

GRAIN SIZE DISTRIBUTION TEST DATA

2/28/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2319

Depth: 11.0-12.5

Sample Number: SS-5

Material Description: Brown Silty, Clayey SAND

Date: 12-16-07

Natural Moisture: 24.6

Liquid Limit: 16

Plastic Limit: 11

USCS Class.: SC-SM

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
237.04	0.00	0.00	#10	0.00	100.0
97.77	0.00	0.00	#20	0.02	100.0
			#40	1.97	98.0
			#60	22.85	76.6
			#100	62.56	36.0
			#140	72.89	25.4
			#200	77.00	21.2

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 98.79

Hygroscopic moisture correction:

Moist weight and tare = 27.67

Dry weight and tare = 27.52

Tare weight = 15.50

Hygroscopic moisture = 1.2%

Table of composite correction values:

Temp., deg. C: 13.0 29.8

Comp. corr.: -8.0 -2.0

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	22.8	26.0	21.5	0.0130	27.0	11.9	0.0316	21.8
5.00	22.8	25.0	20.5	0.0130	26.0	12.0	0.0202	20.8
15.00	22.9	24.0	19.5	0.0130	25.0	12.2	0.0117	19.8
30.00	22.8	23.0	18.5	0.0130	24.0	12.4	0.0083	18.7
60.00	22.9	22.0	17.5	0.0130	23.0	12.5	0.0059	17.8
240.00	22.6	21.0	16.4	0.0130	22.0	12.7	0.0030	16.7
1440.00	21.5	17.0	12.0	0.0132	18.0	13.3	0.0013	12.2

MACTEC, Inc.

Fractional Components

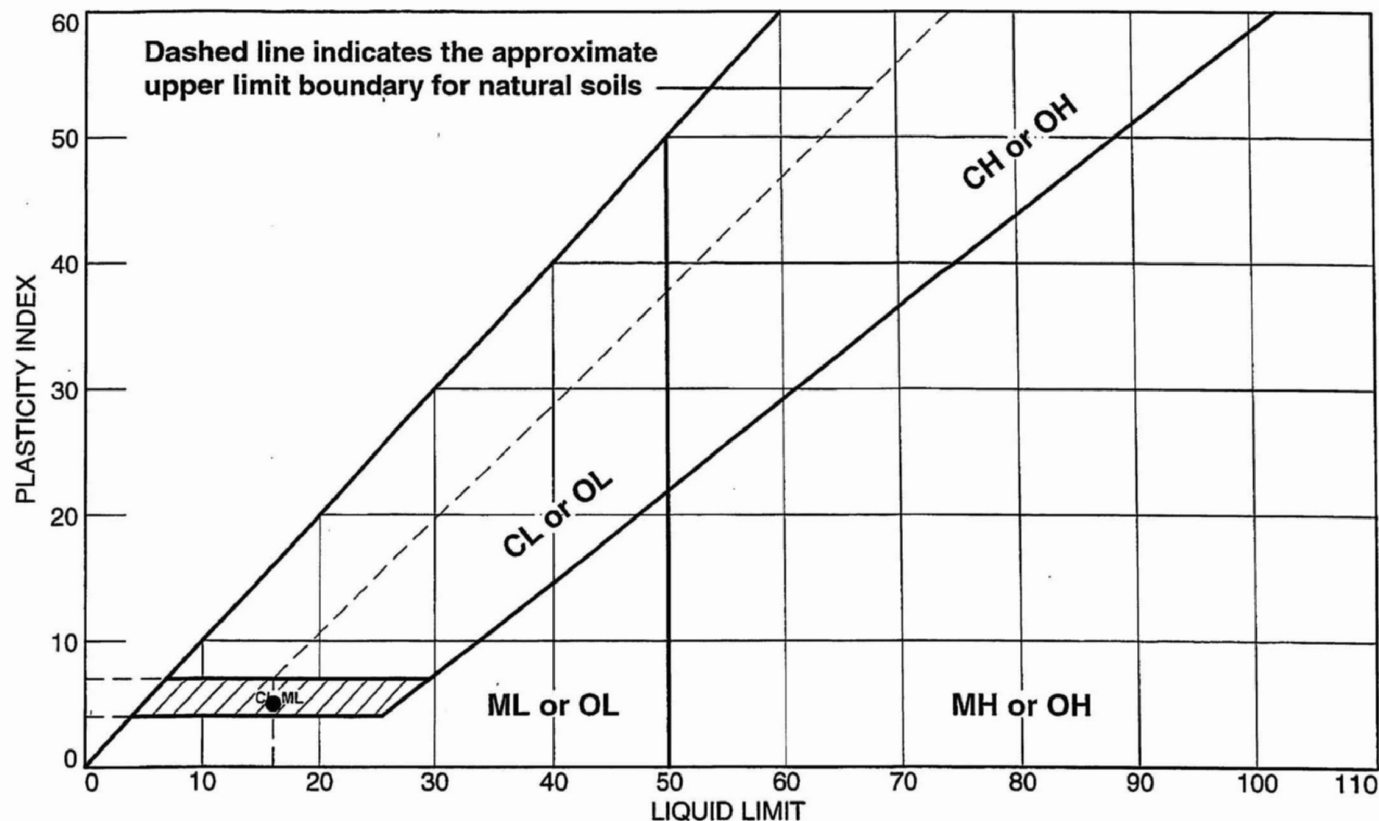
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	2.0	76.8	78.8	3.7	17.5	21.2

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.0020	0.0129	0.1304	0.1821	0.2043	0.2626	0.2857	0.3177	0.3688

Fineness Modulus
0.77

MACTEC, Inc.

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-2319	SS-5	11.0-12.5	24.6	11	16	5	SC-SM

MACTEC, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project No.: 6468071777

Figure NA

Tested By: CS

Checked By: LBJ

DSC 2-28-08

LIQUID AND PLASTIC LIMIT TEST DATA

2/28/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2319

Depth: 11.0-12.5

Sample Number: SS-5

Material Description: Brown Silty, Clayey SAND

AASHTO: A-2-4(0)

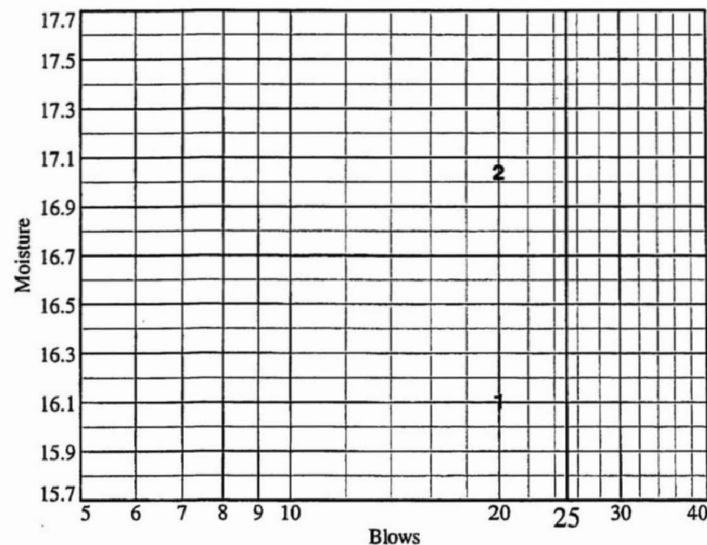
USCS: SC-SM

Checked by: LBJ

Tested by: CS

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	35.46	36.79				
Dry+Tare	32.69	33.69				
Tare	15.49	15.50				
# Blows	20	20				
Moisture	16.1	17.0				



Liquid Limit= 16
 Plastic Limit= 11
 Plasticity Index= 5
 Natural Moisture= 24.6
 Liquidity Index= 2.7

Plastic Limit Data

Run No.	1	2	3	4
Wet+Tare	23.47	23.42		
Dry+Tare	22.63	22.65		
Tare	15.48	15.48		
Moisture	11.7	10.7		

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
104.75	85.85	9.15	24.6

MACTEC, Inc.

