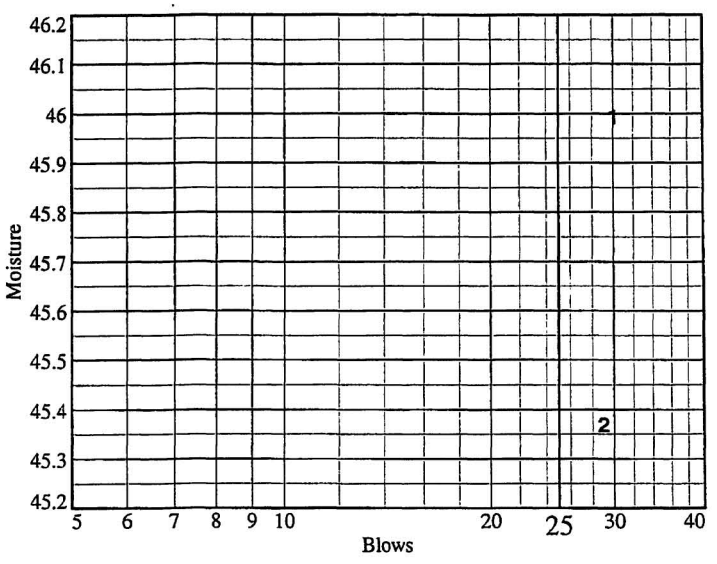
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 49.5-51 **Sample Number:** SS-13
Material Description: Light Yellowish Brown Lean CLAY with sand
USCS: CL **AASHTO:** A-7-6(19)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	25.39	21.76				
Dry+Tare	22.29	19.80				
Tare	15.55	15.48				
# Blows	30	29				
Moisture	46.0	45.4				



Liquid Limit= 47
Plastic Limit= 20
Plasticity Index= 27
Natural Moisture= 20.0
Liquidity Index= 0.0

Plastic Limit Data

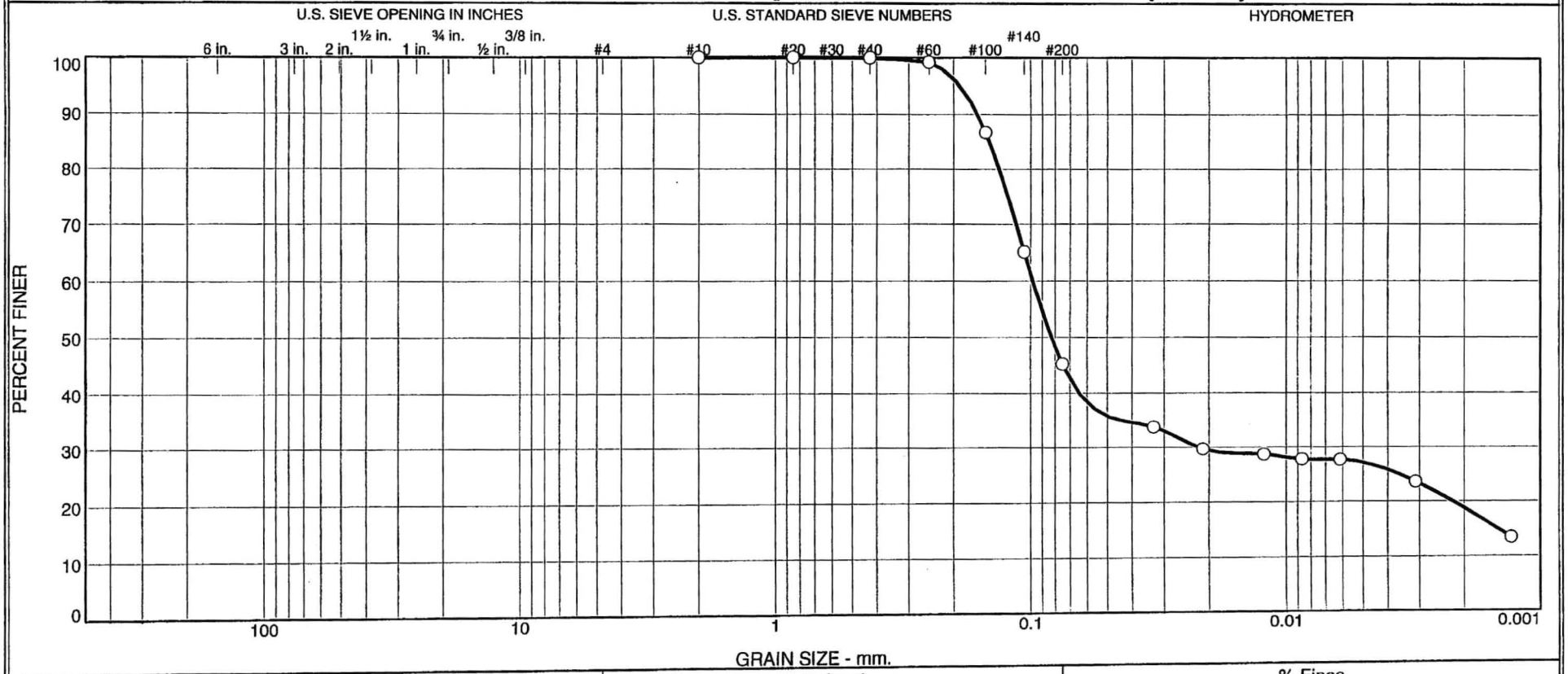
Run No.	1	2	3	4	
Wet+Tare	23.30	25.64			
Dry+Tare	22.04	23.90			
Tare	15.79	15.45			
Moisture	20.2	20.6			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
128.30	108.06	6.71	20.0

MACTEC, Inc.

Particle Size Distribution Report / ASTM D 422-63(2002)e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.1	54.7	18.1	27.1

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2151	SS-14	54.5-56	12-13-07	SC	Light Gray Clayey SAND	18.9	30	15

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific gravity is assumed

Tested By: CS **Checked By:** LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 54.5-56 **Sample Number:** SS-14
Material Description: Light Gray Clayey SAND
Date: 12-13-07 **Natural Moisture:** 18.9
Liquid Limit: 30 **Plastic Limit:** 15 **USCS Class.:** SC
Testing Remarks: Specific gravity is assumed
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
273.28	0.00	0.00	#10	0.00	100.0
49.54	0.00	0.00	#20	0.00	100.0
			#40	0.03	99.9
			#60	0.39	99.2
			#100	6.56	86.8
			#140	17.24	65.2
			#200	27.16	45.2

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =49.54
Hygroscopic moisture correction:
Moist weight and tare = 27.60
Dry weight and tare = 27.40
Tare weight = 15.49
Hygroscopic moisture = 1.7%
Table of composite correction values:

Temp., deg. C:	12.3	27.3
Comp. corr.:	-7.0	-3.0

Meniscus correction only = 1.0
Specific gravity of solids = 2.700
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.3	21.0	16.7	0.0131	22.0	12.7	0.0329	33.8
5.00	22.2	19.0	14.6	0.0131	20.0	13.0	0.0211	29.7
15.00	22.2	18.5	14.1	0.0131	19.5	13.1	0.0122	28.7
30.00	22.3	18.0	13.7	0.0131	19.0	13.2	0.0087	27.7
60.00	22.2	18.0	13.6	0.0131	19.0	13.2	0.0061	27.7
240.00	22.1	16.0	11.6	0.0131	17.0	13.5	0.0031	23.6
1440.00	22.2	11.0	6.6	0.0131	12.0	14.3	0.0013	13.5

MACTEC, Inc.

