

U.S. SIEVE OPENING IN INCHES

U.S. STANDARD SIEVE NUMBERS

HYDROMETER

PERCENT FINER

Sieve / Size	Percent Finer (%)
6 in.	100
3 in.	100
2 in.	100
1 1/2 in.	100
1 in.	100
3/4 in.	100
3/8 in.	100
#4	100
#10	100
#20	100
#30	100
#40	100
#60	100
#100	94
#140	77
#200	58
0.075 mm	47
0.06 mm	42
0.05 mm	38
0.04 mm	36
0.03 mm	34
0.02 mm	34
0.01 mm	32
0.0075 mm	30

[illegible][illegible]

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777

Figure *NA*

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: 75-76.5

Sample Number: SS-18

Material Description: Light Gray Sandy Lean CLAY

Date: 12-16-07

Natural Moisture: 20.4

Liquid Limit: 41

Plastic Limit: 16

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
274.40	0.00	0.00	#10	0.00	100.0
51.80	0.00	0.00	#20	0.01	100.0
			#40	0.15	99.7
			#60	0.61	98.8
			#100	3.38	93.5
			#140	11.86	77.1
			#200	21.98	57.6

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 51.80

Hygroscopic moisture correction:

Moist weight and tare = 21.75

Dry weight and tare = 21.71

Tare weight = 9.89

Hygroscopic moisture = 0.3%

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	23.2	26.0	21.6	0.0129	27.0	11.9	0.0315	41.5
5.00	23.2	24.0	19.6	0.0129	25.0	12.2	0.0202	37.6
15.00	23.1	23.0	18.6	0.0129	24.0	12.4	0.0117	35.6
30.00	23.0	22.0	17.6	0.0130	23.0	12.5	0.0084	33.7
60.00	22.8	22.0	17.5	0.0130	23.0	12.5	0.0059	33.5
240.00	22.6	21.0	16.4	0.0130	22.0	12.7	0.0030	31.5
1440.00	21.4	20.0	15.0	0.0132	21.0	12.9	0.0012	28.7

MACTEC, Inc.

Fractional Components

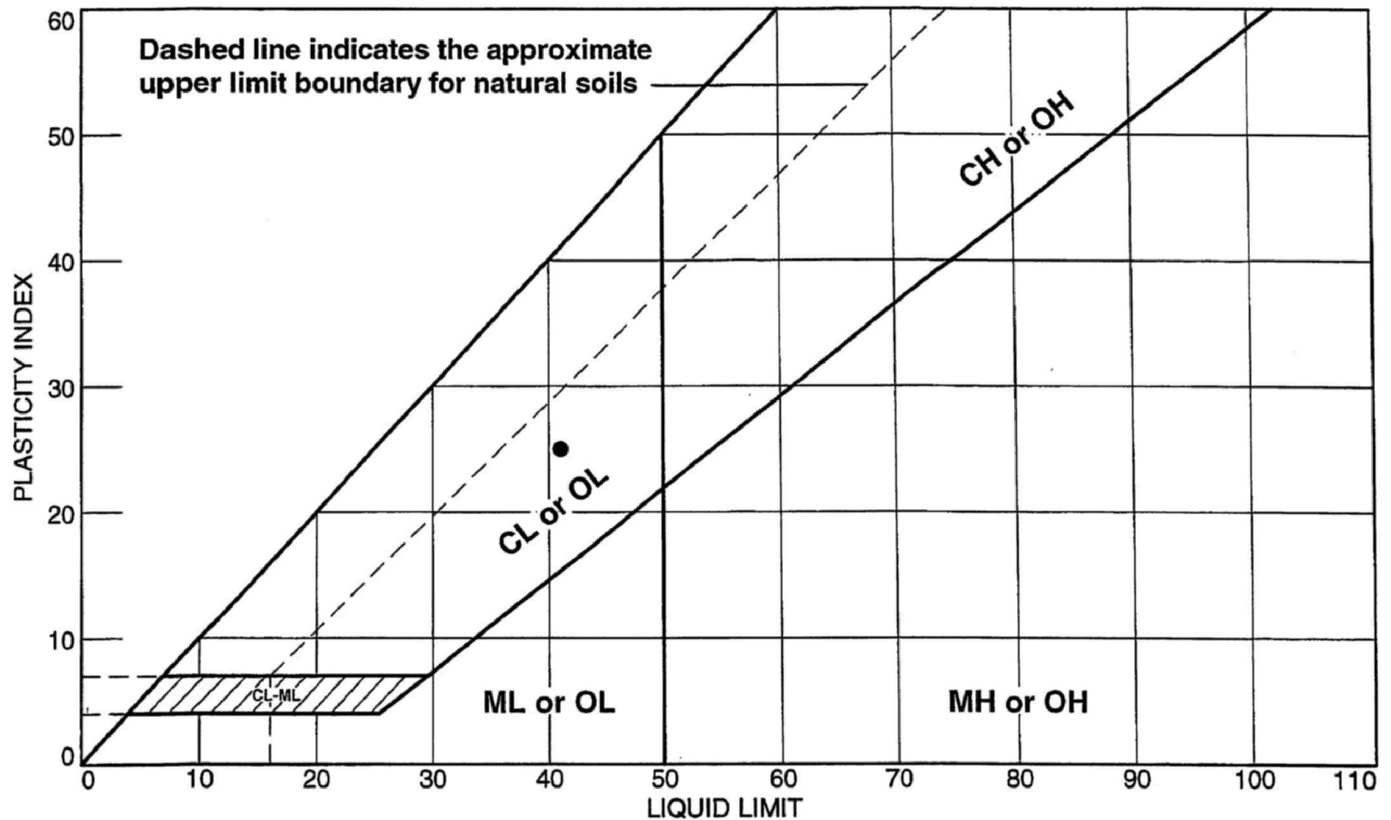
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.3	42.1	42.4	24.3	33.3	57.6

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.0020	0.0610	0.0788	0.1115	0.1224	0.1363	0.1585

Fineness Modulus
0.08

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-18	75-76.5	20.4	16	41	25	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: 75-76.5

Sample Number: SS-18

Material Description: Light Gray Sandy Lean CLAY

USCS: CL

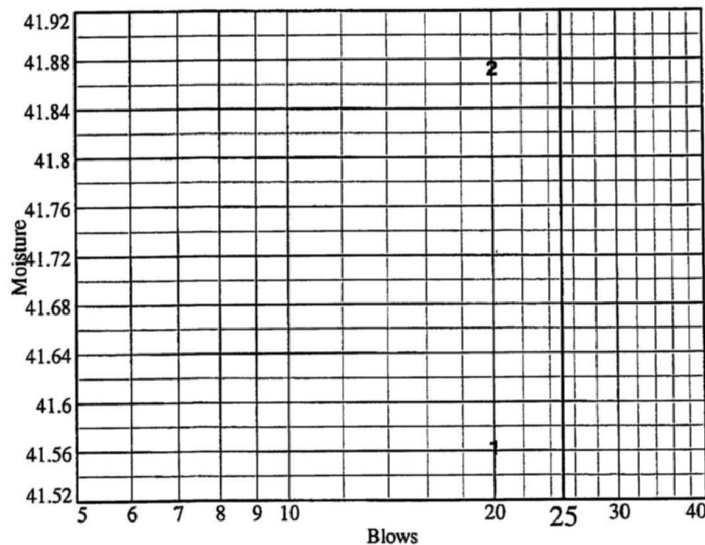
AASHTO: A-7-6(11)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	32.57	33.87				
Dry+Tare	27.57	28.46				
Tare	15.54	15.54				
# Blows	20	20				
Moisture	41.6	41.9				



Liquid Limit= 41
 Plastic Limit= 16
 Plasticity Index= 25
 Natural Moisture= 20.4
 Liquidity Index= 0.2

