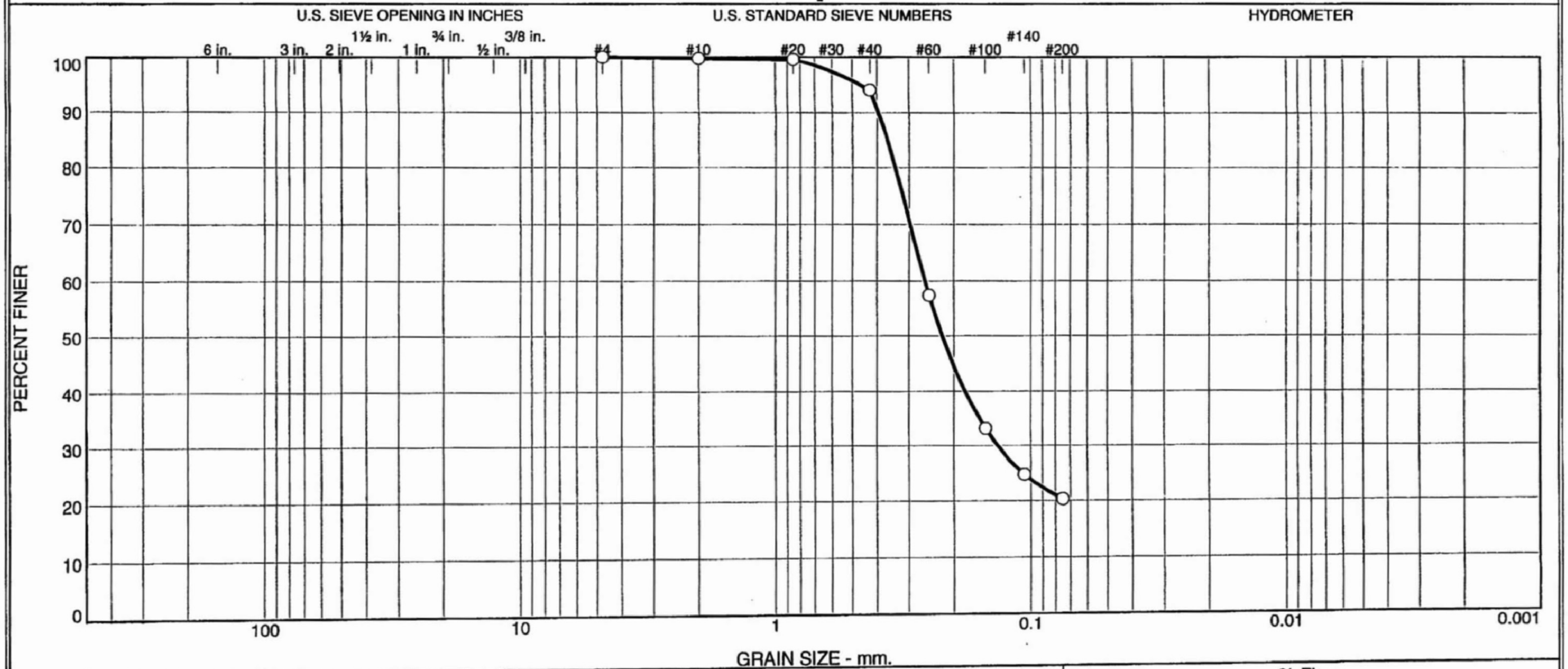
Particle Size Distribution Report / ASTM D 6913-04e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.2	5.8	73.7	20.3	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring B-2151	SS-20	84.5-86	12-13-07	SC	Light Gray Clayey SAND (Visual)	ND	ND	ND

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

O SIEVE ANALYSIS ONLY
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: 84.5-86 **Sample Number:** SS-20
Material Description: Light Gray Clayey SAND (Visual)
Date: 12-13-07 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SC
Testing Remarks: SIEVE ANALYSIS ONLY
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
257.07	0.00	0.00	#4	0.00	100.0
			#10	0.56	99.8
97.25	0.00	0.00	#20	0.22	99.6
			#40	5.60	94.0
			#60	41.30	57.4
			#100	64.91	33.2
			#140	73.15	24.7
			#200	77.44	20.3

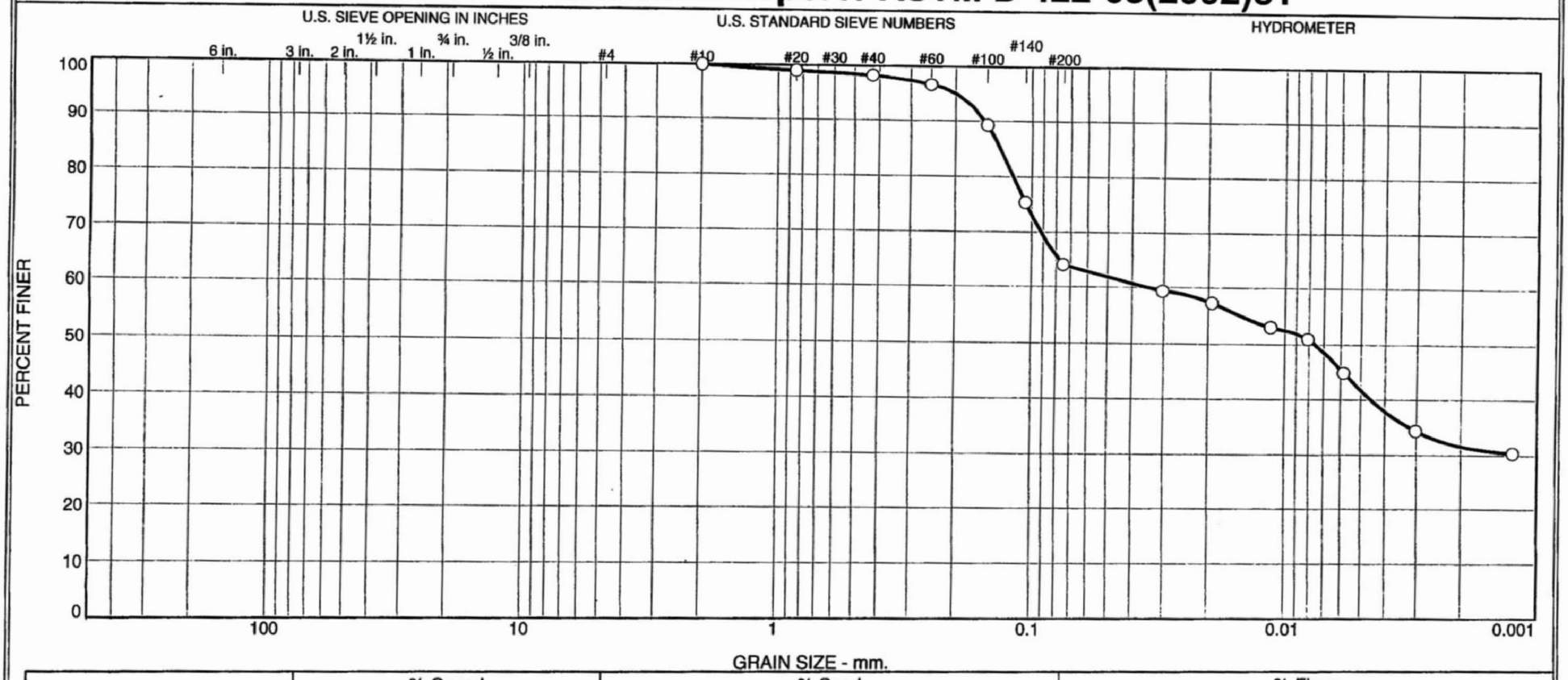
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.2	5.8	73.7	79.7			20.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.1346	0.2219	0.2595	0.3387	0.3636	0.3935	0.4640

Fineness Modulus
0.99

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	34.2	22.4	41.7

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2151	SS-21	89.5-91	12-13-07	CL	Light Gray Sandy Lean CLAY	18.4	34	14

