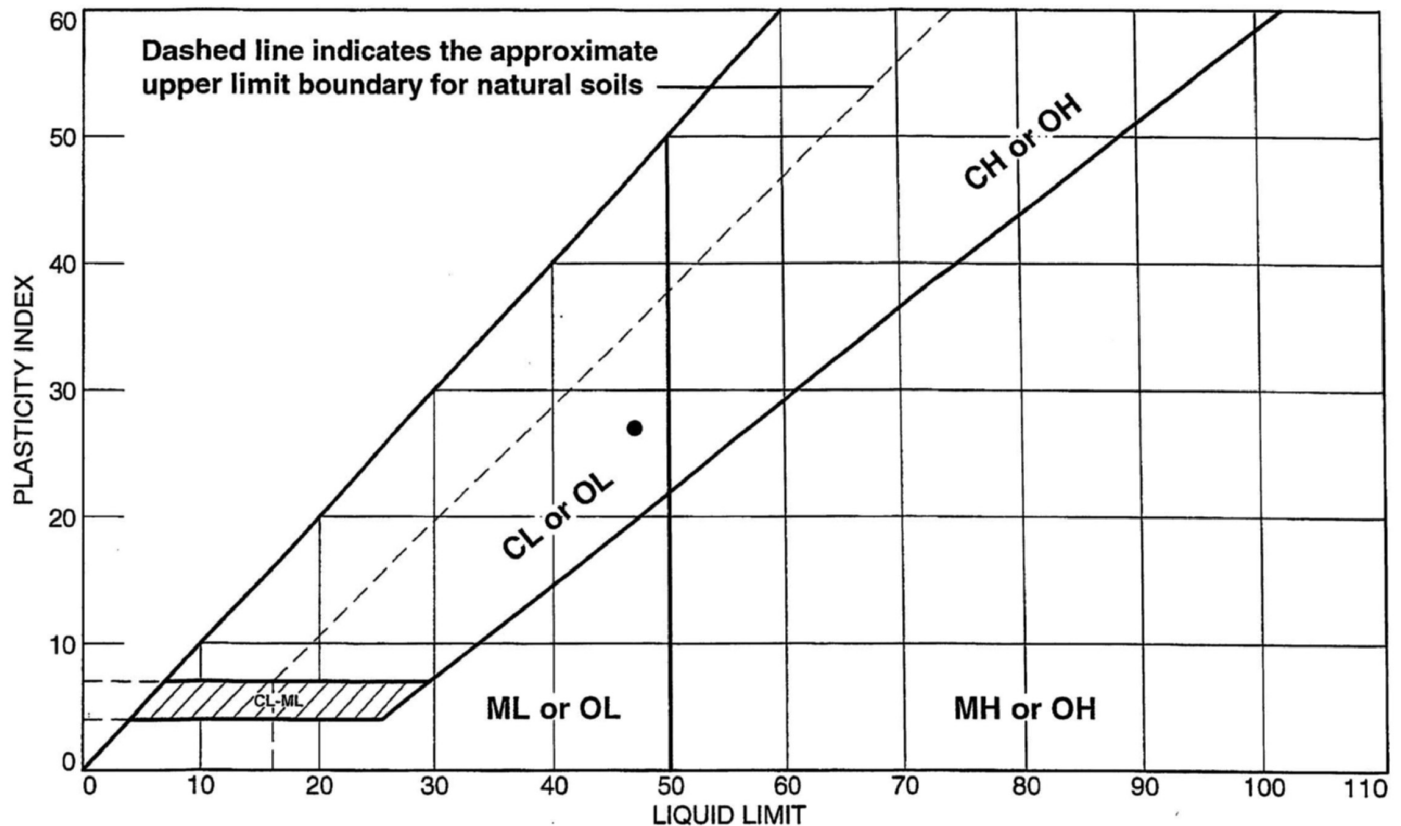


LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



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

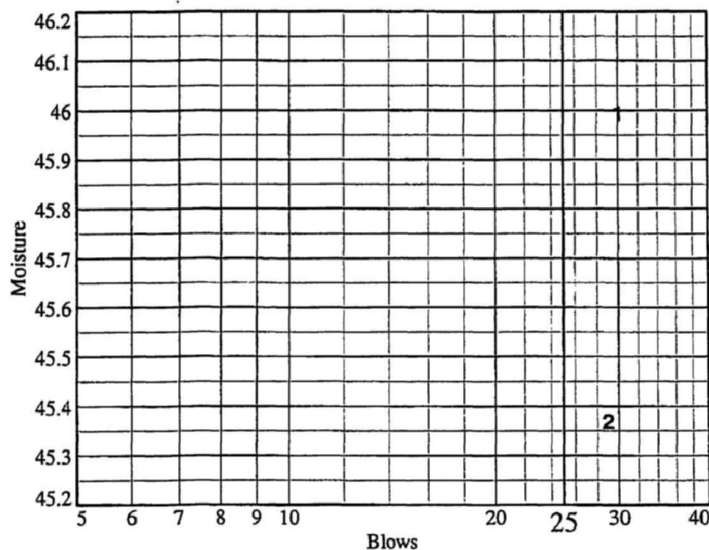
AASHTO: A-7-6(19)

