FINAL DATA REPORT Rev. 2
GEOTECHNICAL EXPLORATION AND TESTING

TURKEY POINT COL PROJECT
FLORIDA CITY, FLORIDA

October 6, 2008

VOLUME 3
Appendix E – Laboratory Test Data

Prepared By:

MACTEC Engineering and Consulting, Inc.
Raleigh, North Carolina

MACTEC Project No. 6468-07-1950

Prepared For:

Bechtel Power Corporation
Subcontract No. 25409-102-HC4-CY00-00001

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APPENDIX E.1

SOIL LABORATORY TESTS

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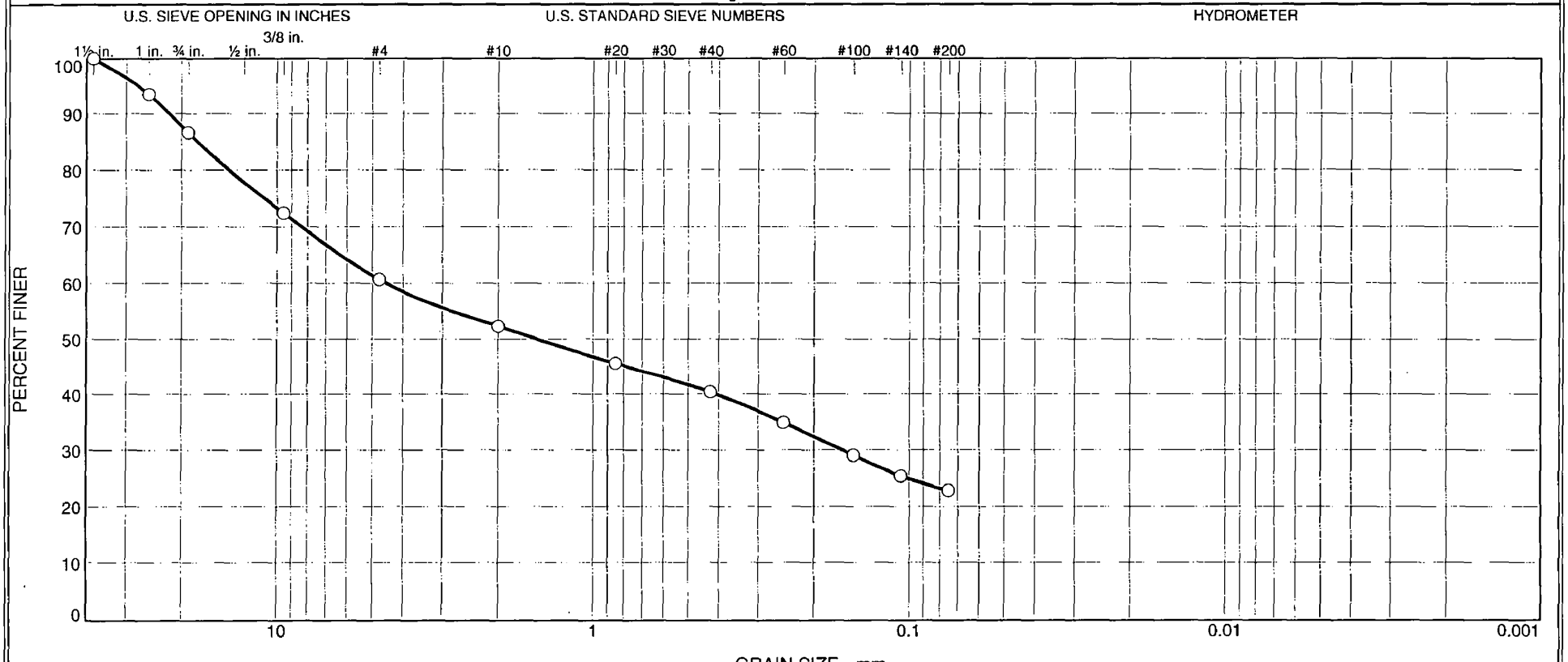
- **Soil Laboratory Tests Test Pits**
- **Soil Strength Tests**
- **Soil Chemical Tests**
- **Carbonate Content Tests**

Soil Index Tests-
600 Series Boreholes

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	13	26	9	12	17	23	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-3	5.3-6.8	2/24/08	GM	Pale Yellow Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 5.3-6.8 **Sample Number:** 601-3
Material Description: Pale Yellow Silty GRAVEL with sand (Visual)
Date: 2/24/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
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
395.32	0.00	0.00	1.5	0.00	100
			1	25.55	94
			3/4	53.03	87
			3/8"	109.10	72
			#4	155.32	61
			#10	188.42	52
99.67	0.00	0.00	#20	12.93	46
			#40	22.80	40
			#60	33.13	35
			#100	44.24	29
			#140	51.28	25
			#200	56.13	23

Fractional Components

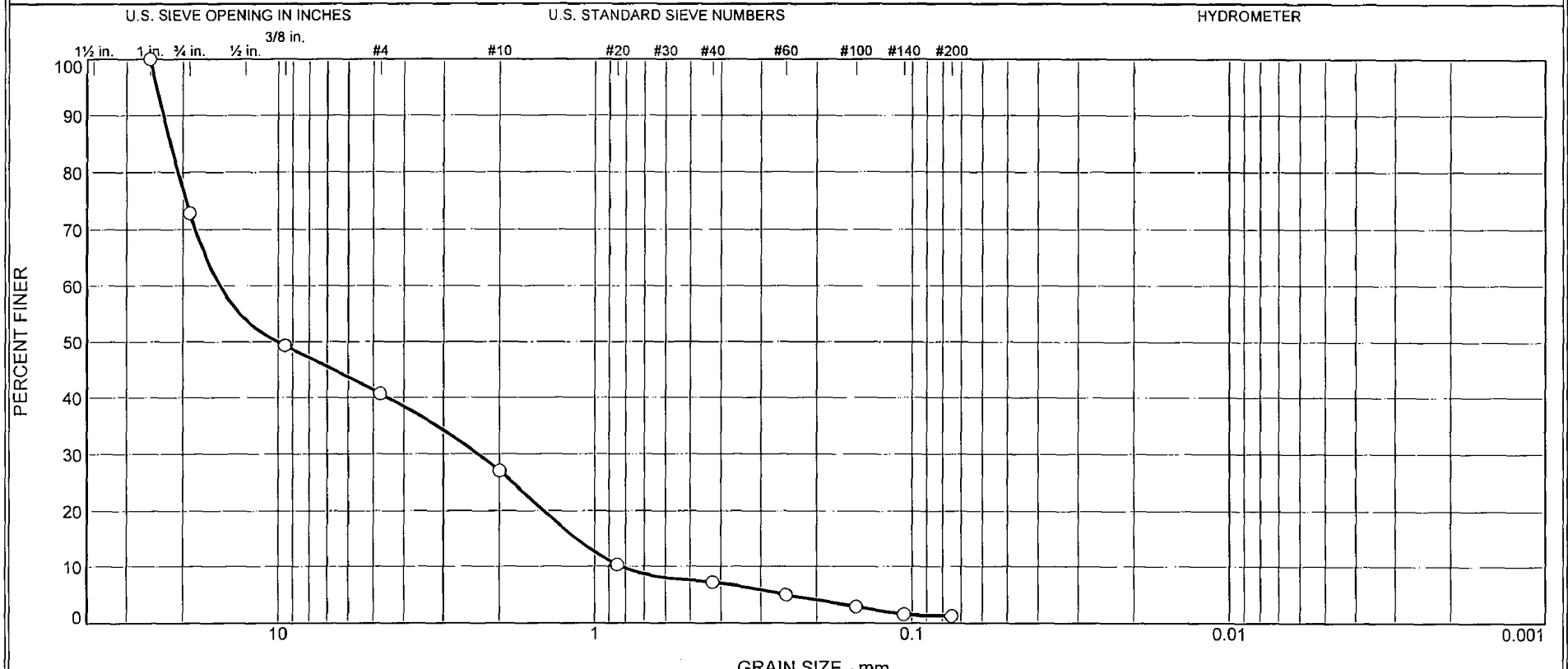
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	13	26	39	9	12	17	38			23

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.1621	1.4990	4.5007	14.1689	17.8253	21.8423	27.3405

Fineness Modulus
3.69

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	27	32	14	20	6	1	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-5	9.7-11.2	2/24/08	GP	White Poorly Graded GRAVEL with sand	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined
Calcite Equivalent=93% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 9.7-11.2 **Sample Number:** 601-5
Material Description: White Poorly Graded GRAVEL with sand
Date: 2/24/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GP
Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined
Calcite Equivalent=93% (ASTM D 4373-02)
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =239.18
Tare Wt. = 0.00
Minus #200 from wash = 0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
239.18	0.00	0.00	1	0.00	100
			3/4	64.86	73
			3/8"	121.26	49
			#4	141.99	41
			#10	174.55	27
			#20	214.57	10
			#40	222.01	7
			#60	227.31	5
			#100	232.24	3
			#140	235.36	2
			#200	236.18	1

Fractional Components

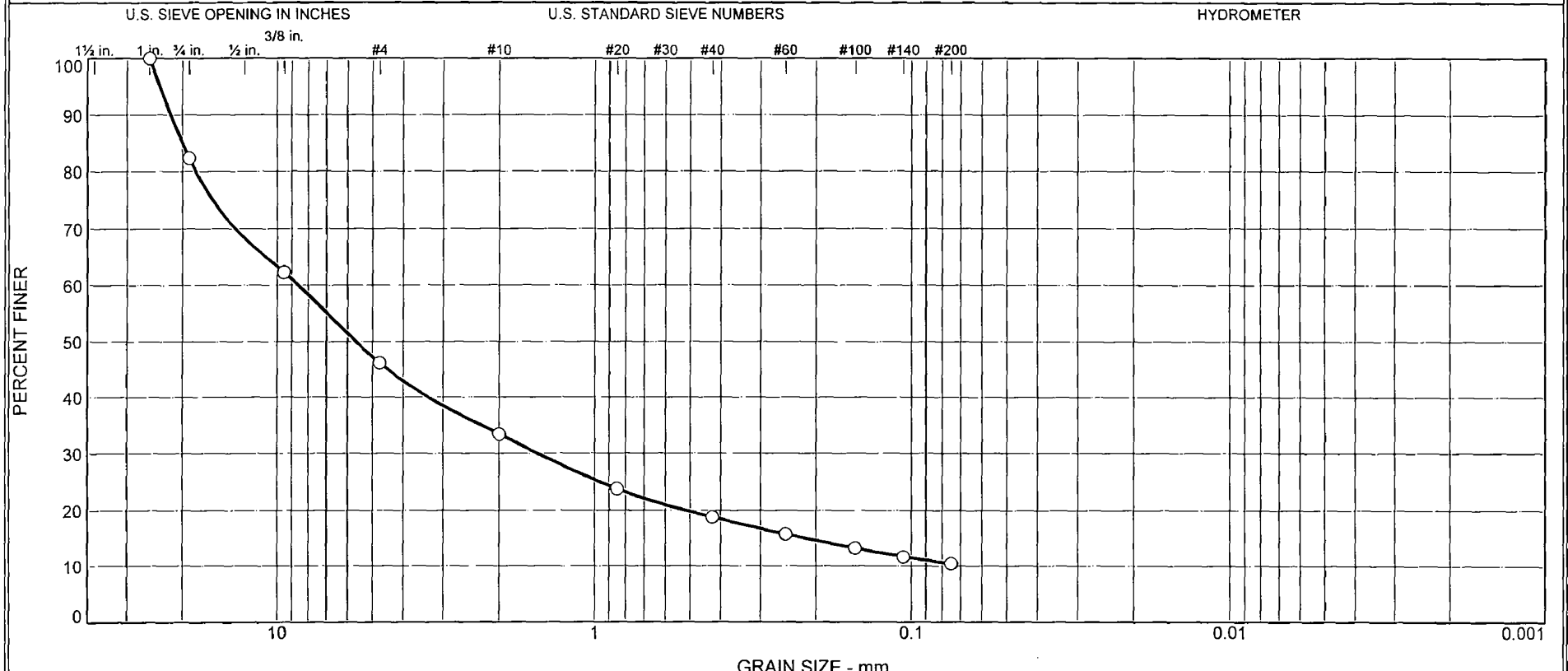
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	27	32	59	14	20	6	40			1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.8281	1.1424	1.4484	2.3339	10.0655	15.2871	20.7412	21.8852	23.0291	24.1944

Fineness Modulus	C_u	C_c
5.75	18.46	0.43

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	18	36	13	14	9	10	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-6	12.5-14.0	2/24/08	GP-GM	White Poorly Graded GRAVEL with silt and sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 12.5-14.0 **Sample Number:** 601-6
Material Description: White Poorly Graded GRAVEL with silt and sand (Visual)
Date: 2/24/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GP-GM
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
645.99	0.00	0.00	1	0.00	100
			3/4	113.93	82
			3/8"	243.36	62
			#4	348.05	46
			#10	430.39	33
103.58	0.00	0.00	#20	29.98	24
			#40	45.29	19
			#60	54.69	16
			#100	62.44	13
			#140	67.22	12
			#200	71.16	10

Fractional Components

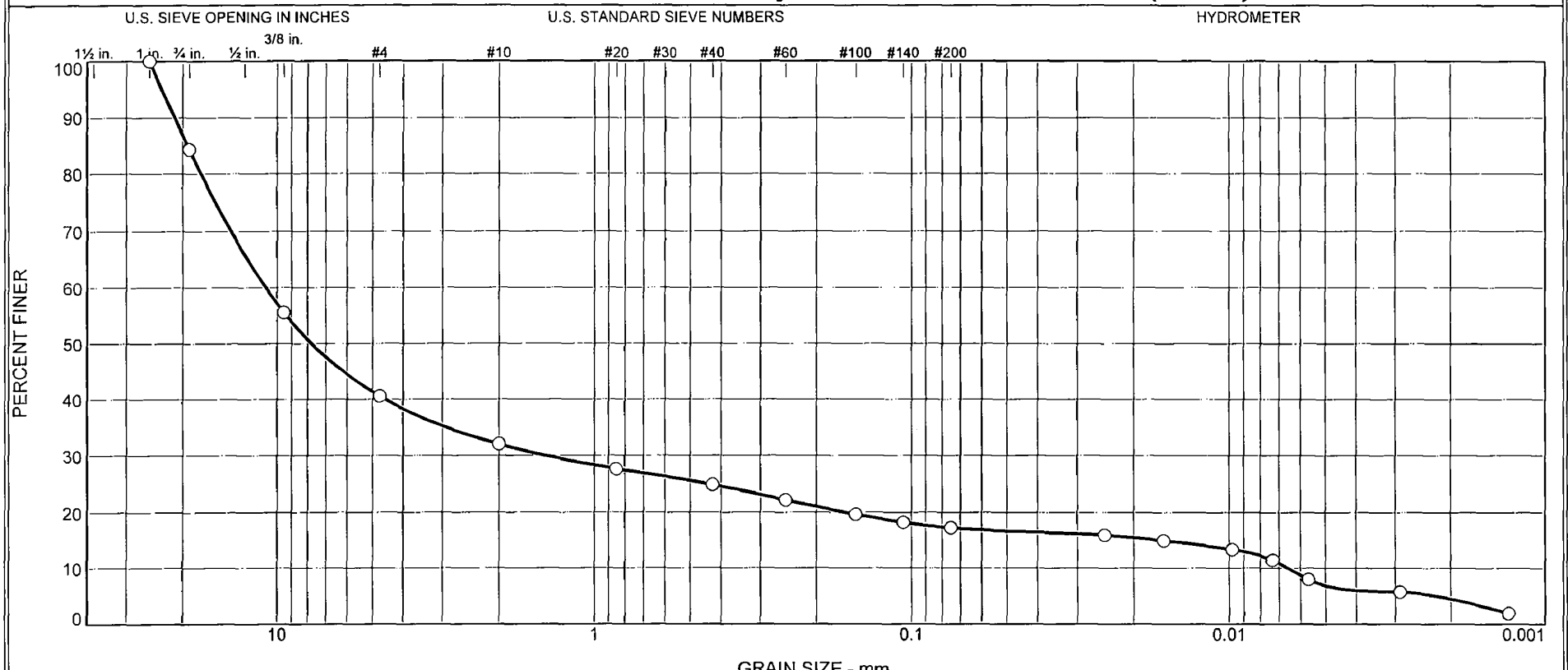
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	18	36	54	13	14	9	36			10

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.2159	0.5182	1.5141	5.6566	8.5737	18.1463	20.0105	21.7746	23.5479

Fineness Modulus
4.96

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	15.6	43.9	8.5	7.2	7.6	10.4	6.8

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-8	21.4-22.9	2/25/08	GM	White Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 | Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is Assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 21.4-22.9 **Sample Number:** 601-8
Material Description: White Silty GRAVEL with sand (Visual)
Date: 2/25/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is Assumed
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
494.50	0.00	0.00	1	0.00	100.0
			3/4	77.30	84.4
			3/8"	219.50	55.6
			#4	294.00	40.5
			#10	336.30	32.0
99.99	0.00	0.00	#20	13.71	27.6
			#40	22.49	24.8
			#60	30.71	22.2
			#100	38.63	19.6
			#140	43.11	18.2
			#200	46.12	17.2

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =32.0
Weight of hydrometer sample =99.99
Hygroscopic moisture correction:
Moist weight and tare = 27.71
Dry weight and tare = 27.64
Tare weight = 15.65
Hygroscopic moisture =0.6%
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 =2.700
Hydrometer type =152H
Hydrometer effective depth equation: L =16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.4	55.0	50.0	0.0131	56.0	7.1	0.0246	15.9
5.00	22.4	52.0	47.0	0.0131	53.0	7.6	0.0161	15.0
15.00	22.3	47.0	42.0	0.0131	48.0	8.4	0.0098	13.4
30.00	22.3	41.0	36.0	0.0131	42.0	9.4	0.0073	11.5
60.00	22.3	30.0	25.0	0.0131	31.0	11.2	0.0056	8.0
250.00	22.4	23.0	18.0	0.0131	24.0	12.4	0.0029	5.7
1440.00	22.0	11.0	5.9	0.0131	12.0	14.3	0.0013	1.9

MACTEC Engineering and Consulting, Inc.

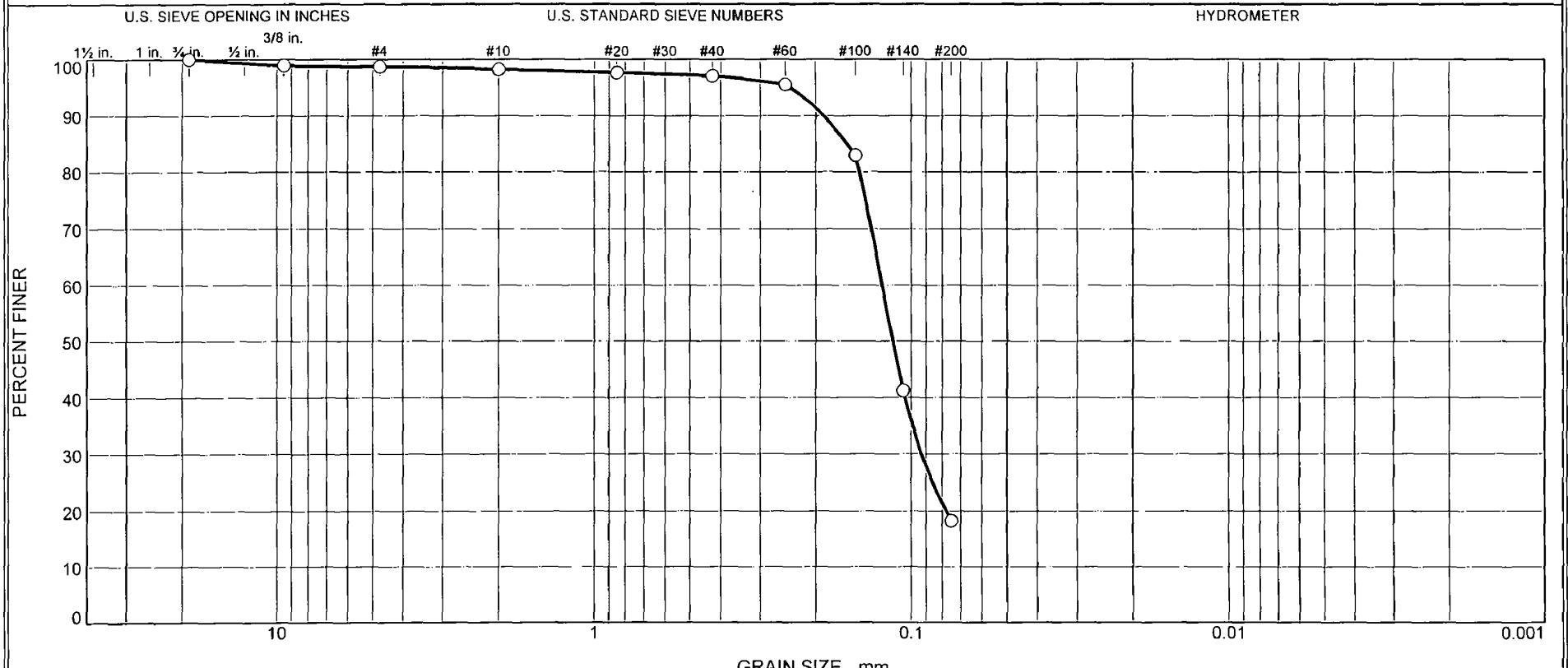
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	15.6	43.9	59.5	8.5	7.2	7.6	23.3	10.4	6.8	17.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0066	0.0163	0.1623	1.4278	7.7783	10.8827	17.4700	19.2837	21.1873	23.2134

Fineness Modulus	C_u	C_c
4.88	1660.90	28.59

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	1	1	1	79	18	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-10B	122.0-122.7	3/5/08	SM	Light Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 122.0-122.7 **Sample Number:** 601-10B
Material Description: Light Gray Silty SAND (Visual)
Date: 3/5/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** 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
376.50	0.00	0.00	3/4	0.00	100
			3/8"	3.87	99
			#4	4.84	99
			#10	6.58	98
101.38	0.00	0.00	#20	0.61	98
			#40	1.17	97
			#60	2.83	96
			#100	15.80	83
			#140	58.88	41
			#200	82.59	18

Fractional Components

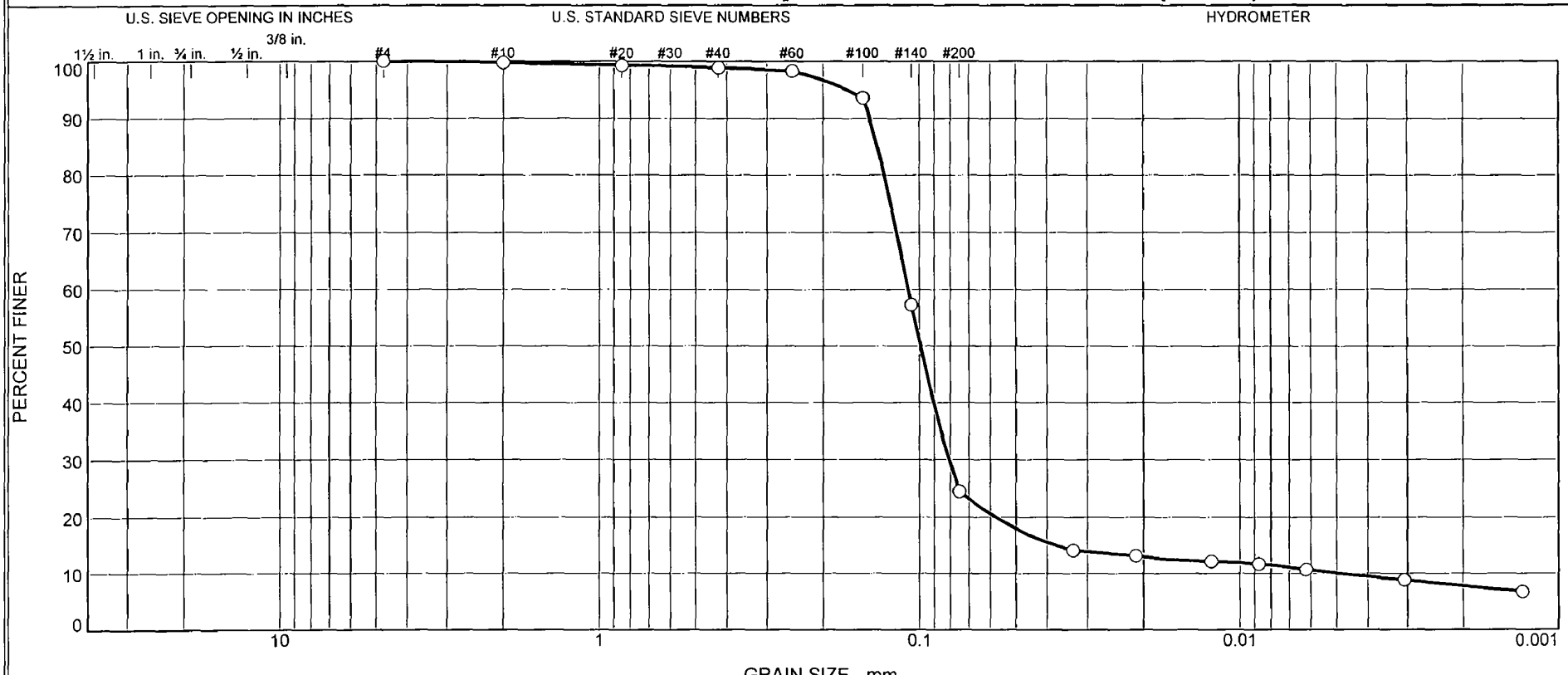
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	1	1	1	1	79	81			18

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0779	0.0931	0.1144	0.1236	0.1455	0.1594	0.1893	0.2415

Fineness Modulus
0.30

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.2	0.9	74.4	14.4	10.1

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-11	128.3-129.8	3/6/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 128.3-129.8 **Sample Number:** 601-11
Material Description: Greenish Gray Silty SAND (Visual)
Date: 3/6/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
351.05	0.00	0.00	#4	0.00	100.0
			#10	0.79	99.8
101.60	0.00	0.00	#20	0.50	99.3
			#40	0.88	98.9
			#60	1.54	98.3
			#100	6.25	93.6
			#140	43.23	57.3
			#200	76.68	24.5

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =99.8
Weight of hydrometer sample =101.60
Hygroscopic moisture correction:
Moist weight and tare = 29.23
Dry weight and tare = 29.22
Tare weight = 15.25
Hygroscopic moisture =0.1%
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 =2.700
Hydrometer type =152H
Hydrometer effective depth equation: L =16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.4	19.5	14.5	0.0131	20.5	12.9	0.0332	14.1
5.00	22.4	18.5	13.5	0.0131	19.5	13.1	0.0211	13.2
15.00	22.3	17.5	12.5	0.0131	18.5	13.3	0.0123	12.2
30.00	22.3	17.0	12.0	0.0131	18.0	13.3	0.0087	11.7
60.00	22.3	16.0	11.0	0.0131	17.0	13.5	0.0062	10.7
250.00	22.6	14.0	9.1	0.0130	15.0	13.8	0.0031	8.8
1440.00	22.1	12.0	7.0	0.0131	13.0	14.2	0.0013	6.8

MACTEC Engineering and Consulting, Inc.

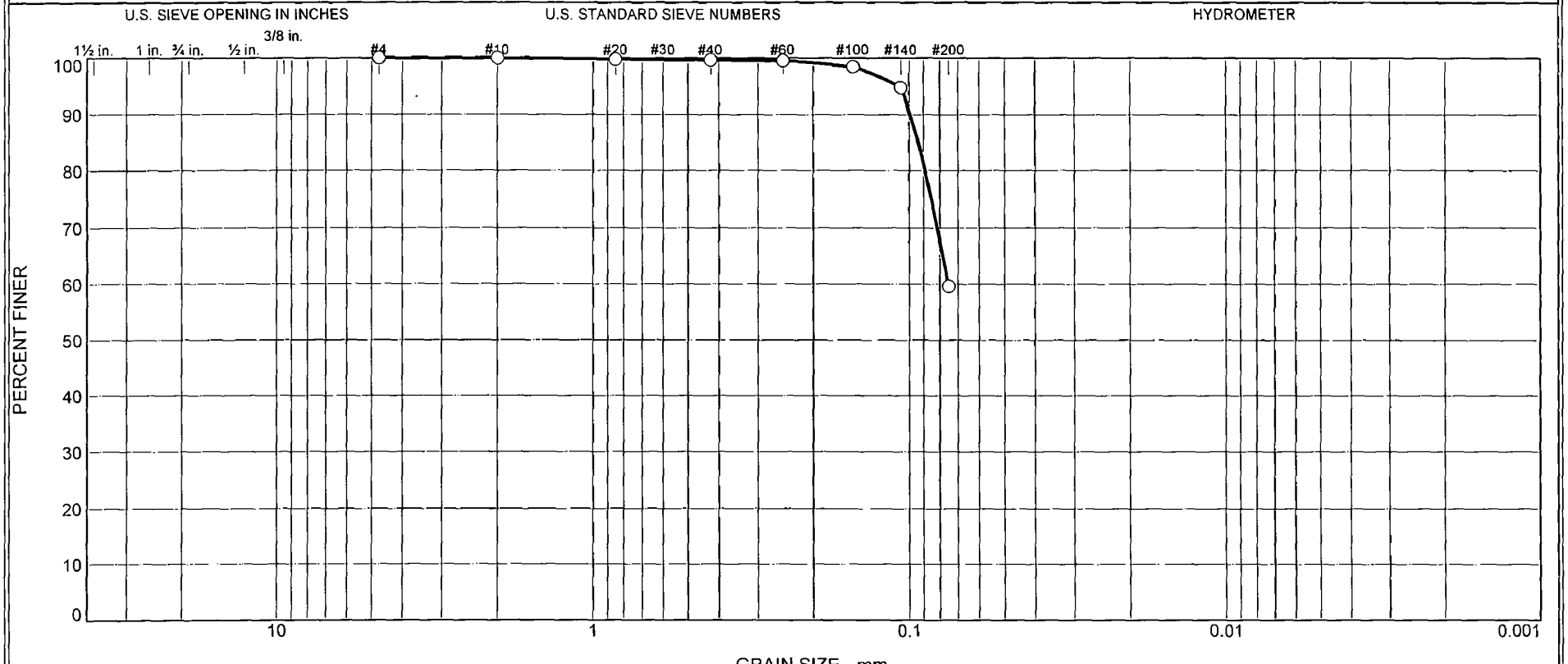
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.2	0.9	74.4	75.5	14.4	10.1	24.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0048	0.0376	0.0579	0.0809	0.0994	0.1084	0.1288	0.1352	0.1429	0.1680

Fineness Modulus	C_u	C_c
0.09	22.44	12.49

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	40	60	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-14	158.4-159.9	3/9/08	CL	Greenish Gray Lean CLAY with sand	ND	24	14

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ATTERBURG LIMITS TEST ADDED BY ASSIGNMENT 13
ND = Not Determined

ZHU 7/23/08

Tested By: CS Checked By: LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

7/23/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 158.4-159.9 **Sample Number:** 601-14
Material Description: Greenish Gray Lean CLAY with sand
Date: 3/9/08 **Natural Moisture:** ND
Liquid Limit: 24 **Plastic Limit:** 14 **USCS Class.:** CL
Testing Remarks: SIEVE ANALYSIS ONLY
ATTERBURG LIMITS TEST ADDED BY ASSIGNMENT 13
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
328.01	0.00	0.00	#4	0.00	100
			#10	0.04	100
98.01	0.00	0.00	#20	0.19	100
			#40	0.32	100
			#60	0.42	100
			#100	1.50	98
			#140	5.10	95
			#200	39.55	60

Fractional Components

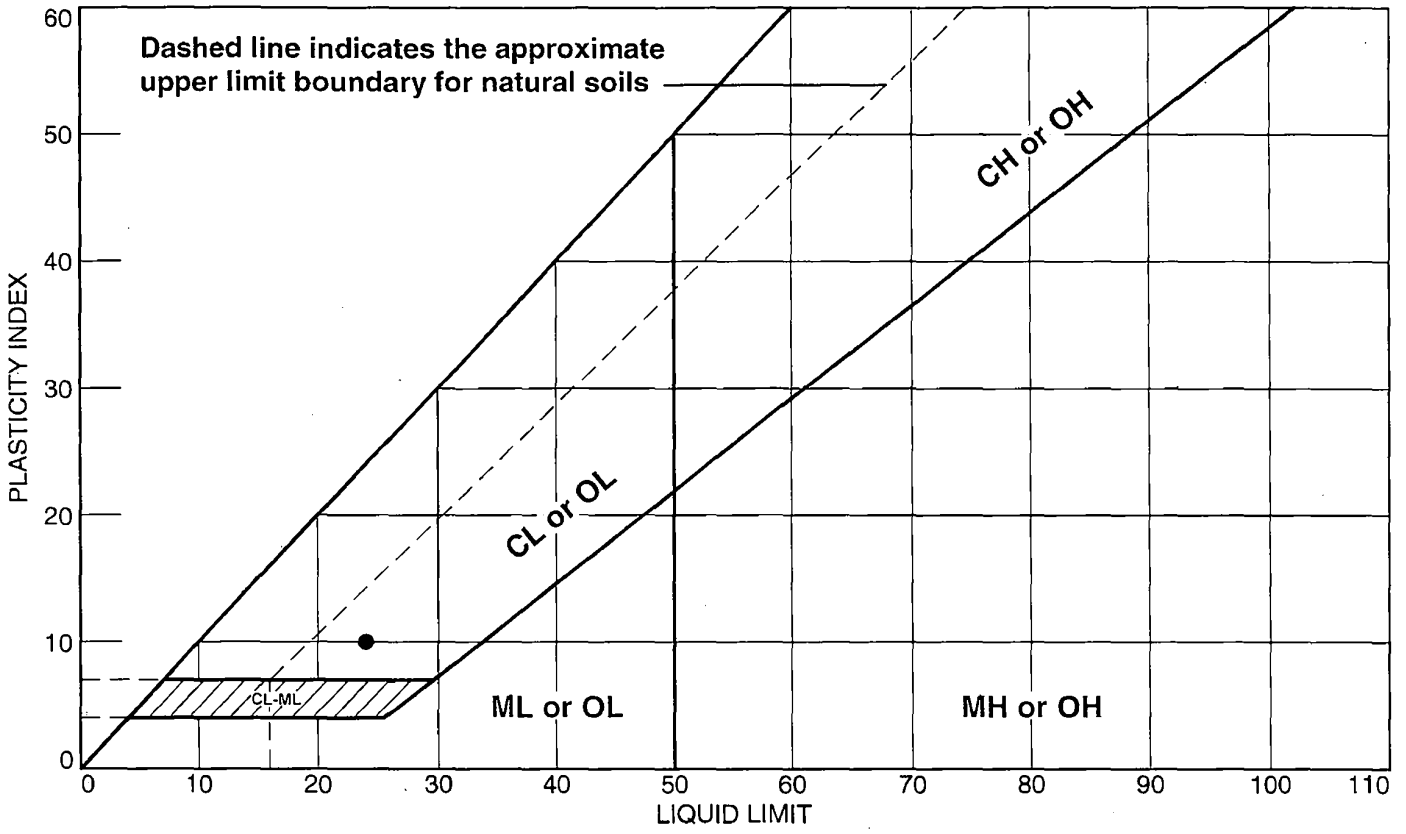
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	40	40			60

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
					0.0752	0.0889	0.0934	0.0988	0.1077

Fineness Modulus
0.02

MACTEC Engineering and Consulting, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring B-601(DH)	601-14	158.4-159.9	ND	14	24	10	CL

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

ZHU 7/22/08

Tested By: CS **Checked By:** LBJ

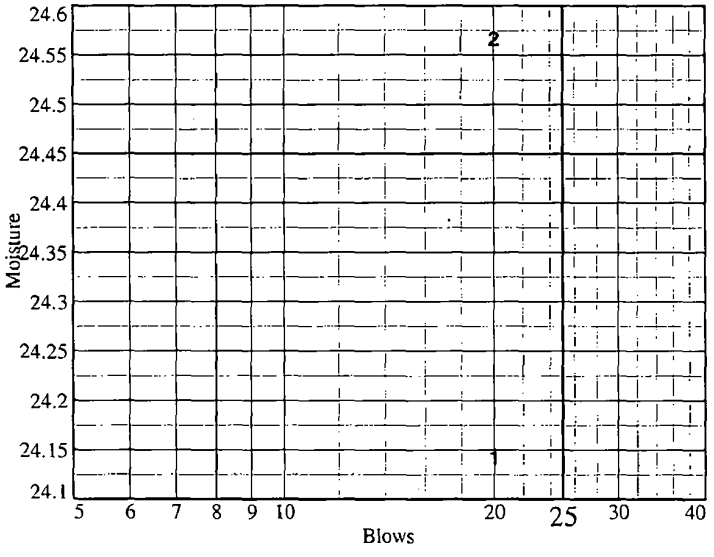
LIQUID AND PLASTIC LIMIT TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 158.4-159.9 **Sample Number:** 601-14
Material Description: Greenish Gray Lean CLAY with sand
USCS: CL **AASHTO:** A-4(3)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	33.97	34.94				
Dry+Tare	30.38	31.11				
Tare	15.51	15.52				
# Blows	20	20				
Moisture	24.1	24.6				



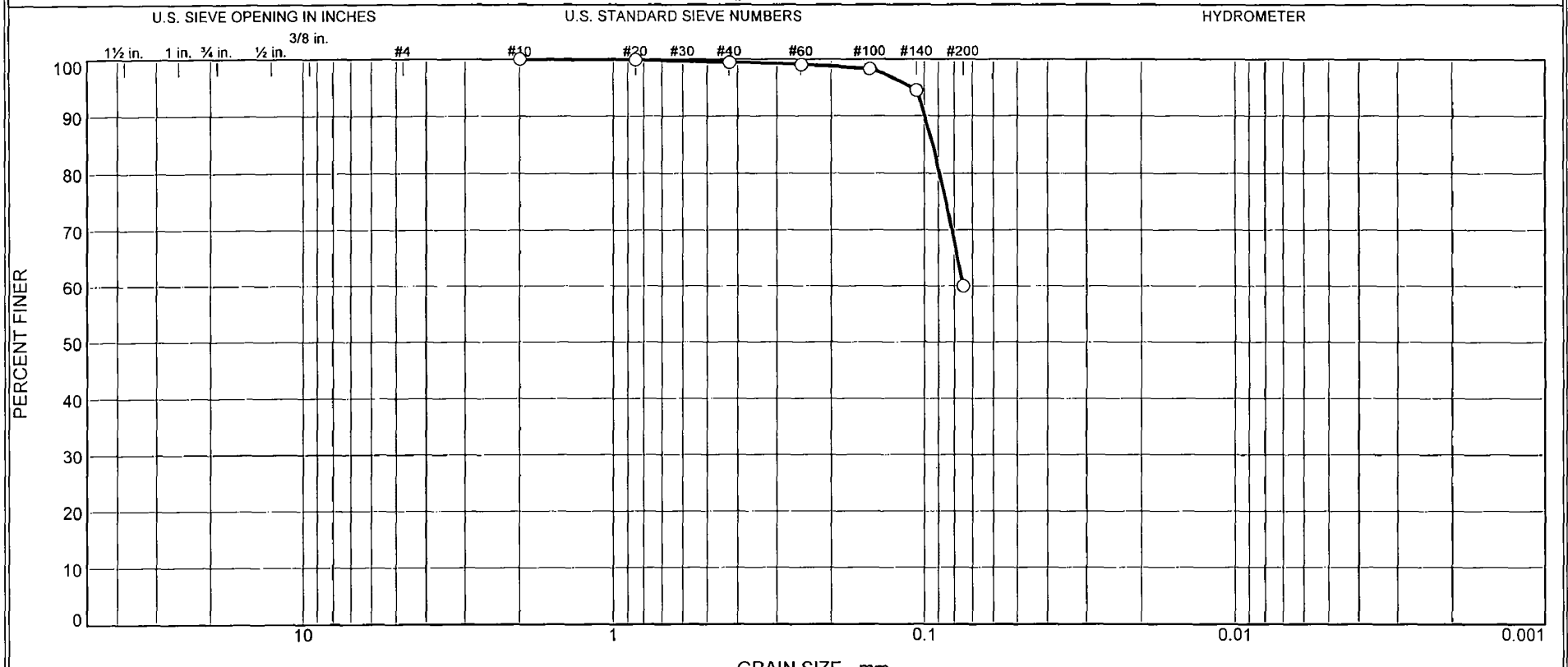
Liquid Limit= 24
Plastic Limit= 14
Plasticity Index= 10
Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	24.12	23.91			
Dry+Tare	23.08	22.87			
Tare	15.52	15.57			
Moisture	13.8	14.2			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	1	39	60	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-16	178.4-179.9	3/19/08	ML	Greenish Gray Sandy SILT	ND	22	20

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 178.4-179.9 **Sample Number:** 601-16
Material Description: Greenish Gray Sandy SILT
Date: 3/19/08 **Natural Moisture:** ND
Liquid Limit: 22 **Plastic Limit:** 20 **USCS Class.:** ML
Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS 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
298.31	0.00	0.00	#10	0.00	100
95.79	0.00	0.00	#20	0.07	100
			#40	0.52	99
			#60	0.91	99
			#100	1.63	98
			#140	5.29	94
			#200	38.30	60

Fractional Components

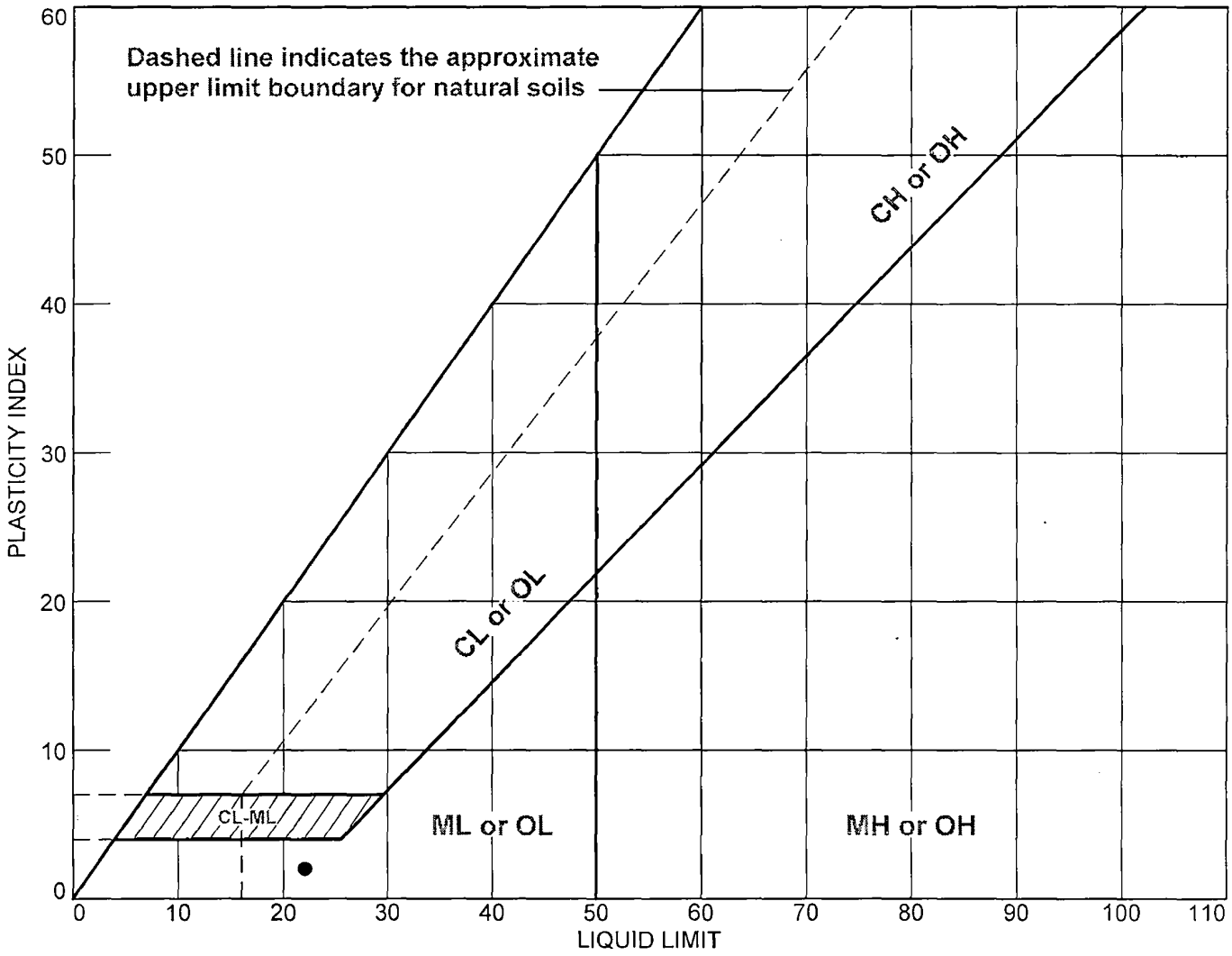
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	1	39	40			60

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0890	0.0935	0.0991	0.1099

Fineness Modulus
0.03

MACTEC Engineering and Consulting, Inc.