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity = 2.696 (ASTM D854-06)
Organic content = 5.2% 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: 89.5-91 **Sample Number:** SS-21
Material Description: Light Gray Sandy Lean CLAY
Date: 12-13-07 **Natural Moisture:** 18.4
Liquid Limit: 34 **Plastic Limit:** 14 **USCS Class.:** CL
Testing Remarks: Specific Gravity = 2.696 (ASTM D854-06)
Organic content = 5.2% 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
208.49	0.00	0.00	#10	0.00	100.0
48.83	0.00	0.00	#20	0.47	99.0
			#40	0.84	98.3
			#60	1.64	96.6
			#100	5.21	89.3
			#140	12.01	75.4
			#200	17.53	64.1

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =48.83
Hygroscopic moisture correction:
Moist weight and tare = 28.20
Dry weight and tare = 27.90
Tare weight = 15.30
Hygroscopic moisture = 2.4%
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 = 2.696
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	33.0	28.6	0.0131	34.0	10.7	0.0304	59.4
5.00	22.1	32.0	27.6	0.0131	33.0	10.9	0.0194	57.3
15.00	22.0	30.0	25.6	0.0131	31.0	11.2	0.0114	53.1
30.00	22.0	29.0	24.6	0.0131	30.0	11.4	0.0081	51.0
60.00	22.0	26.0	21.6	0.0131	27.0	11.9	0.0058	44.8
240.00	22.0	21.0	16.6	0.0131	22.0	12.7	0.0030	34.4
1440.00	22.2	19.0	14.6	0.0131	20.0	13.0	0.0012	30.4

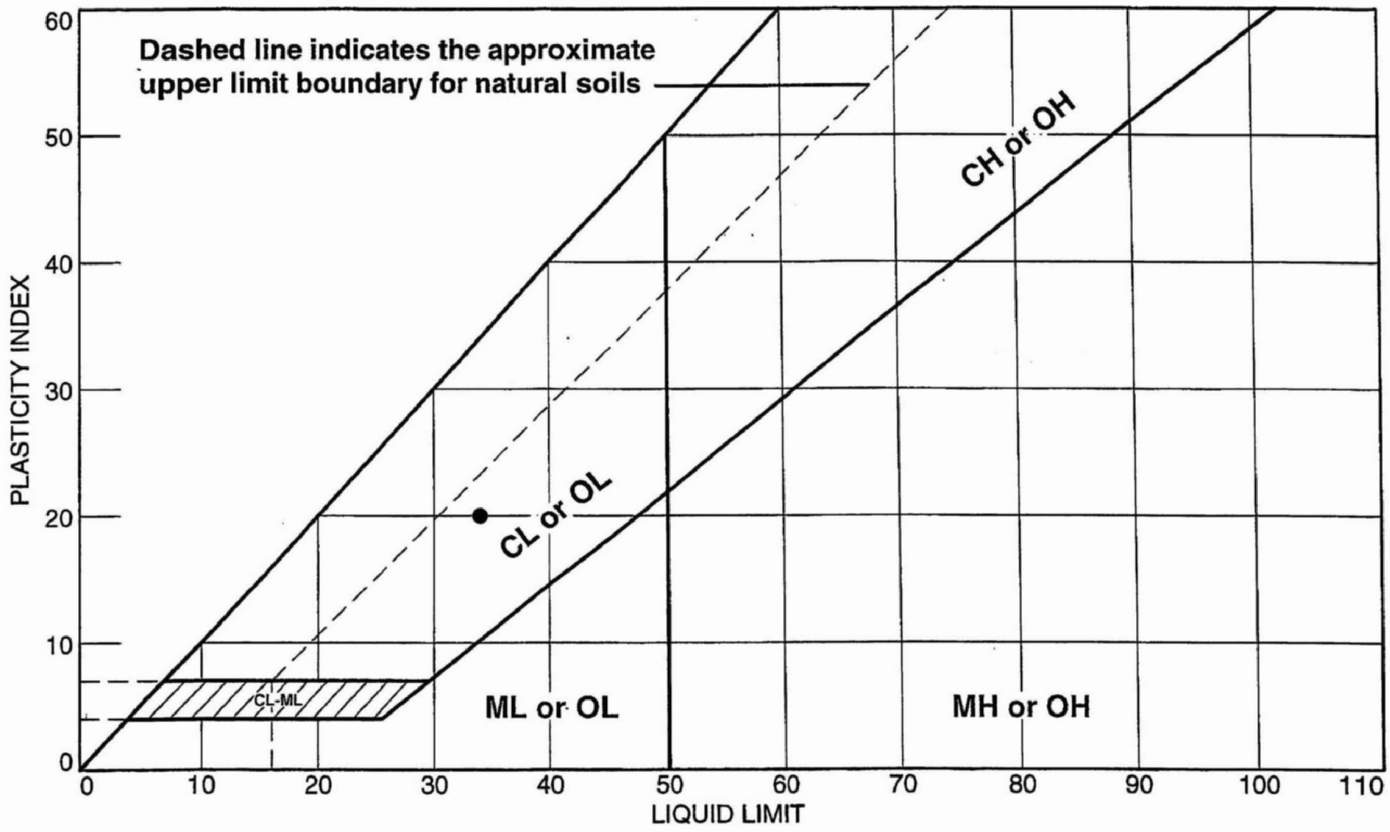
Fractional Components

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	34.2	35.9	22.4	41.7	64.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0075	0.0345	0.1181	0.1330	0.1534	0.1990

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-21	89.5-91	18.4	14	34	20	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

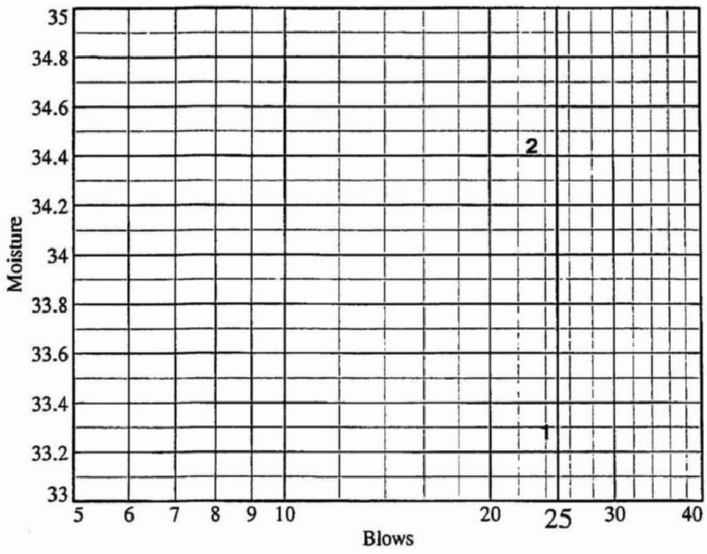
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 89.5-91 **Sample Number:** SS-21
Material Description: Light Gray Sandy Lean CLAY
USCS: CL **AASHTO:** A-6(10)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	24.17	24.05				
Dry+Tare	22.00	21.98				
Tare	15.48	15.97				
# Blows	24	23				
Moisture	33.3	34.4				



Liquid Limit= 34
Plastic Limit= 14
Plasticity Index= 20
Natural Moisture= 18.4
Liquidity Index= 0.2

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	22.49	22.21			
Dry+Tare	21.63	21.41			
Tare	15.50	15.62			
Moisture	14.0	13.8			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
138.54	118.16	7.23	18.4

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: 12/23/07

SAMPLE IDENTIFICATION: B-2151 SS-21

(A) Mass of oven-dried soil, grams:		50.62
(B) Mass of pycnometer filled with water at test temperature (T), grams:		654.91
(C) Mass of pycnometer, water and soil, grams:		686.77
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		23.1
(G) Specific Gravity at observed temperature:	A / [A + (B - C)]	2.698
(F)	***Correction factor:***	0.99931
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.696

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

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

REMARKS: Estimated % Passing # 4 : 100%

Sandy Lean CLAY (CL)