Grain Size (mm)	Percent Finer (%)
60	100
4.75	100
2.0	100
0.85	100
0.425	98
0.25	64
0.15	12
0.075	7
0.0425	5
0.025	6
0.015	6
0.0075	5
0.00425	4
0.0025	4

[illegible][illegible]

MACTEC, Inc.
Raleigh, North Carolina

○ Specific Gravity is assumed

GRAIN SIZE DISTRIBUTION TEST DATA

2/28/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2319

Depth: 13.5-15.0

Sample Number: SS-6

Material Description: Grayish Brown Poorly Graded SAND with silt

Date: 12-16-08

Natural Moisture: 20.4

Liquid Limit: NV

Plastic Limit: NP

USCS Class.: SP-SM

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
229.46	0.00	0.00	#10	0.00	100.0
100.69	0.00	0.00	#20	0.05	100.0
			#40	1.51	98.5
			#60	34.65	65.6
			#100	88.42	12.2
			#140	92.58	8.1
			#200	93.78	6.9

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 100.69

Hygroscopic moisture correction:

Moist weight and tare = 29.63

Dry weight and tare = 29.43

Tare weight = 15.43

Hygroscopic moisture = 1.4%

Table of composite correction values:

Temp., deg. C: 13.0 29.8

Comp. corr.: -8.0 -2.0

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	12.0	7.4	0.0130	13.0	14.2	0.0347	7.4
5.00	22.6	12.0	7.4	0.0130	13.0	14.2	0.0219	7.4
15.00	22.6	12.0	7.4	0.0130	13.0	14.2	0.0127	7.4
30.00	22.6	12.0	7.4	0.0130	13.0	14.2	0.0089	7.4
60.00	22.6	11.0	6.4	0.0130	12.0	14.3	0.0064	6.4
240.00	23.0	10.0	5.6	0.0130	11.0	14.5	0.0032	5.6
1440.00	22.6	10.0	5.4	0.0130	11.0	14.5	0.0013	5.4

MACTEC, Inc.

Fractonal 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	1.5	91.6	93.1	1.0	5.9	6.9

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.1287	0.1569	0.1670	0.1844	0.2183	0.2376	0.2928	0.3140	0.3414	0.3808

Fineness Modulus	C _u	C _c
1.07	1.85	1.11

MACTEC, Inc.

Dashed line indicates the approximate upper limit boundary for natural soils

CH or OH

CL or OL

ML or OL

MH or OH

CL-ML

PLASTICITY INDEX

LIQUID LIMIT

MACTEC, Inc. Raleigh, North Carolina	Client: Bechtel Project: Exelon Texas COL (Victoria Reservoir)
	Project No.: 6468071777

Figure *NA*

DCN# EXE808

LIQUID AND PLASTIC LIMIT TEST DATA

2/28/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2319

Depth: 13.5-15.0

Sample Number: SS-6

Material Description: Grayish Brown Poorly Graded SAND with silt

USCS: SP-SM

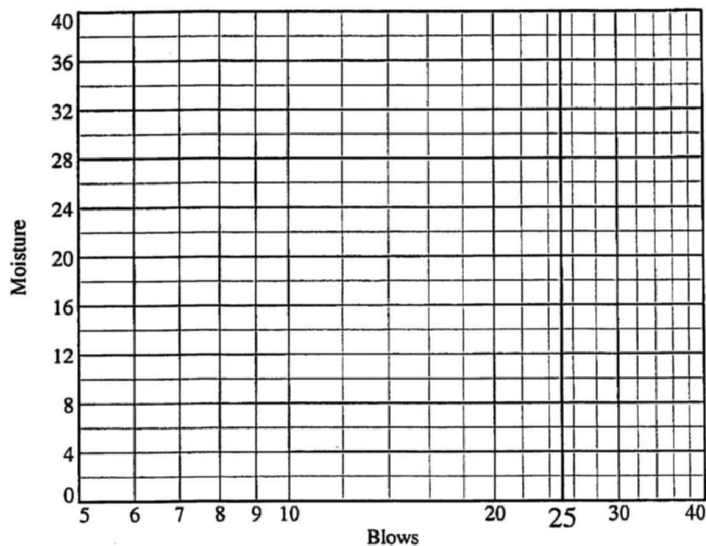
AASHTO: A-3

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= 20.4

Plastic Limit Data

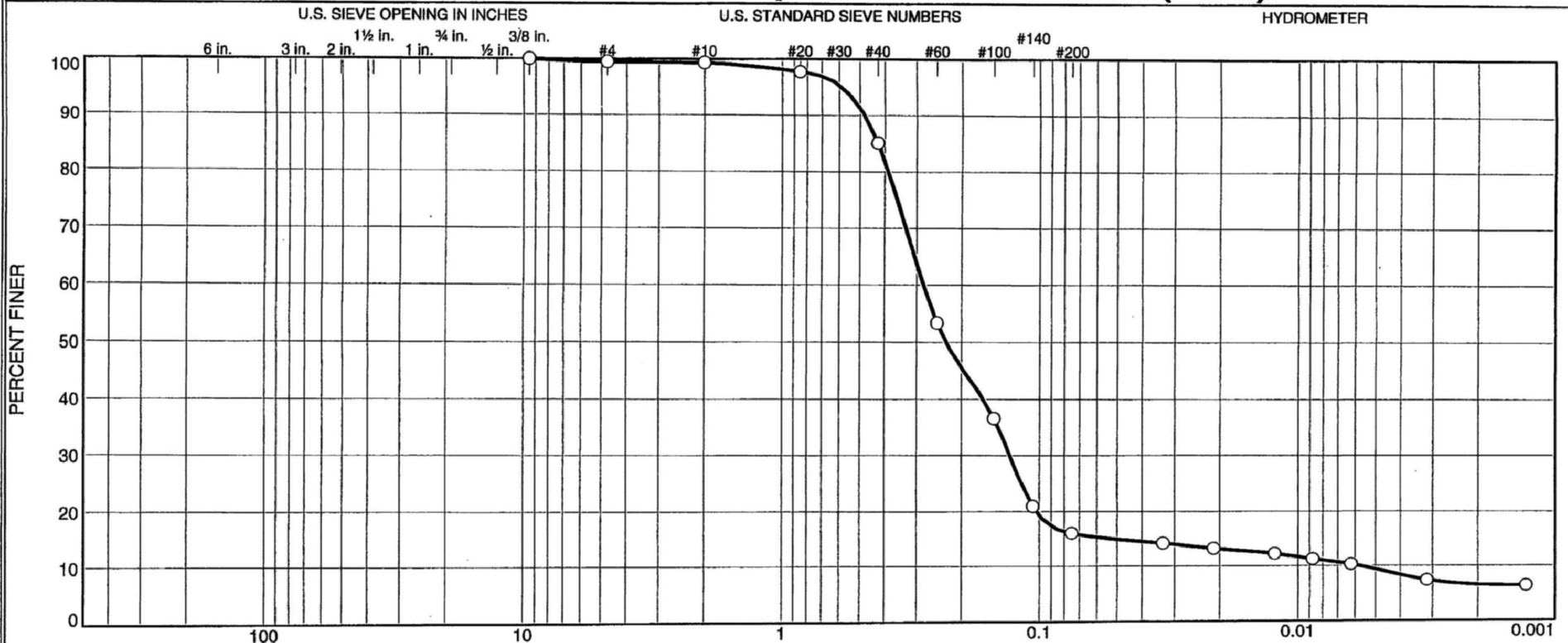
Run No.	1	2	3	4
Wet+Tare				
Dry+Tare				
Tare				
Moisture				

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
113.95	95.83	6.81	20.4

MACTEC, Inc.

