

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

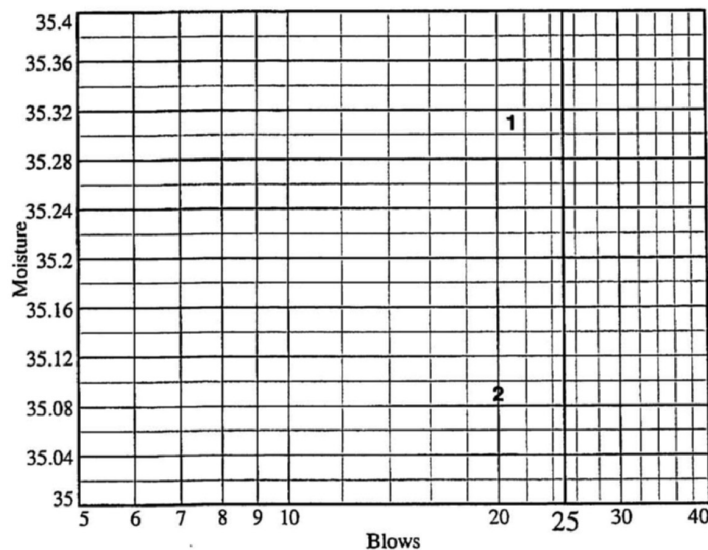
AASHTO: A-6(11)

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

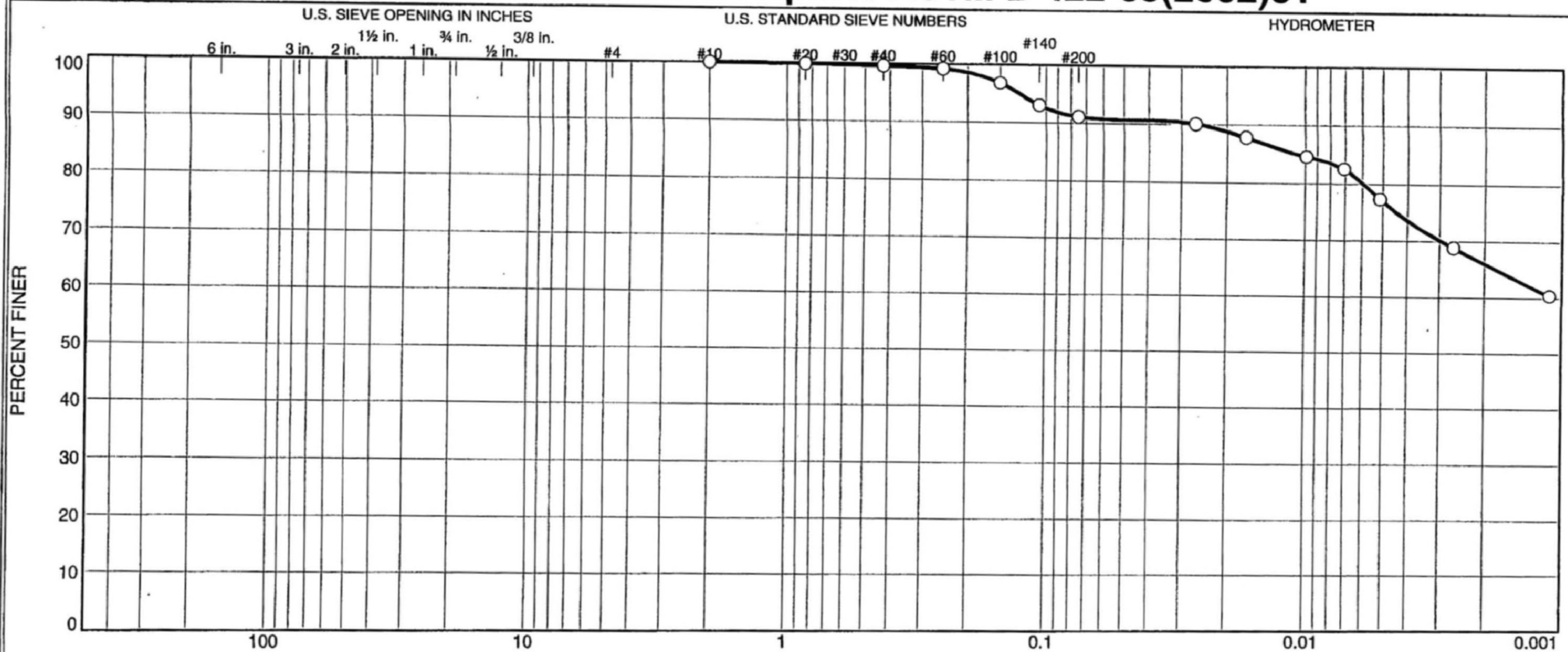
Run No.	1	2	3	4
Wet+Tare	23.88	22.70		
Dry+Tare	22.90	21.89		
Tare	15.54	15.30		
Moisture	13.3	12.3		

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)

MACTEC, Inc.

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

Raleigh, North Carolina

Project No. 6468071777

Figure NA

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: $L = 16.294964 - 0.164 \times R_m$

