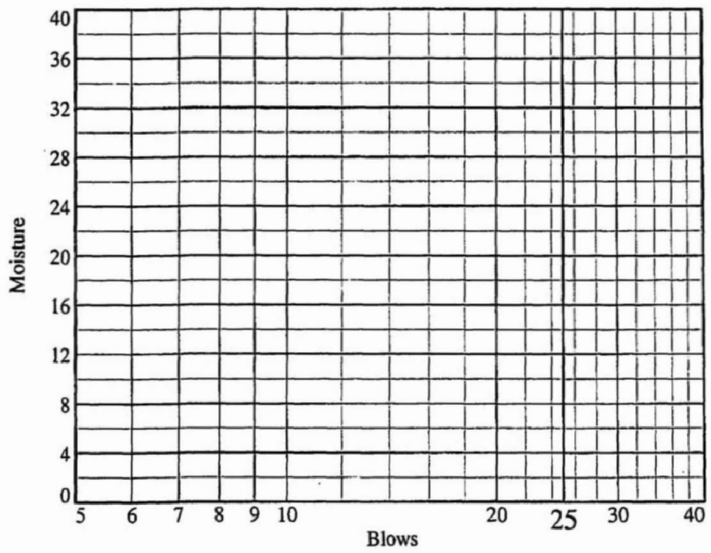
LIQUID AND PLASTIC LIMIT TEST DATA

1/25/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2160
Depth: 193.5-195 **Sample Number:** SS-33
Material Description: Pale Brown Silty SAND
USCS: SM **AASHTO:** A-2-4(0)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare						
Dry+Tare						
Tare						
# Blows						
Moisture						



Liquid Limit= NV
Plastic Limit= NP
Plasticity Index= NP
Natural Moisture= 19.1

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare					
Dry+Tare					
Tare					
Moisture					

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
86.80	74.36	9.30	19.1

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: 1/13/08

SAMPLE IDENTIFICATION: B-2160 SS-33

(A) Mass of oven-dried soil, grams:		52.26
(B) Mass of pycnometer filled with water at test temperature (T), grams:		654.90
(C) Mass of pycnometer, water and soil, grams:		687.56
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		22.4
(G) Specific Gravity at observed temperature:	A / [B - (C - A)]	2.666
(F)	***Correction factor:***	0.99947
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.665

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

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

REMARKS: Estimated % Passing # 4 : 100%
Silty SAND (SM)

EQUIPMENT USED
SCALES : 3.1.19
OVEN : 5.1.16
THERMOMETER : 5.1.01
PYCNOMETER : P-5

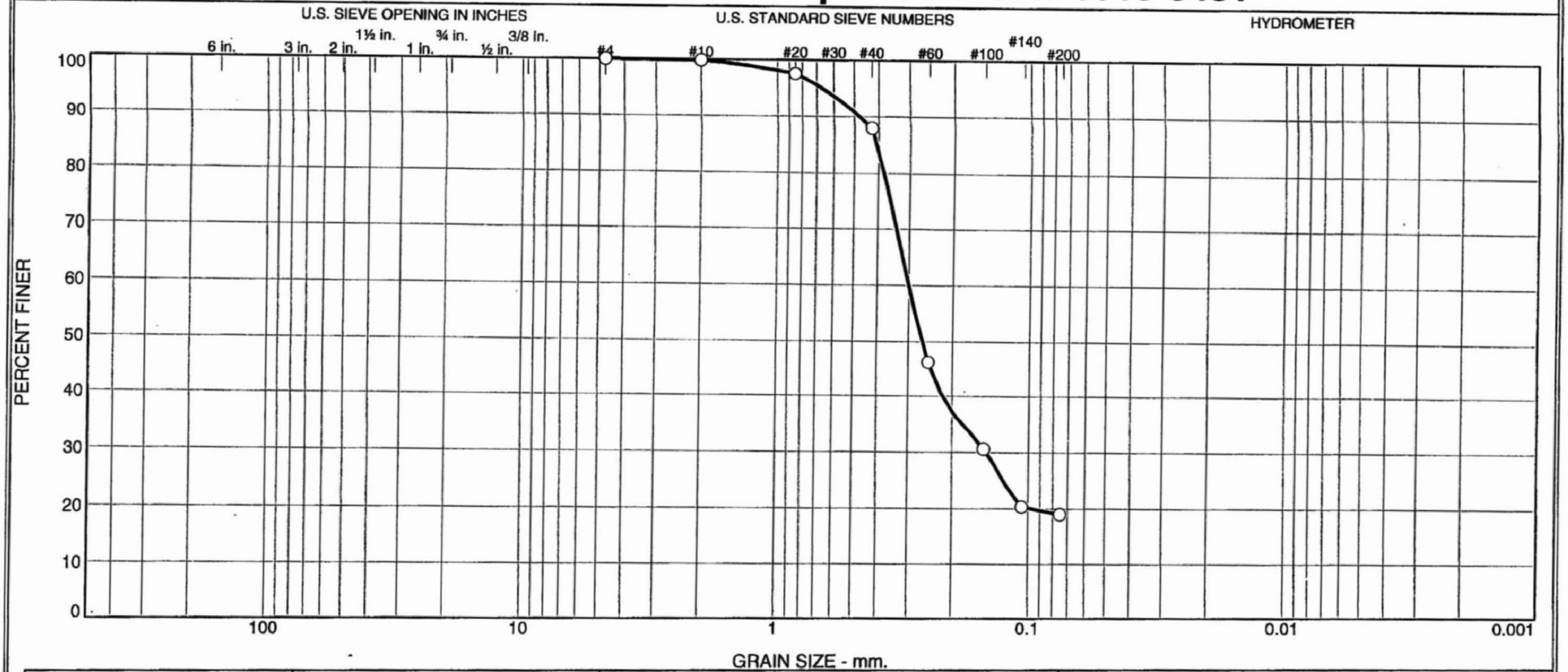
TESTED BY: CS

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

REVIEWED BY: Brian Johnson

PSC 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	0.0	0.1	11.8	69.1	19.0	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2160	SS-34	198.5-200	11-12-08	SC	Pale Brown Clayey SAND (Visual)	21.2		

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY.
ND = Not determined
Specific gravity = 2.657 (ASTM D 2794-07)

Tested By: CS **Checked By:** LBJ DSC 3-13-08

GRAIN SIZE DISTRIBUTION TEST DATA

3/12/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2160
Depth: 198.5-200 **Sample Number:** SS-34
Material Description: Pale Brown Clayey SAND (Visual)
Date: 11-12-08 **Natural Moisture:** 21.2
USCS Class.: SC
Testing Remarks: SIEVE ANALYSIS ONLY.
ND = Not determined
Specific gravity = 2.657 (ASTM D 2794-07)
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
170.85	0.00	0.00	#4	0.00	100.0
			#10	0.25	99.9
97.59	0.00	0.00	#20	2.27	97.5
			#40	11.53	88.1
			#60	52.42	46.2
			#100	67.65	30.6
			#140	77.67	20.4
			#200	79.02	19.0

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	11.8	69.1	81.0			19.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0963	0.1466	0.2649	0.3004	0.3790	0.4054	0.4740	0.6676

Fineness Modulus
1.17

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: 1/14/08

SAMPLE IDENTIFICATION: B-2160 SS-34

(A) Mass of oven-dried soil, grams:		50.40
(B) Mass of pycnometer filled with water at test temperature (T), grams:		654.92
(C) Mass of pycnometer, water and soil, grams:		686.36
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		22.2
(G) Specific Gravity at observed temperature:	A / [B- (C - A)]	2.658
(F)	***Correction factor:***	0.99952
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.657