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



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.2	14.2	69.0	6.7	9.4

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-2319	SS-7	20.0-21.5	12-16-08	SM	Pale Brown Silty SAND	15.3	NV	NP

Client: Bechtel		MACTEC, Inc. Raleigh, North Carolina	○ Specific Gravity is assumed
Project: Exelon Texas COL (Victoria Reservoir)			
Project No. 6468071777	Figure <i>NA</i>		

Tested By: CS

Checked By: LBJ

DSC 2-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/27/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2319

Depth: 20.0-21.5

Sample Number: SS-7

Material Description: Pale Brown Silty SAND

Date: 12-16-08

Natural Moisture: 15.3

Liquid Limit: NV

Plastic Limit: NP

USCS Class.: SM

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
247.56	0.00	0.00	.375	0.00	100.0
			#4	1.25	99.5
			#10	1.64	99.3
100.94	0.00	0.00	#20	1.58	97.8
			#40	14.47	85.1
			#60	46.67	53.4
			#100	63.76	36.6
			#140	79.63	21.0
			#200	84.63	16.1

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 99.3

Weight of hydrometer sample = 100.94

Hygroscopic moisture correction:

Moist weight and tare = 28.69

Dry weight and tare = 28.52

Tare weight = 15.46

Hygroscopic moisture = 1.3%

Table of composite correction values:

Temp., deg. C: 13.0 29.8

Comp. corr.: -8.0 -2.0

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	19.0	14.4	0.0130	20.0	13.0	0.0332	14.2
5.00	22.6	18.0	13.4	0.0130	19.0	13.2	0.0211	13.2
15.00	22.6	17.0	12.4	0.0130	18.0	13.3	0.0123	12.3
30.00	22.6	16.0	11.4	0.0130	17.0	13.5	0.0087	11.3
60.00	22.6	15.0	10.4	0.0130	16.0	13.7	0.0062	10.3
240.00	22.8	12.0	7.5	0.0130	13.0	14.2	0.0032	7.4
1440.00	22.6	11.0	6.4	0.0130	12.0	14.3	0.0013	6.3

MACTEC, Inc.

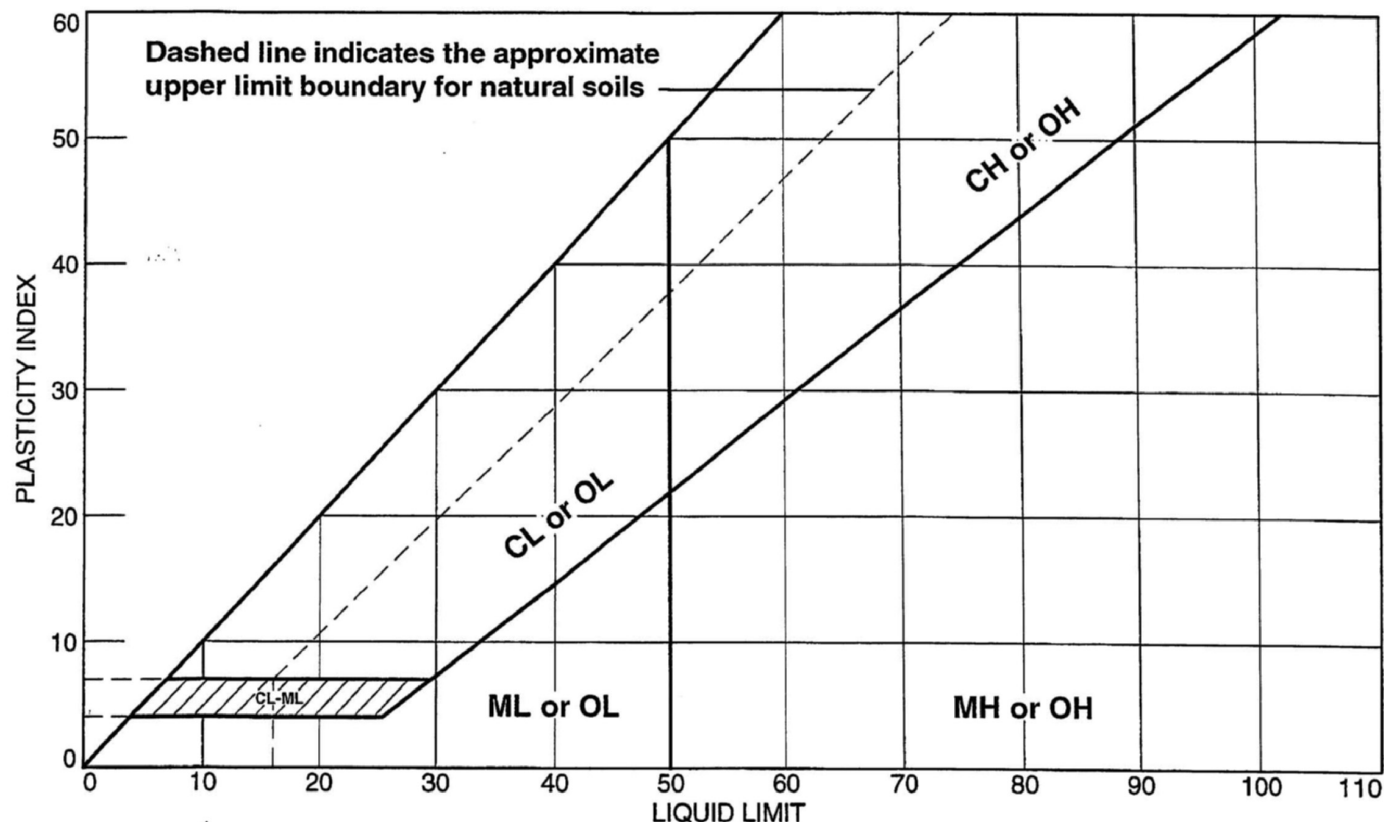
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.5	0.5	0.2	14.2	69.0	83.4	6.7	9.4	16.1

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0058	0.0519	0.1027	0.1301	0.2303	0.2825	0.3869	0.4242	0.4783	0.5845

Fineness Modulus	C _u	C _c
1.07	48.98	10.40

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-2319	SS-7	20.0-21.5	15.3	NP	NV	NP	SM

MACTEC, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project No.: 6468071777

Figure NA

Tested By: CS

Checked By: LBJ

DSC 2-28-08

LIQUID AND PLASTIC LIMIT TEST DATA

2/27/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2319

Depth: 20.0-21.5

Sample Number: SS-7

Material Description: Pale Brown Silty SAND

USCS: SM

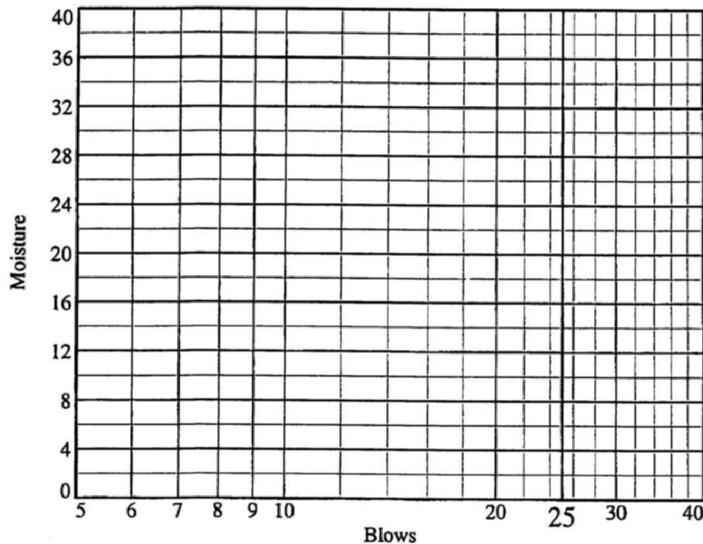
AASHTO: A-2-4(0)

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= 15.3

Plastic Limit Data

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

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
116.22	101.74	6.89	15.3

MACTEC, Inc.

U.S. SIEVE OPENING IN INCHES

U.S. STANDARD SIEVE NUMBERS

HYDROMETER

PERCENT FINER

GRAIN SIZE - mm.