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

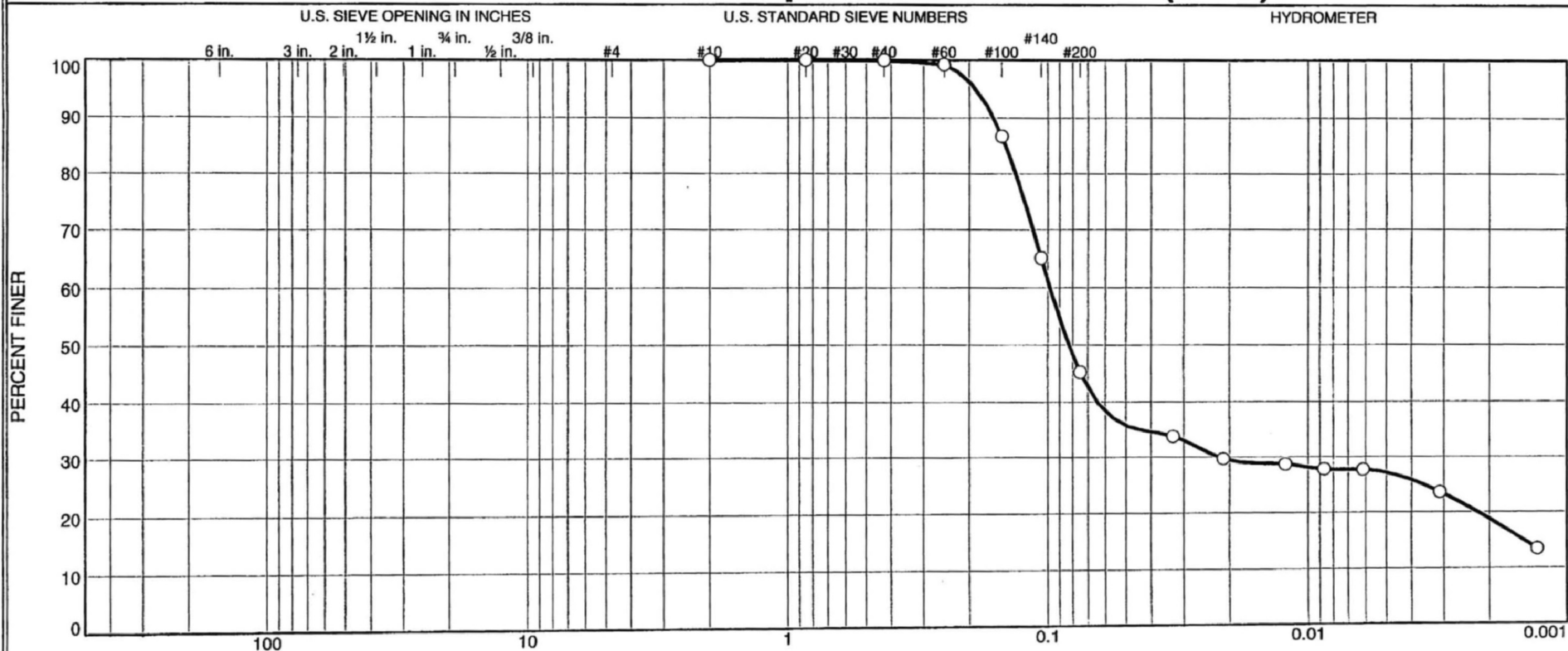
Run No.	1	2	3	4
Wet+Tare	23.30	25.64		
Dry+Tare	22.04	23.90		
Tare	15.79	15.45		
Moisture	20.2	20.6		

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



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: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.3	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.