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

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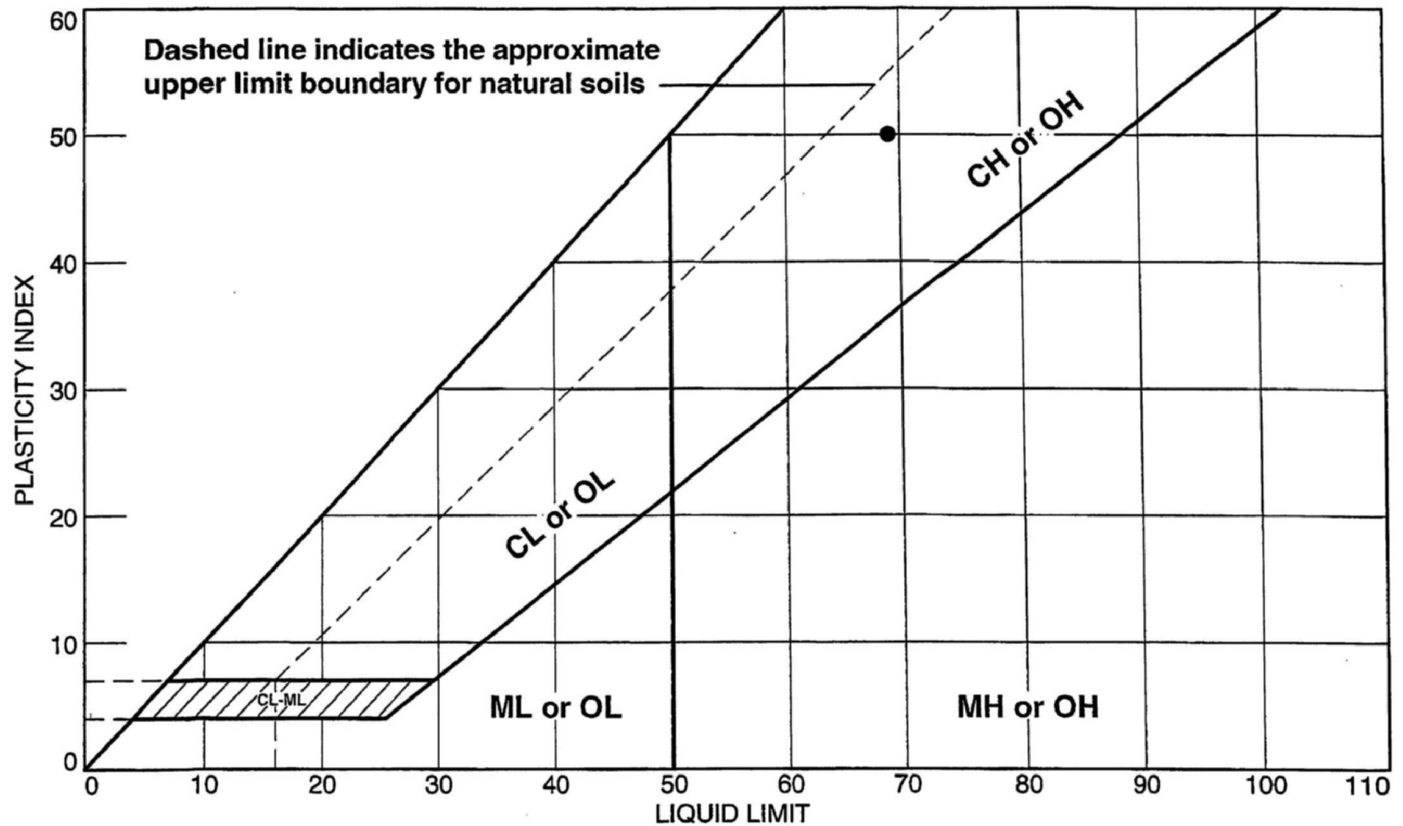
Fractional Components

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	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

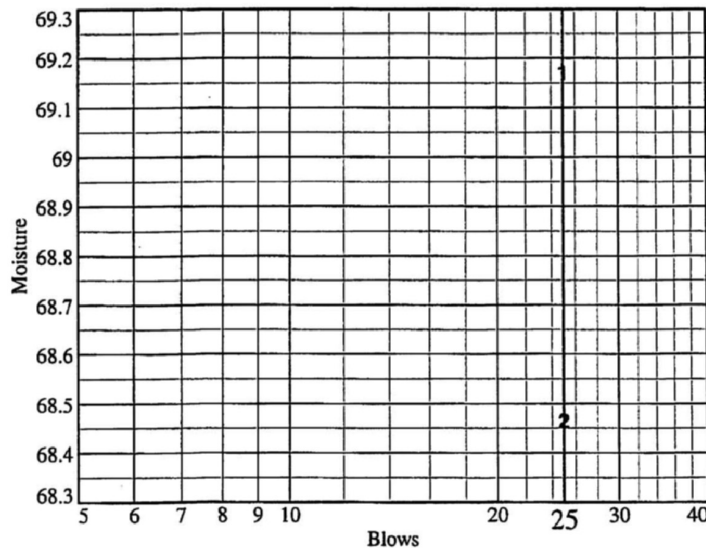
AASHTO: A-7-6(50)

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) <i>Correction factor:</i>	0.99945
(G x F) SPECIFIC GRAVITY @ 20°C:	2.750

MATERIAL TESTED:

☒

- # 4

☐

- # 10

PREPARATION METHOD:

