

Fractional Components

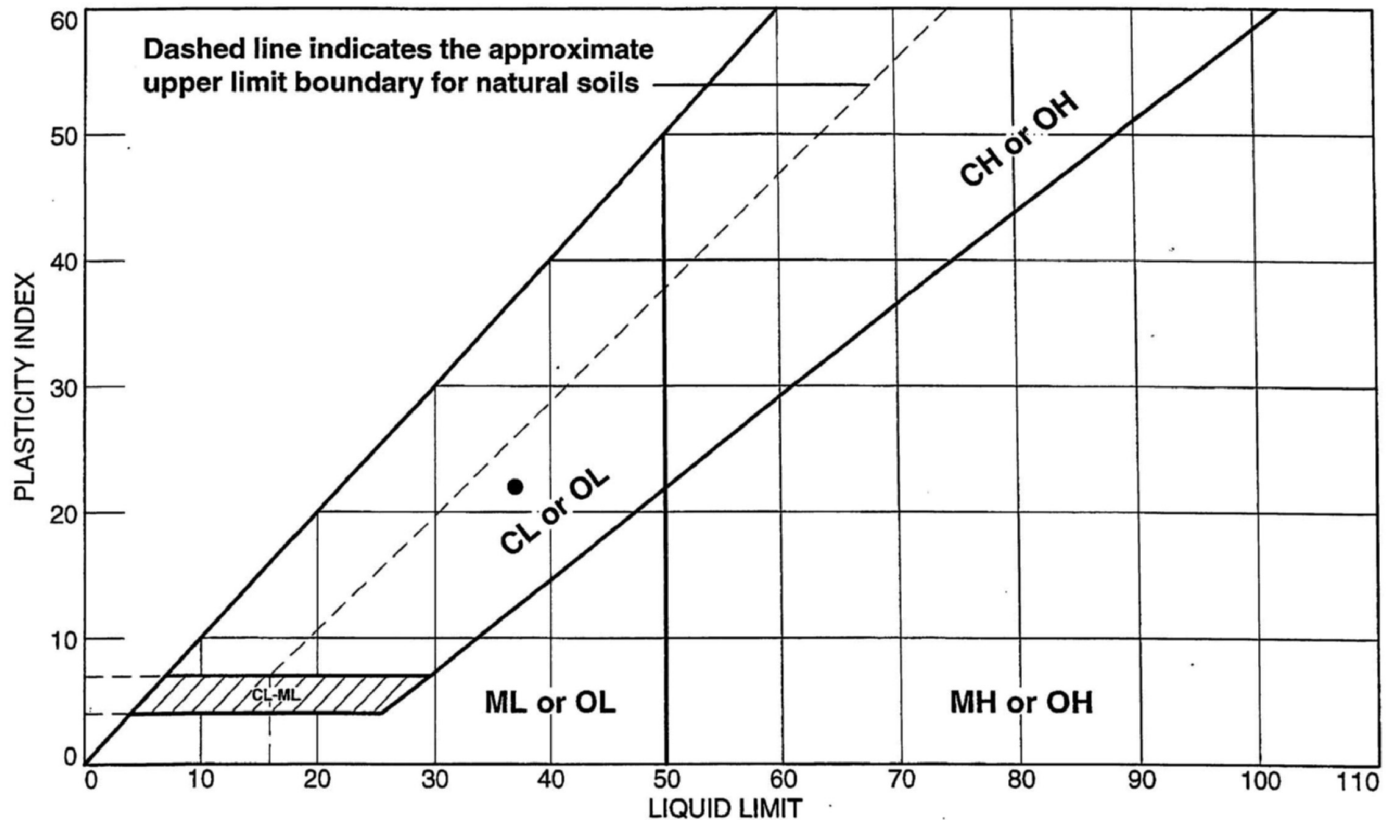
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	20.3	20.4	40.6	39.0	79.6

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.0020	0.0120	0.0217	0.0766	0.0959	0.1184	0.1513

Fineness Modulus
0.05

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-2359	SS-6	13.5-15.0	15.9	15	37	22	CL

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

Checked By: LBJ

DSC 2-27-08

LIQUID AND PLASTIC LIMIT TEST DATA

2/26/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2359

Depth: 13.5-15.0

Sample Number: SS-6

Material Description: Brownish Yellow Lean CLAY with sand

USCS: CL

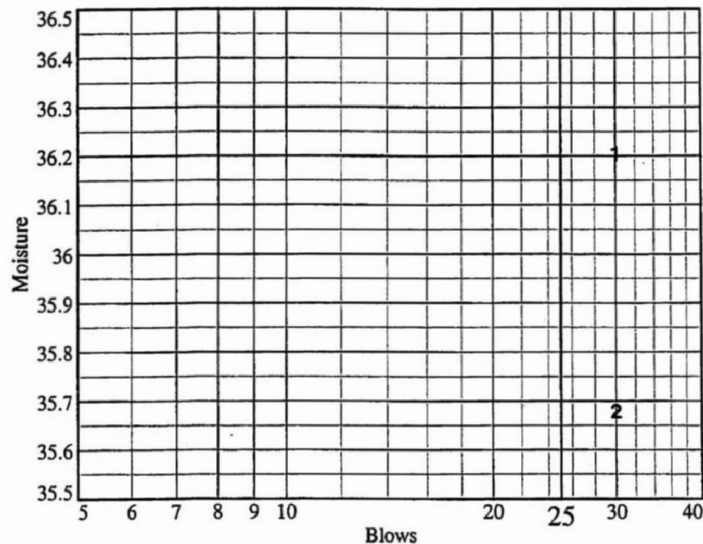
AASHTO: A-6(16)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	33.50	35.52				
Dry+Tare	28.71	30.25				
Tare	15.48	15.48				
# Blows	30	30				
Moisture	36.2	35.7				



Liquid Limit= 37
 Plastic Limit= 15
 Plasticity Index= 22
 Natural Moisture= 15.9
 Liquidity Index= 0.0

Plastic Limit Data

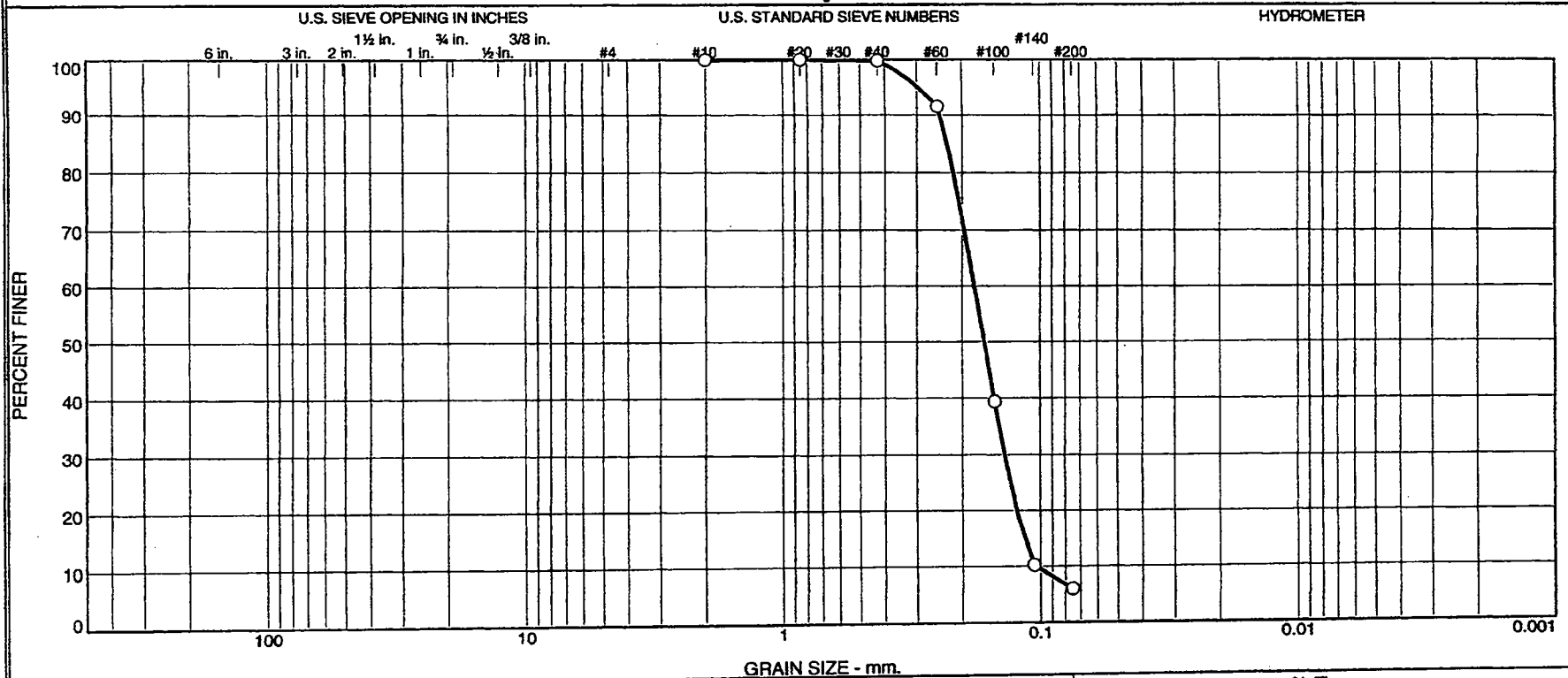
Run No.	1	2	3	4
Wet+Tare	24.03	23.07		
Dry+Tare	22.90	22.06		
Tare	15.46	15.47		
Moisture	15.2	15.3		