Plastic Limit Data

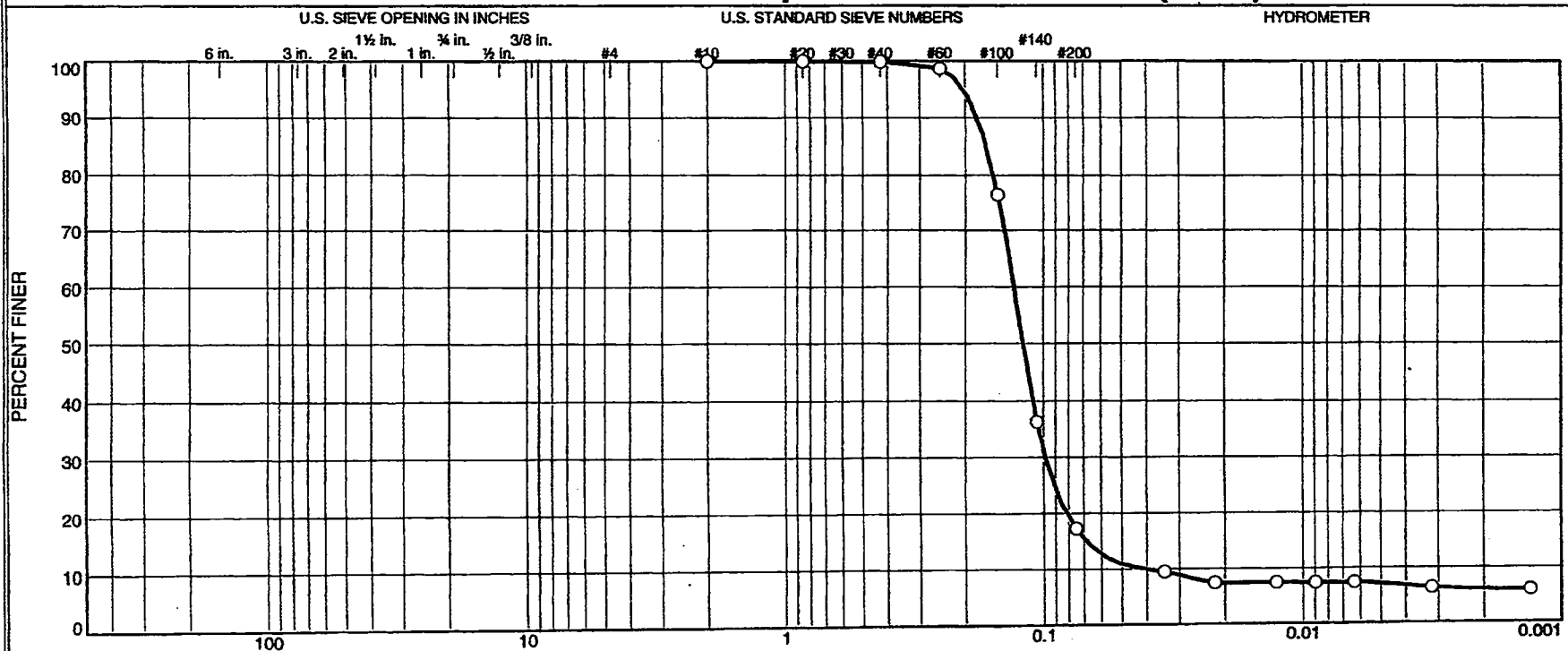
Run No.	1	2	3	4
Wet+Tare	25.96	23.83		
Dry+Tare	24.50	22.65		
Tare	15.49	15.42		
Moisture	16.2	16.3		

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
82.58	69.72	6.73	20.4

MACTEC, Inc.

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



GRAIN SIZE DISTRIBUTION TEST DATA

2/28/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2319

Depth: 80-81.5

Sample Number: SS-19

Material Description: Gray Silty SAND

Date: 12-16-07

Natural Moisture: 27.2

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
264.65	0.00	0.00	#10	0.00	100.0
99.46	0.00	0.00	#20	0.03	100.0
			#40	0.12	99.9
			#60	1.29	98.7
			#100	23.34	76.5
			#140	63.30	36.4
			#200	82.24	17.3

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 99.46

Hygroscopic moisture correction:

Moist weight and tare = 17.32

Dry weight and tare = 17.17

Tare weight = 4.31

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	R _m	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.7	14.0	9.5	0.0130	15.0	13.8	0.0342	9.5
5.00	22.7	12.0	7.5	0.0130	13.0	14.2	0.0219	7.5
15.00	22.7	12.0	7.5	0.0130	13.0	14.2	0.0126	7.5
30.00	22.6	12.0	7.4	0.0130	13.0	14.2	0.0089	7.5
60.00	22.6	12.0	7.4	0.0130	13.0	14.2	0.0063	7.5
240.00	22.6	11.0	6.4	0.0130	12.0	14.3	0.0032	6.5
1440.00	21.4	11.0	6.0	0.0132	12.0	14.3	0.0013	6.0

MACTEC, Inc.

Fractional Components

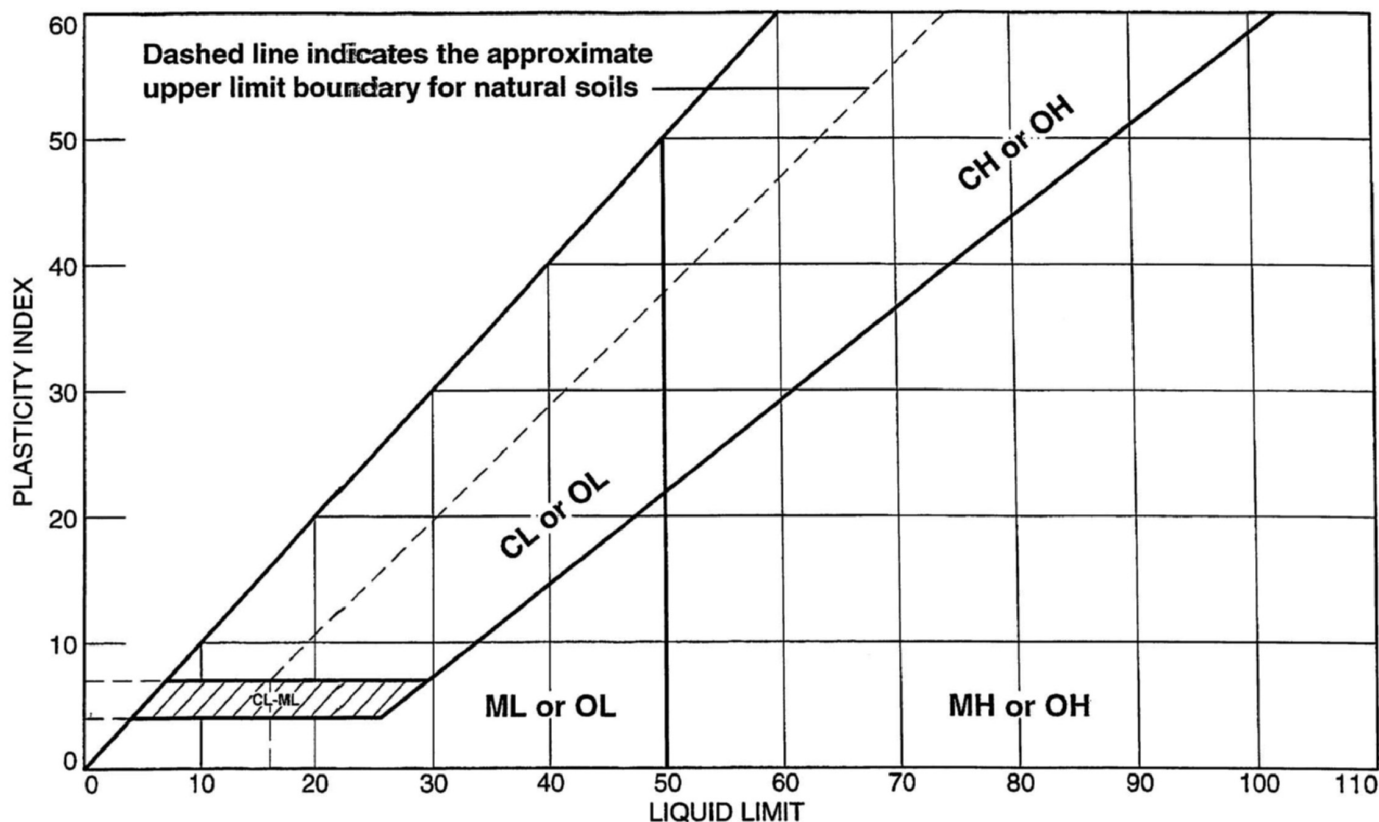
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	*Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	82.6	82.7	10.1	7.2	17.3

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0399	0.0682	0.0816	0.0984	0.1198	0.1299	0.1557	0.1658	0.1798	0.2036

Fineness Modulus	C _u	C _c
0.24	3.25	1.87

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-19	80-81.5	27.2	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

2/28/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2319

Depth: 80-81.5

Sample Number: SS-19

Material Description: Gray Silty SAND

USCS: SM

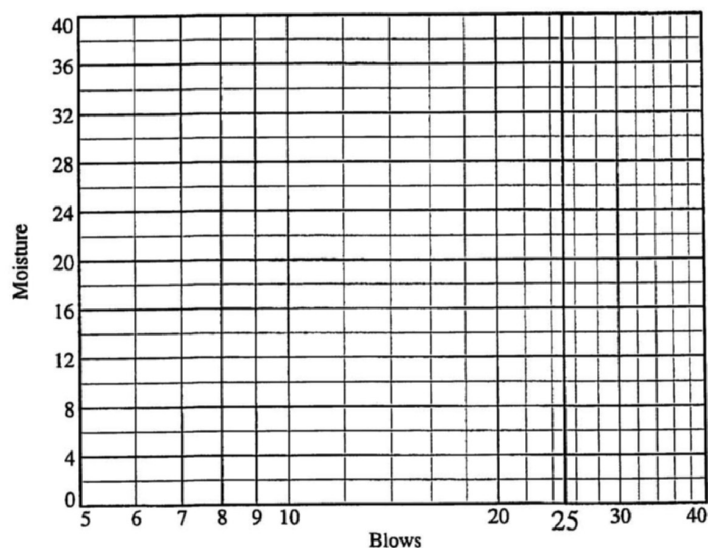
AASHTO: A-2-4(0)