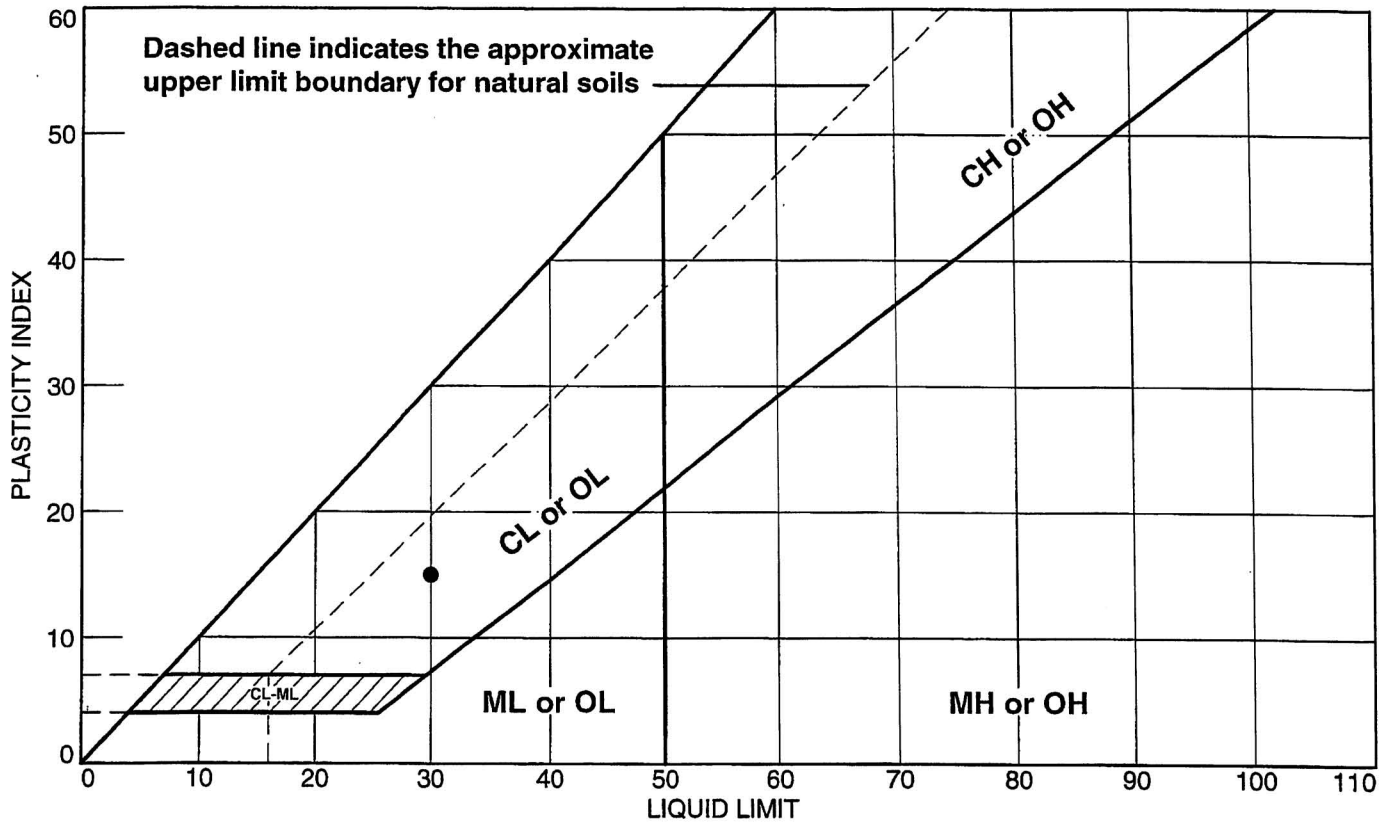
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	54.7	54.8	18.1	27.1	45.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0015	0.0022	0.0220	0.0829	0.0980	0.1328	0.1449	0.1614	0.1886

Fineness Modulus
0.14

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring B-2151	SS-14	54.5-56	18.9	15	30	15	SC

MACTEC, Inc.

Raleigh, North Carolina

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project No.: 6468071777
Figure NA

Tested By: CS **Checked By:** LBJ DSC 1-25-08

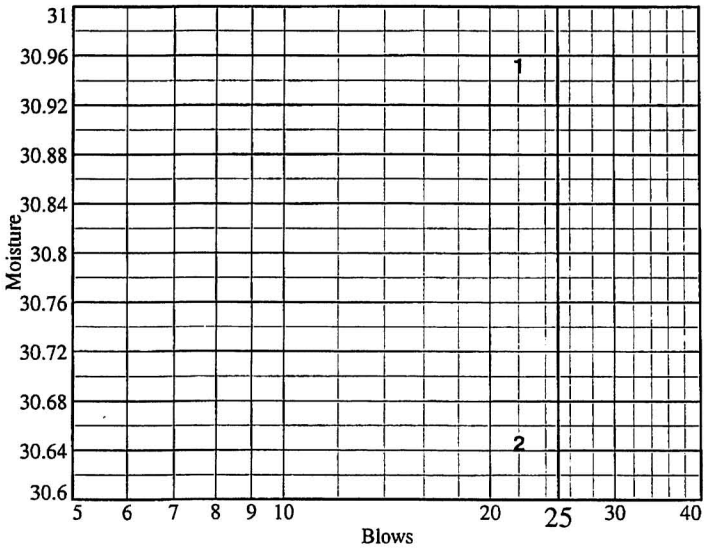
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 54.5-56 **Sample Number:** SS-14
Material Description: Light Gray Clayey SAND
USCS: SC **AASHTO:** A-6(3)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	26.71	30.18				
Dry+Tare	24.11	26.72				
Tare	15.71	15.43				
# Blows	22	22				
Moisture	31.0	30.6				



Liquid Limit= 30
Plastic Limit= 15
Plasticity Index= 15
Natural Moisture= 18.9
Liquidity Index= 0.3

Plastic Limit Data

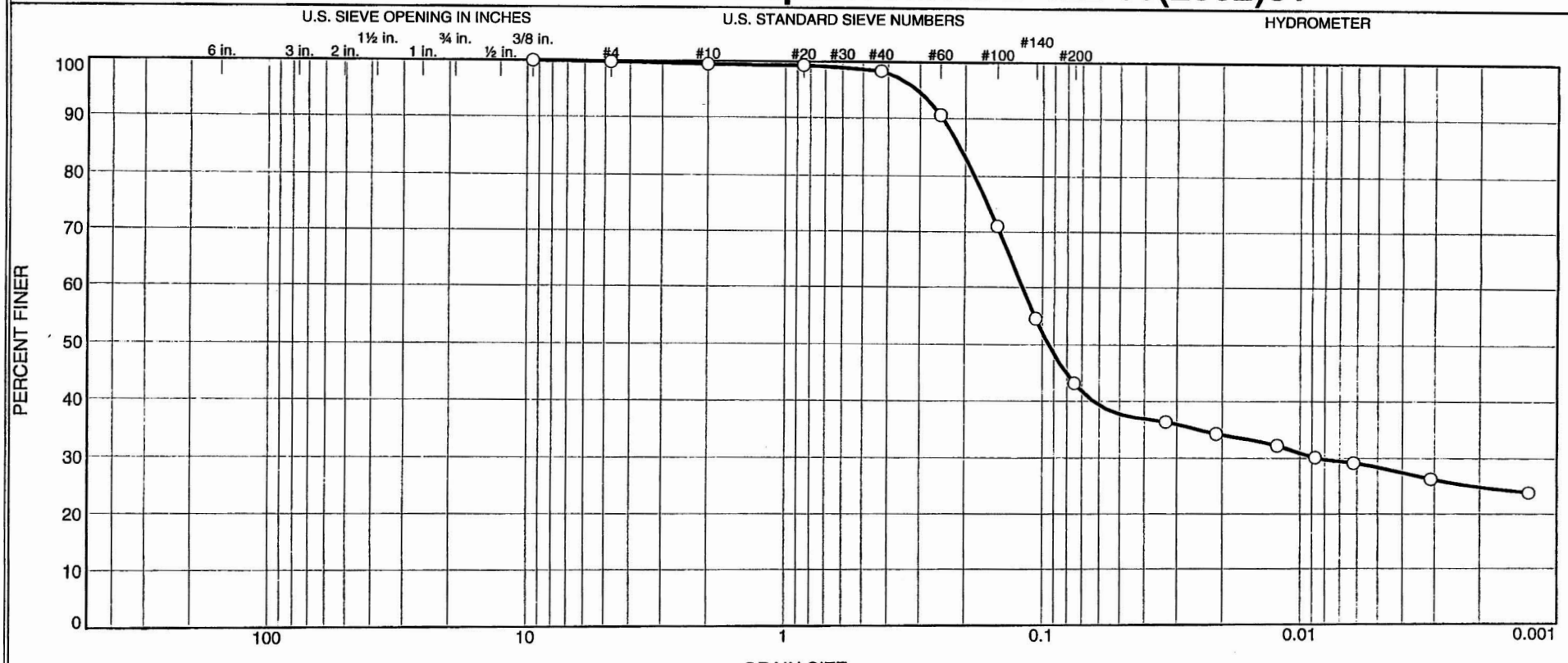
Run No.	1	2	3	4	
Wet+Tare	26.47	26.75			
Dry+Tare	25.06	25.26			
Tare	15.50	15.44			
Moisture	14.7	15.2			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
125.87	107.16	8.20	18.9