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
160.96	139.85	6.67	15.9

MACTEC, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.2	93.7	6.1	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-2359	SS-7	19.8-21.3	1-3-08	SP-SM	Light Brownish Gray Poorly Graded SAND with silt (Visual)	ND	ND	ND

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777

Figure NA

MACTEC, Inc.
Raleigh, North Carolina

○ Specific Gravity = 2.658 (ASTM D854-06)
 ND = Not Determined
 SIEVE ANALYSIS ONLY

Tested By: CS

Checked By: LBJ

DSC 2-27-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/27/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2359

Depth: 19.8-21.3

Sample Number: SS-7

Material Description: Light Brownish Gray Poorly Graded SAND with silt (Visual)

Date: 1-3-08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SP-SM

Testing Remarks: Specific Gravity = 2.658 (ASTM D854-06)

ND = Not Determined

SIEVE ANALYSIS ONLY

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
174.84	0.00	0.00	#10	0.00	100.0
101.49	0.00	0.00	#20	0.02	100.0
			#40	0.20	99.8
			#60	8.54	91.6
			#100	61.50	39.4
			#140	91.10	10.2
			#200	95.28	6.1

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	0.2	93.7	93.9			6.1

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.1039	0.1153	0.1232	0.1373	0.1646	0.1795	0.2163	0.2287	0.2440	0.2966

Fineness Modulus	C _u	C _c
0.66	1.73	1.01

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: 2/12/08

SAMPLE IDENTIFICATION: B-2359 SS-7

(A) Mass of oven-dried soil, grams:	75.12
(B) Mass of pycnometer filled with water at test temperature (T), grams:	656.81
(C) Mass of pycnometer, water and soil, grams:	703.68
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	21.4
(G) Specific Gravity at observed temperature: $A / [B - (C - A)]$	2.659
(F) <i>Correction factor:</i>	0.99970
(G x F) SPECIFIC GRAVITY @ 20°C:	2.658

MATERIAL TESTED:

☒ - # 4

☐ - # 10

PREPARATION METHOD:

☒ DRY

☐ WET (dispersed)

REMARKS: Estimated % Passing # 4 : 100

Poorly Graded SAND with silt (SP-SM) - Visual

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

THERMOMETER : 5.1.01

PYCNOMETER : P-6

TESTED BY: CS

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

REVIEWED BY: Brian Johnson

DSC 2-27-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/26/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2359

Depth: 24.8-26.3

Sample Number: SS-8

Material Description: Light Brownish Gray Poorly Graded SAND (Visual)

Date: 1-3-08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SP

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
217.58	0.00	0.00	#10	0.00	100.0
104.07	0.00	0.00	#20	0.06	99.9
			#40	2.54	97.6
			#60	27.88	73.2
			#100	87.10	16.3
			#140	97.33	6.5
			#200	99.02	4.9

Fractional Components

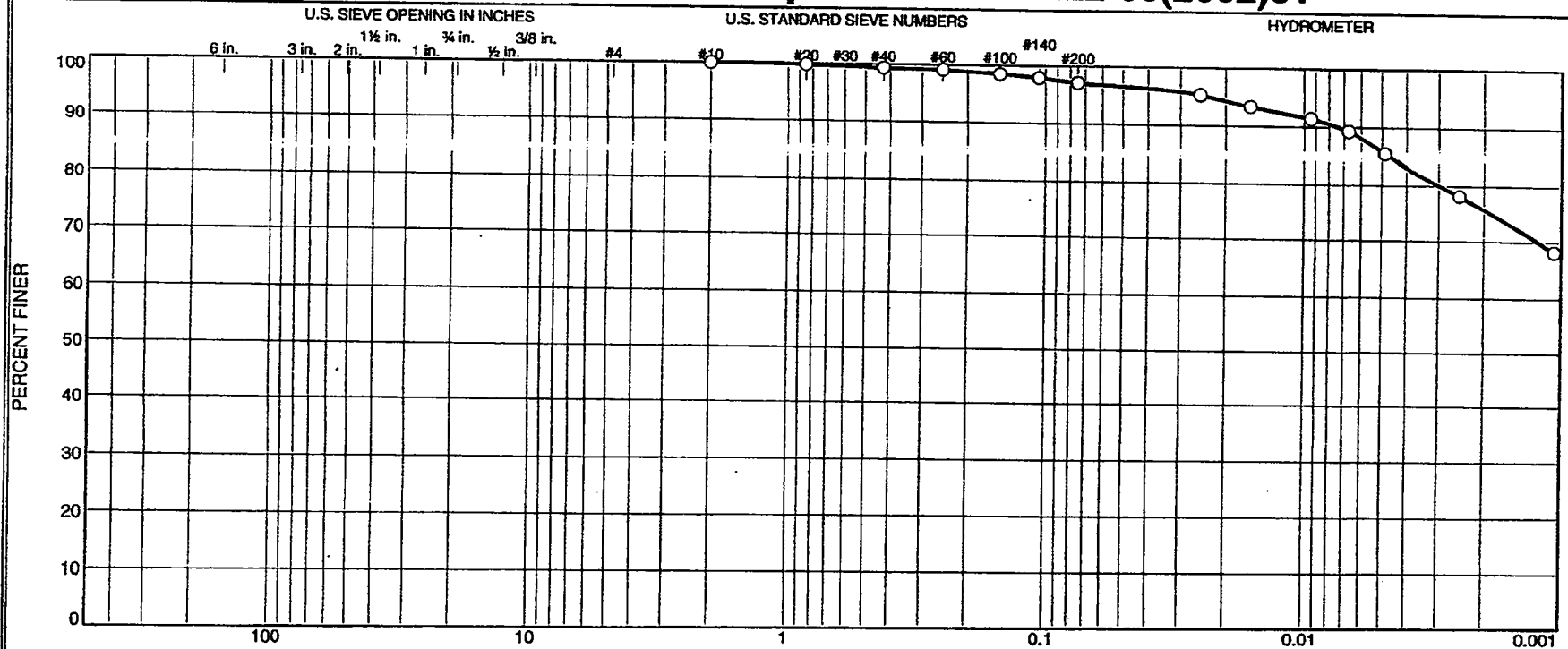
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	2.4	92.7	95.1			4.9

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
0.1327	0.1471	0.1571	0.1736	0.2046	0.2218	0.2702	0.2903	0.3191	0.3701

Fineness Modulus	C _u	C _c
0.98	1.67	1.02

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	0.7	2.2	11.2	85.9

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-2359	SS-9	29.8-31.3	1-3-08	CH	Light Greenish Gray with Reddish Yellow Fat CLAY	26.8	78	25

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777

Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity is assumed

Tested By: CS

Checked By: LBJ

PSC 2-27-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/26/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2359

Depth: 29.8-31.3

Sample Number: SS-9

Material Description: Light Greenish Gray with Reddish Yellow Fat CLAY

Date: 1-3-08

Natural Moisture: 26.8

Liquid Limit: 78

Plastic Limit: 25

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
226.56	0.00	0.00	#10	0.00	100.0
52.09	0.00	0.00	#20	0.09	99.8
			#40	0.34	99.3
			#60	0.47	99.1
			#100	0.79	98.5
			#140	1.11	97.9
			#200	1.52	97.1

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 52.09

Hygroscopic moisture correction:

Moist weight and tare = 28.56

Dry weight and tare = 28.29

Tare weight = 15.64

Hygroscopic moisture = 2.1%

Table of composite correction values:

Temp., deg. C: 12.9 29.9

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	21.7	54.0	49.1	0.0132	55.0	7.3	0.0251	95.2
5.00	21.7	53.0	48.1	0.0132	54.0	7.4	0.0161	93.3
15.00	21.7	52.0	47.1	0.0132	53.0	7.6	0.0094	91.3
30.00	21.6	51.0	46.1	0.0132	52.0	7.8	0.0067	89.3
60.00	21.6	49.0	44.1	0.0132	50.0	8.1	0.0048	85.5
240.00	22.3	45.0	40.3	0.0131	46.0	8.8	0.0025	78.2
1450.00	22.0	40.0	35.2	0.0131	41.0	9.6	0.0011	68.3

MACTEC, Inc.