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= 27.2

Plastic Limit Data

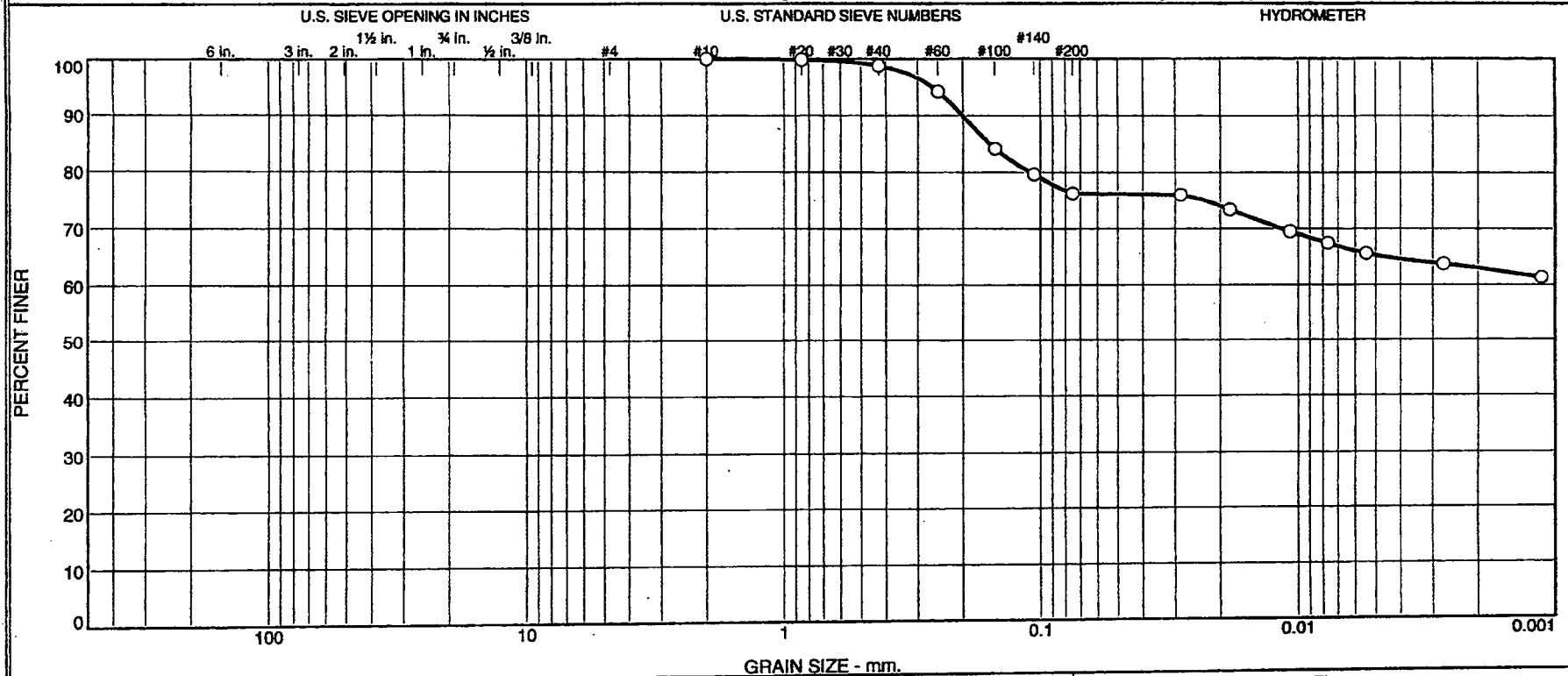
Run No.	1	2	3	4
Wet+Tare				
Dry+Tare				
Tare				
Moisture				

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
122.09	97.42	6.85	27.2

MACTEC, Inc.

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



GRAIN SIZE DISTRIBUTION TEST DATA

2/27/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2319

Depth: 85.0-86.5

Sample Number: SS-20

Material Description: Light Gray mottled Light Yellowish Brown Fat CLAY with sand

Date: 12-16-08

Natural Moisture: 30.7

Liquid Limit: 68

Plastic Limit: 20

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
212.88	0.00	0.00	#10	0.00	100.0
48.87	0.00	0.00	#20	0.07	99.9
			#40	0.60	98.8
			#60	2.84	94.2
			#100	7.73	84.2
			#140	9.96	79.6
			#200	11.62	76.2

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 48.87

Hygroscopic moisture correction:

Moist weight and tare = 28.36

Dry weight and tare = 28.14

Tare weight = 15.50

Hygroscopic moisture = 1.7%

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 = 2.70

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	21.2	42.0	36.9	0.0132	43.0	9.2	0.0285	76.0
5.00	20.4	41.0	35.6	0.0134	42.0	9.4	0.0183	73.4
15.00	20.8	39.0	33.8	0.0133	40.0	9.7	0.0107	69.6
30.00	20.8	38.0	32.8	0.0133	39.0	9.9	0.0076	67.5
60.00	21.1	37.0	31.9	0.0133	38.0	10.1	0.0054	65.7
240.00	21.4	36.0	31.0	0.0132	37.0	10.2	0.0027	63.8
1440.00	20.9	35.0	29.8	0.0133	36.0	10.4	0.0011	61.4

MACTEC, Inc.

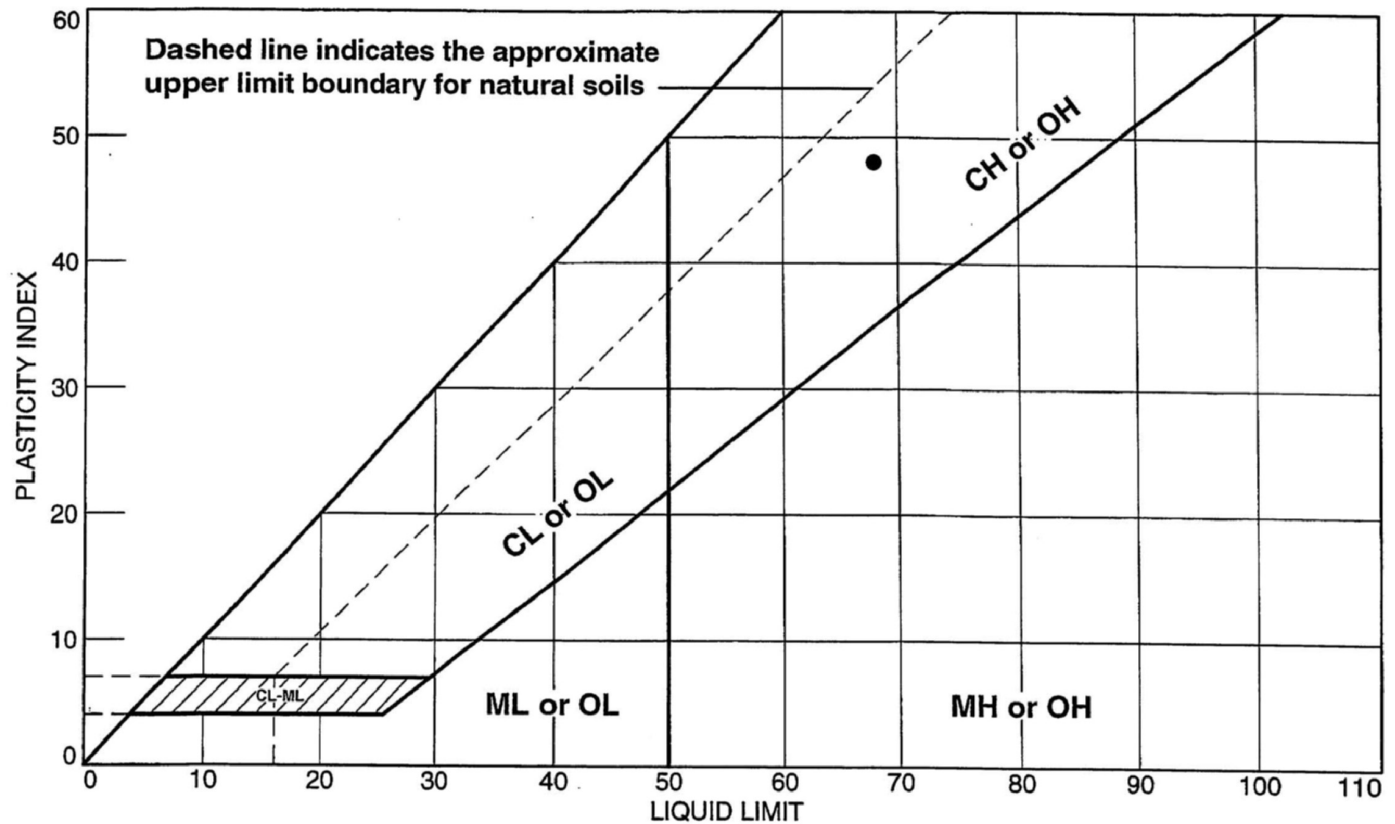
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	1.2	22.6	23.8	10.9	65.3	76.2

