

GRAIN SIZE DISTRIBUTION TEST DATA

1/26/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2265

Depth: 58.5-60.0

Sample Number: SS-15

Material Description: Gray Clayey SAND

Date: 11-9-07

Natural Moisture: 19.9

Liquid Limit: 24

Plastic Limit: 13

USCS Class.: SC

Testing Remarks: Specific Gravity is assumed

Tested by: CS

Checked by: IBI

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
205.56	0.00	0.00	#4	0.00	100.0
			#10	0.06	100.0
53.21	0.00	0.00	#20	0.03	99.9
			#40	0.06	99.9
			#60	1.07	98.0
			#100	11.25	78.8
			#140	25.70	51.7
			#200	35.08	34.1

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 53.21

Hygroscopic moisture correction:

Moist weight and tare = 29.05

Dry weight and tare = 28.93

Tare weight = 15.64

Hygroscopic moisture = 0.9%

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: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.6	16.0	11.7	0.0130	17.0	13.5	0.0338	21.9
5.00	22.9	15.0	10.8	0.0130	16.0	13.7	0.0215	20.2
15.00	23.1	14.0	9.8	0.0129	15.0	13.8	0.0124	18.4
30.00	23.0	14.0	9.8	0.0130	15.0	13.8	0.0088	18.4
60.00	23.2	14.0	9.9	0.0129	15.0	13.8	0.0062	18.5
240.00	22.4	13.5	9.1	0.0131	14.5	13.9	0.0031	17.2
1440.00	22.3	12.0	7.6	0.0131	13.0	14.2	0.0013	14.3

MACTEC, Inc.

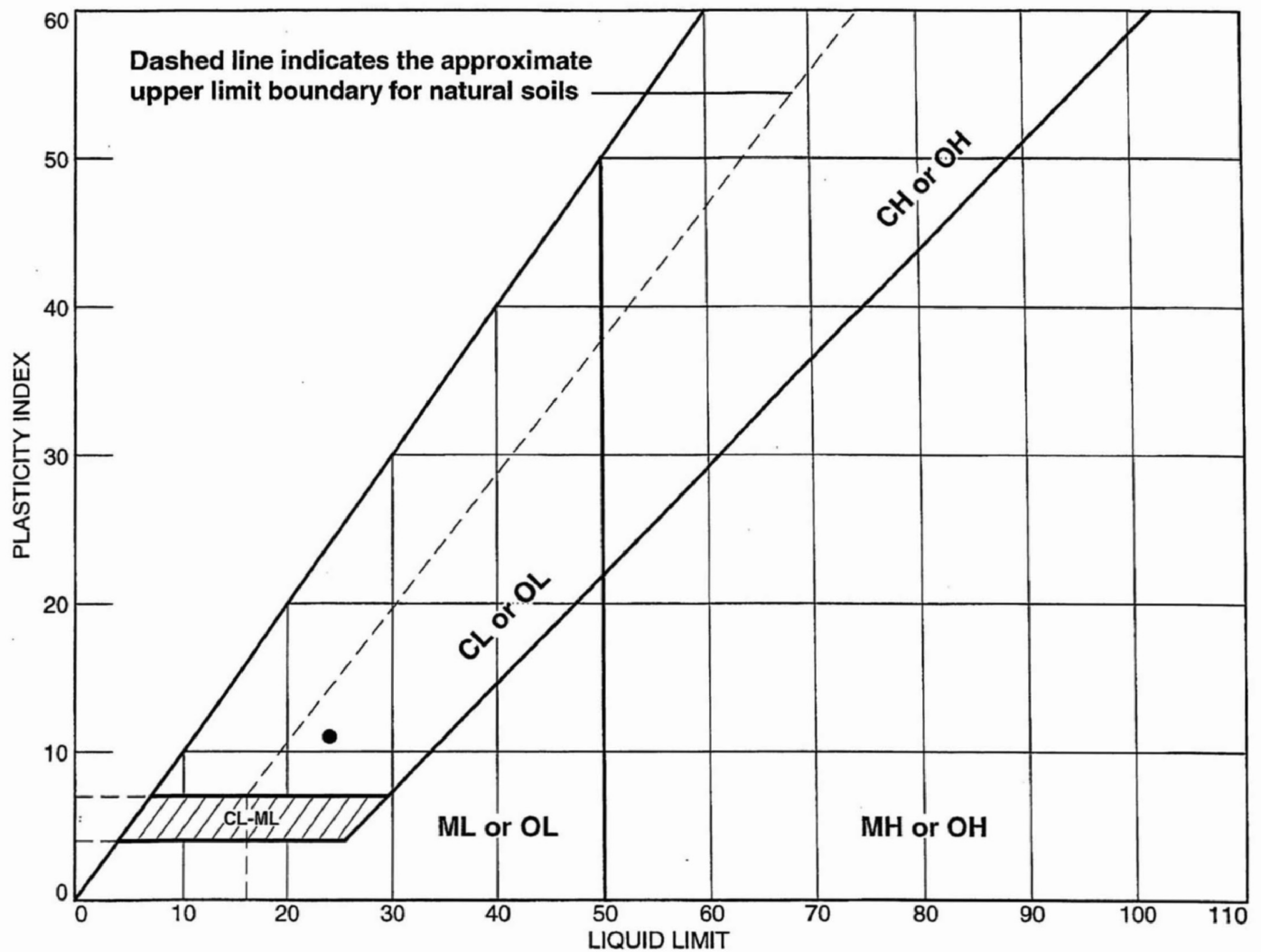
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	65.8	65.9	15.8	18.3	34.1

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.0016	0.0203	0.0656	0.1035	0.1181	0.1526	0.1659	0.1843	0.2146

Fineness Modulus
0.23

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-2265	SS-15	58.5-60.0	19.9	13	24	11	SC

MACTEC, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project No.: 6468071777

Figure NA

Tested By: CS

Checked By: LBJ

KAW 1126/08

LIQUID AND PLASTIC LIMIT TEST DATA

1/26/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2265

Depth: 58.5-60.0

Sample Number: SS-15

Material Description: Gray Clayey SAND

USCS: SC

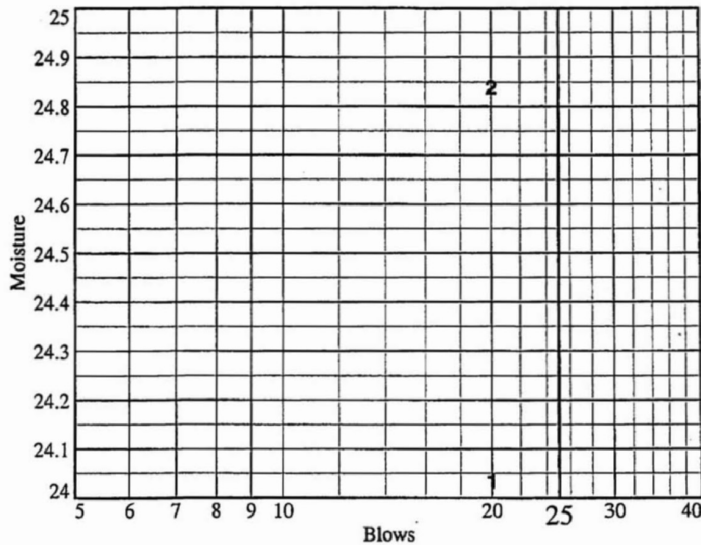
AASHTO: A-2-6(0)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	31.35	33.02				
Dry+Tare	28.30	29.54				
Tare	15.61	15.53				
# Blows	20	20				
Moisture	24.0	24.8				



Liquid Limit= 24
 Plastic Limit= 13
 Plasticity Index= 11
 Natural Moisture= 19.9
 Liquidity Index= 0.6