Partial Components

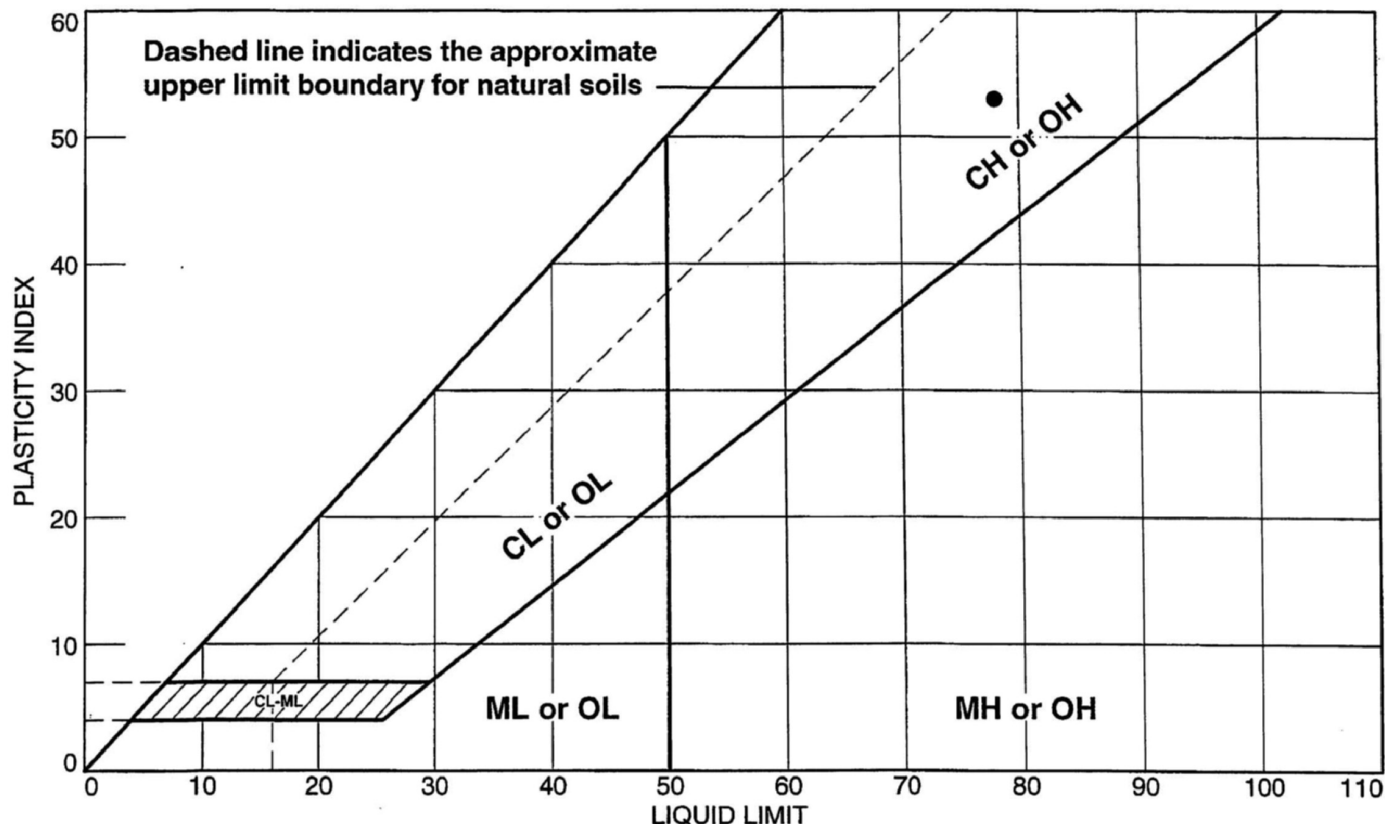
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.7	2.2	2.9	11.2	85.9	97.1

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
						0.0030	0.0047	0.0073	0.0237

Fineness Modulus
0.03

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-2359	SS-9	29.8-31.3	26.8	25	78	53	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 2-27-08

LIQUID AND PLASTIC LIMIT TEST DATA

2/26/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2359

Depth: 29.8-31.3

Sample Number: SS-9

Material Description: Light Greenish Gray with Reddish Yellow Fat CLAY

USCS: CH

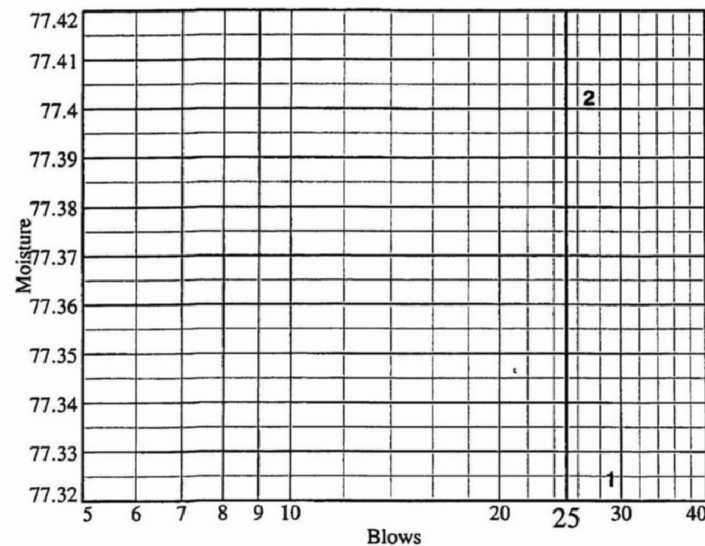
AASHTO: A-7-6(59)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	34.49	32.33				
Dry+Tare	26.34	25.00				
Tare	15.80	15.53				
# Blows	29	27				
Moisture	77.3	77.4				



Liquid Limit= 78
 Plastic Limit= 25
 Plasticity Index= 53
 Natural Moisture= 26.8
 Liquidity Index= 0.0

Plastic Limit Data

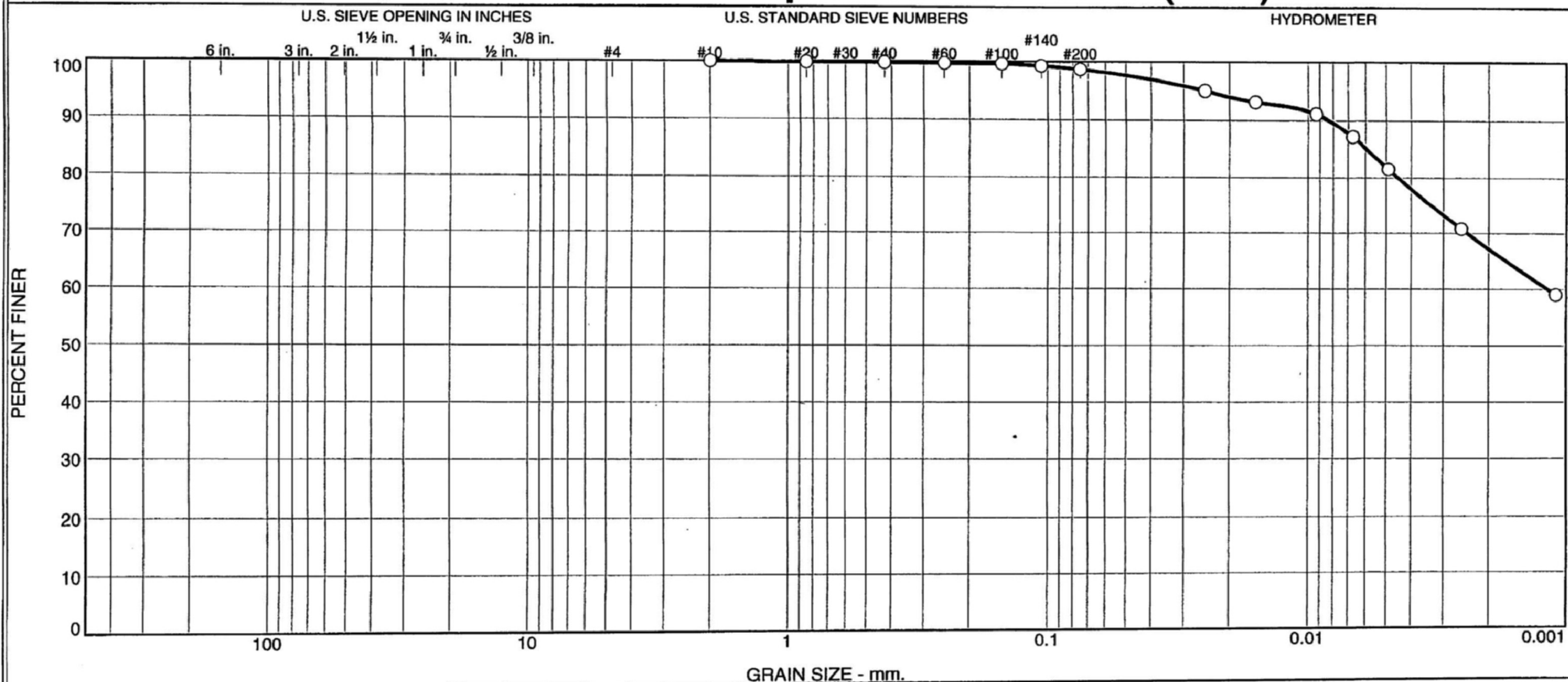
Run No.	1	2	3	4
Wet+Tare	24.27	22.69		
Dry+Tare	22.52	21.27		
Tare	15.49	15.52		
Moisture	24.9	24.7		