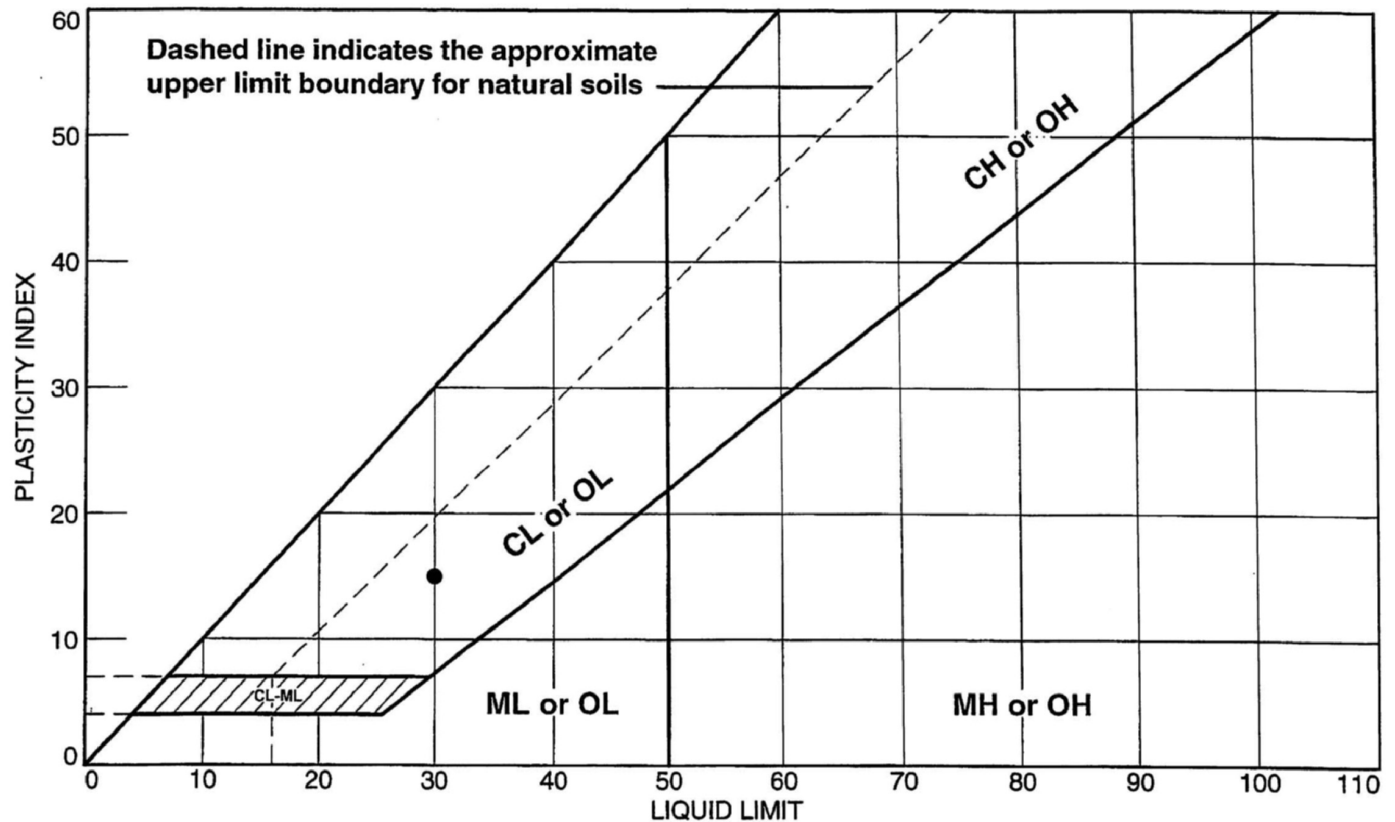
Fractional Components

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

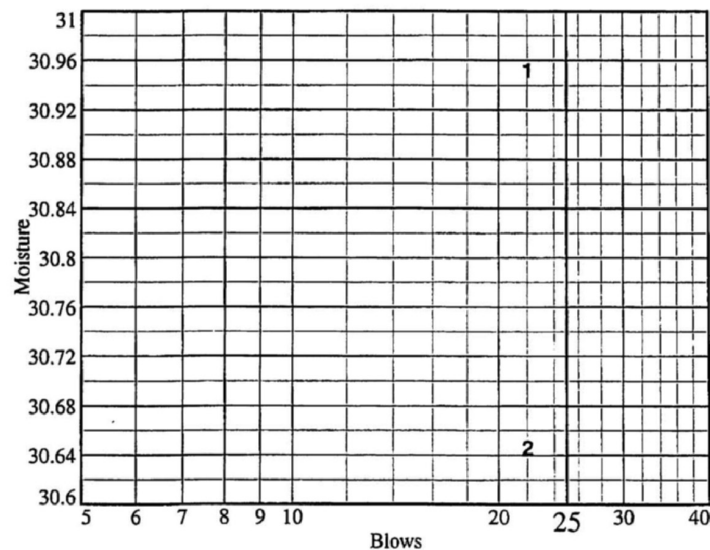
AASHTO: A-6(3)

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.

The graph displays the grain size distribution of a soil sample. The y-axis represents the 'PERCENT FINER' from 0 to 100. The x-axis has two scales: 'U.S. SIEVE OPENING IN INCHES' (top) and 'U.S. STANDARD SIEVE NUMBERS' (bottom). The curve shows a sharp drop between sieve #40 and #60, indicating a well-graded soil.

Sieve Size (U.S. Standard Sieve Numbers)	Sieve Opening (inches)	Percent Finer (%)
#4	0.475	100
#10	0.190	100
#20	0.085	100
#30	0.060	99
#40	0.0475	98
#60	0.025	90
#100	0.015	70
#140	0.0106	54
#200	0.0075	43
#425	0.00375	36
#600	0.0025	34
#840	0.0018	32
#1180	0.0013	30
#1600	0.001	29
#2200	0.00075	26
#3000	0.0005	24

[illegible][illegible]

MACTEC, Inc.
Raleigh, North Carolina

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

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: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.3	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.

