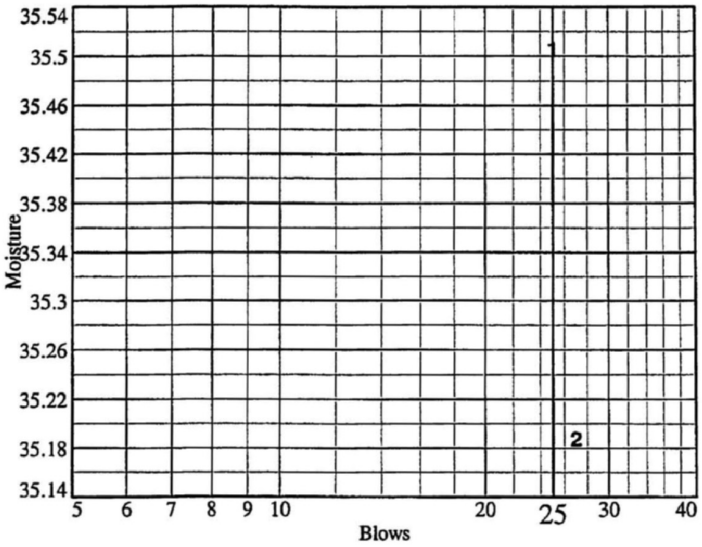
LIQUID AND PLASTIC LIMIT TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2251
Depth: 148.5-150'
Sample Number: SS-28
Material Description: Brown Sandy Lean CLAY
USCS: CL
AASHTO: A-6(11)
Tested by: CS
Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	23.64	24.52				
Dry+Tare	21.57	22.18				
Tare	15.74	15.53				
# Blows	25	27				
Moisture	35.5	35.2				



Liquid Limit= 36
Plastic Limit= 15
Plasticity Index= 21
Natural Moisture= 21.9
Liquidity Index= 0.3

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	25.65	24.58			
Dry+Tare	24.31	23.38			
Tare	15.52	15.58			
Moisture	15.2	15.4			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
156.55	130.08	9.24	21.9

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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: 1/12/08

SAMPLE IDENTIFICATION: B-2251 SS-28

(A) Mass of oven-dried soil, grams:		47.30
(B) Mass of pycnometer filled with water at test temperature (T), grams:		654.72
(C) Mass of pycnometer, water and soil, grams:		684.50
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		23.9
(G) Specific Gravity at observed temperature:	A / [A + (B - C)]	2.700
(F)	***Correction factor:***	0.99912
(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%

Sandy Lean CLAY (CL)