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
102.67	82.37	6.56	26.8

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	0.2	1.1	16.7	82.0

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-2359	SS-10	34.8-36.3	1-3-08	CH	Brownish Yellow Fat CLAY	25.3	70	16

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777

Figure NA

MACTEC, Inc.
Raleigh, North Carolina

○ Specific Gravity = 2.698 (ASTM D854-06)

Tested By: CS

Checked By: LBJ DSC 2-27-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/26/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2359

Depth: 34.8-36.3

Sample Number: SS-10

Material Description: Brownish Yellow Fat CLAY

Date: 1-3-08

Natural Moisture: 25.3

Liquid Limit: 70

Plastic Limit: 16

USCS Class.: CH

Testing Remarks: Specific Gravity = 2.698 (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
201.83	0.00	0.00	#10	0.00	100.0
53.22	0.00	0.00	#20	0.08	99.8
			#40	0.10	99.8
			#60	0.16	99.7
			#100	0.19	99.6
			#140	0.39	99.3
			#200	0.71	98.7

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 53.22

Hygroscopic moisture correction:

Moist weight and tare = 28.63

Dry weight and tare = 28.39

Tare weight = 15.48

Hygroscopic moisture = 1.9%

Table of composite correction values:

Temp., deg. C: 12.9 29.9

Comp. corr.: -8.0 -2.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.698

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	21.8	55.0	50.1	0.0132	56.0	7.1	0.0248	94.9
5.00	21.8	54.0	49.1	0.0132	55.0	7.3	0.0159	93.0
15.00	21.7	53.0	48.1	0.0132	54.0	7.4	0.0093	91.1
30.00	21.6	51.0	46.1	0.0132	52.0	7.8	0.0067	87.2
60.00	21.6	48.0	43.1	0.0132	49.0	8.3	0.0049	81.6
240.00	22.5	42.0	37.4	0.0130	43.0	9.2	0.0026	70.8
1455.00	22.0	36.0	31.2	0.0131	37.0	10.2	0.0011	59.1

MACTEC, Inc.

Fractional Components

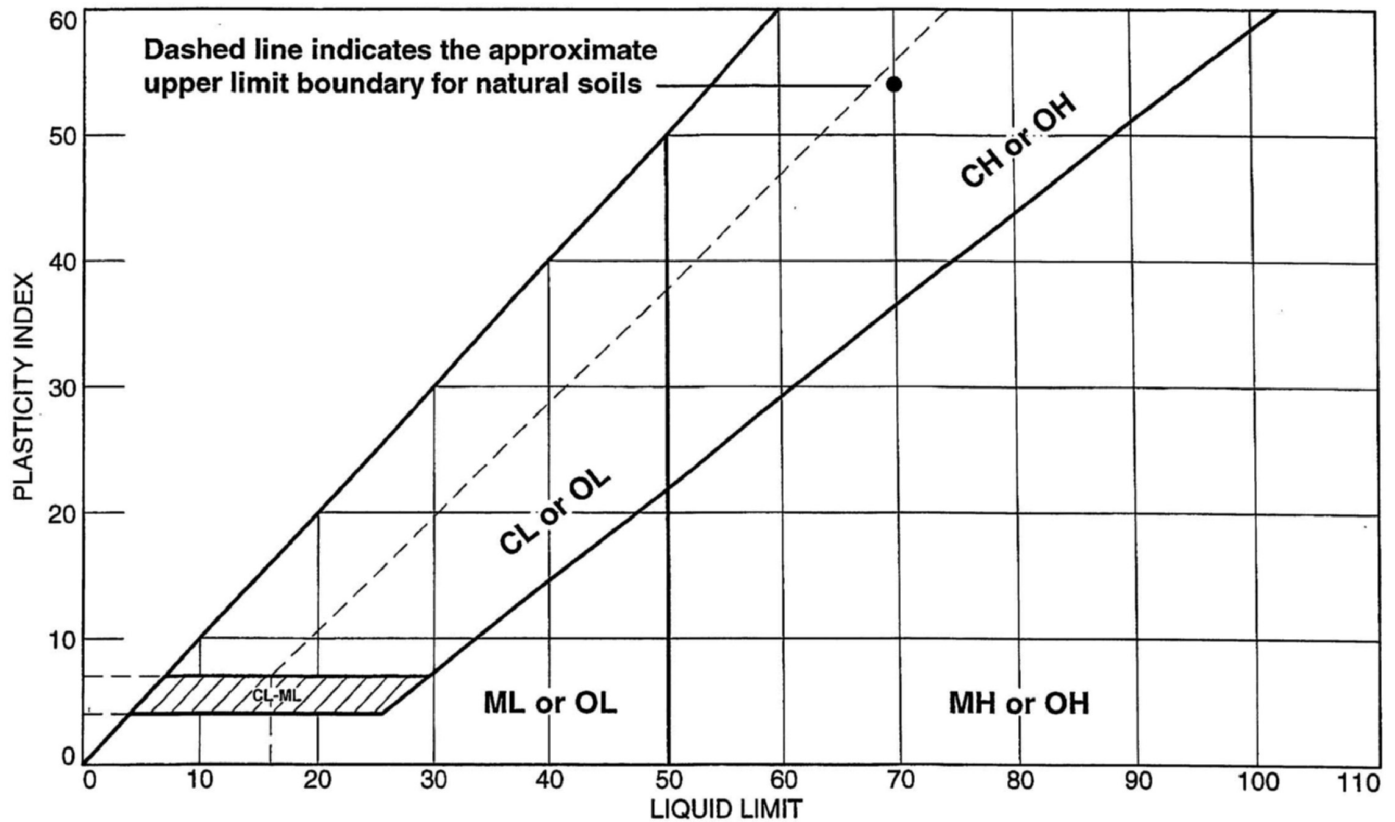
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.2	1.1	1.3	16.7	82.0	98.7

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
					0.0012	0.0045	0.0059	0.0082	0.0251

Fineness Modulus
0.01

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-2359	SS-10	34.8-36.3	25.3	16	70	54	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 2-27-08

LIQUID AND PLASTIC LIMIT TEST DATA

2/26/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2359

Depth: 34.8-36.3

Sample Number: SS-10

Material Description: Brownish Yellow Fat CLAY

USCS: CH

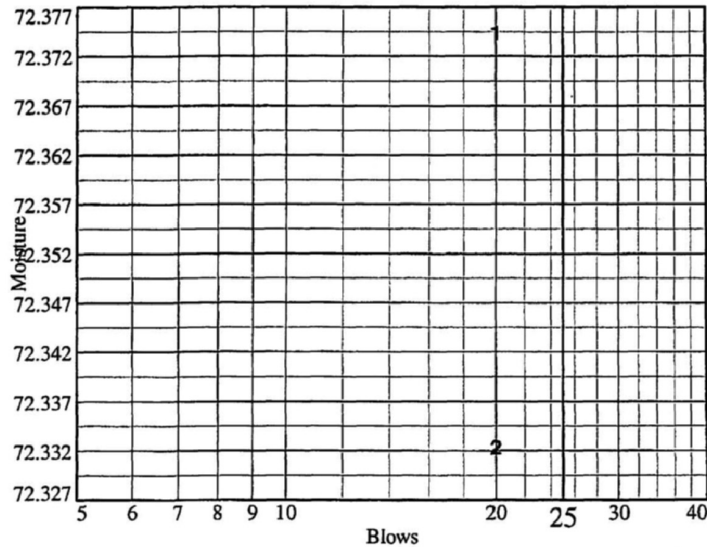
AASHTO: A-7-6(59)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	30.56	33.69				
Dry+Tare	24.22	26.03				
Tare	15.46	15.44				
# Blows	20	20				
Moisture	72.4	72.3				



Liquid Limit= 70
 Plastic Limit= 16
 Plasticity Index= 54
 Natural Moisture= 25.3
 Liquidity Index= 0.2

Plastic Limit Data

Run No.	1	2	3	4
Wet+Tare	23.21	24.84		
Dry+Tare	22.11	23.56		
Tare	15.28	15.60		
Moisture	16.1	16.1		

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
141.57	114.87	9.42	25.3

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: 2/13/08

SAMPLE IDENTIFICATION: B-2359 SS-10

(A) Mass of oven-dried soil, grams:	51.90
(B) Mass of pycnometer filled with water at test temperature (T), grams:	656.86
(C) Mass of pycnometer, water and soil, grams:	689.53
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	20.8
(G) Specific Gravity at observed temperature:	$A / [B - (C - A)]$ 2.699
(F) <i>Correction factor:</i>	0.99983
(G x F) SPECIFIC GRAVITY @ 20°C:	2.698