Grain Size (mm)	Sieve / Hydrometer	Percent Finer (%)
6.0	U.S. Sieve	100
3.0	U.S. Sieve	100
2.0	U.S. Sieve	100
1.5	U.S. Sieve	100
1.0	U.S. Sieve	100
0.75	U.S. Sieve	100
0.6	U.S. Sieve	100
0.425	U.S. Sieve	100
0.3	U.S. Sieve	100
0.25	U.S. Sieve	100
0.2	U.S. Sieve	100
0.15	U.S. Sieve	100
0.106	U.S. Sieve	95
0.075	U.S. Sieve	85
0.05	U.S. Sieve	78
0.0375	U.S. Sieve	68
0.025	U.S. Sieve	63
0.015	U.S. Sieve	59
0.0106	U.S. Sieve	57
0.0075	U.S. Sieve	55
0.00425	U.S. Sieve	51
0.0025	U.S. Sieve	50

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○ Specific Gravity is assumed

GRAIN SIZE DISTRIBUTION TEST DATA

2/28/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2319

Depth: 25-26.5

Sample Number: SS-8

Material Description: Light Gray mottled Brownish Yellow Fat CLAY with sand

Date: 12-16-08

Natural Moisture: 22.3

Liquid Limit: 53

Plastic Limit: 15

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
187.62	0.00	0.00	#10	0.00	100.0
49.37	0.00	0.00	#20	0.00	100.0
			#40	0.06	99.9
			#60	0.10	99.8
			#100	1.92	96.1
			#140	6.15	87.5
			#200	9.52	80.7

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 49.37

Hygroscopic moisture correction:

Moist weight and tare = 29.07

Dry weight and tare = 28.65

Tare weight = 15.45

Hygroscopic moisture = 3.2%

Table of composite correction values:

Temp., deg. C: 13.0 29.8

Comp. corr.: -8.0 -2.0

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	22.9	38.0	33.5	0.0130	39.0	9.9	0.0289	69.3
5.00	22.9	36.0	31.5	0.0130	37.0	10.2	0.0186	65.2
15.00	22.9	34.0	29.5	0.0130	35.0	10.6	0.0109	61.0
30.00	22.7	33.0	28.5	0.0130	34.0	10.7	0.0078	58.8
60.00	22.5	32.0	27.4	0.0130	33.0	10.9	0.0056	56.6
240.00	23.1	30.0	25.6	0.0129	31.0	11.2	0.0028	52.9
1440.00	21.5	30.0	25.0	0.0132	31.0	11.2	0.0012	51.7

MACTEC, Inc.

Fractional Components

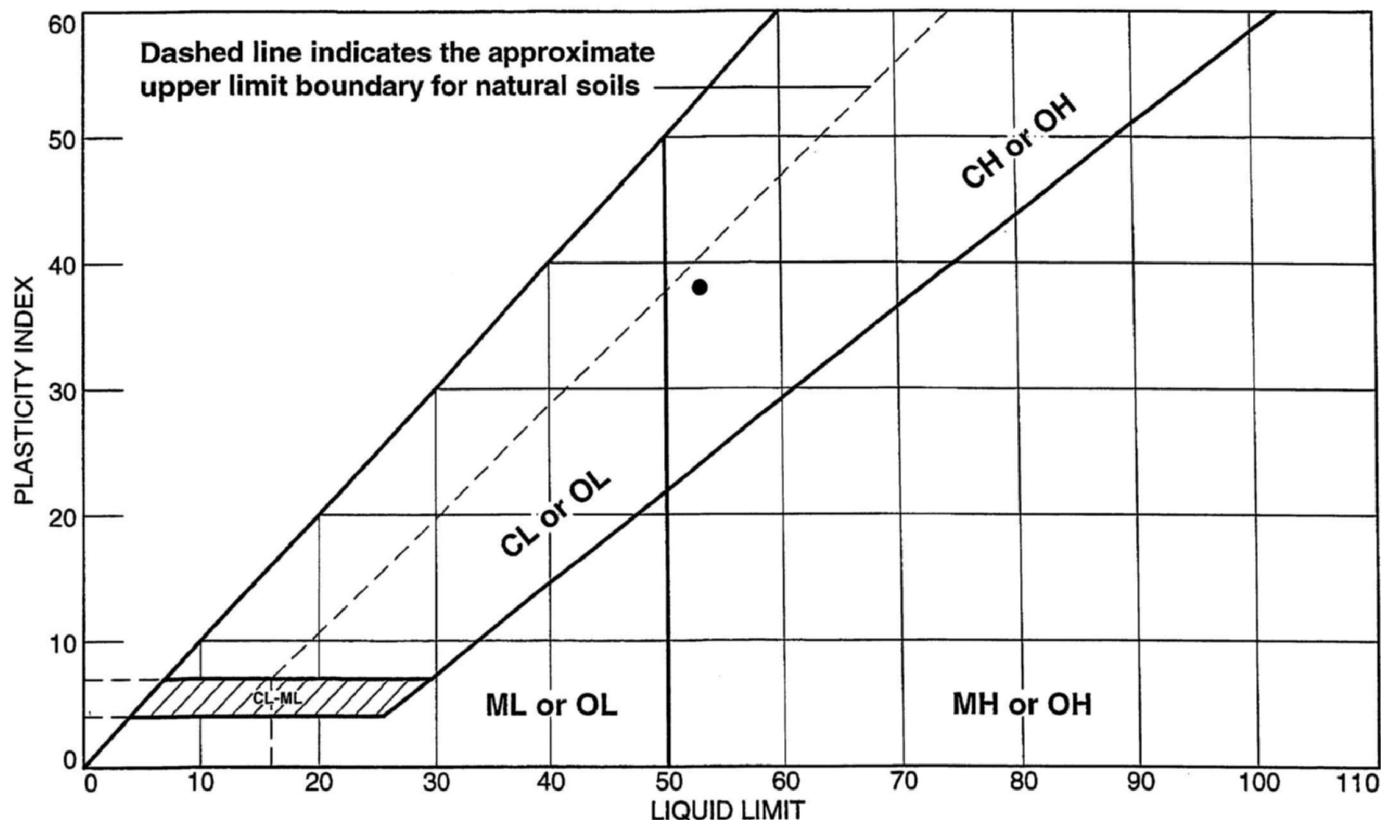
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	19.2	19.3	24.8	55.9	80.7

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
					0.0093	0.0717	0.0948	0.1166	0.1421

Fineness Modulus
0.04

MACTEC, Inc.

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-2319	SS-8	25-26.5	22.3	15	53	38	CH

MACTEC, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project No.: 6468071777

Figure NA

Tested By: CS

Checked By: LBJ

DSC 2-28-08

LIQUID AND PLASTIC LIMIT TEST DATA

2/28/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2319

Depth: 25-26.5

Sample Number: SS-8

Material Description: Light Gray mottled Brownish Yellow Fat CLAY with sand

USCS: CH

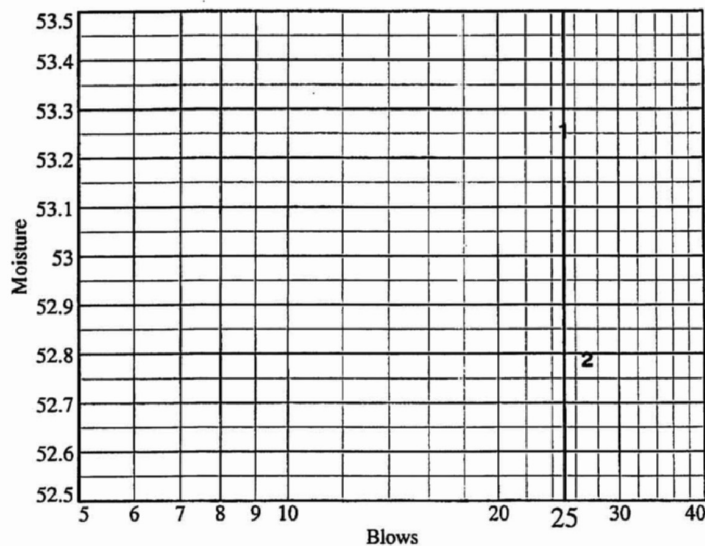
AASHTO: A-7-6(31)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	32.96	34.34				
Dry+Tare	26.99	27.81				
Tare	15.78	15.44				
# Blows	25	27				
Moisture	53.3	52.8				



Liquid Limit= 53
 Plastic Limit= 15
 Plasticity Index= 38
 Natural Moisture= 22.3
 Liquidity Index= 0.2

