

Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
2.00	23.3	17.0	12.3	0.0128	17.0	13.5	0.0333	21.4
5.00	23.3	16.0	11.3	0.0128	16.0	13.7	0.0212	19.6
15.00	23.3	15.0	10.3	0.0128	15.0	13.8	0.0123	17.9
30.00	23.3	14.5	9.8	0.0128	14.5	13.9	0.0087	17.0
60.00	23.3	14.0	9.3	0.0128	14.0	14.0	0.0062	16.2
257.00	22.8	13.5	8.7	0.0129	13.5	14.1	0.0030	15.1
4138.00	21.7	13.0	7.9	0.0131	13.0	14.2	0.0008	13.7

Fractional Components

Gravel/Sand based on #4

Sand/Fines based on #200

% COBBLES = % GRAVEL =

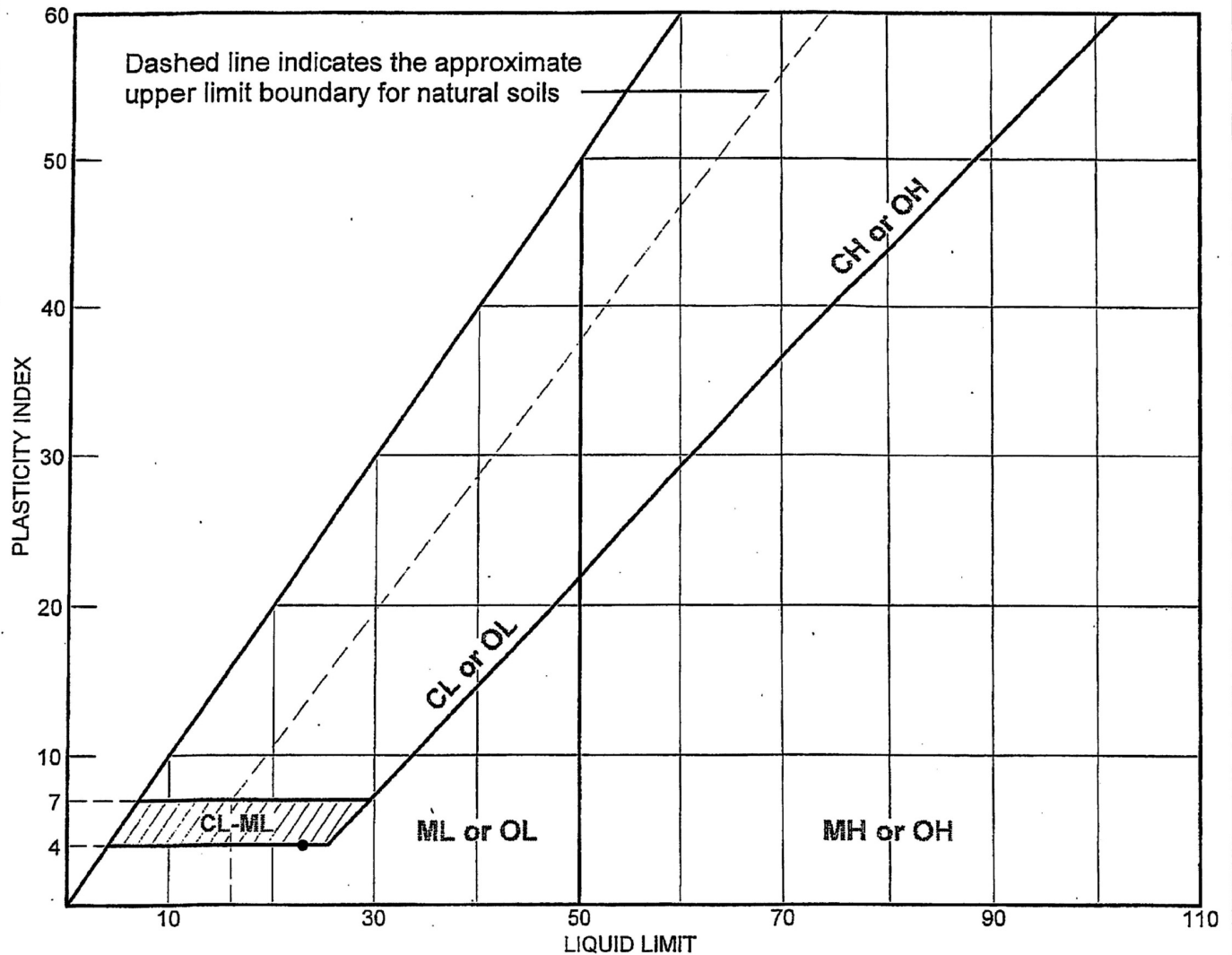
% SAND = 62.5 (% coarse = 0.0 % medium = 0.1 % fine = 62.4)