MACTEC, Inc.

Particle Size Distribution Report / ASTM D 422-63(2002)e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.2	0.3	1.1	55.2	14.7	28.5

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2151	SS-15	59.5-61	12-13-07	SC	Light Gray Clayey SAND	22.8	29	17

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific gravity = 2.658 (ASTM D854-06)
Organic content = 1.8% (ASTM2794-07)

Tested By: CS **Checked By:** LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 59.5-61 **Sample Number:** SS-15
Material Description: Light Gray Clayey SAND
Date: 12-13-07 **Natural Moisture:** 22.8
Liquid Limit: 29 **Plastic Limit:** 17 **USCS Class.:** SC
Testing Remarks: Specific gravity = 2.658 (ASTM D854-06)
Organic content = 1.8% (ASTM2794-07)
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
213.33	0.00	0.00	3/8	0.00	100.0
			#4	0.39	99.8
			#10	1.13	99.5
49.33	0.00	0.00	#20	0.07	99.3
			#40	0.54	98.4
			#60	4.40	90.6
			#100	14.11	71.0
			#140	22.25	54.6
			#200	27.93	43.2

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 99.5
Weight of hydrometer sample =49.33
Hygroscopic moisture correction:
Moist weight and tare = 27.54
Dry weight and tare = 27.28
Tare weight = 15.44
Hygroscopic moisture = 2.2%
Table of composite correction values:

Temp., deg. C:	12.3	27.3
Comp. corr.:	-7.0	-3.0

Meniscus correction only = 1.0
Specific gravity of solids = 2.658
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 x **Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.3	22.0	17.7	0.0132	23.0	12.5	0.0331	36.3
5.00	22.3	21.0	16.7	0.0132	22.0	12.7	0.0211	34.3
15.00	22.3	20.0	15.7	0.0132	21.0	12.9	0.0122	32.2
30.00	22.3	19.0	14.7	0.0132	20.0	13.0	0.0087	30.2
60.00	22.4	18.5	14.2	0.0132	19.5	13.1	0.0062	29.2
240.00	22.9	17.0	12.8	0.0131	18.0	13.3	0.0031	26.4
1440.00	22.1	16.0	11.6	0.0133	17.0	13.5	0.0013	23.9

MACTEC, Inc.

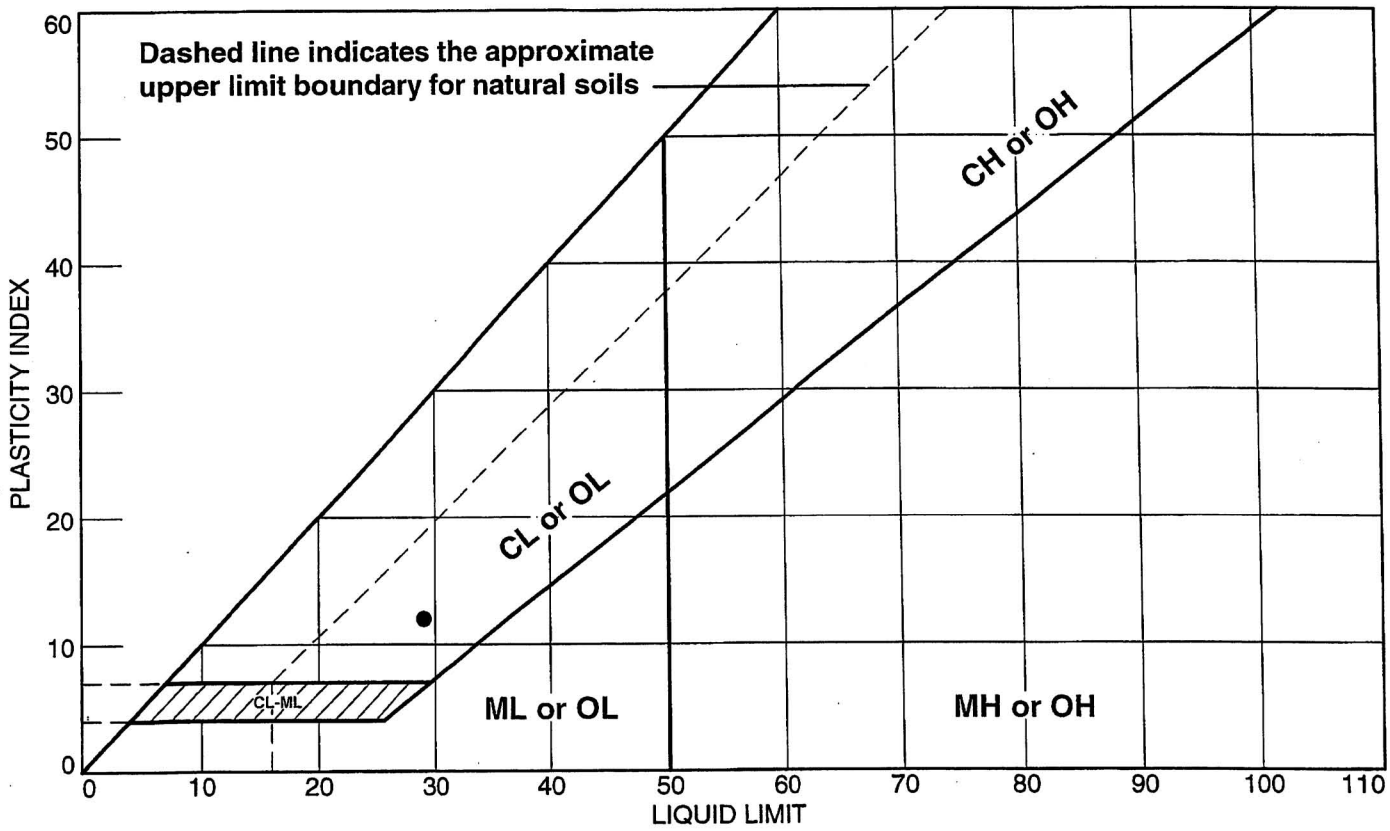
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.2	0.2	0.3	1.1	55.2	56.6	14.7	28.5	43.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0084	0.0943	0.1194	0.1836	0.2090	0.2446	0.3079

Fineness Modulus
0.37

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring B-2151	SS-15	59.5-61	22.8	17	29	12	SC

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria) **Project No.:** 6468071777 **Figure** NA