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

THERMOMETER : 5.1.01

PYCNOMETER : P-4

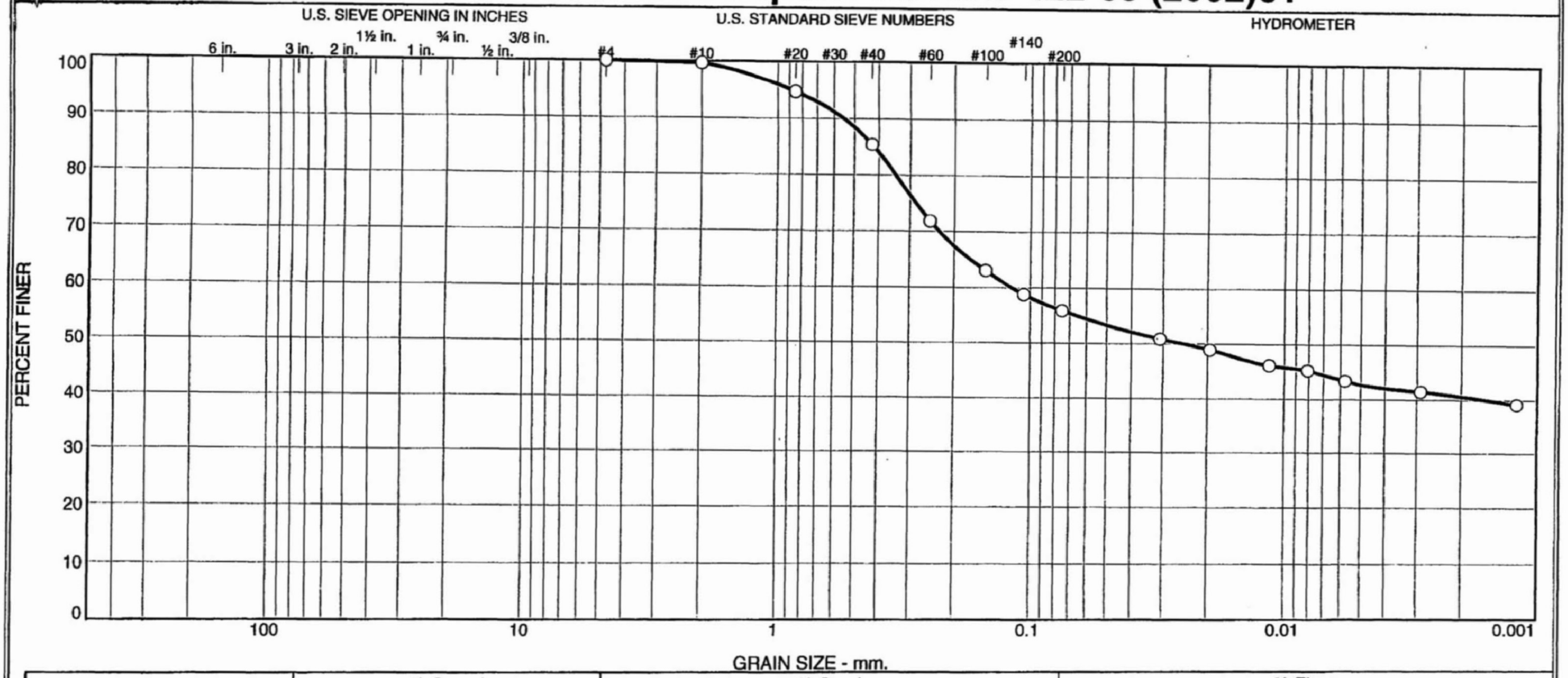
TESTED BY: CS

\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	0.3	14.2	29.5	13.3	42.7

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2151	SS-22	94.5-96'	12-13-07	CL	Light Gray Sandy Lean CLAY (Visual)	ND	ND	ND

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific gravity is assumed
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: 94.5-96' **Sample Number:** SS-22
Material Description: Light Gray Sandy Lean CLAY (Visual)
Date: 12-13-07 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** CL
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific gravity is assumed
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
234.24	0.00	0.00	#4	0.00	100.0
234.24	0.00	0.00	#10	0.72	99.7
52.02	0.00	0.00	#20	2.63	94.7
			#40	7.42	85.5
			#60	14.53	71.8
			#100	19.10	63.1
			#140	21.34	58.8
			#200	22.82	56.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 99.7
Weight of hydrometer sample =52.02
Hygroscopic moisture correction:
Moist weight and tare = 27.75
Dry weight and tare = 27.65
Tare weight = 15.54
Hygroscopic moisture = 0.8%
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
2.00	22.1	31.0	26.6	0.0131	32.0	11.0	0.0308	50.9
5.00	22.1	30.0	25.6	0.0131	31.0	11.2	0.0196	48.9
15.00	22.2	28.5	24.1	0.0131	29.5	11.5	0.0114	46.1
30.00	22.4	28.0	23.7	0.0131	29.0	11.5	0.0081	45.3
60.00	22.4	27.0	22.7	0.0131	28.0	11.7	0.0058	43.4
240.00	22.5	26.0	21.7	0.0130	27.0	11.9	0.0029	41.5
1440.00	21.7	25.0	20.5	0.0132	26.0	12.0	0.0012	39.2

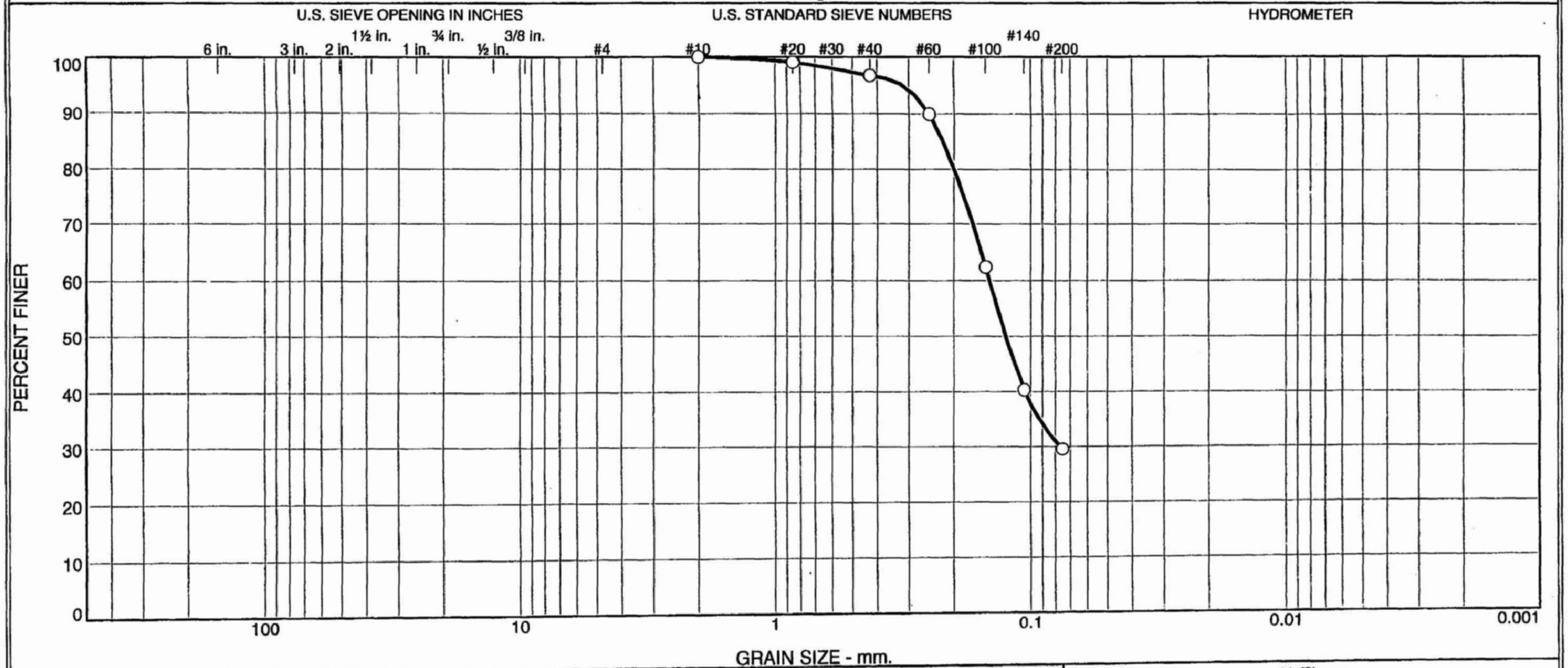
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.3	14.2	29.5	44.0	13.3	42.7	56.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0249	0.1182	0.3417	0.4162	0.5463	0.8873