% SILT = 21.7 % CLAY = 15.8 (% CLAY COLLOIDS = 14.0)

D₈₅= 0.17 D₆₀= 0.12 D₅₀= 0.10

D₃₀= 0.06 D₁₅= 0.00

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	B-2359UD	UD-11	77-78.7 Ft	19.4	19	23	4	SC-SM

**MACTEC ENGINEERING
AND
CONSULTING, INC.**

Client: Bechtel

Project: Exelon Texas COL (Victoria)

Project No.: 6468-07-1777

Lab No. 8366

LIQUID AND PLASTIC LIMIT TEST DATA

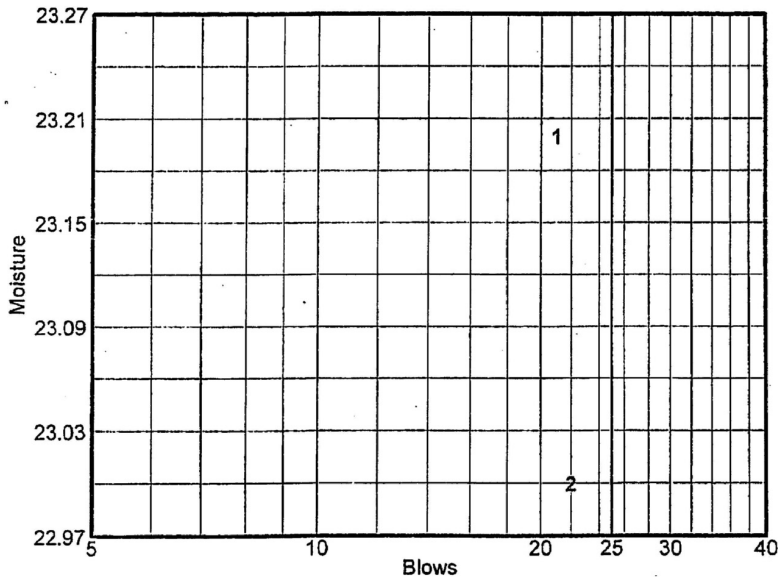
Client: Bechtel
 Project: Exelon Texas COL (Victoria)
 Project Number: 6468-07-1777

Sample Data

Source: B-2359UD
 Sample No.: UD-11
 Elev. or Depth: 77-78.7 Ft Sample Length(in./cm.): ID#8366
 Location: B-2359UD
 Description: Light Gray Silty, Clayey SAND
 Water Content: 19.4 USCS: SC-SM AASHTO:

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	36.14	37.91				
Dry+Tare	33.18	34.80				
Tare	20.42	21.28				
# Blows	21	22				
Moisture	23.2	23.0				



Liquid Limit= 23
 Plastic Limit= 19
 Plasticity Index= 4

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	28.06	29.96			
Dry+Tare	26.80	28.40			
Tare	20.06	20.09			
Moisture	18.7	18.8			

MACTEC ENGINEERING AND CONSULTING, INC.

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: 3/12/08

SAMPLE IDENTIFICATION: B-2359UD, UD-11 @ 77-78.7 Ft.

(A) Mass of oven-dried soil, grams:	37.64
(B) Mass of pycnometer filled with water at test temperature (T), grams:	366.00
(C) Mass of pycnometer, water and soil, grams:	389.83
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	23.3
(G) Specific Gravity at observed temperature:	$A / [B - (C - A)]$ 2.726
(F) Correction factor:	0.99926
(G x F) SPECIFIC GRAVITY @ 20°C:	2.724

MATERIAL TESTED:

☐

- # 4

☒

- # 10

PREPARATION METHOD:

☒

DRY

☐

WET (dispersed)

REMARKS: Estimated % Passing # 4 : 100

Silty Clayey SAND (SC-SM)

EQUIPMENT USED

SCALES : 418

OVEN : 144

THERMOMETER : 2759

PYCNO METER : 2193

TESTED BY: EH

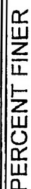
\\Test Reports\\Soils\\SPECIFIC GRAVITY(ref).xls

REVIEWED BY:

Harry Johnson

KAW 4.15.08

HYDROMETER



10

10

○ Specific Gravity = 2.661 (ASTM D 854-06)
NM obtained from consolidation test specimen

Checked By: LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

5/7/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2359UD

Depth: 80.0-81.7

Sample Number: UD-12

Material Description: Pale Brown Clayey SAND

Date: 1/29/08

Natural Moisture: 18.2

Liquid Limit: 26

Plastic Limit: 14

USCS Class.: SC

Testing Remarks: Specific Gravity = 2.661 (ASTM D 854-06)