Tested By: CS **Checked By:** LBJ DSC 1-25-08

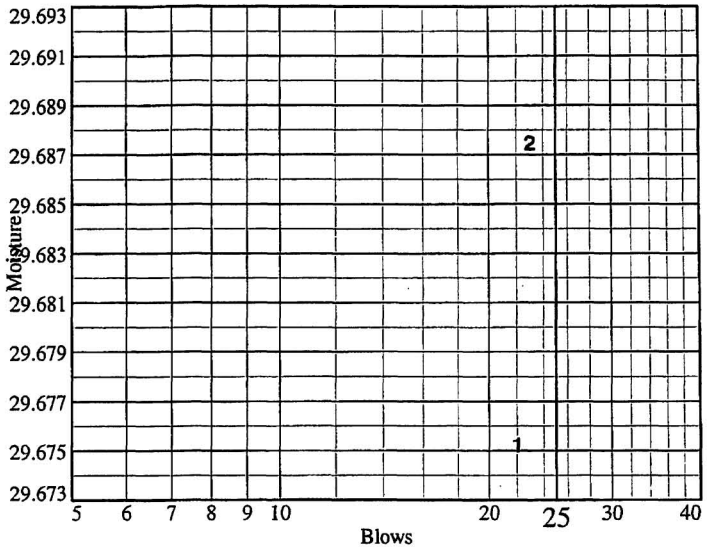
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 59.5-61 **Sample Number:** SS-15
Material Description: Light Gray Clayey SAND
USCS: SC **AASHTO:** A-6(2)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	27.02	28.83				
Dry+Tare	24.37	25.79				
Tare	15.44	15.55				
# Blows	22	23				
Moisture	29.7	29.7				



Liquid Limit= 29
Plastic Limit= 17
Plasticity Index= 12
Natural Moisture= 22.8
Liquidity Index= 0.5

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	25.71	24.54			
Dry+Tare	24.25	23.25			
Tare	15.51	15.48			
Moisture	16.7	16.6			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
171.79	141.07	6.59	22.8

MACTEC, Inc.

MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

REPORT OF THE STANDARD TEST METHOD FOR SPECIFIC GRAVITY OF SOILS
Performed in General Accordance with ASTM D 854-06 (Method B)

PROJECT NAME:EXELON COL PROJECT [VICTORIA]

PROJECT NUMBER: 6468071777

DATE: 12/27/07

SAMPLE IDENTIFICATION: B-2151 SS-15

(A) Mass of oven-dried soil, grams:		52.81
(B) Mass of pycnometer filled with water at test temperature (T), grams:		654.99
(C) Mass of pycnometer, water and soil, grams:		687.94
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		22.4
(G) Specific Gravity at observed temperature:	A / [A + (B - C)]	2.659
(F)	***Correction factor:***	0.99947
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.658

MATERIAL TESTED: [X] **- # 4** [ ] **- # 10**

PREPARATION METHOD: [X] **DRY** [ ] **WET (dispersed)**

REMARKS: Estimated % Passing # 4 : 100%

Clayey SAND (SC)

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

THERMOMETER : 5.1.01

PYCNOMETER : P-4

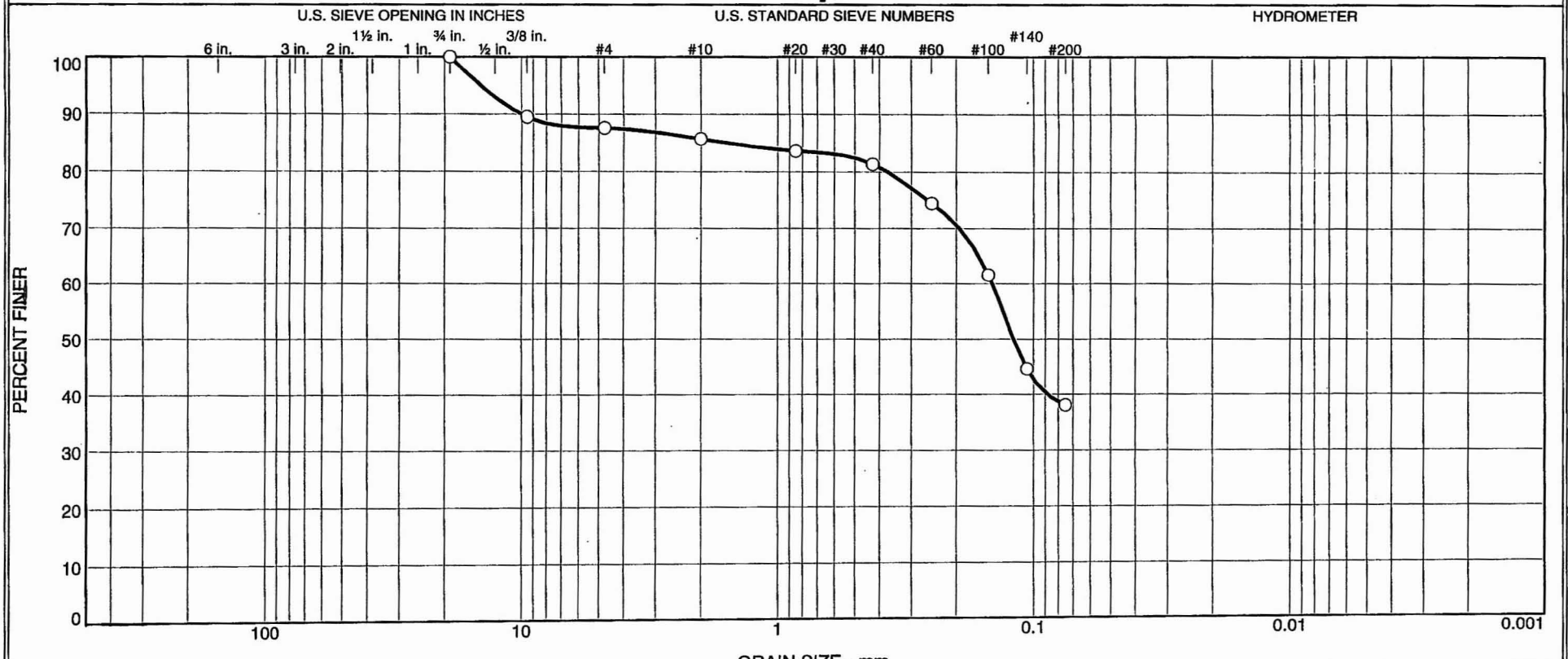
TESTED BY: CS

\Test Reports\Soils\SPECIFIC GRAVITY(ref).xls

REVIEWED BY: **Brian Johnson**

DSC 1-25-08

Particle Size Distribution Report / ASTM D 6913-04e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	12.3	1.9	4.4	43.3	38.1	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2151	SS-16	64.5-66	12-13-07	SC	Light Brownish Gray Clayey SAND (Visual)	17.9	ND	ND

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
Specific gravity = 2.681 (ASTM D854-06)
ND = Not determined

Tested By: CS Checked By: LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/25/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 64.5-66 **Sample Number:** SS-16
Material Description: Light Brownish Gray Clayey SAND (Visual)
Date: 12-13-07 **Natural Moisture:** 17.9
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SC
Testing Remarks: SIEVE ANALYSIS ONLY
Specific gravity = 2.681 (ASTM D854-06)
ND = Not determined
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
174.25	0.00	0.00	3/4	0.00	100.0
			3/8"	18.23	89.5
			#4	21.50	87.7
			#10	24.81	85.8
97.61	0.00	0.00	#20	2.35	83.7
			#40	4.99	81.4
			#60	12.86	74.5
			#100	27.47	61.6
			#140	46.89	44.6
			#200	54.24	38.1

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	12.3	12.3	1.9	4.4	43.3	49.6			38.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.1196	0.1449	0.3712	1.5380	10.0110	14.3864

Fineness Modulus
1.30

MACTEC, Inc.

MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

REPORT OF THE STANDARD TEST METHOD FOR SPECIFIC GRAVITY OF SOILS
Performed in General Accordance with ASTM D 854-06 (Method B)

PROJECT NAME:EXELON COL PROJECT [VICTORIA]

PROJECT NUMBER: 6468071777

DATE: 12/25/07

SAMPLE IDENTIFICATION: B-2151 SS-16

(A) Mass of oven-dried soil, grams:		52.71
(B) Mass of pycnometer filled with water at test temperature (T), grams:		654.90
(C) Mass of pycnometer, water and soil, grams:		687.76
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		22.4
(G) Specific Gravity at observed temperature:	A / [A + (B - C)]	2.682
(F)	***Correction factor:***	0.99947
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.681

MATERIAL TESTED: [X] **- # 4** [ ] **- # 10**

PREPARATION METHOD: [X] **DRY** [ ] **WET (dispersed)**

REMARKS: Estimated % Passing # 4 : 100%
Clayey SAND (SC) - visual

EQUIPMENT USED
SCALES : 3.1.99
OVEN : 5.1.16
THERMOMETER : 5.1.01
PYCNOMETER : P-5

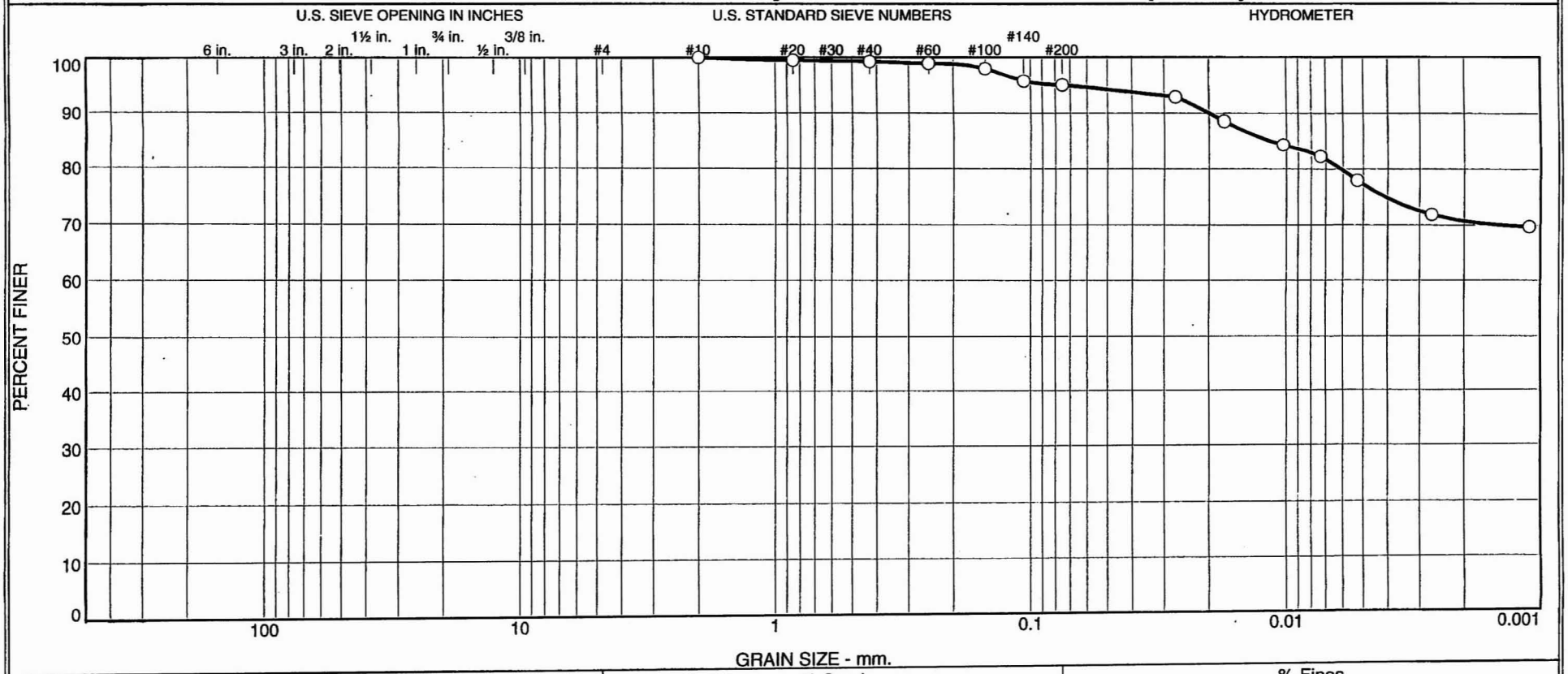
TESTED BY: CS

\Test Reports\Soils\SPECIFIC GRAVITY(ref).xls

REVIEWED BY: **Brian Johnson**

DSC 1-25-08

Particle Size Distribution Report / ASTM D 422-63(2002)e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.7	4.3	17.7	77.3

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2151	SS-17	69.5-71.1	12-13-07	CH	Light Brownish Gray Fat CLAY	28.4	77	26

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific gravity = 2.652 (ASTM D854-06)
Organic content = 6.1% (ASTM D2794-07)

Tested By: CS **Checked By:** LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 69.5-71.1 **Sample Number:** SS-17
Material Description: Light Brownish Gray Fat CLAY
Date: 12-13-07 **Natural Moisture:** 28.4
Liquid Limit: 77 **Plastic Limit:** 26 **USCS Class.:** CH
Testing Remarks: Specific gravity = 2.652 (ASTM D854-06)
Organic content = 6.1% (ASTM D2794-07)
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
156.78	0.00	0.00	#10	0.00	100.0
50.03	0.00	0.00	#20	0.26	99.5
			#40	0.37	99.3
			#60	0.54	98.9
			#100	1.01	98.0
			#140	2.16	95.7
			#200	2.49	95.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =50.03
Hygroscopic moisture correction:
Moist weight and tare = 26.60
Dry weight and tare = 25.90
Tare weight = 15.50
Hygroscopic moisture = 6.7%
Table of composite correction values:

Temp., deg. C:	12.3	27.3
Comp. corr.:	-7.0	-3.0

Meniscus correction only = 1.0
Specific gravity of solids = 2.652
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.9	48.0	43.6	0.0133	49.0	8.3	0.0271	92.9
5.00	21.9	46.0	41.6	0.0133	47.0	8.6	0.0175	88.6
15.00	21.9	44.0	39.6	0.0133	45.0	8.9	0.0103	84.4
30.00	21.9	43.0	38.6	0.0133	44.0	9.1	0.0073	82.2
60.00	21.9	41.0	36.6	0.0133	42.0	9.4	0.0053	78.0
240.00	22.5	38.0	33.7	0.0132	39.0	9.9	0.0027	71.9
1440.00	22.4	37.0	32.7	0.0132	38.0	10.1	0.0011	69.7

MACTEC, Inc.