Fineness Modulus
0.72

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	3.3	67.2	29.5	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2151	SS-23	99.5-101.0'	12-13-07	SC	Pale Yellow Clayey SAND (Visual)	ND	ND	ND

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
Specific Gravity = 2.668 (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: 99.5-101.0' **Sample Number:** SS-23
Material Description: Pale Yellow Clayey SAND (Visual)
Date: 12-13-07 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SC
Testing Remarks: SIEVE ANALYSIS ONLY
Specific Gravity = 2.668 (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
201.36	0.00	0.00	#10	0.00	100.0
92.13	0.00	0.00	#20	0.90	99.0
			#40	3.05	96.7
			#60	9.28	89.9
			#100	34.67	62.4
			#140	54.95	40.4
			#200	64.95	29.5

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	3.3	67.2	70.5			29.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0766	0.1252	0.1449	0.1992	0.2203	0.2506	0.3189

Fineness Modulus
0.46

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: 1/04/08

SAMPLE IDENTIFICATION: B-2151 SS-23

(A) Mass of oven-dried soil, grams:		53.21
(B) Mass of pycnometer filled with water at test temperature (T), grams:		656.61
(C) Mass of pycnometer, water and soil, grams:		689.89
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		23.1
(G) Specific Gravity at observed temperature:	A / [A + (B - C)]	2.670
(F)	***Correction factor:***	0.99931
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.668

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-6

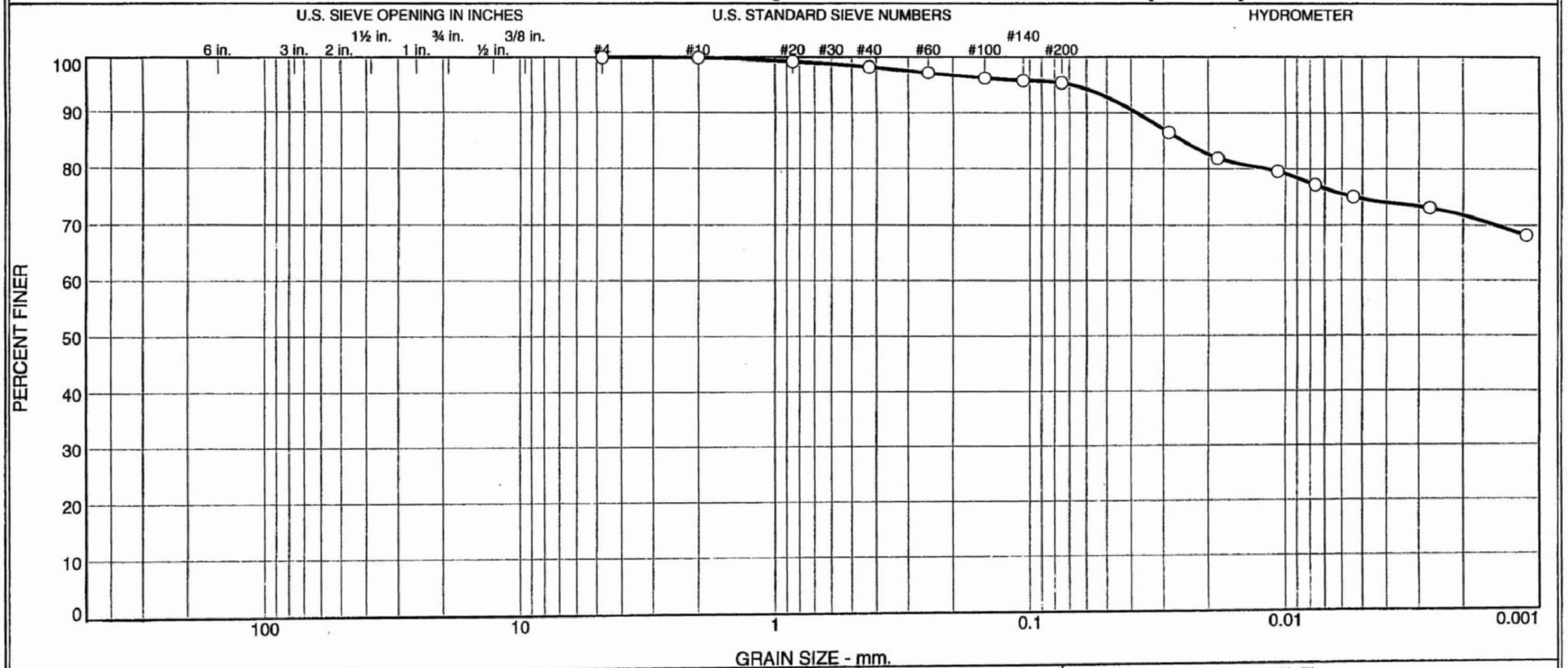
TESTED BY: CS

\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	1.7	3.0	20.6	74.7

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2151	SS-24	109.5-111'	12-13-07	CH	Light Gray Fat CLAY	34.6	82	28

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: 109.5-111' **Sample Number:** SS-24
Material Description: Light Gray Fat CLAY
Date: 12-13-07 **Natural Moisture:** 34.6
Liquid Limit: 82 **Plastic Limit:** 28 **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
188.92	0.00	0.00	#4	0.00	100.0
			#10	0.09	100.0
44.72	0.00	0.00	#20	0.33	99.2
			#40	0.76	98.3
			#60	1.25	97.2
			#100	1.67	96.2
			#140	1.89	95.7
			#200	2.06	95.3

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =44.72
Hygroscopic moisture correction:
Moist weight and tare = 28.69
Dry weight and tare = 27.76
Tare weight = 15.40
Hygroscopic moisture = 7.5%
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	21.5	41.0	36.5	0.0132	42.0	9.4	0.0286	86.6
5.00	21.6	39.0	34.5	0.0132	40.0	9.7	0.0184	81.9
15.00	21.6	38.0	33.5	0.0132	39.0	9.9	0.0107	79.6
30.00	21.6	37.0	32.5	0.0132	38.0	10.1	0.0076	77.2
60.00	22.0	36.0	31.6	0.0131	37.0	10.2	0.0054	75.1
240.00	22.7	35.0	30.8	0.0130	36.0	10.4	0.0027	73.1
1440.00	22.4	33.0	28.7	0.0131	34.0	10.7	0.0011	68.2