☒

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

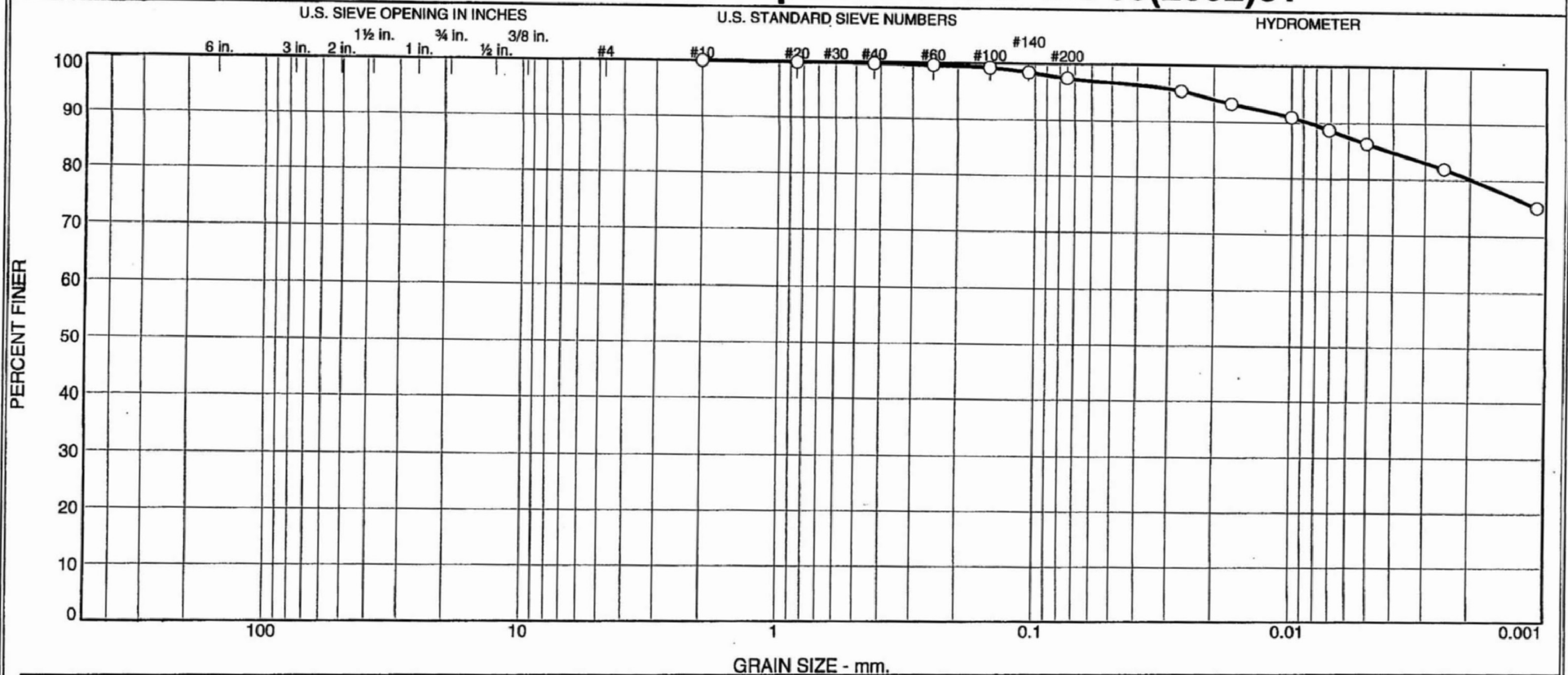
TESTED BY: CS

\\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

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Raleigh, North Carolina

○ Specific gravity is assumed

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: $L = 16.294964 - 0.164 \times R_m$

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

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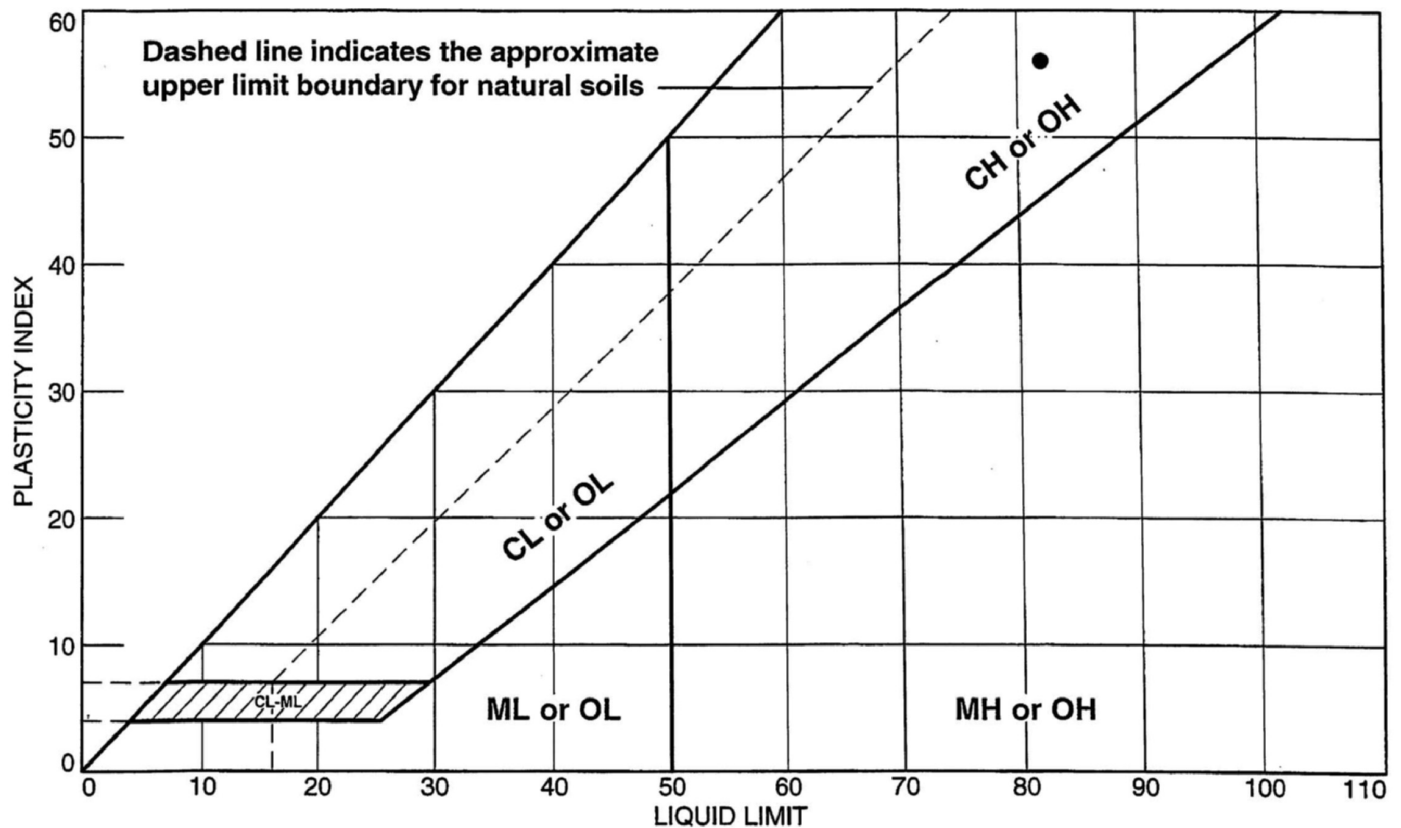
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.2	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

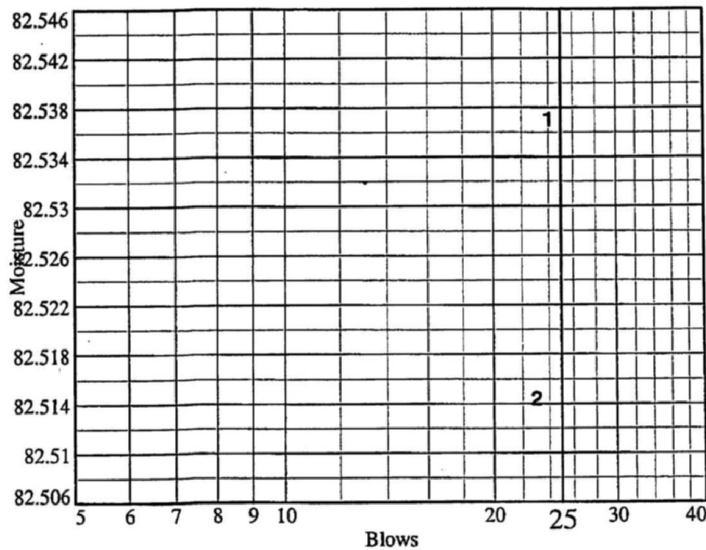
AASHTO: A-7-6(64)