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

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

REMARKS: Estimated % Passing # 4 : 100%

Clayey SAND (SC) - visual

EQUIPMENT USED

SCALES : 3.1.19

OVEN : 5.1.16

THERMOMETER : 5.1.01

PYCNOMETER : P-5

TESTED BY: CS

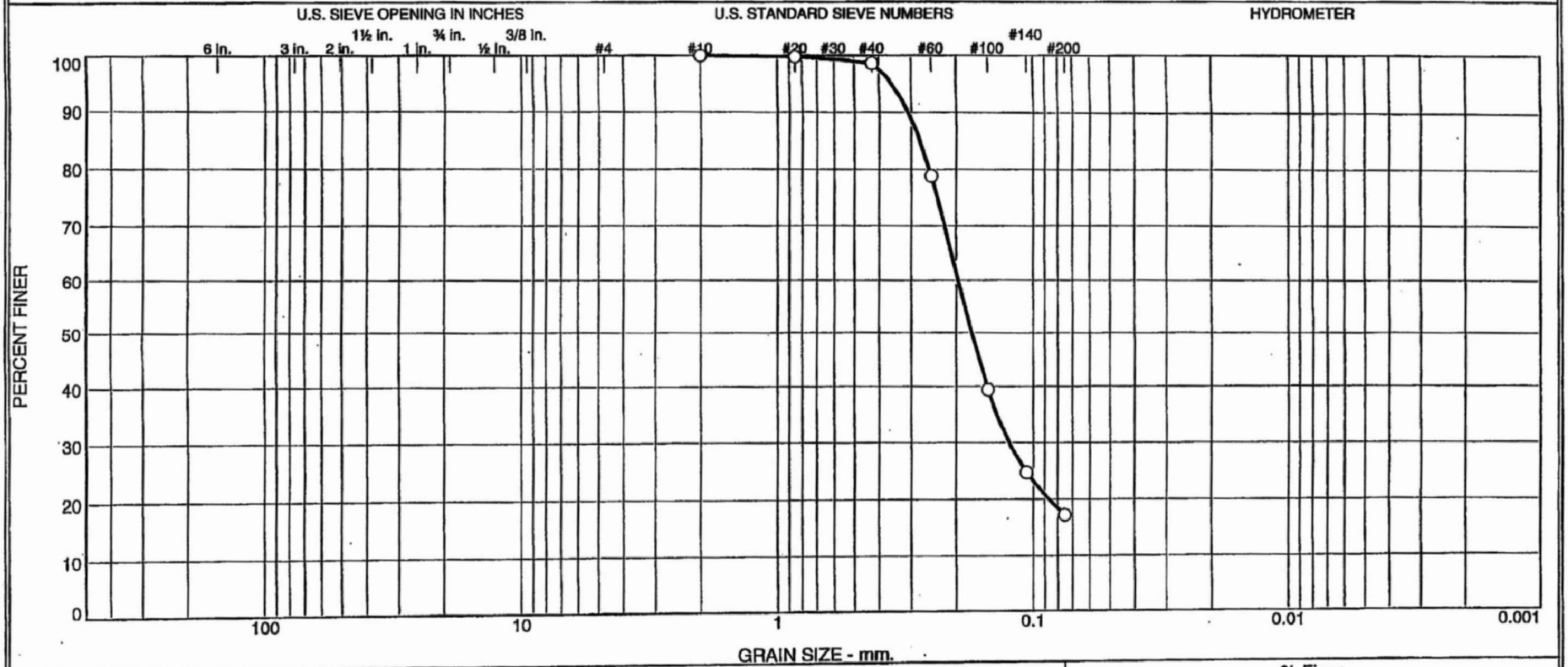
\Test Reports\Soils\SPECIFIC GRAVITY(ref).xls

REVIEWED BY: **Brian Johnson**

DSC 1-25-08

Boring B-2169

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	0.0	1.4	81.4	17.2	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring B-2169	SS-33	198.5-200.5'	12-14-07	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

O SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 3-13-08

GRAIN SIZE DISTRIBUTION TEST DATA

3/12/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 198.5-200.5' **Sample Number:** SS-33
Material Description: Pale Yellow Clayey SAND (Visual)
Date: 12-14-07 **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
271.15	0.00	0.00	#10	0.00	100.0
102.04	0.00	0.00	#20	0.23	99.8
			#40	1.43	98.6
			#60	21.59	78.8
			#100	61.84	39.4
			#140	76.82	24.7
			#200	84.45	17.2

Fractional Components

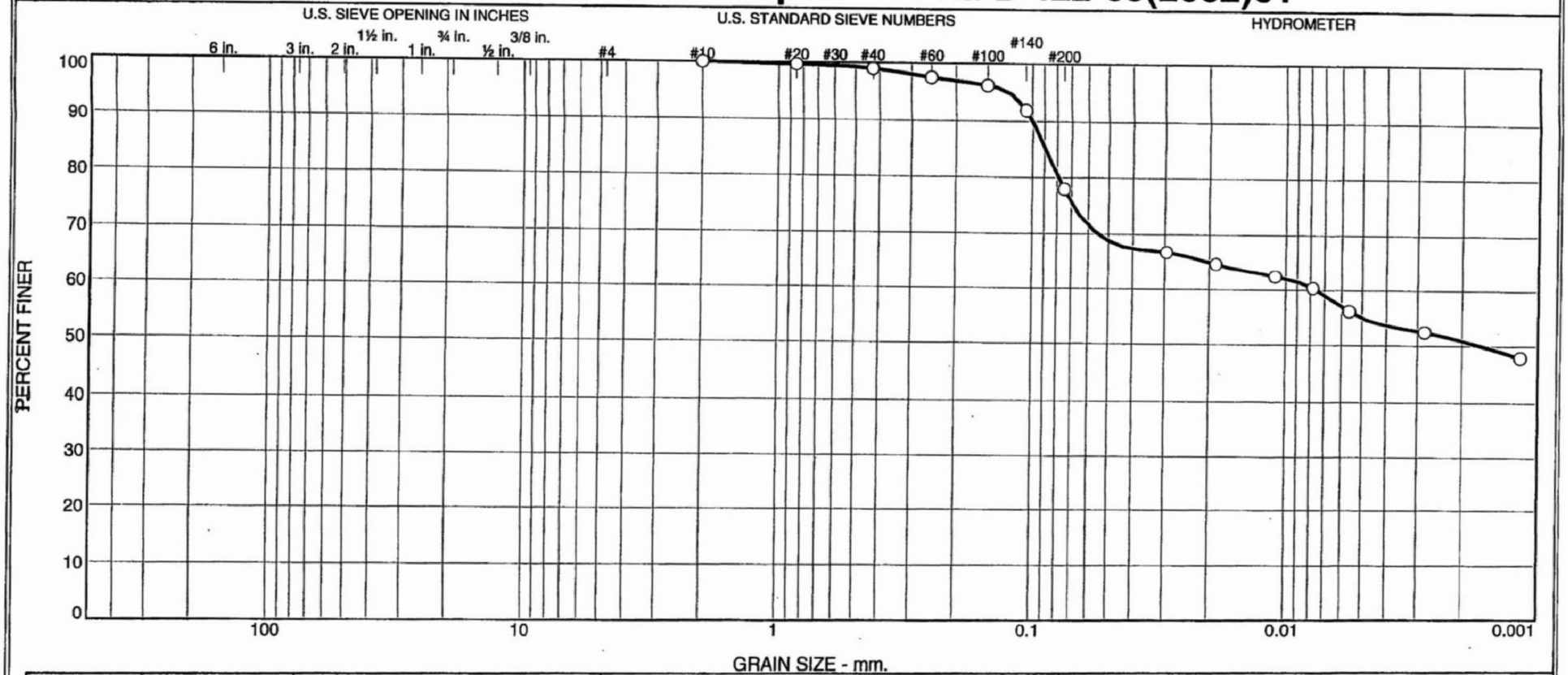
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	1.4	81.4	82.8			17.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0866	0.1245	0.1738	0.1963	0.2545	0.2770	0.3078	0.3565

Fineness Modulus
0.73

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	1.1	21.0	22.9	55.0

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2169	SS-35	213.5-215'	12-15-07	CH	Pale Yellow Fat CLAY with Sand	24.3	54	26

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

MACTEC, Inc.
Raleigh, North Carolina

○ Specific Gravity is assumed
Organic content = 1.6% (ASTM D-2974-07)

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-2169
Depth: 213.5-215' **Sample Number:** SS-35
Material Description: Pale Yellow Fat CLAY with Sand
Date: 12-15-07 **Natural Moisture:** 24.3
Liquid Limit: 54 **Plastic Limit:** 26 **USCS Class.:** CH
Testing Remarks: Specific Gravity is assumed
Organic content = 1.6% (ASTM D-2974-07)
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
215.05	0.00	0.00	#10	0.00	100.0
48.71	0.00	0.00	#20	0.19	99.6
			#40	0.52	98.9
			#60	1.24	97.5
			#100	1.89	96.1
			#140	3.96	91.9
			#200	10.75	77.9

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =48.71
Hygroscopic moisture correction:
Moist weight and tare = 27.34
Dry weight and tare = 26.90
Tare weight = 15.48
Hygroscopic moisture = 3.9%
Table of composite correction values:

Temp., deg. C:	12.8	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	22.5	36.0	31.7	0.0130	37.0	10.2	0.0295	66.8
5.00	22.5	35.0	30.7	0.0130	36.0	10.4	0.0188	64.7
15.00	22.3	34.0	29.6	0.0131	35.0	10.6	0.0110	62.5
30.00	22.4	33.0	28.6	0.0131	34.0	10.7	0.0078	60.4
60.00	22.4	31.0	26.6	0.0131	32.0	11.0	0.0056	56.2
240.00	23.1	29.0	24.8	0.0129	30.0	11.4	0.0028	52.4
1440.00	22.7	27.0	22.7	0.0130	28.0	11.7	0.0012	47.9

MACTEC, Inc.