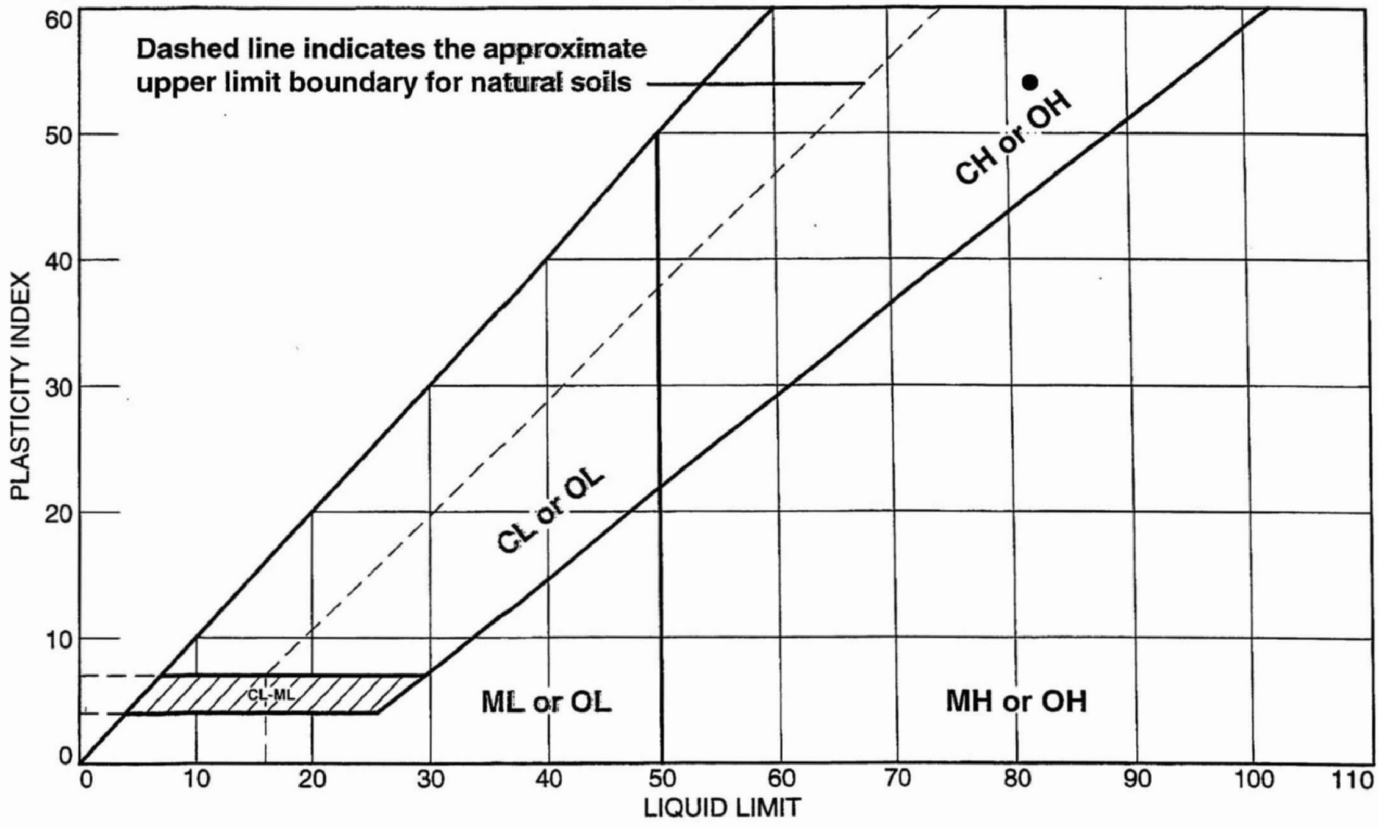
Fractional Components

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	3.0	4.7	20.6	74.7	95.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0117	0.0250	0.0380	0.0684

Fineness Modulus
0.08

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-24	109.5-111'	34.6	28	82	54	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

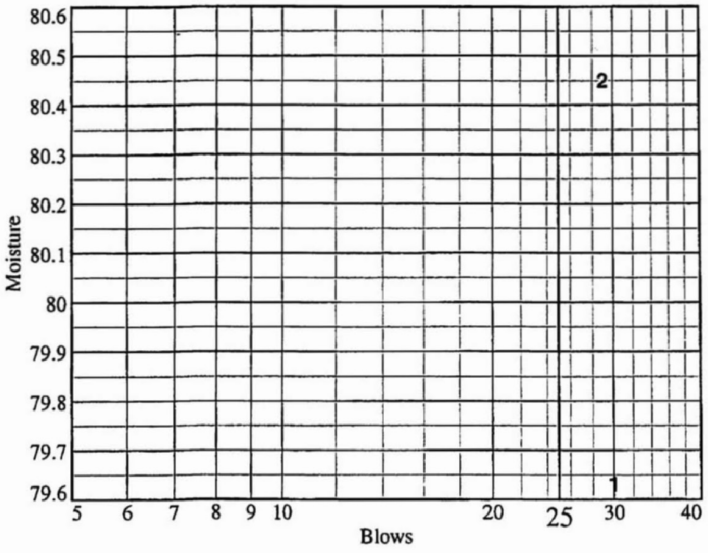
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 109.5-111'
Sample Number: SS-24
Material Description: Light Gray Fat CLAY
USCS: CH
AASHTO: A-7-6(60)
Tested by: CS
Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	28.11	27.65				
Dry+Tare	22.48	22.30				
Tare	15.41	15.65				
# Blows	30	29				
Moisture	79.6	80.5				



Liquid Limit= 82
Plastic Limit= 28
Plasticity Index= 54
Natural Moisture= 34.6
Liquidity Index= 0.1

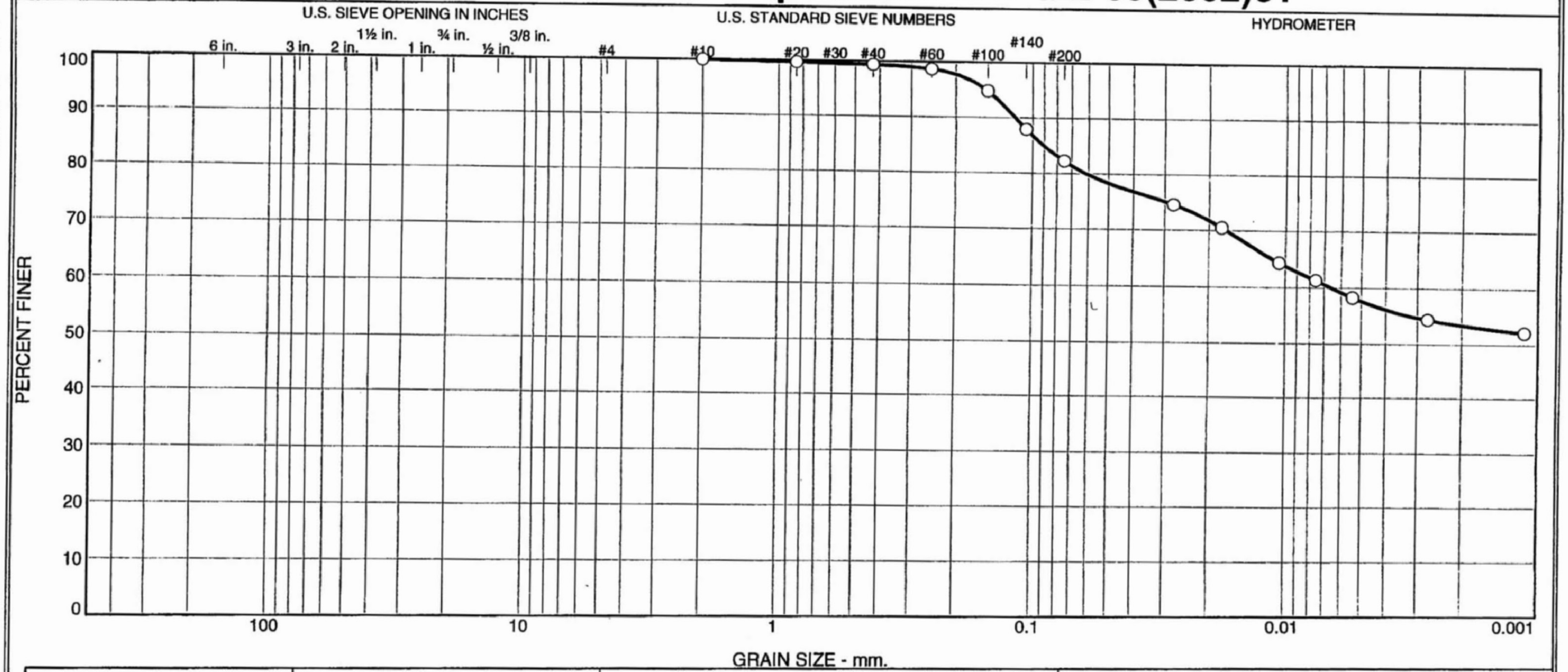
Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	22.15	23.00			
Dry+Tare	20.69	21.36			
Tare	15.50	15.65			
Moisture	28.1	28.7			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
126.48	95.66	6.65	34.6