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
●	Boring B-601(DH)	601-16	178.4-179.9	ND	20	22	2	ML

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

Tested By: CS **Checked By:** LBJ DSC 7-2-08

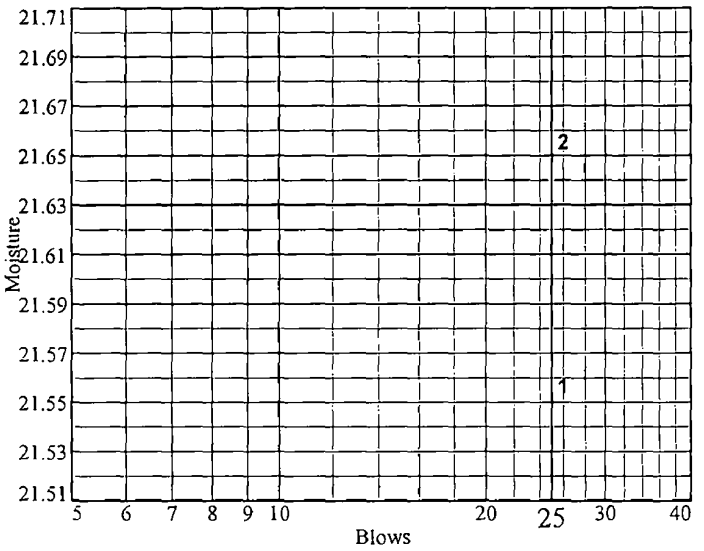
LIQUID AND PLASTIC LIMIT TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 178.4-179.9 **Sample Number:** 601-16
Material Description: Greenish Gray Sandy SILT
USCS: ML **AASHTO:** A-4(0)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	29.67	30.06				
Dry+Tare	27.15	27.47				
Tare	15.46	15.51				
# Blows	26	26				
Moisture	21.6	21.7				



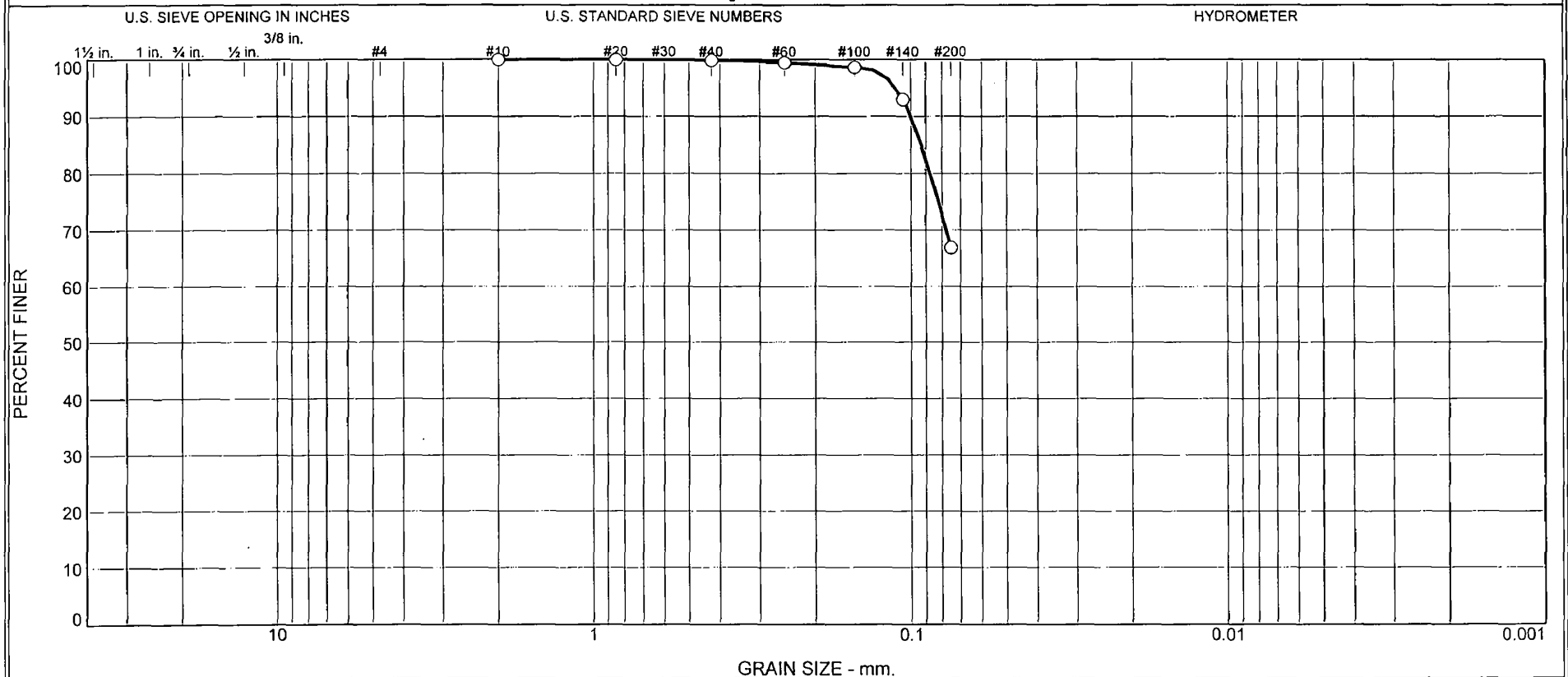
Liquid Limit= 22
Plastic Limit= 20
Plasticity Index= 2
Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	25.34	20.60			
Dry+Tare	23.67	19.02			
Tare	15.50	11.23			
Moisture	20.4	20.3			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0	0	0	0	33	67	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring B-601(DH)	601-18	198.4-199.9	3/20/08	CL	Greenish Gray Lean CLAY with sand	ND	25	12

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 | Figure

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

O SIEVE ANALYSIS ONLY
ATTERBURG LIMITS TEST ADDED BY ASSIGNMENT 13
ND = Not Determined

ZHU 7/23/08

Tested By: CS Checked By: LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

7/23/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 198.4-199.9 **Sample Number:** 601-18
Material Description: Greenish Gray Lean CLAY with sand
Date: 3/20/08 **Natural Moisture:** ND
Liquid Limit: 25 **Plastic Limit:** 12 **USCS Class.:** CL
Testing Remarks: SIEVE ANALYSIS ONLY
ATTERBURG LIMITS TEST ADDED BY ASSIGNMENT 13
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
284.39	0.00	0.00	#10	0.00	100
104.52	0.00	0.00	#20	0.02	100
			#40	0.14	100
			#60	0.56	99
			#100	1.47	99
			#140	7.39	93
			#200	34.56	67

Fractional Components

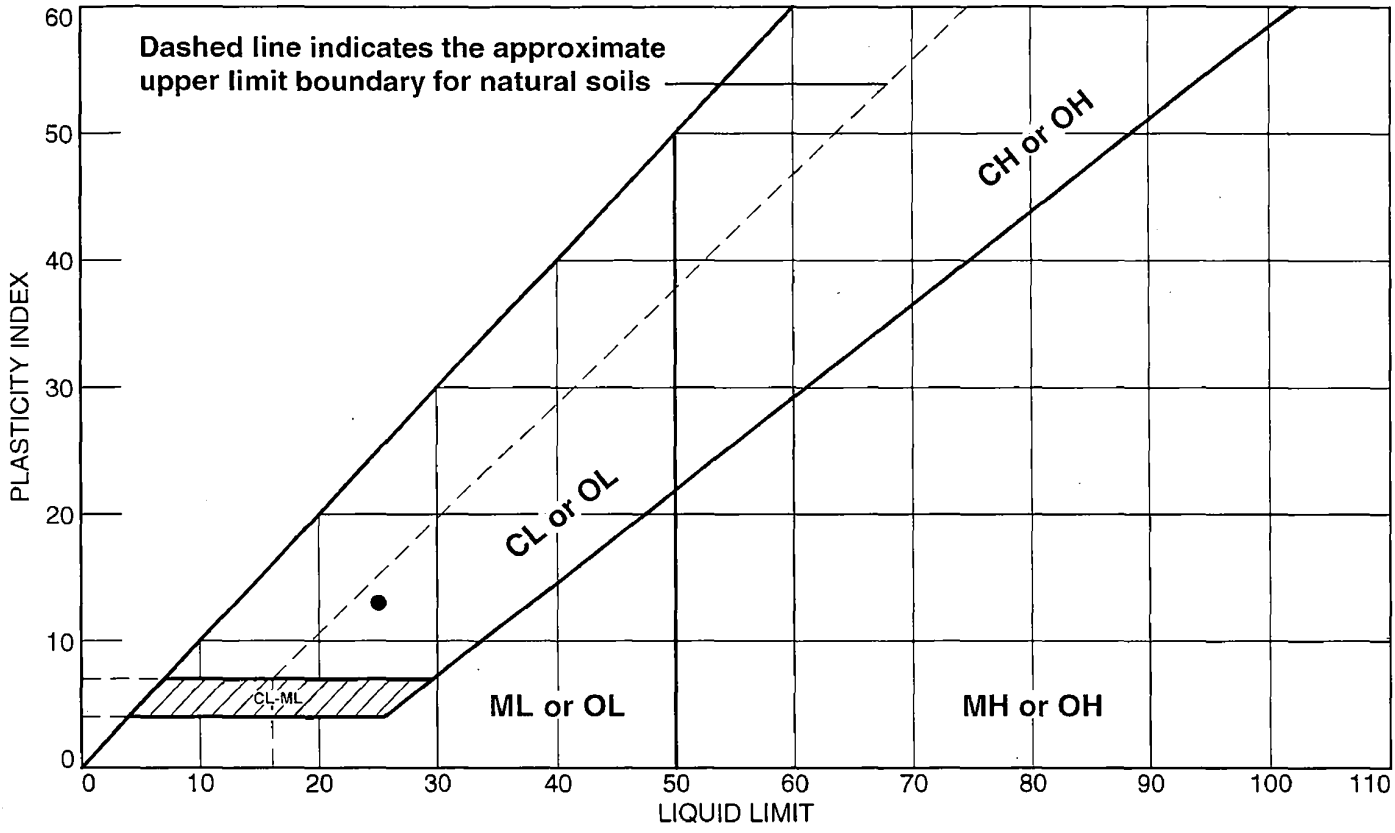
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	33	33			67

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0871	0.0930	0.1002	0.1117

Fineness Modulus
0.02

MACTEC Engineering and Consulting, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring B-601(DH)	601-18	198.4-199.9	ND	12	25	13	CL

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

ZHU 7/22/08

Tested By: CS **Checked By:** LBJ

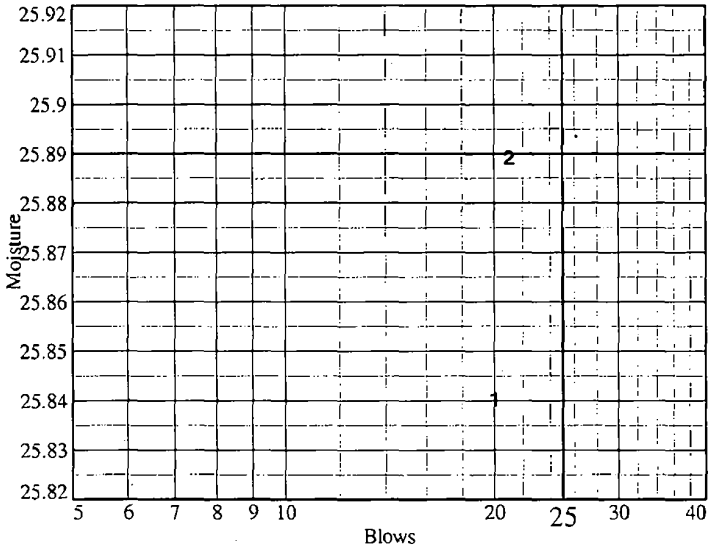
LIQUID AND PLASTIC LIMIT TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 198.4-199.9 **Sample Number:** 601-18
Material Description: Greenish Gray Lean CLAY with sand
USCS: CL **AASHTO:** A-6(6)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	33.45	34.61				
Dry+Tare	29.76	30.68				
Tare	15.48	15.50				
# Blows	20	21				
Moisture	25.8	25.9				



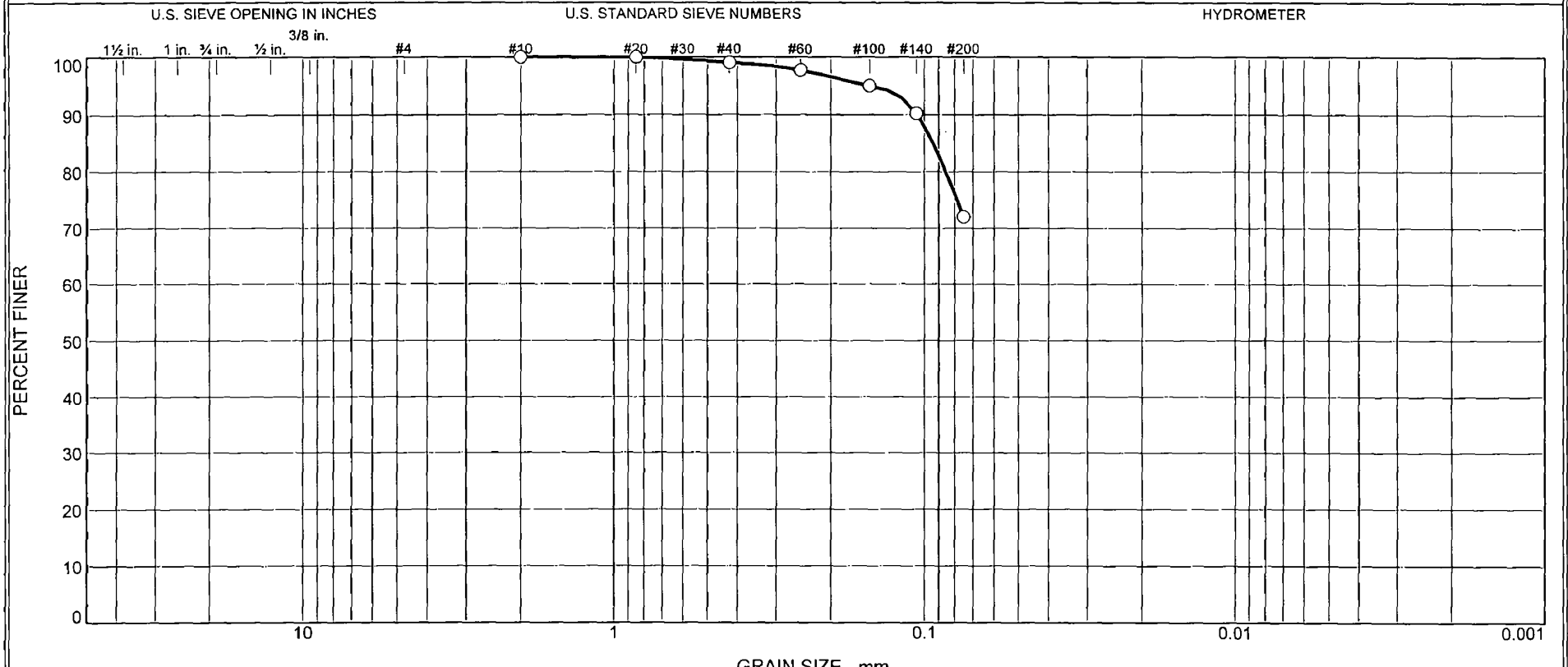
Liquid Limit= 25
Plastic Limit= 12
Plasticity Index= 13
Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	24.45	24.19			
Dry+Tare	23.48	23.25			
Tare	15.46	15.52			
Moisture	12.1	12.2			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	1	27	72	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-19	208.4-209.9	3/20/08	CL	Dark Greenish Gray Lean CLAY with sand	ND	34	21

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 208.4-209.9 **Sample Number:** 601-19
Material Description: Dark Greenish Gray Lean CLAY with sand
Date: 3/20/08 **Natural Moisture:** ND
Liquid Limit: 34 **Plastic Limit:** 21 **USCS Class.:** CL
Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS 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
452.67	0.00	0.00	#10	0.00	100
92.26	0.00	0.00	#20	0.04	100
			#40	0.88	99
			#60	2.11	98
			#100	4.63	95
			#140	8.99	90
			#200	25.79	72

Fractional Components

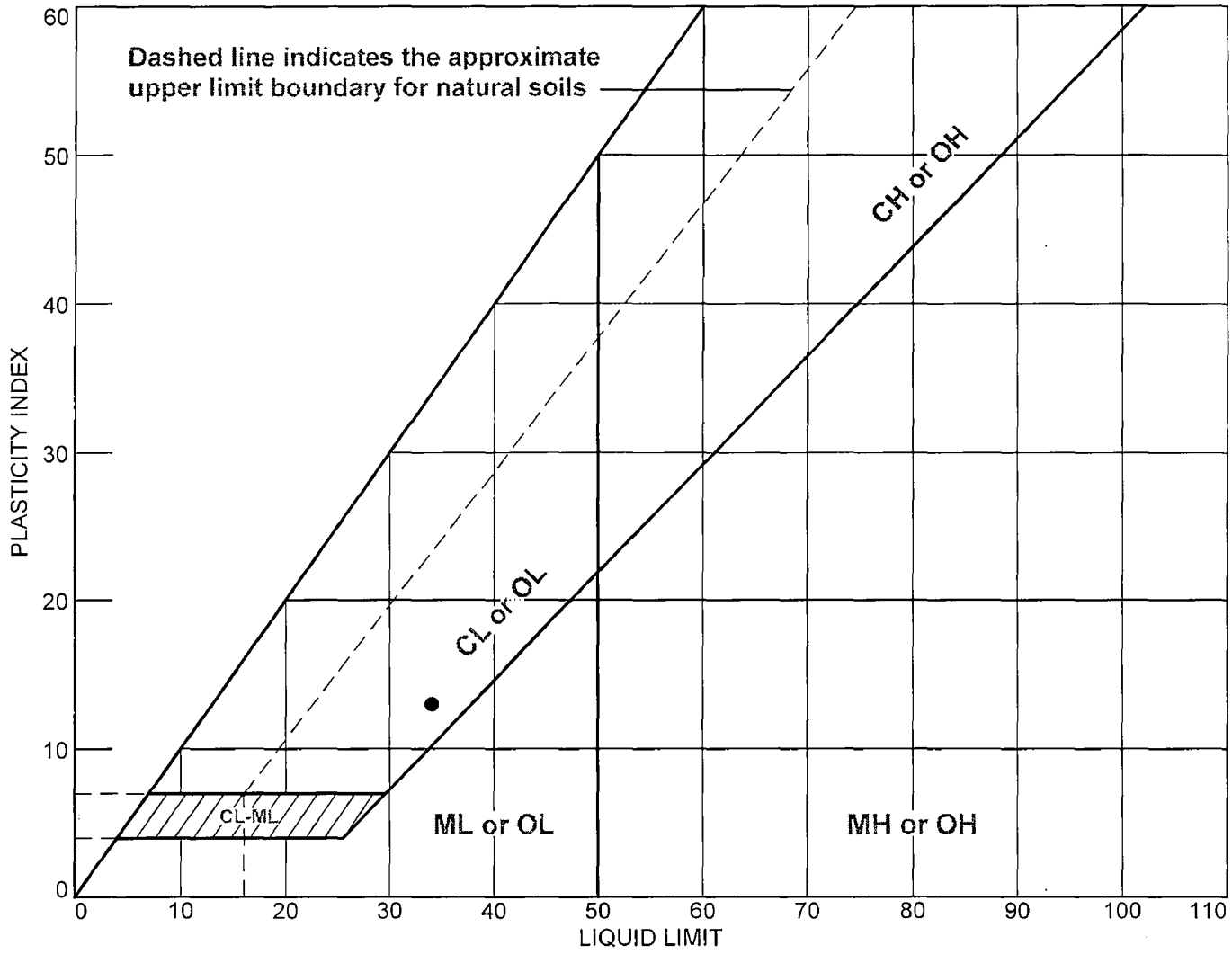
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	1	27	28			72

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0854	0.0936	0.1052	0.1506

Fineness Modulus
0.07

MACTEC Engineering and Consulting, Inc.

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
●	Boring B-601(DH)	601-19	208.4-209.9	ND	21	34	13	CL

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

Tested By: CS **Checked By:** LBJ DSC 7-2-08

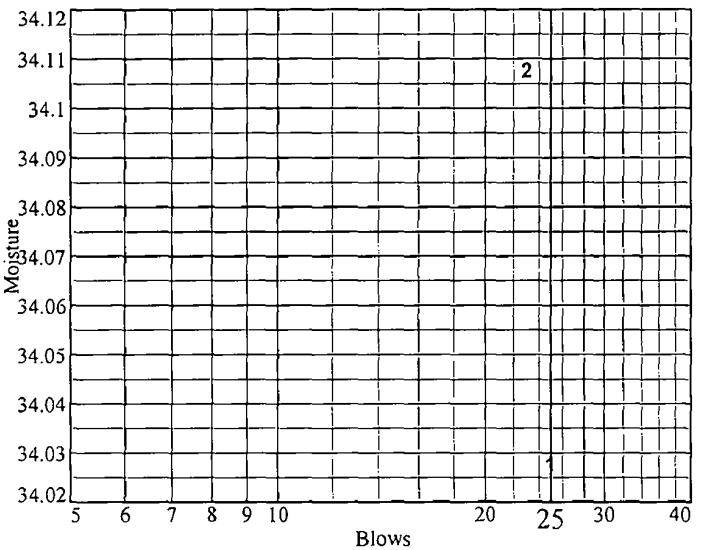
LIQUID AND PLASTIC LIMIT TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 208.4-209.9 **Sample Number:** 601-19
Material Description: Dark Greenish Gray Lean CLAY with sand
USCS: CL **AASHTO:** A-6(8)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	27.00	28.19				
Dry+Tare	24.06	24.96				
Tare	15.42	15.49				
# Blows	25	23				
Moisture	34.0	34.1				



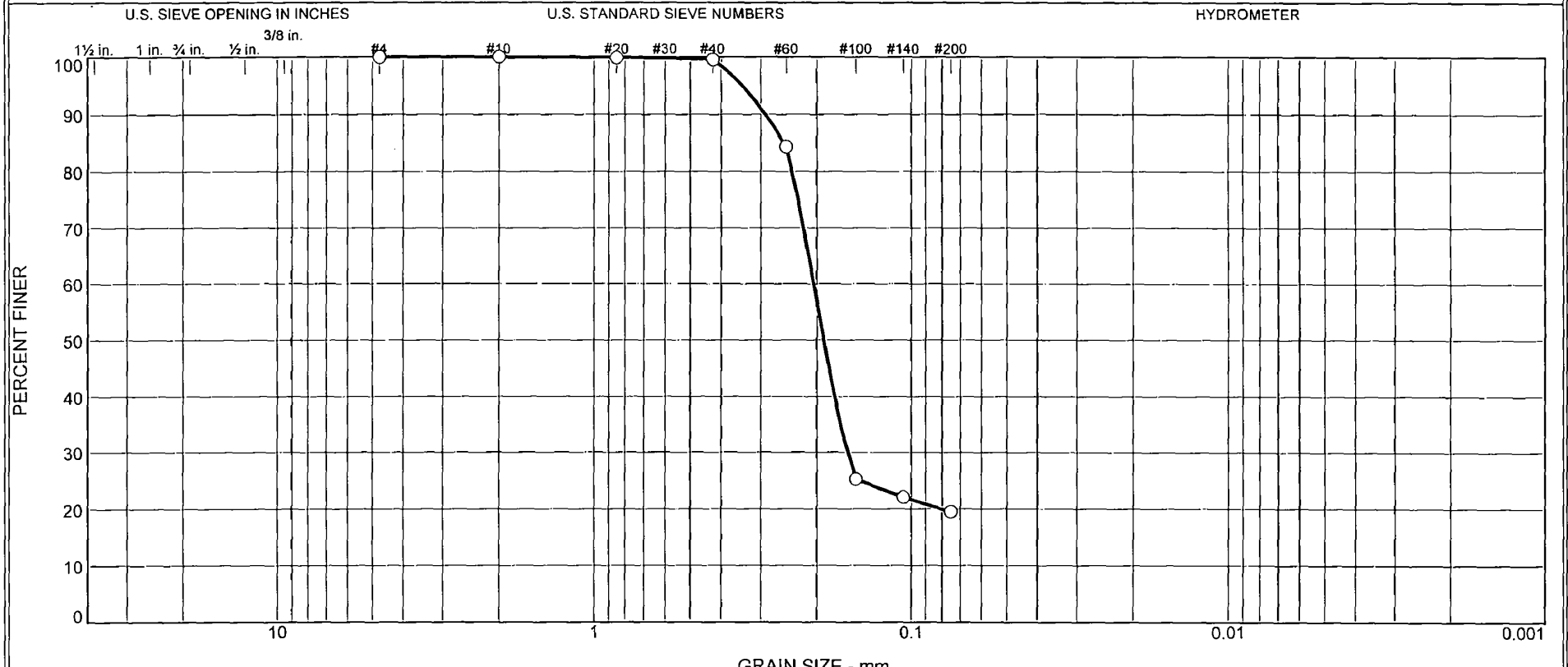
Liquid Limit= 34
Plastic Limit= 21
Plasticity Index= 13
Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	21.69	19.98			
Dry+Tare	20.56	18.44			
Tare	15.25	11.12			
Moisture	21.3	21.0			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	80	20	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-23	248.4-249.9	3/20/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent=21% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 248.4-249.9 **Sample Number:** 601-23
Material Description: Greenish Gray Silty SAND (Visual)
Date: 3/20/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent=21% (ASTM D 4373-02)
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
291.65	0.00	0.00	#4	0.00	100
			#10	0.04	100
100.38	0.00	0.00	#20	0.08	100
			#40	0.42	100
			#60	15.69	84
			#100	75.07	25
			#140	78.24	22
			#200	80.76	20

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	80	80			20

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0804	0.1597	0.1898	0.2044	0.2396	0.2540	0.2907	0.3432

Fineness Modulus
0.84

MACTEC Engineering and Consulting, 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:FPL COL PROJECT (TURKEY POINT)

PROJECT NUMBER: 6468051950

DATE: 8/15/08

SAMPLE IDENTIFICATION: B-601DH-23,(248.4-249.9)

(A) Mass of oven-dried soil, grams:		75.70
(B) Mass of pycnometer filled with water at test temperature (T), grams:		675.77
(C) Mass of pycnometer, water and soil, grams:		723.39
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		21.4
(G) Specific Gravity at observed temperature:	A / [B - (C - A)]	2.696
(F)	***Correction factor:***	0.99970
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.695

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

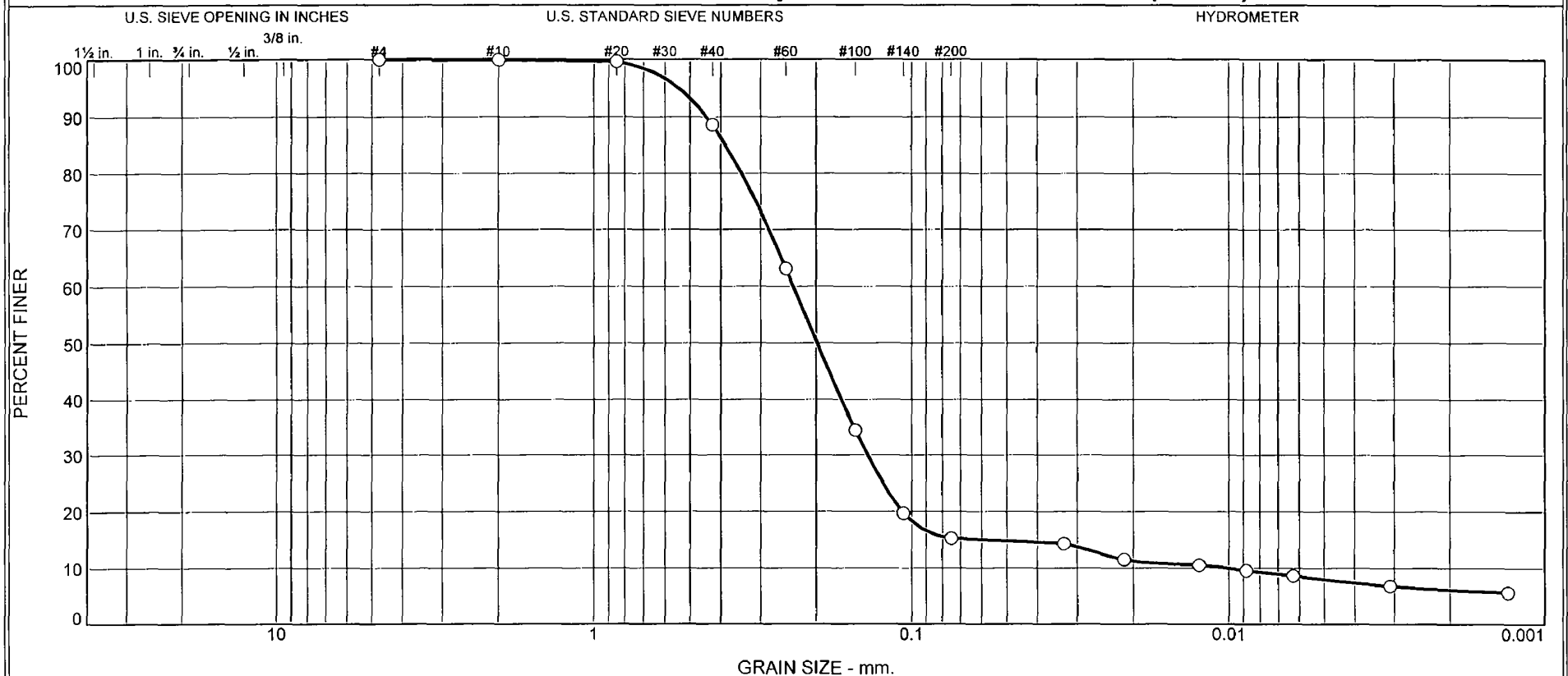
PYCNOMETER : P-6

TESTED BY: CS

REVIEWED BY: Brian Johnson

ZHU 8/19/08

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	11.4	73.3	7.3	8.0

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-28	298.4-299.9	3/23/08	SM	Olive Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
ND = Not Determined
Specific Gravity is assumed

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 298.4-299.9 **Sample Number:** 601-28
Material Description: Olive Gray Silty SAND (Visual)
Date: 3/23/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
ND = Not Determined
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
373.62	0.00	0.00	#4	0.00	100.0
			#10	0.15	100.0
104.67	0.00	0.00	#20	0.31	99.7
			#40	11.90	88.6
			#60	38.53	63.2
			#100	68.60	34.4
			#140	84.03	19.7
			#200	88.65	15.3

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =104.68
Hygroscopic moisture correction:
Moist weight and tare = 25.35
Dry weight and tare = 25.21
Tare weight = 11.17
Hygroscopic moisture =1.0%
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 =2.700
Hydrometer type =152H
Hydrometer effective depth equation: L =16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.4	20.0	15.0	0.0131	21.0	12.9	0.0331	14.4
5.00	22.4	17.0	12.0	0.0131	18.0	13.3	0.0213	11.5
15.00	22.4	16.0	11.0	0.0131	17.0	13.5	0.0124	10.5
30.00	22.4	15.0	10.0	0.0131	16.0	13.7	0.0088	9.6
60.00	22.5	14.0	9.1	0.0130	15.0	13.8	0.0063	8.7
250.00	22.8	12.0	7.2	0.0130	13.0	14.2	0.0031	6.8
1440.00	22.1	11.0	6.0	0.0131	12.0	14.3	0.0013	5.7

MACTEC Engineering and Consulting, Inc.

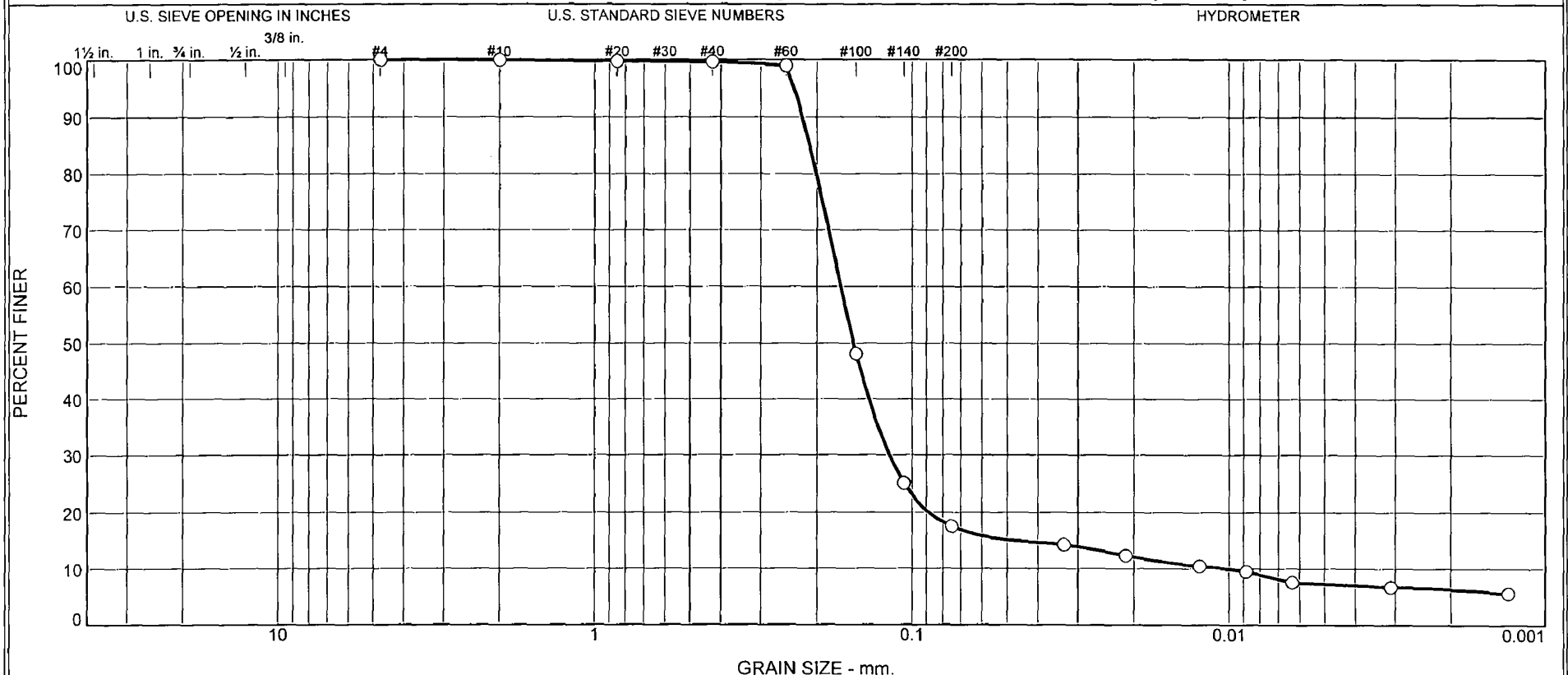
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	11.4	73.3	84.7	7.3	8.0	15.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0101	0.0579	0.1071	0.1374	0.1986	0.2365	0.3444	0.3861	0.4437	0.5421

Fineness Modulus	C_u	C_c
0.96	23.52	7.95

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.4	82.1	10.2	7.3

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-32	338.4-339.2	3/24/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 338.4-339.2 **Sample Number:** 601-32
Material Description: Greenish Gray Silty SAND (Visual)
Date: 3/24/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
326.71	0.00	0.00	#4	0.00	100.0
			#10	0.07	100.0
104.39	0.00	0.00	#20	0.21	99.8
			#40	0.36	99.6
			#60	1.04	99.0
			#100	54.16	48.1
			#140	78.24	25.0
			#200	86.08	17.5

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =104.39
Hygroscopic moisture correction:
Moist weight and tare = 29.13
Dry weight and tare = 29.10
Tare weight = 15.44
Hygroscopic moisture =0.2%
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 =2.700
Hydrometer type =152H
Hydrometer effective depth equation: L =16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.3	20.0	15.0	0.0131	21.0	12.9	0.0331	14.3
5.00	22.3	18.0	13.0	0.0131	19.0	13.2	0.0212	12.4
15.00	22.3	16.0	11.0	0.0131	17.0	13.5	0.0124	10.5
30.00	22.3	15.0	10.0	0.0131	16.0	13.7	0.0088	9.5
60.00	22.3	13.0	8.0	0.0131	14.0	14.0	0.0063	7.6
250.00	22.7	12.0	7.1	0.0130	13.0	14.2	0.0031	6.8
1440.00	22.0	11.0	5.9	0.0131	12.0	14.3	0.0013	5.6

MACTEC Engineering and Consulting, Inc.