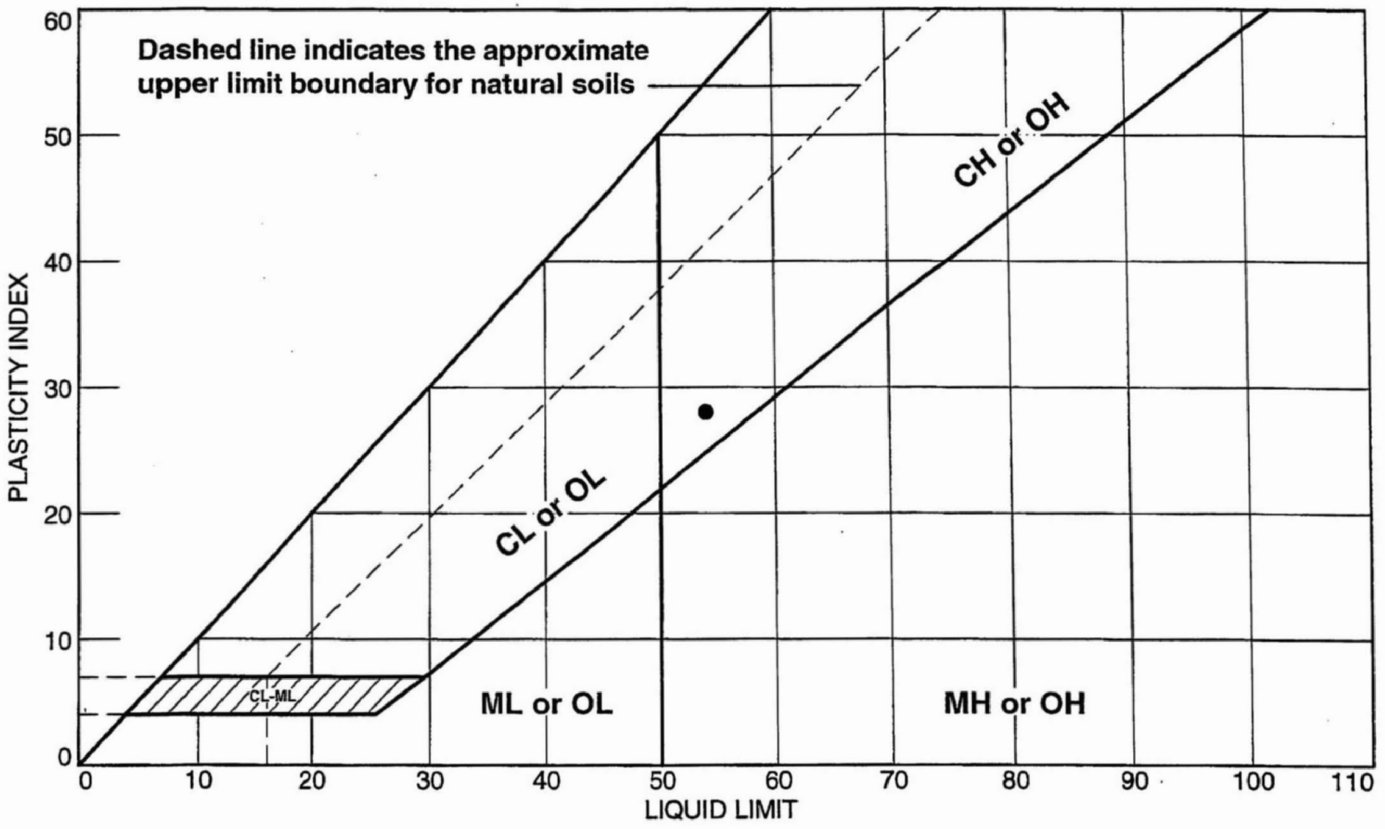
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	1.1	21.0	22.1	22.9	55.0	77.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0017	0.0075	0.0790	0.0886	0.1001	0.1247

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-2169	SS-35	213.5-215'	24.3	26	54	28	CH

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

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

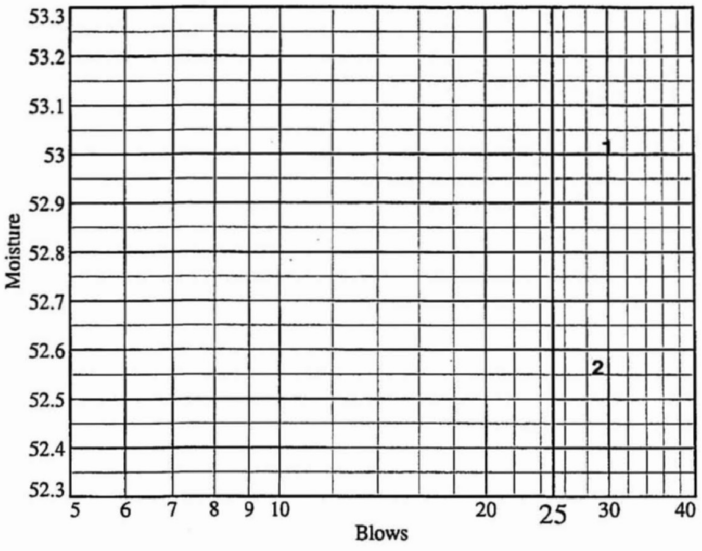
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 213.5-215'
Sample Number: SS-35
Material Description: Pale Yellow Fat CLAY with Sand
USCS: CH
AASHTO: A-7-6(23)
Tested by: CS
Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	36.64	36.89				
Dry+Tare	31.10	31.46				
Tare	20.65	21.13				
# Blows	30	29				
Moisture	53.0	52.6				



Liquid Limit= 54
Plastic Limit= 26
Plasticity Index= 28
Natural Moisture= 24.3
Liquidity Index= -0.1