EQUIPMENT USED

SCALES : 3.1.99

OVEN : 5.1.16

THERMOMETER : 5.1.01

PYCNOMETER : P-5

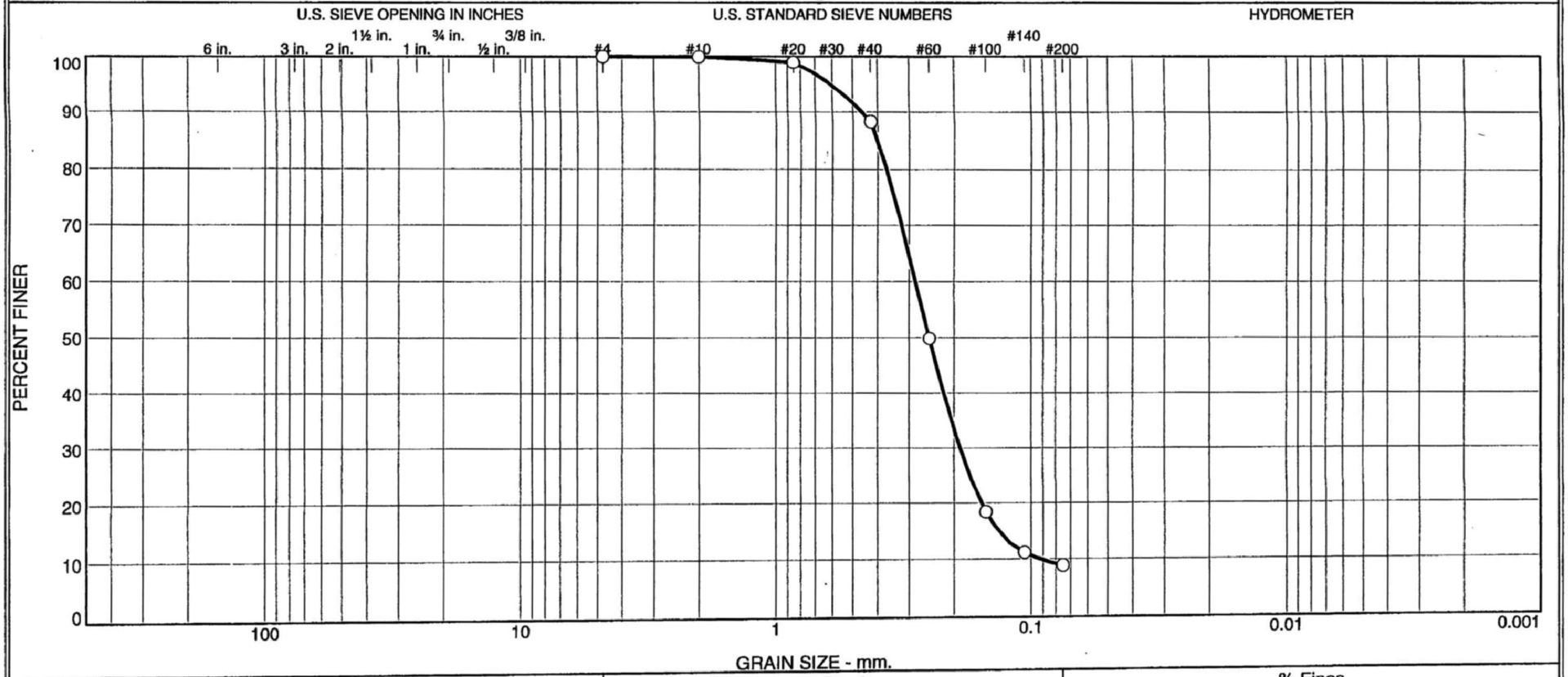
TESTED BY: CS

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

REVIEWED BY: **Brian Johnson**

DSC 1-25-08

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	0.1	11.5	79.5	8.9	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2251	SS-29	158.5-160'	12-04-07	SP-SM	Brown Poorly Graded SAND with silt (Visual)	ND	ND	ND

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity = 2.650 (ASTM D854-06)
SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 2-6-08

GRAIN SIZE DISTRIBUTION TEST DATA

2/6/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2251
Depth: 158.5-160' **Sample Number:** SS-29
Material Description: Brown Poorly Graded SAND with silt (Visual)
Date: 12-04-07 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SP-SM
Testing Remarks: Specific Gravity = 2.650 (ASTM D854-06)
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
240.07	0.00	0.00	#4	0.00	100.0
			#10	0.18	99.9
102.88	0.00	0.00	#20	1.04	98.9
			#40	11.85	88.4
			#60	51.58	49.8
			#100	83.95	18.4
			#140	91.41	11.1
			#200	93.71	8.9

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	11.5	79.5	91.1			8.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0922	0.1343	0.1563	0.1893	0.2505	0.2836	0.3685	0.3989	0.4588	0.6112

Fineness Modulus	C_u	C_c
1.23	3.08	1.37

MACTEC, Inc.