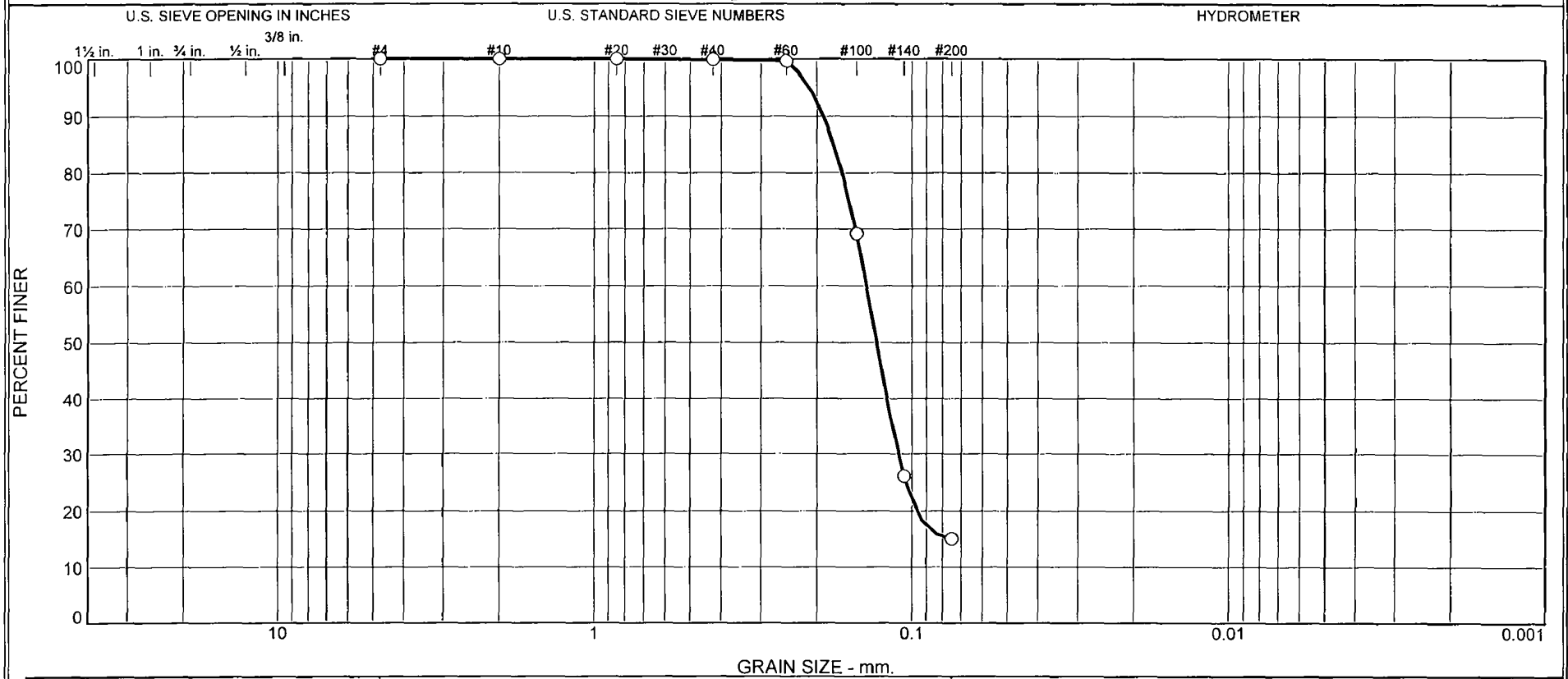
Fractional Components

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	82.1	82.5	10.2	7.3	17.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0101	0.0472	0.0890	0.1178	0.1529	0.1679	0.2006	0.2105	0.2217	0.2354

Fineness Modulus	C_u	C_c
0.53	16.58	8.16

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	85	15	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-34	358.4-358.9	3/24/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 358.4-358.9 **Sample Number:** 601-34
Material Description: Greenish Gray Silty SAND (Visual)
Date: 3/24/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** 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
250.25	0.00	0.00	#4	0.00	100
			#10	0.09	100
100.10	0.00	0.00	#20	0.02	100
			#40	0.10	100
			#60	0.36	100
			#100	30.86	69
			#140	74.01	26
			#200	85.01	15

Fractional Components

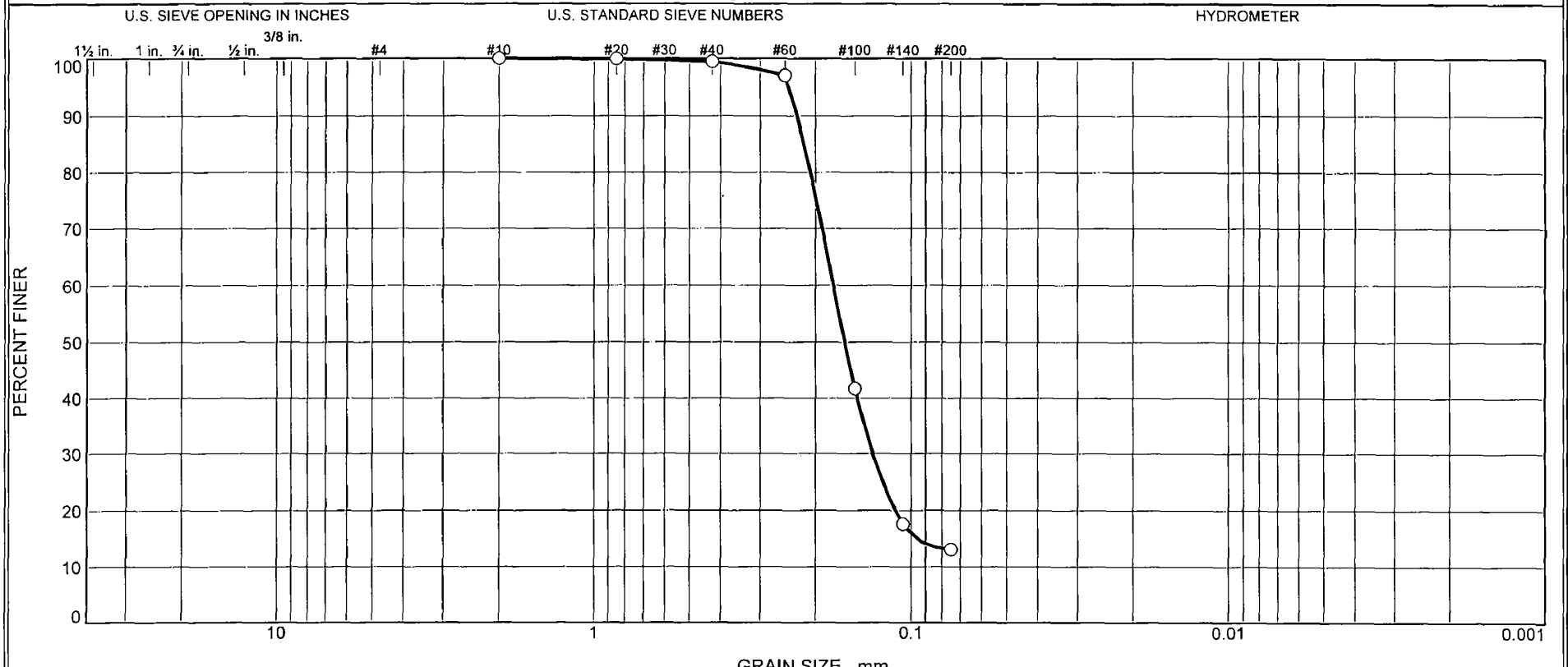
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	85	85			15

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0968	0.1105	0.1296	0.1395	0.1666	0.1771	0.1909	0.2115

Fineness Modulus
0.31

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	1	86	13	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-36	378.4-379.1	3/25/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** lbj DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 378.4-379.1 **Sample Number:** 601-36
Material Description: Greenish Gray Silty SAND (Visual)
Date: 3/25/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** 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
207.13	0.00	0.00	#10	0.00	100
100.79	0.00	0.00	#20	0.10	100
			#40	0.58	99
			#60	3.02	97
			#100	58.74	42
			#140	83.08	18
			#200	87.58	13

Fractional Components

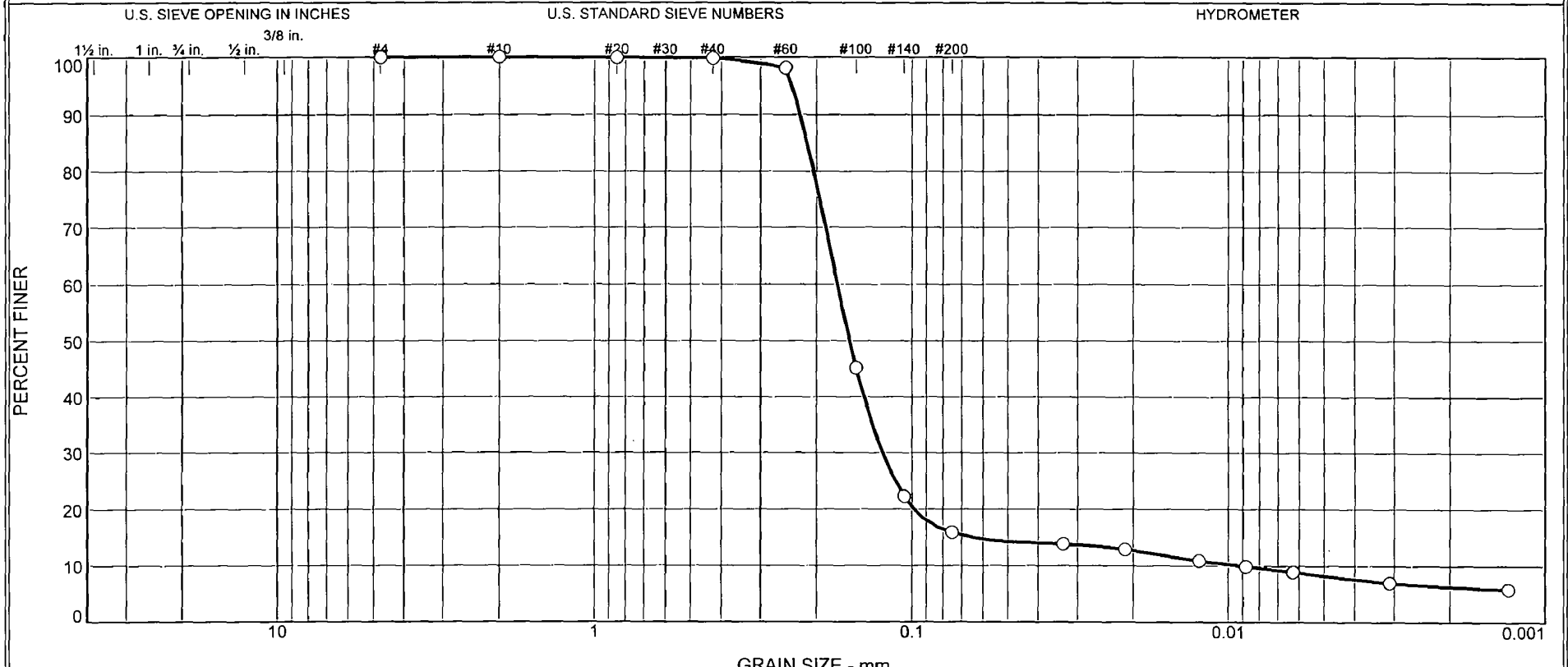
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	1	86	87			13

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0963	0.1125	0.1320	0.1616	0.1756	0.2074	0.2172	0.2285	0.2428

Fineness Modulus
0.61

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.1	84.0	7.6	8.3

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-38	398.4-399.2	3/25/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYRODMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 398.4-399.2 **Sample Number:** 601-38
Material Description: Greenish Gray Silty SAND (Visual)
Date: 3/25/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYRODMETER ONLY
Specific Gravity is assumed
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
173.68	0.00	0.00	#4	0.00	100.0
			#10	0.01	100.0
101.30	0.00	0.00	#20	0.03	100.0
			#40	0.14	99.9
			#60	1.89	98.1
			#100	55.51	45.2
			#140	78.76	22.2
			#200	85.17	15.9

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =101.30
Hygroscopic moisture correction:
Moist weight and tare = 28.03
Dry weight and tare = 27.87
Tare weight = 15.10
Hygroscopic moisture =1.3%
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 =2.700
Hydrometer type =152H
Hydrometer effective depth equation: L =16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.4	19.0	14.0	0.0131	20.0	13.0	0.0333	13.9
5.00	22.4	18.0	13.0	0.0131	19.0	13.2	0.0212	12.9
15.00	22.4	16.0	11.0	0.0131	17.0	13.5	0.0124	10.9
30.00	22.4	15.0	10.0	0.0131	16.0	13.7	0.0088	9.9
60.00	22.4	14.0	9.0	0.0131	15.0	13.8	0.0063	8.9
250.00	22.6	12.0	7.1	0.0130	13.0	14.2	0.0031	7.0
1440.00	22.0	11.0	5.9	0.0131	12.0	14.3	0.0013	5.9

MACTEC Engineering and Consulting, Inc.

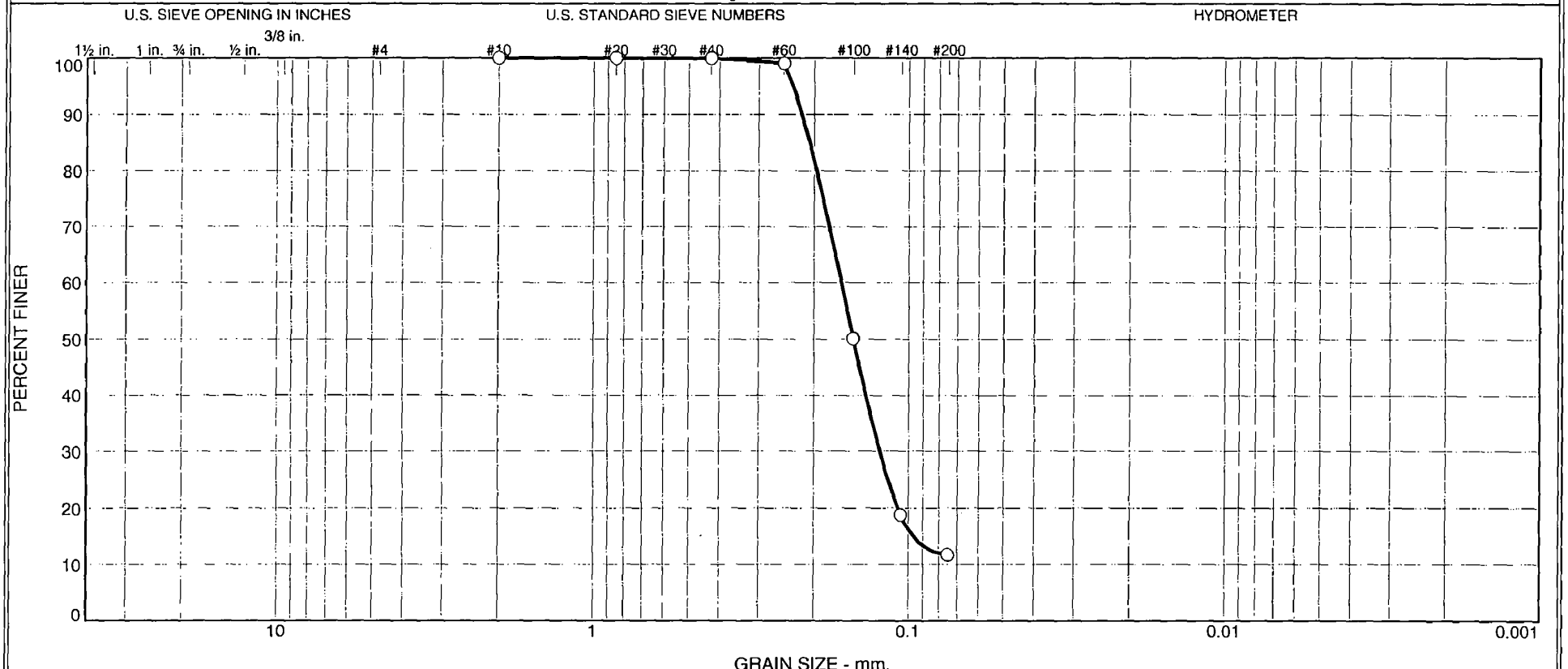
Fractional Components

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	84.0	84.1	7.6	8.3	15.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0090	0.0641	0.0987	0.1241	0.1571	0.1717	0.2039	0.2137	0.2250	0.2388

Fineness Modulus	C_u	C_c
0.56	19.02	9.93

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	88	12	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-601(DH)	601-39	418.4-419.2	3/25/08	SP-SM	Greenish Gray Poorly Graded SAND with silt (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

7/2/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-601(DH)
Depth: 418.4-419.2 **Sample Number:** 601-39
Material Description: Greenish Gray Poorly Graded SAND with silt (Visual)
Date: 3/25/08 **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
237.36	0.00	0.00	#10	0.00	100
105.25	0.00	0.00	#20	0.03	100
			#40	0.06	100
			#60	0.99	99
			#100	52.43	50
			#140	85.46	19
			#200	92.96	12

Fractional Components

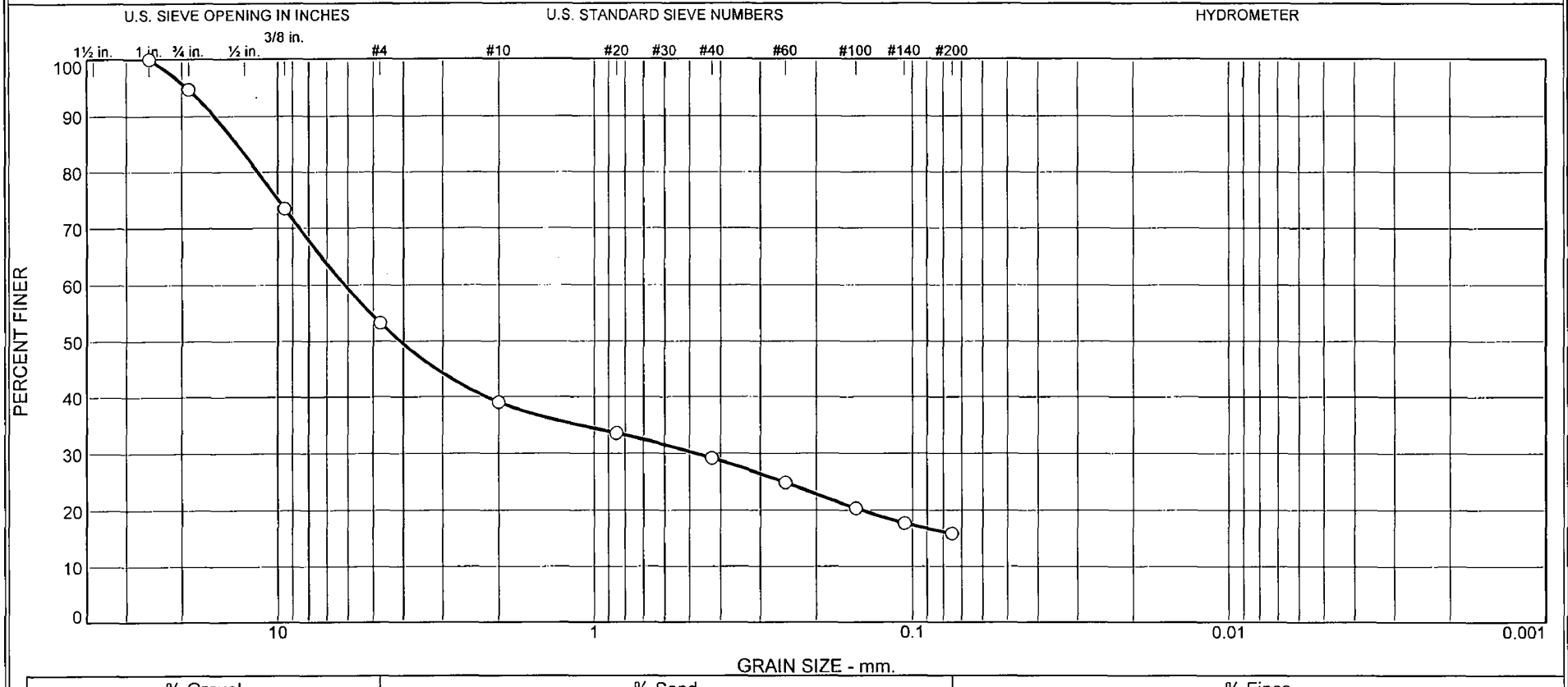
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	88	88			12

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0968	0.1082	0.1235	0.1498	0.1635	0.1961	0.2064	0.2184	0.2333

Fineness Modulus
0.50

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	5	42	14	10	13	16	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring B-602	602-3	4.8-6.3	3/10/08	GM	White Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

O SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-602
Depth: 4.8-6.3 **Sample Number:** 602-3
Material Description: White Silty GRAVEL with sand (Visual)
Date: 3/10/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
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
313.60	0.00	0.00	1	0.00	100
			3/4	16.44	95
			3/8"	83.07	74
			#4	146.48	53
			#10	191.25	39
95.03	0.00	0.00	#20	13.26	34
			#40	24.01	29
			#60	34.57	25
			#100	45.46	20
			#140	51.87	18
			#200	56.35	16

Fractional Components

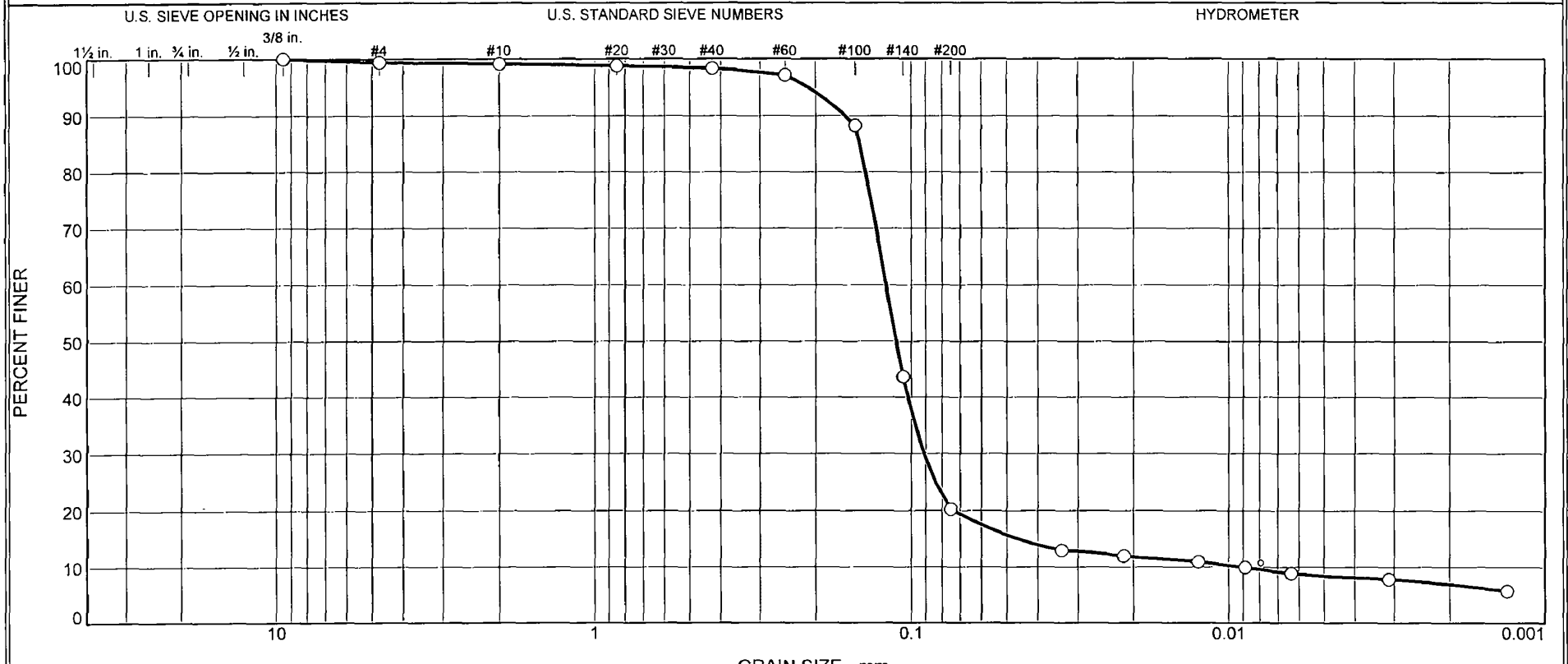
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	5	42	47	14	10	13	37			16

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.1438	0.4771	4.1023	6.1498	11.5453	13.4294	15.8185	19.2615

Fineness Modulus
4.24

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.6	0.3	0.8	78.0	11.9	8.4
					○ ◎		○

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-602	602-9	122.6-124.1	3/18/08	SM	White Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-602
Depth: 122.6-124.1 **Sample Number:** 602-9
Material Description: White Silty SAND (Visual)
Date: 3/18/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
375.70	0.00	0.00	3/8"	0.00	100.0
			#4	2.23	99.4
			#10	3.26	99.1
98.37	0.00	0.00	#20	0.37	98.8
			#40	0.79	98.3
			#60	2.02	97.1
			#100	10.77	88.3
			#140	55.10	43.6
			#200	78.26	20.3

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =99.1
Weight of hydrometer sample =98.37
Hygroscopic moisture correction:
Moist weight and tare = 28.84
Dry weight and tare = 28.74
Tare weight = 15.53
Hygroscopic moisture =0.8%
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 =2.700
Hydrometer type =152H
Hydrometer effective depth equation: L =16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.9	18.0	12.9	0.0131	19.0	13.2	0.0337	13.0
5.00	21.9	17.0	11.9	0.0131	18.0	13.3	0.0215	12.0
15.00	21.9	16.0	10.9	0.0131	17.0	13.5	0.0125	11.0
30.00	21.9	15.0	9.9	0.0131	16.0	13.7	0.0089	10.0
60.00	21.7	14.0	8.9	0.0132	15.0	13.8	0.0063	8.9
250.00	21.6	13.0	7.8	0.0132	14.0	14.0	0.0031	7.9
1440.00	21.4	11.0	5.8	0.0132	12.0	14.3	0.0013	5.8

MACTEC Engineering and Consulting, Inc.

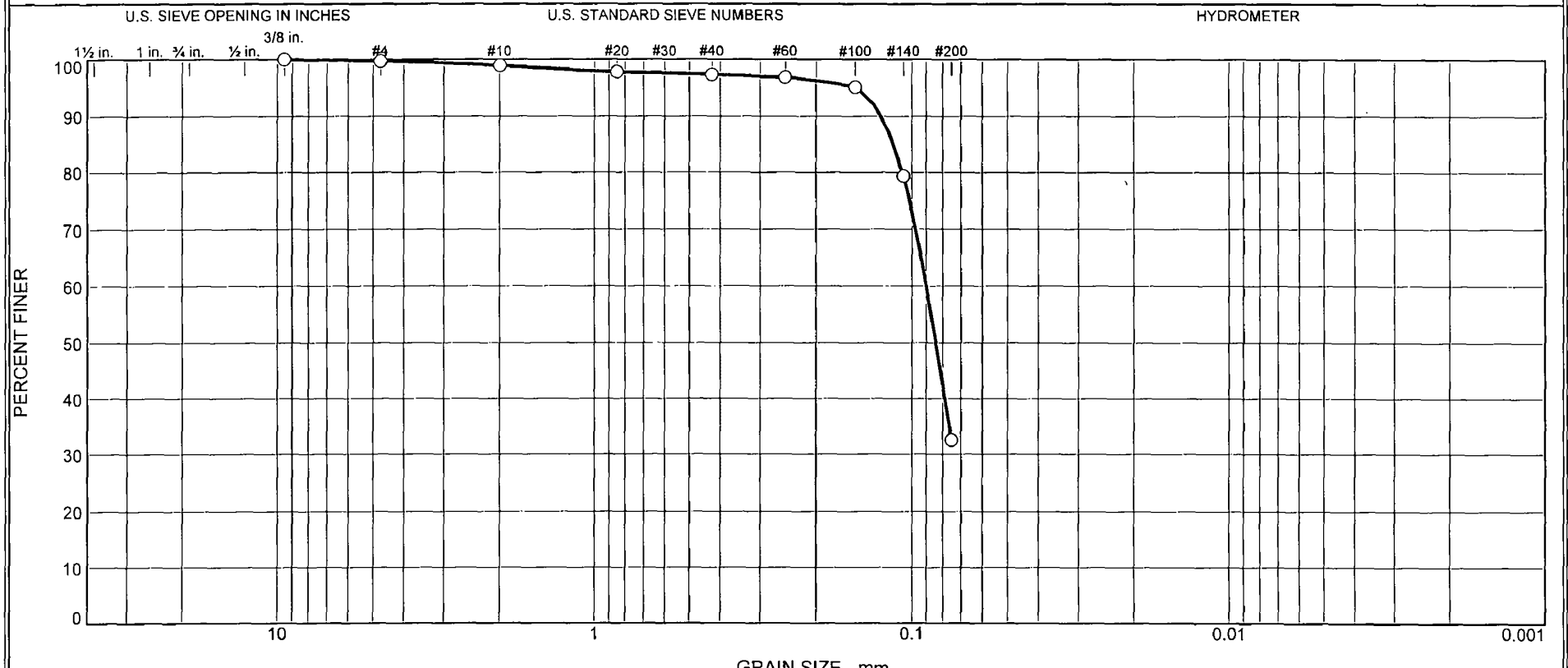
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.6	0.6	0.3	0.8	78.0	79.1	11.9	8.4	20.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0090	0.0462	0.0735	0.0913	0.1116	0.1201	0.1391	0.1452	0.1614	0.2110

Fineness Modulus	C_u	C_c
0.18	13.36	7.71

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	1	2	64	33	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-602	602-11	142.5-144.0	3/18/08	SM	Olive Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-602
Depth: 142.5-144.0 **Sample Number:** 602-11
Material Description: Olive Gray Silty SAND (Visual)
Date: 3/18/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** 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
331.43	0.00	0.00	3/8"	0.00	100
			#4	1.04	100
			#10	3.59	99
99.39	0.00	0.00	#20	1.14	98
			#40	1.63	97
			#60	2.08	97
			#100	3.83	95
			#140	19.66	79
			#200	66.69	33

Fractional Components

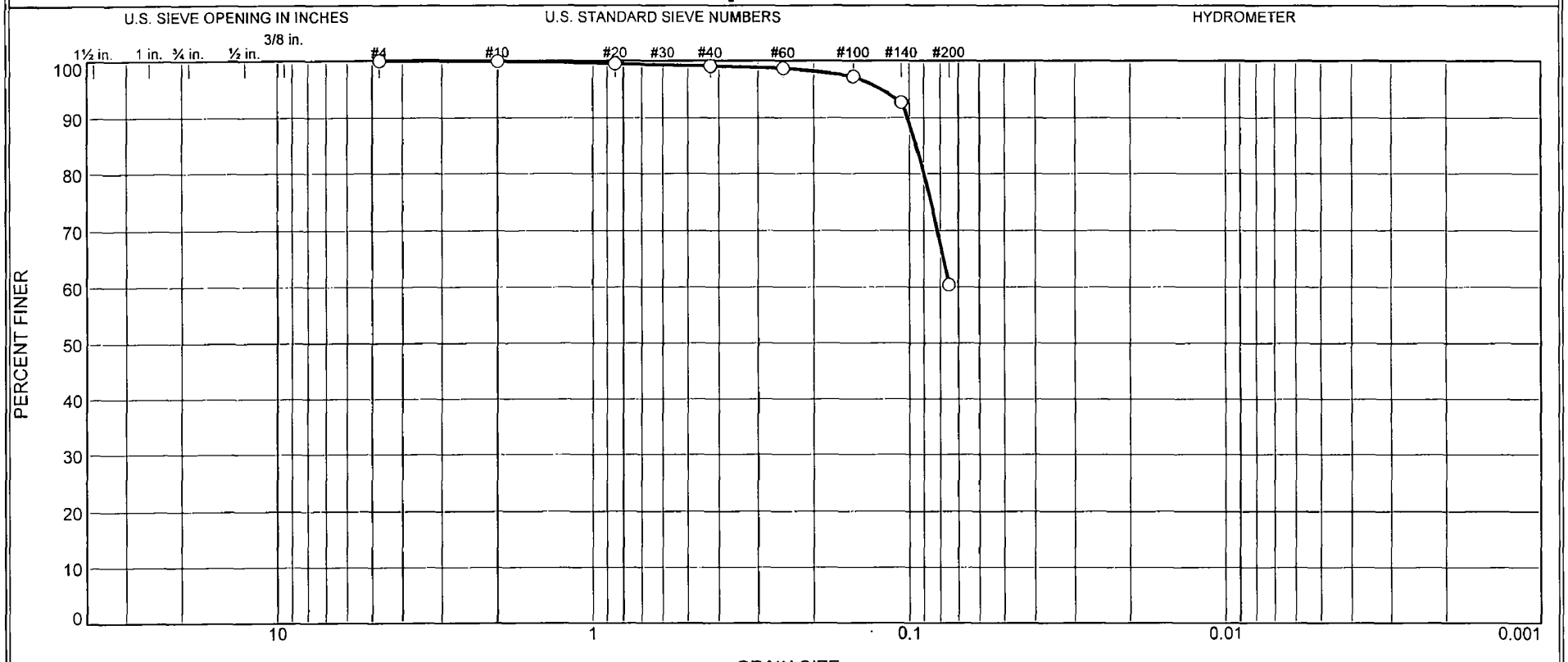
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	1	2	64	67			33

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0840	0.0900	0.1068	0.1137	0.1244	0.1490

Fineness Modulus
0.13

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	1	39	60	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-602	602-13	162.6-164.1	3/18/08	ML	Olive Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-602
Depth: 162.6-164.1 **Sample Number:** 602-13
Material Description: Olive Gray Sandy SILT (Visual)
Date: 3/18/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** ML
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
381.33	0.00	0.00	#4	0.00	100
			#10	0.28	100
100.44	0.00	0.00	#20	0.43	99
			#40	0.86	99
			#60	1.25	99
			#100	2.73	97
			#140	7.26	93
			#200	39.74	60

Fractional Components

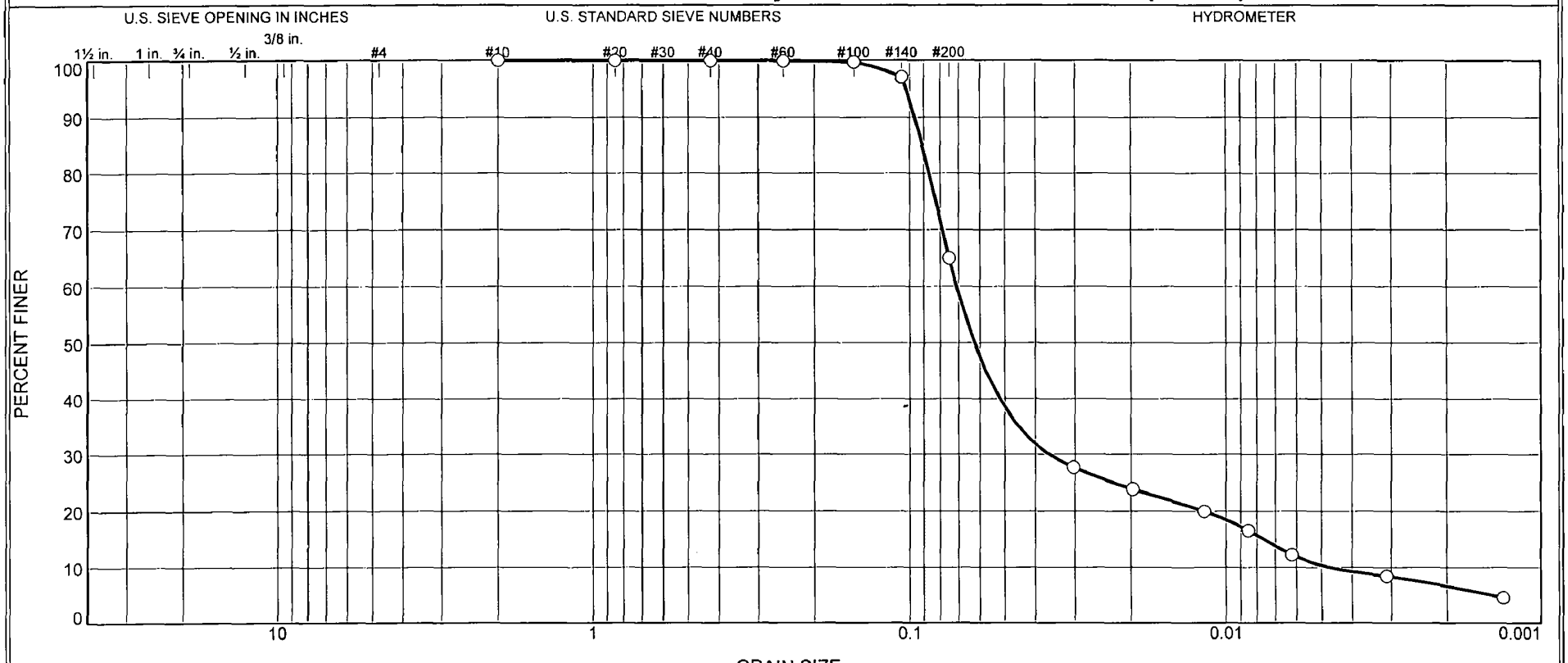
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	1	39	40			60

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0899	0.0949	0.1013	0.1232

Fineness Modulus
0.05

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	34.9	54.7	10.4

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-602	602-16	192.6-194.1	3/18/08	ML	Olive Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-602
Depth: 192.6-194.1 **Sample Number:** 602-16
Material Description: Olive Gray Sandy SILT (Visual)
Date: 3/18/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** ML
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
275.22	0.00	0.00	#10	0.00	100.0
103.48	0.00	0.00	#20	0.00	100.0
			#40	0.03	100.0
			#60	0.07	99.9
			#100	0.28	99.7
			#140	3.05	97.1
			#200	36.15	65.1

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =103.48
Hygroscopic moisture correction:
Moist weight and tare = 29.91
Dry weight and tare = 29.83
Tare weight = 15.46
Hygroscopic moisture =0.6%
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 =2.700
Hydrometer type =152H
Hydrometer effective depth equation: L =16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.5	34.0	28.8	0.0132	35.0	10.6	0.0303	27.7
5.00	21.7	30.0	24.9	0.0132	31.0	11.2	0.0197	23.9
15.00	21.5	26.0	20.8	0.0132	27.0	11.9	0.0117	20.0
30.00	21.4	22.5	17.3	0.0132	23.5	12.4	0.0085	16.6
60.00	21.4	18.0	12.8	0.0132	19.0	13.2	0.0062	12.3
250.00	21.4	14.0	8.8	0.0132	15.0	13.8	0.0031	8.4
1440.00	21.4	10.0	4.8	0.0132	11.0	14.5	0.0013	4.6

MACTEC Engineering and Consulting, Inc.