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
						0.1096	0.1571	0.2007	0.2638

Fineness Modulus
0.20

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-20	85.0-86.5	30.7	20	68	48	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

2/27/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2319

Depth: 85.0-86.5

Sample Number: SS-20

Material Description: Light Gray mottled Light Yellowish Brown Fat CLAY with sand

USCS: CH

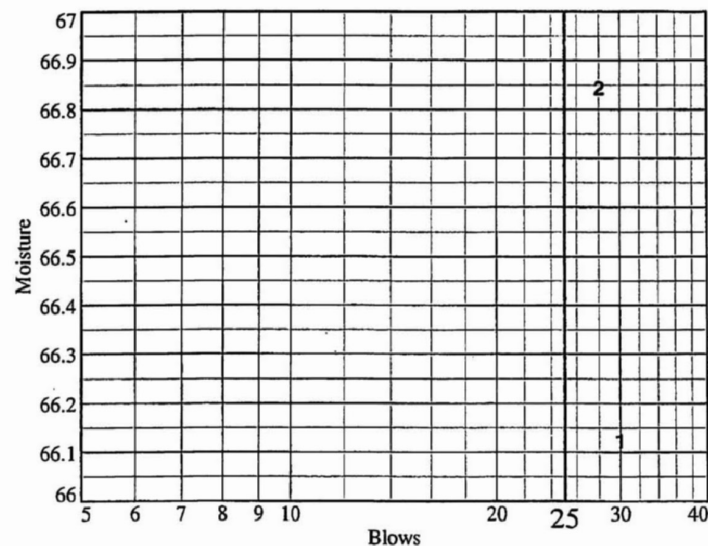
AASHTO: A-7-6(37)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	30.94	31.06				
Dry+Tare	24.85	24.79				
Tare	15.64	15.41				
# Blows	30	28				
Moisture	66.1	66.8				



Liquid Limit= 68
 Plastic Limit= 20
 Plasticity Index= 48
 Natural Moisture= 30.7
 Liquidity Index= 0.2

Plastic Limit Data

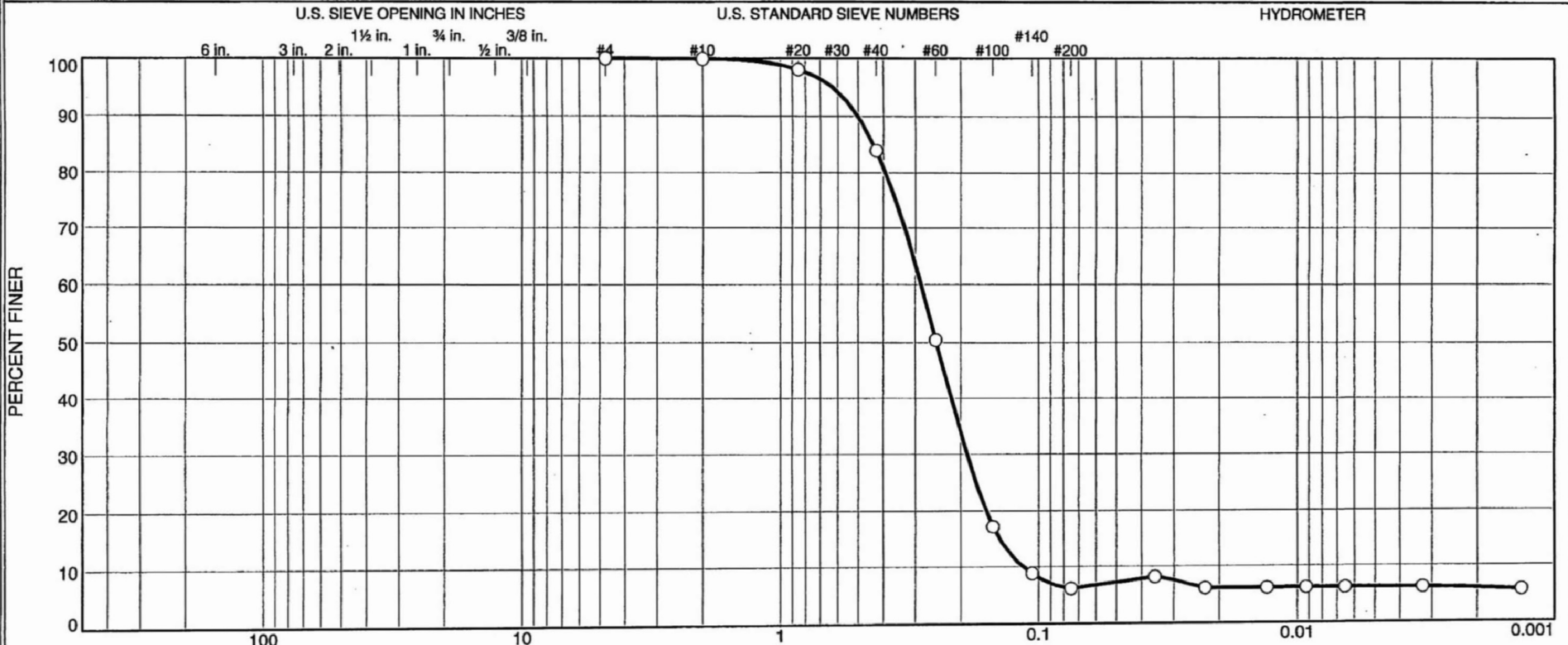
Run No.	1	2	3	4
Wet+Tare	22.56	23.16		
Dry+Tare	21.38	21.87		
Tare	15.50	15.48		
Moisture	20.1	20.2		

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
103.10	81.11	9.40	30.7

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	0.1	16.0	77.7	0.0	6.2

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-2319	SS-21	90-91.5	12-16-08	SP-SM	Pale Brown Poorly Graded SAND with silt	18.9	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: 90-91.5

Sample Number: SS-21

Material Description: Pale Brown Poorly Graded SAND with silt

Date: 12-16-08

Natural Moisture: 18.9

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
255.83	0.00	0.00	#4	0.00	100.0
			#10	0.20	99.9
50.75	0.00	0.00	#20	0.93	98.1
			#40	8.12	83.9
			#60	25.12	50.5
			#100	42.04	17.1
			#140	46.26	8.8
			#200	47.62	6.2

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 99.9

Weight of hydrometer sample = 50.76

Hygroscopic moisture correction:

Moist weight and tare = 21.89

Dry weight and tare = 21.83

Tare weight = 9.46

Hygroscopic moisture = 0.5%

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	21.9	9.0	4.2	0.0131	10.0	14.7	0.0355	8.2
5.00	21.8	8.0	3.1	0.0131	9.0	14.8	0.0226	6.1
15.00	21.8	8.0	3.1	0.0131	9.0	14.8	0.0131	6.1
30.00	21.9	8.0	3.2	0.0131	9.0	14.8	0.0092	6.2
60.00	21.9	8.0	3.2	0.0131	9.0	14.8	0.0065	6.2
240.00	21.9	8.0	3.2	0.0131	9.0	14.8	0.0033	6.2
1440.00	21.2	8.0	2.9	0.0132	9.0	14.8	0.0013	5.7

MACTEC, Inc.