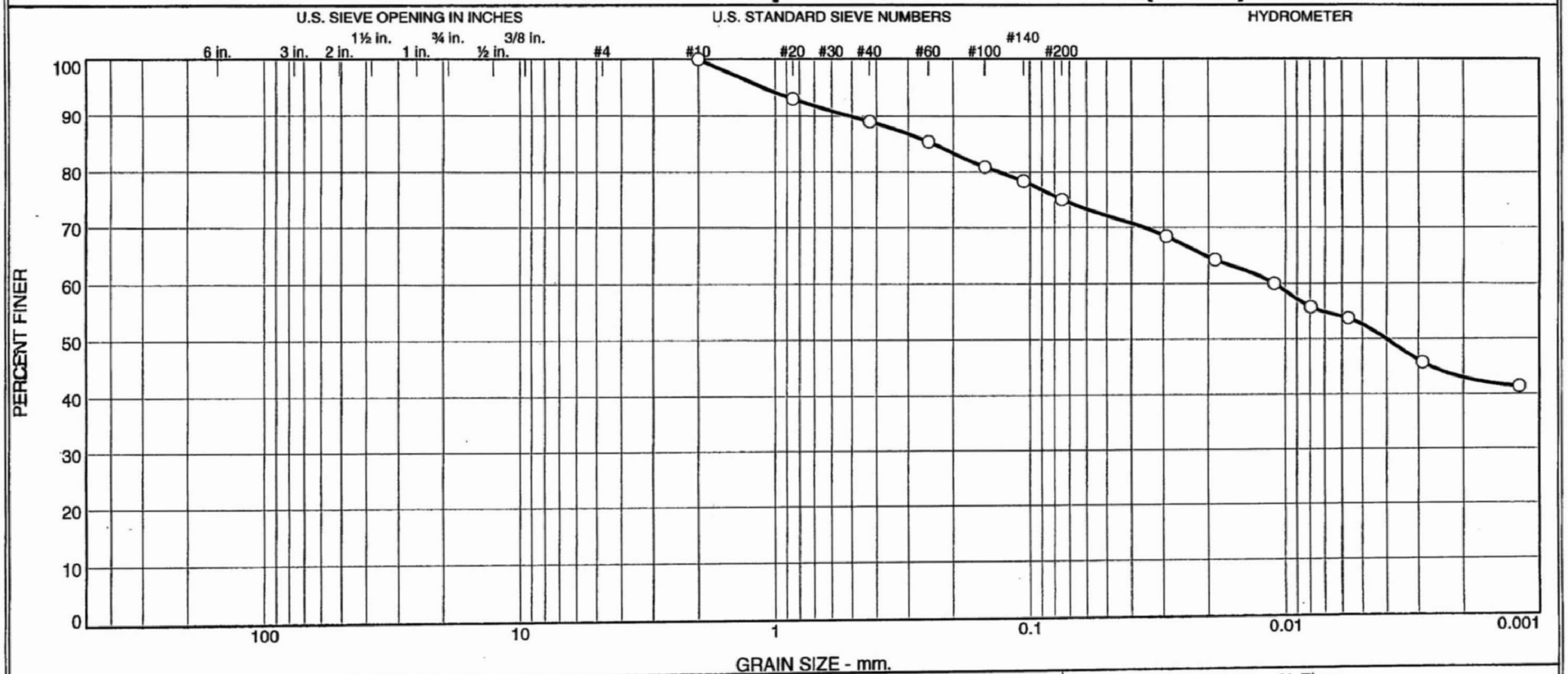
Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	22.23	22.90			
Dry+Tare	19.98	20.49			
Tare	11.14	11.20			
Moisture	25.5	25.9			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
96.70	79.09	6.60	24.3

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	11.0	13.9	22.4	52.7

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2169	SS-36	218.5-220'	12-15-07	CH	Pale Yellow Fat CLAY with Sand	26.7	52	16

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure N/A

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity = 2.694 (ASTM D-854-06)

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-2169
Depth: 218.5-220' **Sample Number:** SS-36
Material Description: Pale Yellow Fat CLAY with Sand
Date: 12-15-07 **Natural Moisture:** 26.7
Liquid Limit: 52 **Plastic Limit:** 16 **USCS Class.:** CH
Testing Remarks: Specific Gravity = 2.694 (ASTM D-854-06)
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
216.18	0.00	0.00	#10	0.00	100.0
48.95	0.00	0.00	#20	3.40	93.1
			#40	5.37	89.0
			#60	7.11	85.5
			#100	9.33	80.9
			#140	10.55	78.4
			#200	12.19	75.1

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =48.95
Hygroscopic moisture correction:
Moist weight and tare = 28.31
Dry weight and tare = 27.86
Tare weight = 15.54
Hygroscopic moisture = 3.7%
Table of composite correction values:

Temp., deg. C:	12.8	27.3
Comp. corr.:	-7.0	-3.0

Meniscus correction only = 1.0
Specific gravity of solids = 2.694
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	37.0	32.6	0.0131	38.0	10.1	0.0293	68.5
5.00	22.4	35.0	30.6	0.0131	36.0	10.4	0.0189	64.3
15.00	22.4	33.0	28.6	0.0131	34.0	10.7	0.0111	60.1
30.00	22.3	31.0	26.6	0.0131	32.0	11.0	0.0079	55.8
60.00	22.4	30.0	25.6	0.0131	31.0	11.2	0.0057	53.8
240.00	23.0	26.0	21.8	0.0130	27.0	11.9	0.0029	45.7
1440.00	22.7	24.0	19.7	0.0130	25.0	12.2	0.0012	41.4

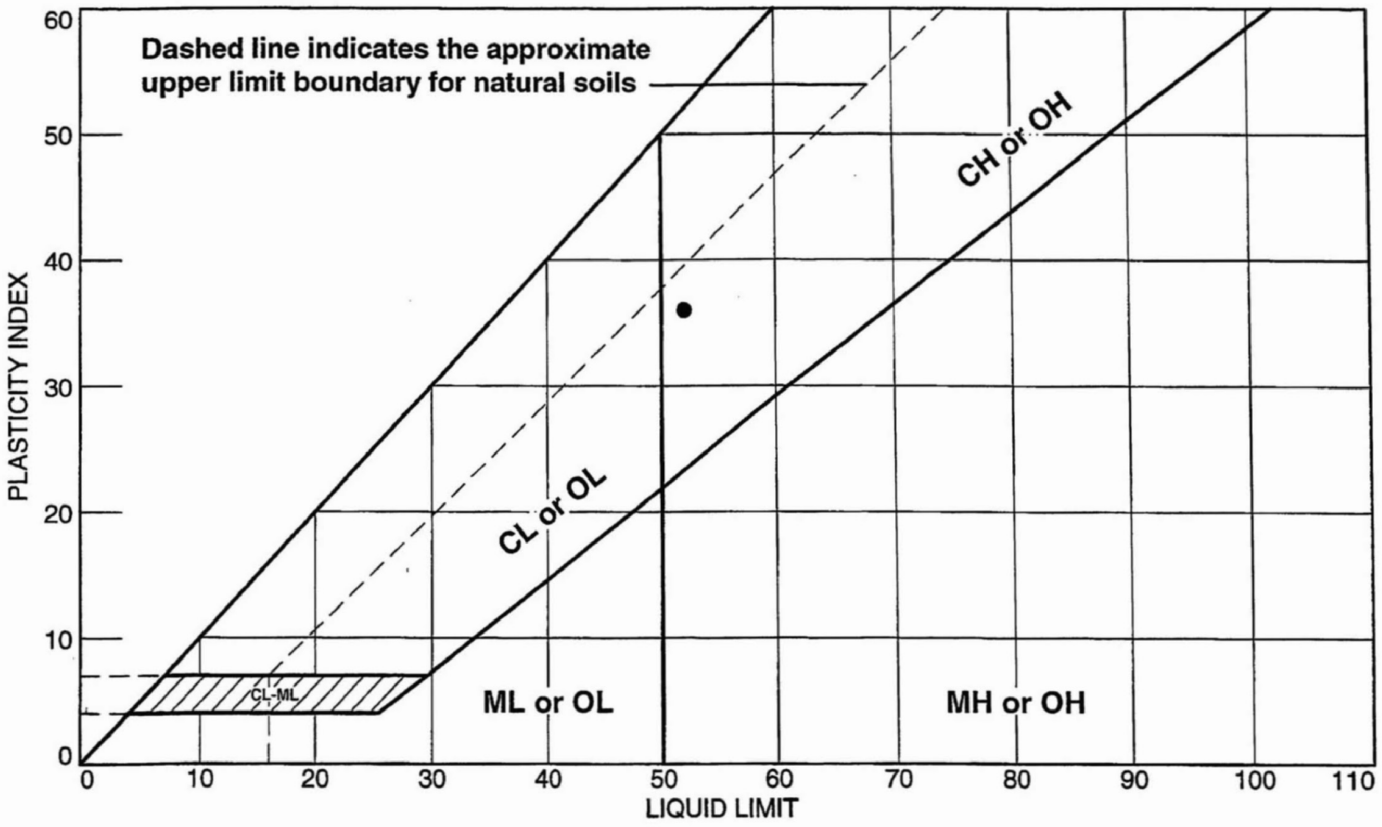
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	11.0	13.9	24.9	22.4	52.7	75.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0040	0.0110	0.1312	0.2366	0.5065	1.1091

Fineness Modulus
0.46

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-2169	SS-36	218.5-220'	26.7	16	52	36	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