Plastic Limit Data

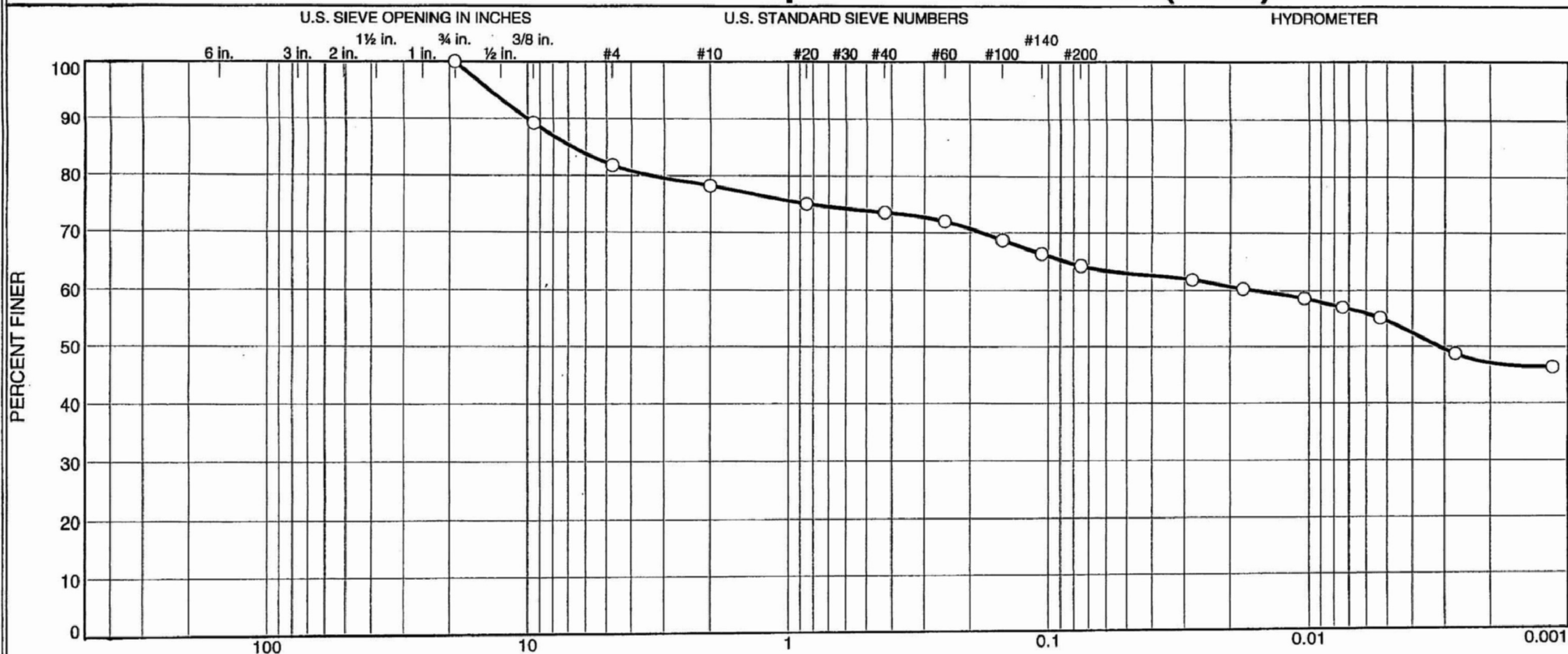
Run No.	1	2	3	4
Wet+Tare	23.71	23.89		
Dry+Tare	22.76	22.90		
Tare	15.54	15.48		
Moisture	13.2	13.3		

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
86.20	72.99	6.70	19.9

MACTEC, Inc.

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



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	18.2	3.6	4.7	9.1	9.7	54.7

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-2265	SS-16	63.5-65.0	11-9-07	CH	Gray Gravelly Fat CLAY with sand	31.2	87	22

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468Q71777

Figure A-1A

MACTEC, Inc.
Raleigh, North Carolina

○ Specific Gravity is assumed

GRAIN SIZE DISTRIBUTION TEST DATA

1/26/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2265

Depth: 63.5-65.0

Sample Number: SS-16

Material Description: Gray Gravelly Fat CLAY with sand

Date: 11-9-07

Natural Moisture: 31.2

Liquid Limit: 87

Plastic Limit: 22

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
124.07	0.00	0.00	3/4	0.00	100.0
			3/8"	13.32	89.3
			#4	22.53	81.8
			#10	27.00	78.2
47.71	0.00	0.00	#20	1.95	75.0
			#40	2.87	73.5
			#60	3.80	72.0
			#100	5.82	68.7
			#140	7.22	66.4
			#200	8.46	64.4

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 78.2

Weight of hydrometer sample = 47.71

Hygroscopic moisture correction:

Moist weight and tare = 23.67

Dry weight and tare = 23.51

Tare weight = 11.07

Hygroscopic moisture = 1.3%

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: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.7	42.0	37.7	0.0130	43.0	9.2	0.0280	62.0
5.00	22.7	41.0	36.7	0.0130	42.0	9.4	0.0178	60.3
15.00	22.7	40.0	35.7	0.0130	41.0	9.6	0.0104	58.7
30.00	22.7	39.0	34.7	0.0130	40.0	9.7	0.0074	57.0
60.00	22.2	38.0	33.6	0.0131	39.0	9.9	0.0053	55.2
240.00	22.5	34.0	29.7	0.0130	35.0	10.6	0.0027	48.7
1440.00	20.9	33.0	28.2	0.0133	34.0	10.7	0.0011	46.4

MACTEC, Inc.

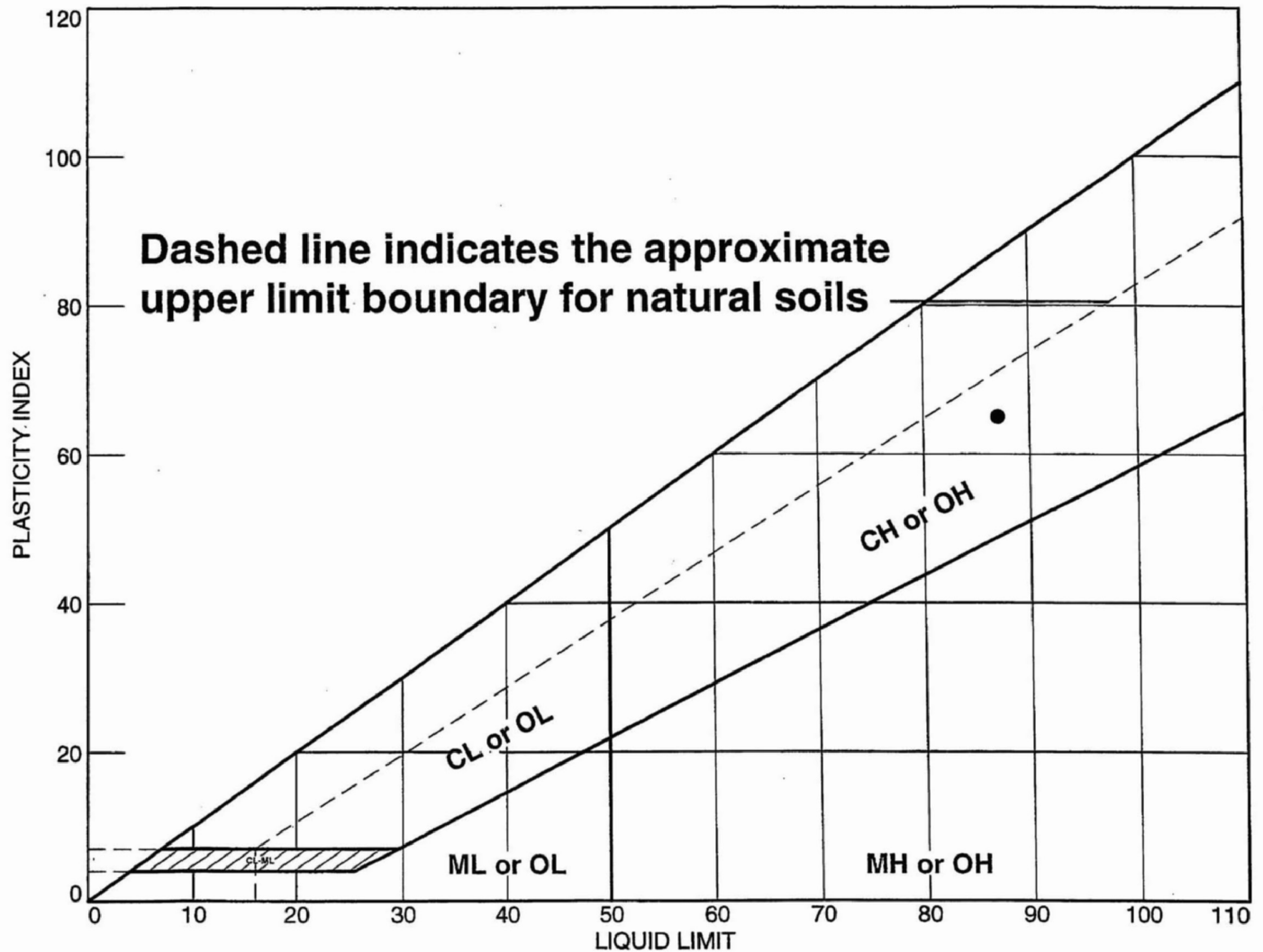
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	18.2	18.2	3.6	4.7	9.1	17.4	9.7	54.7	64.4

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.0031	0.0160	3.3835	6.7440	10.0408	13.9859

Fineness Modulus
1.58

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-2265	SS-16	63.5-65.0	31.2	22	87	65	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-2265