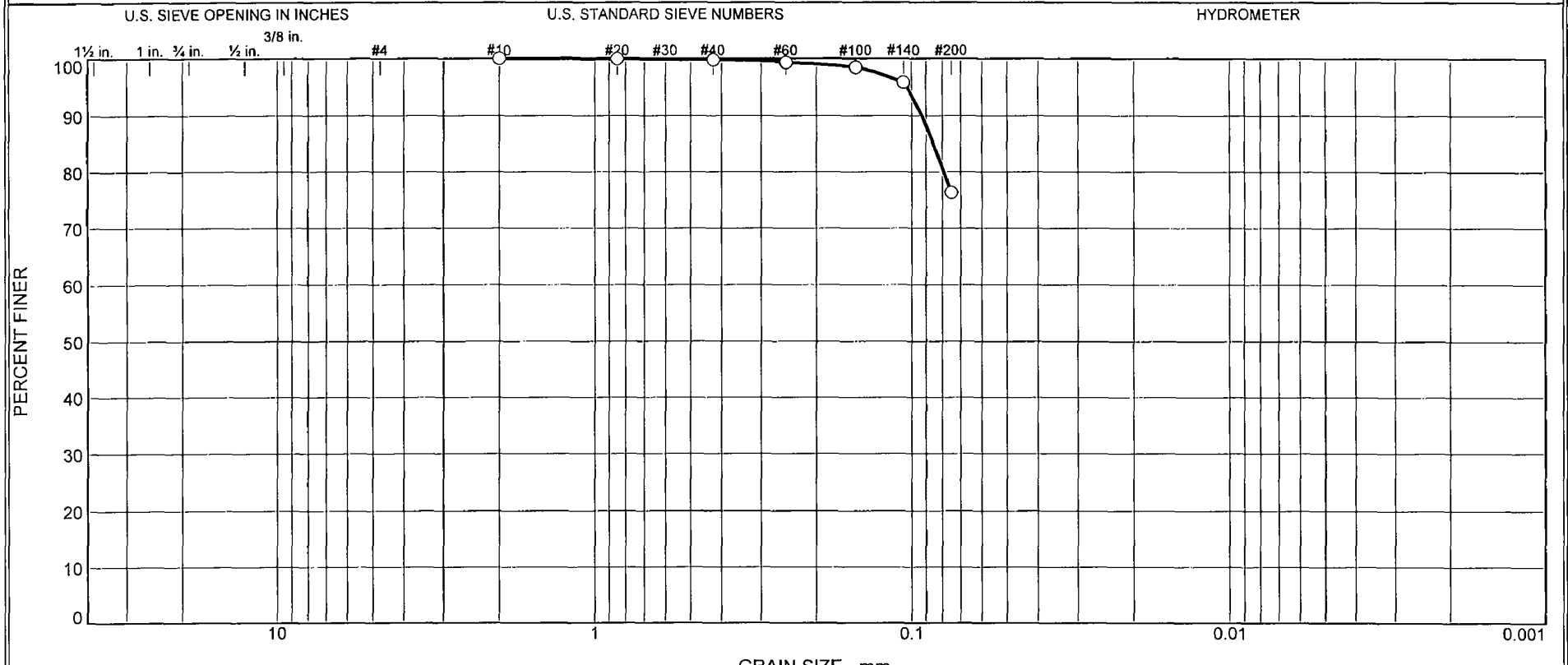
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.0	34.9	34.9	54.7	10.4	65.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0047	0.0076	0.0118	0.0363	0.0623	0.0710	0.0867	0.0910	0.0961	0.1025

Fineness Modulus	C_u	C_c
0.00	15.07	3.94

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	24	76	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-602	602-17	202.6-204.1	3/19/08	ML	Olive Gray SILT with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-602
Depth: 202.6-204.1 **Sample Number:** 602-17
Material Description: Olive Gray SILT with sand (Visual)
Date: 3/19/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** ML
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
277.11	0.00	0.00	#10	0.00	100
100.07	0.00	0.00	#20	0.05	100
			#40	0.21	100
			#60	0.68	99
			#100	1.51	98
			#140	4.20	96
			#200	23.65	76

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	24	24			76

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0791	0.0853	0.0928	0.1035

Fineness Modulus
0.02

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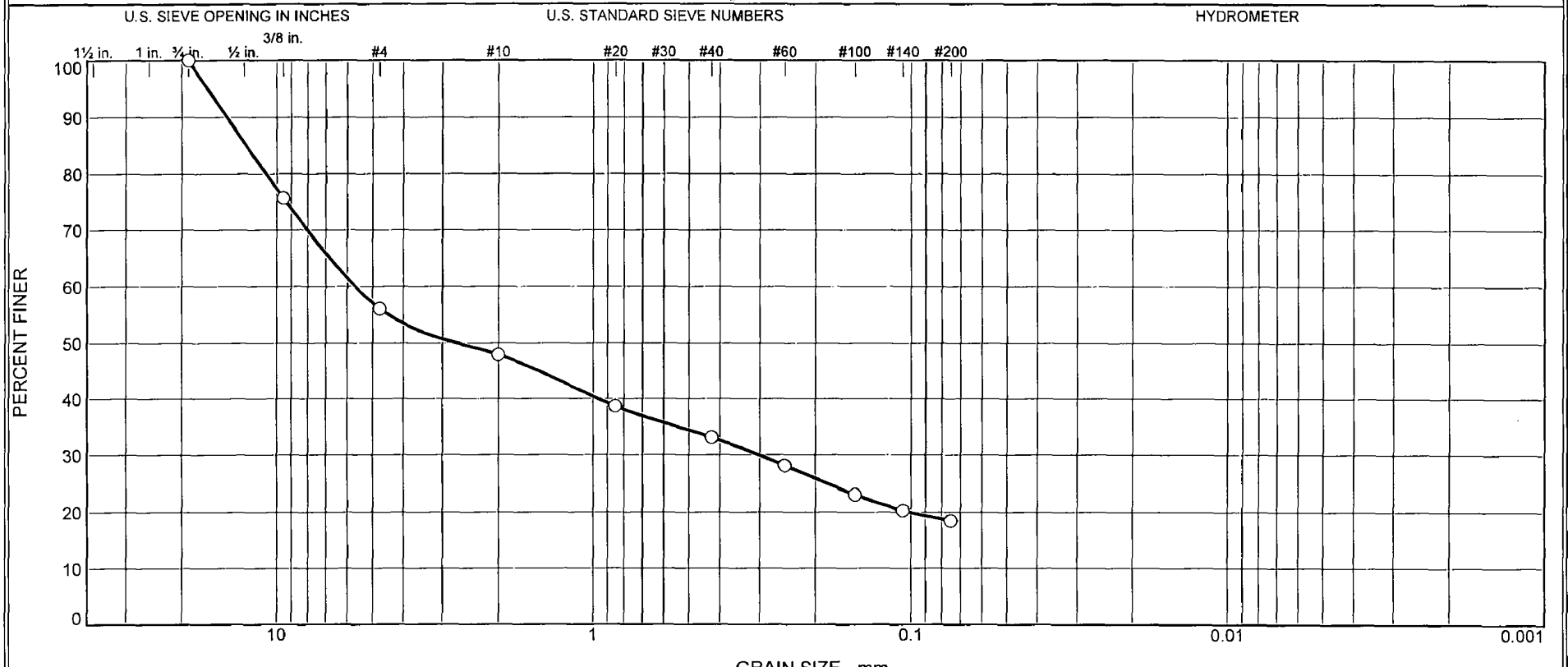
Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	44	8	15	15	18	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-603	603-3	5.0-6.5	2/14/08	GM	White Silty GRAVEL with sand (Visual)	ND		NP

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 90% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-603
Depth: 5.0-6.5 **Sample Number:** 603-3
Material Description: White Silty GRAVEL with sand (Visual)
Date: 2/14/08 **Natural Moisture:** ND
Plastic Limit: NP **USCS Class.:** GM
Testing Remarks: SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 90% (ASTM D 4373-02)
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
295.21	0.00	0.00	3/4	0.00	100
			3/8"	71.80	76
			#4	129.51	56
			#10	153.80	48
95.46	0.00	0.00	#20	18.45	39
			#40	29.52	33
			#60	39.34	28
			#100	49.46	23
			#140	55.03	20
			#200	58.71	18

Fractional Components

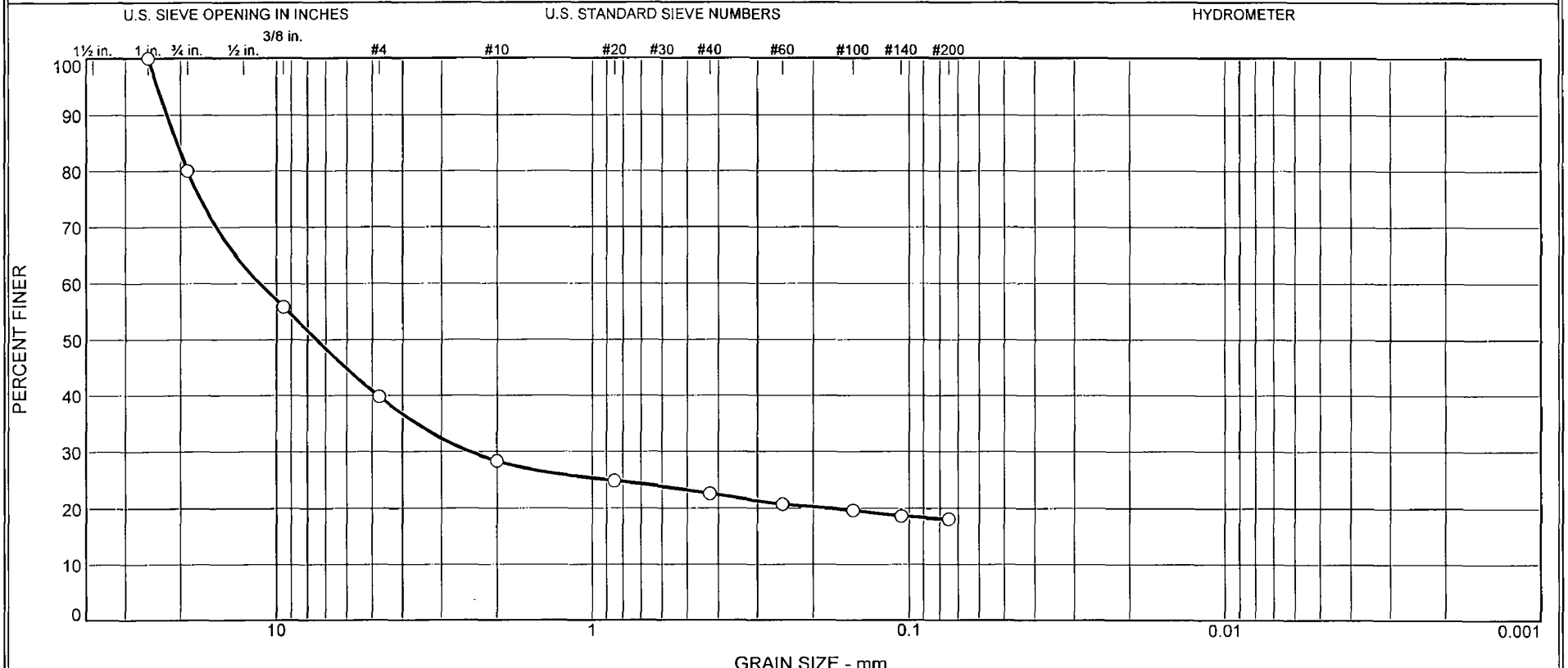
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	44	44	8	15	15	38			18

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.1013	0.3011	2.7112	5.6772	10.8098	12.4826	14.3864	16.5598

Fineness Modulus
3.88

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	20	40	12	5	5	18	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-603	603-5	10.0-11.5	12/14/08	GM	Pale Yellow Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined
Calcite Equivalent = 92% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-603
Depth: 10.0-11.5 **Sample Number:** 603-5
Material Description: Pale Yellow Silty GRAVEL with sand (Visual)
Date: 12/14/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined
Calcite Equivalent = 92% (ASTM D 4373-02)
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =211.79
Tare Wt. = 0.00
Minus #200 from wash = 0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
211.79	0.00	0.00	1	0.00	100
			3/4	42.18	80
			3/8"	93.44	56
			#4	127.61	40
			#10	151.82	28
			#20	159.05	25
			#40	163.81	23
			#60	167.87	21
			#100	170.22	20
			#140	172.28	19
			#200	173.46	18

Fractional Components

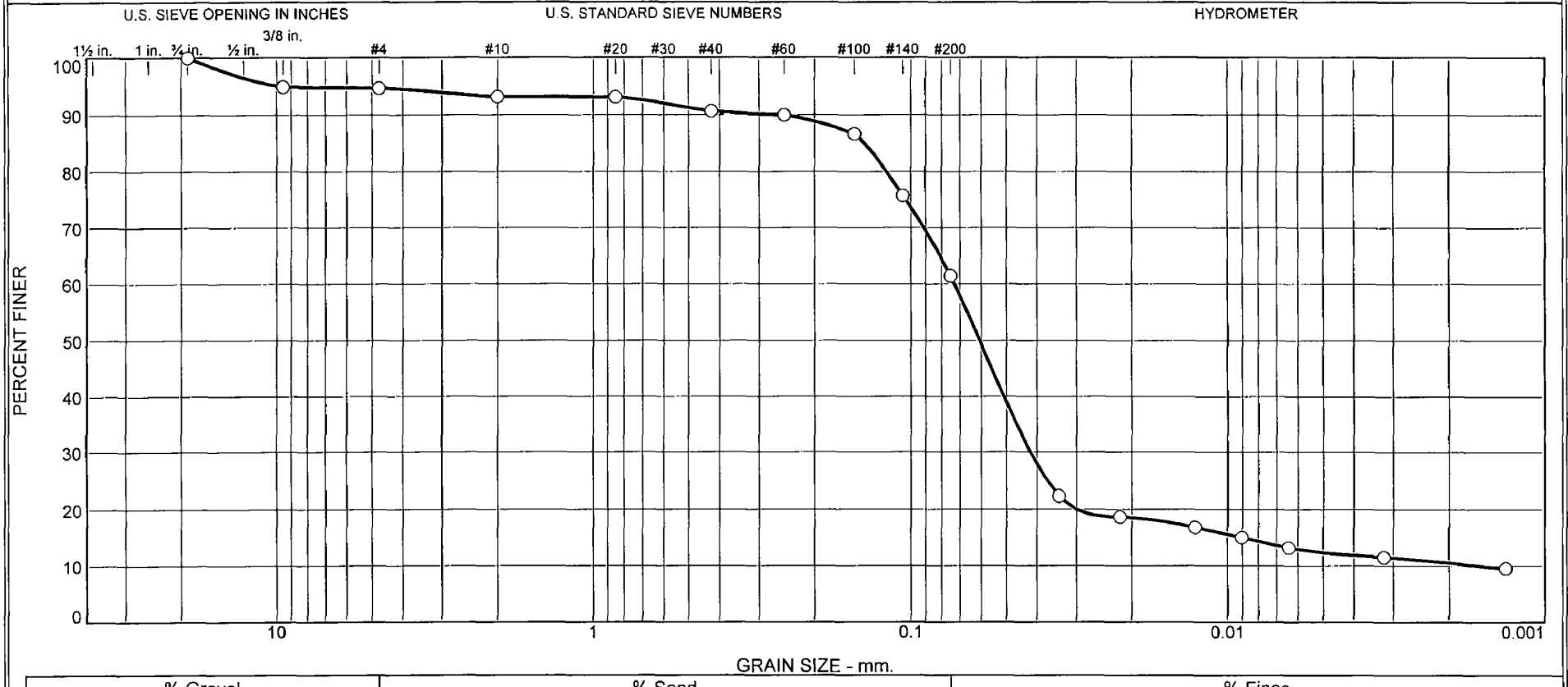
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	20	40	60	12	5	5	22			18

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.1772	2.4388	7.4719	11.2948	19.0228	20.6016	22.1566	23.7421

Fineness Modulus
5.04

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	5.3	1.5	2.5	29.3	49.0	12.4

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-603	603-8	120.5-122.0	2/21/08	ML	Light Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 19% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-603
Depth: 120.5-122.0 **Sample Number:** 603-8
Material Description: Light Gray Sandy SILT (Visual)
Date: 2/21/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** ML
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 19% (ASTM D 4373-02)
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
321.25	0.00	0.00	3/4	0.00	100.0
			3/8"	16.24	94.9
			#4	17.03	94.7
			#10	21.96	93.2
50.89	0.00	0.00	#20	0.02	93.1
			#40	1.37	90.7
			#60	1.75	90.0
			#100	3.56	86.6
			#140	9.50	75.8
			#200	17.35	61.4

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =93.2
Weight of hydrometer sample =50.89
Hygroscopic moisture correction:
Moist weight and tare = 29.43
Dry weight and tare = 29.40
Tare weight = 15.49
Hygroscopic moisture =0.2%
Table of composite correction values:

Temp., deg. C:	11.2	28.4
Comp. corr.:	-8.0	-4.0

Meniscus correction only =1.0
Specific gravity of solids =2.700
Hydrometer type =152H
Hydrometer effective depth equation: L =16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.0	18.0	12.3	0.0133	19.0	13.2	0.0341	22.3
5.00	21.0	16.0	10.3	0.0133	17.0	13.5	0.0218	18.6
15.00	21.0	15.0	9.3	0.0133	16.0	13.7	0.0127	16.8
30.00	21.0	14.0	8.3	0.0133	15.0	13.8	0.0090	15.0
60.00	21.0	13.0	7.3	0.0133	14.0	14.0	0.0064	13.2
240.00	21.3	12.0	6.3	0.0132	13.0	14.2	0.0032	11.5
1440.00	20.9	11.0	5.3	0.0133	12.0	14.3	0.0013	9.5

MACTEC Engineering and Consulting, Inc.

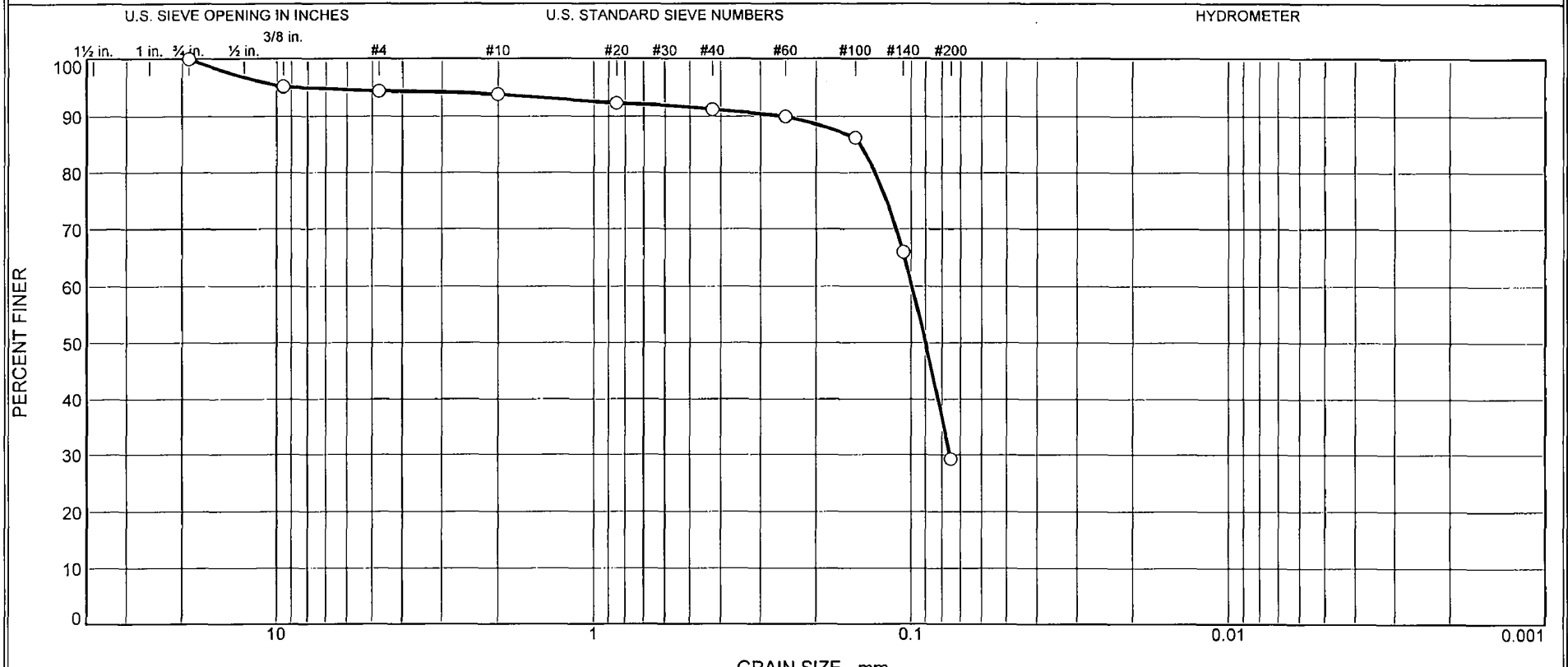
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	5.3	5.3	1.5	2.5	29.3	33.3	49.0	12.4	61.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0016	0.0090	0.0302	0.0421	0.0608	0.0729	0.1191	0.1399	0.2713	9.6783

Fineness Modulus	C_u	C_c
0.55	45.57	15.16

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	6	0	3	62	29	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-603	603-10	131.7-133.2	2/21/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-603
Depth: 131.7-133.2 **Sample Number:** 603-10
Material Description: Greenish Gray Silty SAND (Visual)
Date: 2/21/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** 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
310.54	0.00	0.00	3/4	0.00	100
			3/8"	14.89	95
			#4	17.36	94
			#10	19.12	94
101.42	0.00	0.00	#20	1.66	92
			#40	2.85	91
			#60	4.22	90
			#100	8.25	86
			#140	30.10	66
			#200	69.84	29

Fractional Components

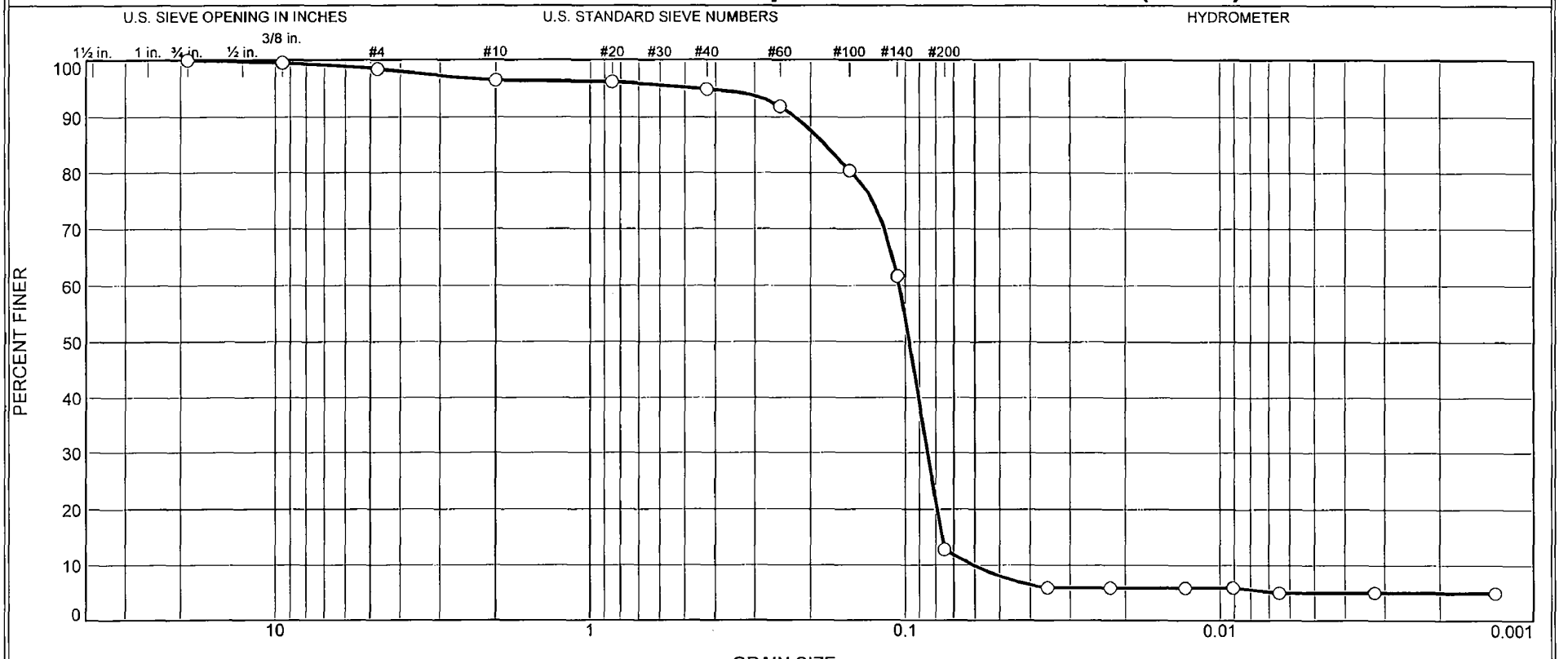
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	6	6	0	3	62	65			29

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0755	0.0901	0.0993	0.1295	0.1447	0.2557	8.1462

Fineness Modulus
0.55

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	1.5	2.0	1.6	82.1	7.8	5.0

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-603	603-11	136.4-137.9	2/21/08	SM	Greenish Gray Silty SAND (Visual)	ND	NV	NP

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 40% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-603
Depth: 136.4-137.9 **Sample Number:** 603-11
Material Description: Greenish Gray Silty SAND (Visual)
Date: 2/21/08 **Natural Moisture:** ND
Liquid Limit: NV **Plastic Limit:** NP **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 40% (ASTM D 4373-02)
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
264.90	0.00	0.00	3/4	0.00	100.0
			3/8"	1.27	99.5
			#4	4.09	98.5
			#10	9.24	96.5
101.57	0.00	0.00	#20	0.31	96.2
			#40	1.69	94.9
			#60	4.91	91.8
			#100	16.91	80.4
			#140	36.66	61.7
			#200	88.09	12.8

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =96.5
Weight of hydrometer sample =101.56
Hygroscopic moisture correction:
Moist weight and tare = 27.62
Dry weight and tare = 27.60
Tare weight = 15.42
Hygroscopic moisture =0.2%
Table of composite correction values:

Temp., deg. C:	11.2	28.4
Comp. corr.:	-8.0	-4.0

Meniscus correction only =1.0
Specific gravity of solids =2.700
Hydrometer type =152H
Hydrometer effective depth equation: L =16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.1	12.0	6.3	0.0133	13.0	14.2	0.0353	5.9
5.00	21.1	12.0	6.3	0.0133	13.0	14.2	0.0223	5.9
15.00	21.1	12.0	6.3	0.0133	13.0	14.2	0.0129	5.9
30.00	21.2	12.0	6.3	0.0132	13.0	14.2	0.0091	6.0
60.00	21.2	11.0	5.3	0.0132	12.0	14.3	0.0065	5.0
240.00	21.4	11.0	5.4	0.0132	12.0	14.3	0.0032	5.1
1440.00	20.9	11.0	5.3	0.0133	12.0	14.3	0.0013	4.9

MACTEC Engineering and Consulting, Inc.

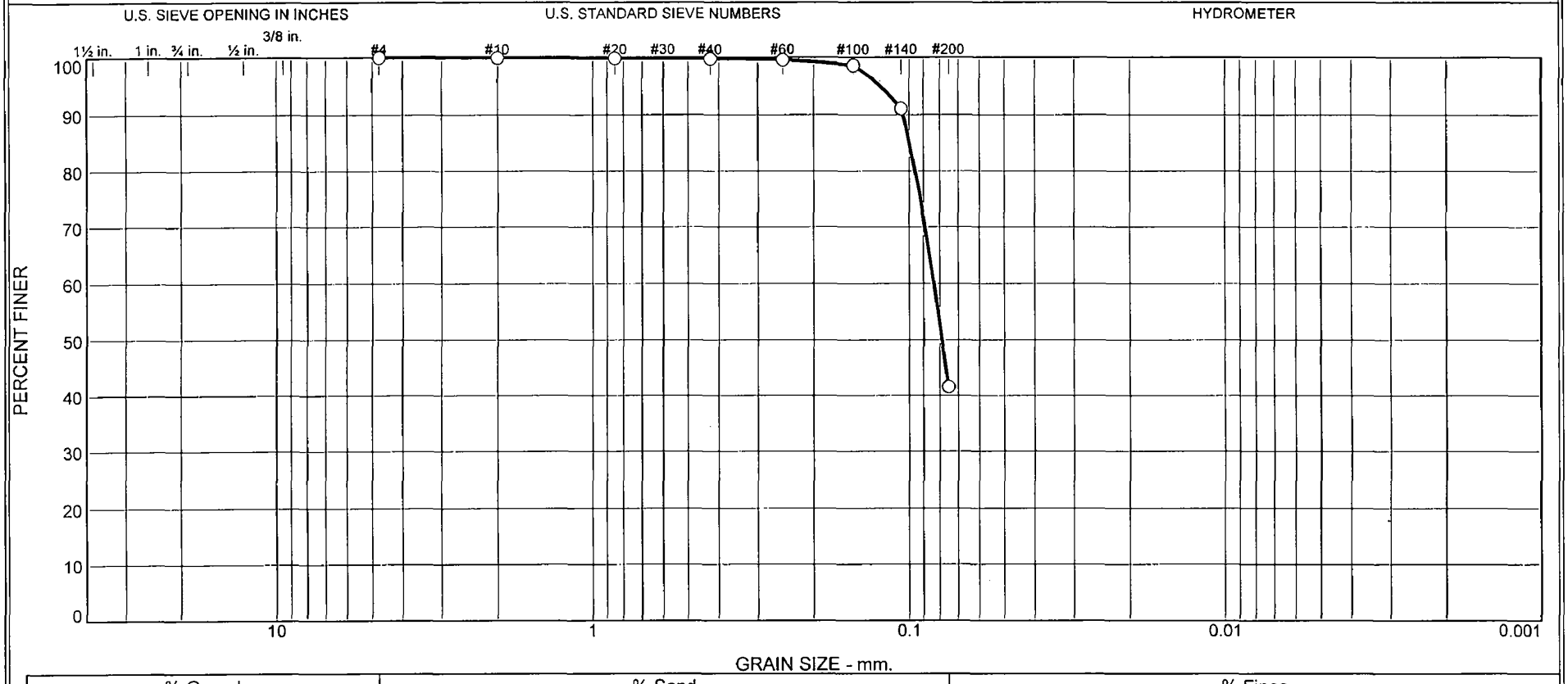
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	1.5	1.5	2.0	1.6	82.1	85.7	7.8	5.0	12.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0606	0.0764	0.0794	0.0850	0.0969	0.1045	0.1474	0.1792	0.2240	0.4464

Fineness Modulus	C_u	C_c
0.39	1.72	1.14

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	58	42	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-603	603-14	149.7-151.2	1/21/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 | Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-603
Depth: 149.7-151.2 **Sample Number:** 603-14
Material Description: Greenish Gray Silty SAND (Visual)
Date: 1/21/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** 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
359.67	0.00	0.00	#4	0.00	100
			#10	0.09	100
99.64	0.00	0.00	#20	0.11	100
			#40	0.20	100
			#60	0.38	100
			#100	1.38	99
			#140	8.87	91
			#200	58.20	42

Fractional Components

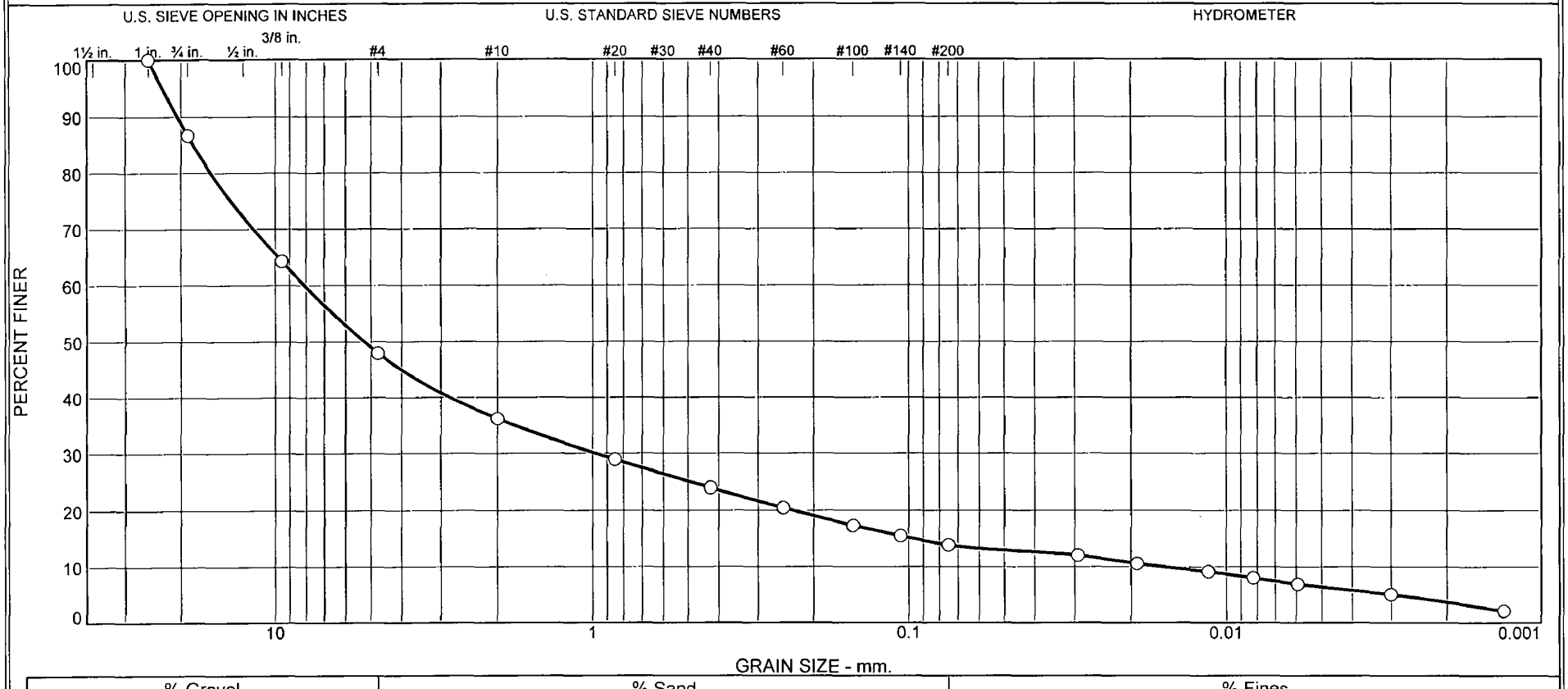
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	58	58			42

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0787	0.0835	0.0955	0.0996	0.1047	0.1232

Fineness Modulus
0.02

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	13.3	38.7	11.8	12.2	10.1	7.5	6.4

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-604(DH)	604-4	8.5-10.0	3/19/08	GM	Pale Yellow Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-604(DH)
Depth: 8.5-10.0 **Sample Number:** 604-4
Material Description: Pale Yellow Silty GRAVEL with sand (Visual)
Date: 3/19/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
381.16	0.00	0.00	1	0.00	100.0
			3/4	50.77	86.7
			3/8"	136.26	64.3
			#4	198.16	48.0
			#10	243.30	36.2
98.26	0.00	0.00	#20	19.67	28.9
			#40	33.11	24.0
			#60	42.71	20.4
			#100	51.23	17.3
			#140	56.22	15.5
			#200	60.58	13.9

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =36.2
Weight of hydrometer sample =98.26
Hygroscopic moisture correction:
Moist weight and tare = 27.58
Dry weight and tare = 27.50
Tare weight = 15.86
Hygroscopic moisture =0.7%
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 =2.700
Hydrometer type =152H
Hydrometer effective depth equation: L =16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.7	38.0	32.9	0.0132	39.0	9.9	0.0293	12.0
5.00	21.7	34.0	28.9	0.0132	35.0	10.6	0.0191	10.6
15.00	21.7	30.0	24.9	0.0132	31.0	11.2	0.0114	9.1
30.00	21.7	27.0	21.9	0.0132	28.0	11.7	0.0082	8.0
60.00	21.6	24.0	18.8	0.0132	25.0	12.2	0.0059	6.9
250.00	21.5	19.0	13.8	0.0132	20.0	13.0	0.0030	5.1
1440.00	21.4	11.0	5.8	0.0132	12.0	14.3	0.0013	2.1

MACTEC Engineering and Consulting, Inc.