Plastic Limit Data

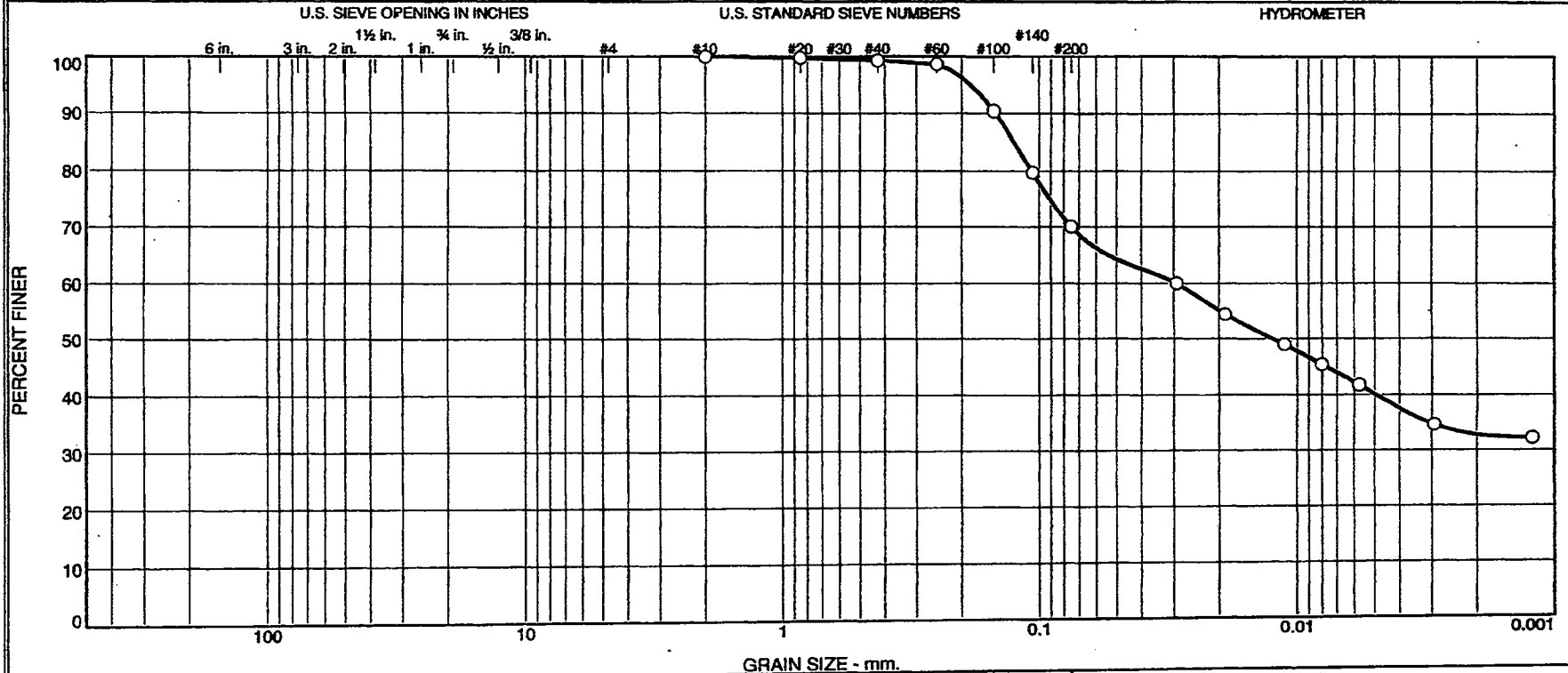
Run No.	1	2	3	4
Wet+Tare	22.30	24.89		
Dry+Tare	21.39	23.67		
Tare	15.47	15.39		
Moisture	15.4	14.7		

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
119.34	99.29	9.39	22.3

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	29.2	30.0	40.1

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-2319	SS-9	30.0-31.5	12-16-07	CL	Light Gray mottled Brownish Yellow Sandy Lean CLAY	16.3	37	12

Client Bechtel
Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777

Figure 14

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity is assumed

Tested By: CS

Checked By: LBJ

DSC 2-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/28/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2319

Depth: 30.0-31.5

Sample Number: SS-9

Material Description: Light Gray mottled Brownish Yellow Sandy Lean CLAY

Date: 12-16-07

Natural Moisture: 16.3

Liquid Limit: 37

Plastic Limit: 12

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
247.05	0.00	0.00	#10	0.00	100.0
54.00	0.00	0.00	#20	0.13	99.8
			#40	0.39	99.3
			#60	0.73	98.6
			#100	5.17	90.4
			#140	10.94	79.7
			#200	16.16	70.1

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 54.00

Hygroscopic moisture correction:

Moist weight and tare = 27.62

Dry weight and tare = 27.49

Tare weight = 15.39

Hygroscopic moisture = 1.1%

Table of composite correction values:

Temp., deg. C: 13.0 29.8

Comp. corr.: -8.0 -2.0

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	37.0	32.4	0.0130	38.0	10.1	0.0292	60.0
5.00	22.6	34.0	29.4	0.0130	35.0	10.6	0.0189	54.5
15.00	22.6	31.0	26.4	0.0130	32.0	11.0	0.0112	48.9
30.00	22.8	29.0	24.5	0.0130	30.0	11.4	0.0080	45.3
60.00	22.9	27.0	22.5	0.0130	28.0	11.7	0.0057	41.7
240.00	23.3	23.0	18.7	0.0129	24.0	12.4	0.0029	34.6
1440.00	22.5	22.0	17.4	0.0130	23.0	12.5	0.0012	32.2

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	0.7	29.2	29.9	30.0	40.1	70.1

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.0124	0.0291	0.1069	0.1248	0.1476	0.1846

Fineness Modulus
0.11

MACTEC, Inc.

Dashed line indicates the approximate upper limit boundary for natural soils

CH or OH

CL or OL

CL-ML

ML or OL

MH or OH

PLASTICITY INDEX

LIQUID LIMIT

DCN# EXE808

LIQUID AND PLASTIC LIMIT TEST DATA

2/28/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2319

Depth: 30.0-31.5

Sample Number: SS-9

Material Description: Light Gray mottled Brownish Yellow Sandy Lean CLAY

USCS: CL

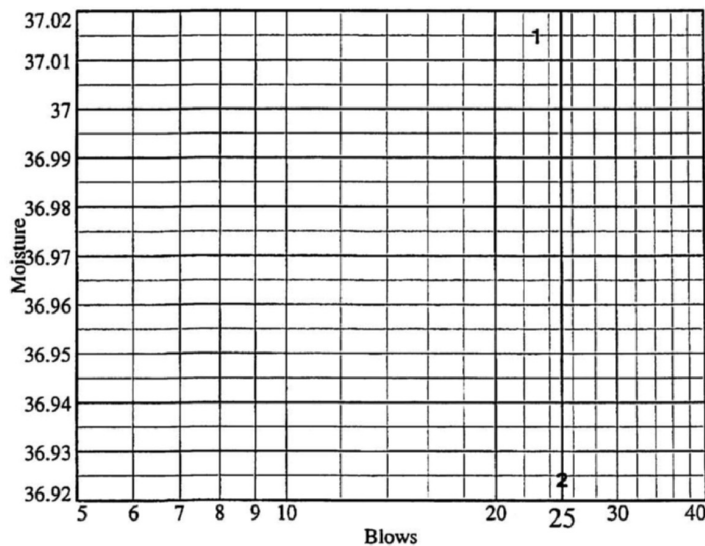
AASHTO: A-6(15)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	33.98	32.42				
Dry+Tare	29.02	27.93				
Tare	15.62	15.77				
# Blows	23	25				
Moisture	37.0	36.9				



Liquid Limit= 37
 Plastic Limit= 12
 Plasticity Index= 25
 Natural Moisture= 16.3
 Liquidity Index= 0.2