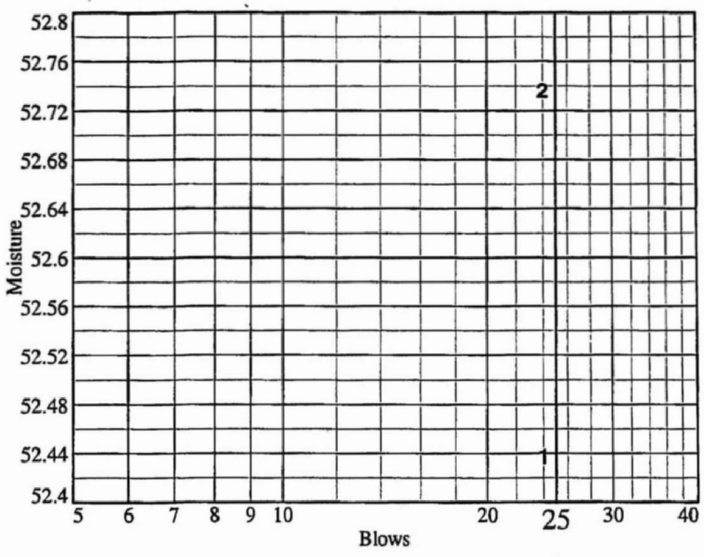
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 218.5-220'
Sample Number: SS-36
Material Description: Pale Yellow Fat CLAY with Sand
USCS: CH
AASHTO: A-7-6(26)
Tested by: CS
Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	30.95	30.01				
Dry+Tare	25.68	25.00				
Tare	15.63	15.50				
# Blows	24	24				
Moisture	52.4	52.7				



Liquid Limit= 52
Plastic Limit= 16
Plasticity Index= 36
Natural Moisture= 26.7
Liquidity Index= 0.3

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	18.90	24.90			
Dry+Tare	17.84	23.59			
Tare	11.20	15.50			
Moisture	16.0	16.2			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
118.60	95.58	9.50	26.7

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: 1/13/08

SAMPLE IDENTIFICATION: B-2169 SS-36

(A) Mass of oven-dried soil, grams:		50.87
(B) Mass of pycnometer filled with water at test temperature (T), grams:		656.62
(C) Mass of pycnometer, water and soil, grams:		688.62
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		23.0
(G) Specific Gravity at observed temperature:	A / [B - (C - A)]	2.696
(F)	***Correction factor:***	0.99933
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.694

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

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

REMARKS: Estimated % Passing # 4 : 100%

Fat CLAY with sand (CH)

EQUIPMENT USED

SCALES : 3.1.19

OVEN : 5.1.16

THERMOMETER : 5.1.01

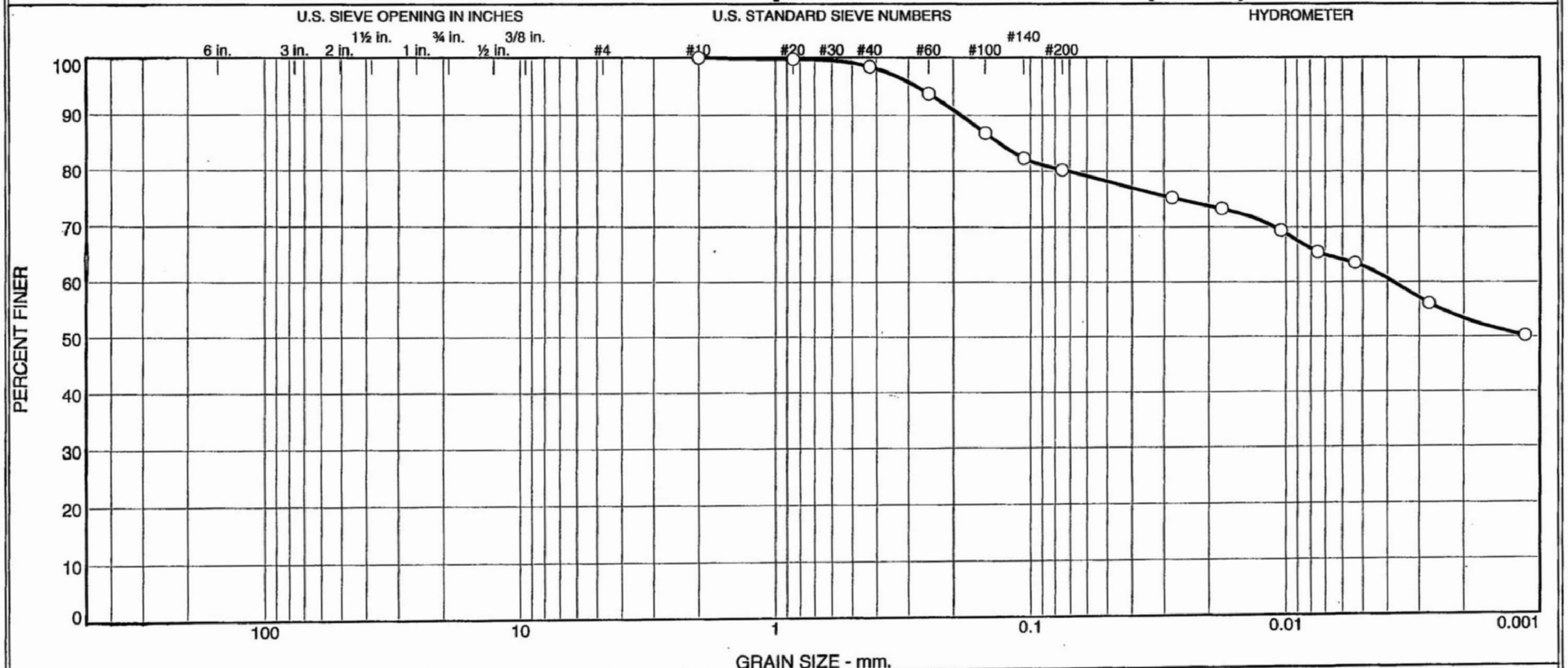
PYCNOMETER : P-6

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	1.6	18.2	17.2	63.0

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2169	SS-37	228.5-230'	12-15-07	CH	Pale Yellow Fat CLAY with sand	20.9	57	24

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:** LRL KAW 1/26/08

GRAIN SIZE DISTRIBUTION TEST DATA

1/26/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 228.5-230' **Sample Number:** SS-37
Material Description: Pale Yellow Fat CLAY with sand
Date: 12-15-07 **Natural Moisture:** 20.9
Liquid Limit: 57 **Plastic Limit:** 24 **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
215.69	0.00	0.00	#10	0.00	100.0
52.59	0.00	0.00	#20	0.15	99.7
			#40	0.85	98.4
			#60	3.33	93.7
			#100	6.89	86.9
			#140	9.29	82.3
			#200	10.40	80.2

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =52.59
Hygroscopic moisture correction:
Moist weight and tare = 27.99
Dry weight and tare = 27.56
Tare weight = 15.47
Hygroscopic moisture = 3.6%
Table of composite correction values:

Temp., deg. C:	12.8	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	43.0	38.6	0.0131	44.0	9.1	0.0278	75.2
5.00	22.3	42.0	37.6	0.0131	43.0	9.2	0.0178	73.3
15.00	22.4	40.0	35.6	0.0131	41.0	9.6	0.0104	69.4
30.00	22.4	38.0	33.6	0.0131	39.0	9.9	0.0075	65.5
60.00	22.3	37.0	32.6	0.0131	38.0	10.1	0.0054	63.5
240.00	22.9	33.0	28.8	0.0130	34.0	10.7	0.0027	56.1
1440.00	22.8	30.0	25.8	0.0130	31.0	11.2	0.0011	50.2