MATERIAL TESTED:

☒ X
- # 4

☐
- # 10

PREPARATION METHOD:

☒ X
DRY

☐
WET (dispersed)

REMARKS: Estimated % Passing # 4 : 100
Fat CLAY (CH)

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

THERMOMETER : 5.1.01

PYCNO METER : P-3

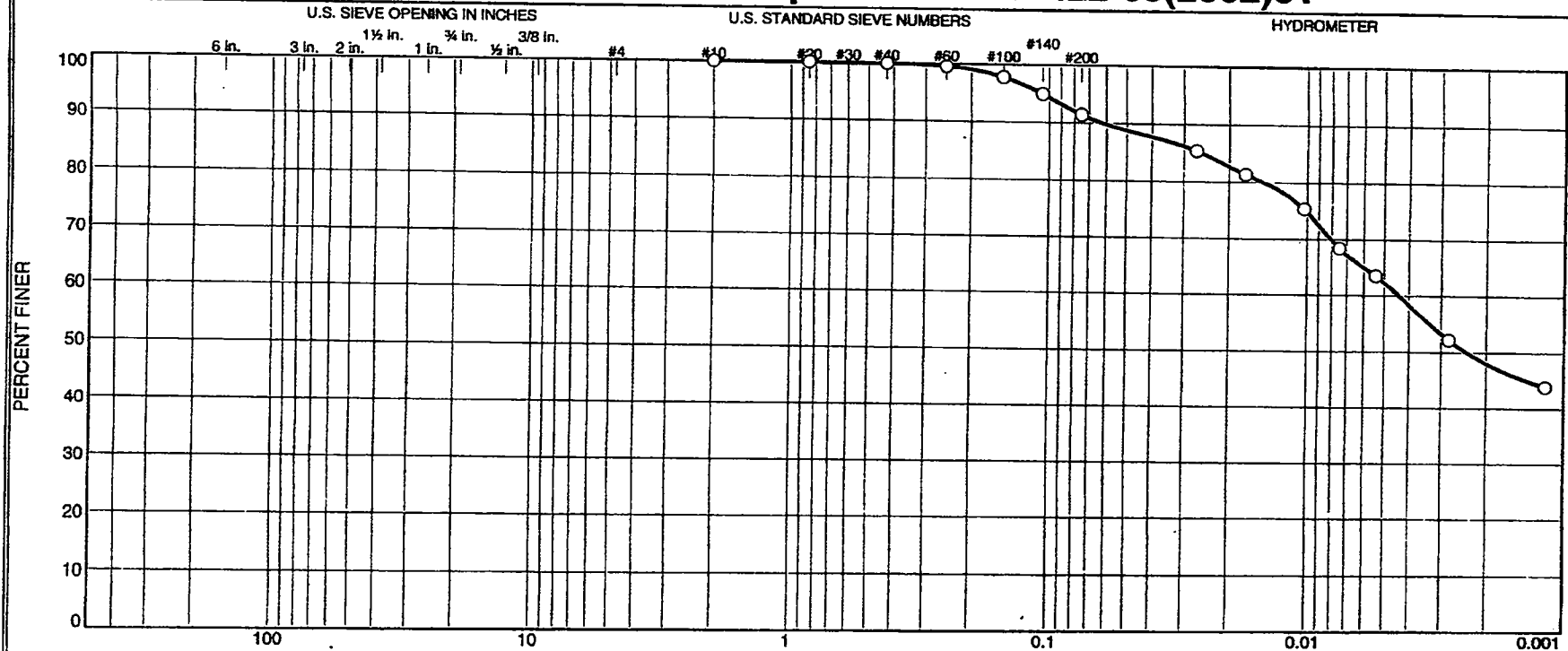
TESTED BY: CS

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

REVIEWED BY: Brian Johnson

DSC 2-27-08

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

[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

2/26/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2359

Depth: 39.8-41.3

Sample Number: SS-11

Material Description: Brownish Yellow Fat CLAY

Date: 1-3-08

Natural Moisture: 25.3

Liquid Limit: 53

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
207.79	0.00	0.00	#10	0.00	100.0
50.59	0.00	0.00	#20	0.01	100.0
			#40	0.05	99.9
			#60	0.23	99.5
			#100	1.15	97.7
			#140	2.60	94.9
			#200	4.35	91.4

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 50.59

Hygroscopic moisture correction:

Moist weight and tare = 28.38

Dry weight and tare = 28.21

Tare weight = 15.58

Hygroscopic moisture = 1.3%

Table of composite correction values:

Temp., deg. C: 12.9 29.9

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	21.7	48.0	43.1	0.0132	49.0	8.3	0.0268	85.4
5.00	21.6	46.0	41.1	0.0132	47.0	8.6	0.0173	81.4
15.00	21.6	43.0	38.1	0.0132	44.0	9.1	0.0103	75.4
30.00	21.6	39.5	34.6	0.0132	40.5	9.7	0.0075	68.5
60.00	21.6	37.0	32.1	0.0132	38.0	10.1	0.0054	63.5
240.00	22.4	31.0	26.4	0.0131	32.0	11.0	0.0028	52.2
1444.00	21.9	27.0	22.2	0.0131	28.0	11.7	0.0012	43.9

MACTEC, Inc.

Fractional Components

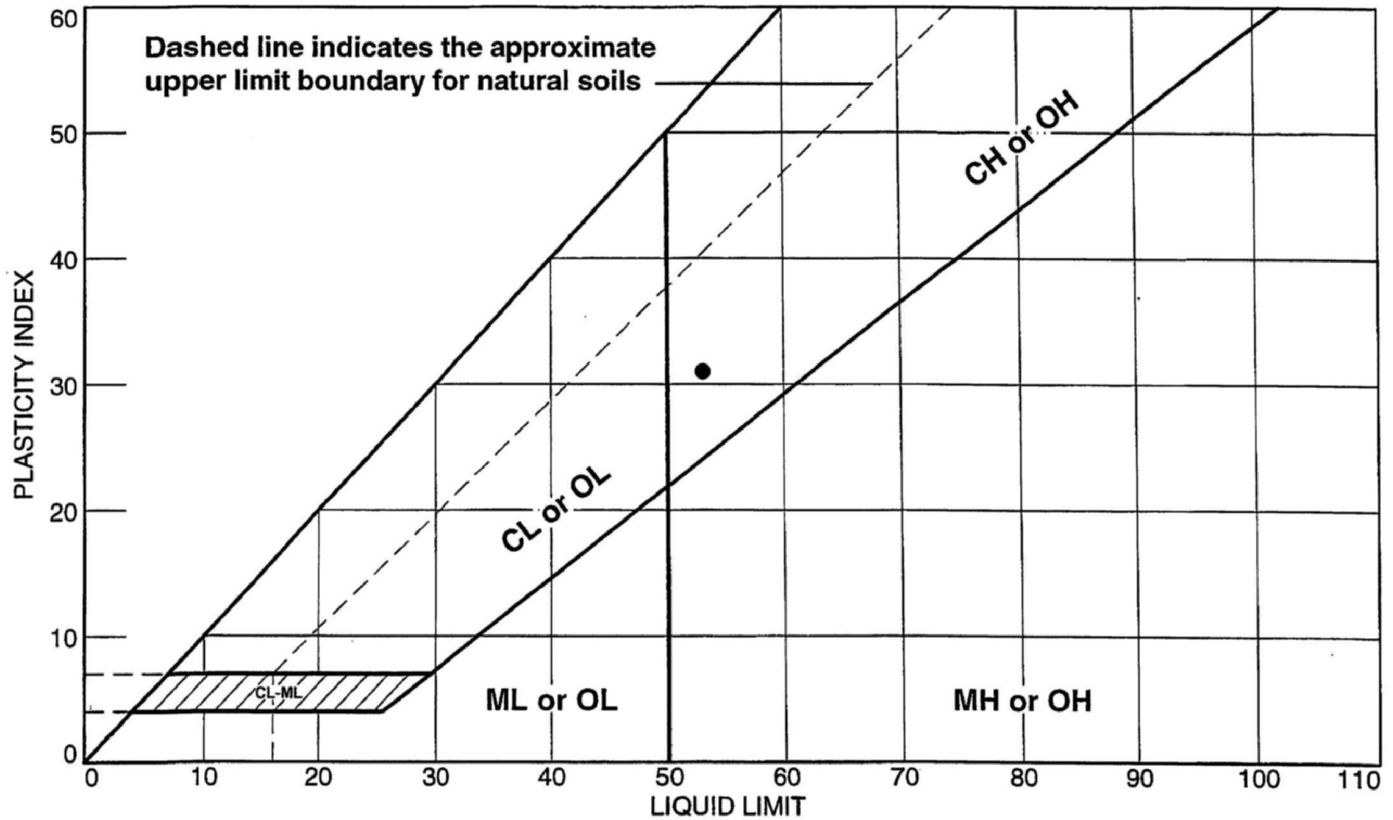
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	8.5	8.6	29.1	62.3	91.4