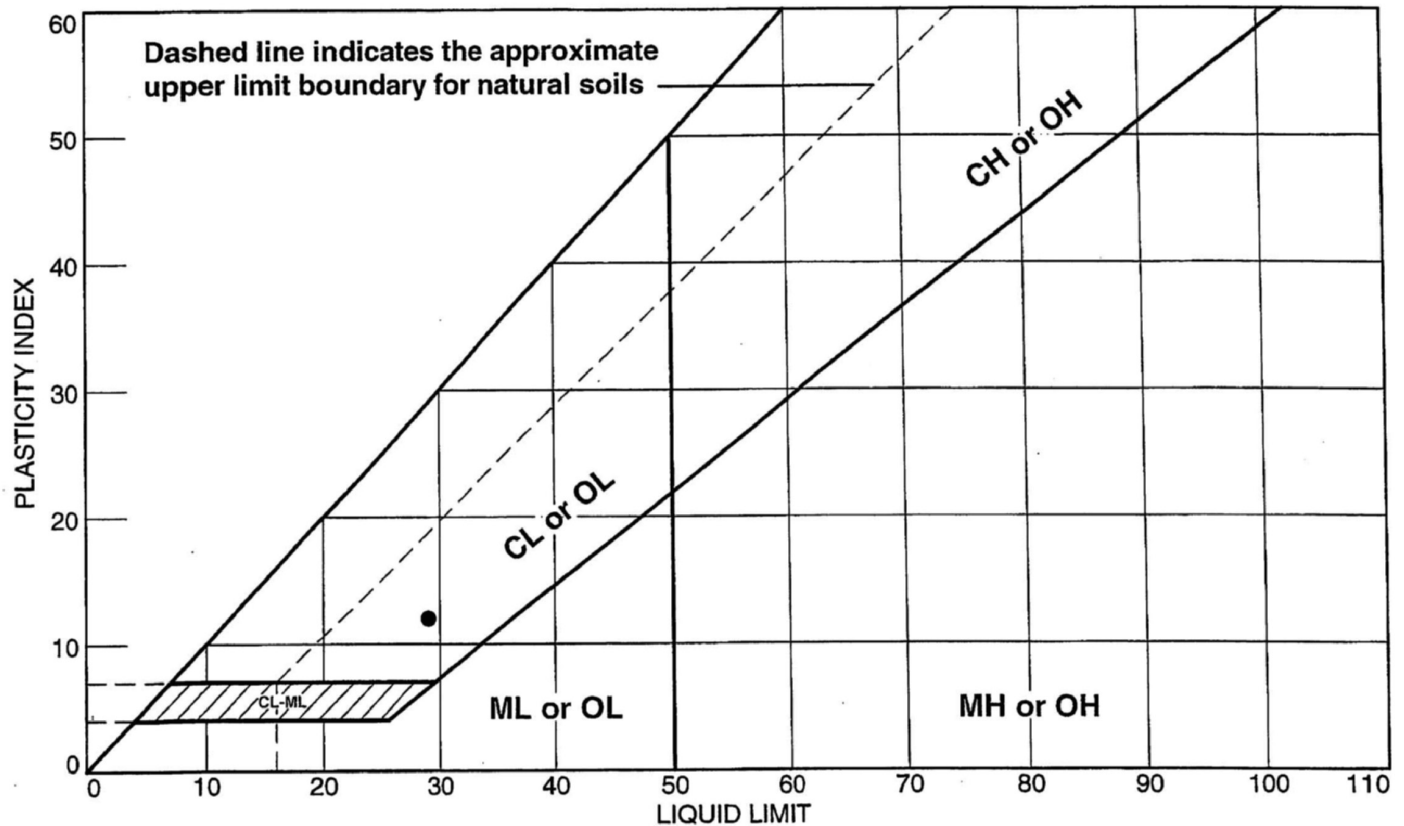
Fractional Components

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

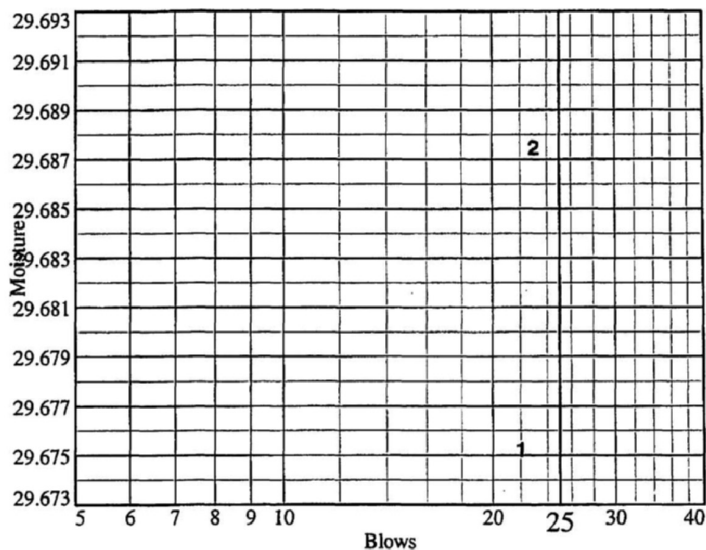
AASHTO: A-6(2)

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) <i>Correction factor:</i>	0.99947
(G x F)	SPECIFIC GRAVITY @ 20°C: 2.658

MATERIAL TESTED:

☒

- # 4

☐

- # 10

PREPARATION METHOD:

☒

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

PYCNO METER : P-4

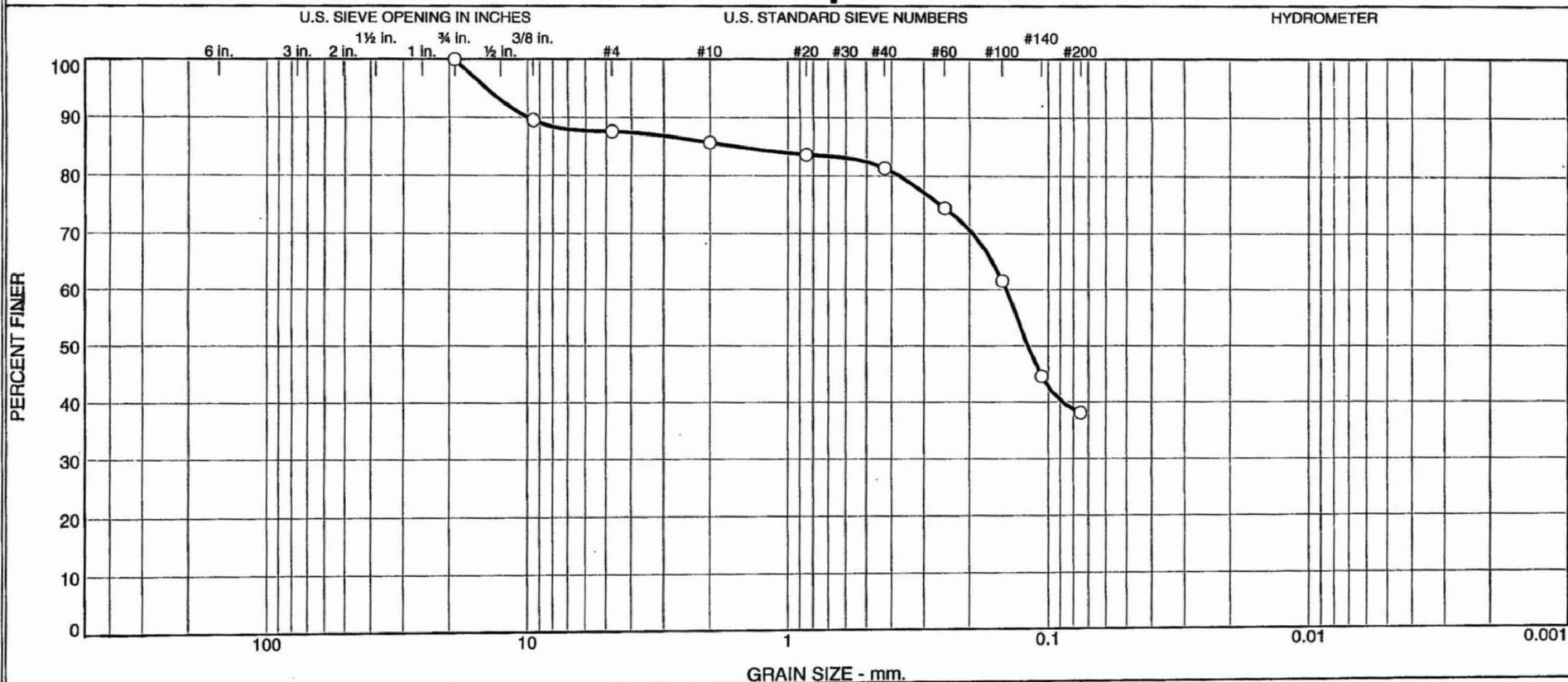
TESTED BY: CS

\\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)

MACTEC, Inc.

Raleigh, North Carolina

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

Project No. 6468071777

Figure NA

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) <i>Correction factor:</i>	0.99947
(G x F) SPECIFIC GRAVITY @ 20°C:	2.681

MATERIAL TESTED:

☒

- # 4

☐

- # 10

PREPARATION METHOD:

☒

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

PYCNO METER : P-5

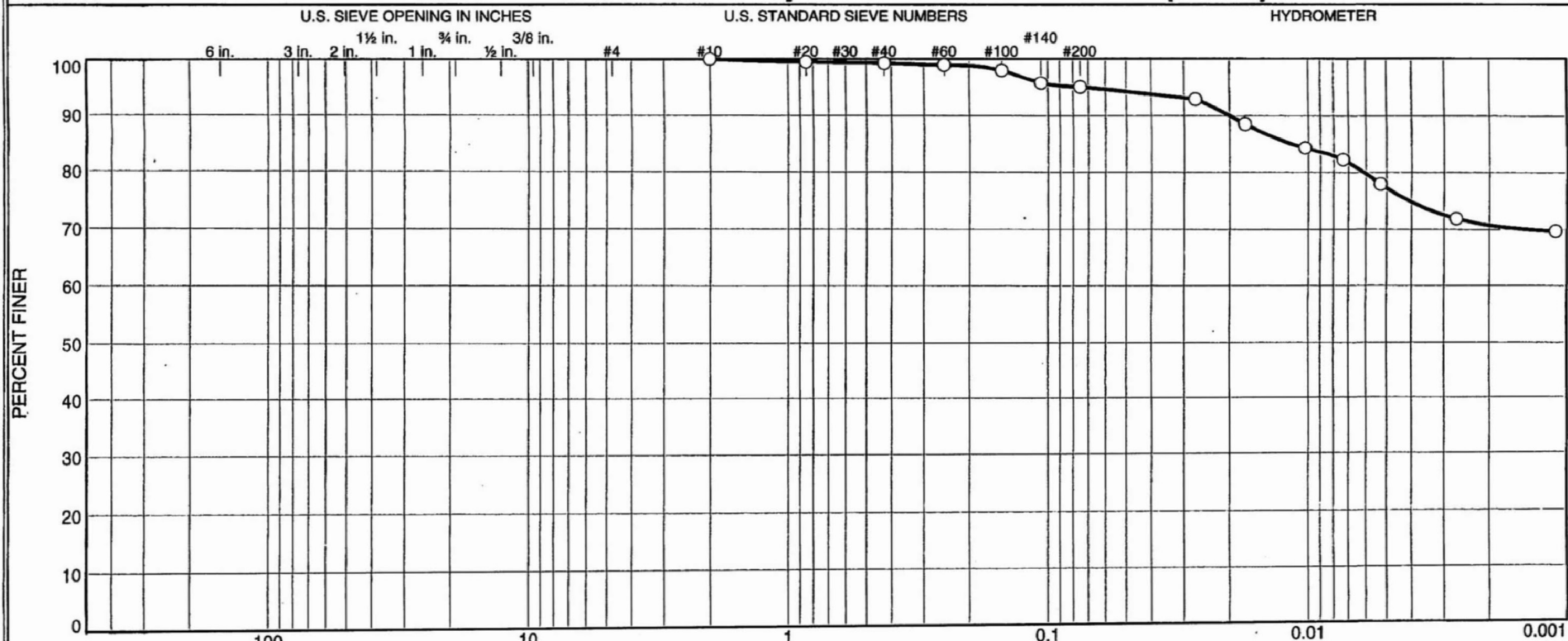
TESTED BY: CS

\\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		MACTEC, Inc.	○ Specific gravity = 2.652 (ASTM D854-06) Organic content = 6.1% (ASTM D2794-07)
Project Exelon Texas COL (Victoria)			
Project No. 6468071777	Figure NA	Raleigh, North Carolina	

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: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.9	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.