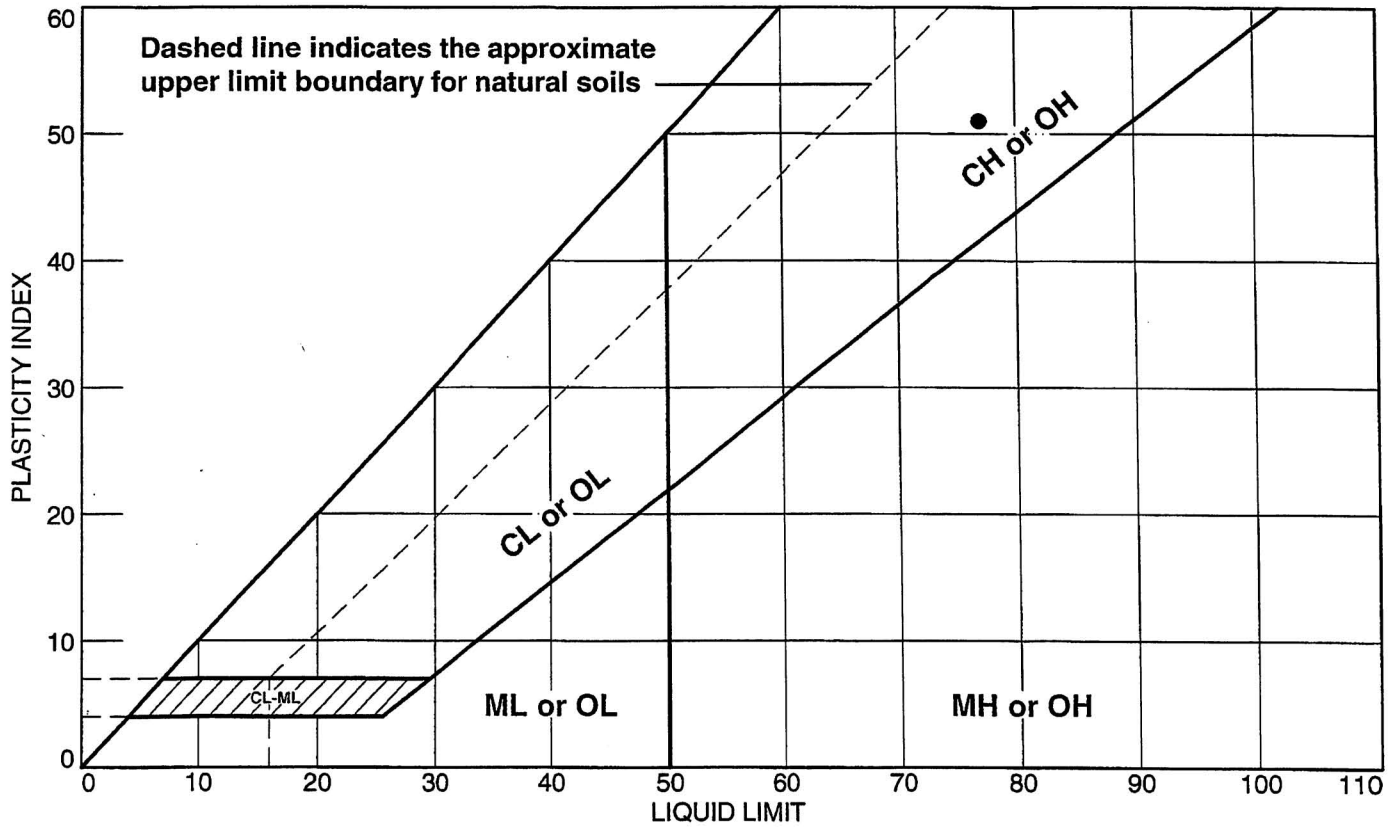
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.7	4.3	5.0	17.7	77.3	95.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0061	0.0114	0.0199	0.0741

Fineness Modulus
0.04

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring B-2151	SS-17	69.5-71.1	28.4	26	77	51	CH

MACTEC, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Exelon Texas COL (Victoria) **Project No.:** 6468071777 **Figure** NA

Tested By: CS **Checked By:** LBJ DSC 1-25-08

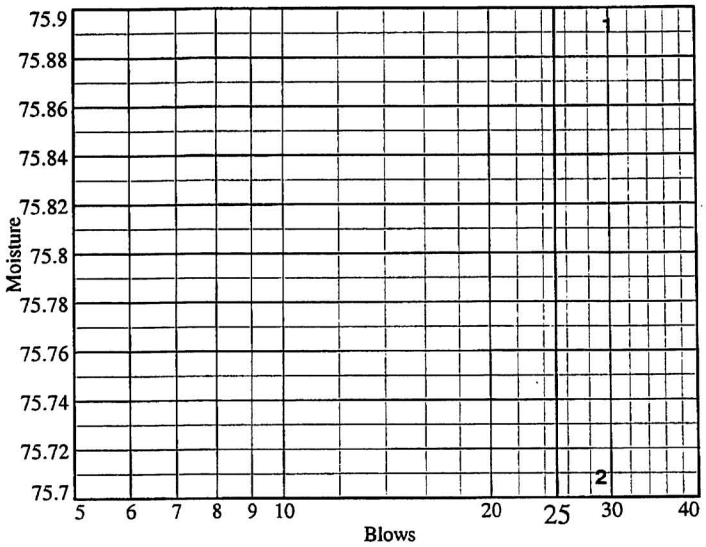
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 69.5-71.1
Sample Number: SS-17
Material Description: Light Brownish Gray Fat CLAY
USCS: CH
AASHTO: A-7-6(56)
Tested by: CS
Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	27.30	24.09				
Dry+Tare	22.20	18.48				
Tare	15.48	11.07				
# Blows	30	29				
Moisture	75.9	75.7				



Liquid Limit= 77
Plastic Limit= 26
Plasticity Index= 51
Natural Moisture= 28.4
Liquidity Index= 0.0

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	22.56	23.17			
Dry+Tare	21.12	21.59			
Tare	15.49	15.53			
Moisture	25.6	26.1			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
145.84	115.34	8.05	28.4

MACTEC, Inc.

MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

REPORT OF THE STANDARD TEST METHOD FOR SPECIFIC GRAVITY OF SOILS
Performed in General Accordance with ASTM D 854-06 (Method B)

PROJECT NAME:EXELON COL PROJECT [VICTORIA]

PROJECT NUMBER: 6468071777

DATE: 12/27/07

SAMPLE IDENTIFICATION: B-2151 SS-17

(A) Mass of oven-dried soil, grams:		50.01
(B) Mass of pycnometer filled with water at test temperature (T), grams:		656.68
(C) Mass of pycnometer, water and soil, grams:		687.84
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		22.5
(G) Specific Gravity at observed temperature:	A / [A + (B - C)]	2.653
(F)	***Correction factor:***	0.99945
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.652

MATERIAL TESTED: [X] **- # 4** [ ] **- # 10**

PREPARATION METHOD: [X] **DRY** [ ] **WET (dispersed)**

REMARKS: Estimated % Passing # 4 : 100%

Fat CLAY (CH)