Depth: 63.5-65.0

Sample Number: SS-16

Material Description: Gray Gravelly Fat CLAY with sand

USCS: CH

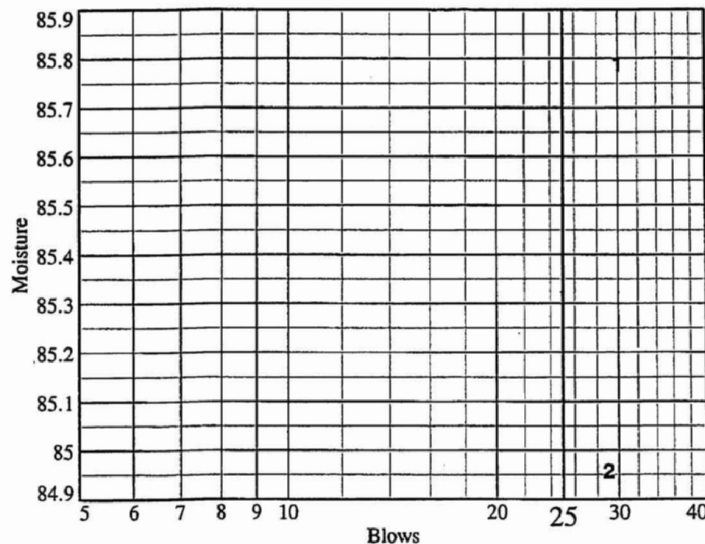
AASHTO: A-7-6(40)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	26.23	29.08				
Dry+Tare	21.34	22.81				
Tare	15.64	15.43				
# Blows	30	29				
Moisture	85.8	85.0				



Liquid Limit= 87
 Plastic Limit= 22
 Plasticity Index= 65
 Natural Moisture= 31.2
 Liquidity Index= 0.1

Plastic Limit Data

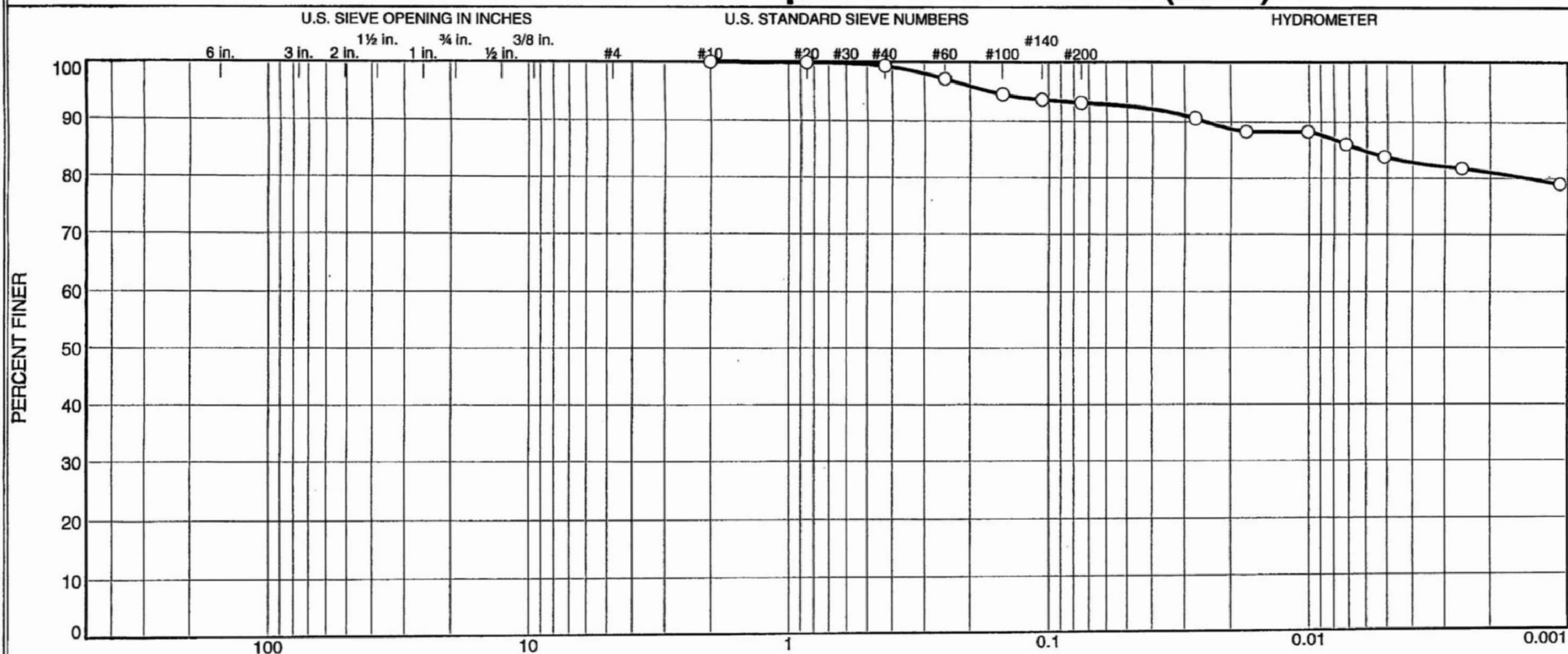
Run No.	1	2	3	4
Wet+Tare	22.74	20.85		
Dry+Tare	21.42	19.88		
Tare	15.50	15.56		
Moisture	22.3	22.5		

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
76.10	60.20	9.20	31.2

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	0.7	6.2	9.4	83.7

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-2265	SS-17	68.5-70.0	11-9-07	CH	Gray Fat CLAY	31.1	96	39

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

1/26/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2265

Depth: 68.5-70.0

Sample Number: SS-17

Material Description: Gray Fat CLAY

Date: 11-9-07

Natural Moisture: 31.1

Liquid Limit: 96

Plastic Limit: 39

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
103.29	0.00	0.00	#10	0.00	100.0
46.64	0.00	0.00	#20	0.04	99.9
			#40	0.32	99.3
			#60	1.36	97.1
			#100	2.60	94.4
			#140	3.00	93.6
			#200	3.23	93.1

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 = 28.61

Dry weight and tare = 27.94

Tare weight = 15.26

Hygroscopic moisture = 5.3%

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: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.1	45.0	40.6	0.0131	46.0	8.8	0.0274	90.6
5.00	22.1	44.0	39.6	0.0131	45.0	8.9	0.0175	88.3
15.00	22.1	44.0	39.6	0.0131	45.0	8.9	0.0101	88.3
30.00	22.1	43.0	38.6	0.0131	44.0	9.1	0.0072	86.1
60.00	22.1	42.0	37.6	0.0131	43.0	9.2	0.0051	83.9
240.00	22.4	41.0	36.6	0.0131	42.0	9.4	0.0026	81.8
1440.00	21.5	40.0	35.4	0.0132	41.0	9.6	0.0011	79.0

MACTEC, Inc.

Fractional Components

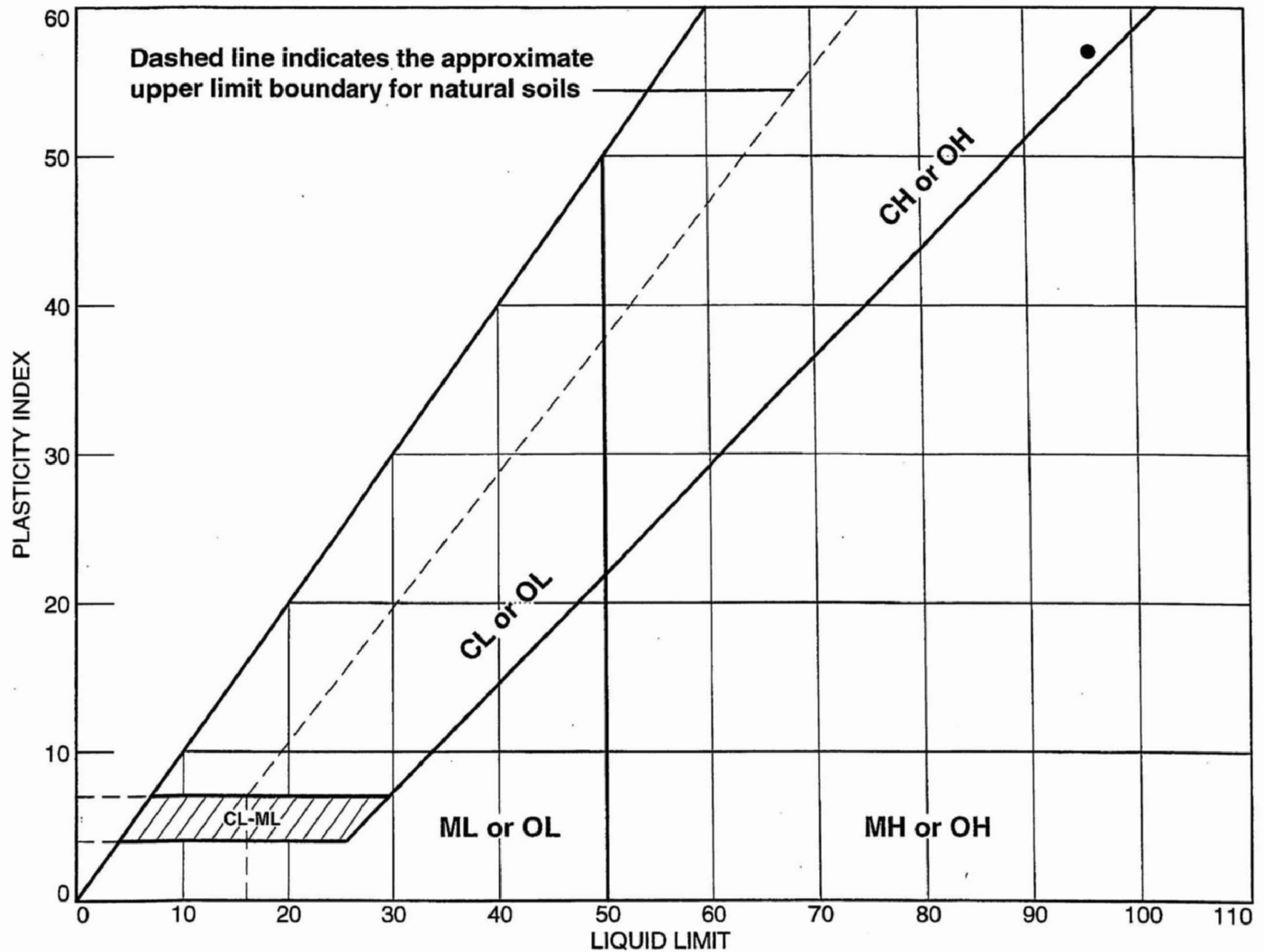
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.7	6.2	6.9	9.4	83.7	93.1