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.0024	0.0044	0.0147	0.0255	0.0621	0.1075

Fineness Modulus
0.03

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-2359	SS-11	39.8-41.3	25.3	22	53	31	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 2-27-08

LIQUID AND PLASTIC LIMIT TEST DATA

2/26/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2359

Depth: 39.8-41.3

Sample Number: SS-11

Material Description: Brownish Yellow Fat CLAY

USCS: CH

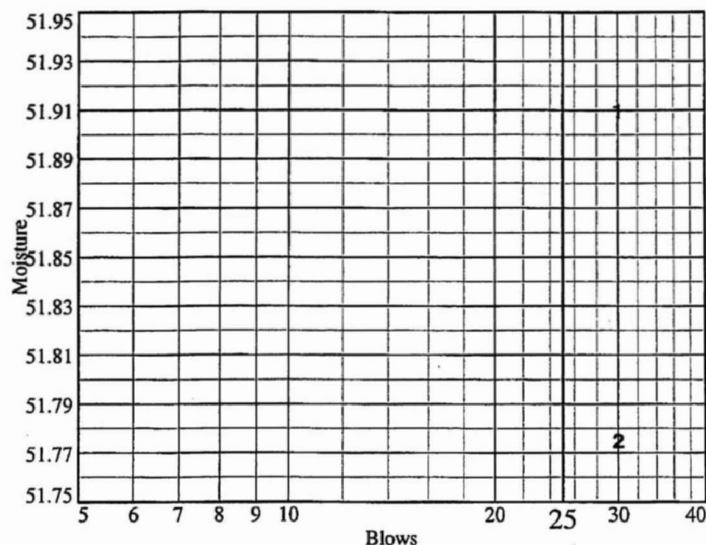
AASHTO: A-7-6(31)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	33.04	35.94				
Dry+Tare	27.06	28.94				
Tare	15.54	15.42				
# Blows	30	30				
Moisture	51.9	51.8				



Liquid Limit= 53
 Plastic Limit= 22
 Plasticity Index= 31
 Natural Moisture= 25.3
 Liquidity Index= 0.1

Plastic Limit Data

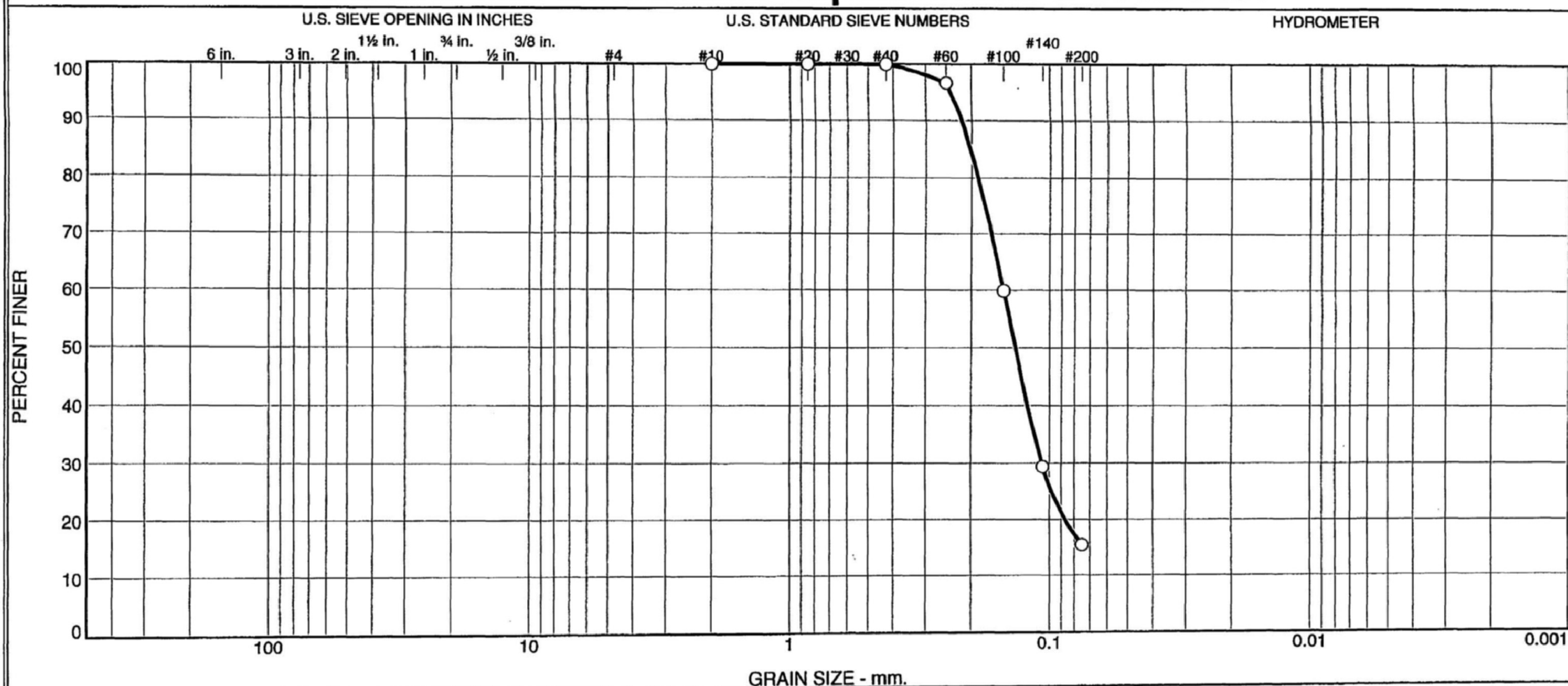
Run No.	1	2	3	4
Wet+Tare	22.60	23.75		
Dry+Tare	21.32	22.30		
Tare	15.48	15.54		
Moisture	21.9	21.4		

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
105.63	85.70	6.87	25.3

MACTEC, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1



GRAIN SIZE DISTRIBUTION TEST DATA

2/27/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2359

Depth: 44.8-46.3

Sample Number: SS-12

Material Description: Olive Yellow Silty SAND (Visual)

Date: 1-3-08

Natural Moisture: ND

Liquid Limit: ND

Plastic Limit: ND

USCS Class.: SM

Testing Remarks: SIEVE ANALYSIS ONLY

ND = Not Determined

Specific Gravity = 2.656 (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
211.09	0.00	0.00	#10	0.00	100.0
102.05	0.00	0.00	#20	0.01	100.0
			#40	0.04	100.0
			#60	3.47	96.6
			#100	40.89	59.9
			#140	72.06	29.4
			#200	86.23	15.5

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample =

Hygroscopic moisture correction:

Moist weight and tare = 29.15

Dry weight and tare = 28.92

Tare weight = 15.74

Hygroscopic moisture = 1.7%

Table of composite correction values:

Temp., deg. C: 12.9 29.9

Comp. corr.: -8.0 -2.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.700

Hydrometer type = 152H

Hydrometer effective depth equation: $L = 16.294964 - 0.164 \times R_m$

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	0.0	84.5	84.5			15.5

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
		0.0872	0.1070	0.1353	0.1501	0.1886	0.2018	0.2181	0.2402

Fineness
Modulus

0.42

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: 2/13/08

SAMPLE IDENTIFICATION: B-2359 SS-12

(A) Mass of oven-dried soil, grams:	74.83
(B) Mass of pycnometer filled with water at test temperature (T), grams:	655.68
(C) Mass of pycnometer, water and soil, grams:	702.35
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	21.9
(G) Specific Gravity at observed temperature:	$A / [B - (C - A)]$ 2.657
(F) Correction factor:	0.99959
(G x F) SPECIFIC GRAVITY @ 20°C:	2.656

MATERIAL TESTED:

☒ X

- # 4

☐

- # 10

PREPARATION METHOD:

☒ X

DRY

☐

WET (dispersed)