Fractional Components

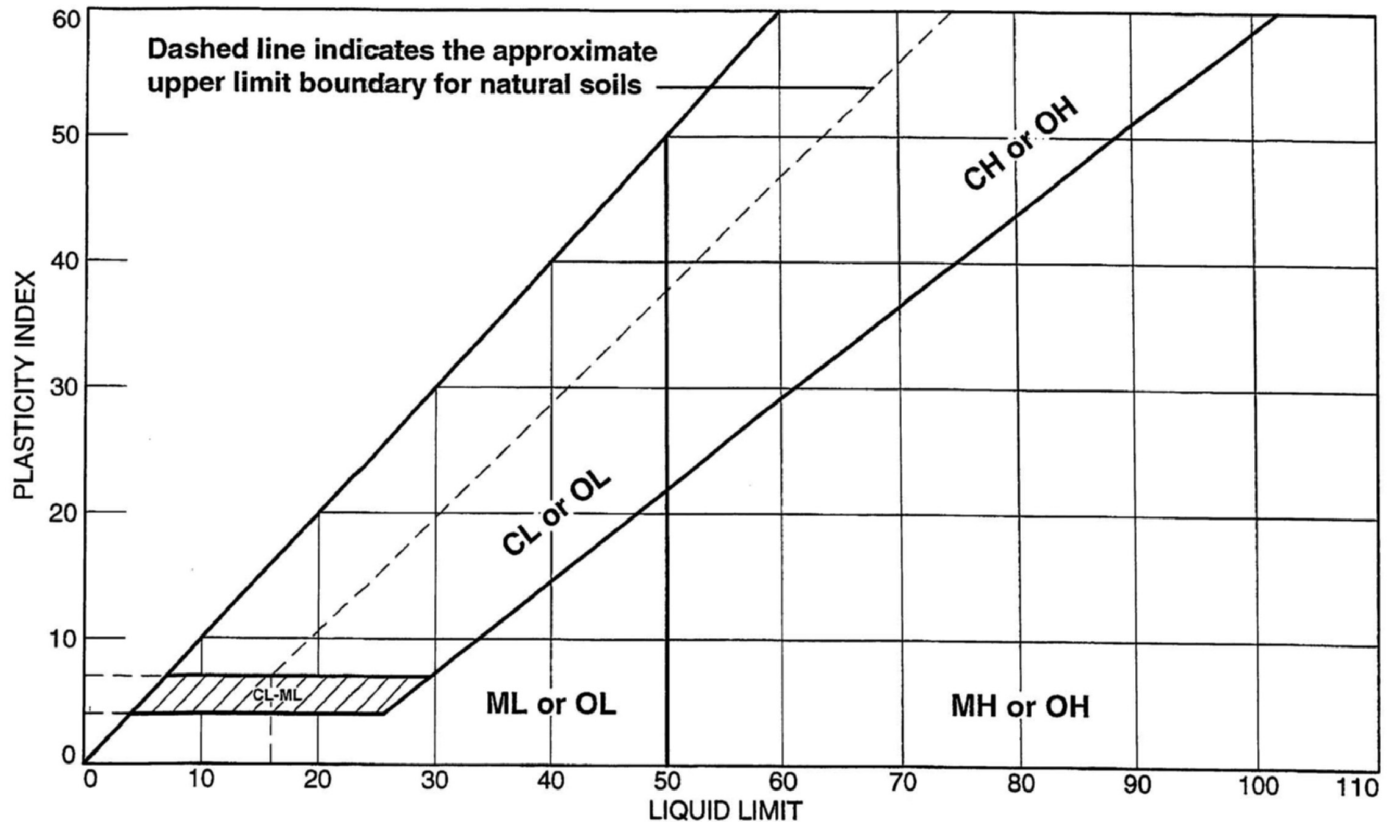
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	16.0	77.7	93.8	0.0	6.2	6.2

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.1151	0.1418	0.1595	0.1888	0.2485	0.2848	0.3917	0.4356	0.5007	0.6250

Fineness Modulus	C _u	C _c
1.26	2.48	1.09

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-21	90-91.5	18.9	NP	NV	NP	SP-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: 90-91.5

Sample Number: SS-21

Material Description: Pale Brown Poorly Graded SAND with silt

USCS: SP-SM

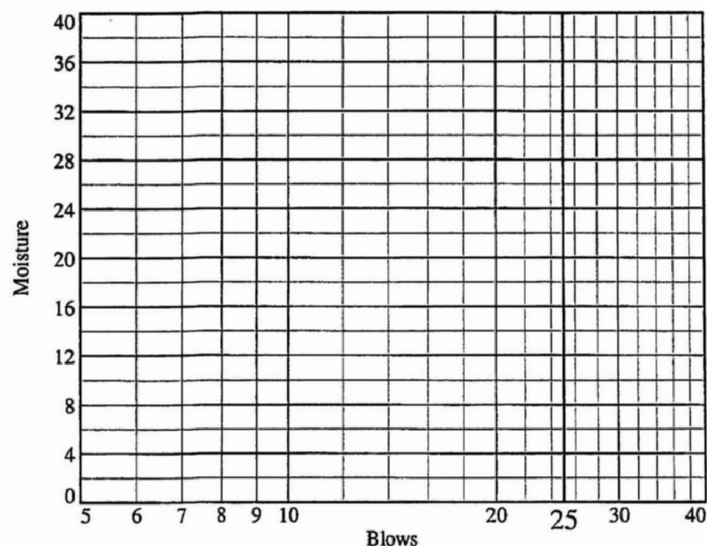
AASHTO: A-3

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= 18.9

Plastic Limit Data

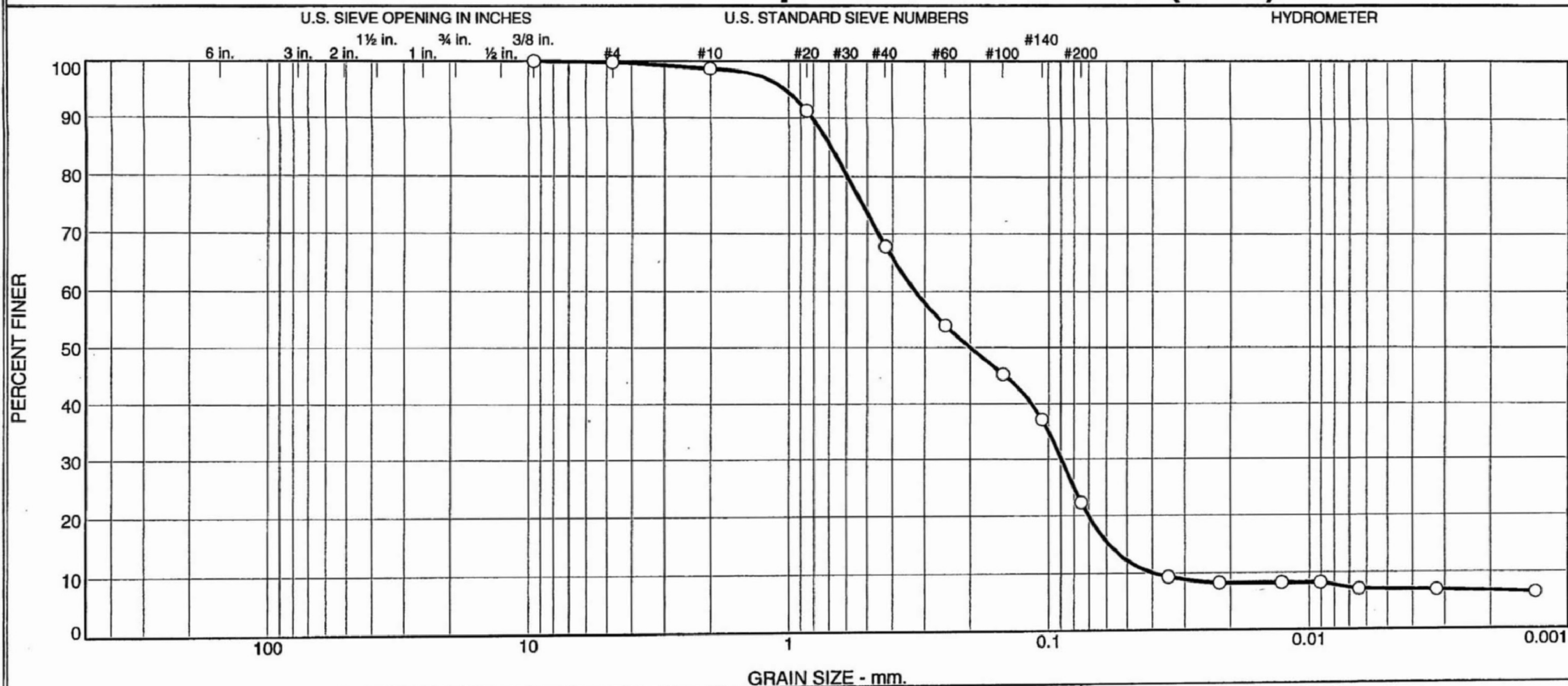
Run No.	1	2	3	4
Wet+Tare				
Dry+Tare				
Tare				
Moisture				

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
104.99	89.48	7.20	18.9

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	0.2	1.1	30.9	45.4	15.3	7.1

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-2319	SS-22	95.0-96.5	12-16-07	SM	Light Gray Silty SAND	17.6	NV	NP

Client Bechtel		MACTEC, Inc. Raleigh, North Carolina	○ Specific Gravity = 2.654 (ASTM D584-06)
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: 95.0-96.5

Sample Number: SS-22

Material Description: Light Gray Silty SAND

Date: 12-16-07

Natural Moisture: 17.6

Liquid Limit: NV

Plastic Limit: NP

USCS Class.: SM

Testing Remarks: Specific Gravity = 2.654 (ASTM D584-06)

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
246.60	0.00	0.00	.375	0.00	100.0
			#4	0.44	99.8
			#10	3.15	98.7
95.67	0.00	0.00	#20	7.24	91.3
			#40	29.94	67.8
			#60	43.34	54.0
			#100	51.78	45.3
			#140	59.62	37.2
			#200	74.00	22.4

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 98.7

Weight of hydrometer sample = 95.67

Hygroscopic moisture correction:

Moist weight and tare = 28.98

Dry weight and tare = 28.27

Tare weight = 15.49

Hygroscopic moisture = 5.6%

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 = 2.654

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	23.1	13.0	8.6	0.0131	14.0	14.0	0.0347	9.4
5.00	23.1	12.0	7.6	0.0131	13.0	14.2	0.0221	8.3
15.00	23.1	12.0	7.6	0.0131	13.0	14.2	0.0128	8.3
30.00	23.1	12.0	7.6	0.0131	13.0	14.2	0.0090	8.3
60.00	23.0	11.0	6.6	0.0131	12.0	14.3	0.0064	7.2
240.00	22.6	11.0	6.4	0.0132	12.0	14.3	0.0032	7.0
1440.00	21.3	11.0	6.0	0.0134	12.0	14.3	0.0013	6.5

MACTEC, Inc.