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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: 1/12/08

SAMPLE IDENTIFICATION: B-2251 SS-29

(A) Mass of oven-dried soil, grams:		75.10
(B) Mass of pycnometer filled with water at test temperature (T), grams:		656.50
(C) Mass of pycnometer, water and soil, grams:		703.28
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		23.9
(G) Specific Gravity at observed temperature:	A / [A + (B - C)]	2.652
(F)	***Correction factor:***	0.99912
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.650

MATERIAL TESTED: [X] **- # 4** [ ] **- # 10**

PREPARATION METHOD: [X] **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

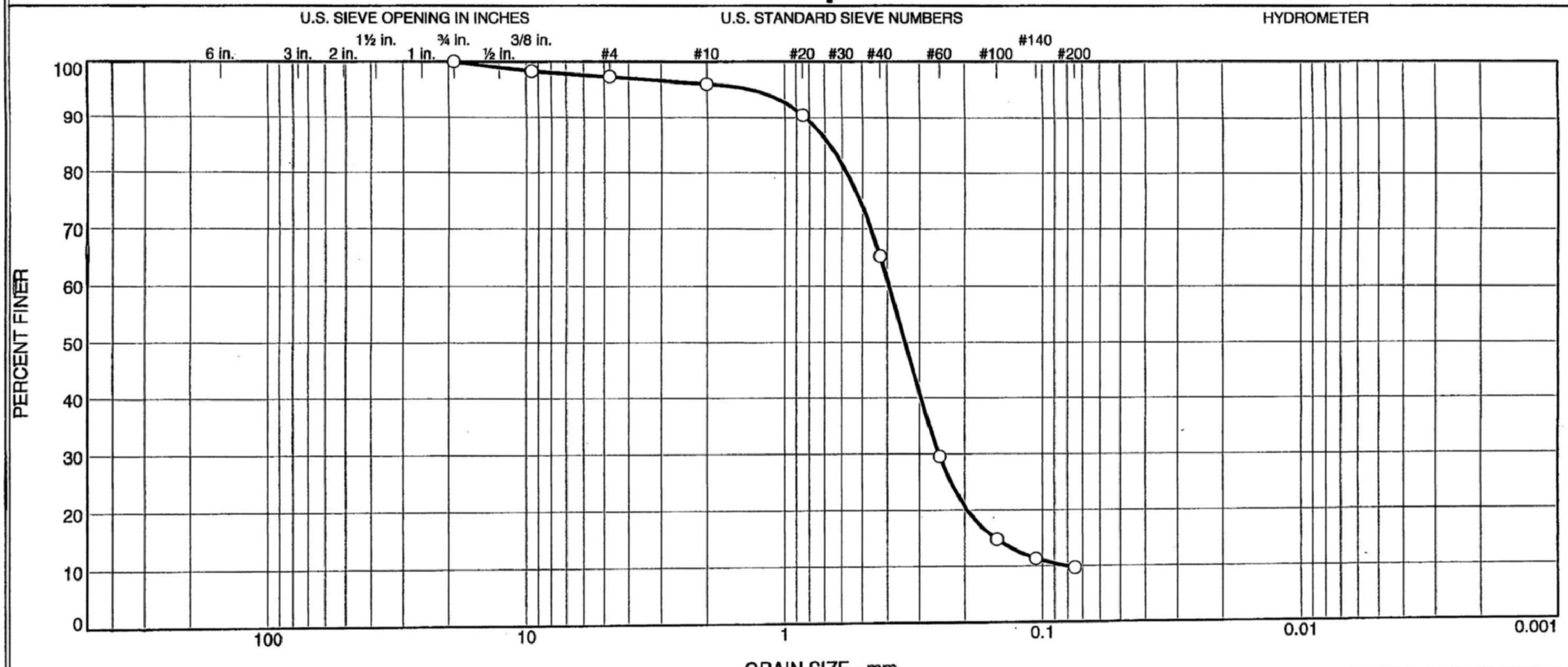
TESTED BY: CS

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

REVIEWED BY: **Brian Johnson**

DSC 1-25-08

Particle Size Distribution Report / ASTM D 6913-04e1



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	2.7	1.3	30.8	55.5	9.7	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2251	SS-30	168.5-170'	12-03-07	SP-SM	Brown Poorly Graded SAND with silt (Visual)	ND	ND	ND