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

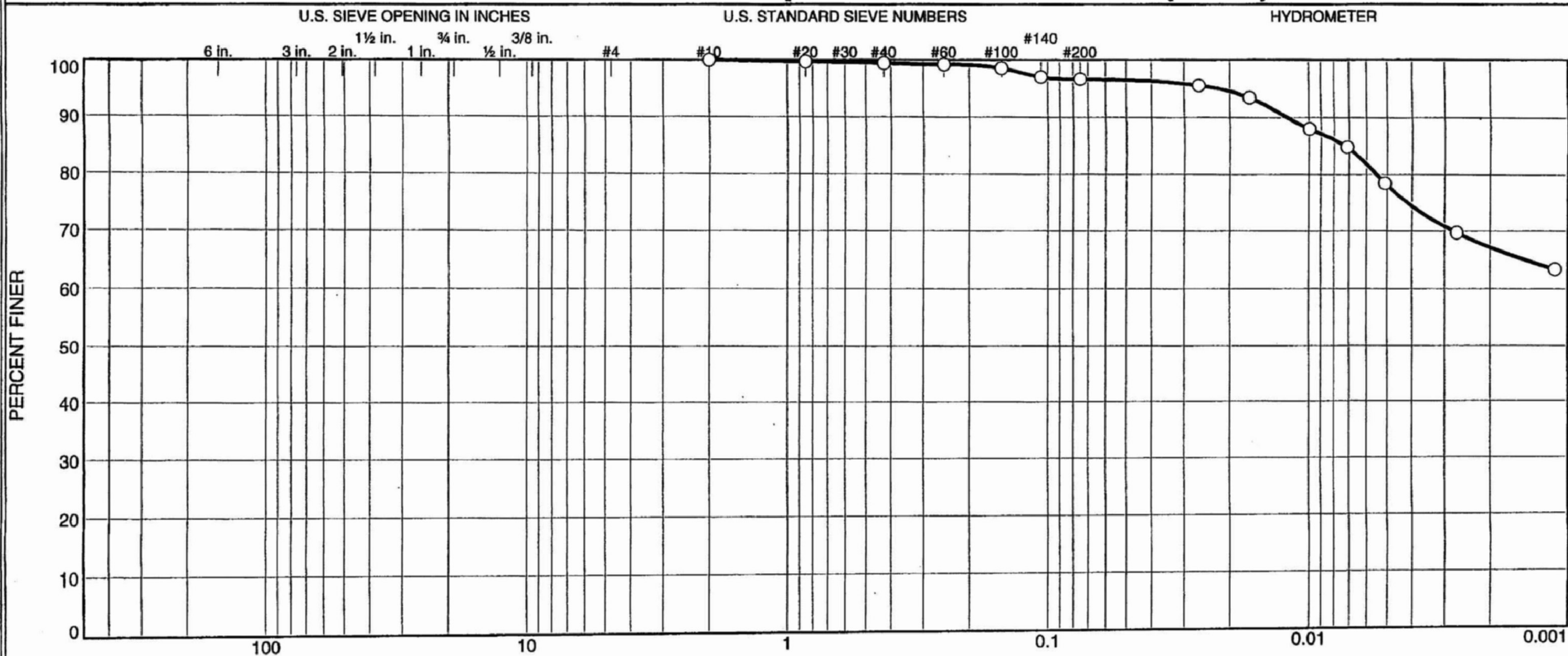
Run No.	1	2	3	4	
Wet+Tare	23.20	22.65			
Dry+Tare	21.65	21.23			
Tare	15.77	15.64			
Moisture	26.4	25.4			

Natural Moisture Data

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

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



GRAIN SIZE - mm.

% +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

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Raleigh, North Carolina

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

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: $L = 16.294964 - 0.164 \times R_m$

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.