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	0.6	17.1	24.6	57.7

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2151	SS-25	119.5-121'	12-13-07	CH	Light Gray Fat CLAY with sand	23.2	60	17

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity = 2.764 (ASTM D854-06)
Organic content = 4.8% (ASTM D2794-07)

Tested By: CS Checked By: LBL 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: 119.5-121' **Sample Number:** SS-25
Material Description: Light Gray Fat CLAY with sand
Date: 12-13-07 **Natural Moisture:** 23.2
Liquid Limit: 60 **Plastic Limit:** 17 **USCS Class.:** CH
Testing Remarks: Specific Gravity = 2.764 (ASTM D854-06)
Organic content = 4.8% (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
222.08	0.00	0.00	#10	0.00	100.0
50.32	0.00	0.00	#20	0.17	99.7
			#40	0.32	99.4
			#60	0.68	98.6
			#100	2.63	94.8
			#140	6.02	88.0
			#200	8.92	82.3

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =50.32
Hygroscopic moisture correction:
Moist weight and tare = 28.17
Dry weight and tare = 27.60
Tare weight = 15.48
Hygroscopic moisture = 4.7%
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 = 2.764
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	22.5	41.0	36.7	0.0128	42.0	9.4	0.0278	74.5
5.00	22.5	39.0	34.7	0.0128	40.0	9.7	0.0179	70.5
15.00	22.5	36.0	31.7	0.0128	37.0	10.2	0.0106	64.4
30.00	22.5	34.5	30.2	0.0128	35.5	10.5	0.0076	61.3
60.00	22.5	33.0	28.7	0.0128	34.0	10.7	0.0054	58.3
240.00	22.9	31.0	26.8	0.0127	32.0	11.0	0.0027	54.5
1440.00	22.4	30.0	25.7	0.0128	31.0	11.2	0.0011	52.2

MACTEC, Inc.

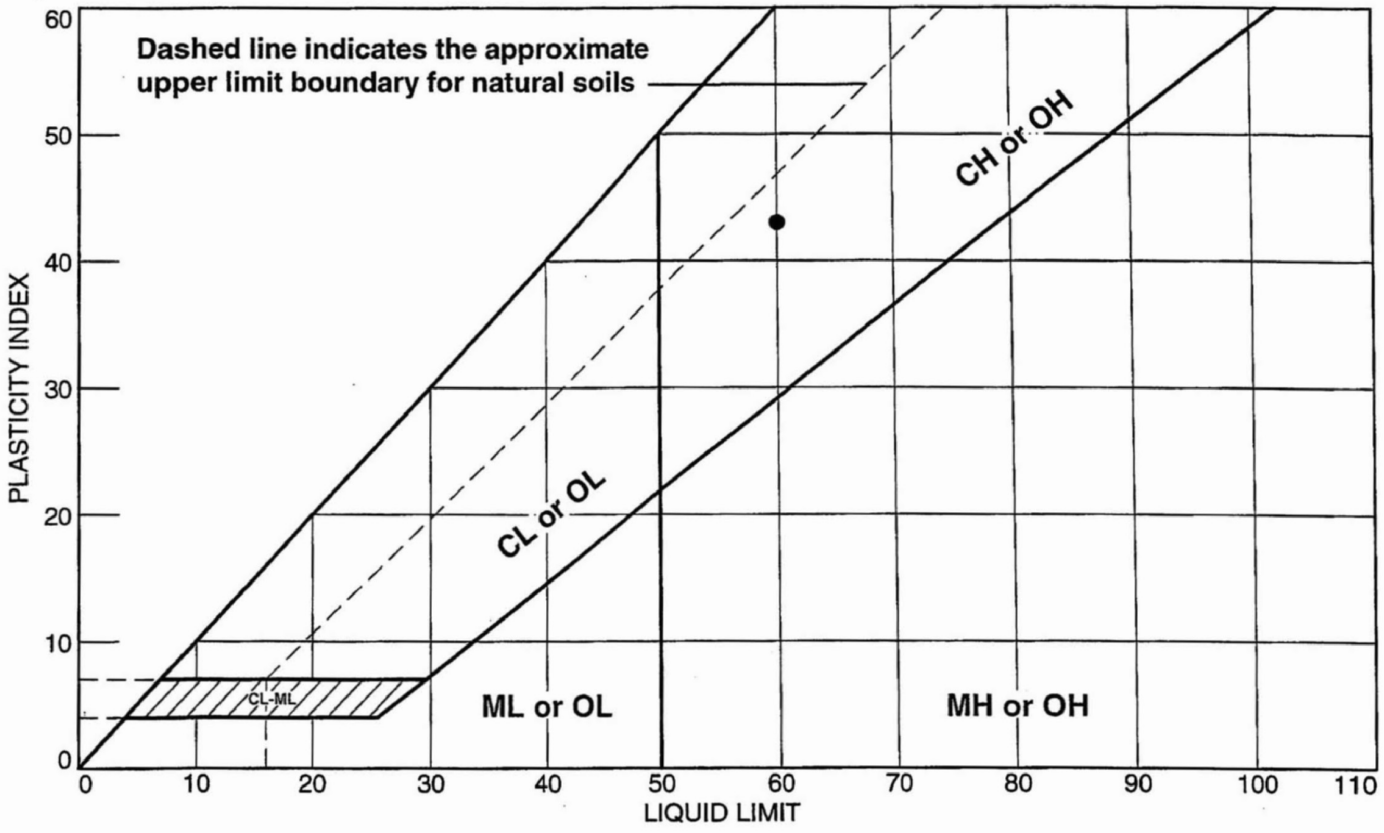
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.6	17.1	17.7	24.6	57.7	82.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
					0.0065	0.0614	0.0899	0.1167	0.1523

Fineness Modulus
0.07

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-25	119.5-121'	23.2	17	60	43	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

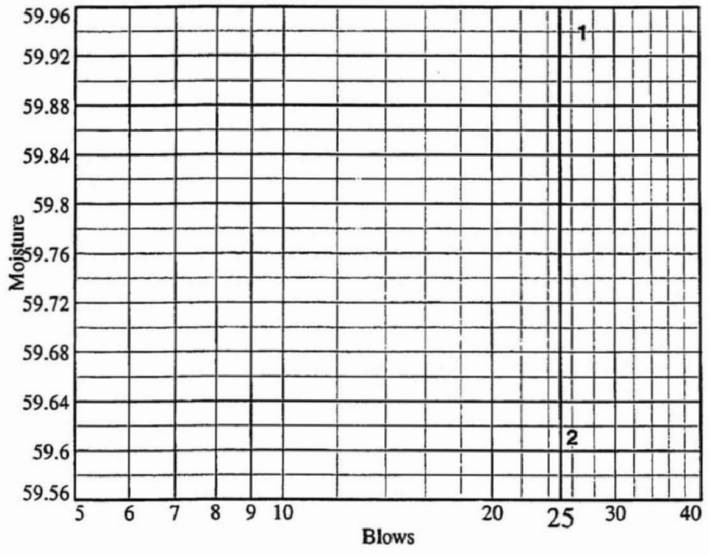
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 119.5-121'
Sample Number: SS-25
Material Description: Light Gray Fat CLAY with sand
USCS: CH
AASHTO: A-7-6(36)
Tested by: CS
Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	26.28	23.75				
Dry+Tare	22.30	20.68				
Tare	15.66	15.53				
# Blows	27	26				
Moisture	59.9	59.6				



Liquid Limit= 60
Plastic Limit= 17
Plasticity Index= 43
Natural Moisture= 23.2
Liquidity Index= 0.1

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	22.56	23.29			
Dry+Tare	21.52	22.18			
Tare	15.58	15.54			
Moisture	17.5	16.7			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
145.13	119.6	9.34	23.2