Plastic Limit Data

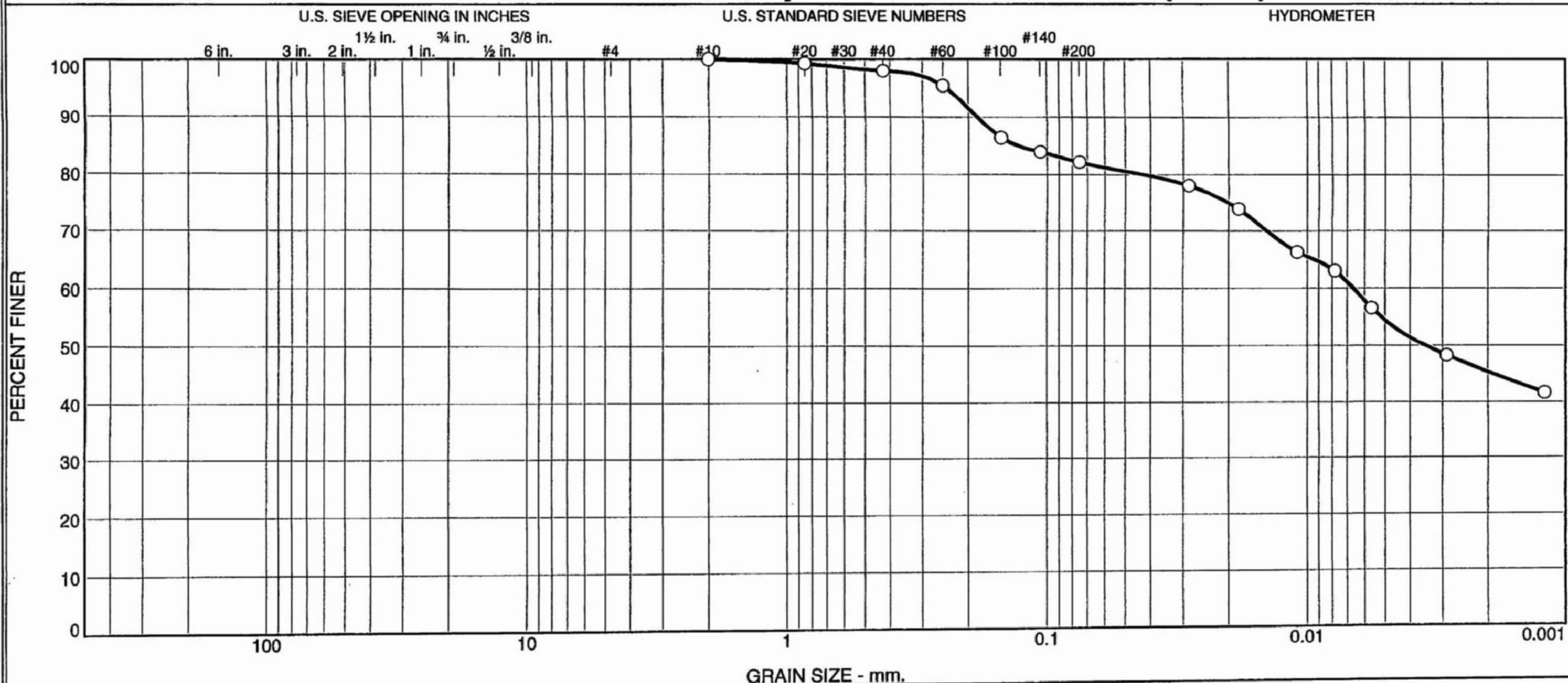
Run No.	1	2	3	4
Wet+Tare	23.50	24.98		
Dry+Tare	22.67	23.99		
Tare	15.59	15.41		
Moisture	11.7	11.5		

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
145.68	126.30	7.11	16.3

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	2.0	15.8	27.7	54.5

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-2319	SS-10	35.0-36.5	12-16-07	CL	Light Gray Lean CLAY with sand	16.4	48	13

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777

Figure *NA*
MACTEC, Inc.
Raleigh, North Carolina

○ Specific Gravity = 2.673 (ASTM D854-06)

Tested By: CS

Checked By: LBJ

DSC 2-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/28/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2319

Depth: 35.0-36.5

Sample Number: SS-10

Material Description: Light Gray Lean CLAY with sand

Date: 12-16-07

Natural Moisture: 16.4

Liquid Limit: 48

Plastic Limit: 13

USCS Class.: CL

Testing Remarks: Specific Gravity = 2.673 (ASTM D854-06)

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
179.22	0.00	0.00	#10	0.00	100.0
48.00	0.00	0.00	#20	0.35	99.3
			#40	0.96	98.0
			#60	2.21	95.4
			#100	6.47	86.5
			#140	7.66	84.0
			#200	8.53	82.2

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 48.00

Hygroscopic moisture correction:

Moist weight and tare = 28.64

Dry weight and tare = 28.20

Tare weight = 15.43

Hygroscopic moisture = 3.4%

Table of composite correction values:

Temp., deg. C: 13.0 29.8

Comp. corr.: -8.0 -2.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.673

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	22.5	41.0	36.4	0.0131	42.0	9.4	0.0285	78.0
5.00	22.6	39.0	34.4	0.0131	40.0	9.7	0.0183	73.8
15.00	22.6	35.5	30.9	0.0131	36.5	10.3	0.0109	66.3
30.00	22.6	34.0	29.4	0.0131	35.0	10.6	0.0078	63.1
60.00	22.6	31.0	26.4	0.0131	32.0	11.0	0.0056	56.7
240.00	22.9	27.0	22.5	0.0131	28.0	11.7	0.0029	48.3
1440.00	22.6	24.0	19.4	0.0131	25.0	12.2	0.0012	41.7

MACTEC, Inc.

Fractional Components

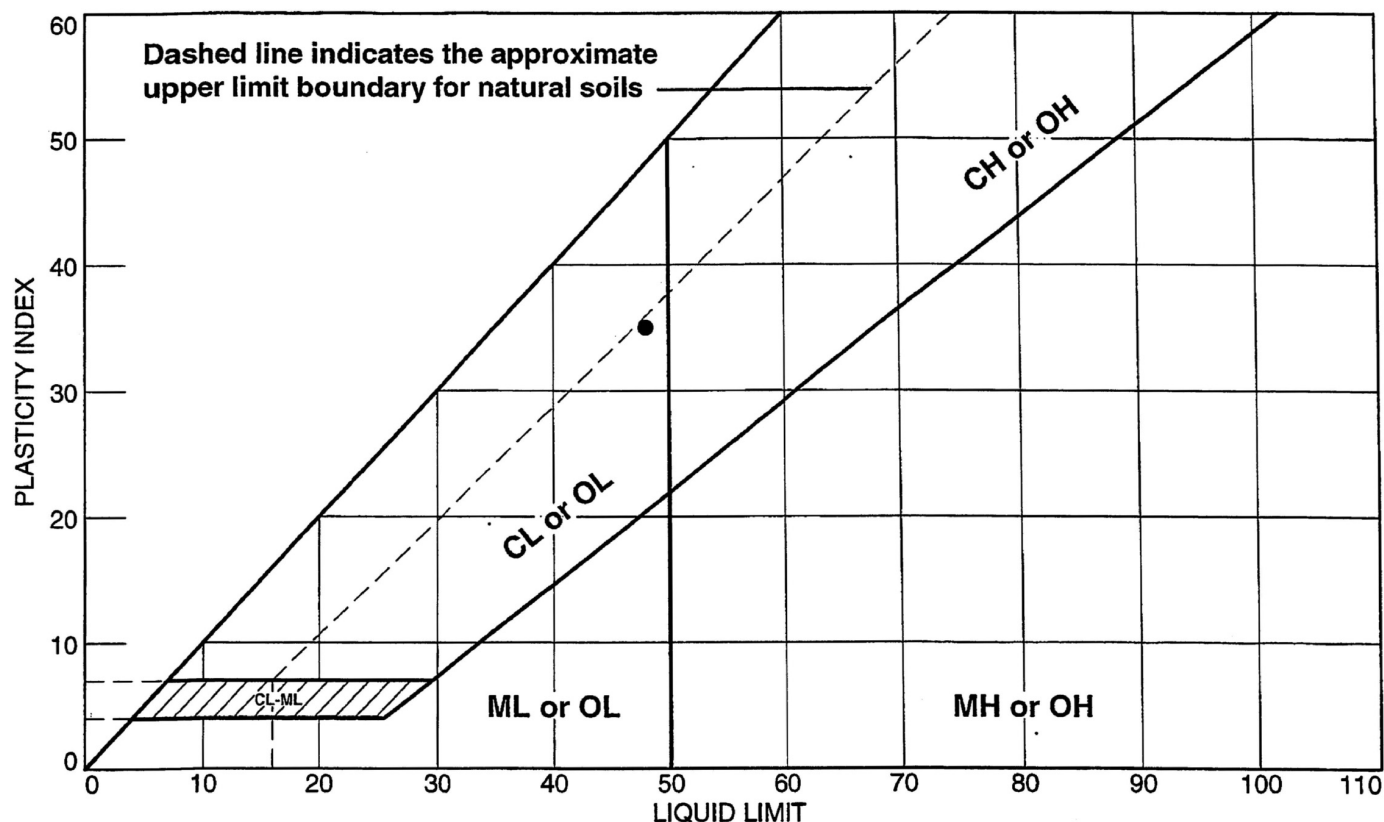
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	2.0	15.8	17.8	27.7	54.5	82.2

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.0035	0.0066	0.0425	0.1273	0.1847	0.2430

Fineness Modulus
0.18

MACTEC, Inc.