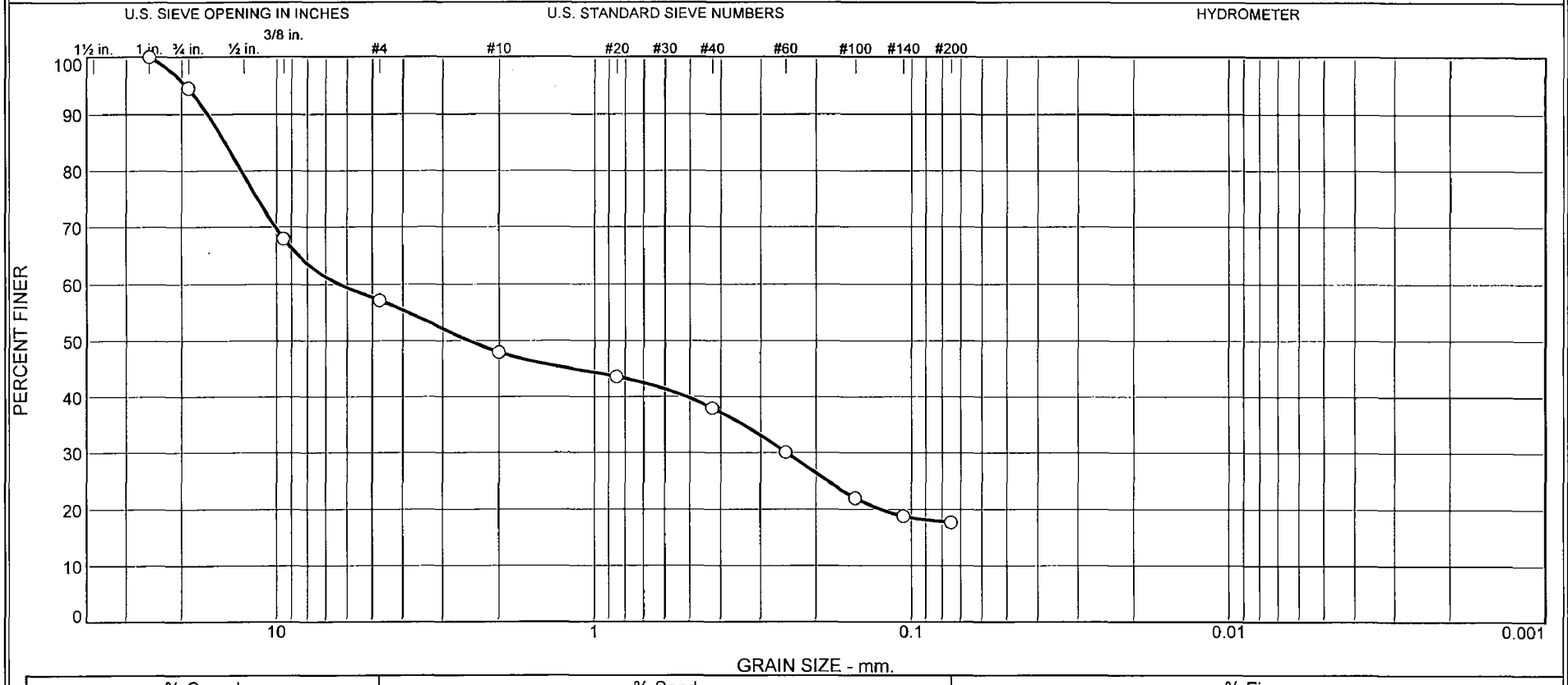
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	13.3	38.7	52.0	11.8	12.2	10.1	34.1	7.5	6.4	13.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0158	0.0966	0.2333	0.9795	5.2522	8.0843	16.0625	18.2956	20.5500	22.8873

Fineness Modulus	C_u	C_c
4.66	513.26	7.53

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	5	38	9	10	20	18	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-604(DH)	604-9	28.5-30.0	3/19/08	GM	Pale Yellow Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-604(DH)
Depth: 28.5-30.0 **Sample Number:** 604-9
Material Description: Pale Yellow Silty GRAVEL with sand (Visual)
Date: 3/19/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =208.56
Tare Wt. = 0.00
Minus #200 from wash = 0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
208.56	0.00	0.00	1	0.00	100
			3/4	11.35	95
			3/8"	66.72	68
			#4	89.27	57
			#10	108.54	48
			#20	117.60	44
			#40	129.32	38
			#60	145.83	30
			#100	162.77	22
			#140	169.39	19
			#200	171.61	18

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	5	38	43	9	10	20	39			18

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.1254	0.2489	2.4815	6.3428	12.9644	14.5801	16.5447	19.3719

Fineness Modulus
3.89

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A

	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	1	0	2	68	29	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-604(DH)	604-13	138.5-140.0	3/23/08	SM	Greenish Gray Silty SAND (Visual)	ND		NP

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-604(DH)
Depth: 138.5-140.0 **Sample Number:** 604-13
Material Description: Greenish Gray Silty SAND (Visual)
Date: 3/23/08 **Natural Moisture:** ND
Plastic Limit: NP **USCS Class.:** 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
327.18	0.00	0.00	3/8"	0.00	100
			#4	1.98	99
			#10	3.74	99
99.15	0.00	0.00	#20	1.24	98
			#40	2.09	97
			#60	3.08	96
			#100	6.35	93
			#140	30.47	68
			#200	69.96	29

Fractional Components

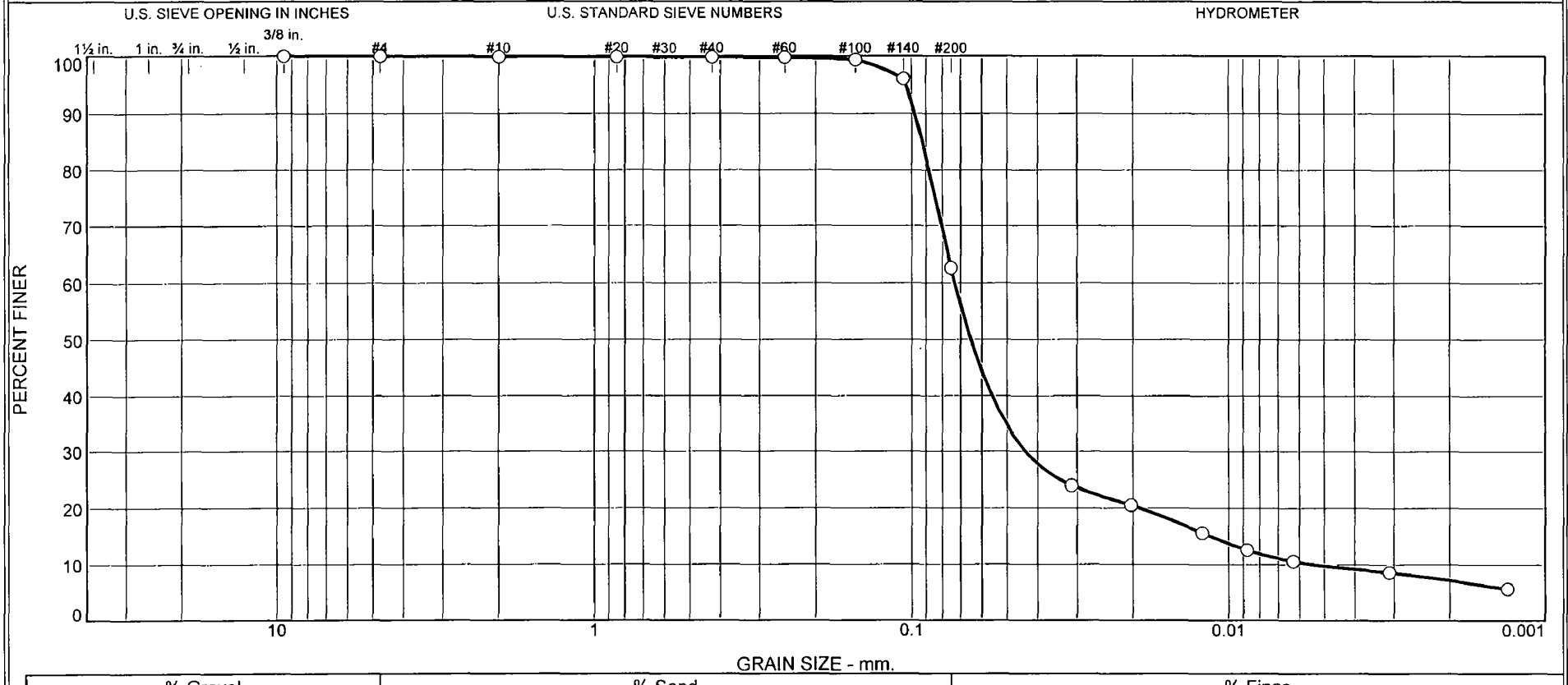
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	1	1	0	2	68	70			29

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0756	0.0893	0.0976	0.1209	0.1297	0.1415	0.2127

Fineness Modulus
0.17

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.1	0.1	37.2	52.8	9.8

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-604(DH)	604-15	163.5-165.0	3/23/08	ML	Greenish Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ PSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-604(DH)
Depth: 163.5-165.0 **Sample Number:** 604-15
Material Description: Greenish Gray Sandy SILT (Visual)
Date: 3/23/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** ML
Testing Remarks: SIEVE ANALYSIS AND HYROMETER ONLY
Specific Gravity is assumed
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
307.36	0.00	0.00	3/8"	0.00	100.0
			#4	0.13	100.0
			#10	0.38	99.9
100.91	0.00	0.00	#20	0.02	99.9
			#40	0.07	99.8
			#60	0.11	99.8
			#100	0.52	99.4
			#140	3.83	96.1
			#200	37.65	62.6

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =99.9
Weight of hydrometer sample =100.91
Hygroscopic moisture correction:
Moist weight and tare = 28.52
Dry weight and tare = 28.49
Tare weight = 15.54
Hygroscopic moisture =0.2%
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 =2.700
Hydrometer type =152H
Hydrometer effective depth equation: L =16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.8	29.5	24.4	0.0131	30.5	11.3	0.0312	23.9
5.00	21.8	26.0	20.9	0.0131	27.0	11.9	0.0203	20.5
15.00	21.8	21.0	15.9	0.0131	22.0	12.7	0.0121	15.6
30.00	21.5	18.0	12.8	0.0132	19.0	13.2	0.0087	12.6
60.00	21.4	16.0	10.8	0.0132	17.0	13.5	0.0063	10.6
250.00	21.4	14.0	8.8	0.0132	15.0	13.8	0.0031	8.6
1440.00	21.4	11.0	5.8	0.0132	12.0	14.3	0.0013	5.7

MACTEC Engineering and Consulting, Inc.

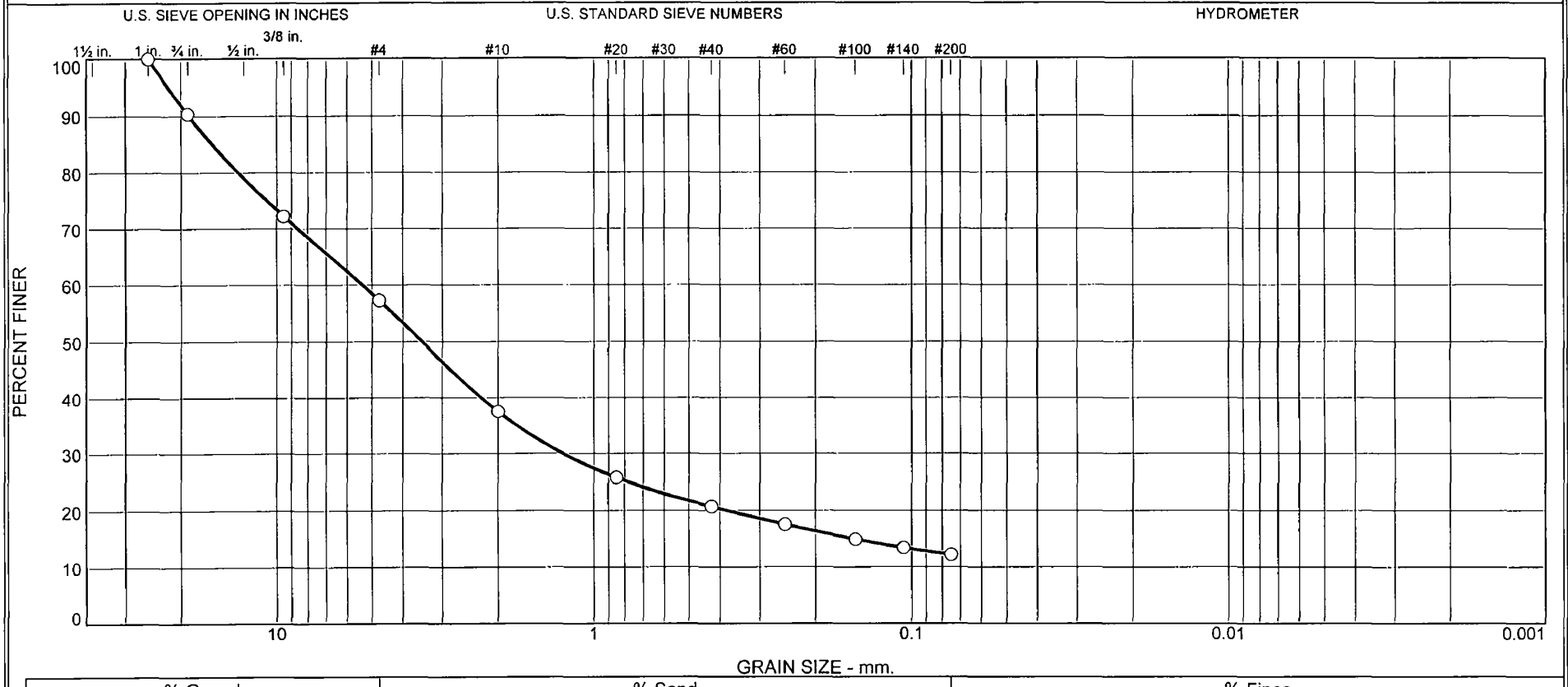
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	0.1	37.2	37.4	52.8	9.8	62.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0054	0.0114	0.0191	0.0438	0.0651	0.0730	0.0881	0.0925	0.0975	0.1041

Fineness Modulus	C_u	C_c
0.01	13.54	4.86

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	10	33	19	17	9	12	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-605	605-4	7.5-9.0	2/23/08	SP-SM	Light Gray Poorly Graded SAND with silt and gravel (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 89% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-605
Depth: 7.5-9.0 **Sample Number:** 605-4
Material Description: Light Gray Poorly Graded SAND with silt and gravel (Visual)
Date: 2/23/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SP-SM
Testing Remarks: SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 89% (ASTM D 4373-02)
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
391.14	0.00	0.00	1	0.00	100
			3/4	37.79	90
			3/8"	108.42	72
			#4	166.99	57
			#10	244.46	38
103.60	0.00	0.00	#20	32.55	26
			#40	46.49	21
			#60	55.07	18
			#100	62.35	15
			#140	66.53	13
			#200	69.93	12

Fractional Components

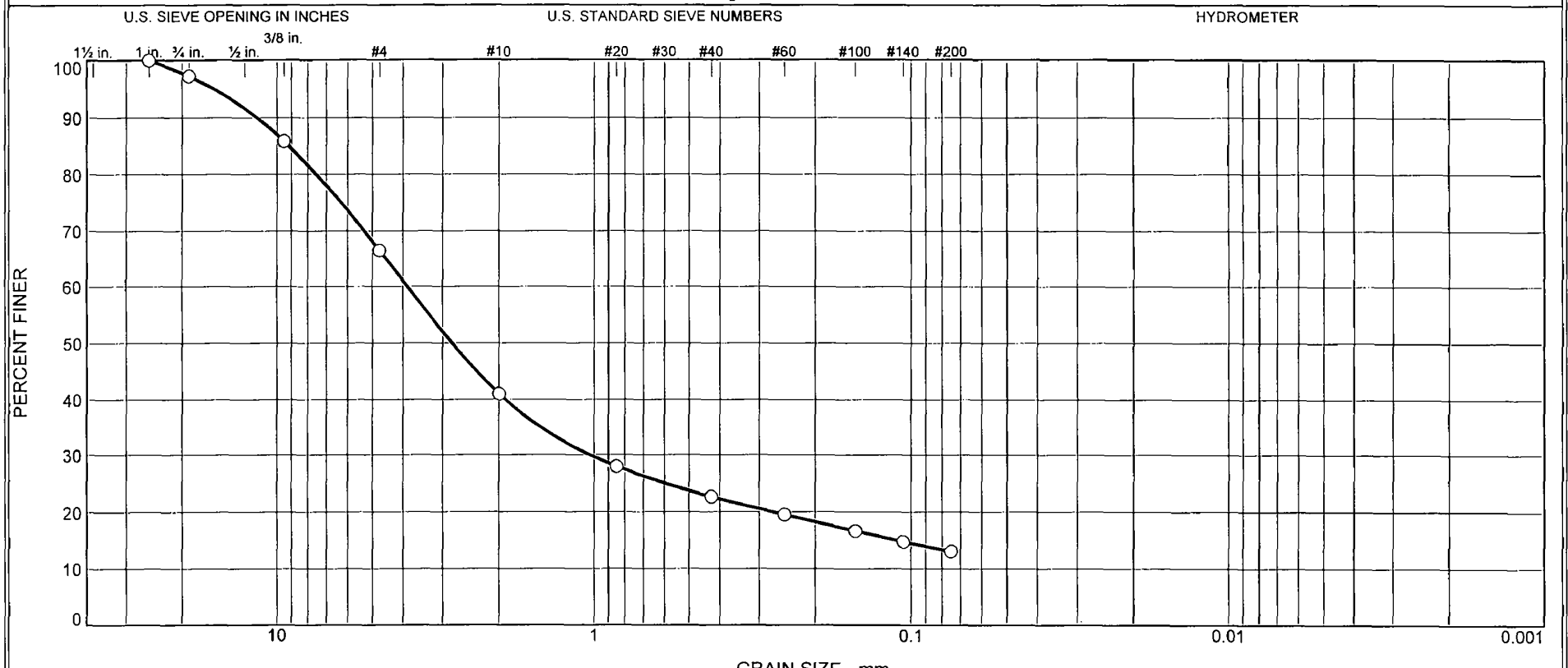
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	10	33	43	19	17	9	45			12

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1522	0.3805	1.2546	3.4858	5.3607	13.2163	15.9319	18.8463	21.9564

Fineness Modulus
4.53

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	3	31	25	18	10	13	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-605	605-6	12.5-14.0	2/23/08	SM	White Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-605
Depth: 12.5-14.0 **Sample Number:** 605-6
Material Description: White Silty SAND with gravel (Visual)
Date: 2/23/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** 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
321.47	0.00	0.00	1	0.00	100
			3/4	8.80	97
			3/8"	45.34	86
			#4	107.78	66
			#10	189.72	41
99.21	0.00	0.00	#20	31.59	28
			#40	44.42	23
			#60	51.94	20
			#100	58.80	17
			#140	63.30	15
			#200	67.54	13

Fractional Components

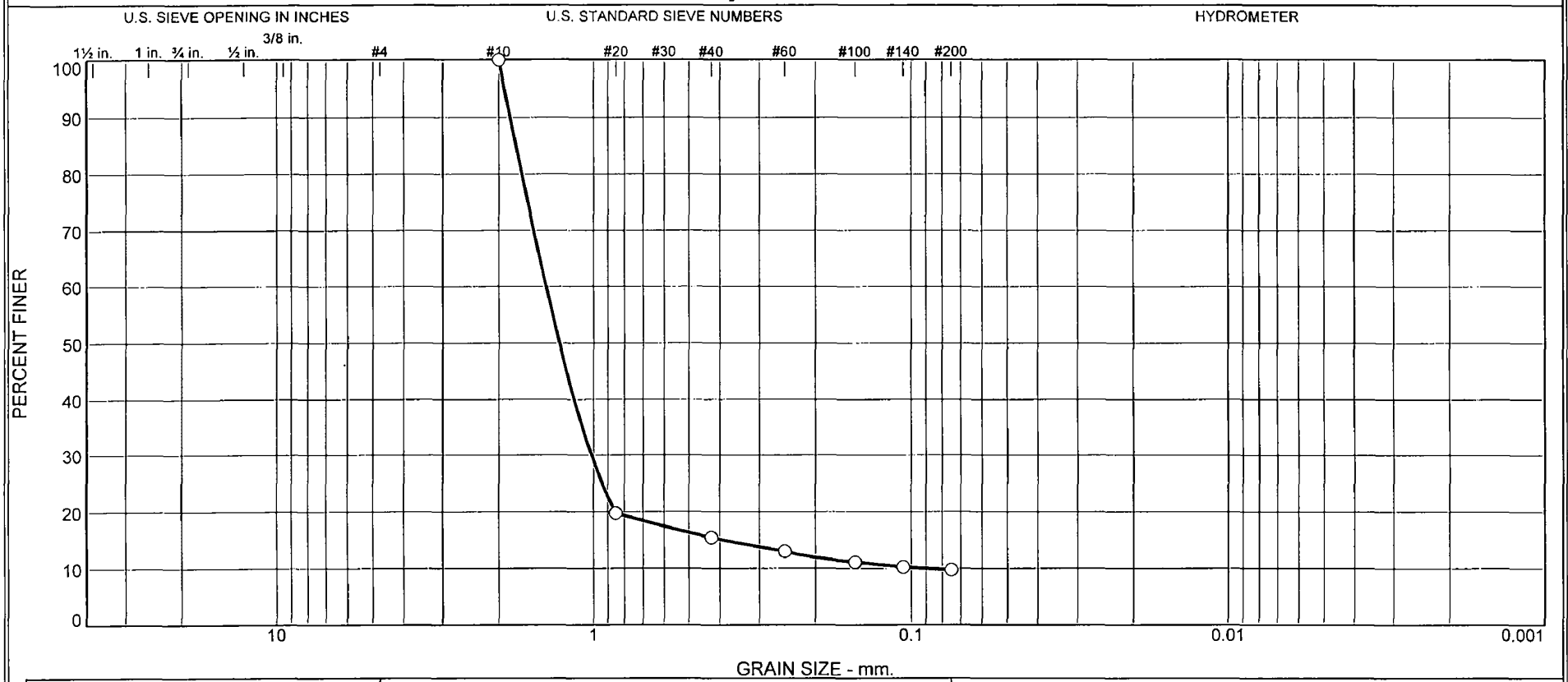
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	3	31	34	25	18	10	53			13

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1094	0.2719	1.0346	2.8041	3.8740	7.5121	9.1616	11.6114	15.8249

Fineness Modulus
4.11

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	85	5	10	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-605	605-8	20.0-21.5	2/23/08	SP-SM	Light Gray Poorly Graded SAND with silt (Visual)	ND	NV	NP

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-605
Depth: 20.0-21.5 **Sample Number:** 605-8
Material Description: Light Gray Poorly Graded SAND with silt (Visual)
Date: 2/23/08 **Natural Moisture:** ND
Liquid Limit: NV **Plastic Limit:** NP **USCS Class.:** SP-SM
Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =239.71
Tare Wt. = 0.00
Minus #200 from wash = 0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
239.71	0.00	0.00	#10	0.00	100
			#20	192.32	20
			#40	202.63	15
			#60	208.46	13
			#100	213.11	11
			#140	215.17	10
			#200	216.35	10

Fractional Components

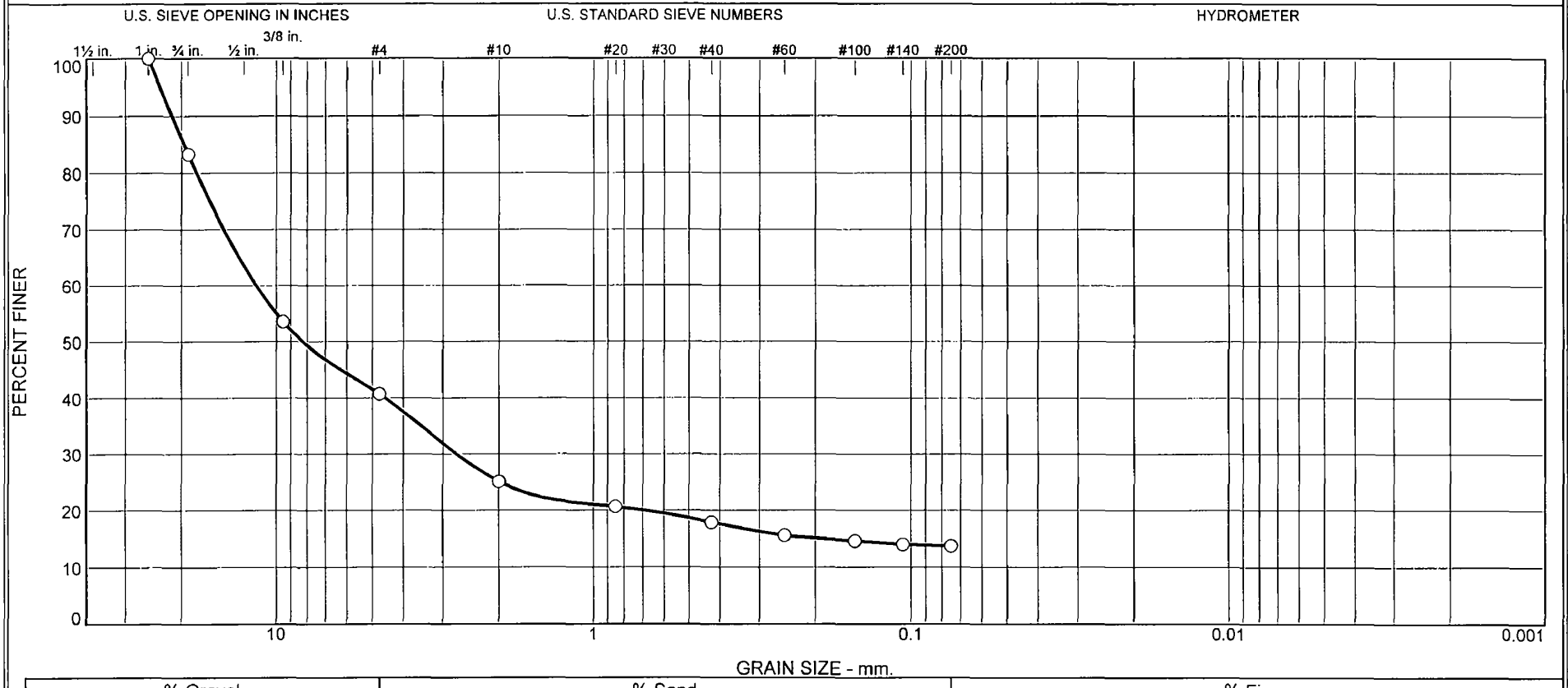
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	85	5	90			10

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0921	0.3863	0.8546	1.0164	1.2830	1.4138	1.6895	1.7631	1.8392	1.9180

Fineness Modulus	C_u	C_c
3.16	15.36	7.94

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	17	42	16	7	4	14	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-605	605-10	30-31.5	2/23/08	GM	Very Pale Brown Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-605
Depth: 30-31.5 **Sample Number:** 605-10
Material Description: Very Pale Brown Silty GRAVEL with sand (Visual)
Date: 2/23/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =238.36
Tare Wt. = 0.00
Minus #200 from wash = 0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
238.36	0.00	0.00	1	0.00	100
			3/4	39.72	83
			3/8"	110.73	54
			#4	141.32	41
			#10	178.74	25
			#20	189.20	21
			#40	195.77	18
			#60	201.12	16
			#100	203.46	15
			#140	204.92	14
			#200	205.63	14

Fractional Components

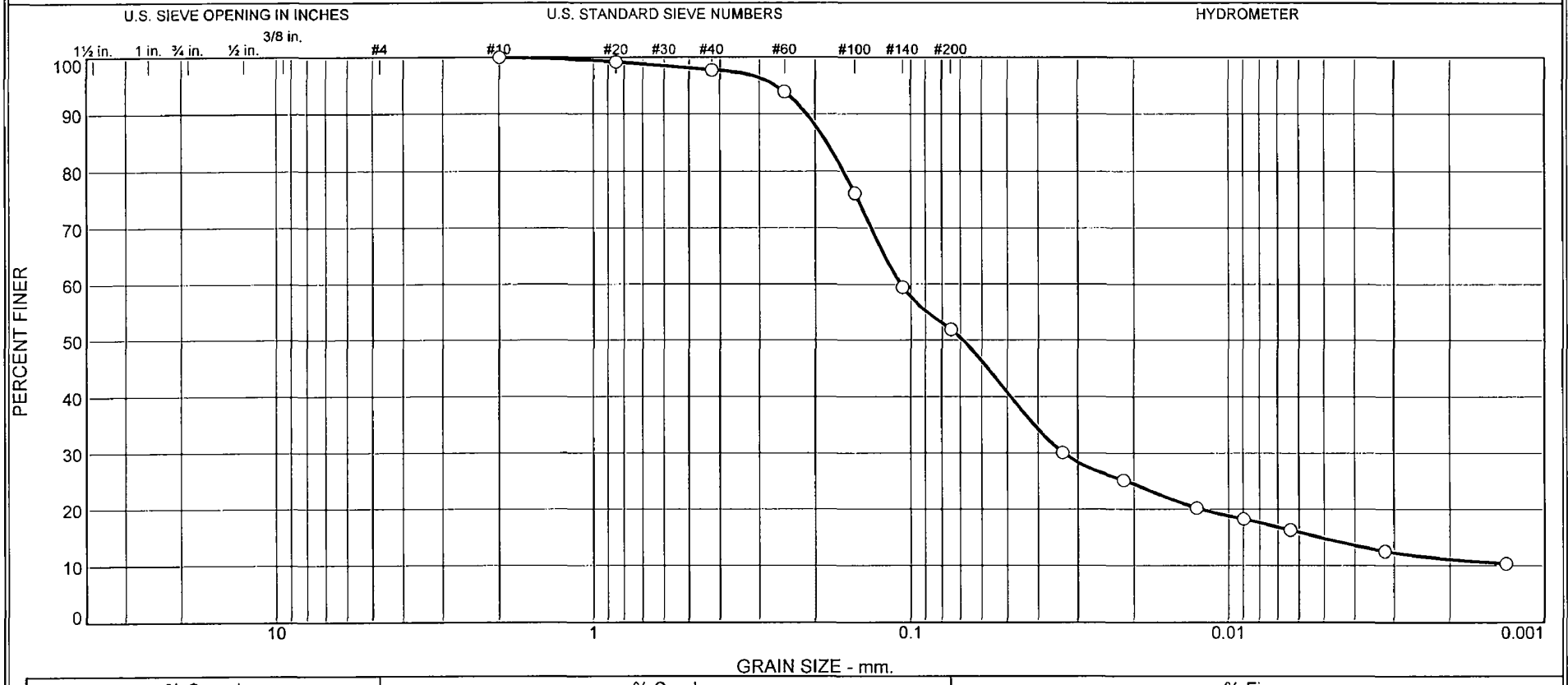
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	17	42	59	16	7	4	27			14

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1876	0.6960	2.7250	8.2540	11.5952	17.9166	19.6281	21.4271	23.3409

Fineness Modulus
5.23

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	2.3	45.8	37.1	14.8

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-605	605-12	119.9-121.4	2/25/08	ML	Light Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 27% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-605
Depth: 119.9-121.4 **Sample Number:** 605-12
Material Description: Light Gray Sandy SILT (Visual)
Date: 2/25/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** ML
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 27% (ASTM D 4373-02)
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
342.84	0.00	0.00	#10	0.00	100.0
50.44	0.00	0.00	#20	0.42	99.2
			#40	1.14	97.7
			#60	3.08	93.9
			#100	12.04	76.1
			#140	20.45	59.5
			#200	24.27	51.9

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =50.44
Hygroscopic moisture correction:
Moist weight and tare = 28.55
Dry weight and tare = 28.50
Tare weight = 15.63
Hygroscopic moisture =0.4%
Table of composite correction values:

Temp., deg. C:	11.2	28.4
Comp. corr.:	-8.0	-4.0

Meniscus correction only =1.0
Specific gravity of solids =2.700
Hydrometer type =152H
Hydrometer effective depth equation: L =16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.0	21.0	15.3	0.0133	22.0	12.7	0.0334	30.1
5.00	20.9	18.5	12.8	0.0133	19.5	13.1	0.0215	25.1
15.00	20.9	16.0	10.3	0.0133	17.0	13.5	0.0126	20.2
30.00	20.9	15.0	9.3	0.0133	16.0	13.7	0.0090	18.2
60.00	20.9	14.0	8.3	0.0133	15.0	13.8	0.0064	16.2
240.00	21.4	12.0	6.4	0.0132	13.0	14.2	0.0032	12.5
1440.00	21.0	11.0	5.3	0.0133	12.0	14.3	0.0013	10.4

MACTEC Engineering and Consulting, Inc.

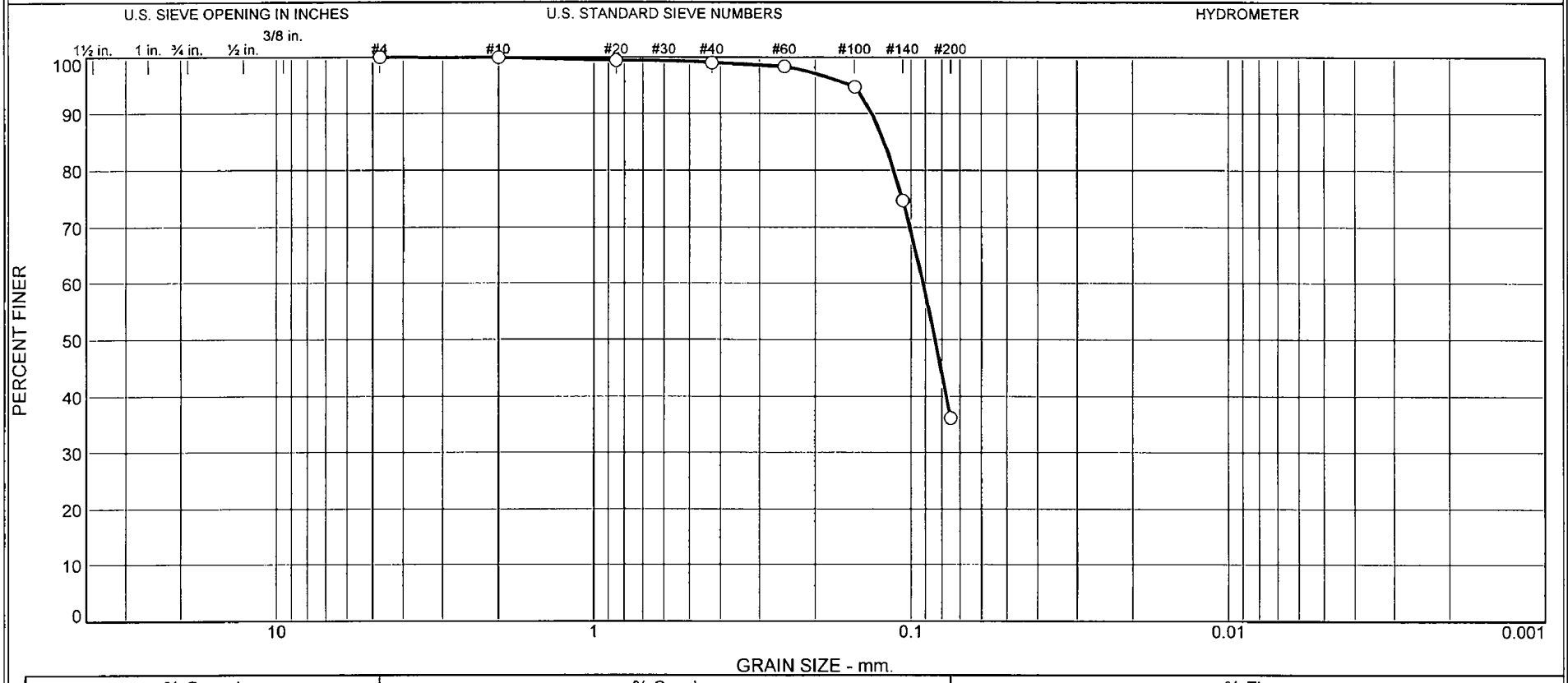
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	2.3	45.8	48.1	37.1	14.8	51.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0052	0.0123	0.0333	0.0689	0.1076	0.1627	0.1834	0.2126	0.2671

Fineness Modulus
0.29

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	1	63	36	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-605	605-15	131.4-132.9	2/25/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ Specific Gravity = 2.669 (ASTM D854-06)
SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 30% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-605
Depth: 131.4-132.9 **Sample Number:** 605-15
Material Description: Greenish Gray Silty SAND (Visual)
Date: 2/25/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: Specific Gravity = 2.669 (ASTM D854-06)
SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 30% (ASTM D 4373-02)
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
227.90	0.00	0.00	#4	0.00	100
			#10	0.11	100
102.28	0.00	0.00	#20	0.51	99
			#40	0.94	99
			#60	1.61	98
			#100	5.35	95
			#140	25.83	75
			#200	65.29	36

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	1	63	64			36

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0840	0.0916	0.1130	0.1214	0.1328	0.1542

Fineness Modulus
0.08

MACTEC Engineering and Consulting, 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:FPL COL PROJECT (TURKEY POINT)

PROJECT NUMBER: 6468051950

DATE: 3/28/08

SAMPLE IDENTIFICATION: B-605-15 (131.4-132.9)

(A) Mass of oven-dried soil, grams:		75.72
(B) Mass of pycnometer filled with water at test temperature (T), grams:		656.55
(C) Mass of pycnometer, water and soil, grams:		703.91
(T) Temperature of pycnometer, water and soil, °C when mass (C) determined:		21.1
(G) Specific Gravity at observed temperature:	A / [B - (C - A)]	2.670
(F)	***Correction factor:***	0.99977
(G x F)	**SPECIFIC GRAVITY @ 20°C:**	2.669

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

PREPARATION METHOD: [X] **DRY** [ ] **WET (dispersed)**

REMARKS: Estimated % Passing # 4 : 100
Silty SAND (SM) (Visual)

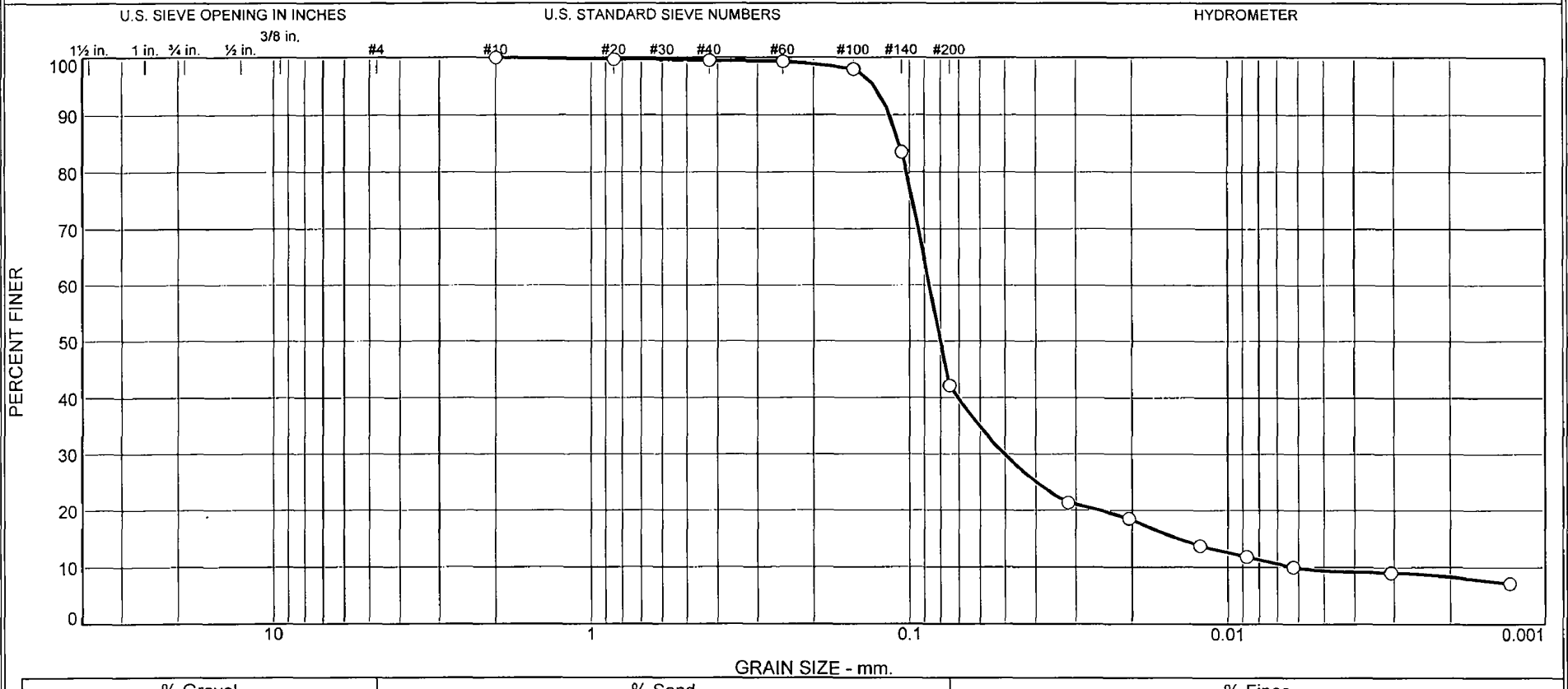
EQUIPMENT USED
SCALES : 3.1.99
OVEN : 5.1.16
THERMOMETER :5.1.01
PYCNOMETER : P-6

TESTED BY: CS

REVIEWED BY: **Brian Johnson**

DSC 7-2-08

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.5	57.3	32.8	9.4

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-605	605-18	144.9-146.4	2/26/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-605
Depth: 144.9-146.4 **Sample Number:** 605-18
Material Description: Greenish Gray Silty SAND (Visual)
Date: 2/26/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
162.22	0.00	0.00	#10	0.00	100.0
104.26	0.00	0.00	#20	0.31	99.7
			#40	0.52	99.5
			#60	0.71	99.3
			#100	2.15	97.9
			#140	17.13	83.6
			#200	60.31	42.2

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =104.26
Hygroscopic moisture correction:
Moist weight and tare = 29.30
Dry weight and tare = 29.21
Tare weight = 15.52
Hygroscopic moisture =0.7%
Table of composite correction values:

Temp., deg. C:	11.2	28.4
Comp. corr.:	-8.0	-4.0

Meniscus correction only =1.0
Specific gravity of solids =2.700
Hydrometer type =152H
Hydrometer effective depth equation: L =16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.4	28.0	22.4	0.0132	29.0	11.5	0.0317	21.4
5.00	21.4	25.0	19.4	0.0132	26.0	12.0	0.0205	18.5
15.00	21.6	20.0	14.4	0.0132	21.0	12.9	0.0122	13.8
30.00	21.6	18.0	12.4	0.0132	19.0	13.2	0.0087	11.9
60.00	21.9	16.0	10.5	0.0131	17.0	13.5	0.0062	10.0
250.00	21.9	15.0	9.5	0.0131	16.0	13.7	0.0031	9.1
1440.00	22.0	13.0	7.5	0.0131	14.0	14.0	0.0013	7.2

MACTEC Engineering and Consulting, Inc.