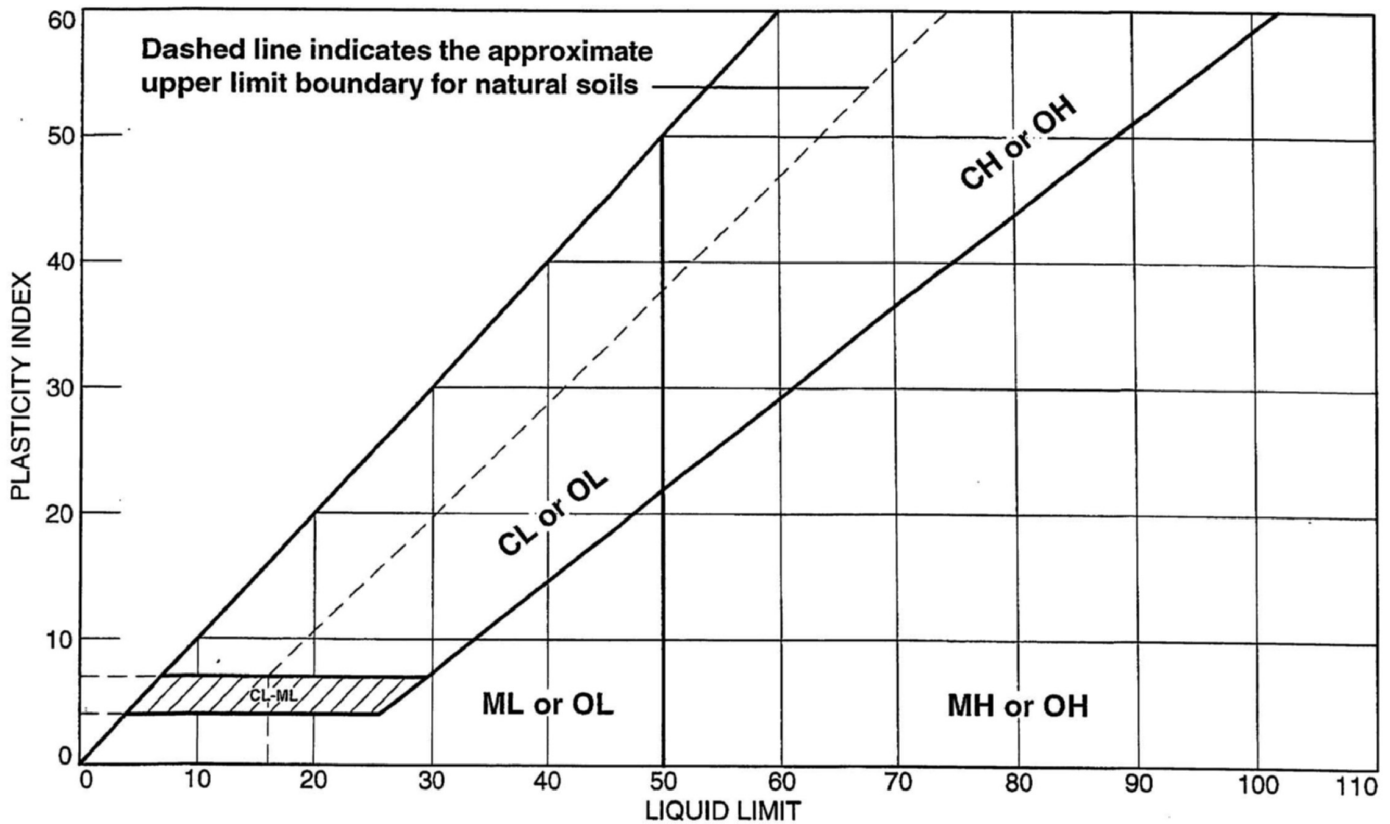
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.2	0.2	1.1	30.9	45.4	77.4	15.3	7.1	22.4

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.0396	0.0587	0.0703	0.0893	0.2004	0.3256	0.5961	0.6873	0.8097	1.0304

Fineness Modulus	C _u	C _c
1.21	8.23	0.62

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-22	95.0-96.5	17.6	NP	NV	NP	SM

MACTEC, Inc. Raleigh, North Carolina		Client: Bechtel Project: Exelon Texas COL (Victoria Reservoir) Project No.: 6468071777	Figure <i>NA</i>
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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: 95.0-96.5

Sample Number: SS-22

Material Description: Light Gray Silty SAND

USCS: SM

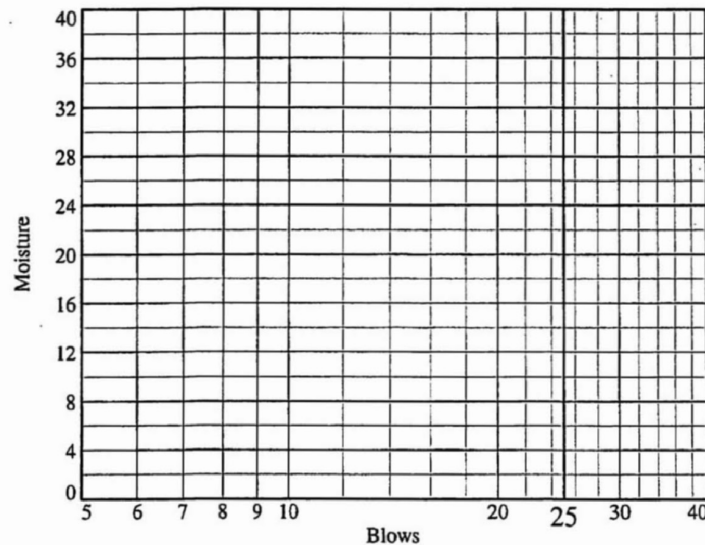
AASHTO: A-2-4(0)

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= 17.6

Plastic Limit Data

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

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
208.67	178.77	9.19	17.6

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: 2/1/08

SAMPLE IDENTIFICATION: B-2319 SS-22

(A) Mass of oven-dried soil, grams:	75.00
(B) Mass of pycnometer filled with water at test temperature (T), grams:	655.74
(C) Mass of pycnometer, water and soil, grams:	702.49
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	21.4
(G) Specific Gravity at observed temperature:	$A / [B - (C - A)]$
(F)	Correction factor:
(G x F)	SPECIFIC GRAVITY @ 20°C:

MATERIAL TESTED:

☒ - # 4

☐ - # 10

PREPARATION METHOD:

☒ DRY

☐ WET (dispersed)

REMARKS: Estimated % Passing # 4 : 100

Silty SAND (SM)