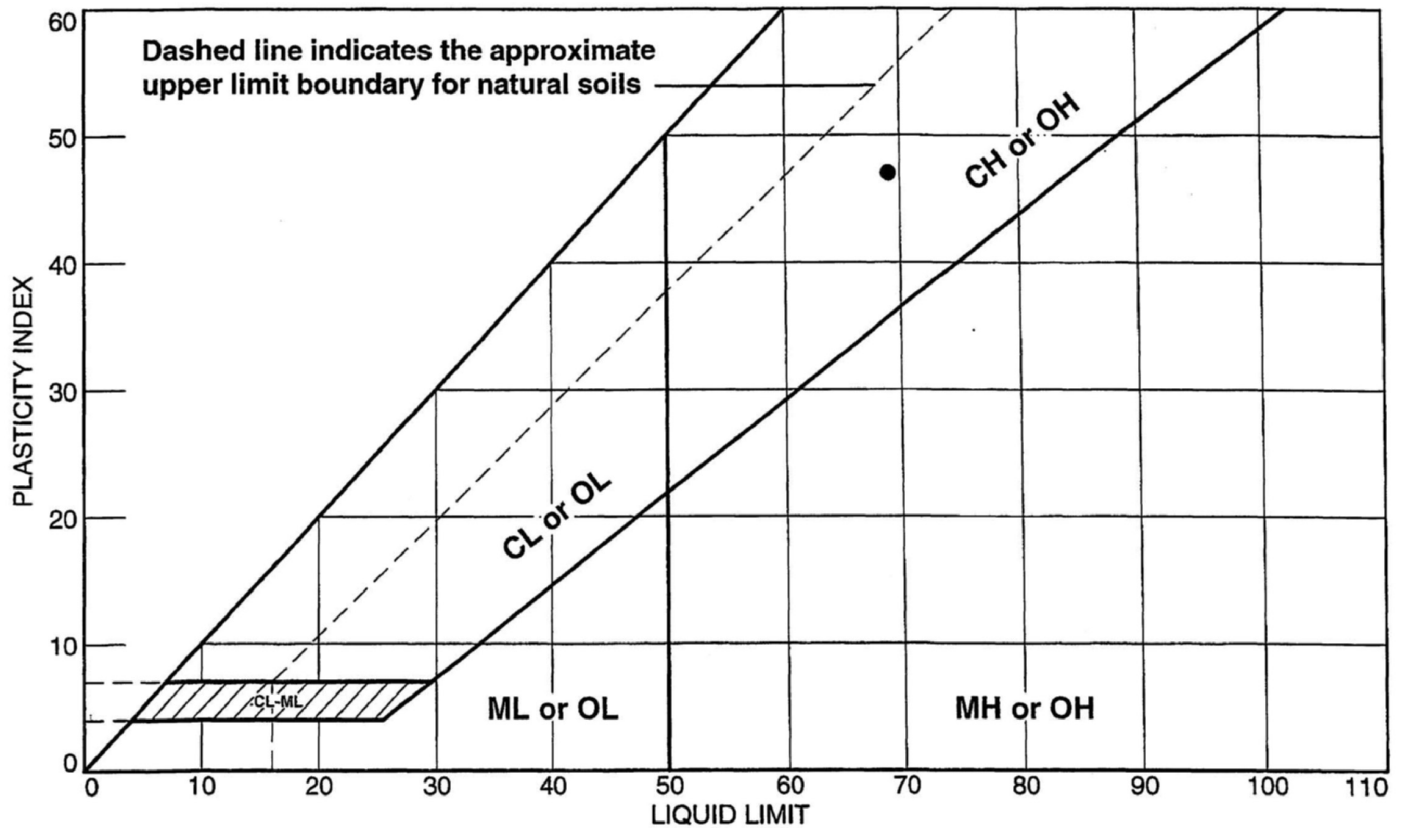
Fractional Components

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

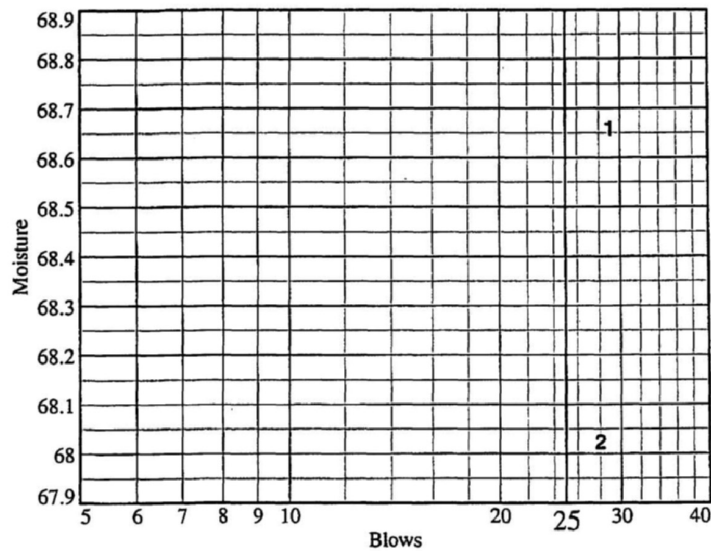
AASHTO: A-7-6(52)

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

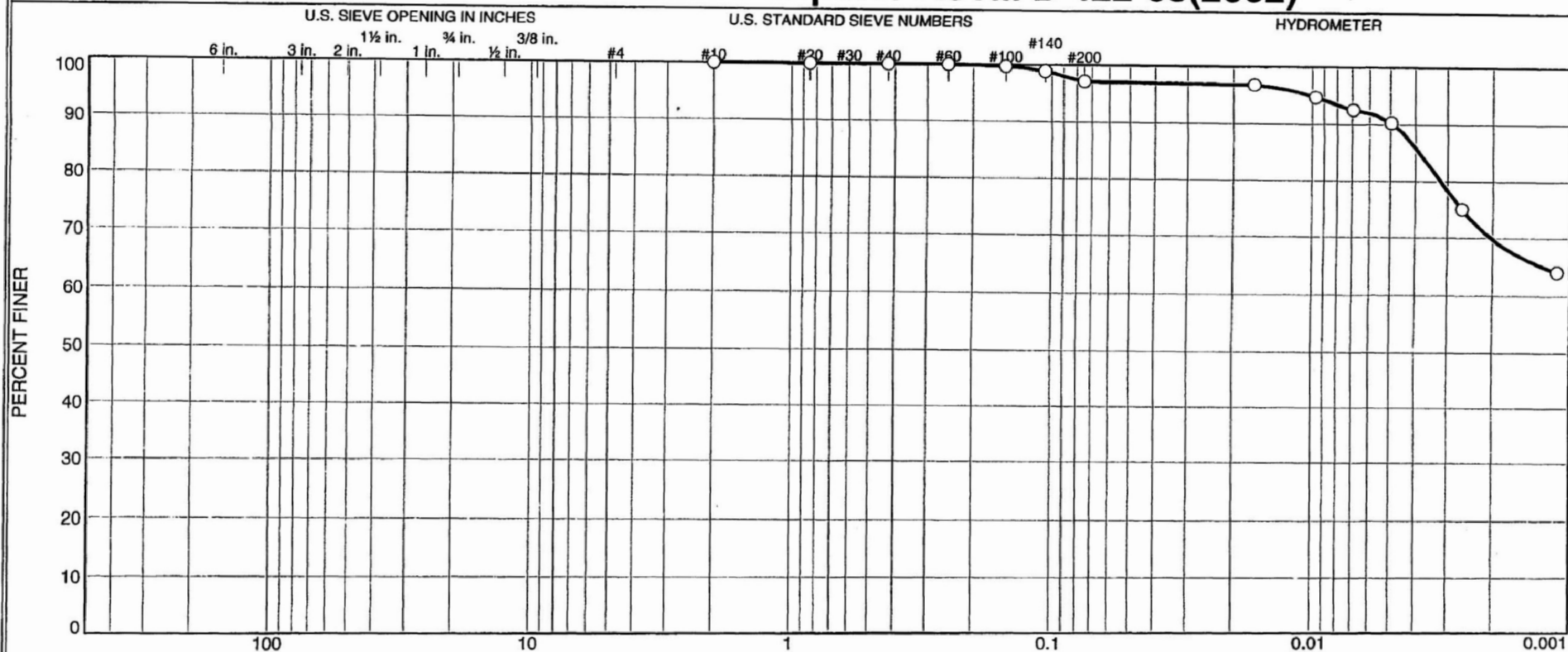
Run No.	1	2	3	4	
Wet+Tare	23.92	17.72			
Dry+Tare	22.39	16.50			
Tare	15.49	11.07			
Moisture	22.2	22.5			

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)

[illegible][illegible]

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: $L = 16.294964 - 0.164 \times R_m$

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.