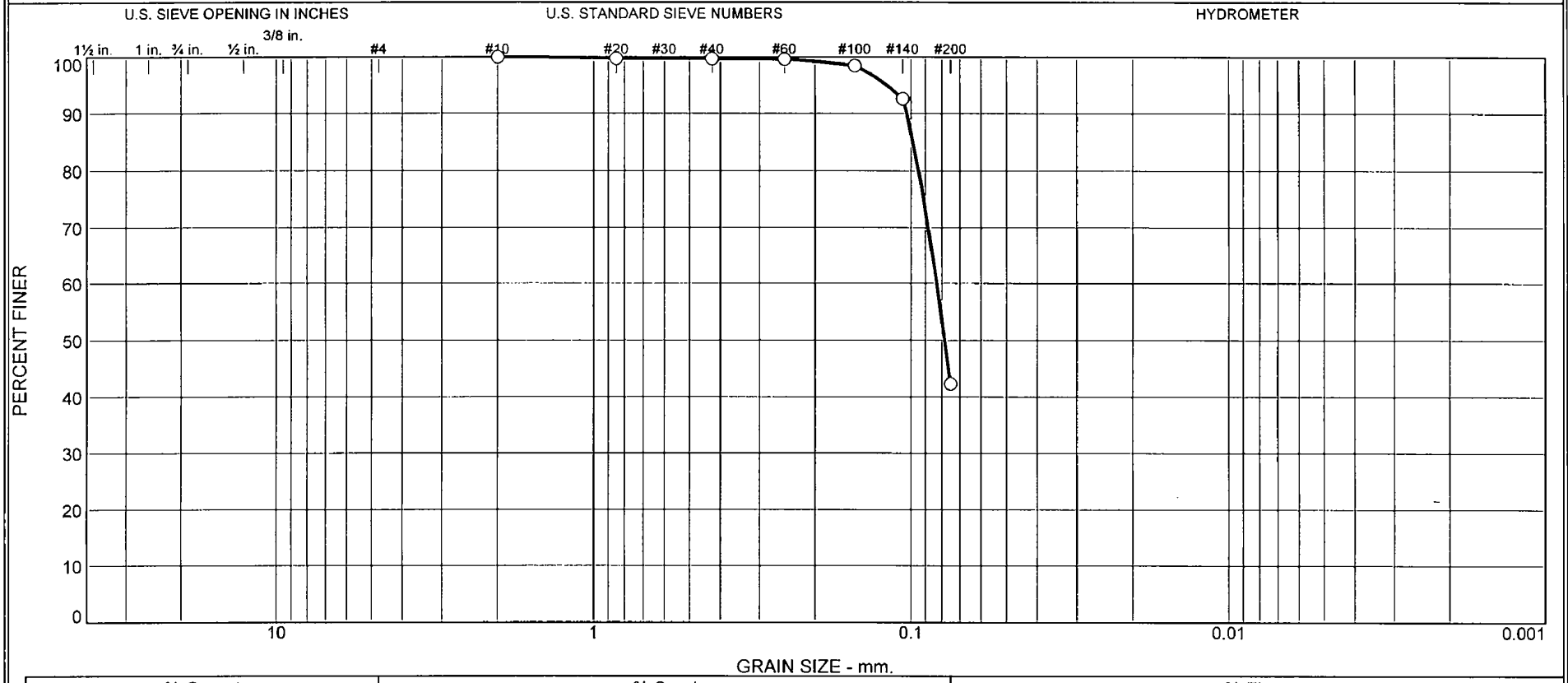
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.5	57.3	57.8	32.8	9.4	42.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0062	0.0143	0.0253	0.0503	0.0803	0.0868	0.1022	0.1077	0.1154	0.1290

Fineness Modulus	C_u	C_c
0.03	13.98	4.70

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	58	42	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-605	605-20	154.9-156.4	2/26/08	SM	Greenish Gray Silty SAND(Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-605
Depth: 154.9-156.4 **Sample Number:** 605-20
Material Description: Greenish Gray Silty SAND(Visual)
Date: 2/26/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =206.16
Tare Wt. = 0.00
Minus #200 from wash = 0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
206.16	0.00	0.00	#10	0.00	100
			#20	0.46	100
			#40	0.59	100
			#60	0.77	100
			#100	3.19	98
			#140	15.25	93
			#200	118.89	42

Fractional Components

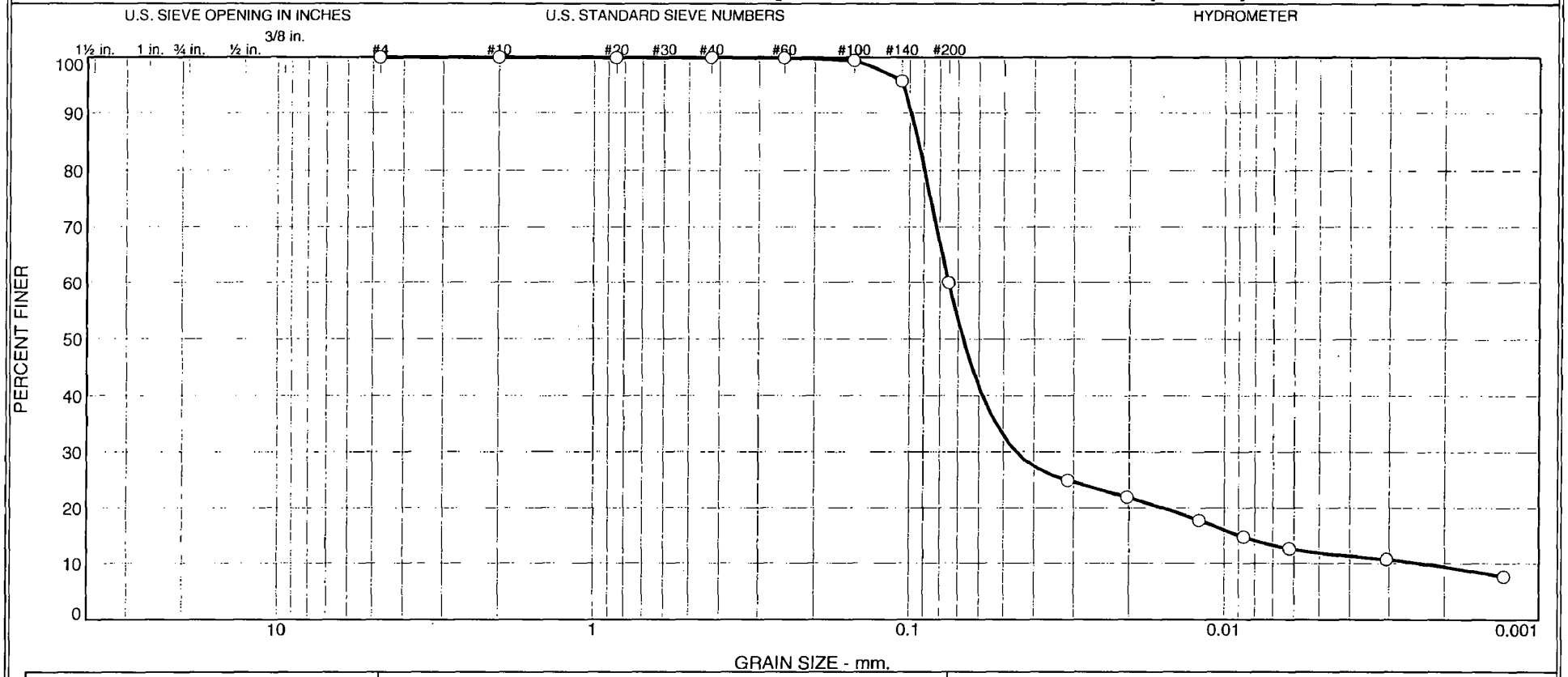
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	58	58			42

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0783	0.0829	0.0944	0.0982	0.1029	0.1190

Fineness Modulus
0.02

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.1	39.9	48.1	11.9

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-605	605-22	164.5-166.0'	2/26/08	ML	Greenish Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

7/2/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-605
Depth: 164.5-166.0' **Sample Number:** 605-22
Material Description: Greenish Gray Sandy SILT (Visual)
Date: 2/26/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** ML
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
207.37	0.00	0.00	#4	0.00	100.0
			#10	0.01	100.0
98.63	0.00	0.00	#20	0.03	100.0
			#40	0.06	99.9
			#60	0.09	99.9
			#100	0.59	99.4
			#140	4.23	95.7
			#200	39.48	60.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =98.63
Hygroscopic moisture correction:
Moist weight and tare = 30.32
Dry weight and tare = 29.97
Tare weight = 15.50
Hygroscopic moisture = 2.4%
Table of composite correction values:

Temp., deg. C:	11.2	28.4
Comp. corr.:	-8.0	-4.0

Meniscus correction only = 1.0
Specific gravity of solids = 2.700
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.3	30.0	24.3	0.0132	31.0	11.2	0.0313	25.0
5.00	21.2	27.0	21.3	0.0132	28.0	11.7	0.0203	21.9
15.00	21.2	23.0	17.3	0.0132	24.0	12.4	0.0120	17.8
30.00	21.2	20.0	14.3	0.0132	21.0	12.9	0.0087	14.7
60.00	21.2	18.0	12.3	0.0132	19.0	13.2	0.0062	12.7
250.00	21.8	16.0	10.5	0.0131	17.0	13.5	0.0031	10.7
1440.00	22.0	13.0	7.5	0.0131	14.0	14.0	0.0013	7.7

MACTEC Engineering and Consulting, Inc.

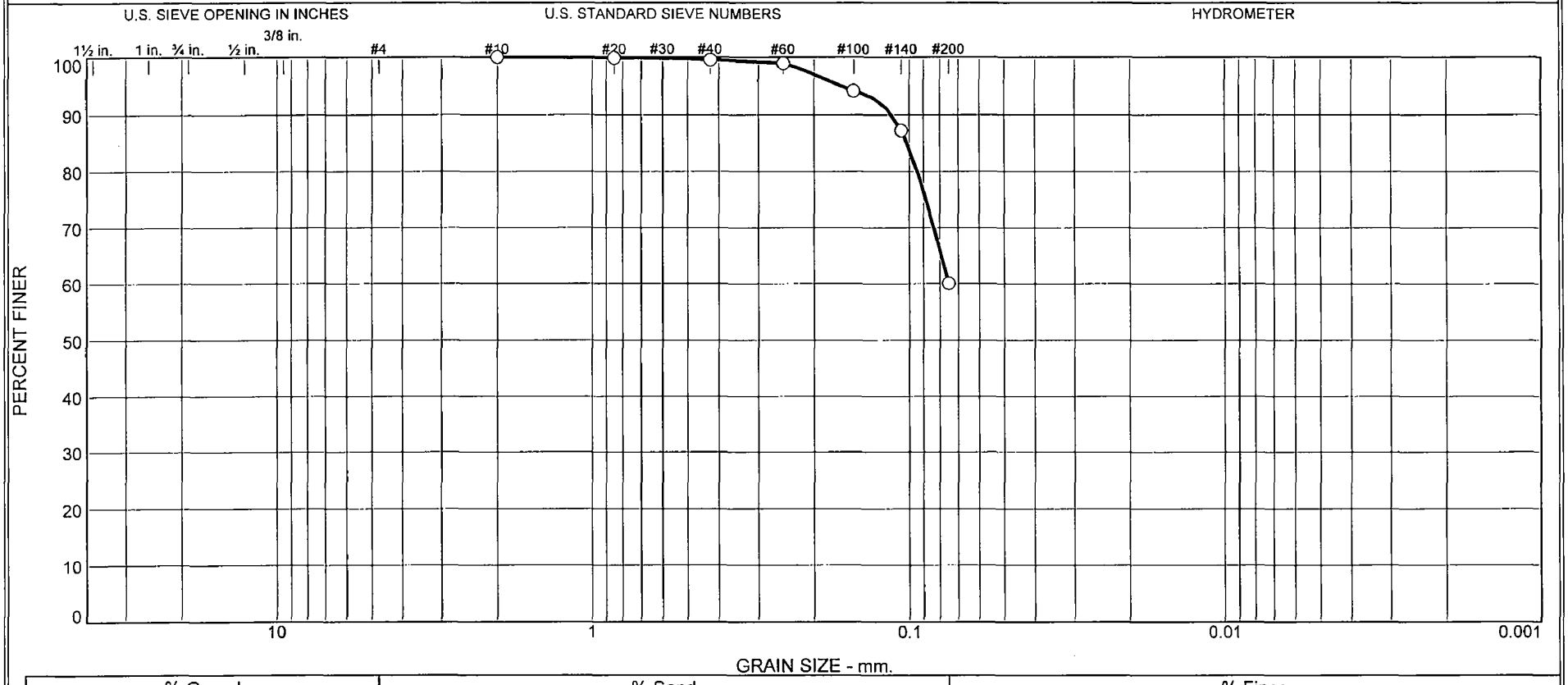
Fractional Components

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	39.9	40.0	48.1	11.9	60.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0024	0.0090	0.0156	0.0455	0.0674	0.0750	0.0894	0.0936	0.0984	0.1048

Fineness Modulus	C_u	C_c
0.01	31.71	11.65

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	40	60	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-605	605-24	174.5-176.0	2/26/08	ML	Greenish Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 | Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-605
Depth: 174.5-176.0 **Sample Number:** 605-24
Material Description: Greenish Gray Sandy SILT (Visual)
Date: 2/26/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** ML
Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =92.85
Tare Wt. = 0.00
Minus #200 from wash = 0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
92.85	0.00	0.00	#10	0.00	100
			#20	0.11	100
			#40	0.42	100
			#60	0.99	99
			#100	5.39	94
			#140	11.87	87
			#200	37.06	60

Fractional Components

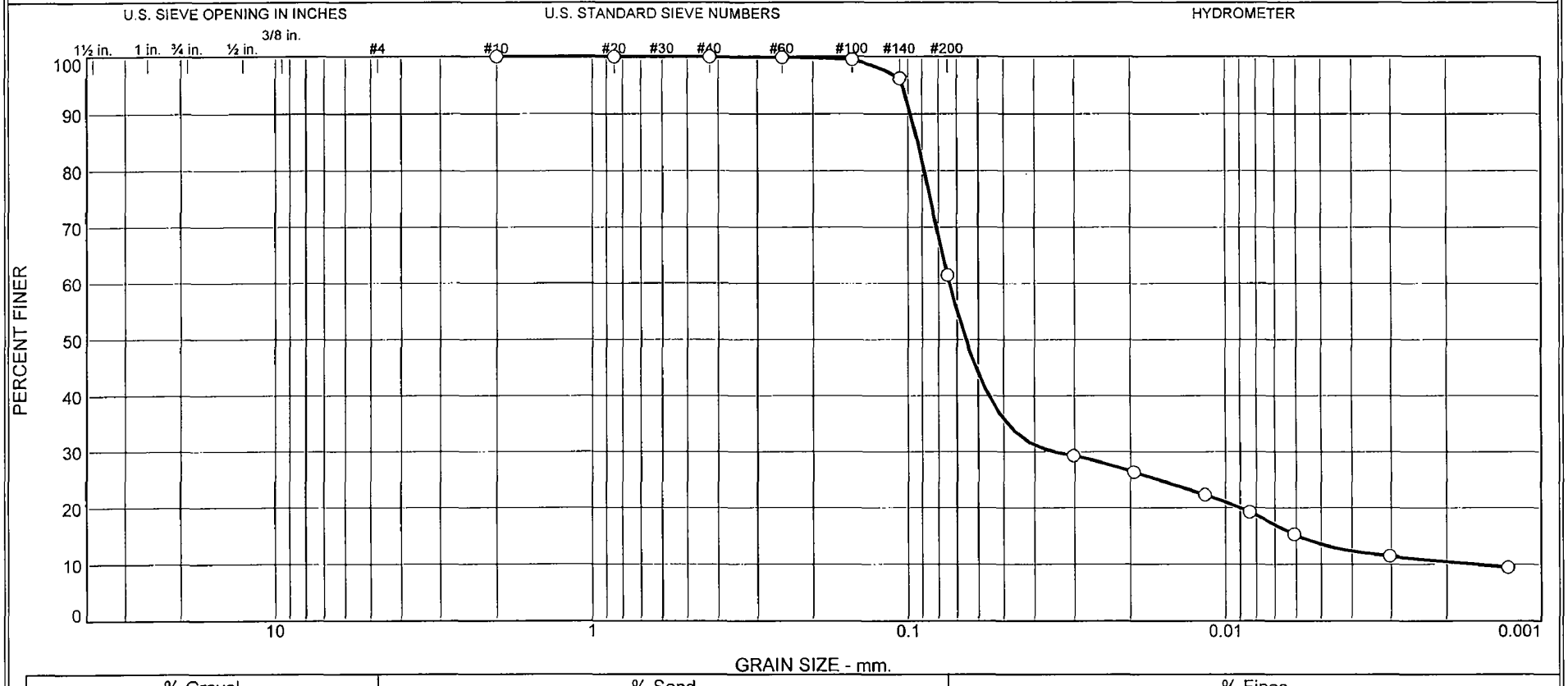
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	40	40			60

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0944	0.1017	0.1136	0.1644

Fineness Modulus
0.07

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.1	38.4	47.9	13.6

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-605	605-26	184.5-186.0	2/26/08	ML	Olive Sandy SILT (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 24% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-605
Depth: 184.5-186.0 **Sample Number:** 605-26
Material Description: Olive Sandy SILT (Visual)
Date: 2/26/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** ML
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 24% (ASTM D 4373-02)
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
176.02	0.00	0.00	#10	0.00	100.0
99.99	0.00	0.00	#20	0.02	100.0
			#40	0.06	99.9
			#60	0.13	99.9
			#100	0.51	99.5
			#140	3.81	96.2
			#200	38.52	61.5

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =99.99
Hygroscopic moisture correction:
Moist weight and tare = 29.10
Dry weight and tare = 28.98
Tare weight = 15.51
Hygroscopic moisture =0.9%
Table of composite correction values:

Temp., deg. C:	11.2	28.4
Comp. corr.:	-8.0	-4.0

Meniscus correction only =1.0
Specific gravity of solids =2.700
Hydrometer type =152H
Hydrometer effective depth equation: L =16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.2	35.0	29.3	0.0132	36.0	10.4	0.0302	29.3
5.00	21.2	32.0	26.3	0.0132	33.0	10.9	0.0195	26.3
15.00	21.1	28.0	22.3	0.0133	29.0	11.5	0.0116	22.3
30.00	21.1	25.0	19.3	0.0133	26.0	12.0	0.0084	19.3
60.00	21.3	21.0	15.3	0.0132	22.0	12.7	0.0061	15.3
250.00	22.0	17.0	11.5	0.0131	18.0	13.3	0.0030	11.5
1440.00	22.0	15.0	9.5	0.0131	16.0	13.7	0.0013	9.5

MACTEC Engineering and Consulting, Inc.

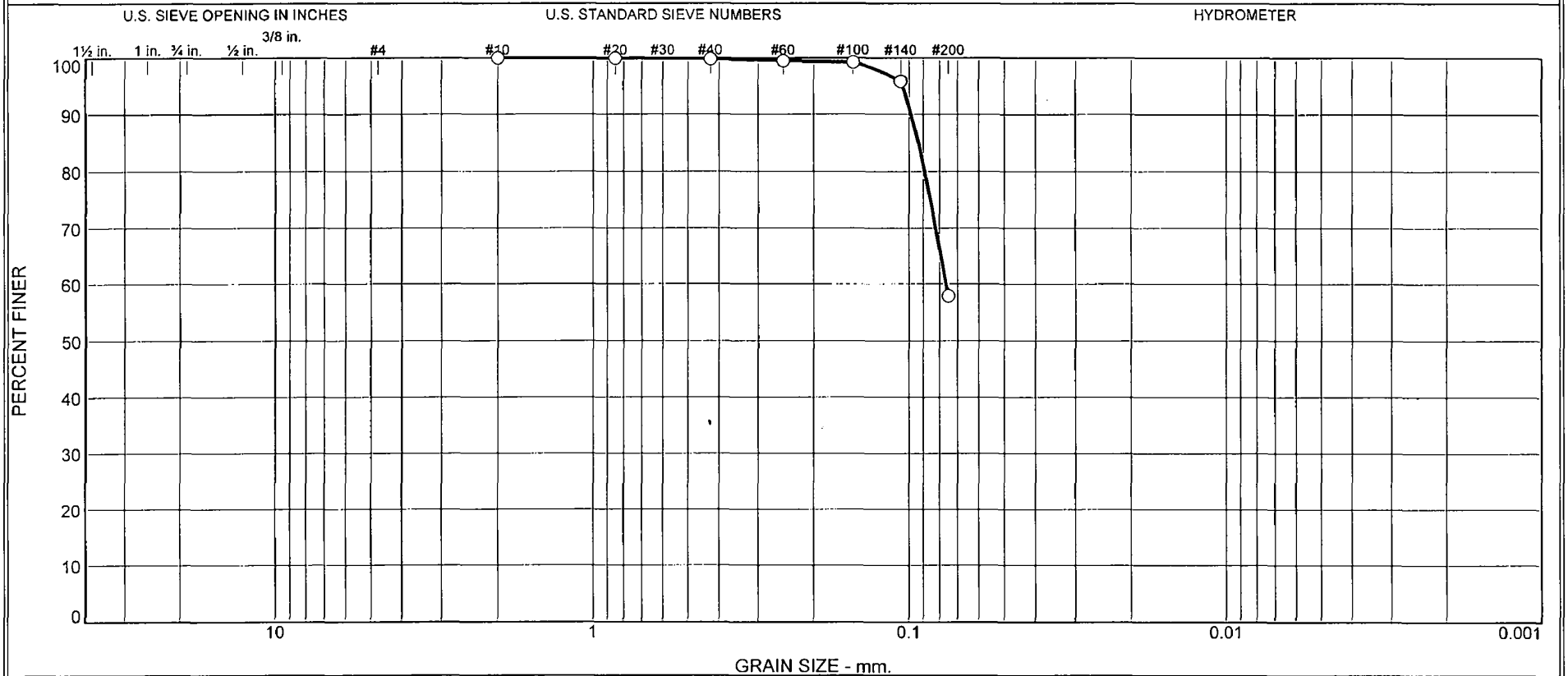
Fractional Components

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	38.4	38.5	47.9	13.6	61.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0016	0.0059	0.0090	0.0348	0.0658	0.0739	0.0886	0.0929	0.0977	0.1040

Fineness Modulus	C_u	C_c
0.01	45.71	10.15

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	42	58	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-605	605-27	189.5-191.0	2/26/08	ML	Olive Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-605
Depth: 189.5-191.0 **Sample Number:** 605-27
Material Description: Olive Gray Sandy SILT (Visual)
Date: 2/26/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** ML
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
288.65	0.00	0.00	#10	0.00	100
100.61	0.00	0.00	#20	0.04	100
			#40	0.16	100
			#60	0.51	99
			#100	0.76	99
			#140	4.19	96
			#200	42.37	58

Fractional Components

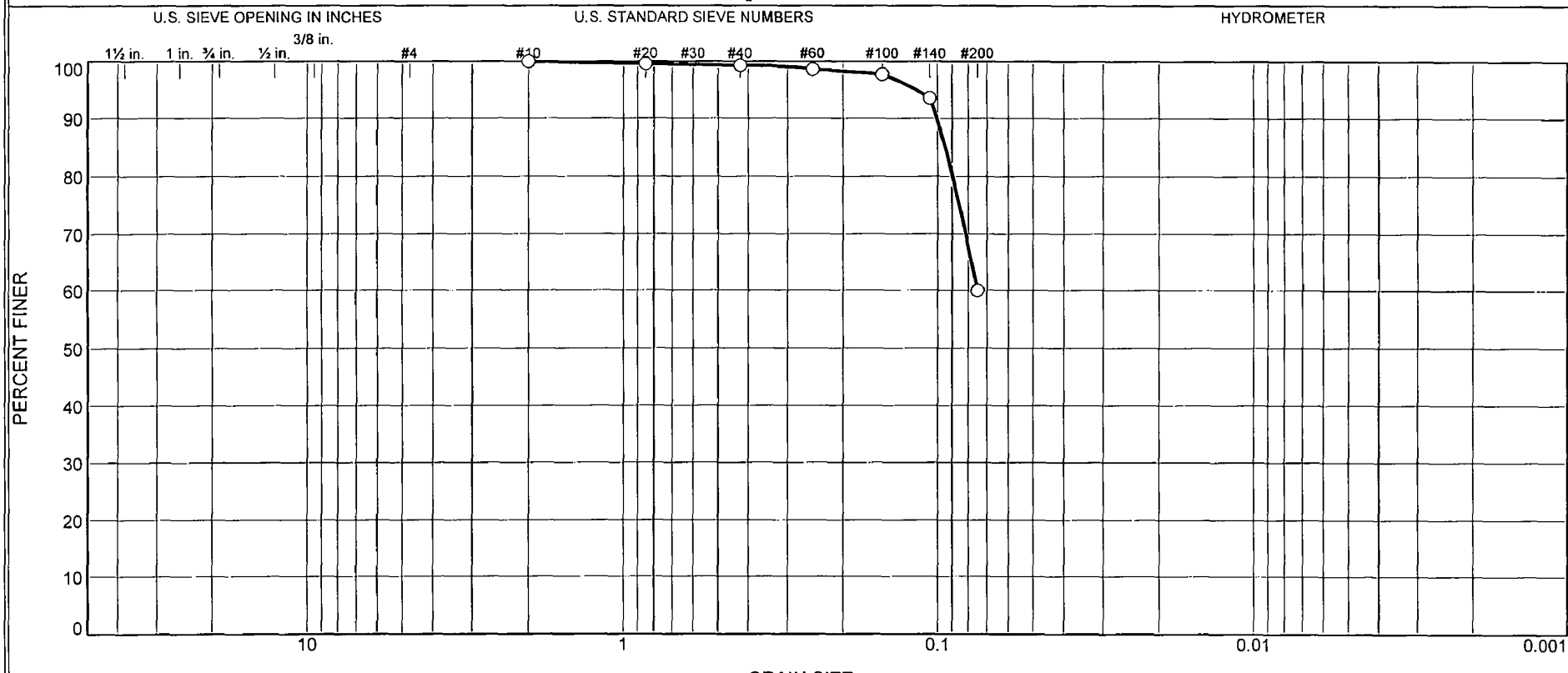
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	42	42			58

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
					0.0762	0.0890	0.0931	0.0980	0.1046

Fineness Modulus
0.01

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	1	39	60	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-605	605-28	194.5-196.0	2/27/08	CL-ML	Olive Gray Sandy Silty CLAY	ND	24	19

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 | Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined
Calcite Equivalent = 27% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-605
Depth: 194.5-196.0 **Sample Number:** 605-28
Material Description: Olive Gray Sandy Silty CLAY
Date: 2/27/08 **Natural Moisture:** ND
Liquid Limit: 24 **Plastic Limit:** 19 **USCS Class.:** CL-ML
Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined
Calcite Equivalent = 27% (ASTM D 4373-02)
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
252.46	0.00	0.00	#10	0.00	100
100.70	0.00	0.00	#20	0.43	100
			#40	0.71	99
			#60	1.39	99
			#100	2.28	98
			#140	6.45	94
			#200	40.27	60

Fractional Components

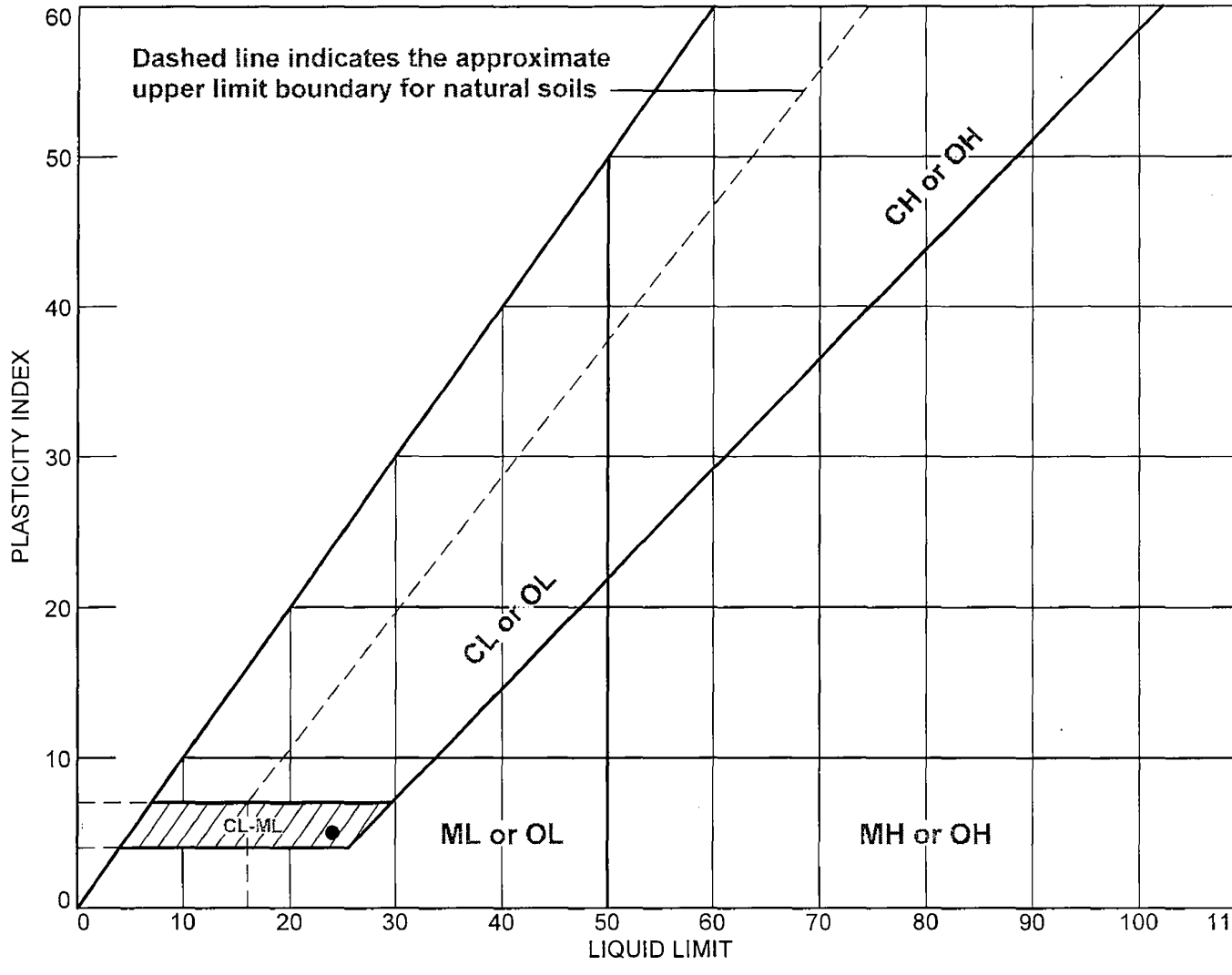
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	1	39	40			60

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0895	0.0942	0.1002	0.1165

Fineness Modulus
0.04

MACTEC Engineering and Consulting, Inc.

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
●	Boring B-605	605-28	194.5-196.0	ND	19	24	5	CL-ML

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

Tested By: CS **Checked By:** LBJ DSC 7-2-08

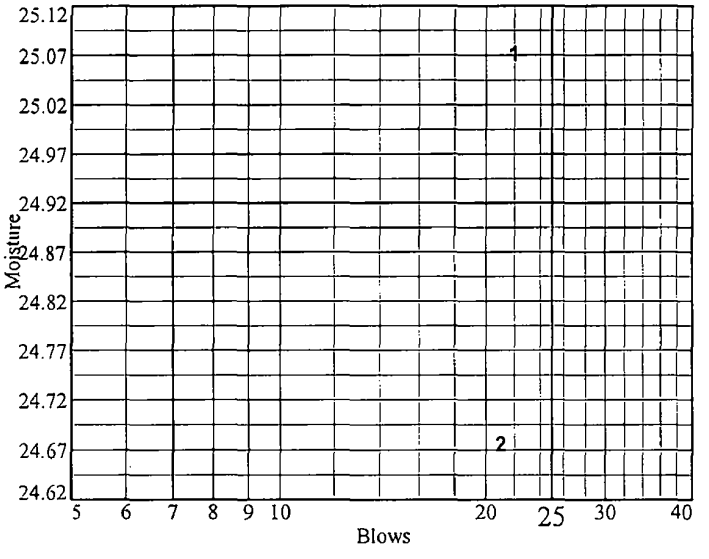
LIQUID AND PLASTIC LIMIT TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-605
Depth: 194.5-196.0 **Sample Number:** 605-28
Material Description: Olive Gray Sandy Silty CLAY
USCS: CL-ML **AASHTO:** A-4(1)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	24.18	30.88				
Dry+Tare	21.57	27.83				
Tare	11.16	15.47				
# Blows	22	21				
Moisture	25.1	24.7				



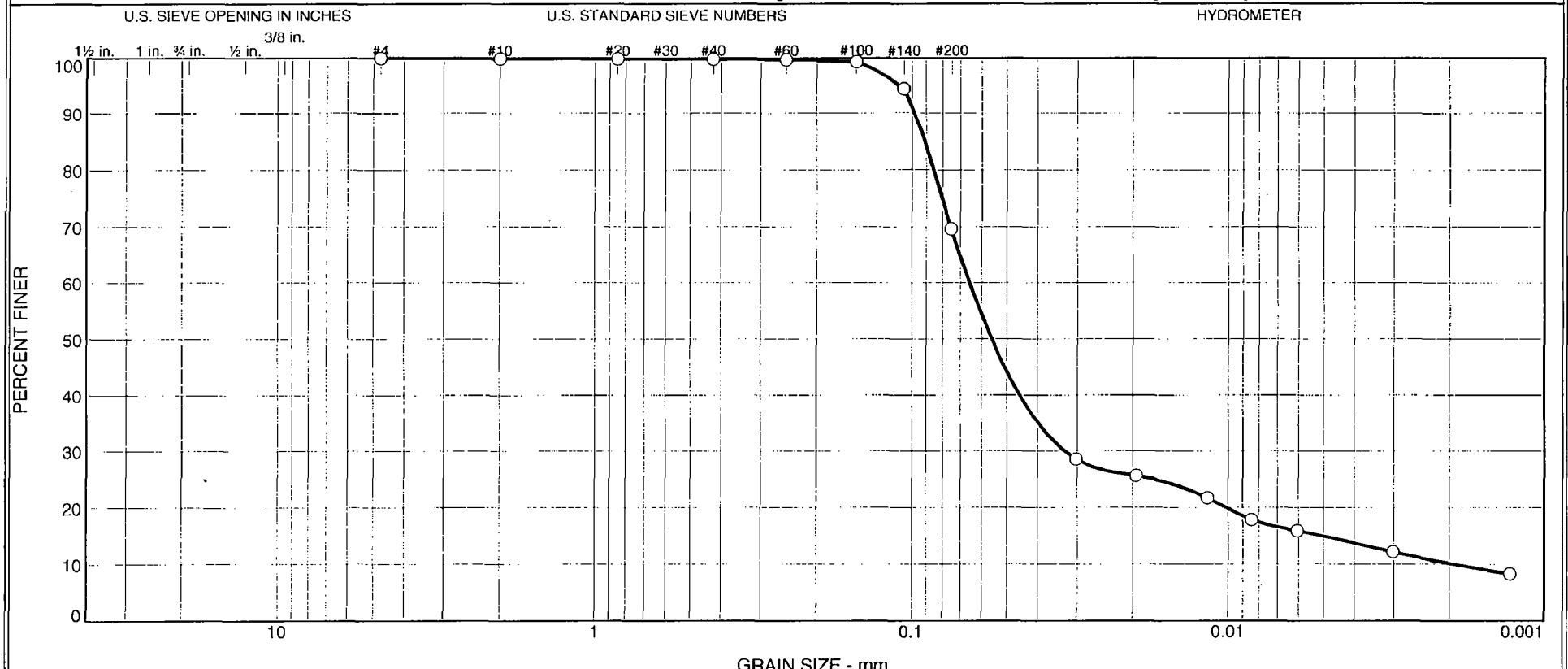
Liquid Limit= 24
Plastic Limit= 19
Plasticity Index= 5
Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	23.20	24.32			
Dry+Tare	22.00	22.92			
Tare	15.51	15.36			
Moisture	18.5	18.5			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.1	0.1	30.1	54.7	15.0

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-605	605-29	199.5-201.0	2/27/08	ML	Olive Gray Sandy SILT (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 | Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

7/2/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-605
Depth: 199.5-201.0 **Sample Number:** 605-29
Material Description: Olive Gray Sandy SILT (Visual)
Date: 2/27/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** ML
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
275.70	0.00	0.00	#4	0.00	100.0
			#10	0.26	99.9
102.52	0.00	0.00	#20	0.05	99.9
			#40	0.11	99.8
			#60	0.19	99.7
			#100	0.57	99.4
			#140	5.54	94.5
			#200	31.00	69.7

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 99.9
Weight of hydrometer sample =102.52
Hygroscopic moisture correction:
Moist weight and tare = 27.88
Dry weight and tare = 27.75
Tare weight = 15.50
Hygroscopic moisture = 1.1%
Table of composite correction values:

Temp., deg. C:	11.2	28.4
Comp. corr.:	-8.0	-4.0

Meniscus correction only = 1.0
Specific gravity of solids = 2.700
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.2	35.0	29.3	0.0132	36.0	10.4	0.0302	28.6
5.00	21.2	32.0	26.3	0.0132	33.0	10.9	0.0195	25.6
15.00	21.3	28.0	22.3	0.0132	29.0	11.5	0.0116	21.8
30.00	21.3	24.0	18.3	0.0132	25.0	12.2	0.0084	17.9
60.00	21.3	22.0	16.3	0.0132	23.0	12.5	0.0060	15.9
250.00	21.9	18.0	12.5	0.0131	19.0	13.2	0.0030	12.2
1440.00	22.0	14.0	8.5	0.0131	15.0	13.8	0.0013	8.3

MACTEC Engineering and Consulting, Inc.