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: 1/07/08

SAMPLE IDENTIFICATION: B-2151 SS-25

(A) Mass of oven-dried soil, grams:	50.22
(B) Mass of pycnometer filled with water at test temperature (T), grams:	622.00
(C) Mass of pycnometer, water and soil, grams:	687.06
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	22.3
(G) Specific Gravity at observed temperature: A / [A + (B - C)]	2.765
(F) ***Correction factor:***	0.99950
(G x F) **SPECIFIC GRAVITY @ 20°C:**	2.764

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-4

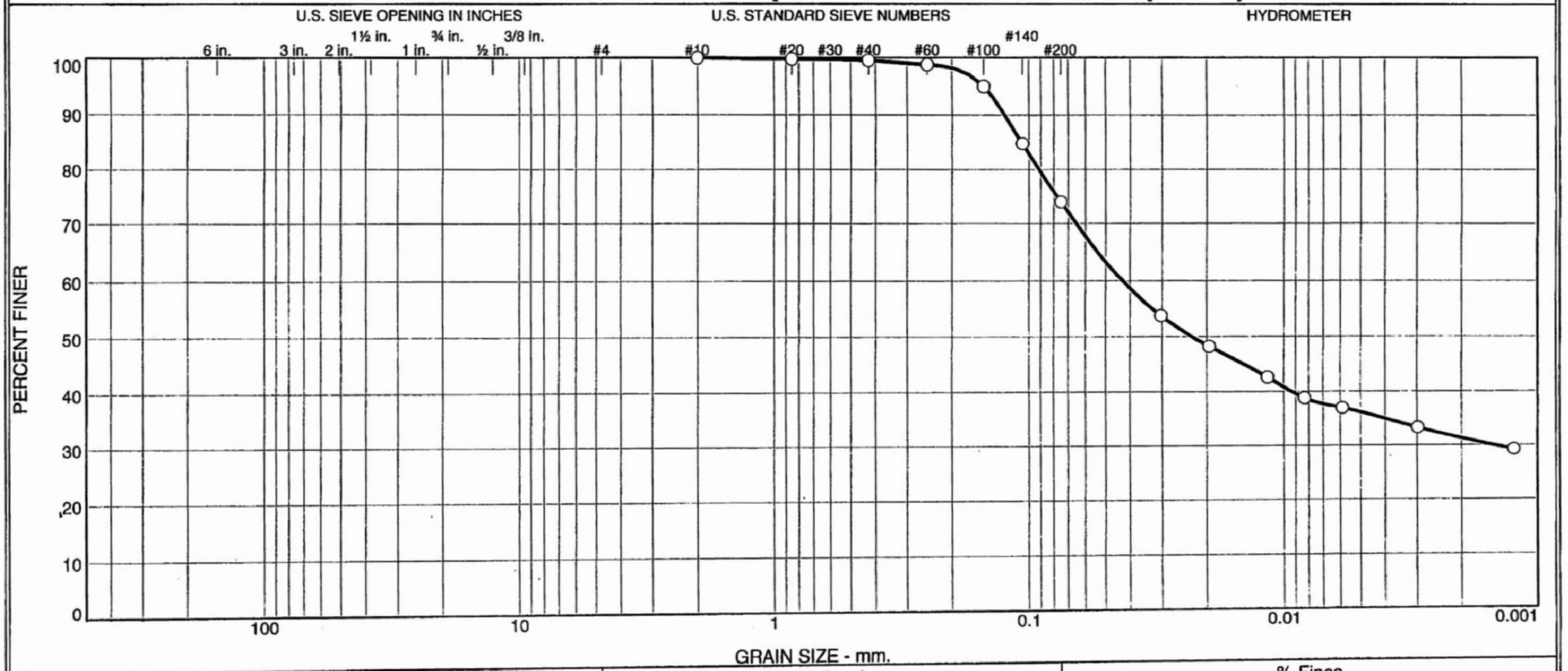
TESTED BY: CS

\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	0.5	25.6	37.7	36.2

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2151	SS-26	129.5-131	12-13-07	CL	Light Gray Lean CLAY with sand	22.7	45	16

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Based on visual observation of the sample complete classification tests were performed. 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: 129.5-131 **Sample Number:** SS-26
Material Description: Light Gray Lean CLAY with sand
Date: 12-13-07 **Natural Moisture:** 22.7
Liquid Limit: 45 **Plastic Limit:** 16 **USCS Class.:** CL
Testing Remarks: Based on visual observation of the sample complete classification tests were performed. 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
180.69	0.00	0.00	#10	0.00	100.0
52.84	0.00	0.00	#20	0.12	99.8
			#40	0.25	99.5
			#60	0.64	98.8
			#100	2.67	94.9
			#140	8.02	84.8
			#200	13.77	73.9

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =52.84
Hygroscopic moisture correction:
Moist weight and tare = 28.92
Dry weight and tare = 28.87
Tare weight = 15.68
Hygroscopic moisture = 0.4%
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	22.2	33.0	28.6	0.0131	34.0	10.7	0.0303	53.8
5.00	22.3	30.0	25.7	0.0131	31.0	11.2	0.0196	48.2
15.00	22.3	27.0	22.7	0.0131	28.0	11.7	0.0115	42.6
30.00	22.3	25.0	20.7	0.0131	26.0	12.0	0.0083	38.8
60.00	22.4	24.0	19.7	0.0131	25.0	12.2	0.0059	37.0
240.00	22.5	22.0	17.7	0.0130	23.0	12.5	0.0030	33.3
1440.00	21.9	20.0	15.6	0.0131	21.0	12.9	0.0012	29.2