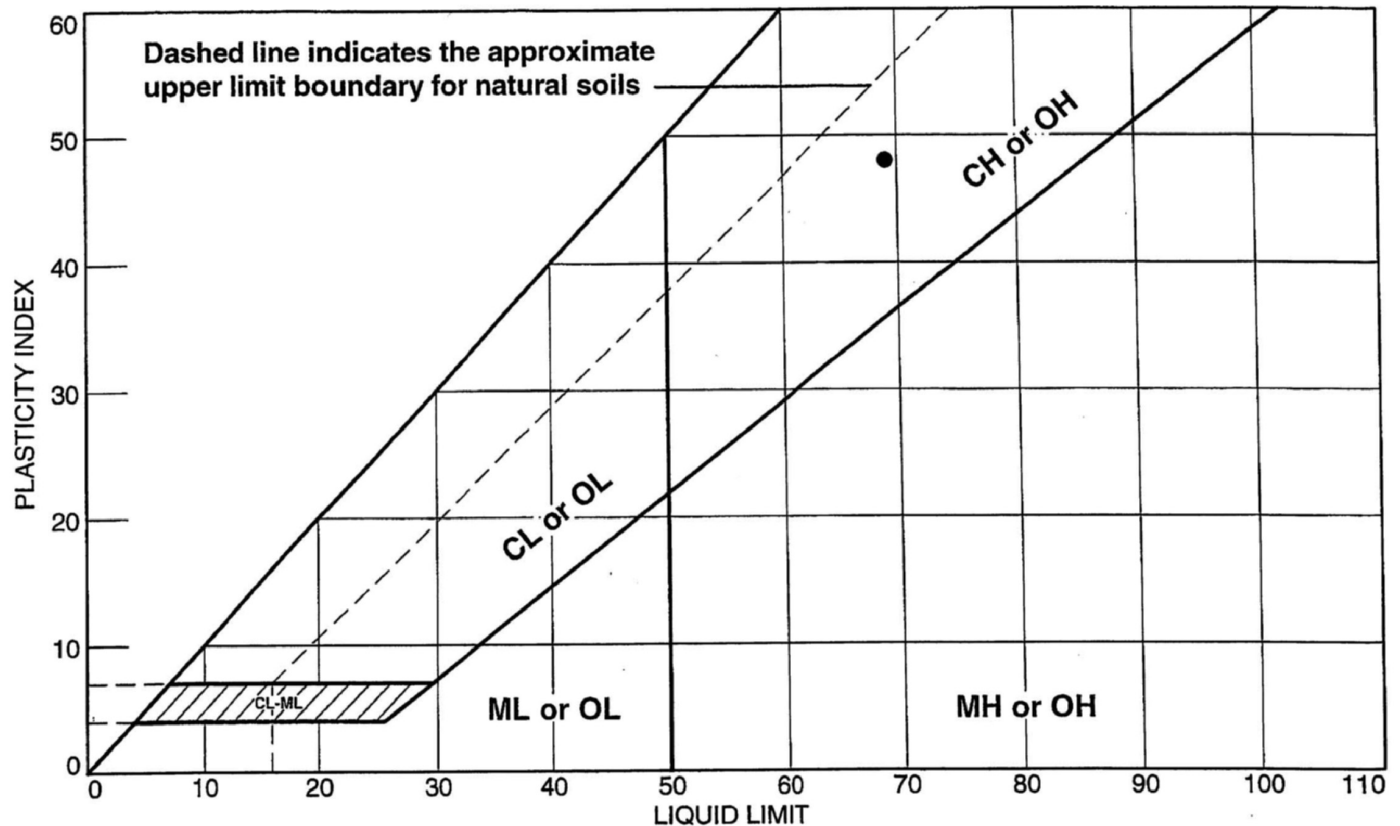
Fractional Components

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

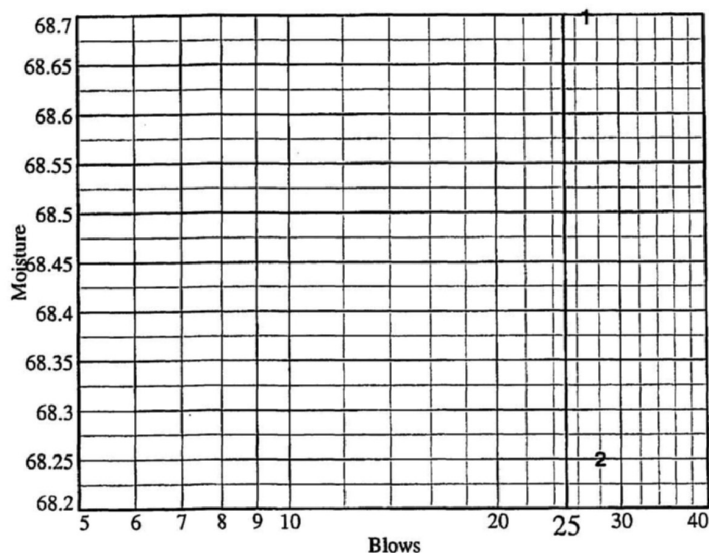
AASHTO: A-7-6(53)