NM obtained from consolidation test specimen

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
208.28	0.00	0.00	3/8"	0.00	100.0
			#4	1.13	99.5
			#10	1.21	99.4
49.60	0.00	0.00	#20	0.08	99.3
			#40	1.09	97.2
			#60	5.23	88.9
			#100	15.23	68.9
			#140	24.51	50.3
			#200	30.25	38.8

Hydrometer Test Data

Hydrometer test uses material passing #10

Percent passing #10 based upon complete sample = 99.4

Weight of hydrometer sample = 49.60

Hygroscopic moisture correction:

Moist weight and tare = 28.07

Dry weight and tare = 27.79

Tare weight = 15.42

Hygroscopic moisture = 2.3%

Table of composite correction values:

Temp., deg. C: 11.3 29.5

Comp. corr.: -8.0 -3.0

Meniscus correction only = 1.0

Specific gravity of solids = 2.661

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	22.3	21.0	16.0	0.0132	22.0	12.7	0.0333	32.8
5.00	22.3	19.5	14.5	0.0132	20.5	12.9	0.0213	29.7
15.00	22.3	18.0	13.0	0.0132	19.0	13.2	0.0124	26.6
30.00	22.3	17.5	12.5	0.0132	18.5	13.3	0.0088	25.6
60.00	22.5	17.0	12.1	0.0132	18.0	13.3	0.0062	24.7
250.00	23.4	16.0	11.3	0.0130	17.0	13.5	0.0030	23.2
1440.00	23.6	15.0	10.4	0.0130	16.0	13.7	0.0013	21.2

MACTEC, Inc.

Fractional Components

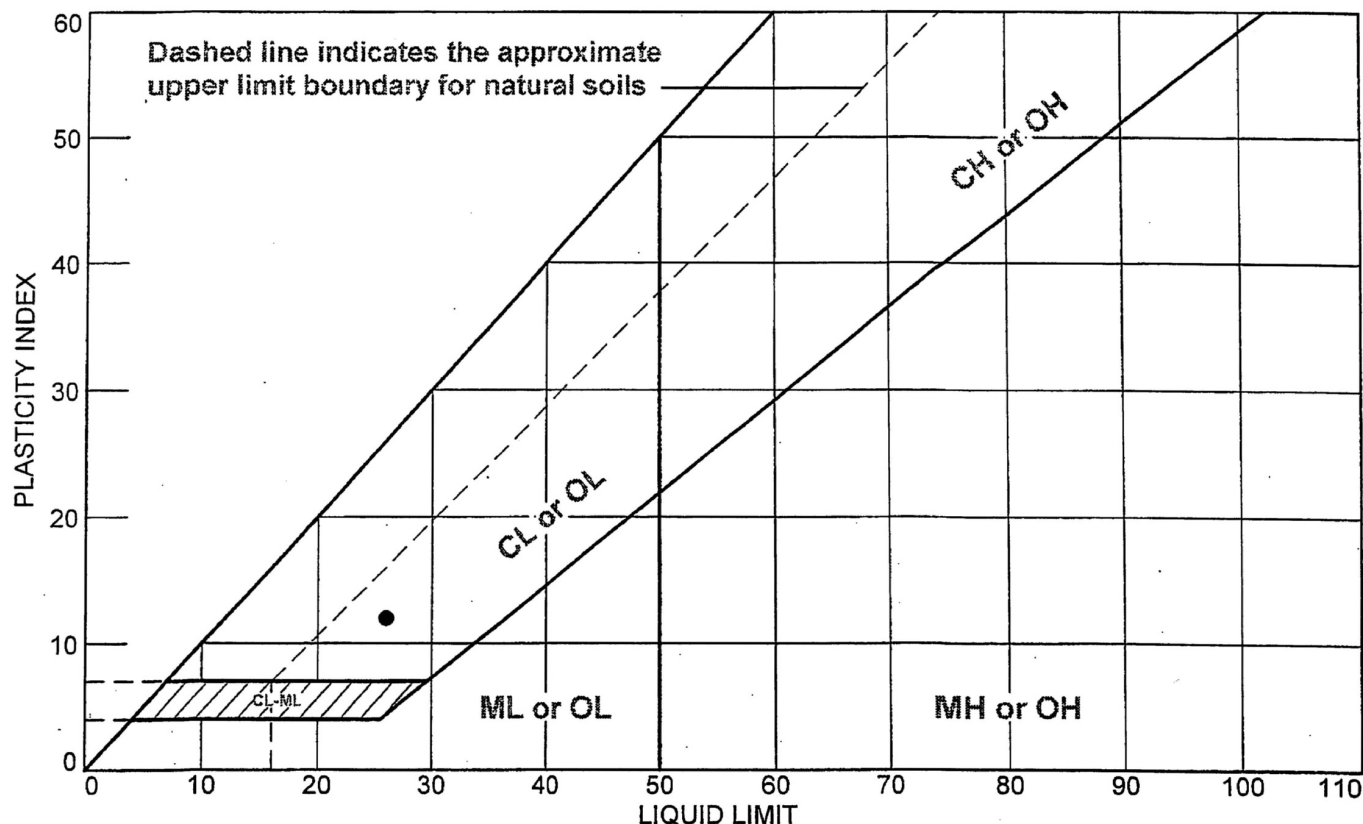
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.5	0.5	0.1	2.2	58.4	60.7	14.6	24.2	38.8