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

THERMOMETER : 5.1.01

PYCNOMETER : P-6

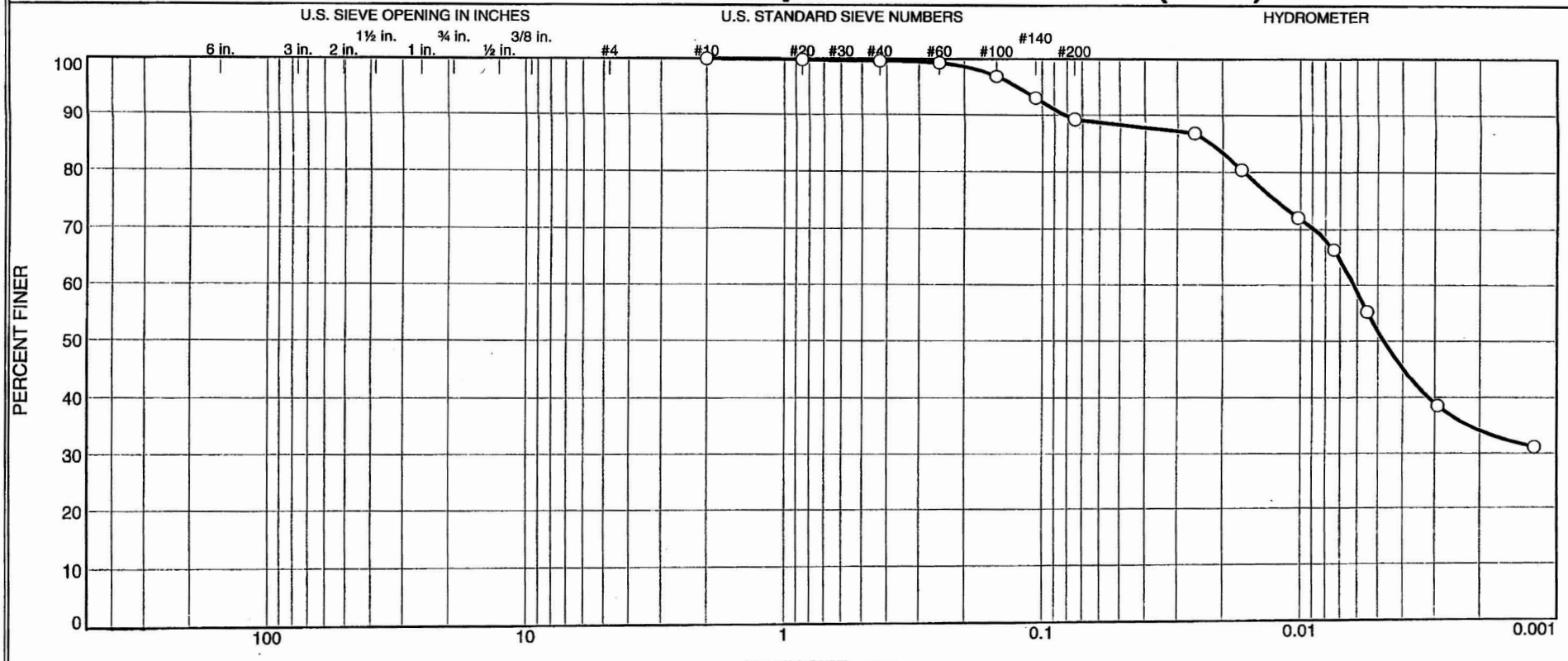
TESTED BY: CS

\Test Reports\Soils\SPECIFIC GRAVITY(ref).xls

REVIEWED BY: **Brian Johnson**

DSC 1-25-08

Particle Size Distribution Report / ASTM D 422-63(2002)e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.4	10.3	37.6	51.7

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2151	SS-18	74.5-76	12-13-07	CL	Light Brownish Gray Lean CLAY	14.8	37	15

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific gravity is assumed

Tested By: CS **Checked By:** LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 74.5-76 **Sample Number:** SS-18
Material Description: Light Brownish Gray Lean CLAY
Date: 12-13-07 **Natural Moisture:** 14.8
Liquid Limit: 37 **Plastic Limit:** 15 **USCS Class.:** CL
Testing Remarks: Specific gravity is assumed
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
258.48	0.00	0.00	#10	0.00	100.0
54.36	0.00	0.00	#20	0.10	99.8
			#40	0.20	99.6
			#60	0.39	99.3
			#100	1.71	96.9
			#140	3.82	93.0
			#200	5.83	89.3

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =54.36
Hygroscopic moisture correction:
Moist weight and tare = 27.90
Dry weight and tare = 27.60
Tare weight = 15.40
Hygroscopic moisture = 2.5%
Table of composite correction values:

Temp., deg. C:	12.3	27.3
Comp. corr.:	-7.0	-3.0

Meniscus correction only = 1.0
Specific gravity of solids = 2.700
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.2	51.0	46.6	0.0131	52.0	7.8	0.0258	86.9
5.00	22.2	47.5	43.1	0.0131	48.5	8.3	0.0169	80.4
15.00	22.1	43.0	38.6	0.0131	44.0	9.1	0.0102	72.0
30.00	22.1	40.0	35.6	0.0131	41.0	9.6	0.0074	66.4
60.00	22.1	34.0	29.6	0.0131	35.0	10.6	0.0055	55.2
240.00	22.4	25.0	20.7	0.0131	26.0	12.0	0.0029	38.6
1440.00	22.4	21.0	16.7	0.0131	22.0	12.7	0.0012	31.1

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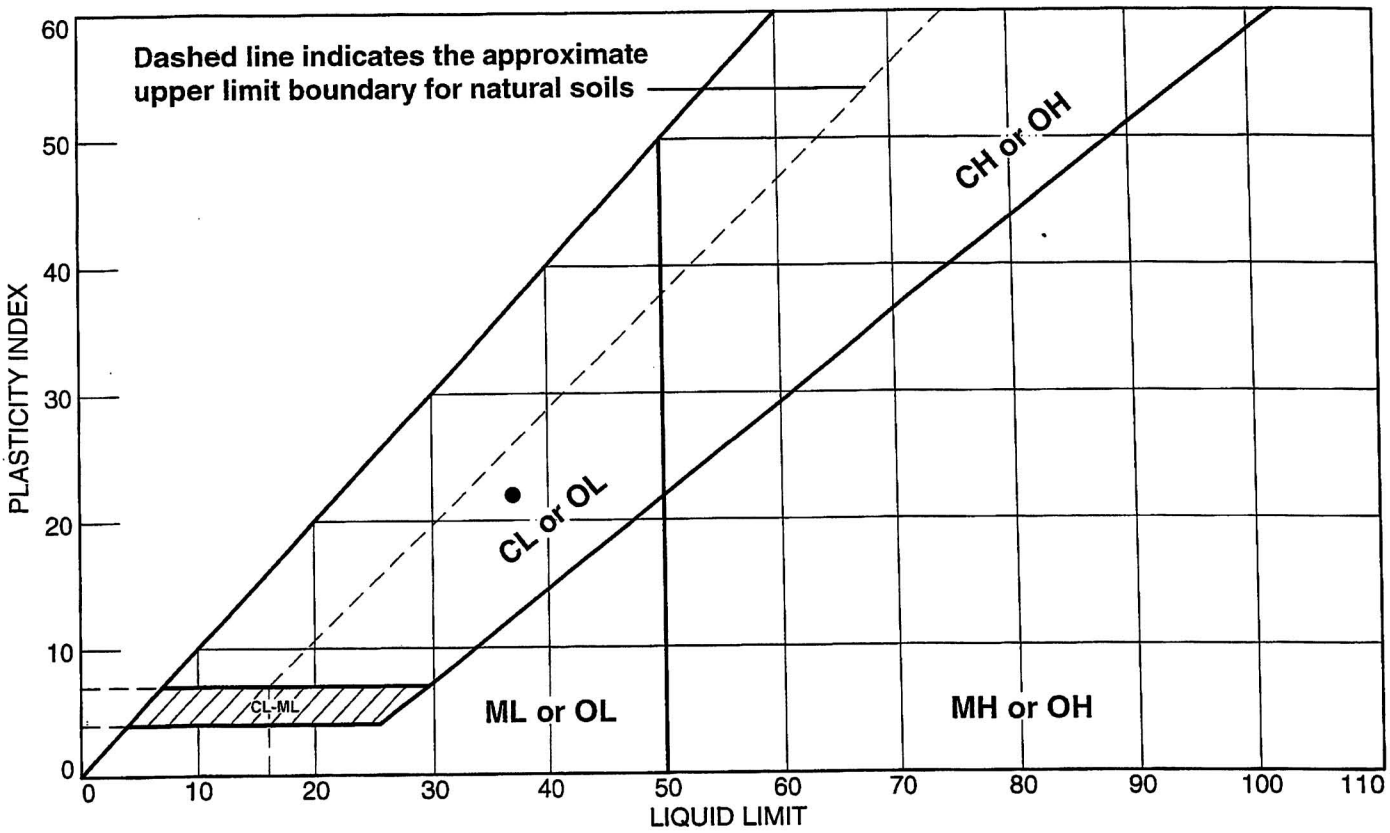
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.4	10.3	10.7	37.6	51.7	89.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0047	0.0062	0.0165	0.0221	0.0819	0.1253

Fineness Modulus
0.04

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring B-2151	SS-18	74.5-76	14.8	15	37	22	CL

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Raleigh, North Carolina

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project No.: 6468071777 **Figure** NA