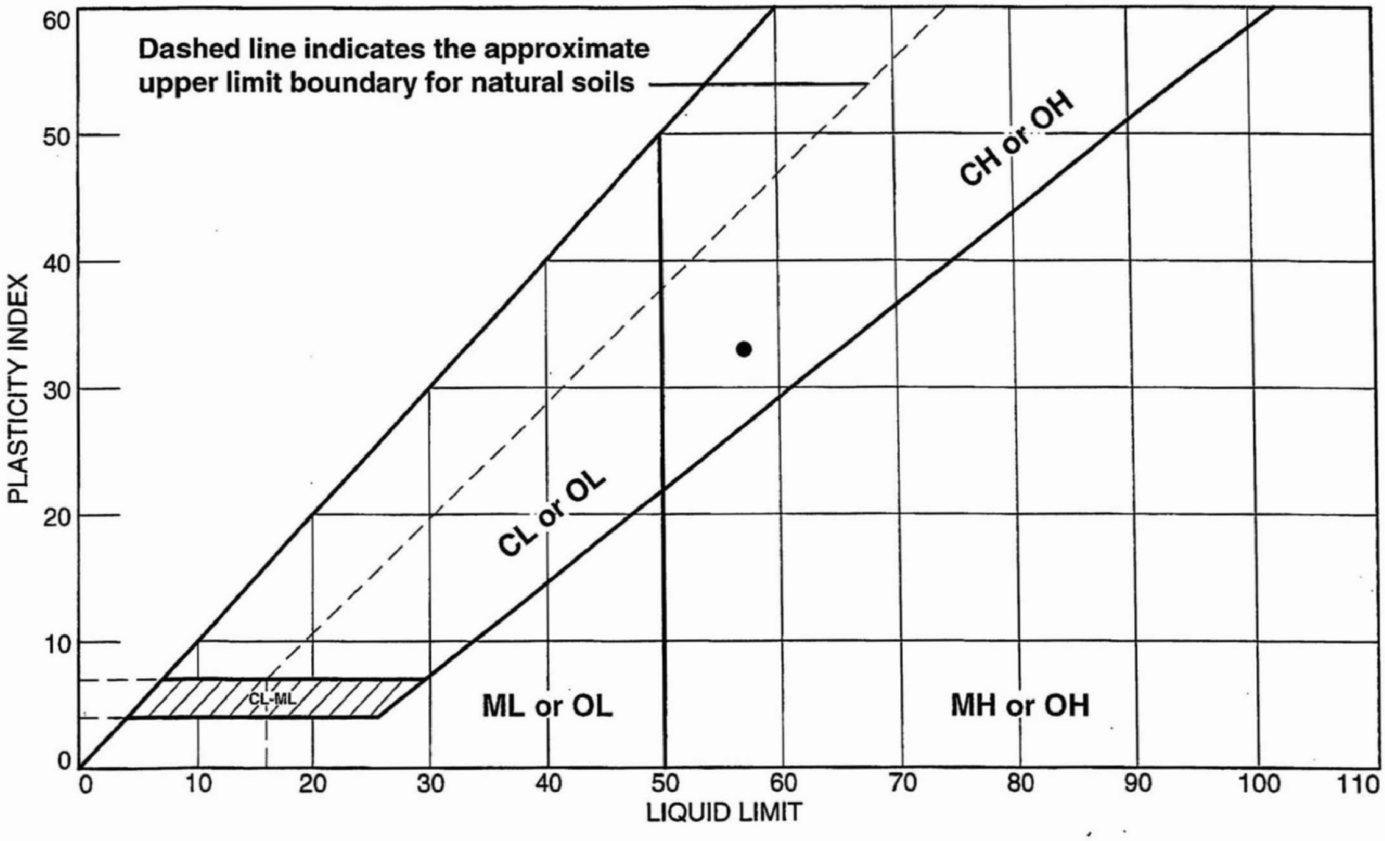
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	1.6	18.2	19.8	17.2	63.0	80.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
					0.0038	0.0715	0.1316	0.1870	0.2818

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-2169	SS-37	228.5-230'	20.9	24	57	33	CH

MACTEC, Inc.

Raleigh, North Carolina

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

Tested By: CS **Checked By:** LBJ KAW 1/26/08

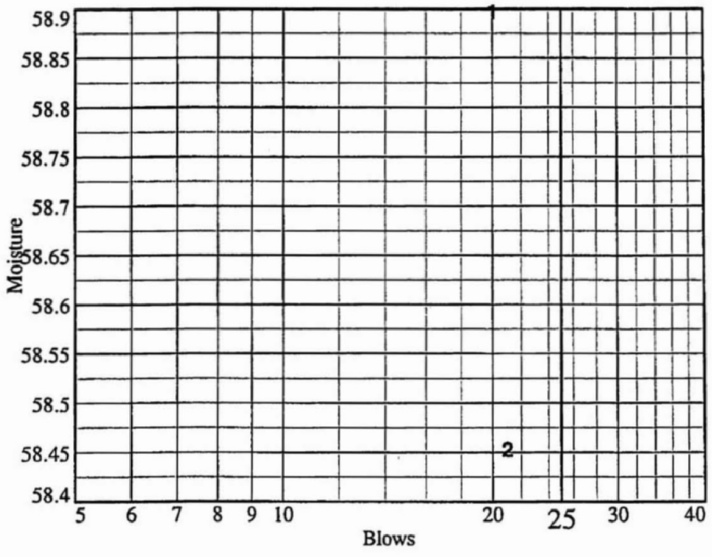
LIQUID AND PLASTIC LIMIT TEST DATA

1/26/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 228.5-230'
Sample Number: SS-37
Material Description: Pale Yellow Fat CLAY with sand
USCS: CH
AASHTO: A-7-6(28)
Tested by: CS
Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	31.87	30.84				
Dry+Tare	25.78	25.17				
Tare	15.44	15.47				
# Blows	20	21				
Moisture	58.9	58.5				



Liquid Limit= 57
Plastic Limit= 24
Plasticity Index= 33
Natural Moisture= 20.9
Liquidity Index= -0.1

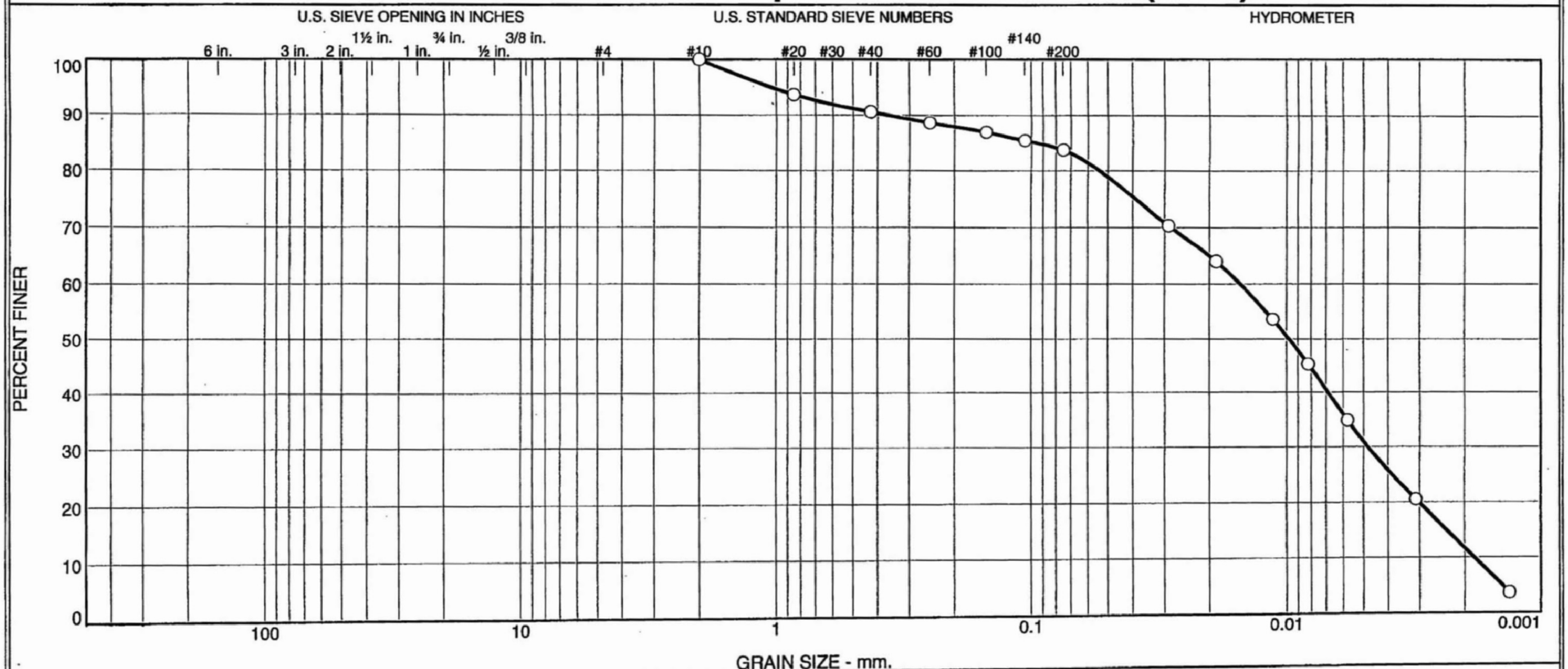
Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	22.62	22.05			
Dry+Tare	21.24	20.79			
Tare	15.49	15.48			
Moisture	24.0	23.7			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
94.90	80.09	9.20	20.9

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



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.0	9.4	6.9	52.7	31.0

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring B-2169	SS-38	238.5-240'	12-15-07	CL	Pale Yellow Lean CLAY with sand	13.5	46	17