D ₁₀	D ₁₅	D ₂₀	D ₃₀	D ₅₀	D ₆₀	D ₈₀	D ₈₅	D ₉₀	D ₉₅
			0.0222	0.1053	0.1276	0.1908	0.2189	0.2608	0.3420

Fineness Modulus
0.41

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-2359UD	UD-12	80.0-81.7	18.2	14	26	12	SC

MACTEC, Inc.

Raleigh, North Carolina

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project No.: 6468071777

Figure N A

Tested By: CS

Checked By: LBJ

KAW 5/8/08

LIQUID AND PLASTIC LIMIT TEST DATA

5/7/2008

Client: Bechtel

Project: Exelon Texas COL (Victoria Reservoir)

Project Number: 6468071777

Location: Boring B-2359UD

Depth: 80.0-81.7

Sample Number: UD-12

Material Description: Pale Brown Clayey SAND

USCS: SC

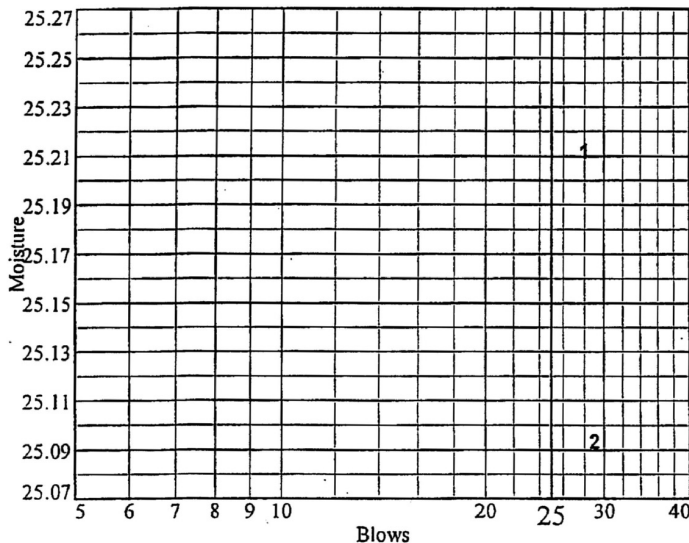
AASHTO: A-6(1)

Tested by: CS

Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	25.74	25.53				
Dry+Tare	23.66	23.52				
Tare	15.41	15.51				
# Blows	28	29				
Moisture	25.2	25.1				



Liquid Limit= 26
 Plastic Limit= 14
 Plasticity Index= 12
 Natural Moisture= 18.2
 Liquidity Index= 0.3

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	22.77	17.14			
Dry+Tare	21.90	16.38			
Tare	15.63	11.08			
Moisture	13.9	14.3			

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: 4/25/08

SAMPLE IDENTIFICATION: B-2359UD UD-12

(A) Mass of oven-dried soil, grams:	75.02
(B) Mass of pycnometer filled with water at test temperature (T), grams:	655.75
(C) Mass of pycnometer, water and soil, grams:	702.59
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	21.3
(G) Specific Gravity at observed temperature:	$A / [B - (C - A)]$ 2.662
(F) <i>Correction factor:</i>	0.99972
(G x F) SPECIFIC GRAVITY @ 20°C:	2.661

MATERIAL TESTED:

☒ X

- # 4

☐

- # 10

PREPARATION METHOD:

☒ X

DRY

☐

WET (dispersed)

REMARKS: Estimated % Passing # 4 : 100

Clayey SAND (SC)