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2251
Depth: 168.5-170' **Sample Number:** SS-30
Material Description: Brown Poorly Graded SAND with silt (Visual)
Date: 12-03-07 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SP-SM
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
245.32	0.00	0.00	3/4	0.00	100.0
			3/8"	4.06	98.3
			#4	6.53	97.3
			#10	9.79	96.0
96.28	0.00	0.00	#20	5.60	90.4
			#40	30.88	65.2
			#60	66.65	29.5
			#100	81.49	14.7
			#140	84.90	11.3
			#200	86.53	9.7

Fractional Components

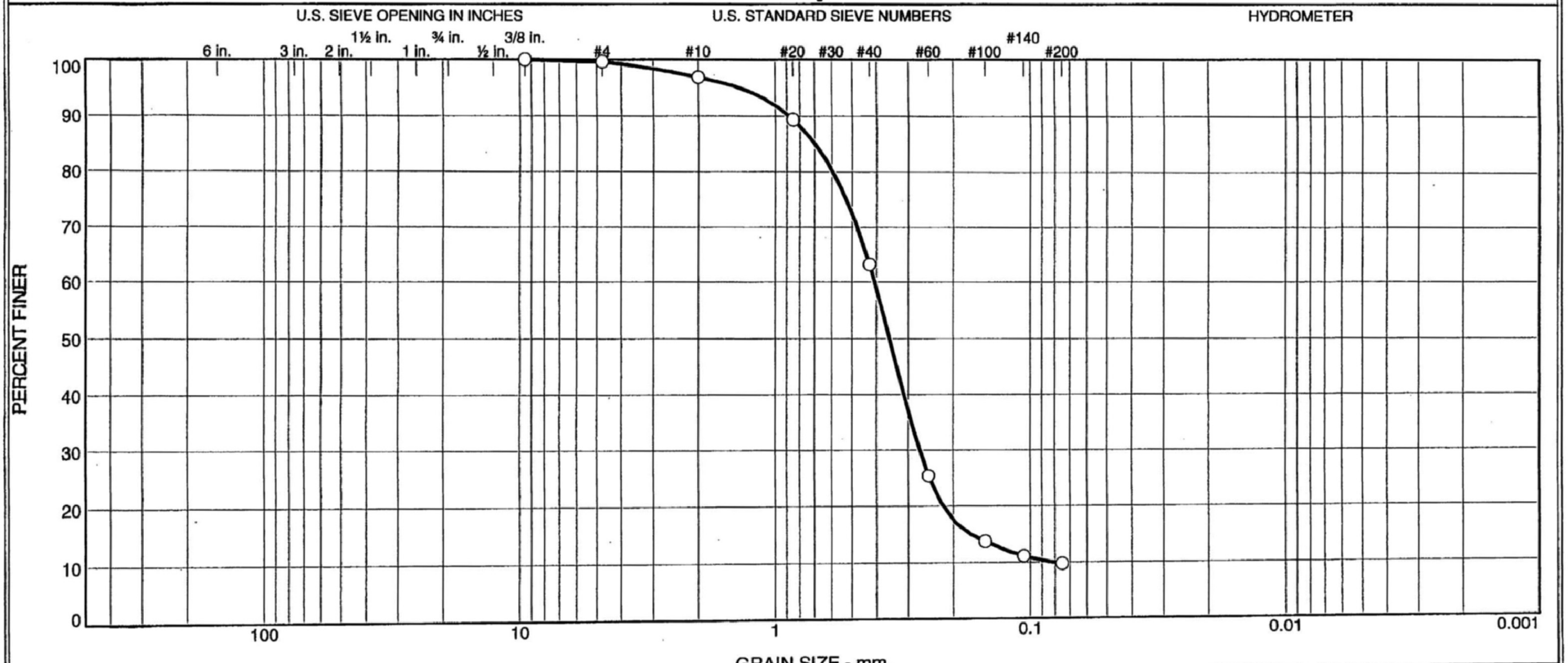
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	2.7	2.7	1.3	30.8	55.5	87.6			9.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0806	0.1527	0.1962	0.2521	0.3408	0.3924	0.5732	0.6668	0.8296	1.3339