D10	D15	D20	D30	D50	D60	D80	D85	D90	D95
						0.0014	0.0062	0.0249	0.1712

Fineness Modulus
0.08

MACTEC, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-2265	SS-17	68.5-70.0	31.1	39	96	57	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 11/26/08

LIQUID AND PLASTIC LIMIT TEST DATA

1/26/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2265

Depth: 68.5-70.0

Sample Number: SS-17

Material Description: Gray Fat CLAY

USCS: CH

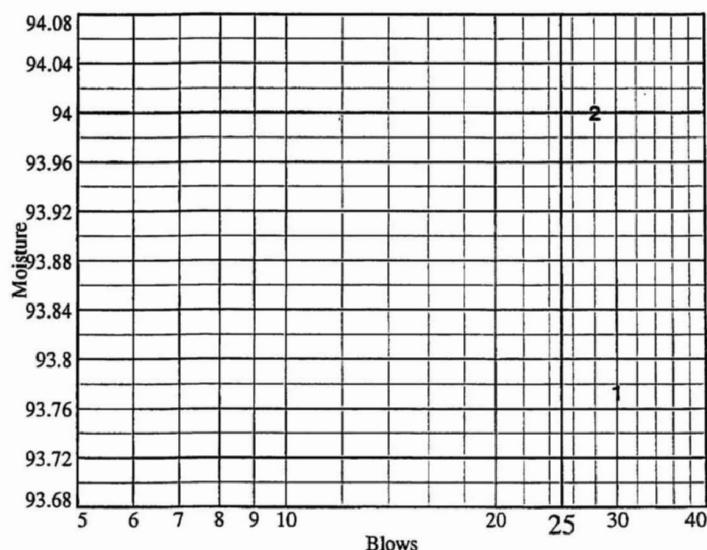
AASHTO: A-7-5(64)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	26.15	26.11				
Dry+Tare	21.03	20.94				
Tare	15.57	15.44				
# Blows	30	28				
Moisture	93.8	94.0				



Liquid Limit= 96
 Plastic Limit= 39
 Plasticity Index= 57
 Natural Moisture= 31.1
 Liquidity Index= -0.1

Plastic Limit Data

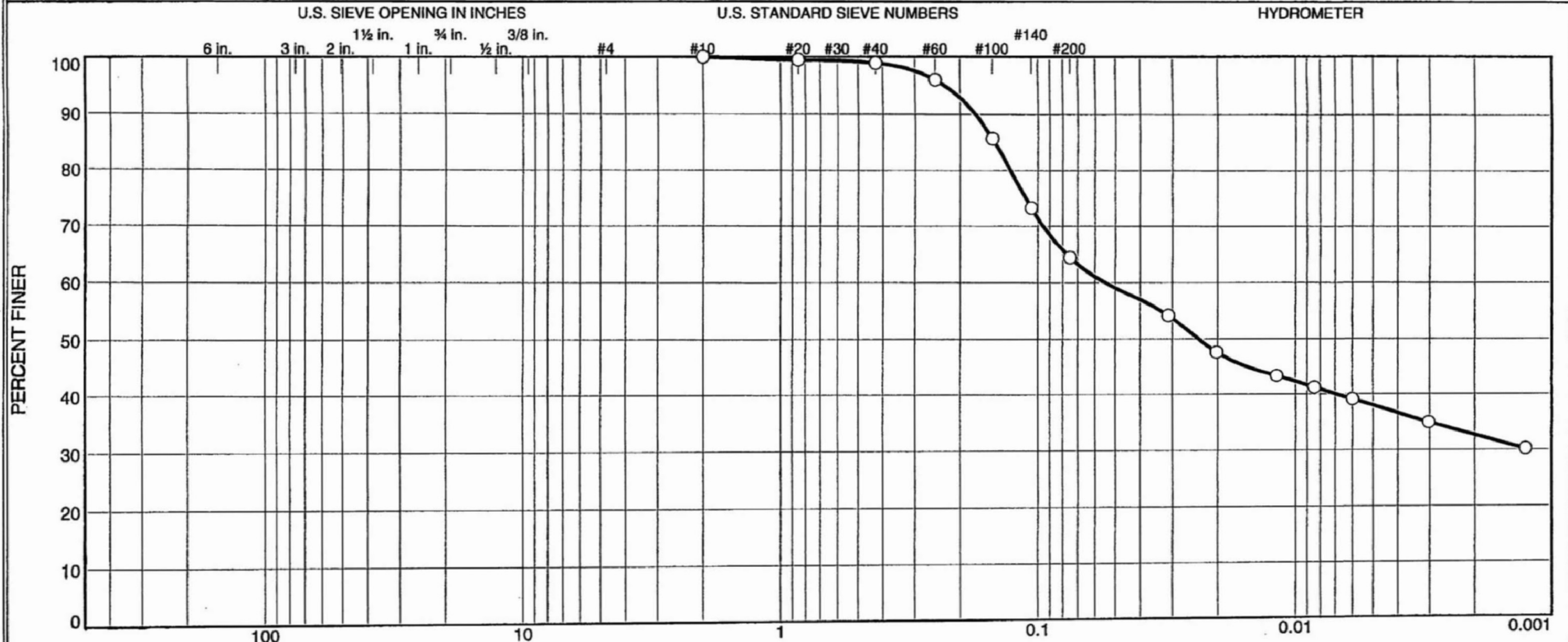
Run No.	1	2	3	4
Wet+Tare	18.77	19.49		
Dry+Tare	17.82	18.39		
Tare	15.40	15.60		
Moisture	39.3	39.4		

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
49.80	39.58	6.70	31.1

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	34.5	26.4	38.0

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-2265	SS-18	73.5-75.0	11-10-07	CL	Gray Sandy Lean CLAY	18.5	35	11

Client Bechtel
Project Exelon Texas COL (Victoria)

Project No. 6468071777

Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity = 2.700 (ASTM D854-06)
Organic content = 1.6% (ASTM D-2794-07)

GRAIN SIZE DISTRIBUTION TEST DATA

1/26/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2265

Depth: 73.5-75.0

Sample Number: SS-18

Material Description: Gray Sandy Lean CLAY

Date: 11-10-07

Natural Moisture: 18.5

Liquid Limit: 35

Plastic Limit: 11

USCS Class.: CL

Testing Remarks: Specific Gravity = 2.700 (ASTM D854-06)

Organic content = 1.6% (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
232.87	0.00	0.00	#10	0.00	100.0
48.53	0.00	0.00	#20	0.26	99.5
			#40	0.51	98.9
			#60	1.94	96.0
			#100	6.90	85.8
			#140	12.99	73.2
			#200	17.27	64.4

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 48.53

Hygroscopic moisture correction:

Moist weight and tare = 28.90

Dry weight and tare = 28.36

Tare weight = 15.62

Hygroscopic moisture = 4.2%

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: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.9	30.0	25.5	0.0131	31.0	11.2	0.0311	54.2
5.00	21.6	27.0	22.4	0.0132	28.0	11.7	0.0202	47.6
15.00	21.6	25.0	20.4	0.0132	26.0	12.0	0.0118	43.4
30.00	21.5	24.0	19.4	0.0132	25.0	12.2	0.0084	41.2
60.00	21.5	23.0	18.4	0.0132	24.0	12.4	0.0060	39.1
240.00	21.6	21.0	16.4	0.0132	22.0	12.7	0.0030	34.9
1440.00	20.9	19.0	14.2	0.0133	20.0	13.0	0.0013	30.2

MACTEC, Inc.