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

THERMOMETER : 5.1.01

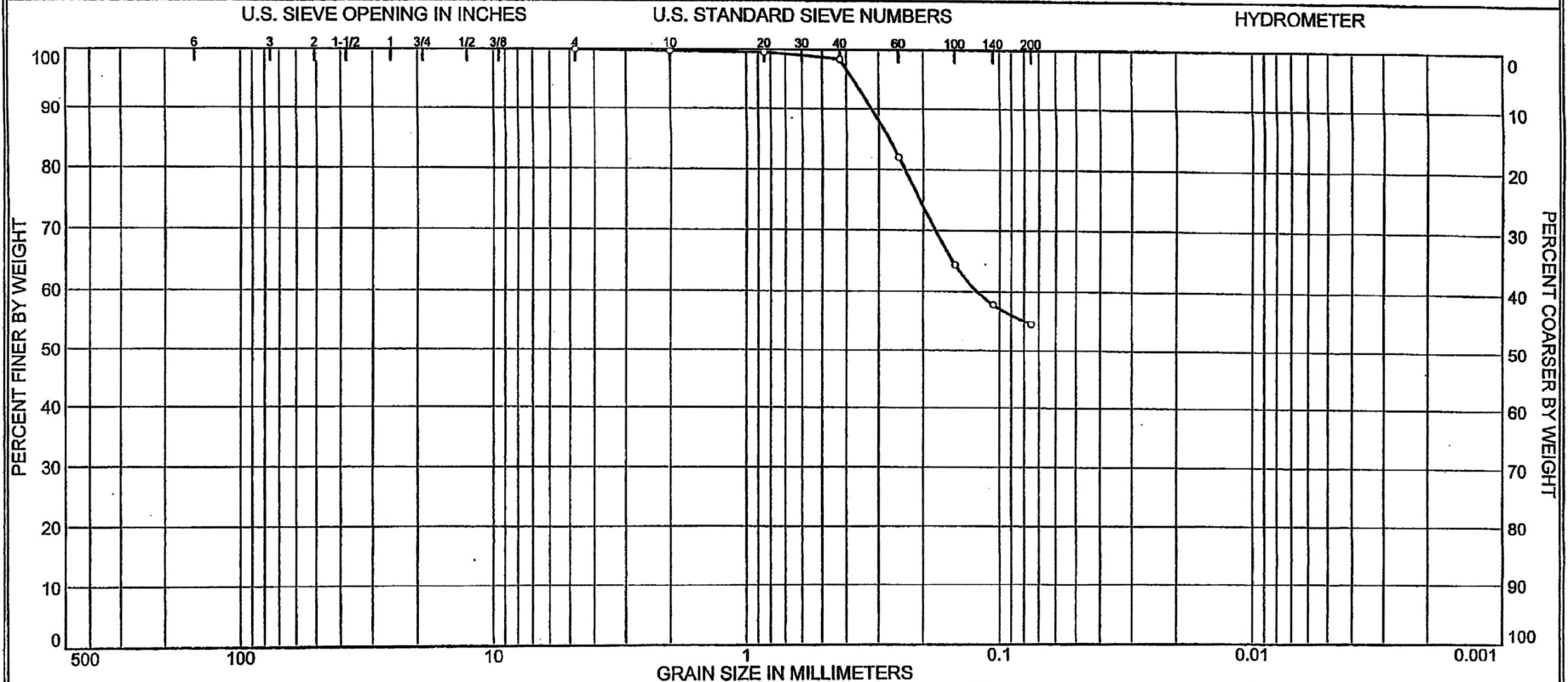
PYCNO METER : P-3

TESTED BY: CS

REVIEWED BY: Brian Johnson

KAW 5/8/08

Particle Size Distribution Report ASTM D6913-04 e1



% COBBLES	% GRAVEL		% SAND			% FINES	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.3	1.3	43.9	54.5	

SOURCE	SAMPLE #	DEPTH/ELEV.	DATE SAMPLED	USCS	MATERIAL DESCRIPTION	NM %	LL	PL
B-2359UD	UD-14	88-90.5 Ft	1/30/08	ML	Pale Brown Sandy SILT (Visual)	25.3	ND	ND

Client <u>Bechtel</u>		MACTEC ENGINEERING AND CONSULTING, INC.	Tested by: <u>EH</u> Reviewed by: <u>HJ</u> Sieve Analysis Only NM value from average of strength tests performed. Specific Gravity = 2.74 (ASTM D 854-06) ND = Not Determined
Project <u>Exelon Texas COL (Victoria)</u>			
Project No. <u>6468-07-1777</u>	Lab No. <u>8367</u>		

KAW 4.15-08

GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468-07-1777

Sample Data

Source: B-2359UD
Sample No.: UD-14
Elev. or Depth: 88-90.5 Ft Sample Length(in./cm.): ID#8367
Location: B-2359UD
Description: Pale Brown Sandy SILT (Visual)
Date: 1/30/08 PL: ND LL: ND PI: ND
USCS Classification: ML AASHTO Classification:
Testing Remarks: Tested by: EH Reviewed by: HJ

Sieve Analysis Only
NM value from average of strength tests performed.
Specific Gravity = 2.74 (ASTM D 854-06)
ND = Not Determined

Mechanical Analysis Data

Sieve	Cumul. Wt. retained	Percent finer
Initial		
Dry sample and tare=	209.52	
Tare =	86.95	
Dry sample weight =	122.57	
Tare for cumulative weight retained= .00		
# 4	0.00	100.0
# 10	0.34	99.7
# 20	0.59	99.5
# 40	2.00	98.4
# 60	22.09	82.0
# 100	43.63	64.4
# 140	51.78	57.8
# 200	55.78	54.5

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% COBBLES = % GRAVEL =
% SAND = 45.5 (% coarse = 0.3 % medium = 1.3 % fine = 43.9)
% FINES = 54.5

D₈₅= 0.27 D₆₀= 0.12

MACTEC ENGINEERING AND CONSULTING, INC.