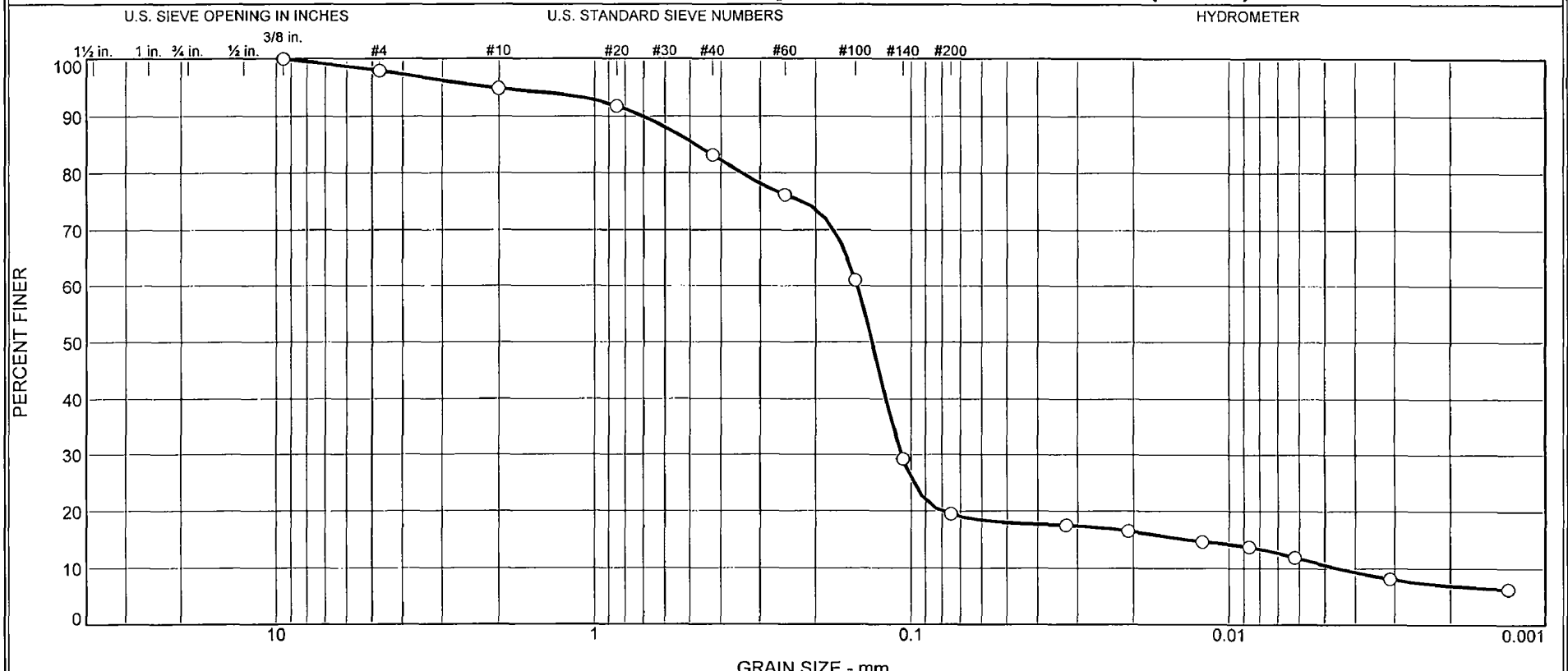
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	0.1	30.1	30.3	54.7	15.0	69.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0019	0.0050	0.0101	0.0328	0.0559	0.0657	0.0852	0.0909	0.0976	0.1088

Fineness Modulus	C_u	C_c
0.01	34.08	8.50

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	2.1	3.0	11.7	63.7	8.9	10.6

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-606	606-8	119.4-120.9	3/5/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ. DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-606
Depth: 119.4-120.9 **Sample Number:** 606-8
Material Description: Greenish Gray Silty SAND (Visual)
Date: 3/5/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
361.54	0.00	0.00	3/8"	0.00	100.0
			#4	7.51	97.9
			#10	18.60	94.9
100.87	0.00	0.00	#20	3.29	91.8
			#40	12.40	83.2
			#60	19.86	76.2
			#100	35.94	61.1
			#140	69.81	29.2
			#200	80.16	19.5

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =94.9
Weight of hydrometer sample =100.87
Hygroscopic moisture correction:
Moist weight and tare = 28.81
Dry weight and tare = 28.79
Tare weight = 15.55
Hygroscopic moisture =0.2%
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 =2.700
Hydrometer type =152H
Hydrometer effective depth equation: L =16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.5	24.0	18.8	0.0132	25.0	12.2	0.0326	17.5
5.00	21.4	23.0	17.8	0.0132	24.0	12.4	0.0208	16.6
15.00	21.4	21.0	15.8	0.0132	22.0	12.7	0.0122	14.7
30.00	21.4	20.0	14.8	0.0132	21.0	12.9	0.0086	13.8
60.00	21.4	18.0	12.8	0.0132	19.0	13.2	0.0062	11.9
250.00	21.4	14.0	8.8	0.0132	15.0	13.8	0.0031	8.2
1440.00	21.3	12.0	6.7	0.0132	13.0	14.2	0.0013	6.3

MACTEC Engineering and Consulting, Inc.

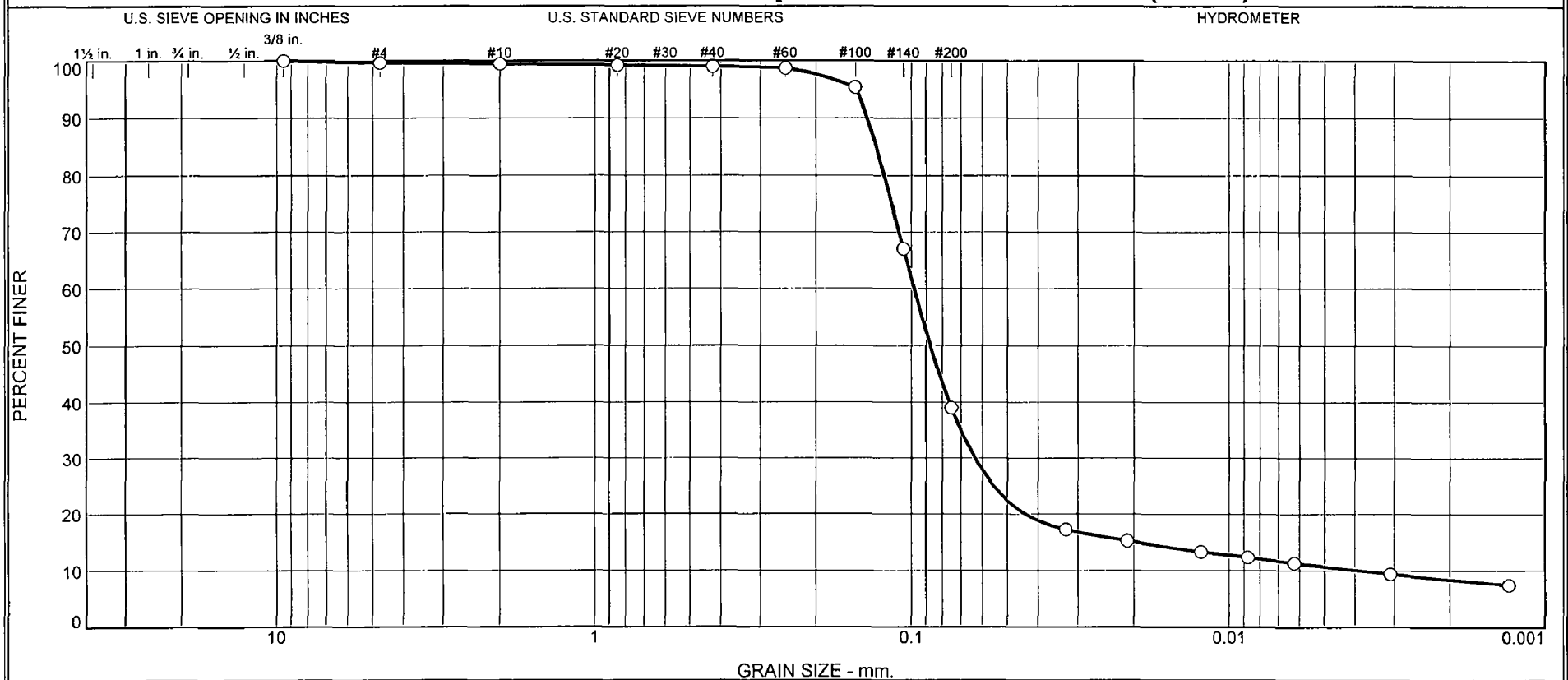
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	2.1	2.1	3.0	11.7	63.7	78.4	8.9	10.6	19.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0045	0.0135	0.0803	0.1072	0.1328	0.1480	0.3430	0.4801	0.7059	2.1136

Fineness Modulus	C_u	C_c
0.86	32.73	17.17

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.4	0.2	0.4	60.0	28.3	10.7

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-606	606-9	129.7-131.2	3/5/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-606
Depth: 129.7-131.2 **Sample Number:** 606-9
Material Description: Greenish Gray Silty SAND (Visual)
Date: 3/5/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
303.53	0.00	0.00	3/8"	0.00	100.0
			#4	1.08	99.6
			#10	1.71	99.4
102.10	0.00	0.00	#20	0.21	99.2
			#40	0.46	99.0
			#60	0.77	98.7
			#100	4.19	95.4
			#140	33.30	67.0
			#200	62.06	39.0

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =99.4
Weight of hydrometer sample =102.10
Hygroscopic moisture correction:
Moist weight and tare = 24.04
Dry weight and tare = 24.04
Tare weight = 11.09
Hygroscopic moisture =0.0%
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 =2.700
Hydrometer type =152H
Hydrometer effective depth equation: L =16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.7	23.0	17.9	0.0132	24.0	12.4	0.0327	17.2
5.00	21.6	21.0	15.8	0.0132	22.0	12.7	0.0210	15.2
15.00	21.6	19.0	13.8	0.0132	20.0	13.0	0.0123	13.3
30.00	21.6	18.0	12.8	0.0132	19.0	13.2	0.0087	12.4
60.00	21.4	17.0	11.8	0.0132	18.0	13.3	0.0062	11.3
250.00	21.4	15.0	9.8	0.0132	16.0	13.7	0.0031	9.4
1440.00	21.3	13.0	7.7	0.0132	14.0	14.0	0.0013	7.5

MACTEC Engineering and Consulting, Inc.

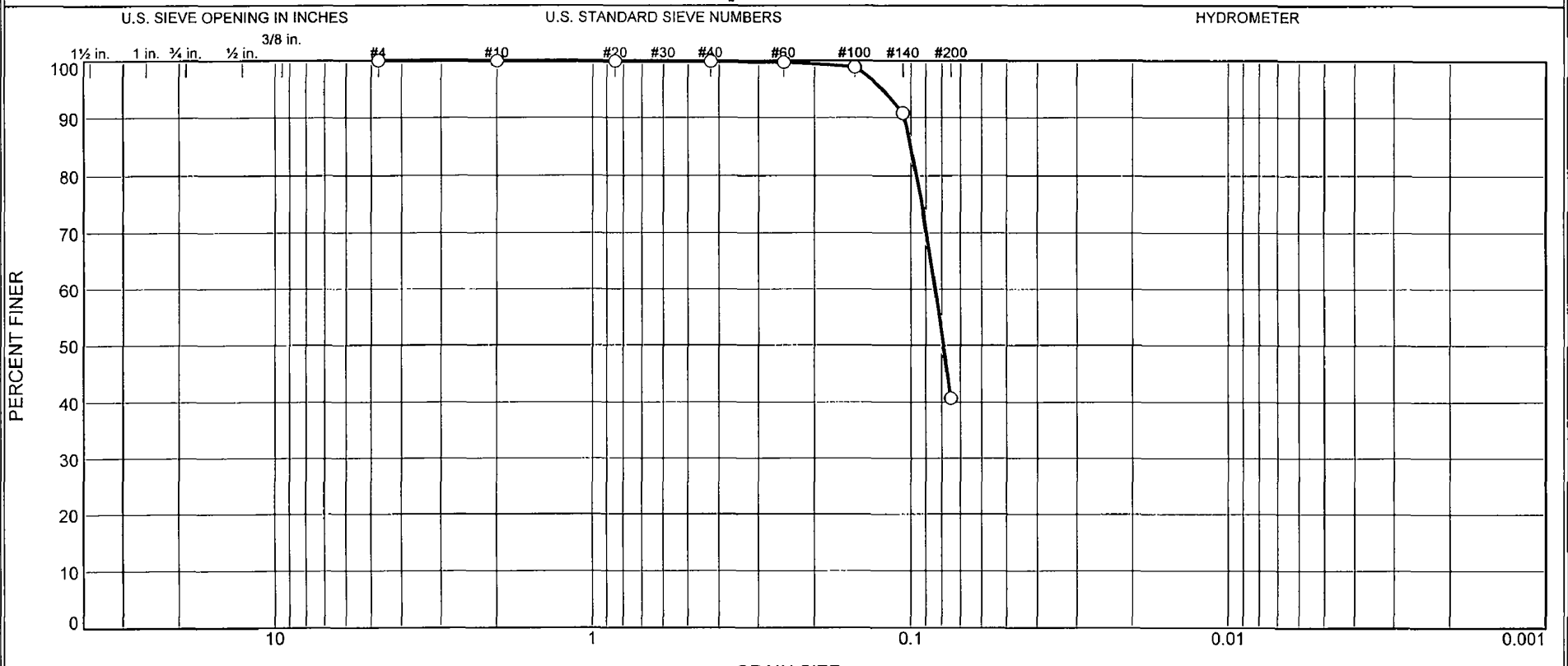
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.4	0.4	0.2	0.4	60.0	60.6	28.3	10.7	39.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0039	0.0197	0.0442	0.0633	0.0873	0.0982	0.1218	0.1291	0.1376	0.1490

Fineness Modulus	C_u	C_c
0.08	25.29	10.52

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	59	41	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-606	606-11	149.7-151.2	4/7/08	SM	Olive Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-606
Depth: 149.7-151.2 **Sample Number:** 606-11
Material Description: Olive Gray Silty SAND (Visual)
Date: 4/7/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** 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
236.37	0.00	0.00	#4	0.00	100
			#10	0.05	100
99.28	0.00	0.00	#20	0.06	100
			#40	0.12	100
			#60	0.24	100
			#100	1.09	99
			#140	9.14	91
			#200	58.90	41

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	59	59			41

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0791	0.0839	0.0959	0.0999	0.1050	0.1230

Fineness Modulus
0.02

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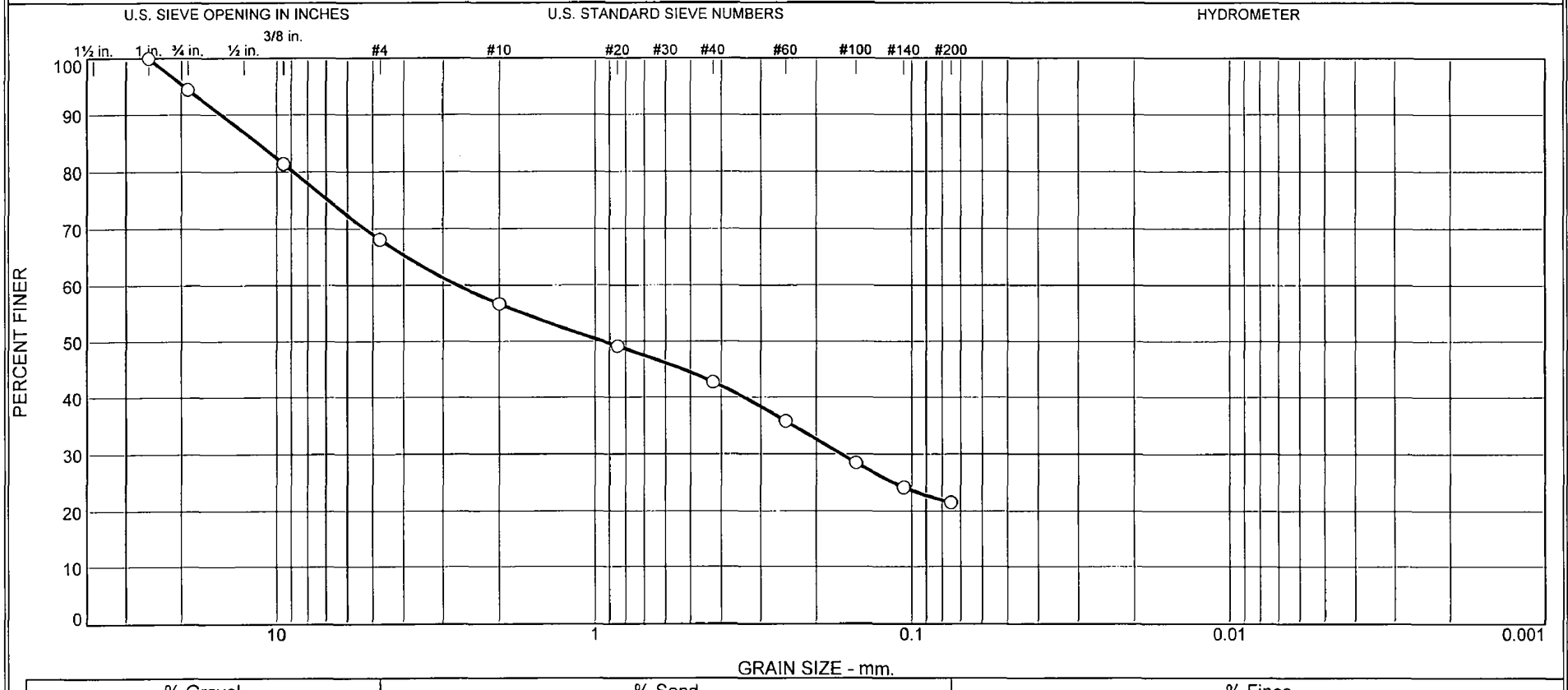
Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	5	27	11	14	21	22	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-607	607-3	5.0-6.5	3/7/08	SM	White Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 89% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-607
Depth: 5.0-6.5 **Sample Number:** 607-3
Material Description: White Silty SAND with gravel (Visual)
Date: 3/7/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 89% (ASTM D 4373-02)
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
342.18	0.00	0.00	1	0.00	100
			3/4	18.74	95
			3/8"	63.69	81
			#4	109.06	68
			#10	148.16	57
101.52	0.00	0.00	#20	13.61	49
			#40	25.08	43
			#60	37.35	36
			#100	50.58	28
			#140	58.27	24
			#200	63.00	22

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	5	27	32	11	14	21	46			22

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.1673	0.9481	2.6928	8.8753	11.4890	14.9759	19.5360

Fineness Modulus
3.33

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A

	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	10	23	7	25	16	19	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-607	607-6	12.5-14.0	3/7/08	SM	Light Gray Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-607
Depth: 12.5-14.0 **Sample Number:** 607-6
Material Description: Light Gray Silty SAND with gravel (Visual)
Date: 3/7/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** 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
490.55	0.00	0.00	1	0.00	100
			3/4	46.98	90
			3/8"	112.26	77
			#4	162.74	67
			#10	195.42	60
95.97	0.00	0.00	#20	24.74	45
			#40	39.77	35
			#60	49.47	29
			#100	57.40	24
			#140	61.88	21
			#200	65.73	19

Fractional Components

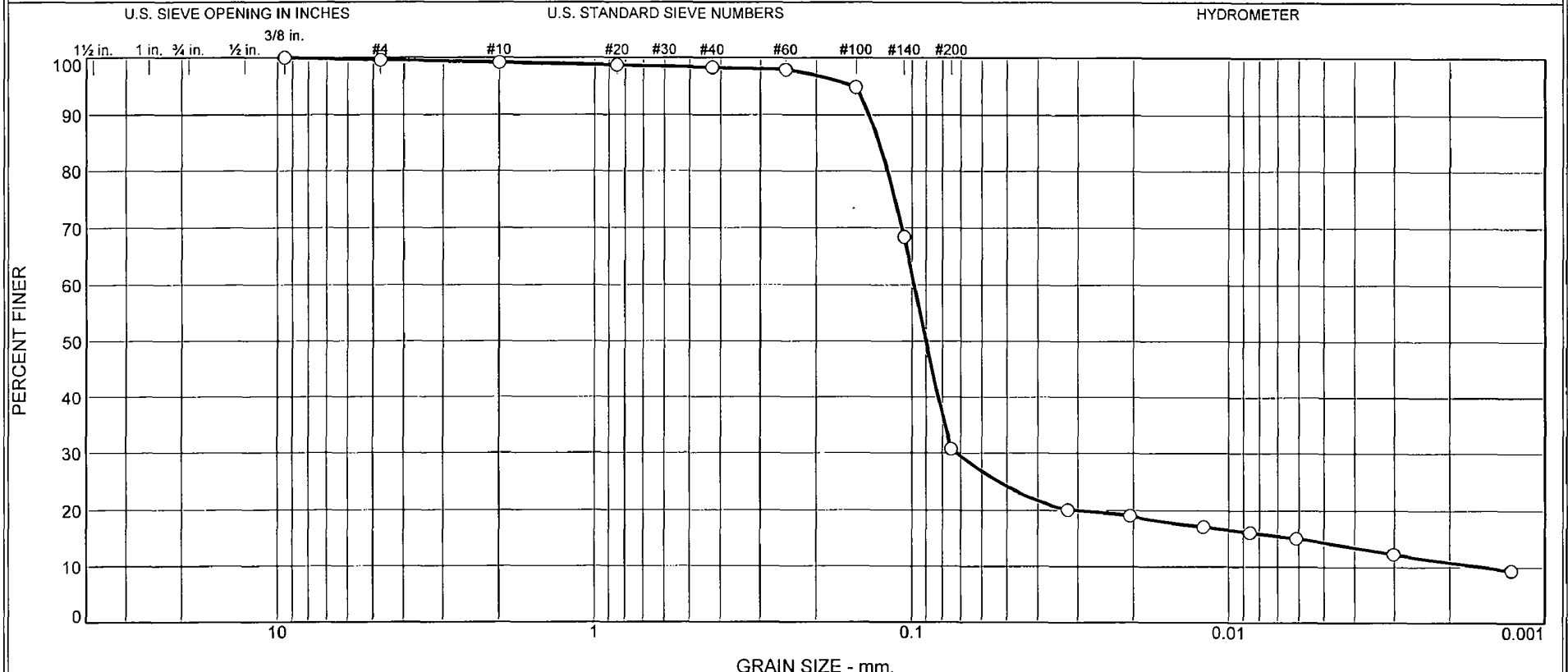
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	10	23	33	7	25	16	48			19

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0874	0.2702	1.1255	1.9744	11.4850	15.2601	18.7699	22.0136

Fineness Modulus
3.58

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.4	0.4	0.9	67.6	16.3	14.4

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-607	607-9	129.5-131.0	3/9/08	SM	Olive Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 19% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-607
Depth: 129.5-131.0 **Sample Number:** 607-9
Material Description: Olive Silty SAND (Visual)
Date: 3/9/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 19% (ASTM D 4373-02)
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
296.07	0.00	0.00	3/8"	0.00	100.0
			#4	1.20	99.6
			#10	2.44	99.2
100.16	0.00	0.00	#20	0.50	98.7
			#40	0.91	98.3
			#60	1.27	97.9
			#100	4.38	94.8
			#140	31.03	68.5
			#200	69.13	30.7

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =99.2
Weight of hydrometer sample =100.16
Hygroscopic moisture correction:
Moist weight and tare = 29.04
Dry weight and tare = 28.93
Tare weight = 15.41
Hygroscopic moisture =0.8%
Table of composite correction values:

Temp., deg. C:	11.2	28.4
Comp. corr.:	-8.0	-4.0

Meniscus correction only =1.0
Specific gravity of solids =2.700
Hydrometer type =152H
Hydrometer effective depth equation: L =16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.2	26.0	20.3	0.0132	27.0	11.9	0.0323	20.1
5.00	21.2	25.0	19.3	0.0132	26.0	12.0	0.0205	19.1
15.00	21.2	23.0	17.3	0.0132	24.0	12.4	0.0120	17.1
30.00	21.2	22.0	16.3	0.0132	23.0	12.5	0.0086	16.1
60.00	21.1	21.0	15.3	0.0133	22.0	12.7	0.0061	15.1
250.00	21.8	18.0	12.5	0.0131	19.0	13.2	0.0030	12.3
1440.00	21.9	15.0	9.5	0.0131	16.0	13.7	0.0013	9.4

MACTEC Engineering and Consulting, Inc.

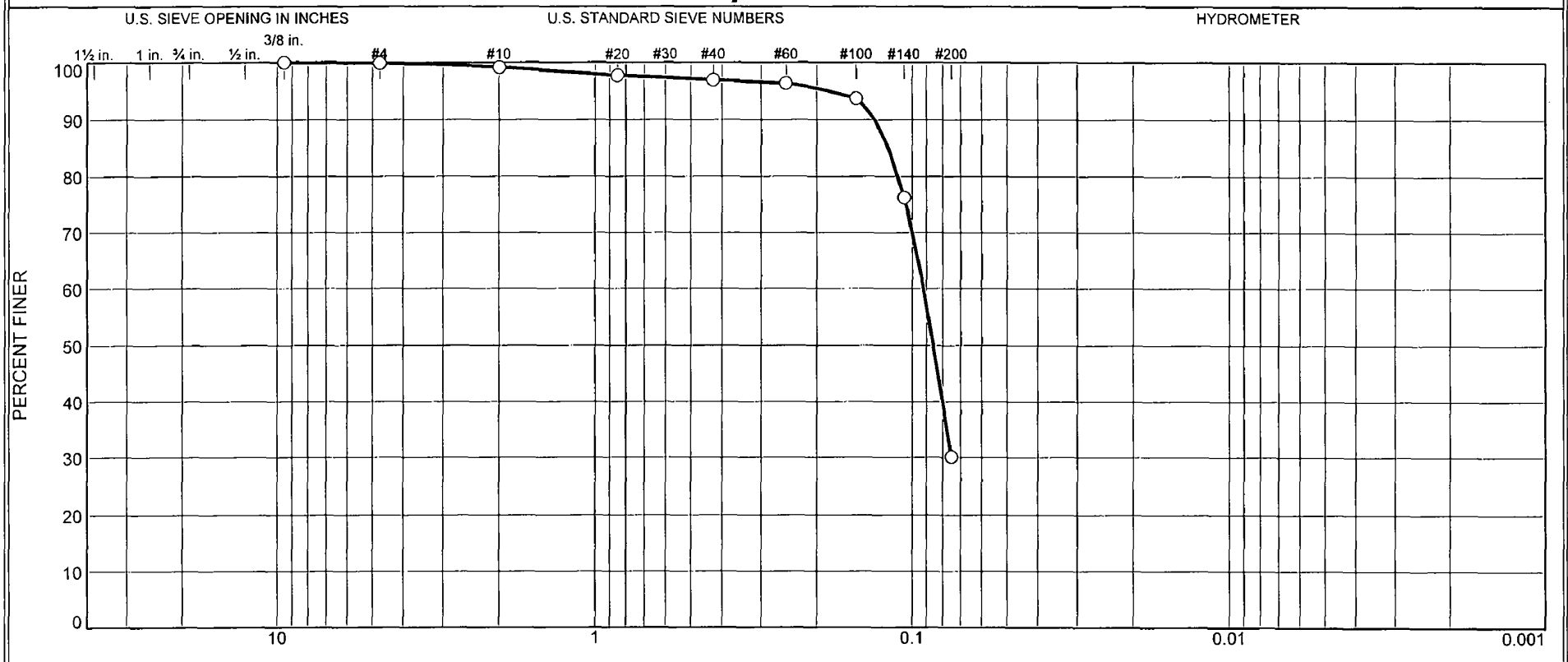
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.4	0.4	0.4	0.9	67.6	68.9	16.3	14.4	30.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0016	0.0059	0.0310	0.0722	0.0902	0.0983	0.1193	0.1269	0.1364	0.1528

Fineness Modulus	C_u	C_c
0.11	62.90	33.93

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	1	2	67	30	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-607	607-10	139.5-141.0	3/9/08	SC-SM	Olive Silty, Clayey SAND	ND	18	14

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-607
Depth: 139.5-141.0 **Sample Number:** 607-10
Material Description: Olive Silty, Clayey SAND
Date: 3/9/08 **Natural Moisture:** ND
Liquid Limit: 18 **Plastic Limit:** 14 **USCS Class.:** SC-SM
Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS 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
351.90	0.00	0.00	3/8"	0.00	100
			#4	0.48	100
			#10	2.86	99
103.43	0.00	0.00	#20	1.48	98
			#40	2.30	97
			#60	2.89	96
			#100	5.68	94
			#140	23.87	76
			#200	72.04	30

Fractional Components

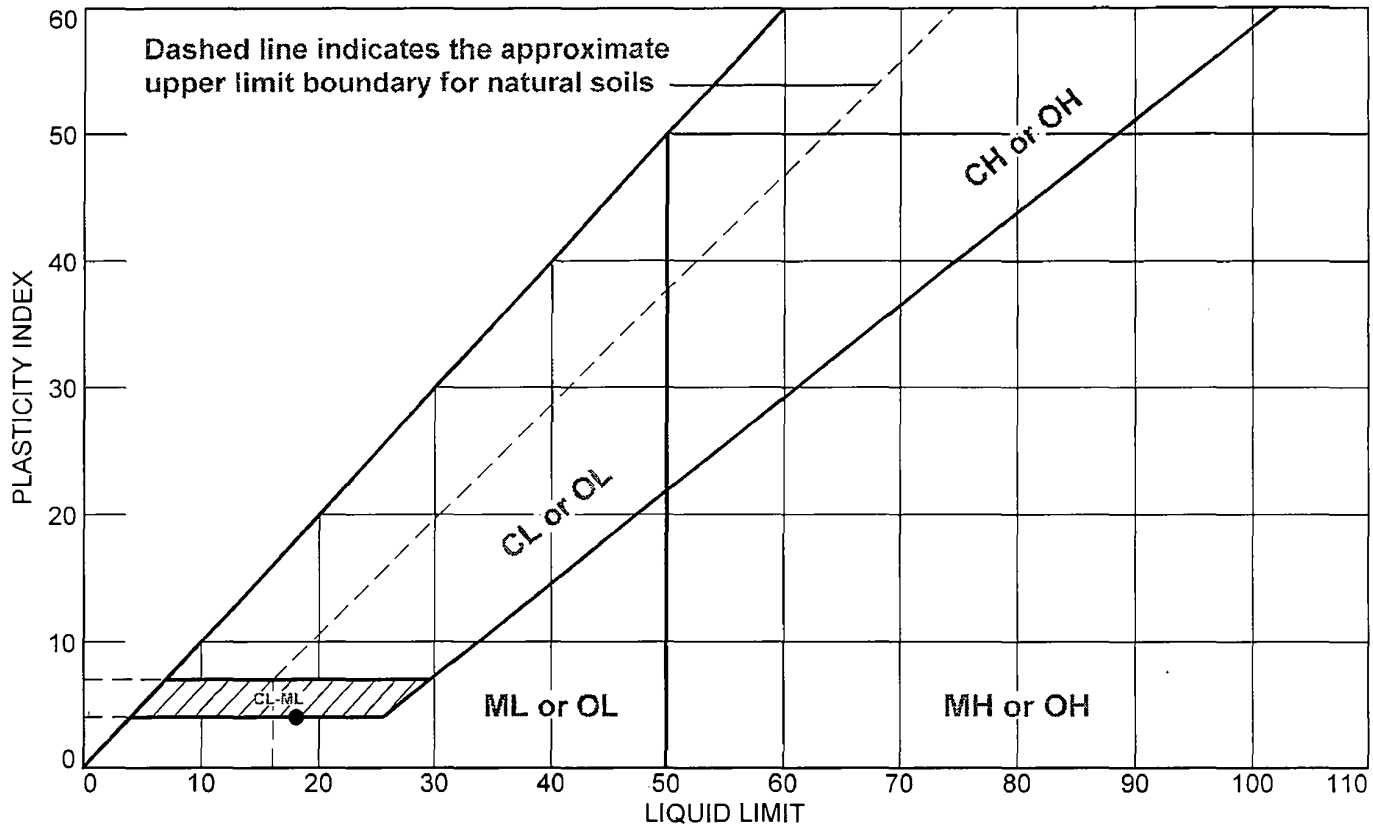
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	1	2	67	70			30

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0856	0.0920	0.1106	0.1187	0.1314	0.1820

Fineness Modulus
0.15

MACTEC Engineering and Consulting, Inc.

LIQUID AND PLASTIC LIMITS TEST REPORT ASTM D4318 (05)



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring B-607	607-10	139.5-141.0	ND	14	18	4	SC-SM

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

Tested By: CS **Checked By:** LBJ DSC 7-2-08

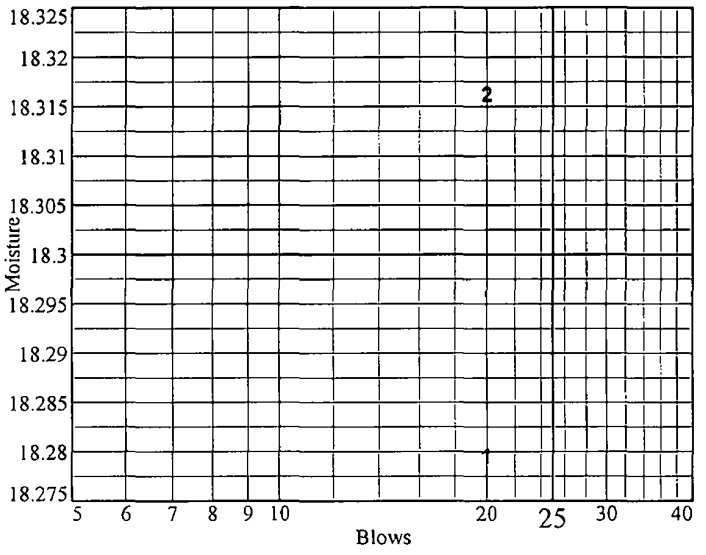
LIQUID AND PLASTIC LIMIT TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-607
Depth: 139.5-141.0 **Sample Number:** 607-10
Material Description: Olive Silty, Clayey SAND
USCS: SC-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	26.63	25.92				
Dry+Tare	24.93	24.31				
Tare	15.63	15.52				
# Blows	20	20				
Moisture	18.3	18.3				



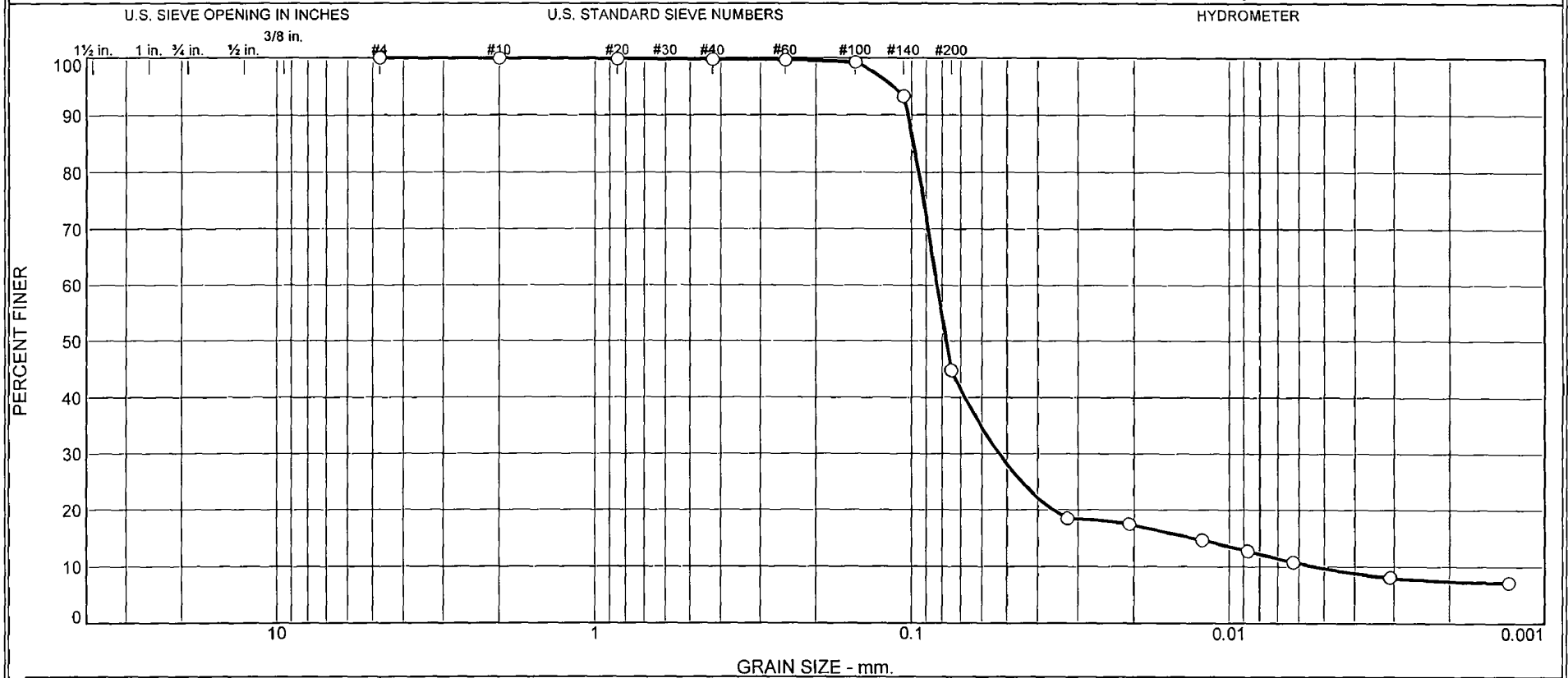
Liquid Limit= 18
Plastic Limit= 14
Plasticity Index= 4
Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	23.44	24.61			
Dry+Tare	22.48	23.46			
Tare	15.48	15.62			
Moisture	13.7	14.7			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.1	0.2	55.0	35.0	9.7

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-607	607-12	151.0-152.5	3/9/08	SM	Olive Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-607
Depth: 151.0-152.5 **Sample Number:** 607-12
Material Description: Olive Silty SAND (Visual)
Date: 3/9/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
290.13	0.00	0.00	#4	0.00	100.0
			#10	0.15	99.9
104.30	0.00	0.00	#20	0.13	99.8
			#40	0.21	99.7
			#60	0.28	99.7
			#100	0.70	99.3
			#140	7.00	93.2
			#200	57.62	44.7

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =99.9
Weight of hydrometer sample =104.30
Hygroscopic moisture correction:
Moist weight and tare = 28.90
Dry weight and tare = 28.82
Tare weight = 15.47
Hygroscopic moisture =0.6%
Table of composite correction values:

Temp., deg. C:	11.2	28.4
Comp. corr.:	-8.0	-4.0

Meniscus correction only =1.0
Specific gravity of solids =2.700
Hydrometer type =152H
Hydrometer effective depth equation: L =16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.4	25.0	19.4	0.0132	26.0	12.0	0.0324	18.5
5.00	21.2	24.0	18.3	0.0132	25.0	12.2	0.0207	17.5
15.00	21.2	21.0	15.3	0.0132	22.0	12.7	0.0122	14.6
30.00	21.2	19.0	13.3	0.0132	20.0	13.0	0.0087	12.7
60.00	21.1	17.0	11.3	0.0133	18.0	13.3	0.0063	10.8
250.00	21.9	14.0	8.5	0.0131	15.0	13.8	0.0031	8.1
1440.00	22.0	13.0	7.5	0.0131	14.0	14.0	0.0013	7.2

MACTEC Engineering and Consulting, Inc.