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

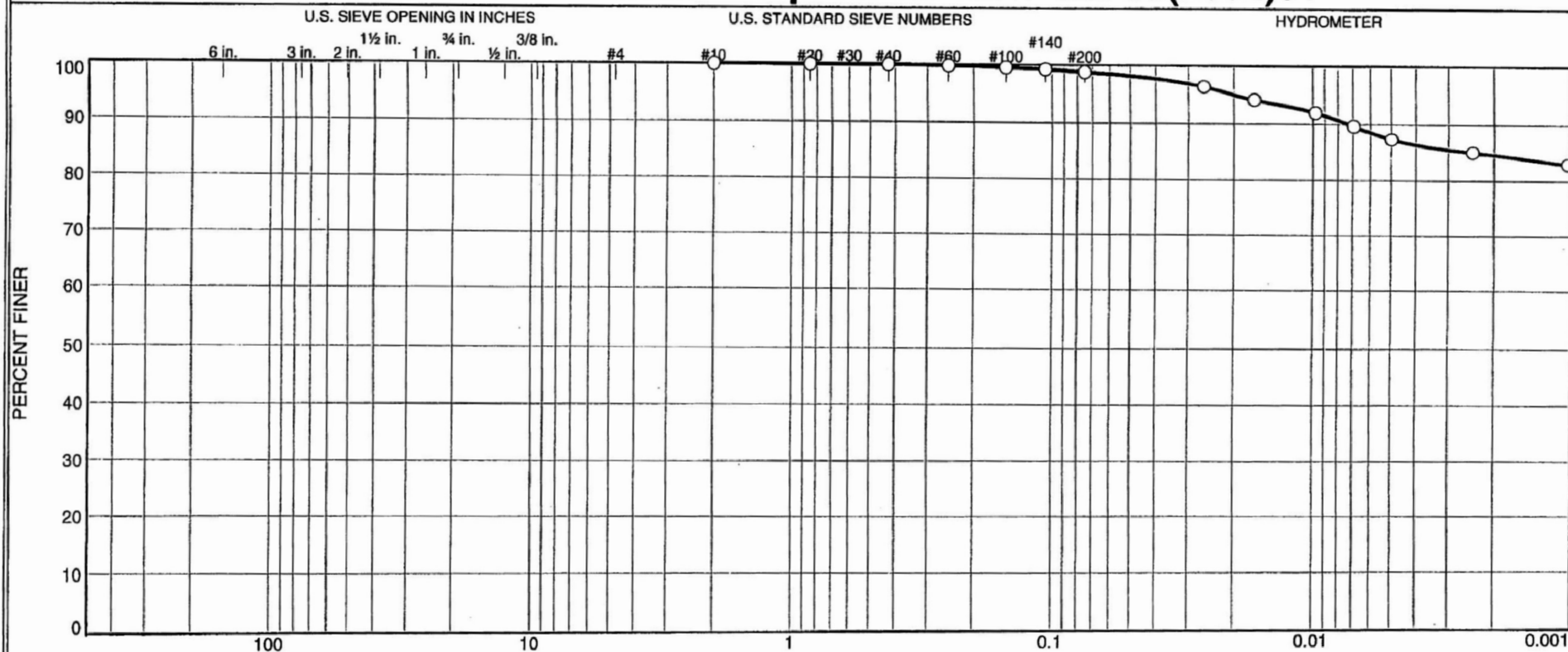
Run No.	1	2	3	4
Wet+Tare	23.15	24.31		
Dry+Tare	21.86	22.76		
Tare	15.49	15.44		
Moisture	20.3	21.2		

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



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: $L = 16.294964 - 0.164 \times R_m$

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

DCN# EXE805

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

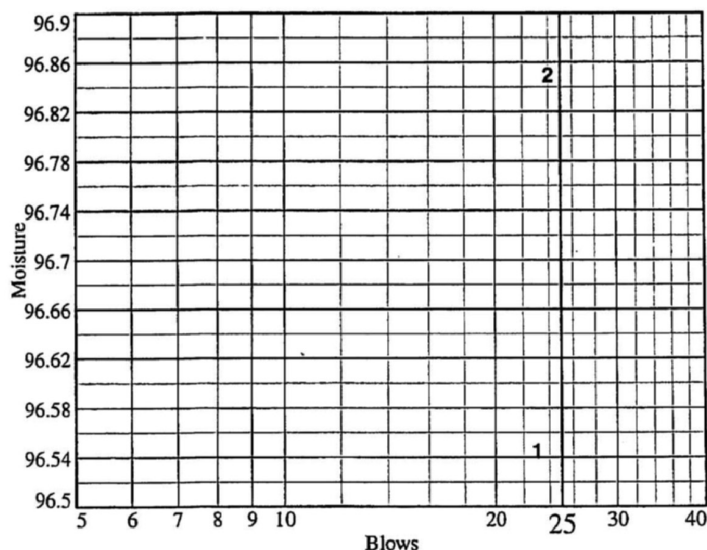
AASHTO: A-7-5(69)

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

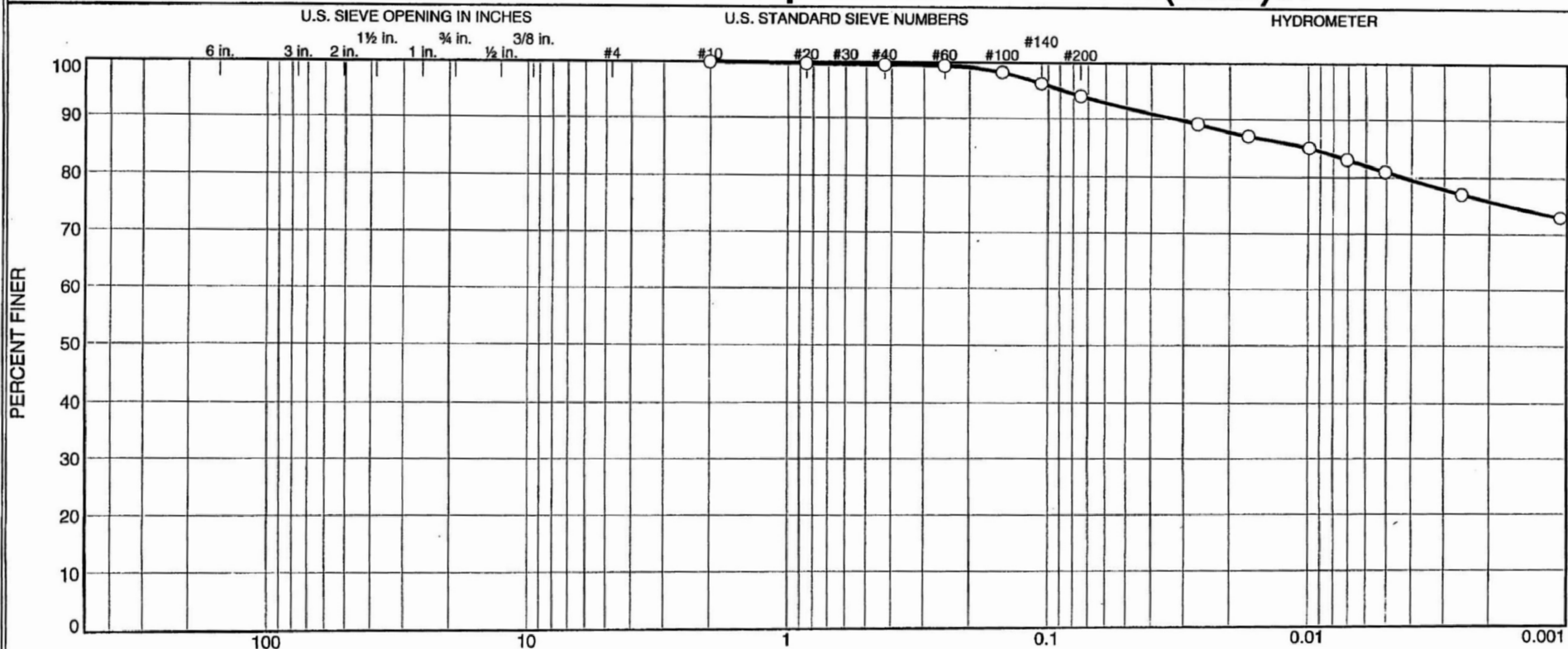
TESTED BY: CS

\\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		MACTEC, Inc.	○ Specific Gravity is assumed
Project Exelon Texas COL (Victoria)			
Project No. 6468071777	Figure NA		
		Raleigh, North Carolina	

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: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	R _m	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.