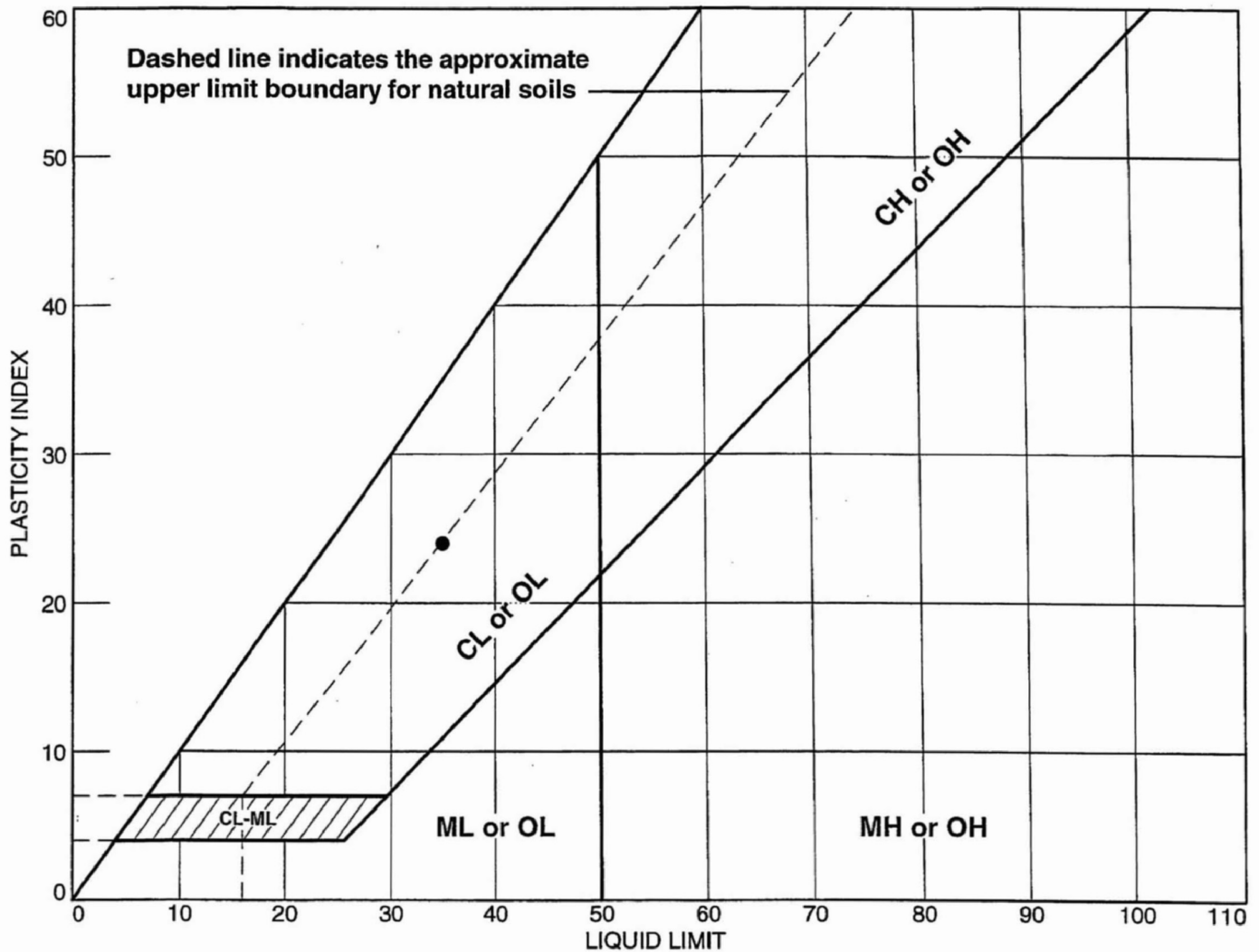
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	1.1	34.5	35.6	26.4	38.0	64.4

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.0237	0.0546	0.1276	0.1465	0.1743	0.2296

Fineness Modulus
0.18

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-2265	SS-18	73.5-75.0	18.5	11	35	24	CL

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-2265

Depth: 73.5-75.0

Sample Number: SS-18

Material Description: Gray Sandy Lean CLAY

USCS: CL

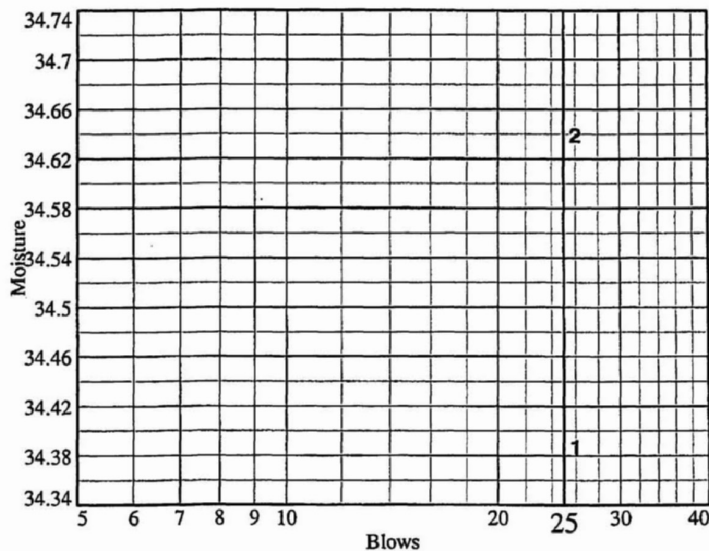
AASHTO: A-6(12)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	25.69	24.09				
Dry+Tare	23.08	21.88				
Tare	15.49	15.50				
# Blows	26	26				
Moisture	34.4	34.6				



Liquid Limit= 35
 Plastic Limit= 11
 Plasticity Index= 24
 Natural Moisture= 18.5
 Liquidity Index= 0.3

Plastic Limit Data

Run No.	1	2	3	4
Wet+Tare	22.88	21.71		
Dry+Tare	22.14	21.08		
Tare	15.46	15.53		
Moisture	11.1	11.4		

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
176.96	150.84	9.31	18.5

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: 3/17/08

SAMPLE IDENTIFICATION: B-2265 SS-18

(A) Mass of oven-dried soil, grams:	50.00
(B) Mass of pycnometer filled with water at test temperature (T), grams:	655.31
(C) Mass of pycnometer, water and soil, grams:	686.79
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	19.4
(G) Specific Gravity at observed temperature: $A / [C - (C - A)]$	2.700
(F) <i>Correction factor:</i>	1.00012
(G x F) SPECIFIC GRAVITY @ 20°C:	2.700

MATERIAL TESTED:

☒

- # 4

☐

- # 10

PREPARATION METHOD:

☒

DRY

☐

WET (dispersed)

REMARKS: Estimated % Passing # 4 : 100%

Sandy Lean CLAY (CL)