Tested By: CS **Checked By:** LBJ DSC 1-25-08

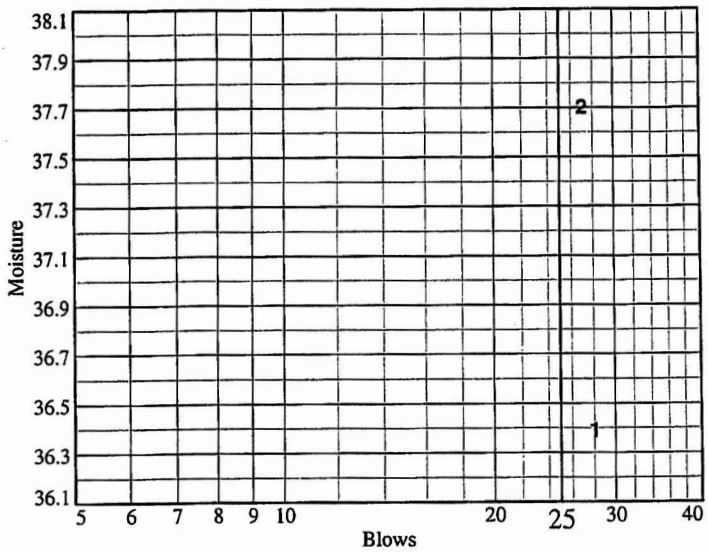
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 74.5-76
Sample Number: SS-18
Material Description: Light Brownish Gray Lean CLAY
USCS: CL
AASHTO: A-6(19)
Tested by: CS
Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	28.21	25.57				
Dry+Tare	24.84	22.81				
Tare	15.58	15.49				
# Blows	28	27				
Moisture	36.4	37.7				



Liquid Limit= 37
Plastic Limit= 15
Plasticity Index= 22
Natural Moisture= 14.8
Liquidity Index= 0.0

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	22.96	22.74			
Dry+Tare	22.00	21.82			
Tare	15.56	15.74			
Moisture	14.9	15.1			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
101.78	89.50	6.67	14.8

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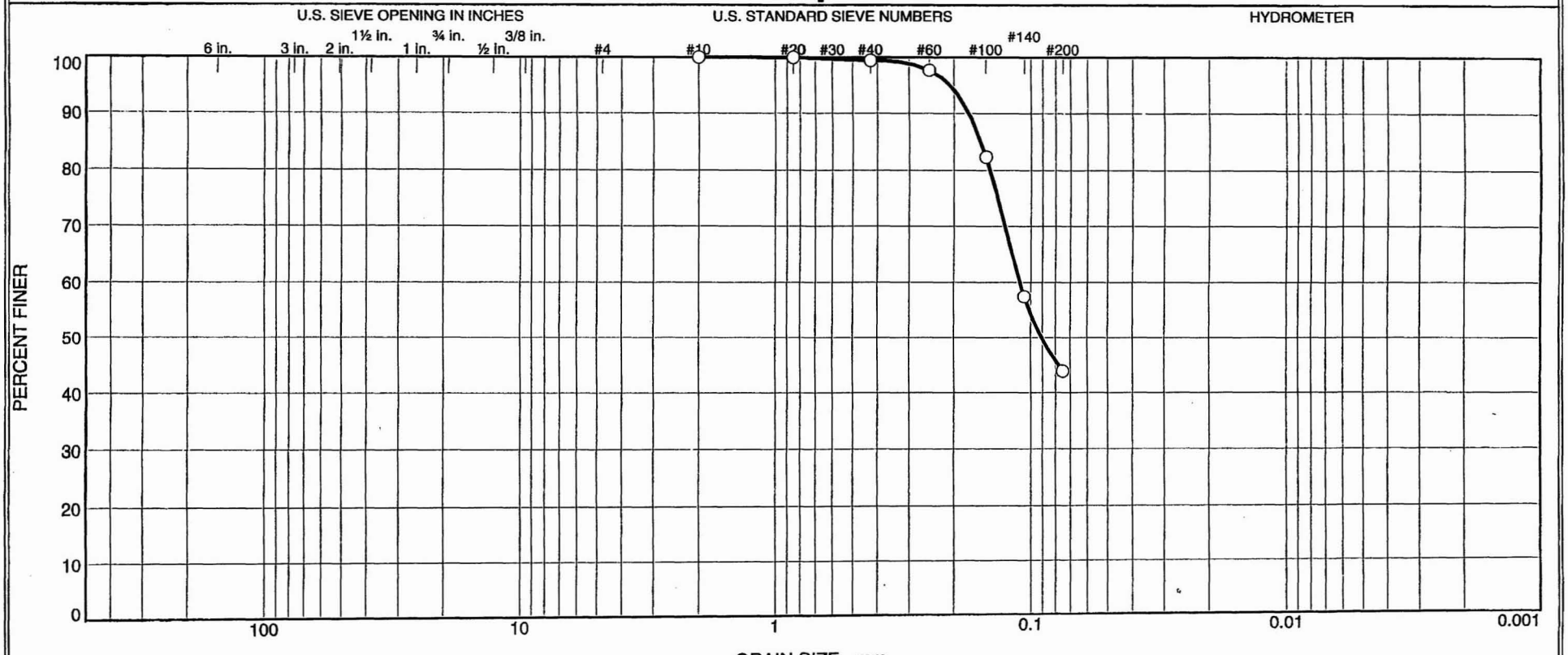
Particle Size Distribution Report / ASTM D 6913-04e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.5	55.7	43.8	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2151	SS-19	79.5-81	12-13-07	SC	Light Gray Clayey SAND (Visual)	20.4	ND	ND

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

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Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
Specific gravity = 2.730 (ASTM D854-06)
ND = Not determined

Tested By: CS **Checked By:** LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 79.5-81 **Sample Number:** SS-19
Material Description: Light Gray Clayey SAND (Visual)
Date: 12-13-07 **Natural Moisture:** 20.4
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SC
Testing Remarks: SIEVE ANALYSIS ONLY
Specific gravity = 2.730 (ASTM D854-06)
ND = Not determined
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
215.53	0.00	0.00	#10	0.00	100.0
94.26	0.00	0.00	#20	0.05	99.9
			#40	0.51	99.5
			#60	2.18	97.7
			#100	16.66	82.3
			#140	40.10	57.5
			#200	52.93	43.8

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.5	55.7	56.2			43.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0909	0.1103	0.1447	0.1570	0.1748	0.2072

Fineness Modulus
0.19

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MACTEC ENGINEERING AND CONSULTING, INC.
RALEIGH, NORTH CAROLINA

REPORT OF THE STANDARD TEST METHOD FOR SPECIFIC GRAVITY OF SOILS
Performed in General Accordance with ASTM D 854-06 (Method B)

PROJECT NAME:EXELON COL PROJECT [VICTORIA]

PROJECT NUMBER: 6468071777

DATE: 12/24/07

SAMPLE IDENTIFICATION: B-2151 SS-19

(A) Mass of oven-dried soil, grams:		50.21
(B) Mass of pycnometer filled with water at test temperature (T), grams:		654.82
(C) Mass of pycnometer, water and soil, grams:		686.65
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		23.1
(G) Specific Gravity at observed temperature:	A / [A + (B - C)]	2.732
(F)	***Correction factor:***	0.99931
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.730

MATERIAL TESTED: [X] **- # 4** [ ] **- # 10**

PREPARATION METHOD: [X] **DRY** [ ] **WET (dispersed)**

REMARKS: Estimated % Passing # 4 : 100%
Clayey SAND (SC) - visual

EQUIPMENT USED
SCALES : 3.1.99
OVEN : 5.1.16
THERMOMETER : 5.1.01
PYCNOMETER : P-5

TESTED BY: CS

\Test Reports\Soils\SPECIFIC GRAVITY(ref).xls

REVIEWED BY: **Brian Johnson**
DSC 1-25-08