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: 4/8/08

SAMPLE IDENTIFICATION: B-2359UD, UD-14 @ 88-90.5 Ft.

(A) Mass of oven-dried soil, grams:	40.91
(B) Mass of pycnometer filled with water at test temperature (T), grams:	346.75
(C) Mass of pycnometer, water and soil, grams:	372.73
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	23.3
(G) Specific Gravity at observed temperature:	$A / [B - (C - A)]$ 2.740
(F) Correction factor:	0.99926
(G x F) SPECIFIC GRAVITY @ 20°C:	2.738

MATERIAL TESTED:

☐

- # 4

☒

- # 10

PREPARATION METHOD:

☒

DRY

☐

WET (dispersed)

REMARKS: Estimated % Passing # 4 : 100

Sandy SILT (ML) - Visual

EQUIPMENT USED

SCALES : 418

OVEN : 144

THERMOMETER : 2759

PYCNO METER : 2197

TESTED BY: EH

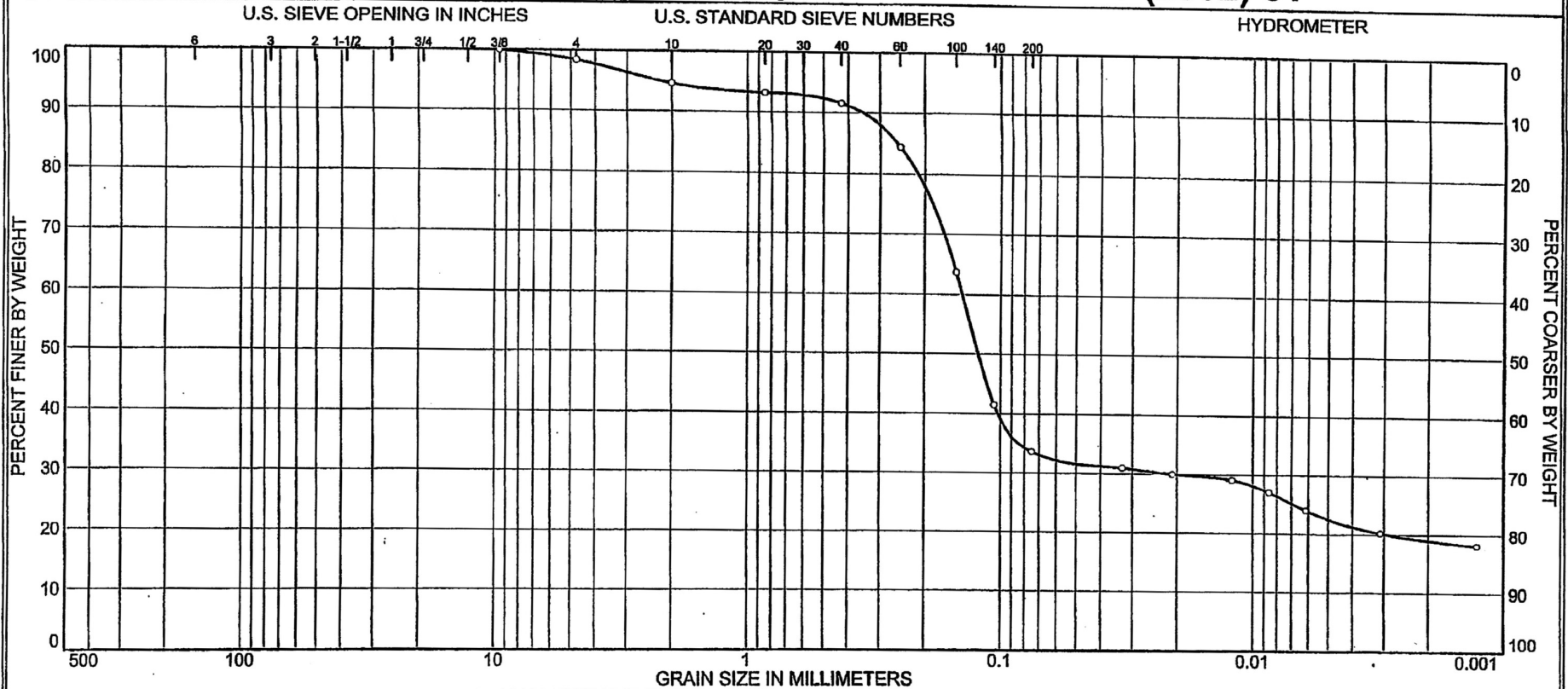
\\Test Reports\\Soils\\SPECIFIC GRAVITY(ref).xls