EQUIPMENT USED

SCALES : 3.1.19

OVEN : 5.1.16

THERMOMETER : 5.1.01

PYCNO METER : P-5

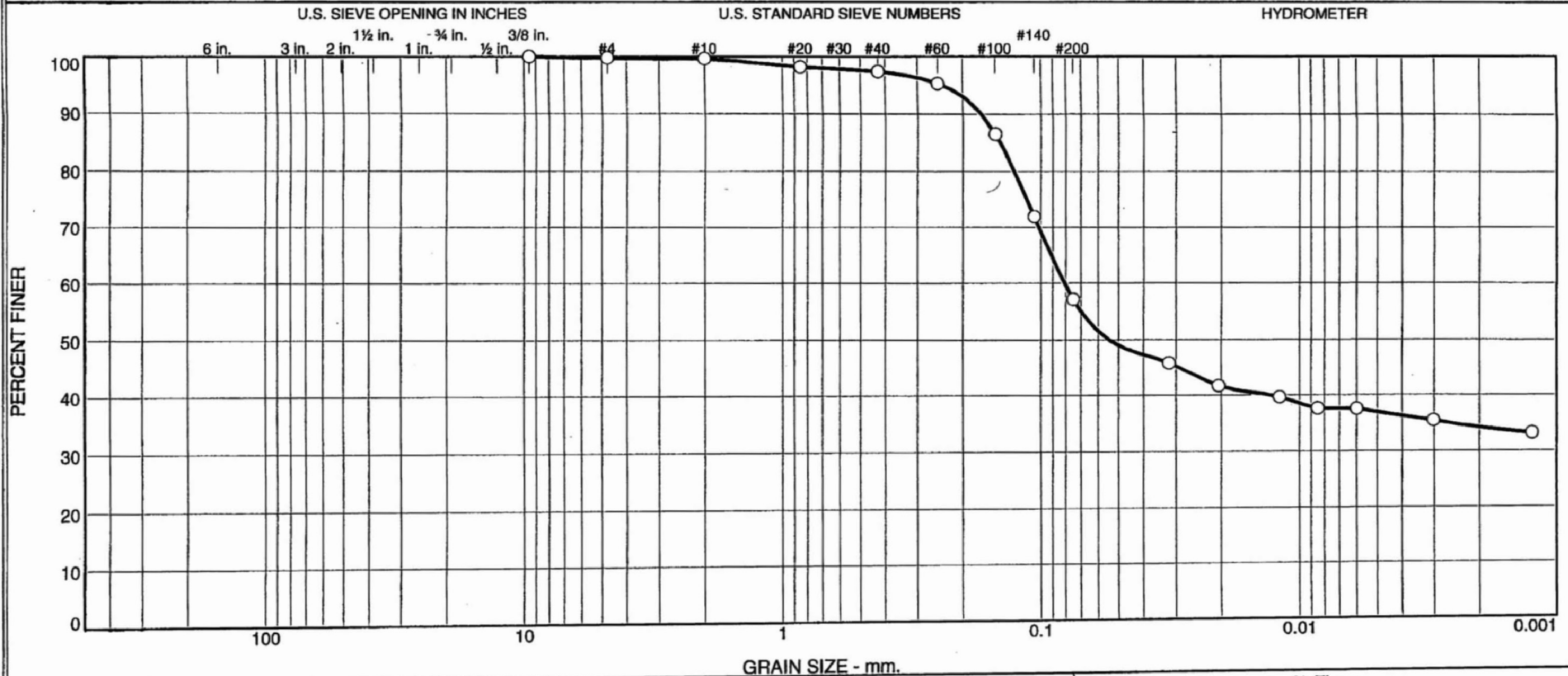
TESTED BY: CS

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

REVIEWED BY: Brian Johnson

DSC 3-17-08

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



GRAIN SIZE DISTRIBUTION TEST DATA

1/26/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2265

Depth: 78.5-80

Sample Number: SS-19

Material Description: Gray Sandy Lean CLAY

Date: 11-10-07

Natural Moisture: 18.4

Liquid Limit: 44

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
242.36	0.00	0.00	3/8"	0.00	100.0
			#4	0.62	99.7
			#10	0.95	99.6
49.35	0.00	0.00	#20	0.72	98.2
			#40	1.14	97.3
			#60	2.19	95.2
			#100	6.47	86.5
			#140	13.71	71.9
			#200	21.01	57.2

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 99.6

Weight of hydrometer sample = 49.35

Hygroscopic moisture correction:

Moist weight and tare = 27.80

Dry weight and tare = 27.52

Tare weight = 15.50

Hygroscopic moisture = 2.3%

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: $L = 16.294964 - 0.164 \times R_m$

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.6	27.0	22.4	0.0132	28.0	11.7	0.0319	45.8
5.00	21.5	25.0	20.4	0.0132	26.0	12.0	0.0205	41.7
15.00	21.5	24.0	19.4	0.0132	25.0	12.2	0.0119	39.6
30.00	21.5	23.0	18.4	0.0132	24.0	12.4	0.0085	37.6
60.00	21.4	23.0	18.4	0.0132	24.0	12.4	0.0060	37.5
240.00	21.3	22.0	17.3	0.0132	23.0	12.5	0.0030	35.4
1440.00	20.9	21.0	16.2	0.0133	22.0	12.7	0.0012	33.2

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Fractional Components

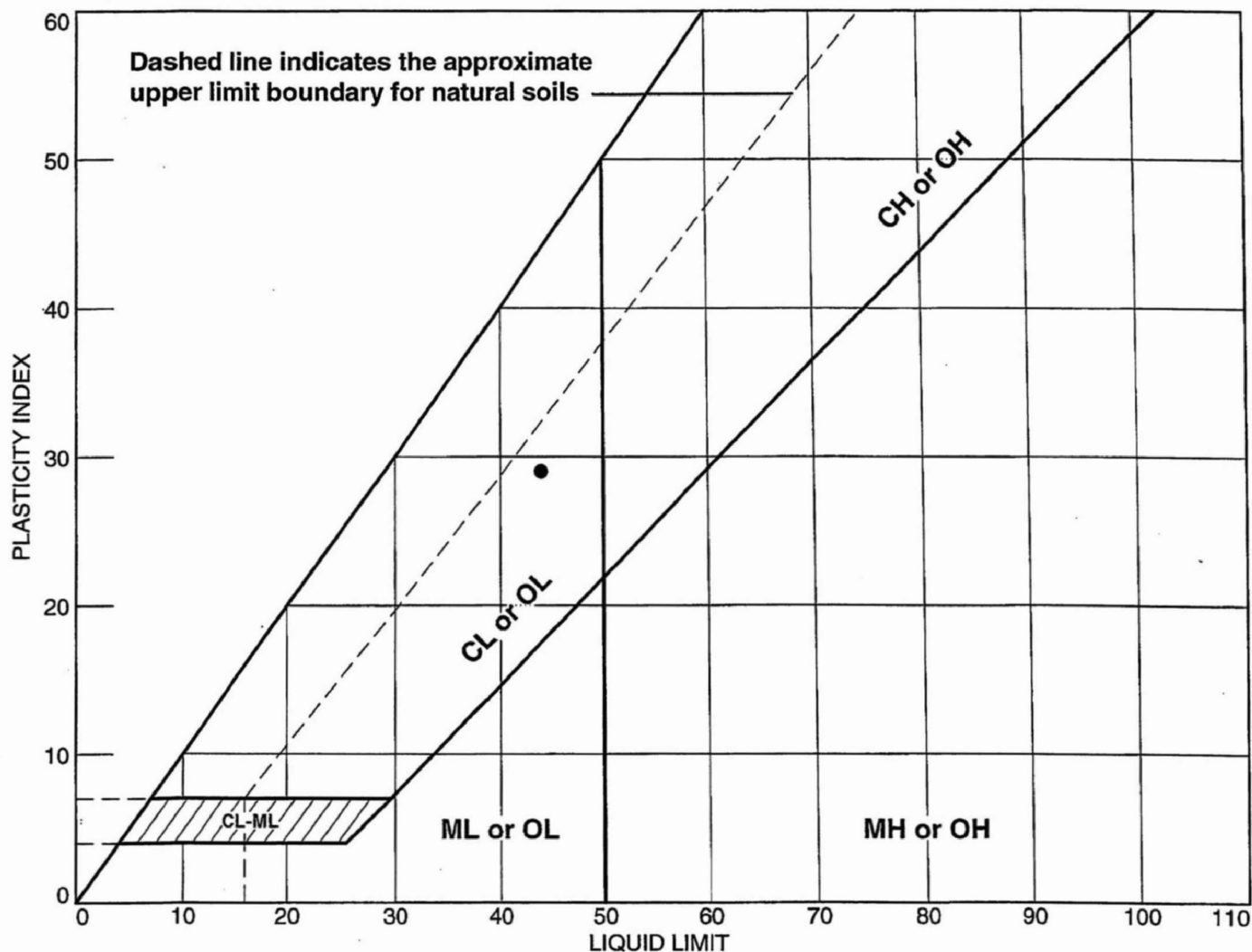
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.3	0.3	0.1	2.3	40.1	42.5	20.3	36.9	57.2

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.0543	0.0810	0.1264	0.1434	0.1700	0.2437

Fineness Modulus
0.21

MACTEC, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-2265	SS-19	78.5-80	18.4	15	44	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

20 1/29/08

LIQUID AND PLASTIC LIMIT TEST DATA

1/26/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2265

Depth: 78.5-80

Sample Number: SS-19

Material Description: Gray Sandy Lean CLAY

USCS: CL

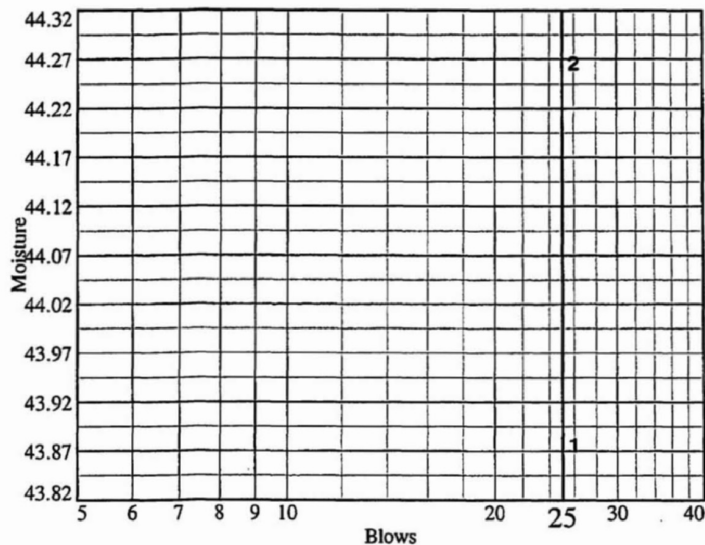
AASHTO: A-7-6(13)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	31.78	32.77				
Dry+Tare	26.80	27.52				
Tare	15.45	15.66				
# Blows	26	26				
Moisture	43.9	44.3				