Fineness Modulus	C_u	C_c
1.76	4.87	2.01

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	0.4	2.7	33.7	53.4	9.8	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2251	SS-31	178.5-180'	12-03-07	SP-SM	Brown Poorly Graded SAND with silt (Visual)	ND	ND	ND

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity = 2.665 (ASTM D 854-06)
SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/25/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2251
Depth: 178.5-180' **Sample Number:** SS-31
Material Description: Brown Poorly Graded SAND with silt (Visual)
Date: 12-03-07 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SP-SM
Testing Remarks: Specific Gravity = 2.665 (ASTM D 854-06)
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
213.75	0.00	0.00	3/8"	0.00	100.0
			#4	0.83	99.6
			#10	6.67	96.9
104.23	0.00	0.00	#20	8.04	89.4
			#40	36.26	63.2
			#60	76.91	25.4
			#100	89.45	13.7
			#140	92.24	11.1
			#200	93.73	9.8

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.4	0.4	2.7	33.7	53.4	89.8			9.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0809	0.1714	0.2194	0.2709	0.3554	0.4059	0.5925	0.6948	0.8796	1.3730

Fineness Modulus	C_u	C_c
1.78	5.02	2.24

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: 1/12/08

SAMPLE IDENTIFICATION: B-2251 SS-31

(A) Mass of oven-dried soil, grams:	74.76
(B) Mass of pycnometer filled with water at test temperature (T), grams:	656.57
(C) Mass of pycnometer, water and soil, grams:	703.30
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:	23.3
(G) Specific Gravity at observed temperature: A / [A + (B - C)]	2.667
(F) ***Correction factor:***	0.99926
(G x F) **SPECIFIC GRAVITY @ 20°C:**	2.665