REVIEWED BY: Harry Johnson

HJ

KAW 4.15.08

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



GRAIN SIZE DISTRIBUTION TEST DATA

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468-07-1777

Sample Data

Source: B-2359UD
Sample No.: UD-17
Elev. or Depth: 110-111.7 Ft Sample Length(in./cm.): ID#8368
Location: B-2359UD
Description: Pale Brown, Mottled Yellowish Brown Silty SAND
Date: 1/30/08 PL: 18 LL: 21 PI: 3
USCS Classification: SM AASHTO Classification:
Testing Remarks: Tested by: EH Reviewed by: HJ

NM value from first strength test performed.
Specific Gravity = 2.71 (ASTM D 854-06)

Mechanical Analysis Data

	Initial	
Dry sample and tare=	161.23	
Tare =	110.92	
Dry sample weight =	50.31	
Tare for cumulative weight retained=	.00	
Sieve	Cumul. Wt. retained	Percent finer
.375 inch	0.00	100.0
# 4	0.78	98.4
# 10	2.69	94.7
# 20	3.40	93.2
# 40	4.24	91.6
# 60	7.80	84.5
# 100	18.25	63.7
# 140	29.44	41.5
# 200	33.41	33.6

Hydrometer Analysis Data

Separation sieve is #200
Percent -#200 based upon complete sample= 33.6
Weight of hydrometer sample: 16.90
Calculated biased weight= 50.30
Automatic temperature correction
Composite correction at 20 deg C = -5.4

Meniscus correction only= 0
Specific gravity of solids= 2.706
Specific gravity correction factor= 0.988
Hydrometer type: 152H
Effective depth L= 16.294964 - 0.164 x Rm

MACTEC Engineering and Consulting, Inc.

Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
2.00	23.1	20.5	15.8	0.0129	20.5	12.9	0.0329	31.0
5.00	23.1	20.0	15.3	0.0129	20.0	13.0	0.0208	30.0
15.00	23.1	19.5	14.8	0.0129	19.5	13.1	0.0121	29.1
30.00	23.1	18.5	13.8	0.0129	18.5	13.3	0.0086	27.1
60.00	23.1	17.0	12.3	0.0129	17.0	13.5	0.0061	24.1
240.00	23.1	15.0	10.3	0.0129	15.0	13.8	0.0031	20.2
1440.00	22.8	14.0	9.2	0.0130	14.0	14.0	0.0013	18.1