REMARKS: Estimated % Passing # 4 : 100

Silty SAND (SM) - Visual

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

THERMOMETER : 5.1.01

PYCNO METER : P-3

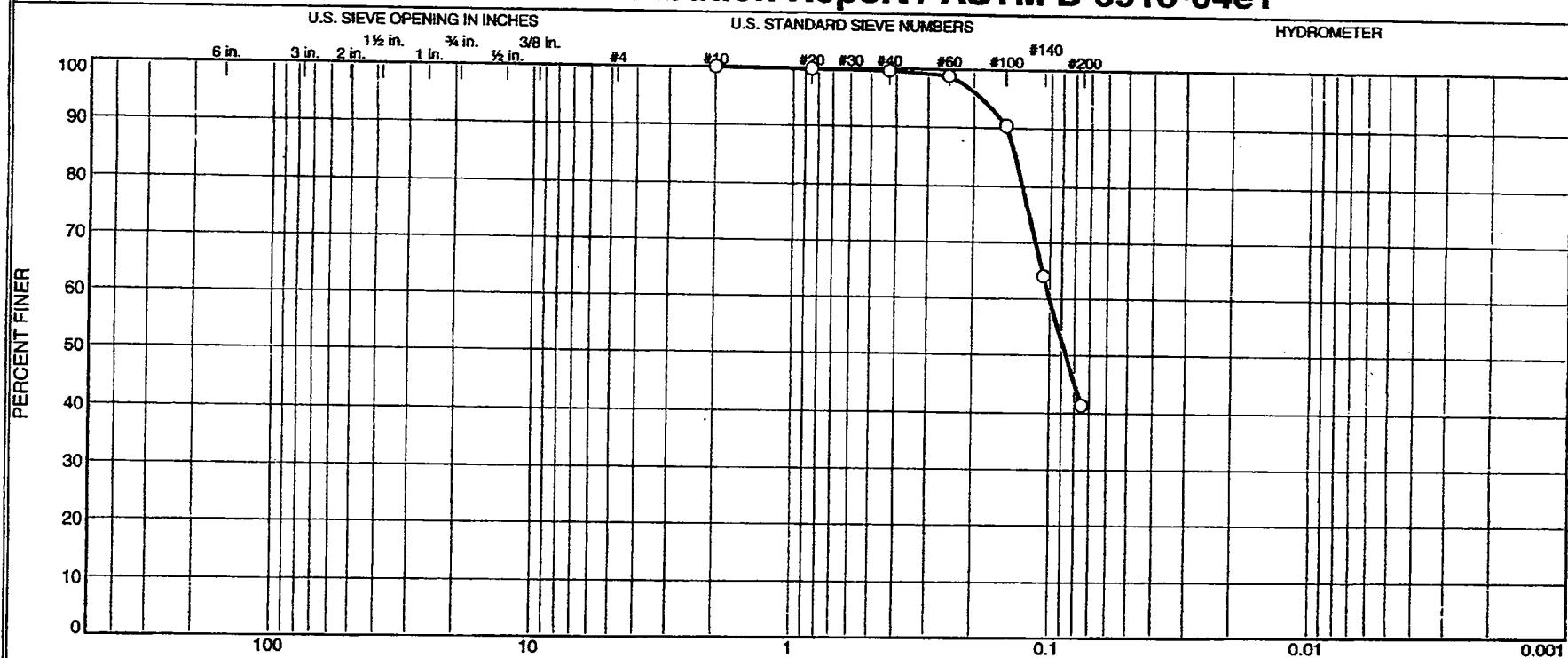
TESTED BY: CS

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

REVIEWED BY: Brian Johnson

Disc 2-27-08

Particle Size Distribution Report / ASTM D 6913-04e1



GRAIN SIZE DISTRIBUTION TEST DATA

2/26/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2359

Depth: 49.8-51.3

Sample Number: SS-13

Material Description: Light Gray Clayey SAND (Visual)

Date: 1-3-08

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
192.20	0.00	0.00	#10	0.00	100.0
105.44	0.00	0.00	#20	0.18	99.8
			#40	0.41	99.6
			#60	1.24	98.8
			#100	10.09	90.4
			#140	37.83	64.1
			#200	61.78	41.4

Fractional Components

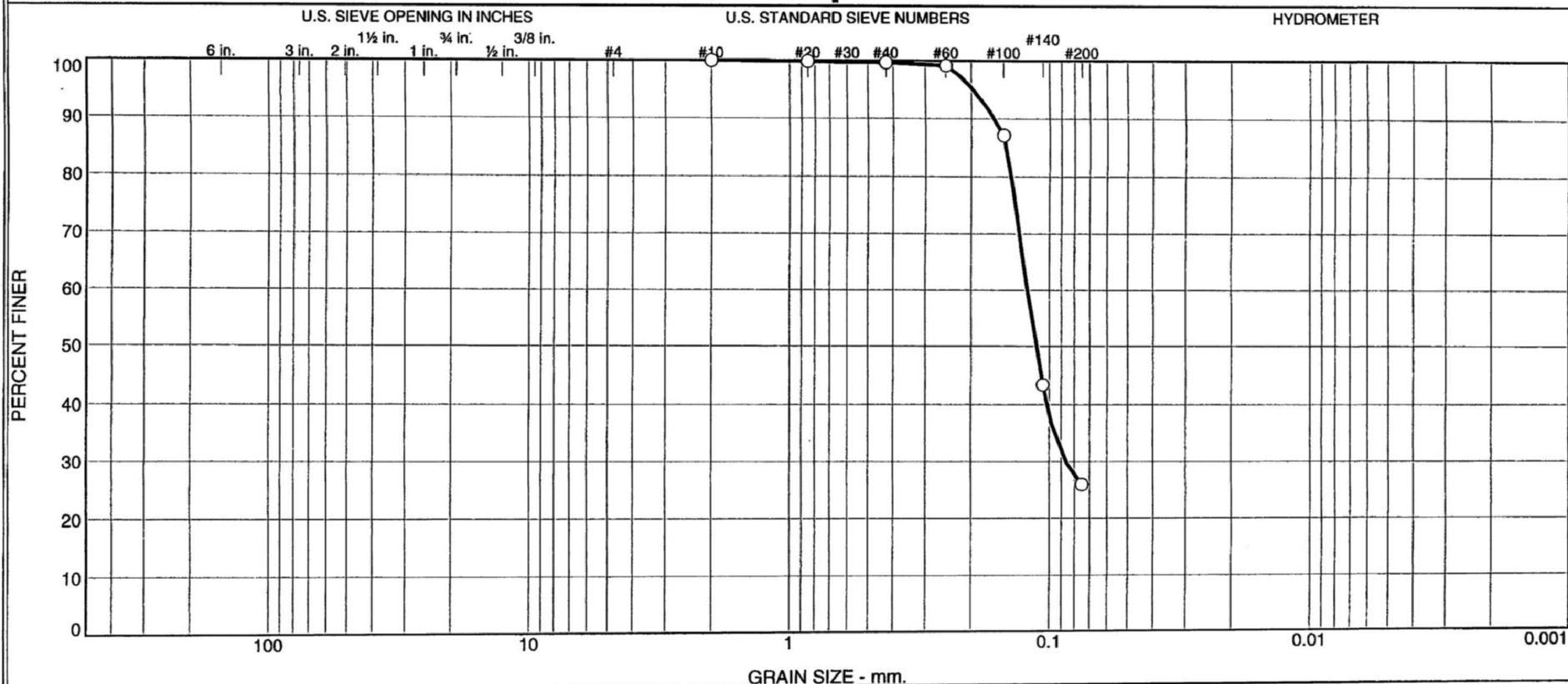
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.4	58.2	58.6			41.4

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
				0.0864	0.1003	0.1289	0.1377	0.1488	0.1873

Fineness Modulus
0.11

MACTEC, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.3	73.8	25.9	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-2359	SS-14	54.8-56.3	1-3-08	SC	Brownish Yellow Clayey SAND (Visual)	ND	ND	ND

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

Figure *NA*

MACTEC, Inc.
Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
 ND = Not Determined

Tested By: CS

Checked By: LBJ

DSC 2-27-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/26/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2359

Depth: 54.8-56.3

Sample Number: SS-14

Material Description: Brownish Yellow Clayey SAND (Visual)

Date: 1-3-08

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
137.36	0.00	0.00	#10	0.00	100.0
101.11	0.00	0.00	#20	0.14	99.9
			#40	0.34	99.7
			#60	0.85	99.2
			#100	12.94	87.2
			#140	57.15	43.5
			#200	74.91	25.9