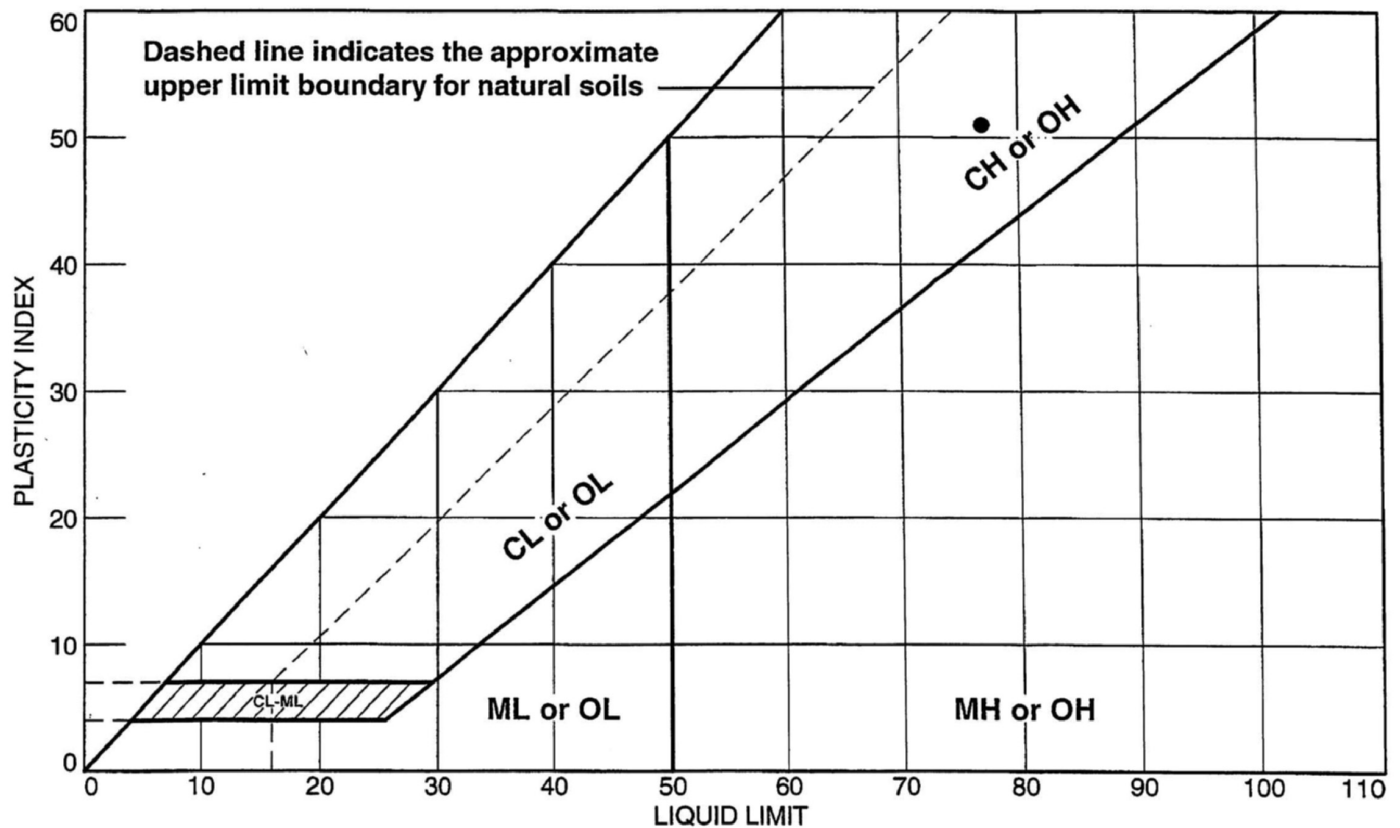
Fractional Components

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

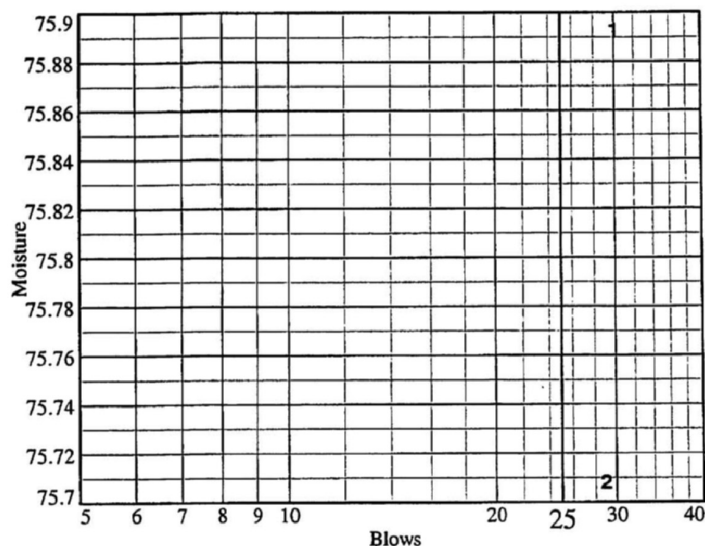
AASHTO: A-7-6(56)

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:

☒

- # 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-6

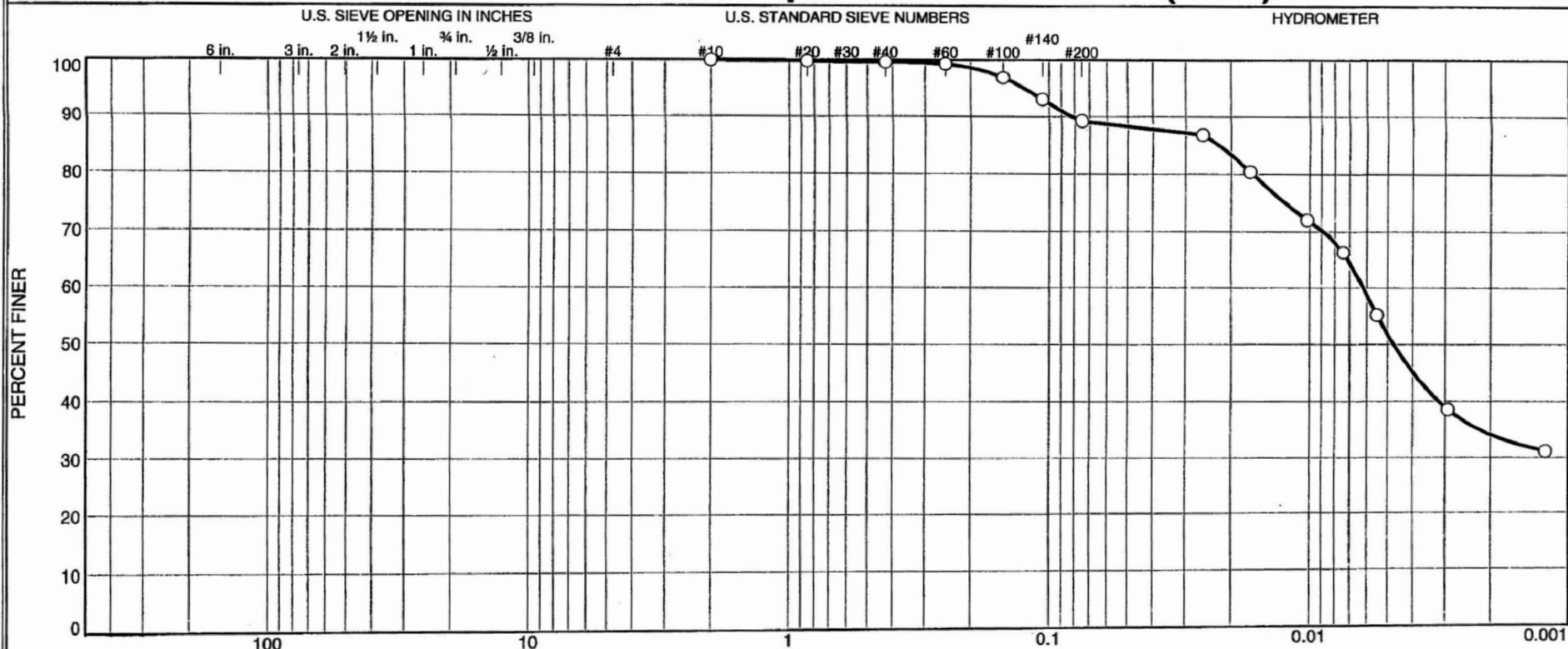
TESTED BY: CS

\\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		MACTEC, Inc. Raleigh, North Carolina	☐ Specific gravity is assumed
Project Exelon Texas COL (Victoria)			
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: 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: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.2	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

MACTEC, Inc.

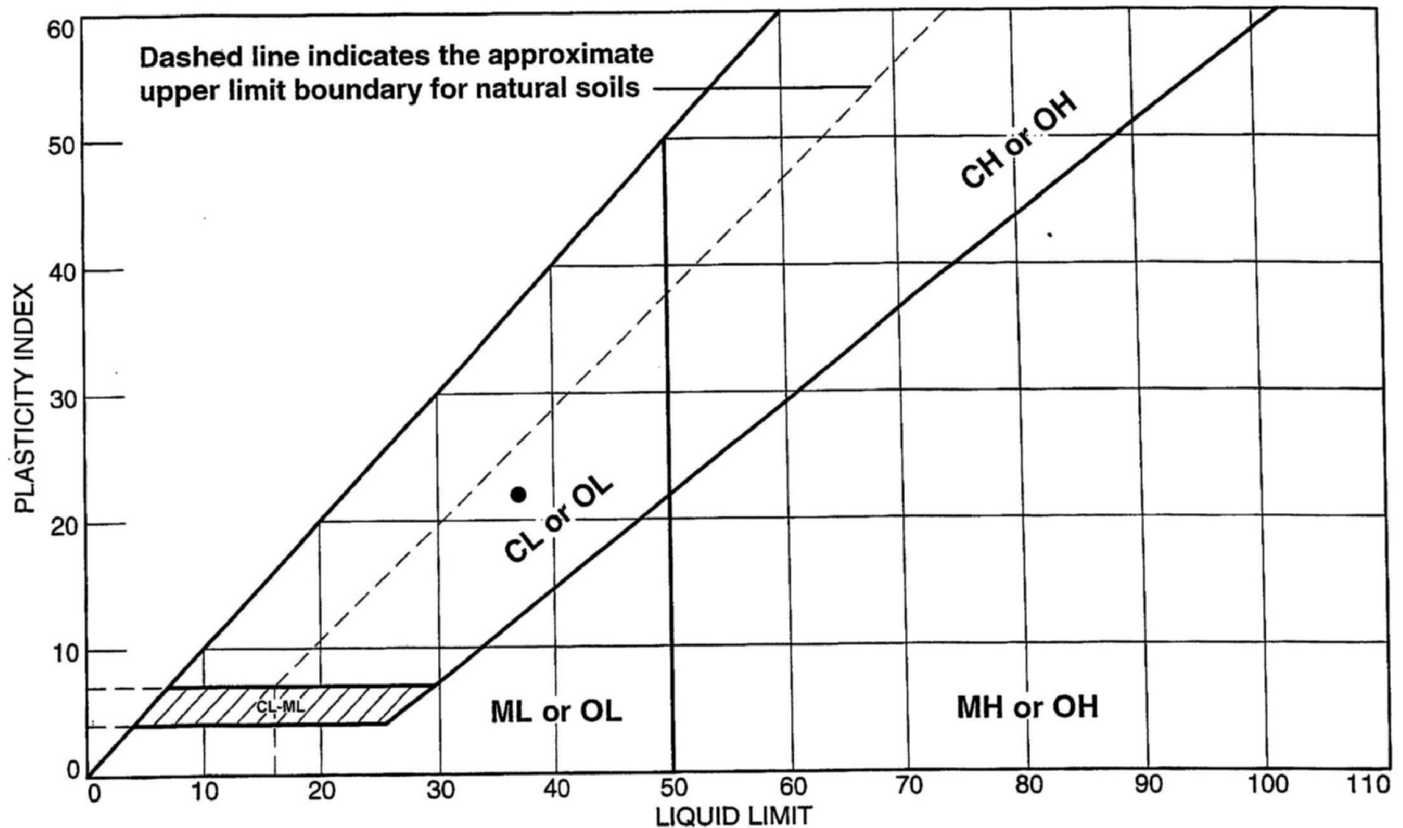
Fractional Components

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	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