EQUIPMENT USED

SCALES :3.1.99

OVEN :5.1.16

THERMOMETER :5.1.01

PYCNOMETER :P-3

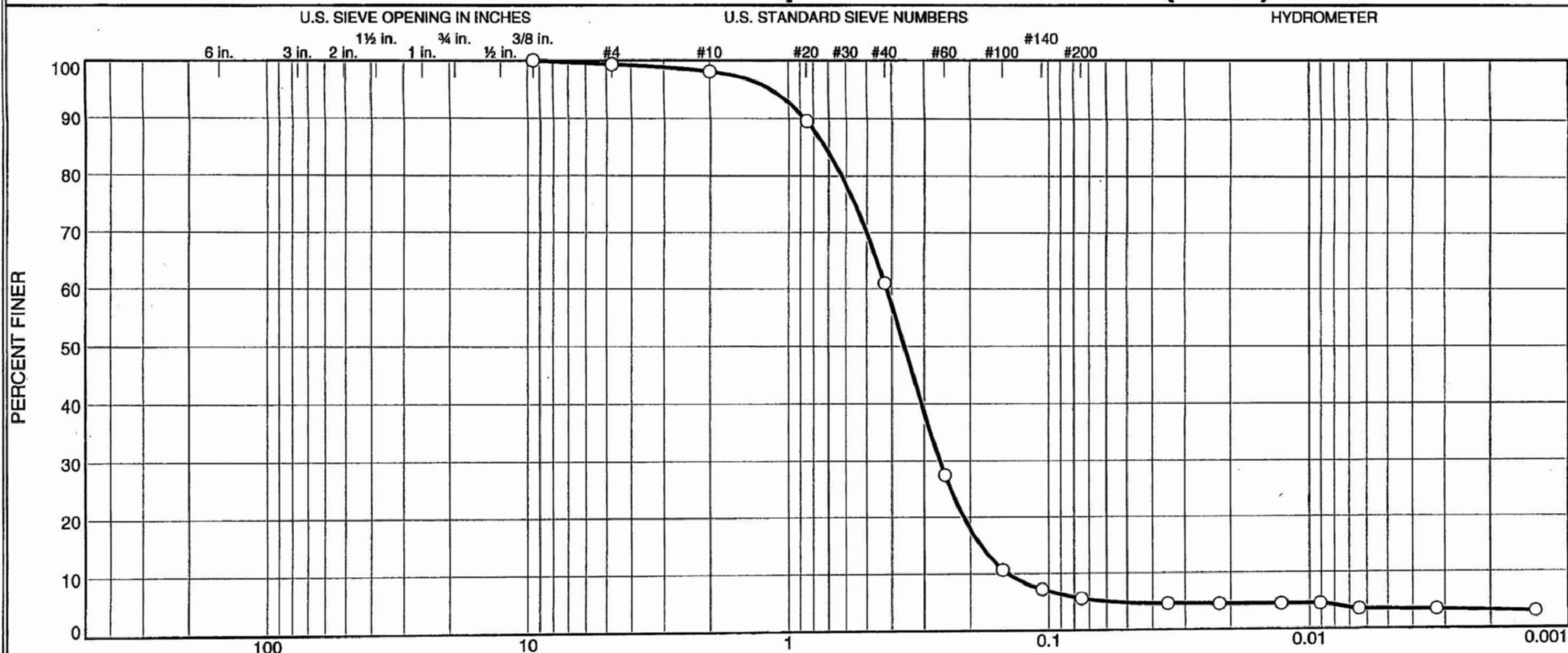
TESTED BY: CS

\\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



GRAIN SIZE DISTRIBUTION TEST DATA

2/28/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2319

Depth: 100-101.5

Sample Number: SS-23

Material Description: Pale Brown Poorly Graded Sand with silt

Date: 12-16-07

Natural Moisture: 17.3

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
238.31	0.00	0.00	.375	0.00	100.0
			#4	1.52	99.4
			#10	4.51	98.1
98.89	0.00	0.00	#20	8.58	89.6
			#40	37.36	61.0
			#60	71.16	27.5
			#100	88.12	10.7
			#140	91.58	7.3
			#200	93.26	5.6

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 98.1

Weight of hydrometer sample = 98.89

Hygroscopic moisture correction:

Moist weight and tare = 28.30

Dry weight and tare = 28.15

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	23.3	9.0	4.7	0.0129	10.0	14.7	0.0350	4.6
5.00	23.1	9.0	4.6	0.0129	10.0	14.7	0.0222	4.6
15.00	23.1	9.0	4.6	0.0129	10.0	14.7	0.0128	4.6
30.00	23.1	9.0	4.6	0.0129	10.0	14.7	0.0090	4.6
60.00	23.0	8.0	3.6	0.0130	9.0	14.8	0.0064	3.5
240.00	22.7	8.0	3.5	0.0130	9.0	14.8	0.0032	3.4
1440.00	21.5	8.0	3.0	0.0132	9.0	14.8	0.0013	3.0

MACTEC, Inc.

Fractional Components

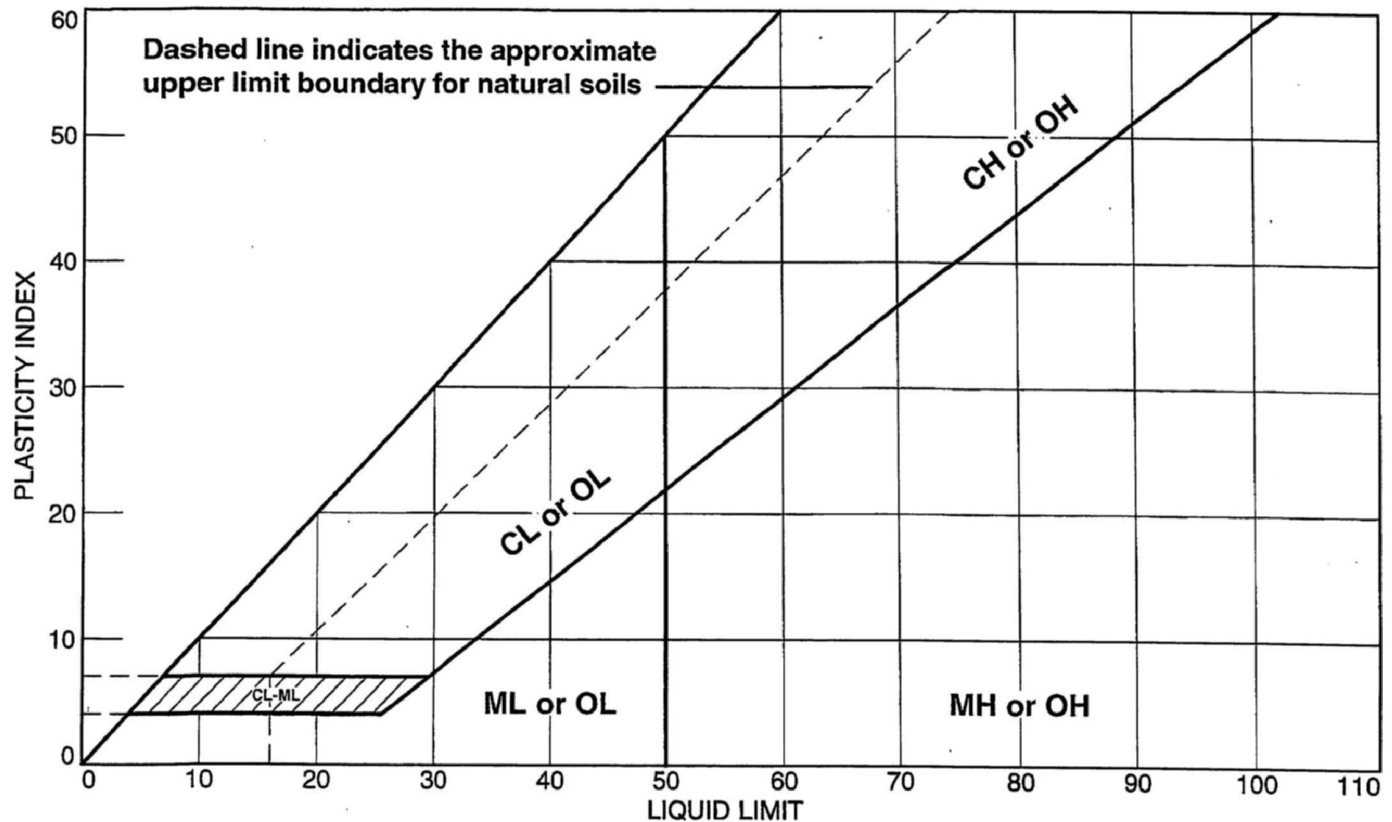
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.6	0.6	1.3	37.1	55.4	93.8	2.1	3.5	5.6

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.1434	0.1825	0.2121	0.2617	0.3579	0.4178	0.6239	0.7193	0.8650	1.1654

Fineness Modulus	C _u	C _c
1.80	2.91	1.14

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-23	100-101.5	17.3	NP	NV	NP	SP-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: 100-101.5