Fractional Components

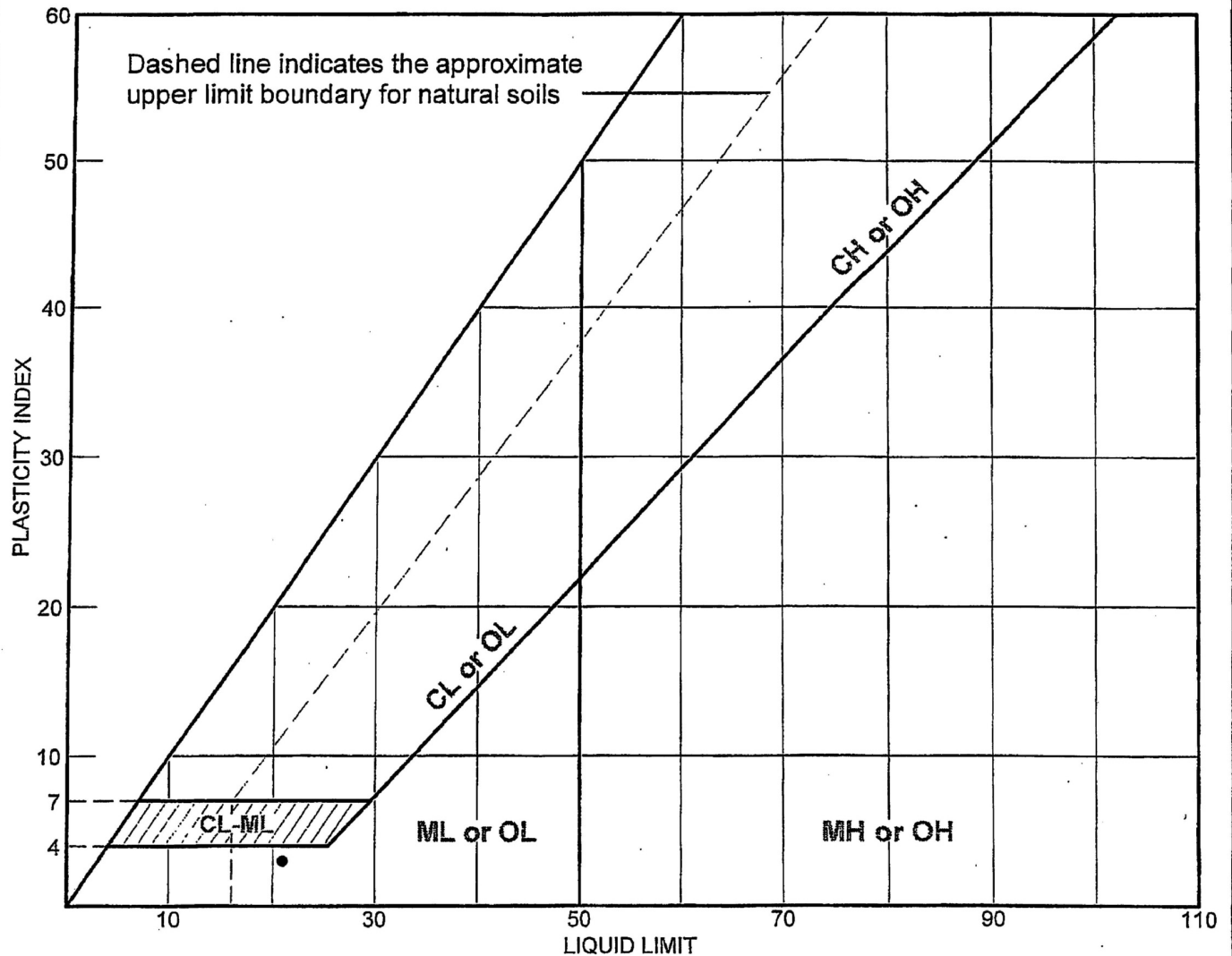
Gravel/Sand based on #4

Sand/Fines based on #200

% COBBLES = % GRAVEL = 1.6 (% coarse = % fine = 1.6)
 % SAND = 64.8 (% coarse = 3.7 % medium = 3.1 % fine = 58.0)
 % SILT = 11.0 % CLAY = 22.6

D₈₅= 0.26 D₆₀= 0.14 D₅₀= 0.12
 D₃₀= 0.02

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	B-2359UD	UD-17	110-111.7 Ft	17.4	18	21	3	SM

**MACTEC ENGINEERING
AND
CONSULTING, INC.**

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project No.: 6468-07-1777

Lab No. 8368

LIQUID AND PLASTIC LIMIT TEST DATA

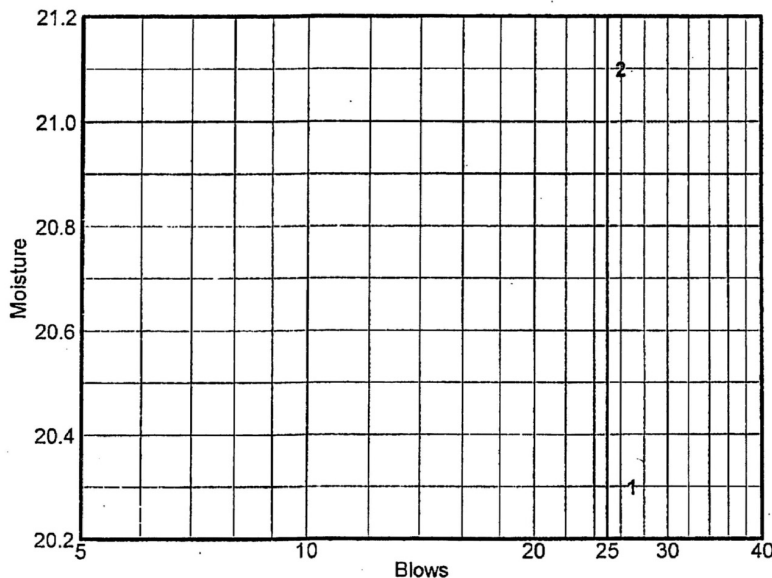
Client: Bechtel
 Project: Exelon Texas COL (Victoria)
 Project Number: 6468-07-1777

Sample Data

Source: B-2359UD
 Sample No.: UD-17
 Elev. or Depth: 110-111.7 Ft Sample Length(in./cm.): ID#8368
 Location: B-2359UD
 Description: Pale Brown, Mottled Yellowish Brown Silty SAND
 Water Content: 17.4 USCS: SM AASHTO:

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	35.39	35.57				
Dry+Tare	32.81	32.84				
Tare	20.12	19.90				
# Blows	27	26				
Moisture	20.3	21.1				



Liquid Limit= 21
 Plastic Limit= 18
 Plasticity Index= 3

Plastic Limit Data

Run No.	1	2	3	4
Wet+Tare	27.55	27.09		
Dry+Tare	26.60	26.08		
Tare	21.32	20.32		
Moisture	18.0	17.5		