MATERIAL TESTED: [X] **- # 4** [ ] **- # 10**

PREPARATION METHOD: [X] **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

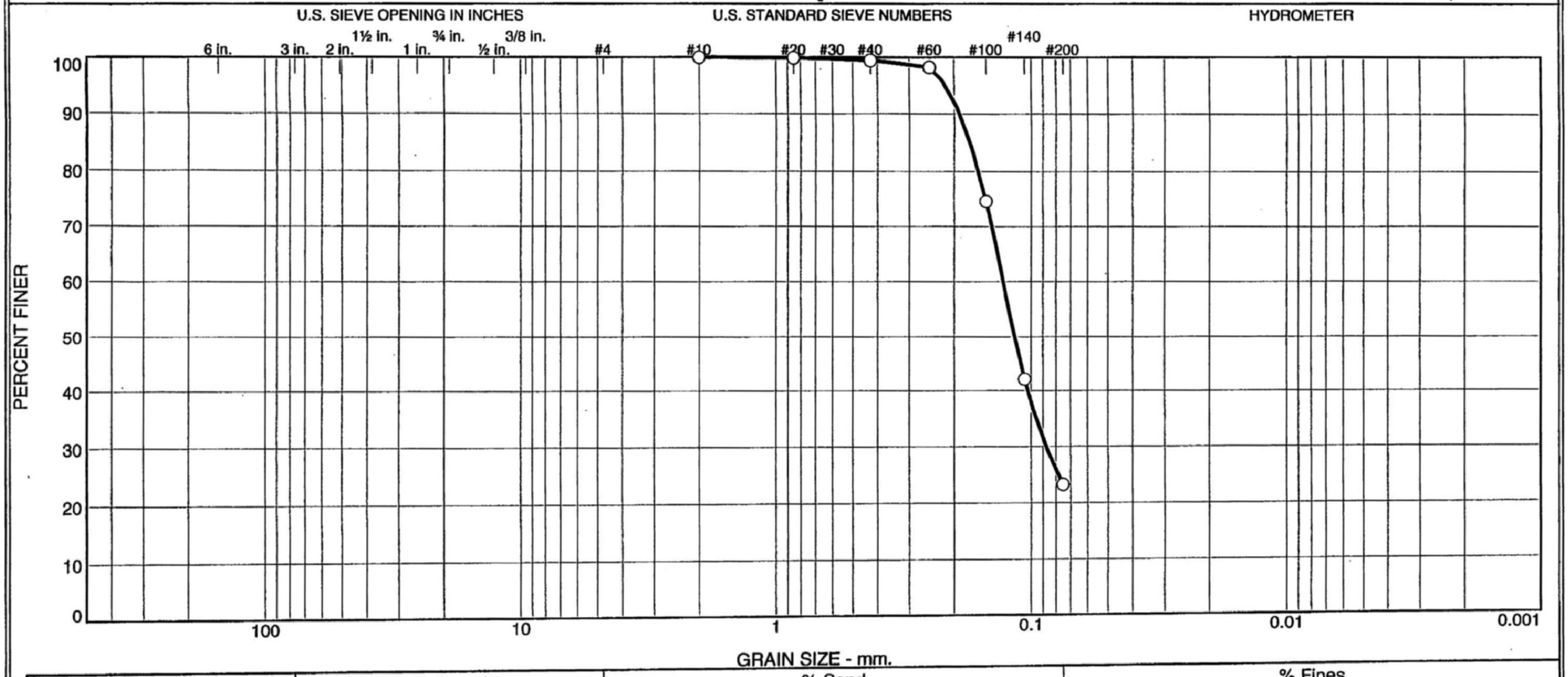
TESTED BY: CS

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

REVIEWED BY: **Brian Johnson**

DSC 1-25-08

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	0.6	76.1	23.3	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2251	SS-32	188.5-190'	12-03-07	SC	Brown Clayey SAND(Visual)	ND	ND	ND

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ PSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2251
Depth: 188.5-190'
Sample Number: SS-32
Material Description: Brown Clayey SAND(Visual)
Date: 12-03-07
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
187.54	0.00	0.00	#10	0.00	100.0
97.88	0.00	0.00	#20	0.09	99.9
			#40	0.54	99.4
			#60	1.72	98.2
			#100	24.85	74.6
			#140	56.67	42.1
			#200	75.12	23.3