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

MACTEC, Inc.
Raleigh, North Carolina

O Specific Gravity is assumed

Tested By: C **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-2169
Depth: 238.5-240' **Sample Number:** SS-38
Material Description: Pale Yellow Lean CLAY with sand
Date: 12-15-07 **Natural Moisture:** 13.5
Liquid Limit: 46 **Plastic Limit:** 17 **USCS Class.:** CL
Testing Remarks: Specific Gravity is assumed
Tested by: C **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
211.01	0.00	0.00	#10	0.00	100.0
48.58	0.00	0.00	#20	3.10	93.6
			#40	4.57	90.6
			#60	5.50	88.7
			#100	6.34	86.9
			#140	7.08	85.4
			#200	7.91	83.7

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =48.58
Hygroscopic moisture correction:
Moist weight and tare = 27.85
Dry weight and tare = 27.54
Tare weight = 15.64
Hygroscopic moisture = 2.6%
Table of composite correction values:

Temp., deg. C:	12.8	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	22.5	38.0	33.7	0.0130	39.0	9.9	0.0290	70.3
5.00	22.4	35.0	30.6	0.0131	36.0	10.4	0.0188	64.0
15.00	22.4	30.0	25.6	0.0131	31.0	11.2	0.0113	53.6
30.00	22.5	26.0	21.7	0.0130	27.0	11.9	0.0082	45.3
65.00	22.4	21.0	16.6	0.0131	22.0	12.7	0.0058	34.8
240.00	23.1	14.0	9.8	0.0129	15.0	13.8	0.0031	20.6
1440.00	22.8	6.0	1.8	0.0130	7.0	15.1	0.0013	3.7

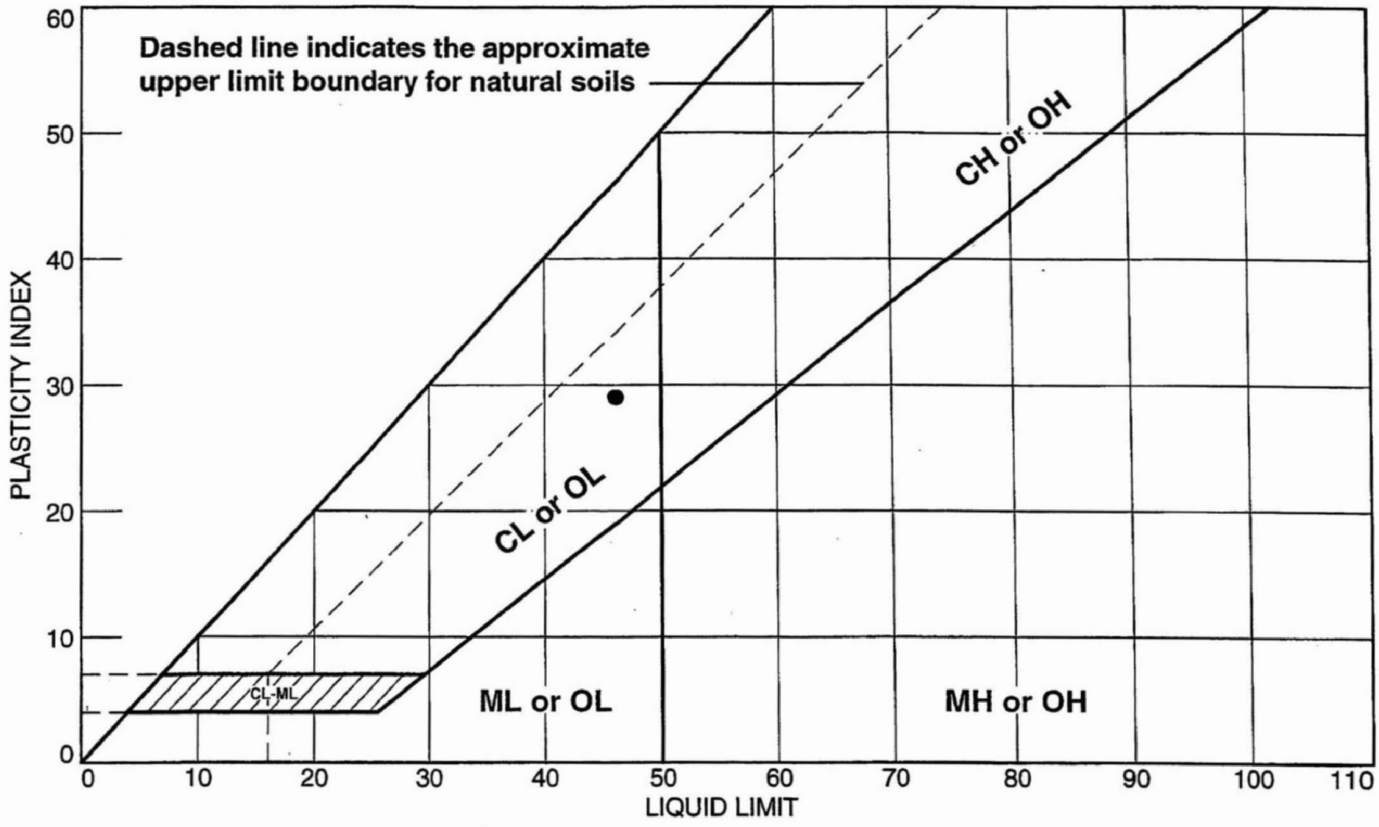
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	9.4	6.9	16.3	52.7	31.0	83.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0018	0.0024	0.0030	0.0048	0.0098	0.0151	0.0538	0.0952	0.3627	1.0571

Fineness Modulus	C_u	C_c
0.36	8.24	0.83

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-2169	SS-38	238.5-240'	13.5	17	46	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

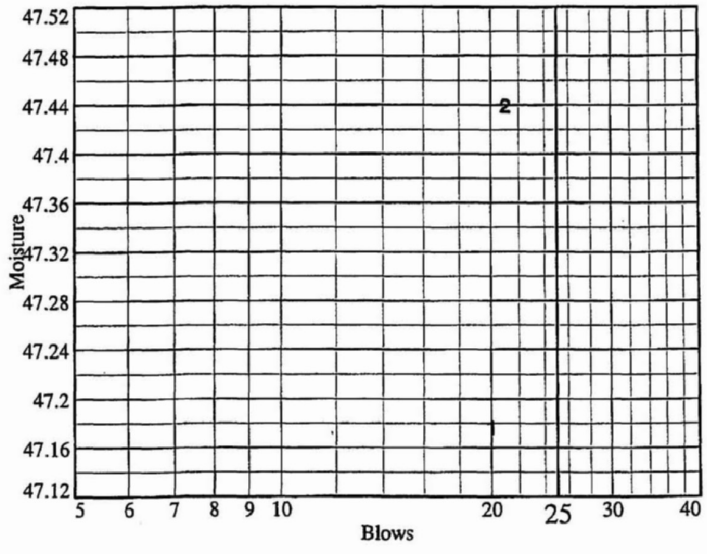
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2169
Depth: 238.5-240'
Sample Number: SS-38
Material Description: Pale Yellow 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	41.18	40.24				
Dry+Tare	36.00	33.94				
Tare	25.02	20.66				
# Blows	20	21				
Moisture	47.2	47.4				



Liquid Limit= 46
Plastic Limit= 17
Plasticity Index= 29
Natural Moisture= 13.5
Liquidity Index= -0.1