Liquid Limit= 44
 Plastic Limit= 15
 Plasticity Index= 29
 Natural Moisture= 18.4
 Liquidity Index= 0.1

Plastic Limit Data

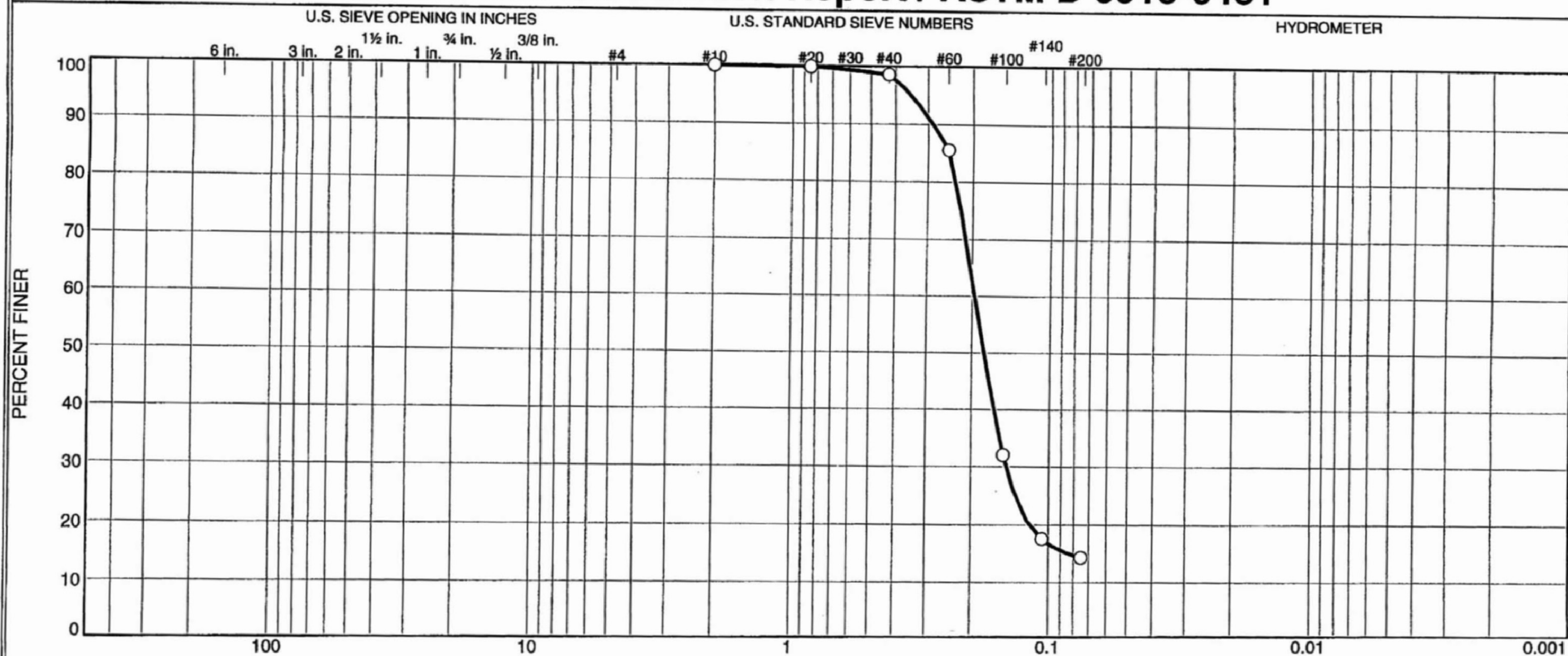
Run No.	1	2	3	4	
Wet+Tare	27.85	21.61			
Dry+Tare	26.19	20.19			
Tare	15.40	11.07			
Moisture	15.4	15.6			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
105.40	90.06	6.65	18.4

MACTEC, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1



GRAIN SIZE DISTRIBUTION TEST DATA

3/12/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2265

Depth: 83.5-85.0

Sample Number: SS-20

Material Description: Gray Clayey SAND (Visual)

Date: 11-10-08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SC

Testing Remarks: SIEVE ANALYSIS ONLY.

Specific Gravity = 2.656 (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
240.81	0.00	0.00	#10	0.00	100.0
94.59	0.00	0.00	#20	0.13	99.9
			#40	1.32	98.6
			#60	13.59	85.6
			#100	64.26	32.1
			#140	77.91	17.6
			#200	80.98	14.4

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	1.4	84.2	85.6			14.4

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.0830	0.1183	0.1460	0.1793	0.1953	0.2343	0.2480	0.2869	0.3489

Fineness Modulus

0.77

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: 1/14/08

SAMPLE IDENTIFICATION: B-2265 SS-20

(A) Mass of oven-dried soil, grams:	50.00
(B) Mass of pycnometer filled with water at test temperature (T), grams:	655.11
(C) Mass of pycnometer, water and soil, grams:	686.29
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	21.3
(G) Specific Gravity at observed temperature:	$A / [C - (C - A)]$ 2.657
(F) Correction factor:	0.99972
(G x F) SPECIFIC GRAVITY @ 20°C:	2.656

MATERIAL TESTED:

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- # 4

☐

- # 10

PREPARATION METHOD:

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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

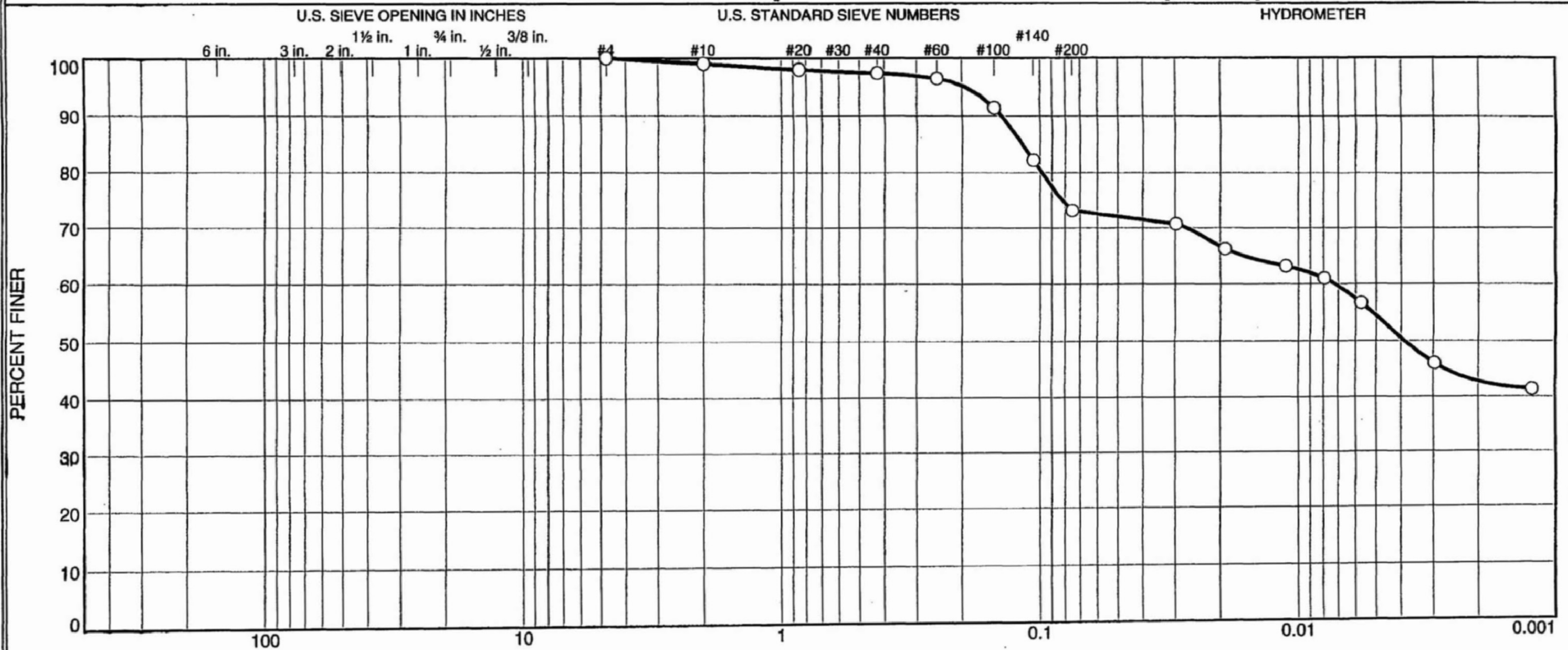
TESTED BY: CS

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

REVIEWED BY: Brian Johnson

KAW 1/26/08

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	0.9	1.7	24.3	18.6	54.5

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-2265	SS-21	88.5-90.0	11-10-07	CH	Light Greenish Gray Fat CLAY with sand	21.4	56	15