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: 74.5-76

Sample Number: SS-18

Material Description: Light Brownish Gray Lean CLAY

USCS: CL

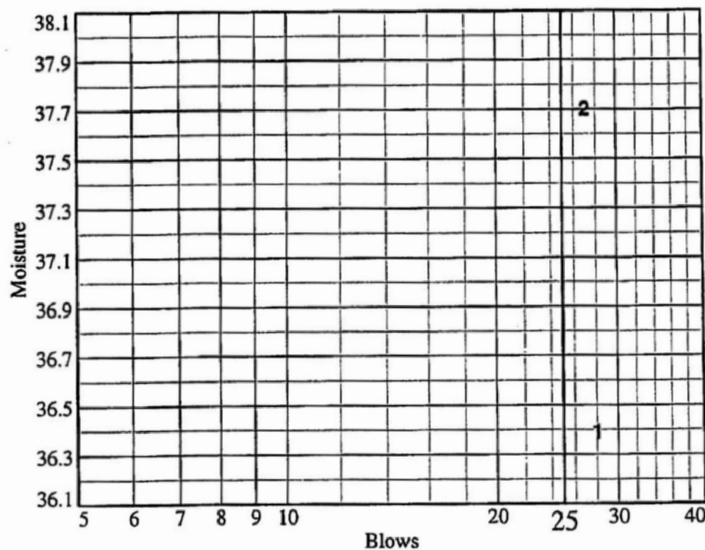
AASHTO: A-6(19)

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

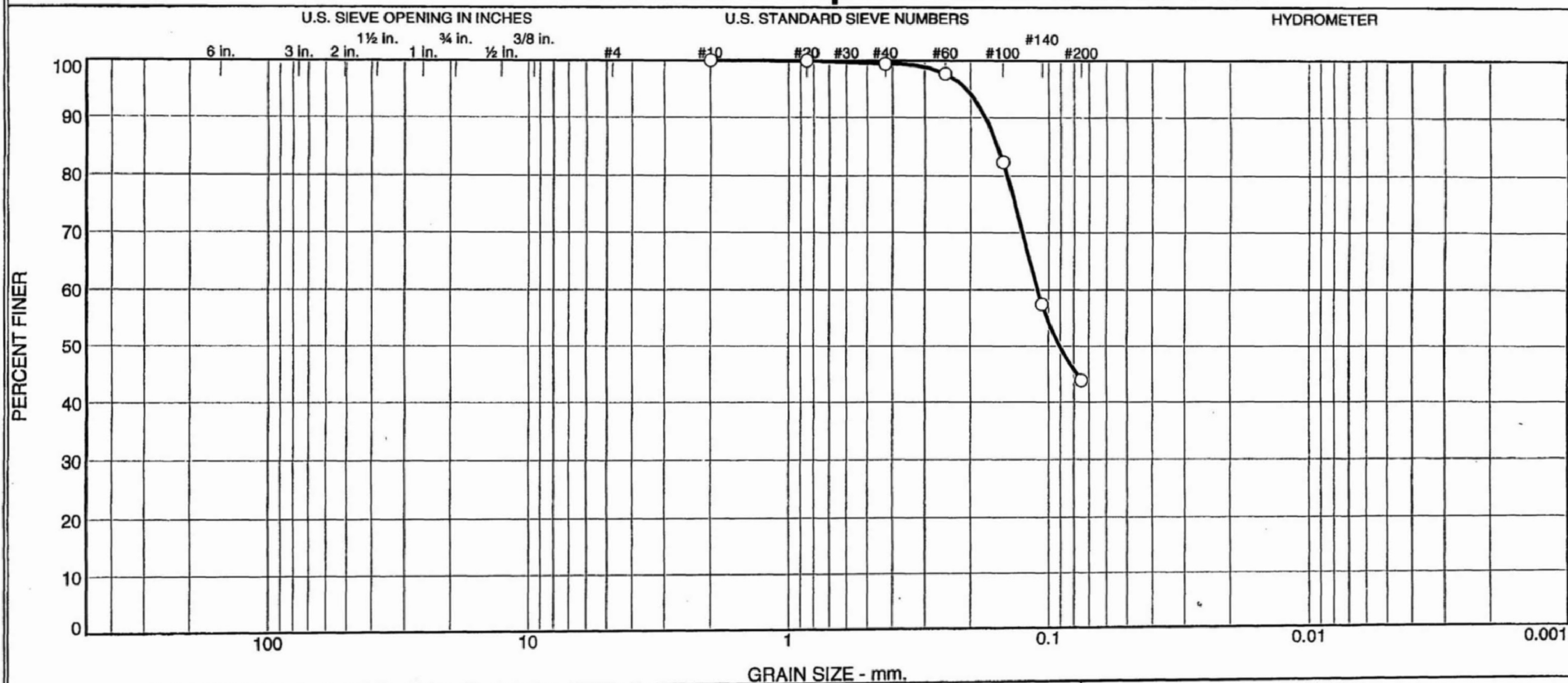
Run No.	1	2	3	4
Wet+Tare	22.96	22.74		
Dry+Tare	22.00	21.82		
Tare	15.56	15.74		
Moisture	14.9	15.1		

Natural Moisture Data

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

MACTEC, Inc.

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

MACTEC, Inc.
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

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-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) <i>Correction factor:</i>	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

PYCNO METER : P-5

TESTED BY: CS

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

REVIEWED BY: Brian Johnson

DSC 1-25-08