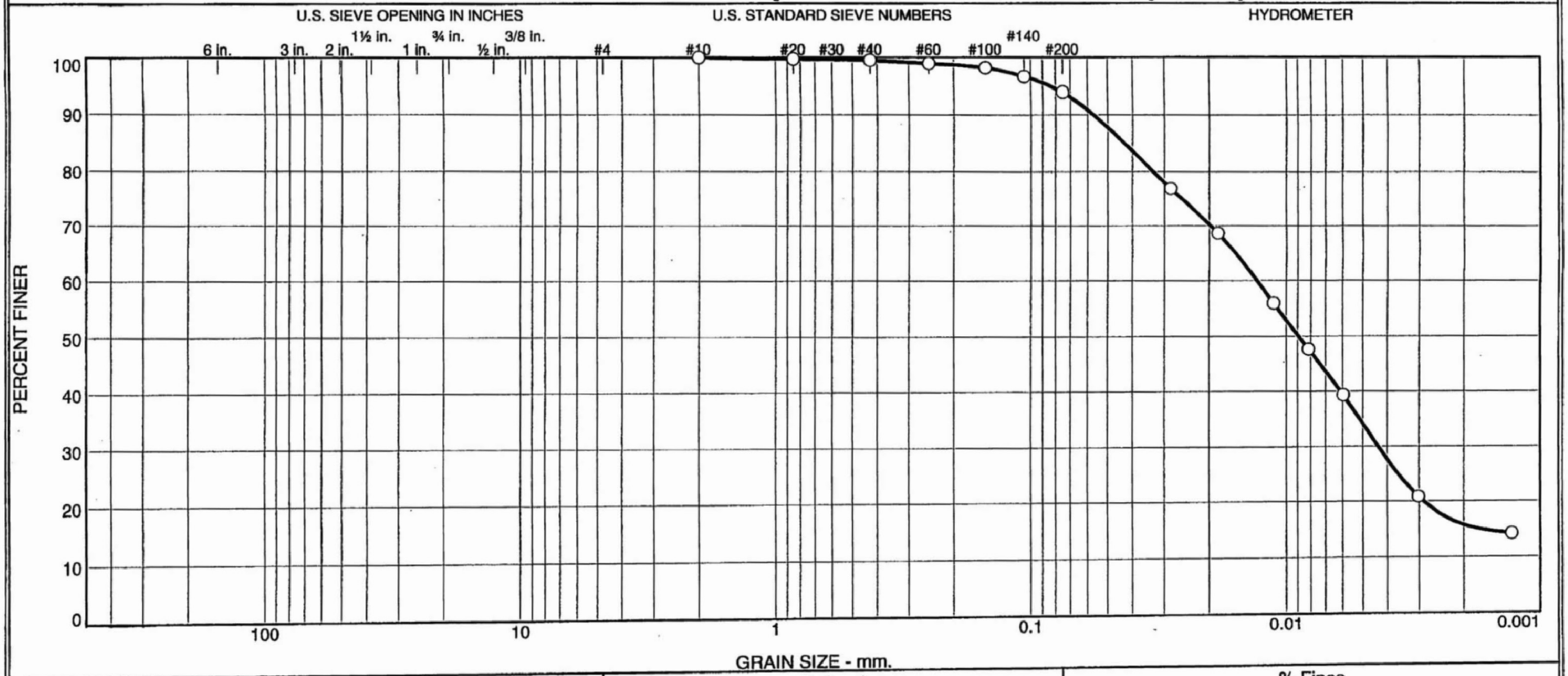
Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	23.17	23.08			
Dry+Tare	22.07	21.98			
Tare	15.49	15.66			
Moisture	16.7	17.4			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
99.80	89.04	9.20	13.5

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	5.7	59.6	34.2

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2169	SS-39	248.5-250'	12-15-07	CL	Pale Yellow Lean CLAY	16.5	49	23

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity is assumed
Organic content = 1.5% (ASTM D-2794-07)

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-2169
Depth: 248.5-250' **Sample Number:** SS-39
Material Description: Pale Yellow Lean CLAY
Date: 12-15-07 **Natural Moisture:** 16.5
Liquid Limit: 49 **Plastic Limit:** 23 **USCS Class.:** CL
Testing Remarks: Specific Gravity is assumed
Organic content = 1.5% (ASTM D-2794-07)
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
254.30	0.00	0.00	#10	0.00	100.0
48.47	0.00	0.00	#20	0.14	99.7
			#40	0.25	99.5
			#60	0.52	98.9
			#100	0.91	98.1
			#140	1.65	96.6
			#200	2.99	93.8

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =48.47
Hygroscopic moisture correction:
Moist weight and tare = 25.77
Dry weight and tare = 25.35
Tare weight = 11.15
Hygroscopic moisture = 3.0%
Table of composite correction values:

Temp., deg. C:	12.8	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	41.0	36.6	0.0131	42.0	9.4	0.0283	77.0
5.00	22.5	37.0	32.7	0.0130	38.0	10.1	0.0185	68.6
15.00	22.5	31.0	26.7	0.0130	32.0	11.0	0.0112	56.0
30.00	22.5	27.0	22.7	0.0130	28.0	11.7	0.0081	47.6
59.00	22.6	23.0	18.7	0.0130	24.0	12.4	0.0060	39.3
252.00	23.4	14.0	9.9	0.0129	15.0	13.8	0.0030	20.8
1440.00	22.9	11.0	6.8	0.0130	12.0	14.3	0.0013	14.3

MACTEC, Inc.

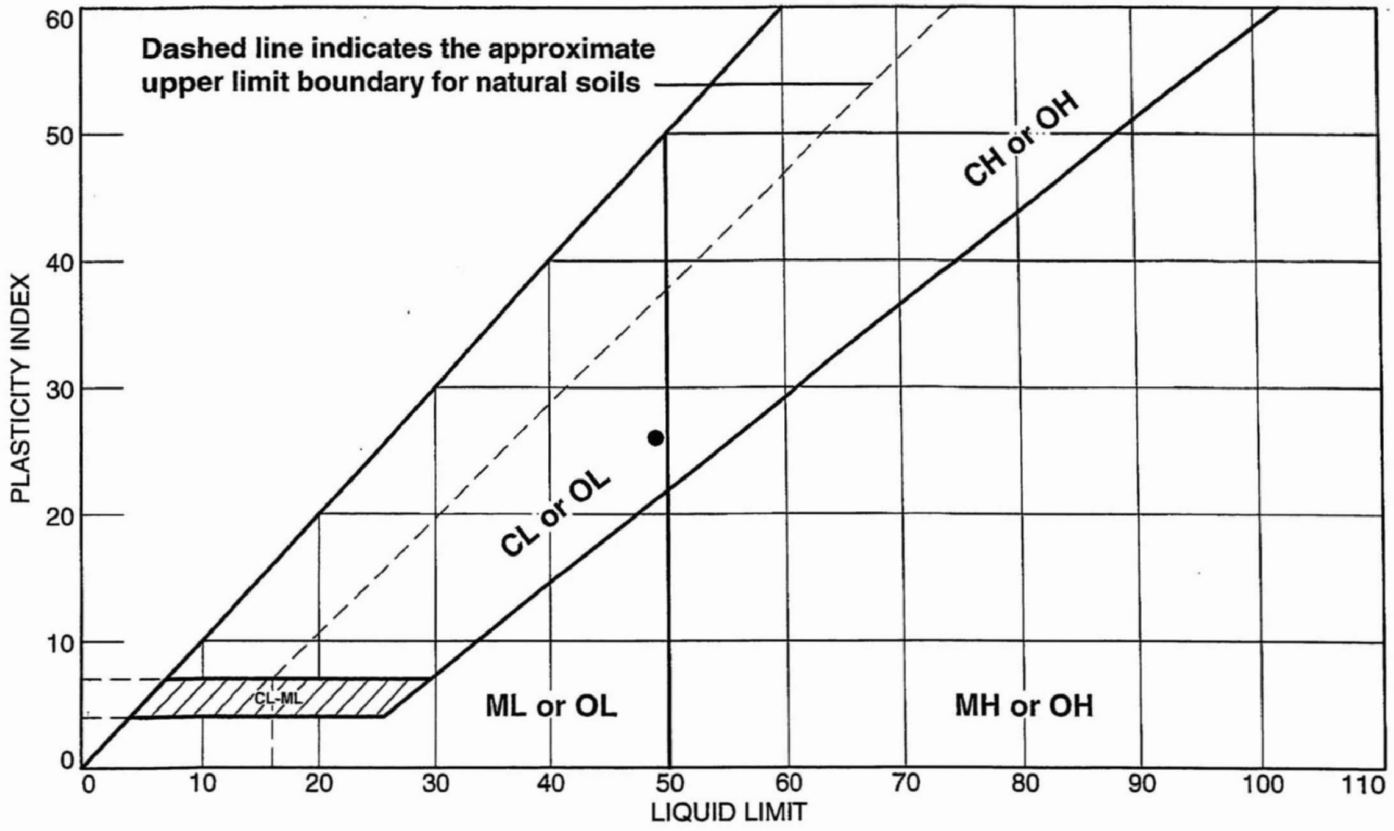
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.5	5.7	6.2	59.6	34.2	93.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0017	0.0029	0.0043	0.0089	0.0130	0.0331	0.0428	0.0567	0.0845

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-2169	SS-39	248.5-250'	16.5	23	49	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