Client Bechtel		MACTEC, Inc.	○ Specific Gravity = 2.677 (ASTM D854-06) Organic content = 1.4% (ASTM D2794-07)
Project Exelon Texas COL (Victoria)			
Project No. 6468071777	Figure NA	Raleigh, North Carolina	

GRAIN SIZE DISTRIBUTION TEST DATA

1/26/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project Number: 6468071777

Location: Boring B-2265

Depth: 88.5-90.0

Sample Number: SS-21

Material Description: Light Greenish Gray Fat CLAY with sand

Date: 11-10-07

Natural Moisture: 21.4

Liquid Limit: 56

Plastic Limit: 15

USCS Class.: CH

Testing Remarks: Specific Gravity = 2.677 (ASTM D854-06)

Organic content = 1.4% (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
171.97	0.00	0.00	#4	0.00	100.0
			#10	1.62	99.1
47.42	0.00	0.00	#20	0.48	98.1
			#40	0.77	97.4
			#60	1.24	96.5
			#100	3.67	91.4
			#140	8.06	82.2
			#200	12.42	73.1

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 99.1

Weight of hydrometer sample = 47.42

Hygroscopic moisture correction:

Moist weight and tare = 28.12

Dry weight and tare = 27.69

Tare weight = 15.55

Hygroscopic moisture = 3.5%

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 = 2.677

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	21.4	37.5	32.9	0.0133	38.5	10.0	0.0297	70.7
5.00	21.3	35.5	30.8	0.0133	36.5	10.3	0.0191	66.3
15.00	21.5	34.0	29.4	0.0133	35.0	10.6	0.0111	63.2
30.00	21.5	33.0	28.4	0.0133	34.0	10.7	0.0079	61.1
60.00	21.4	31.0	26.4	0.0133	32.0	11.0	0.0057	56.7
240.00	21.4	26.0	21.4	0.0133	27.0	11.9	0.0030	45.9
1440.00	20.9	24.0	19.2	0.0134	25.0	12.2	0.0012	41.4

MACTEC, Inc.

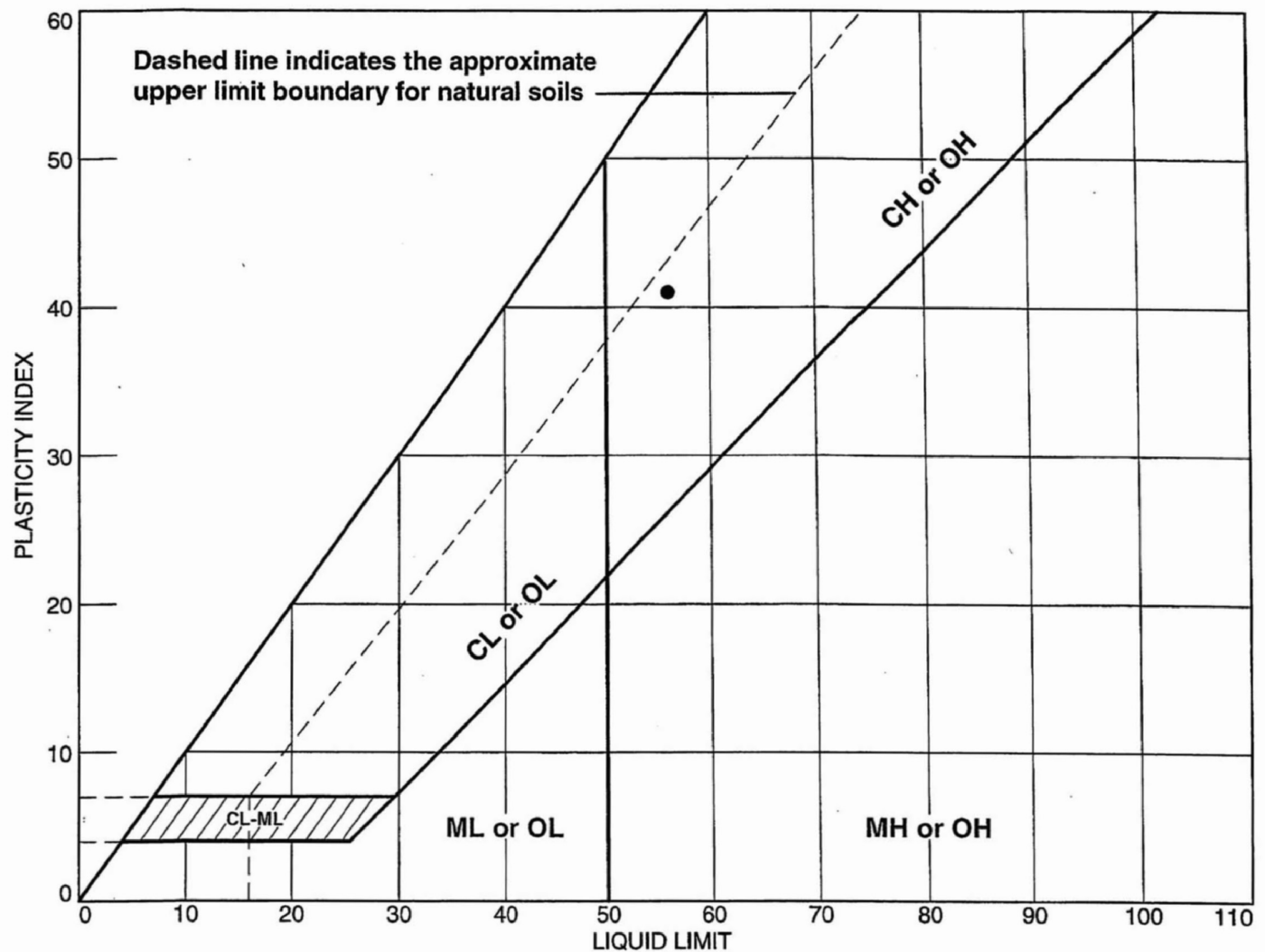
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.9	1.7	24.3	26.9	18.6	54.5	73.1

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.0039	0.0072	0.0984	0.1164	0.1406	0.1943

Fineness Modulus
0.16

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	Boring B-2265	SS-21	88.5-90.0	21.4	15	56	41	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-2265

Depth: 88.5-90.0

Sample Number: SS-21

Material Description: Light Greenish Gray Fat CLAY with sand

USCS: CH

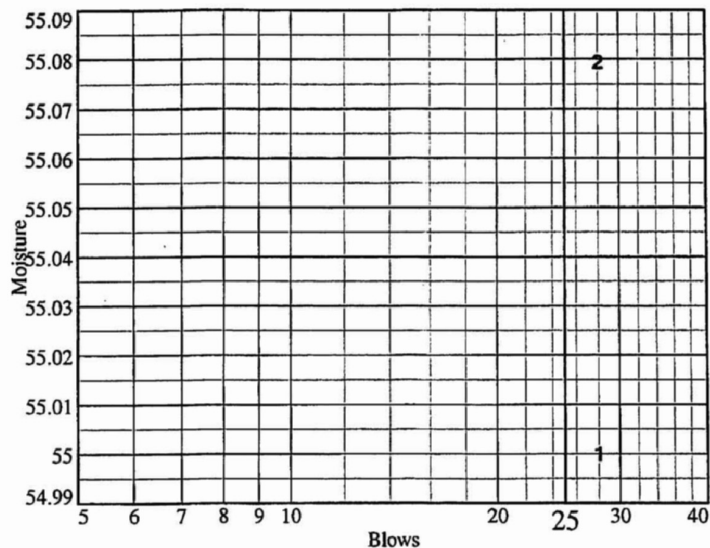
AASHTO: A-7-6(29)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	29.81	28.19				
Dry+Tare	24.75	23.69				
Tare	15.55	15.52				
# Blows	28	28				
Moisture	55.0	55.1				



Liquid Limit= 56
 Plastic Limit= 15
 Plasticity Index= 41
 Natural Moisture= 21.4
 Liquidity Index= 0.2

Plastic Limit Data

Run No.	1	2	3	4
Wet+Tare	22.91	25.28		
Dry+Tare	21.92	23.99		
Tare	15.49	15.55		
Moisture	15.4	15.3		

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
170.58	142.12	9.10	21.4

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