Fractional Components

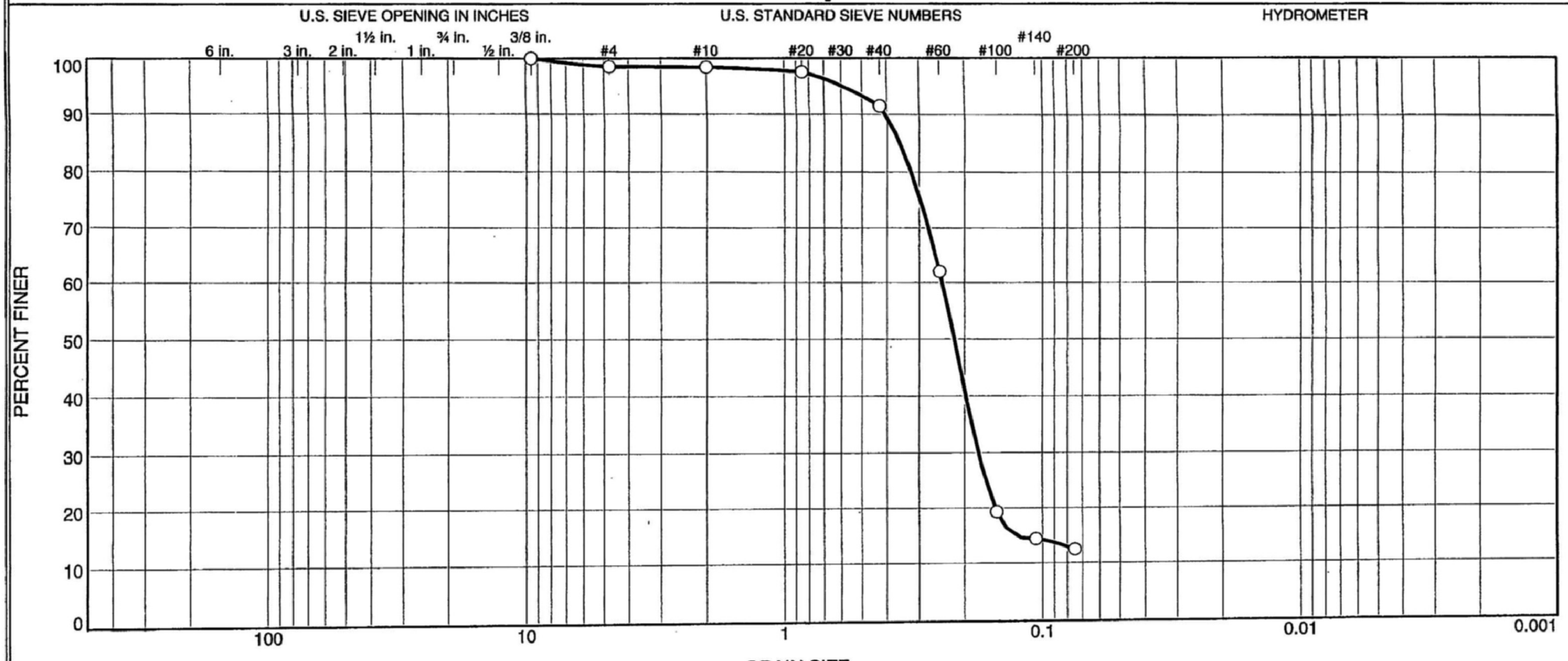
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.6	76.1	76.7			23.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0873	0.1160	0.1285	0.1606	0.1732	0.1902	0.2168

Fineness Modulus
0.27

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	1.5	0.1	6.9	79.1	12.4	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2251	SS-34	208.5-210'	12-03-07	SM	Brown Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity = 2.653 (ASTM D854-06)
SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 1-25-08

GRAIN SIZE DISTRIBUTION TEST DATA

1/24/2008

Client: Bechtel
Project: Exelon Texas COL (Victoria)
Project Number: 6468071777
Location: Boring B-2251
Depth: 208.5-210'
Sample Number: SS-34
Material Description: Brown Silty SAND (Visual)
Date: 12-03-07
Natural Moisture: ND
Liquid Limit: ND
Plastic Limit: ND
USCS Class.: SM
Testing Remarks: Specific Gravity = 2.653 (ASTM D854-06)
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
213.95	0.00	0.00	3/8"	0.00	100.0
			#4	3.14	98.5
			#10	3.36	98.4
102.92	0.00	0.00	#20	0.91	97.6
			#40	7.27	91.5
			#60	37.99	62.1
			#100	82.76	19.3
			#140	87.93	14.3
			#200	89.92	12.4

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	1.5	1.5	0.1	6.9	79.1	86.1			12.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1274	0.1523	0.1766	0.2193	0.2441	0.3223	0.3559	0.4049	0.5930

Fineness Modulus
1.15

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: 1/12/08

SAMPLE IDENTIFICATION: B-2251 SS-34

(A) Mass of oven-dried soil, grams:		75.35
(B) Mass of pycnometer filled with water at test temperature (T), grams:		656.62
(C) Mass of pycnometer, water and soil, grams:		703.59
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		22.9
(G) Specific Gravity at observed temperature:	A / [A + (B - C)]	2.655
(F)	***Correction factor:***	0.99936
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.653