Sample Number: SS-23

Material Description: Pale Brown Poorly Graded Sand with silt

USCS: SP-SM

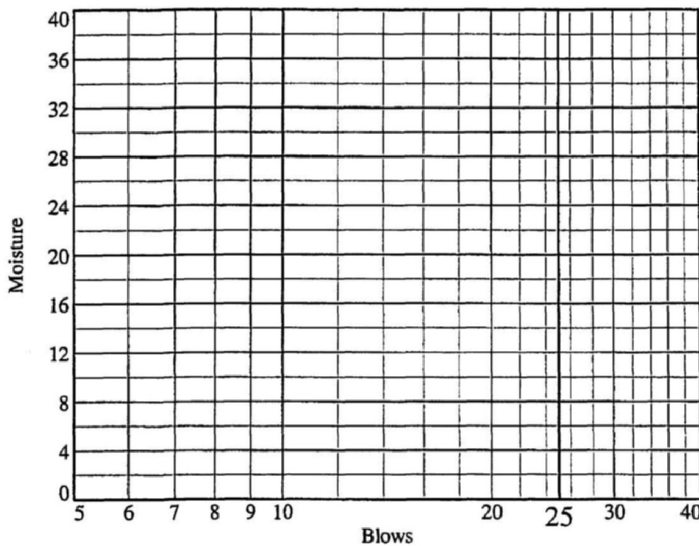
AASHTO: A-3

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= 17.3

Plastic Limit Data

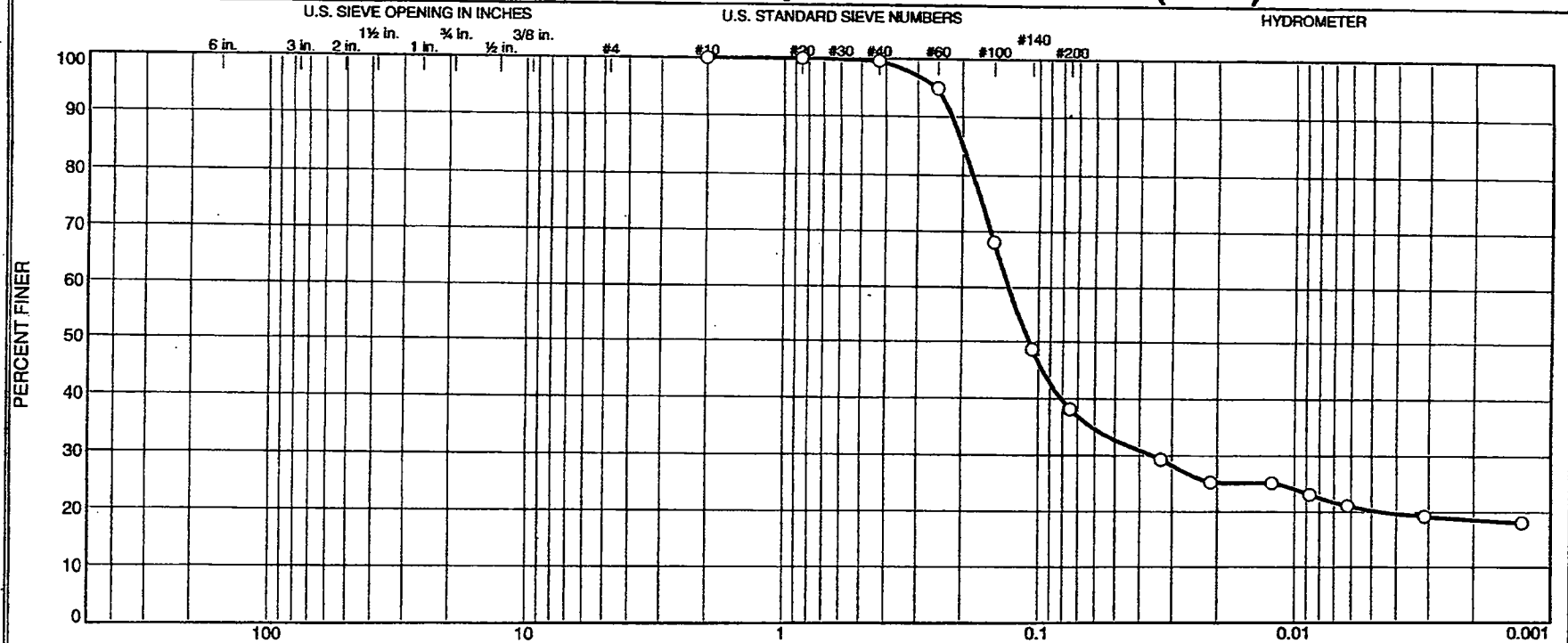
Run No.	1	2	3	4
Wet+Tare				
Dry+Tare				
Tare				
Moisture				

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
85.36	73.79	6.79	17.3

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	0.0	0.0	0.4	61.4	17.9	20.3

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-2319	SS-24	110.0-111.5	12-16-07	SM	Pale Brown Silty SAND	24.8	21	19

Client Bechtel
Project Exelon Texas COL (Victoria Reservoir)

MACTEC, Inc.

○ Specific Gravity is assumed

Project No. 6468071777

Figure 1/1

Raleigh, North Carolina

Tested By: CS

Checked By: IRI 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: 110.0-111.5

Sample Number: SS-24

Material Description: Pale Brown Silty SAND

Date: 12-16-07

Natural Moisture: 24.8

Liquid Limit: 21

Plastic Limit: 19

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
254.50	0.00	0.00	#10	0.00	100.0
50.22	0.00	0.00	#20	0.01	100.0
			#40	0.18	99.6
			#60	2.55	94.9
			#100	16.03	68.1
			#140	25.76	48.7
			#200	31.05	38.2

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 50.22

Hygroscopic moisture correction:

Moist weight and tare = 20.40

Dry weight and tare = 20.12

Tare weight = 8.78

Hygroscopic moisture = 2.5%

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	19.0	14.5	0.0130	20.0	13.0	0.0331	29.3
5.00	22.9	17.0	12.5	0.0130	18.0	13.3	0.0212	25.3
15.00	22.8	17.0	12.5	0.0130	18.0	13.3	0.0123	25.2
30.00	22.7	16.0	11.5	0.0130	17.0	13.5	0.0087	23.1
60.00	22.7	15.0	10.5	0.0130	16.0	13.7	0.0062	21.1
240.00	22.9	14.0	9.5	0.0130	15.0	13.8	0.0031	19.2
1440.00	21.4	14.0	9.0	0.0132	15.0	13.8	0.0013	18.2

MACTEC, Inc.

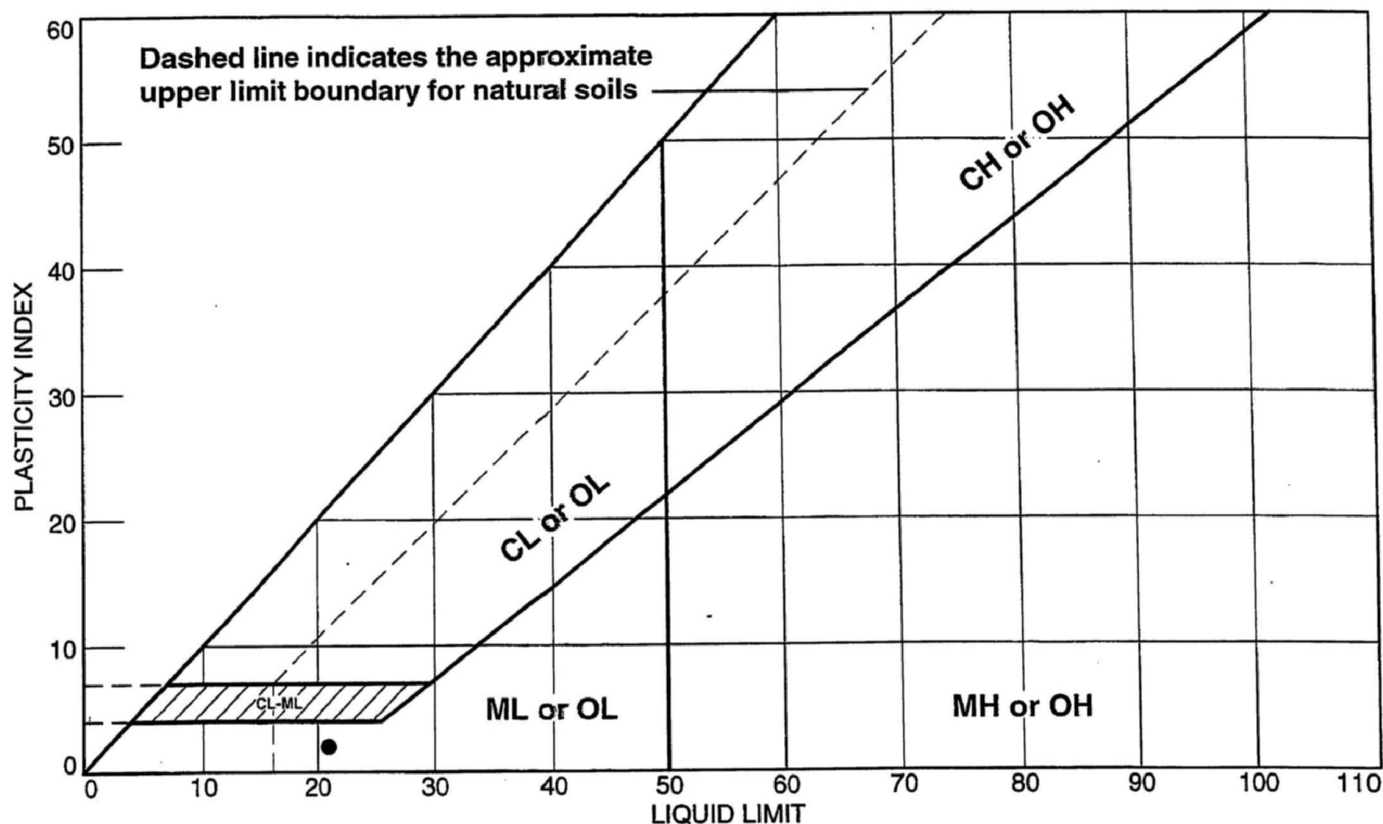
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.4	61.4	61.8	17.9	20.3	38.2

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.0045	0.0356	0.1091	0.1314	0.1822	0.1991	0.2201	0.2516

Fineness Modulus
0.35

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-24	110.0-111.5	24.8	19	21	2	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