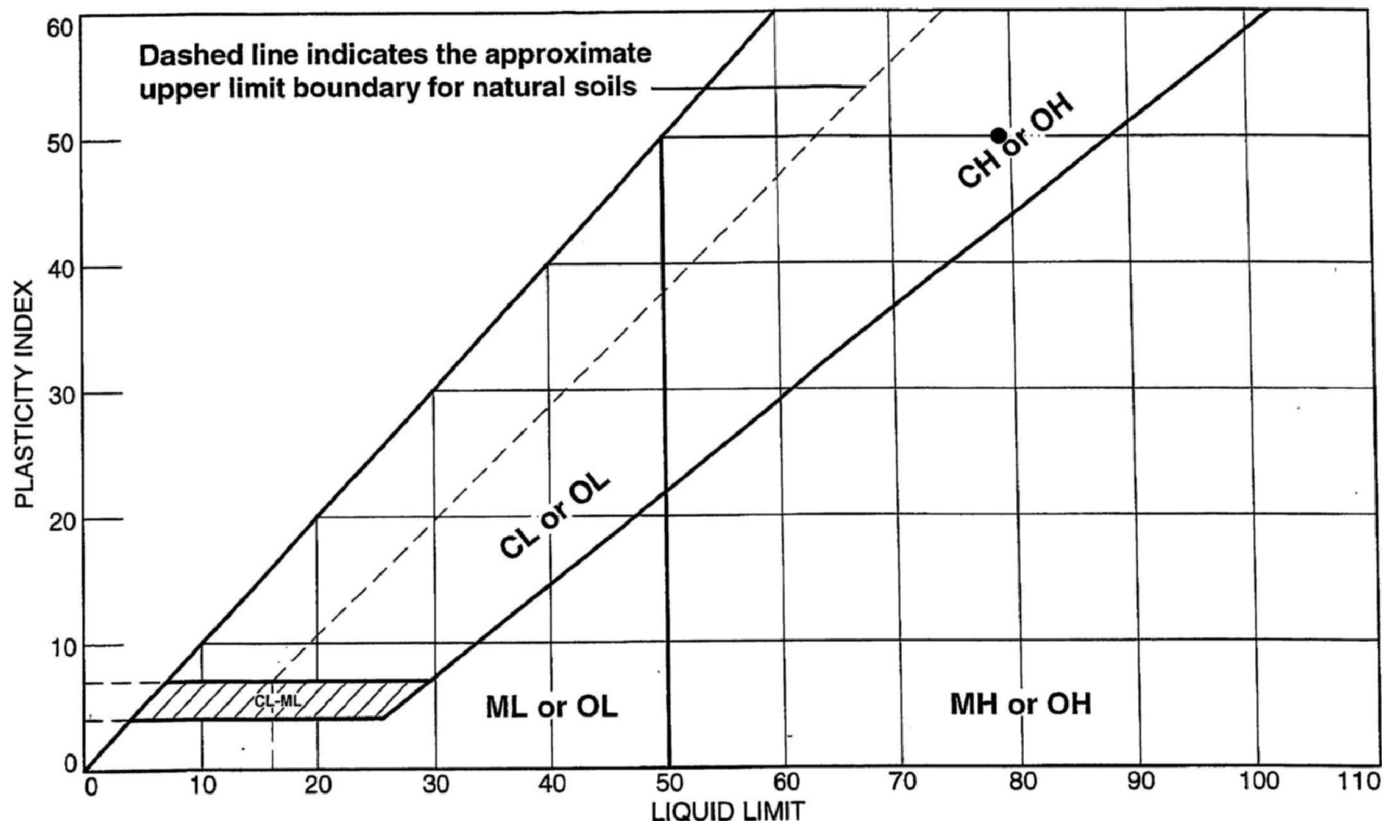
Fractional Components

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

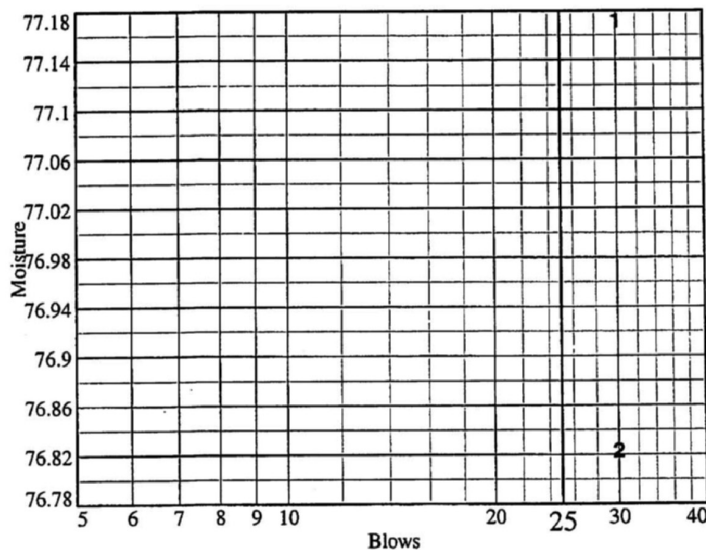
AASHTO: A-7-6(55)

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

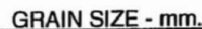
Run No.	1	2	3	4
Wet+Tare	22.67	21.81		
Dry+Tare	21.02	20.43		
Tare	15.47	15.47		
Moisture	29.7	27.8		

Natural Moisture Data

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

MACTEC, Inc.

HYDROMETER



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: $L = 16.294964 - 0.164 \times R_m$

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