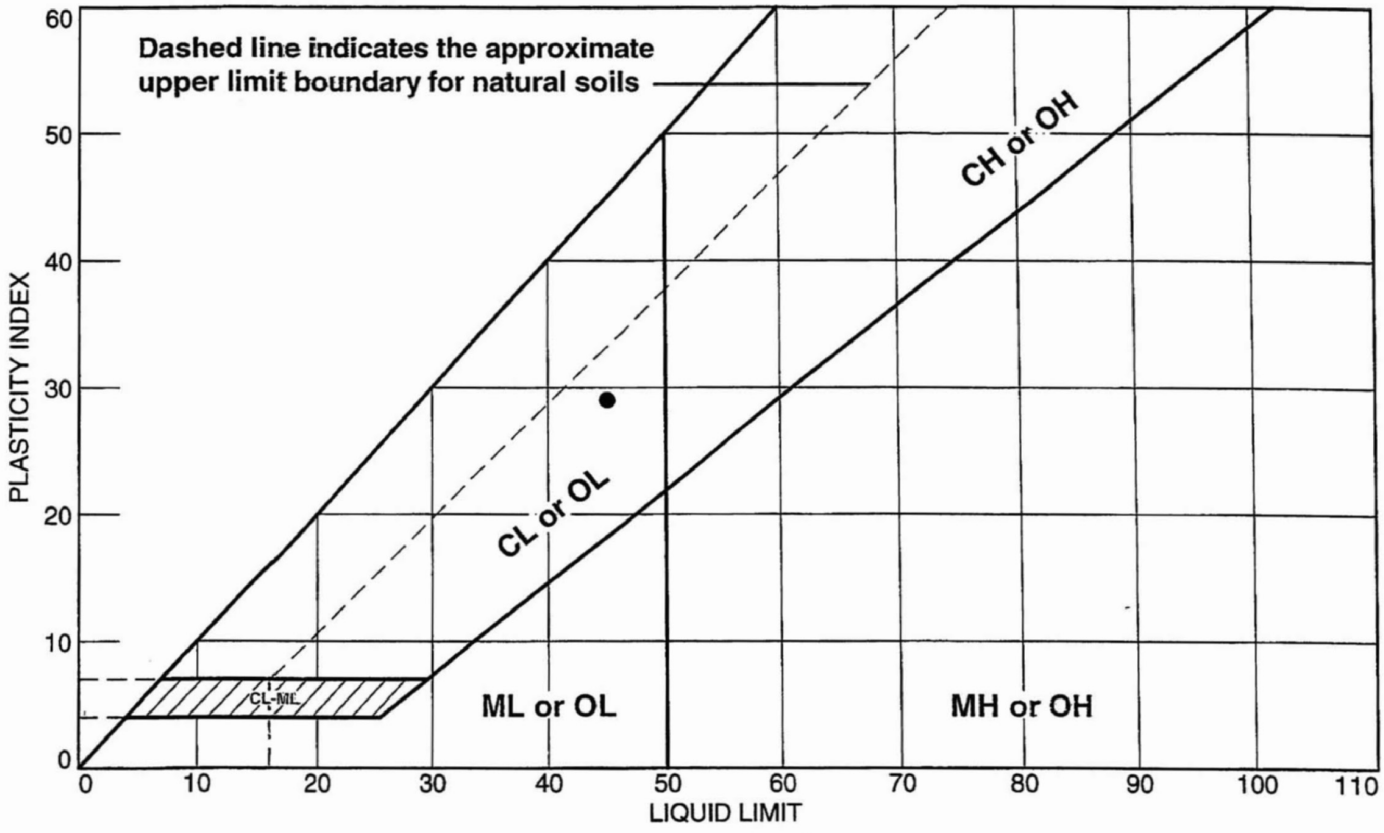
Fractional Components

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	25.6	26.1	37.7	36.2	73.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0015	0.0229	0.0428	0.0914	0.1066	0.1243	0.1504

Fineness Modulus
0.06

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-26	129.5-131	22.7	16	45	29	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

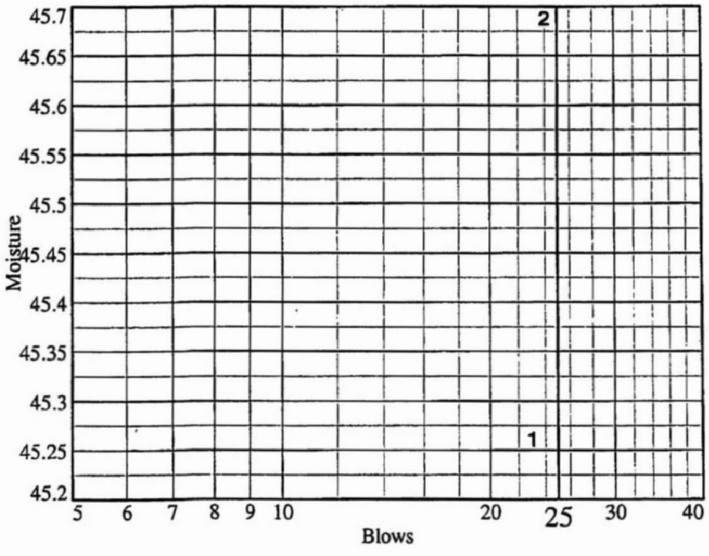
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2151
Depth: 129.5-131 **Sample Number:** SS-26
Material Description: Light Gray Lean CLAY with sand
USCS: CL **AASHTO:** A-7-6(20)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	29.67	31.11				
Dry+Tare	26.90	27.56				
Tare	20.78	19.79				
# Blows	23	24				
Moisture	45.3	45.7				



Liquid Limit= 45
Plastic Limit= 16
Plasticity Index= 29
Natural Moisture= 22.7
Liquidity Index= 0.2

Plastic Limit Data

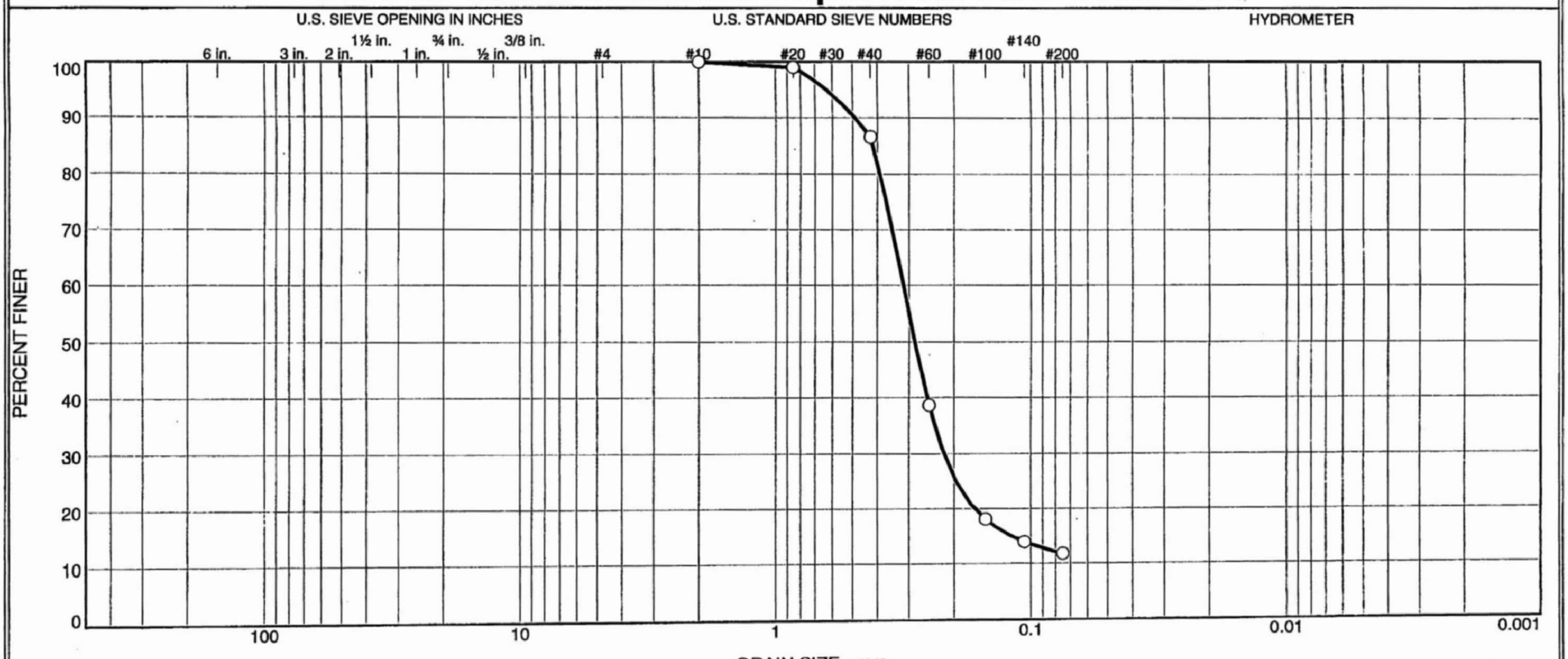
Run No.	1	2	3	4	
Wet+Tare	28.80	28.51			
Dry+Tare	27.03	26.74			
Tare	15.75	15.50			
Moisture	15.7	15.7			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
98.14	81.26	6.75	22.7

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	13.4	74.9	11.7	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2151	SS-27	139.6-141.1'	12-14-07	SP-SC	Light Gray Poorly Graded SAND with clay (Visual)	ND	ND	ND

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
Specific Gravity = 2.753 (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: 139.6-141.1' **Sample Number:** SS-27
Material Description: Light Gray Poorly Graded SAND with clay (Visual)
Date: 12-14-07 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SP-SC
Testing Remarks: SIEVE ANALYSIS ONLY
Specific Gravity = 2.753 (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
126.01	0.00	0.00	#10	0.00	100.0
102.50	0.00	0.00	#20	1.07	99.0
			#40	13.71	86.6
			#60	62.85	38.7
			#100	83.97	18.1
			#140	88.26	13.9
			#200	90.47	11.7

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	13.4	74.9	88.3			11.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1197	0.1653	0.2184	0.2849	0.3156	0.3897	0.4153	0.4901	0.6342

Fineness Modulus
1.34

MACTEC, Inc.