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-2319	SS-10	35.0-36.5	16.4	13	48	35	CL

MACTEC, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project No.: 6468071777

Figure NA

Tested By: CS

Checked By: LBJ

DSC 2-28-08

LIQUID AND PLASTIC LIMIT TEST DATA

2/28/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2319

Depth: 35.0-36.5

Sample Number: SS-10

Material Description: Light Gray Lean CLAY with sand

USCS: CL

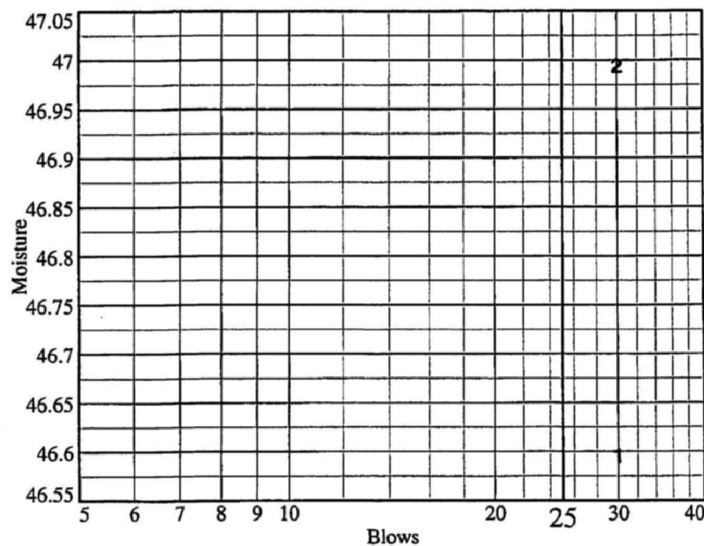
AASHTO: A-7-6(28)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	34.90	34.37				
Dry+Tare	28.74	28.35				
Tare	15.52	15.54				
# Blows	30	30				
Moisture	46.6	47.0				



Liquid Limit= 48
 Plastic Limit= 13
 Plasticity Index= 35
 Natural Moisture= 16.4
 Liquidity Index= 0.1

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	22.75	23.21			
Dry+Tare	21.87	22.30			
Tare	15.47	15.25			
Moisture	13.7	12.9			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
152.23	131.71	6.76	16.4

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: 1/26/08

SAMPLE IDENTIFICATION: B-2319 SS-10

(A) Mass of oven-dried soil, grams:	53.07
(B) Mass of pycnometer filled with water at test temperature (T), grams:	655.71
(C) Mass of pycnometer, water and soil, grams:	688.93
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	21.6
(G) Specific Gravity at observed temperature:	$A / [B - (C - A)]$ 2.674
(F)	Correction factor: 0.99966
(G x F)	SPECIFIC GRAVITY @ 20°C: 2.673

MATERIAL TESTED:

☒ - # 4

☐ - # 10

PREPARATION METHOD:

☒ DRY

☐ WET (dispersed)

REMARKS: Estimated % Passing # 4 : 100

Lean CLAY with sand (CL)

EQUIPMENT USED

SCALES :3.1.99

OVEN :5.1.16

THERMOMETER :5.1.01

PYCNO METER :P-3

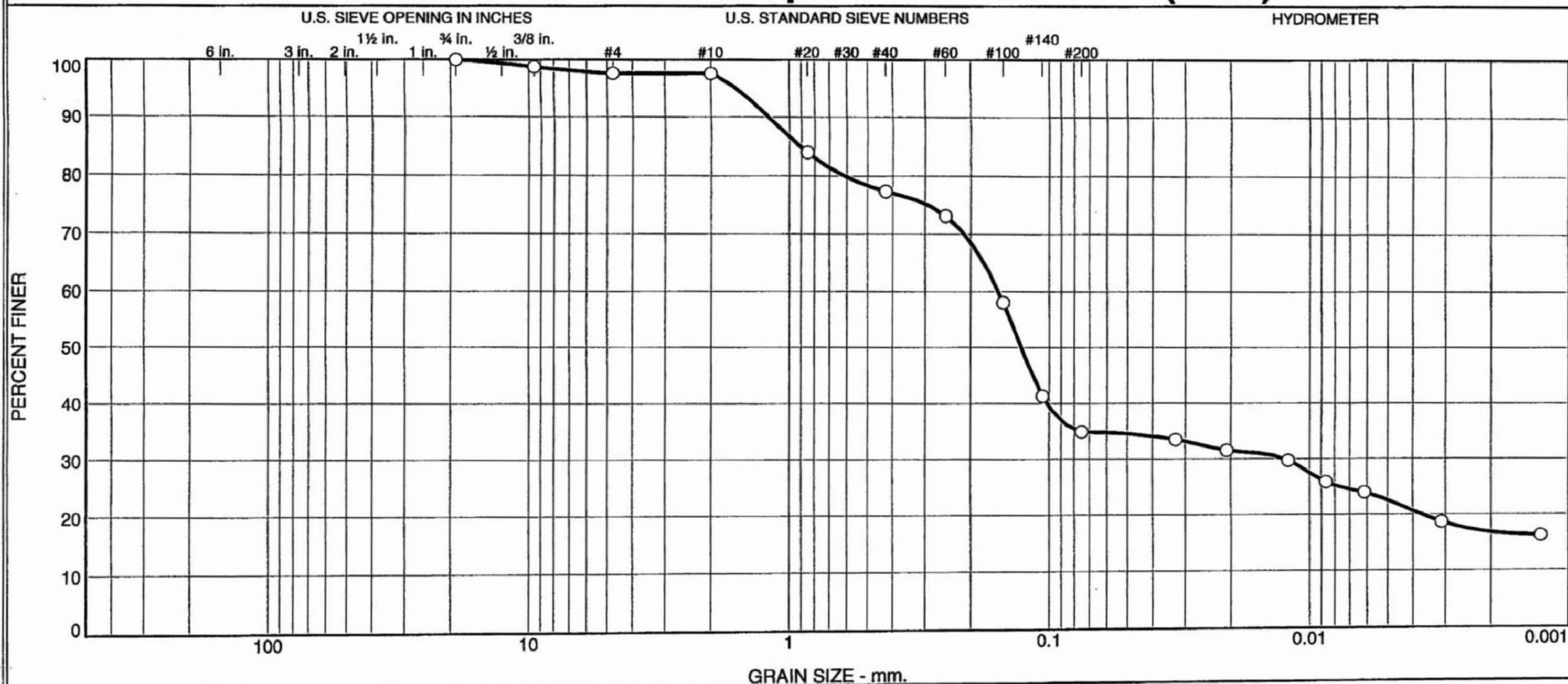
TESTED BY: CS

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

REVIEWED BY: Brian Johnson

DSC 2-28-08

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	2.4	0.1	20.2	42.4	12.3	22.6

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-2319	SS-11	40.0-41.5	12-16-07	SC	Light Yellowish Brown Clayey SAND	17.5	23	12

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

MACTEC, Inc.