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
PYCNOMETER : P-6

TESTED BY: CS

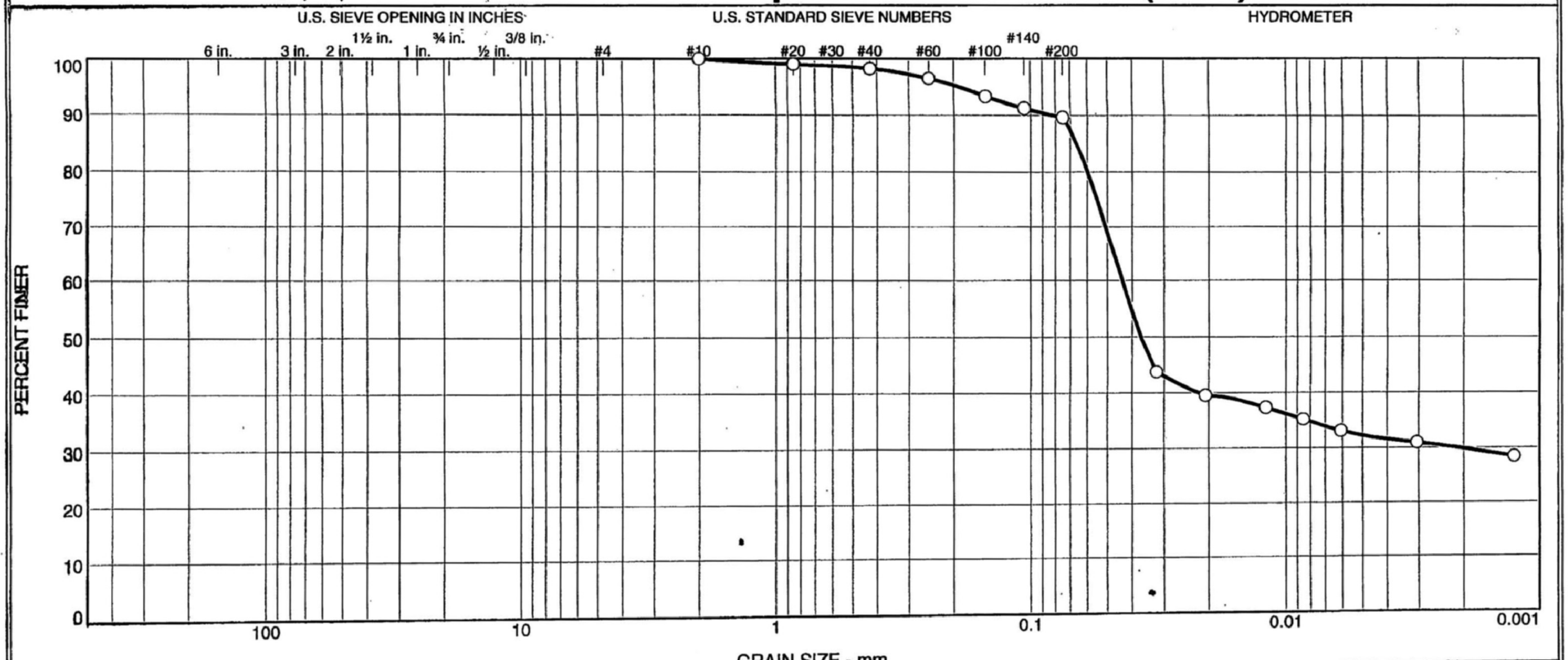
\Test Reports\Soils\SPECIFIC GRAVITY(ref).xls

REVIEWED BY: **Brian Johnson**

DSC 1-25-08

Boring B-2265

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



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	1.8	8.6	57.3	32.3

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-2265	SS-1	0-1.5	11-9-07	CL	Black Lean CLAY	17.0	35	13

Client Bechtel

Project Exelon Texas COL (Victoria)

Project No. 6468071777 Figure NA

MACTEC, Inc.

Raleigh, North Carolina

○ Specific Gravity is assumed
Organic content = 5.1% (ASTM D2794-07)

Tested By: CS Checked By: LBJ SSC 1/28/08