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	73.8	74.1			25.9

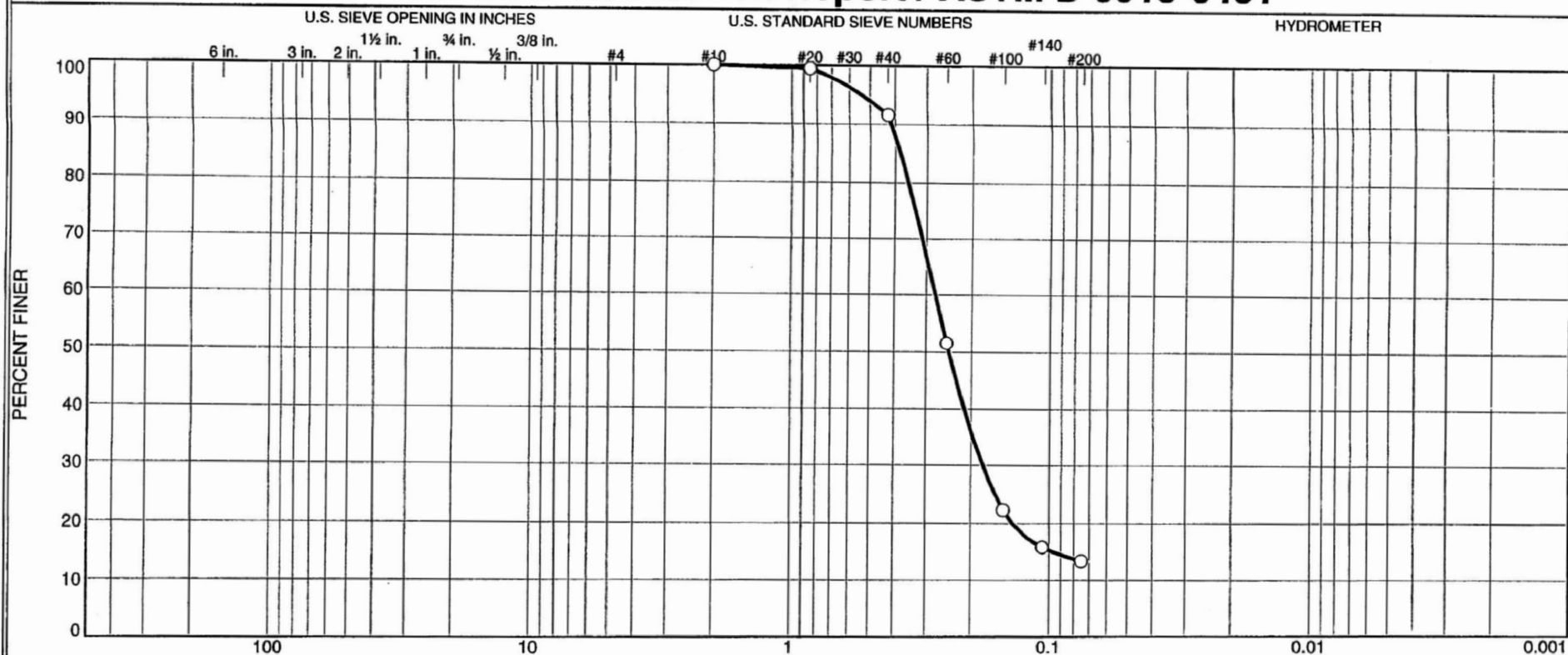
D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.0862	0.1123	0.1212	0.1406	0.1468	0.1635	0.1972

Fineness Modulus

0.14

MACTEC, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	8.4	78.2	13.4	

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-2359	SS-15A	59.8-60.7	1-3-08	SC	Pale Yellow Clayey SAND (Visual)	ND	ND	ND

Client Bechtel

Project Exelon Texas COL (Victoria Reservoir)

Project No. 6468071777

Figure 14

MACTEC, Inc.
Raleigh, North Carolina

 ○ SIEVE ANALYSIS ONLY
 ND = Not Determined

Tested By: CS

Checked By: LBJ DSC 2-27-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/26/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2359

Depth: 59.8-60.7

Sample Number: SS-15A

Material Description: Pale Yellow Clayey SAND (Visual)

Date: 1-3-08

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
289.44	0.00	0.00	#10	0.00	100.0
103.17	0.00	0.00	#20	0.53	99.5
			#40	8.68	91.6
			#60	49.99	51.5
			#100	80.18	22.3
			#140	86.84	15.8
			#200	89.36	13.4

Fractional Components

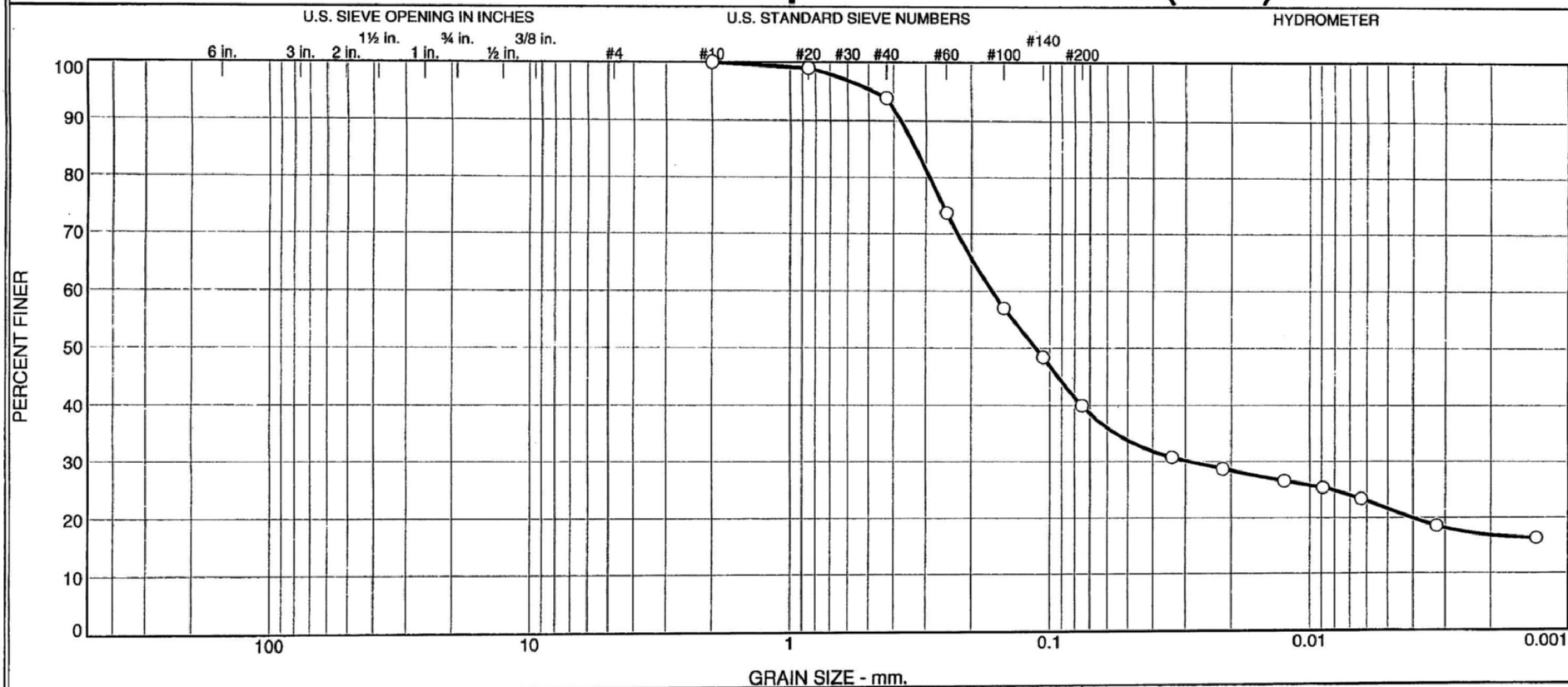
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	8.4	78.2	86.6			13.4

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
	0.0963	0.1384	0.1801	0.2451	0.2773	0.3545	0.3802	0.4124	0.5369

Fineness Modulus
1.15

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	6.1	53.9	18.4	21.6

Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
Boring B-2359	SS-16	64.8-66.3	1-3-08	SC	Olive Yellow Clayey SAND	22.8	23	13

Client Bechtel		MACTEC, Inc.	○ Specific Gravity = 2.659 (ASTM D854-06)
Project Exelon Texas COL (Victoria Reservoir)			
Project No. 6468071777	Figure 		

GRAIN SIZE DISTRIBUTION TEST DATA

4/1/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2359

Depth: 64.8-66.3

Sample Number: SS-16

Material Description: Olive Yellow Clayey SAND

Date: 1-3-08

Natural Moisture: 22.8

Liquid Limit: 23

Plastic Limit: 13

USCS Class.: SC

Testing Remarks: Specific Gravity = 2.659 (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
251.34	0.00	0.00	#10	0.00	100.0
48.49	0.00	0.00	#20	0.50	99.0
			#40	2.97	93.9
			#60	12.70	73.8
			#100	20.84	57.0
			#140	25.02	48.4
			#200	29.10	40.0

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 100.0

Weight of hydrometer sample = 48.49

Hygroscopic moisture correction:

Moist weight and tare = 29.60

Dry weight and tare = 29.31

Tare weight = 15.64

Hygroscopic moisture = 2.1%

Table of composite correction values:

Temp., deg. C: 12.9 29.9

Comp. corr.: -8.0 -2.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.659

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	21.8	19.5	14.6	0.0133	20.5	12.9	0.0338	30.8
5.00	21.9	18.5	13.7	0.0133	19.5	13.1	0.0215	28.7
15.00	21.9	17.5	12.7	0.0133	18.5	13.3	0.0125	26.6
30.00	21.7	17.0	12.1	0.0133	18.0	13.3	0.0089	25.4
60.00	21.8	16.0	11.1	0.0133	17.0	13.5	0.0063	23.4
240.00	20.9	14.0	8.8	0.0135	15.0	13.8	0.0032	18.5
1440.00	20.7	13.0	7.8	0.0135	14.0	14.0	0.0013	16.3

MACTEC, Inc.