○ Specific Gravity is assumed

Project No. 6468071777

Figure NA

Raleigh, North Carolina

Tested By: CS

Checked By: LBJ

DSC 2-28-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/28/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2319

Depth: 40.0-41.5

Sample Number: SS-11

Material Description: Light Yellowish Brown Clayey SAND

Date: 12-16-07

Natural Moisture: 17.5

Liquid Limit: 23

Plastic Limit: 12

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
266.97	0.00	0.00	3/4	0.00	100.0
			3/8"	3.45	98.7
			#4	6.50	97.6
			#10	6.62	97.5
51.02	0.00	0.00	#20	7.06	84.0
			#40	10.56	77.3
			#60	12.73	73.2
			#100	20.63	58.1
			#140	29.42	41.3
			#200	32.77	34.9

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 97.5

Weight of hydrometer sample = 51.02

Hygroscopic moisture correction:

Moist weight and tare = 28.49

Dry weight and tare = 28.28

Tare weight = 15.50

Hygroscopic moisture = 1.6%

Table of composite correction values:

Temp., deg. C: 13.0 29.8

Comp. corr.: -8.0 -2.0

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	22.0	17.4	0.0130	23.0	12.5	0.0326	33.5
5.00	22.6	21.0	16.4	0.0130	22.0	12.7	0.0207	31.6
15.00	22.7	20.0	15.5	0.0130	21.0	12.9	0.0120	29.7
30.00	22.7	18.0	13.5	0.0130	19.0	13.2	0.0086	25.9
60.00	22.7	17.0	12.5	0.0130	18.0	13.3	0.0061	23.9
240.00	23.4	14.0	9.7	0.0129	15.0	13.8	0.0031	18.7
1440.00	22.7	13.0	8.5	0.0130	14.0	14.0	0.0013	16.3

MACTEC, Inc.

Fractional Components

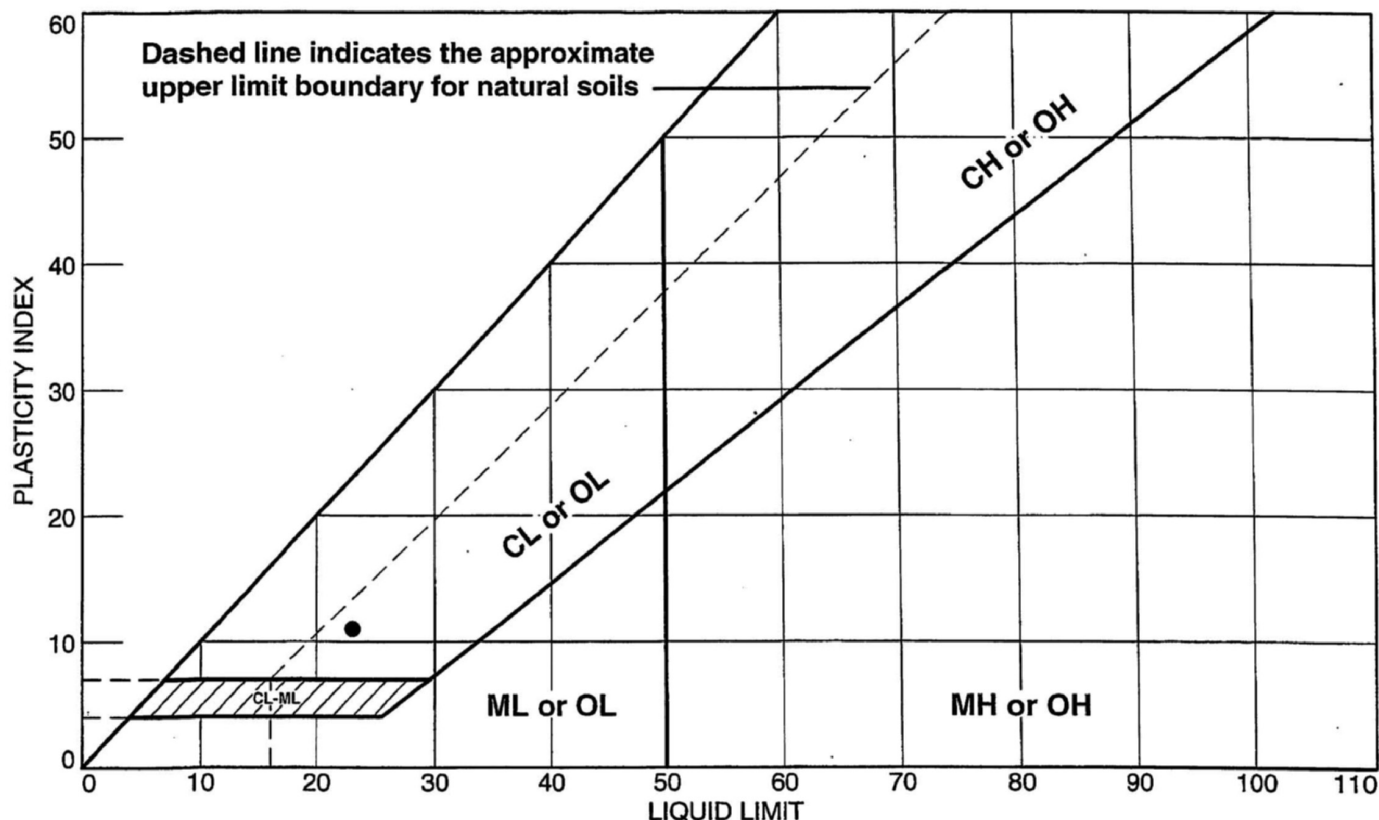
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	2.4	2.4	0.1	20.2	42.4	62.7	12.3	22.6	34.9

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.0037	0.0125	0.1280	0.1564	0.6121	0.9041	1.1994	1.6135

Fineness Modulus
1.03

MACTEC, Inc.

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-2319	SS-11	40.0-41.5	17.5	12	23	11	SC

MACTEC, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project No.: 6468071777

Figure NA

Tested By: CS

Checked By: LBJ

DSC 2-28-08

LIQUID AND PLASTIC LIMIT TEST DATA

2/28/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2319

Depth: 40.0-41.5

Sample Number: SS-11

Material Description: Light Yellowish Brown Clayey SAND

USCS: SC

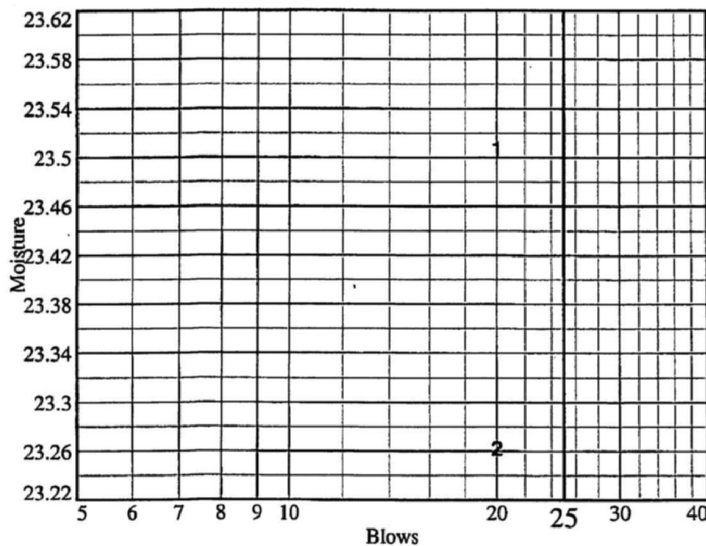
AASHTO: A-2-6(0)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	38.60	39.38				
Dry+Tare	34.19	34.86				
Tare	15.43	15.43				
# Blows	20	20				
Moisture	23.5	23.3				



Liquid Limit= 23
 Plastic Limit= 12
 Plasticity Index= 11
 Natural Moisture= 17.5
 Liquidity Index= 0.5

Plastic Limit Data

Run No.	1	2	3	4
Wet+Tare	26.83	28.13		
Dry+Tare	25.61	26.73		
Tare	15.42	15.50		
Moisture	12.0	12.5		

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
131.32	112.76	6.67	17.5

MACTEC, Inc.