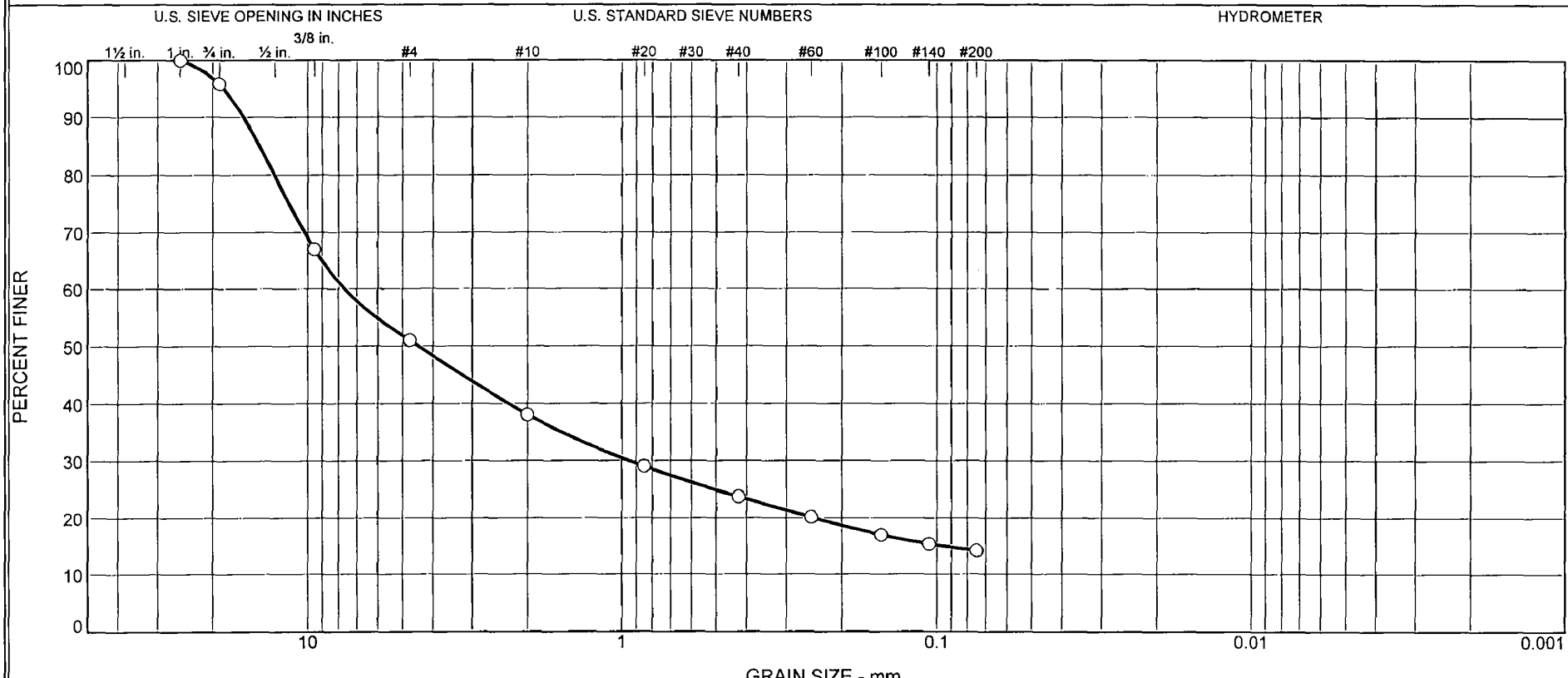
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	0.2	55.0	55.3	35.0	9.7	44.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0054	0.0131	0.0360	0.0530	0.0779	0.0832	0.0948	0.0983	0.1026	0.1146

Fineness Modulus	C_u	C_c
0.01	15.53	6.30

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	4	45	13	14	10	14	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-608(DH)	608-7	18.5-20.0	3/25/08	GM	White Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-608(DH)
Depth: 18.5-20.0 **Sample Number:** 608-7
Material Description: White Silty GRAVEL with sand (Visual)
Date: 3/25/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
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
474.13	0.00	0.00	1	0.00	100
			3/4	19.66	96
			3/8"	156.48	67
			#4	232.30	51
			#10	293.60	38
98.07	0.00	0.00	#20	23.34	29
			#40	37.01	24
			#60	46.24	20
			#100	54.37	17
			#140	58.47	15
			#200	61.48	14

Fractional Components

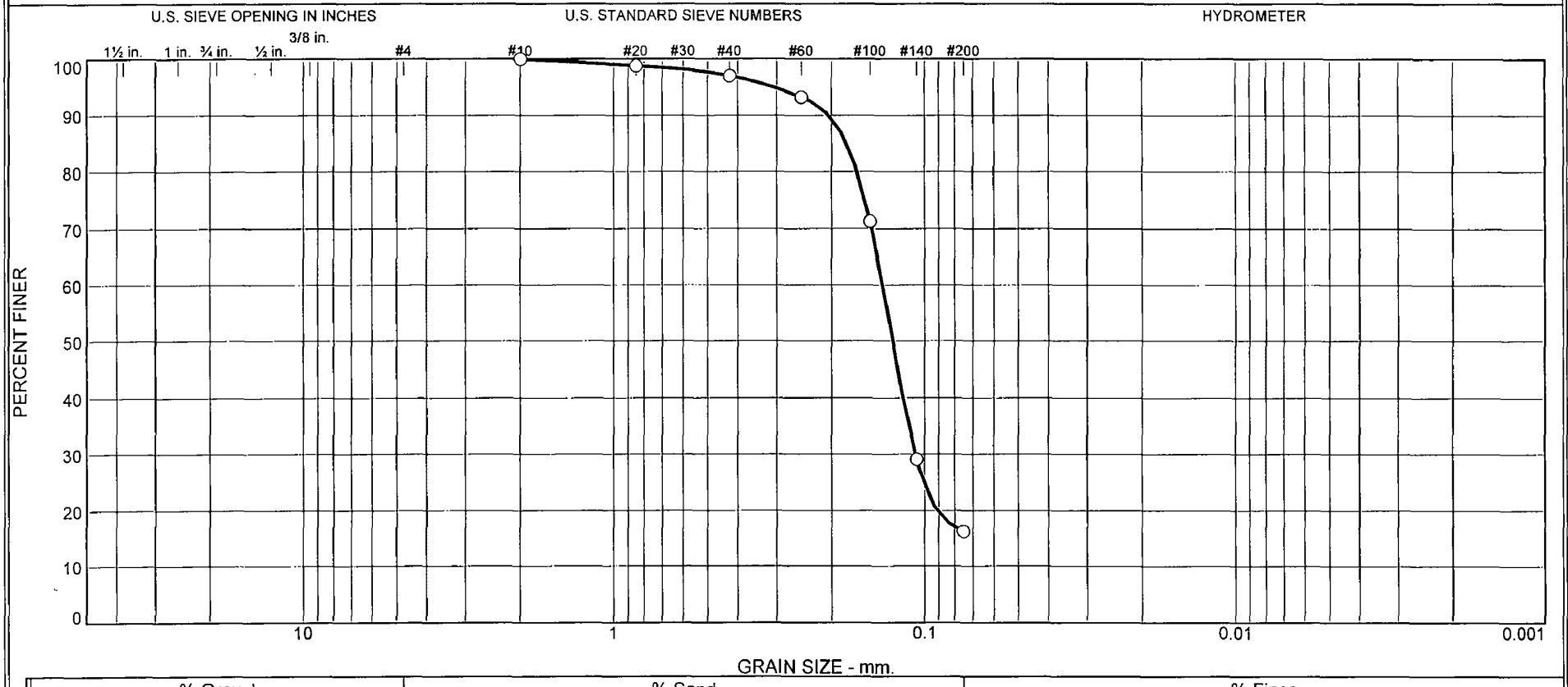
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	4	45	49	13	14	10	37			14

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0957	0.2454	0.9508	4.4531	7.6451	12.7424	14.1861	15.9434	18.4433

Fineness Modulus
4.49

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	3	81	16	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-608(DH)	608-11	117.8-119.3	3/27/08	SM	Pale Yellow Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-608(DH)
Depth: 117.8-119.3 **Sample Number:** 608-11
Material Description: Pale Yellow Silty SAND (Visual)
Date: 3/27/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** 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
312.88	0.00	0.00	#10	0.00	100
95.48	0.00	0.00	#20	1.14	99
			#40	2.84	97
			#60	6.48	93
			#100	27.42	71
			#140	67.72	29
			#200	79.94	16

Fractional Components

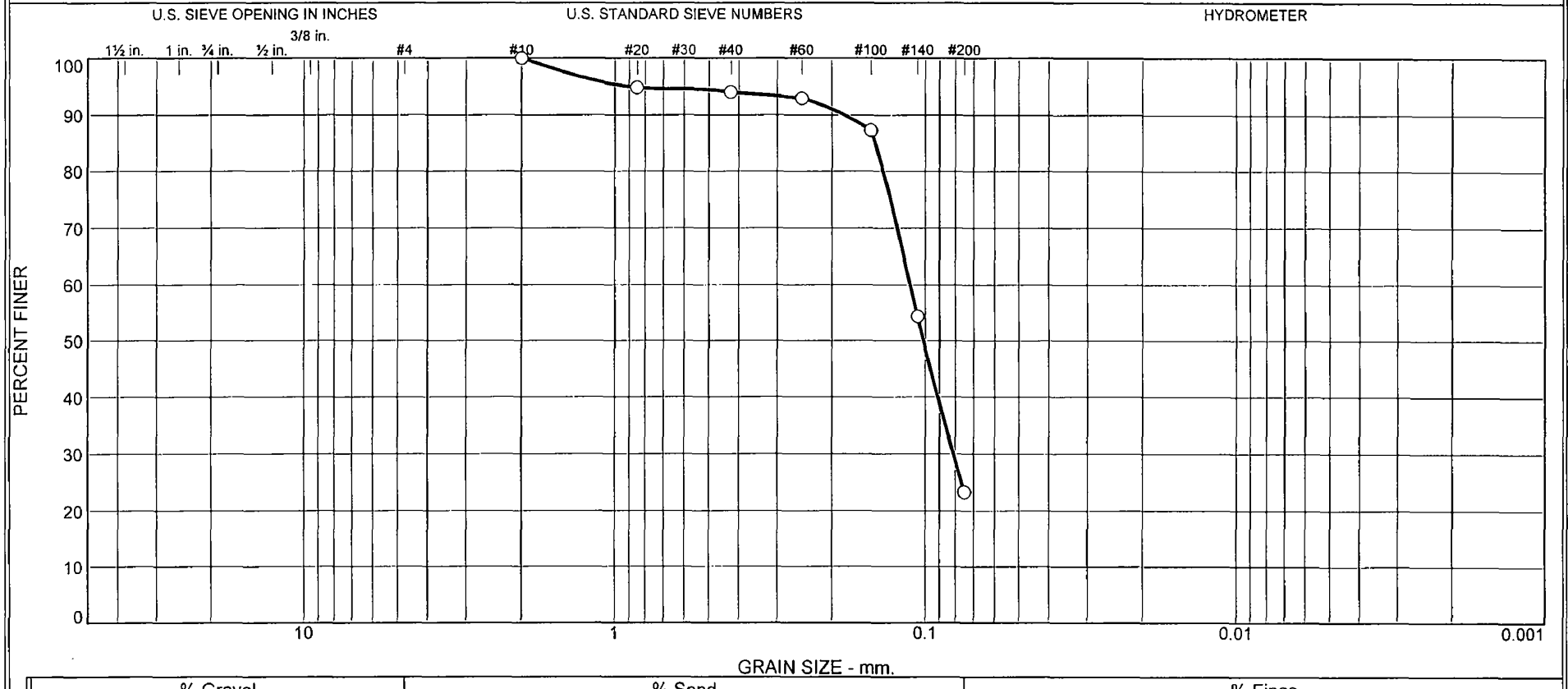
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	3	81	84			16

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0912	0.1071	0.1266	0.1365	0.1654	0.1792	0.2042	0.3058

Fineness Modulus
0.36

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	6	71	23	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-608(DH)	608-12	128.0-129.5	3/27/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-608(DH)
Depth: 128.0-129.5 **Sample Number:** 608-12
Material Description: Greenish Gray Silty SAND (Visual)
Date: 3/27/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 104.19
Tare Wt. = 0.00
Minus #200 from wash = 0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
104.19	0.00	0.00	#10	0.00	100
			#20	5.38	95
			#40	6.21	94
			#60	7.35	93
			#100	13.23	87
			#140	47.54	54
			#200	79.91	23

Fractional Components

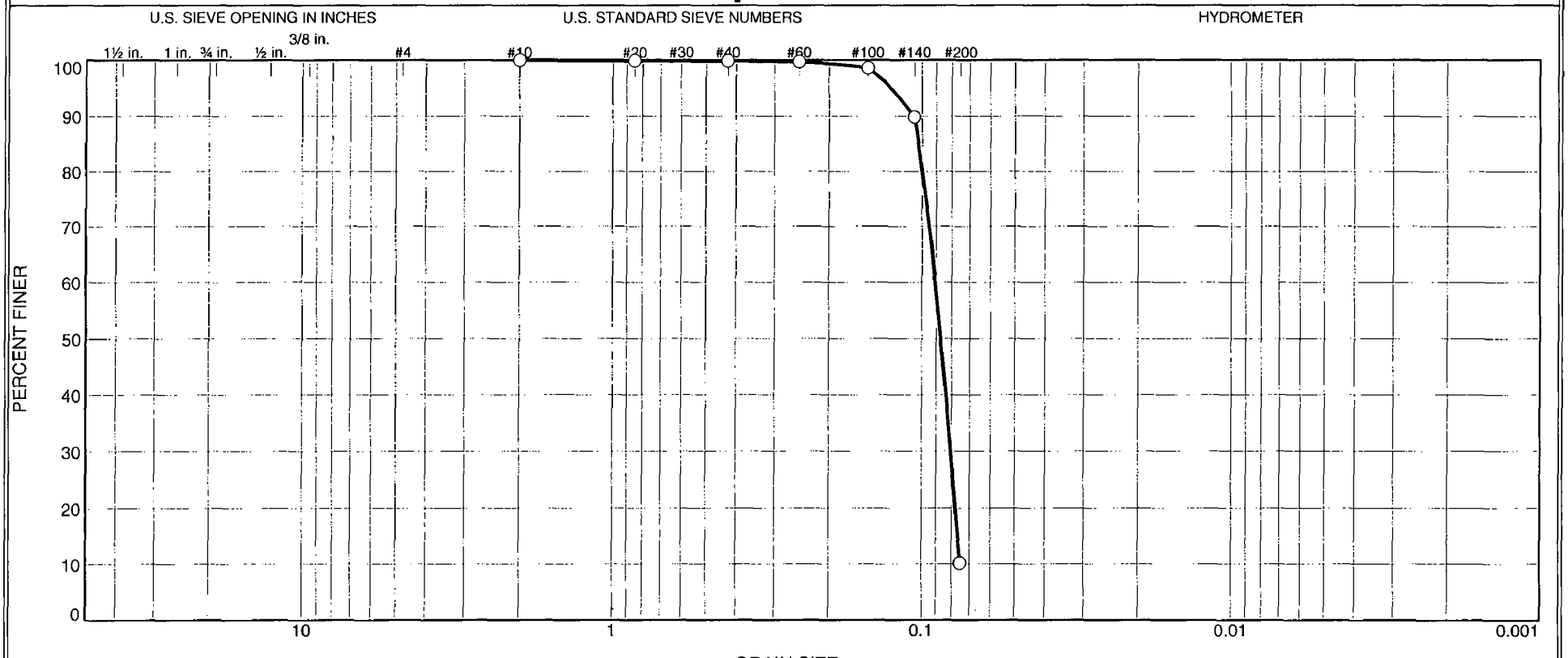
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	6	71	77			23

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0812	0.1015	0.1119	0.1363	0.1450	0.1825	0.9066

Fineness Modulus
0.29

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	90	10	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-608(DH)	608-14	148.0-149.5	3/27/08	SP-SM	Greenish Gray Poorly Graded SAND with silt (Visual)	ND	NV	NP

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

7/2/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-608(DH)
Depth: 148.0-149.5 **Sample Number:** 608-14
Material Description: Greenish Gray Poorly Graded SAND with silt (Visual)
Date: 3/27/08 **Natural Moisture:** ND
Liquid Limit: NV **Plastic Limit:** NP **USCS Class.:** SP-SM
Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS 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
282.69	0.00	0.00	#10	0.00	100
99.77	0.00	0.00	#20	0.10	100
			#40	0.15	100
			#60	0.26	100
			#100	1.34	99
			#140	10.10	90
			#200	89.61	10

Fractional Components

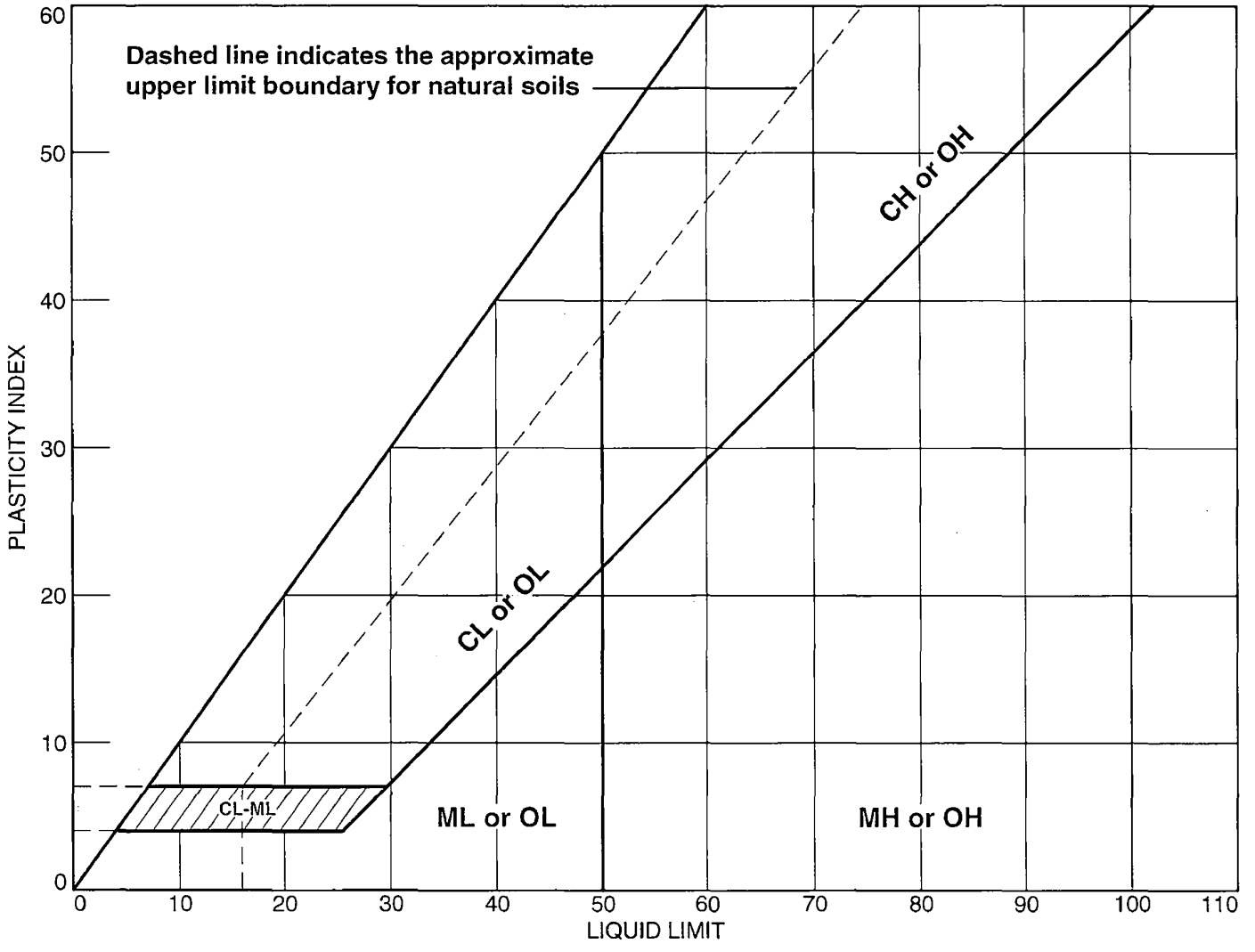
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	90	90			10

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0763	0.0777	0.0805	0.0867	0.0903	0.0994	0.1024	0.1064	0.1257

Fineness Modulus
0.02

MACTEC Engineering and Consulting, Inc.

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
●	Boring B-608(DH)	608-14	148.0-149.5	ND	NP	NV	NP	SP-SM

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

Tested By: CS **Checked By:** LBJ DSC 7-2-08

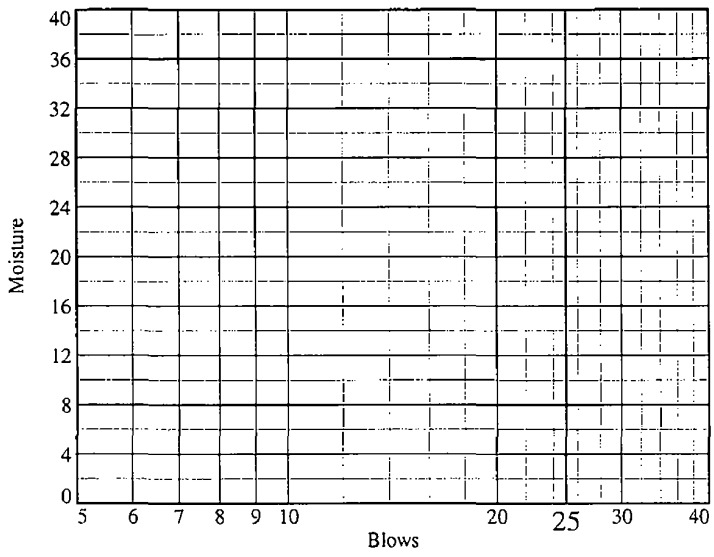
LIQUID AND PLASTIC LIMIT TEST DATA

7/2/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-608(DH)
Depth: 148.0-149.5 **Sample Number:** 608-14
Material Description: Greenish Gray Poorly Graded SAND with silt (Visual)
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						



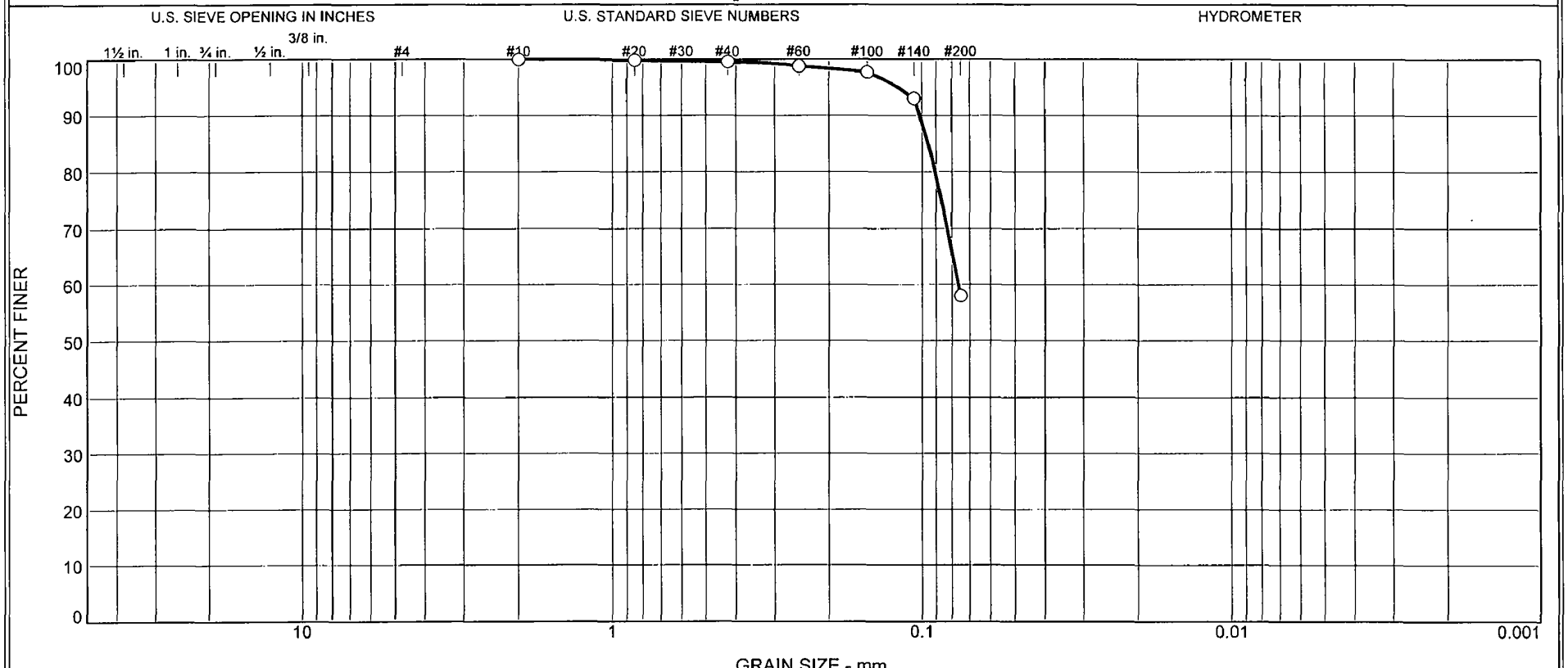
Liquid Limit= NV
Plastic Limit= NP
Plasticity Index= NP
Natural Moisture= ND

Plastic Limit Data

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

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	42	58	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-608(DH)	608-17	178.0-179.5	4/1/08	ML	Dark Greenish Gray Sandy SILT	ND	24	22

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined
Calcite Equivalent = 22% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-608(DH)
Depth: 178.0-179.5 **Sample Number:** 608-17
Material Description: Dark Greenish Gray Sandy SILT
Date: 4/1/08 **Natural Moisture:** ND
Liquid Limit: 24 **Plastic Limit:** 22 **USCS Class.:** ML
Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined
Calcite Equivalent = 22% (ASTM D 4373-02)
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
269.14	0.00	0.00	#10	0.00	100
100.15	0.00	0.00	#20	0.15	100
			#40	0.46	100
			#60	1.21	99
			#100	2.26	98
			#140	6.98	93
			#200	42.10	58

Fractional Components

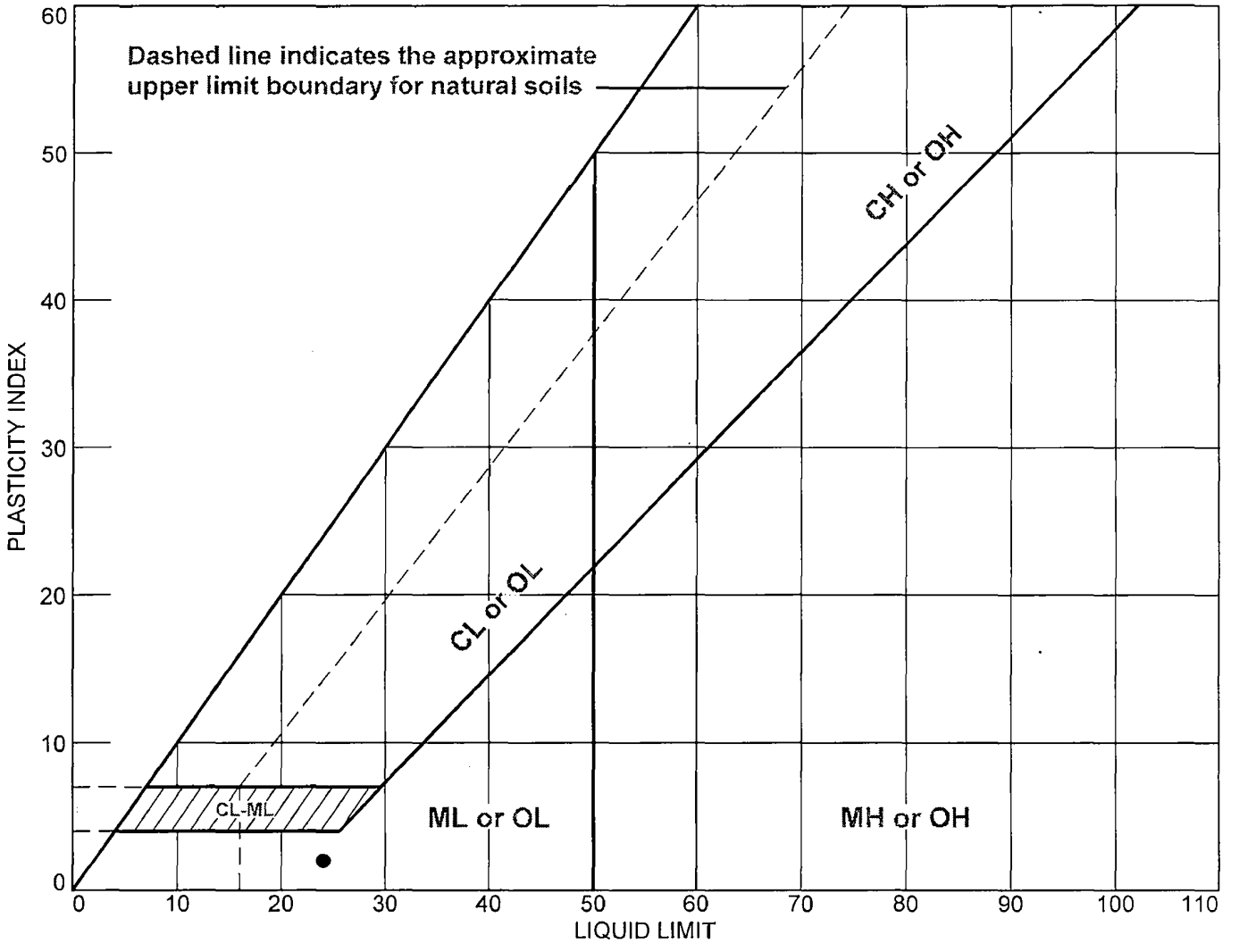
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	42	42			58

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
					0.0762	0.0905	0.0952	0.1012	0.1193

Fineness Modulus
0.03

MACTEC Engineering and Consulting, Inc.

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
●	Boring B-608(DH)	608-17	178.0-179.5	ND	22	24	2	ML

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

Tested By: CS **Checked By:** LBJ DSC 7-2-08

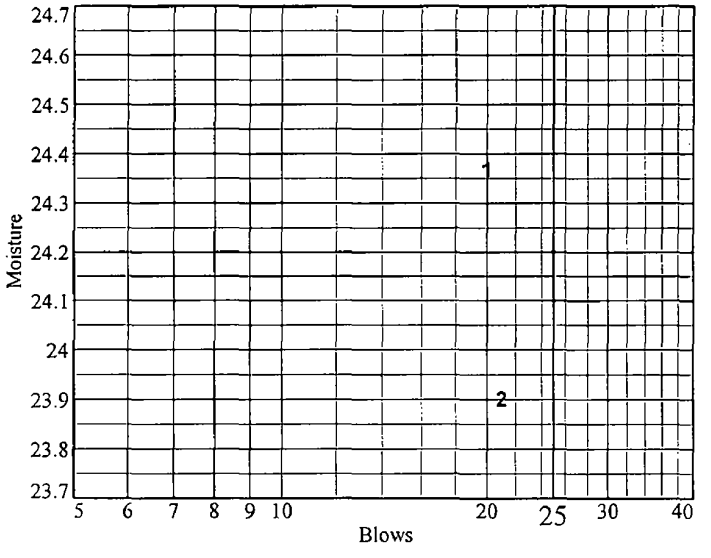
LIQUID AND PLASTIC LIMIT TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-608(DH)
Depth: 178.0-179.5 **Sample Number:** 608-17
Material Description: Dark Greenish Gray Sandy SILT
USCS: ML **AASHTO:** A-4(0)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	32.84	32.72				
Dry+Tare	29.46	29.40				
Tare	15.59	15.51				
# Blows	20	21				
Moisture	24.4	23.9				



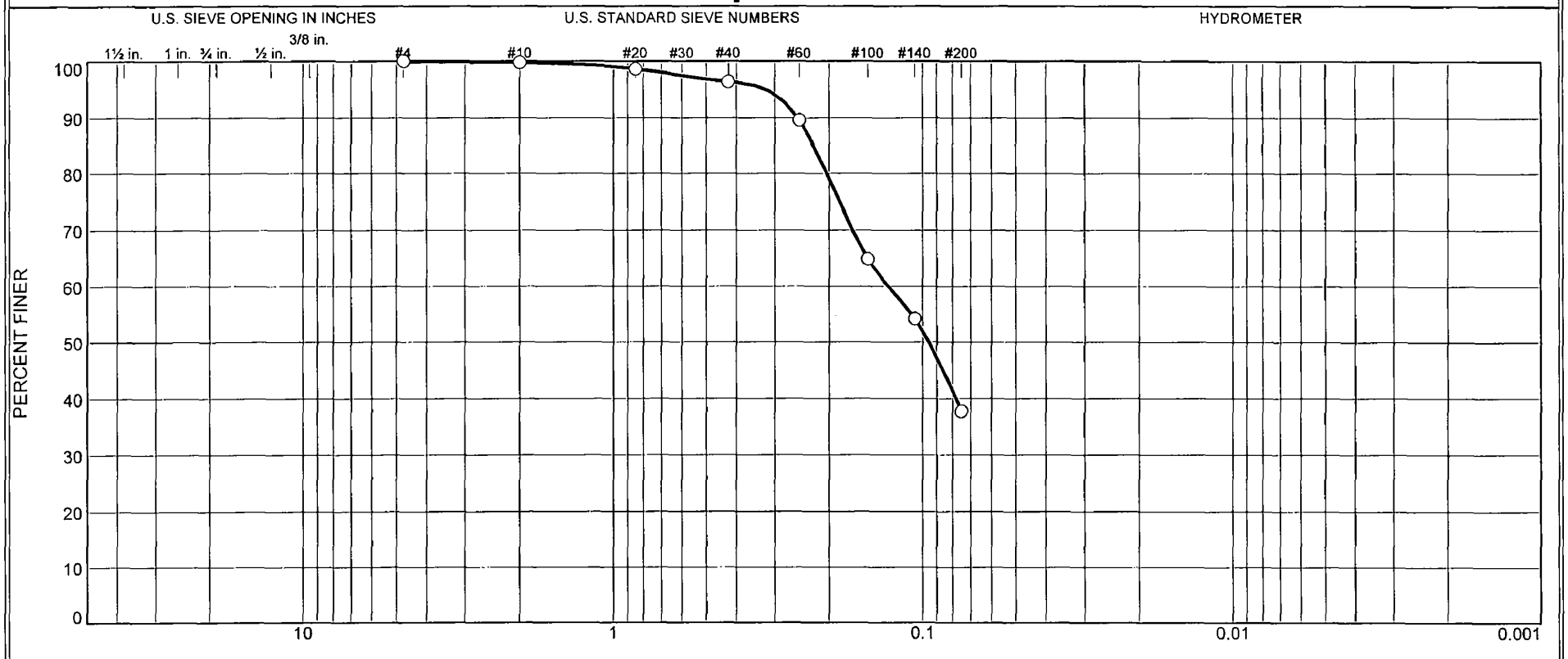
Liquid Limit= 24
Plastic Limit= 22
Plasticity Index= 2
Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	26.75	28.10			
Dry+Tare	24.67	25.84			
Tare	15.60	15.51			
Moisture	22.9	21.9			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0	0	0	4	58	38	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring B-608(DH)	608-22	228.0-229.3	4/1/08	SM	Greenish Gray Silty SAND	ND	21	18

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

O SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined
Calcite Equivalent = 34% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-608(DH)
Depth: 228.0-229.3 **Sample Number:** 608-22
Material Description: Greenish Gray Silty SAND
Date: 4/1/08 **Natural Moisture:** ND
Liquid Limit: 21 **Plastic Limit:** 18 **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined
Calcite Equivalent = 34% (ASTM D 4373-02)
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
263.22	0.00	0.00	#4	0.00	100
			#10	0.61	100
100.66	0.00	0.00	#20	1.13	99
			#40	3.44	96
			#60	10.31	90
			#100	35.21	65
			#140	45.88	54
			#200	62.56	38

Fractional Components

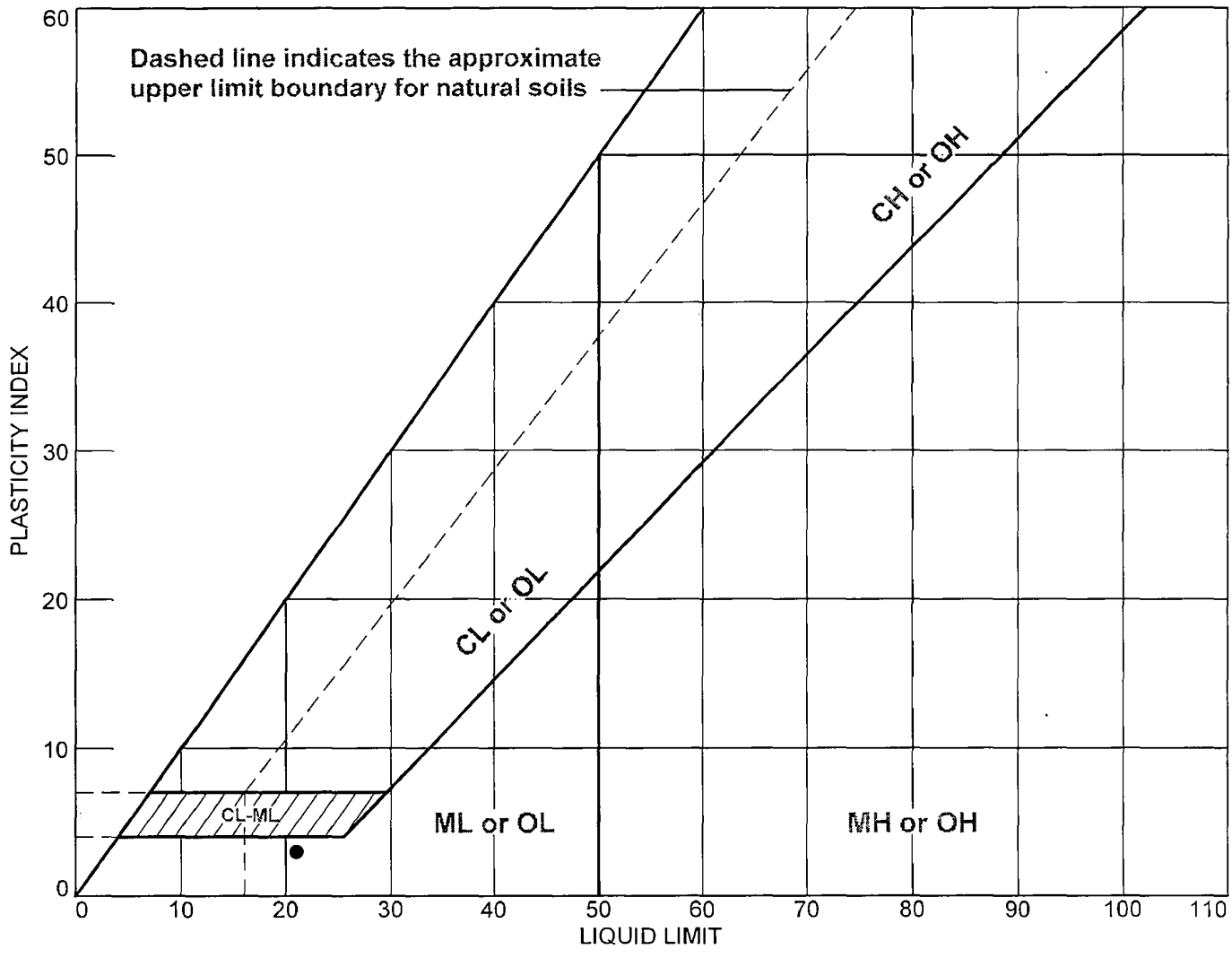
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	4	58	62			38

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0954	0.1287	0.2034	0.2245	0.2532	0.3200

Fineness Modulus
0.44

MACTEC Engineering and Consulting, Inc.

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
●	Boring B-608(DH)	608-22	228.0-229.3	ND	18	21	3	SM

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

Tested By: CS **Checked By:** LBJ DSC 7-2-08

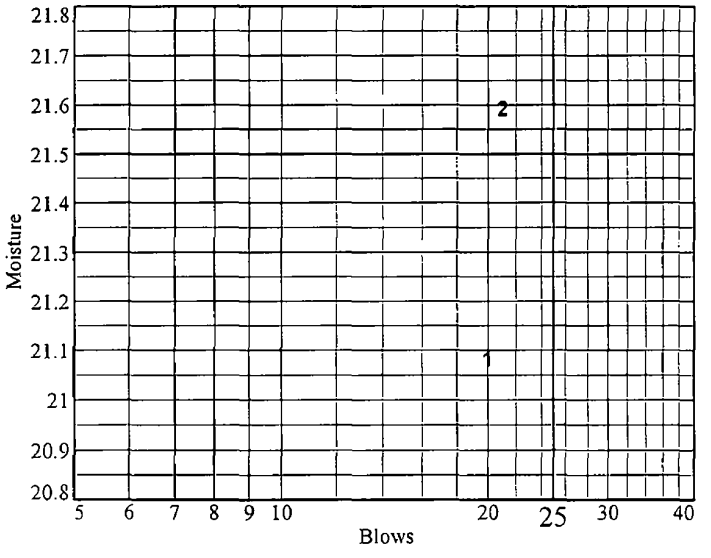
LIQUID AND PLASTIC LIMIT TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-608(DH)
Depth: 228.0-229.3 **Sample Number:** 608-22
Material Description: Greenish Gray Silty SAND
USCS: SM **AASHTO:** A-4(0)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	27.91	31.79				
Dry+Tare	25.73	28.89				
Tare	15.39	15.46				
# Blows	20	21				
Moisture	21.1	21.6				



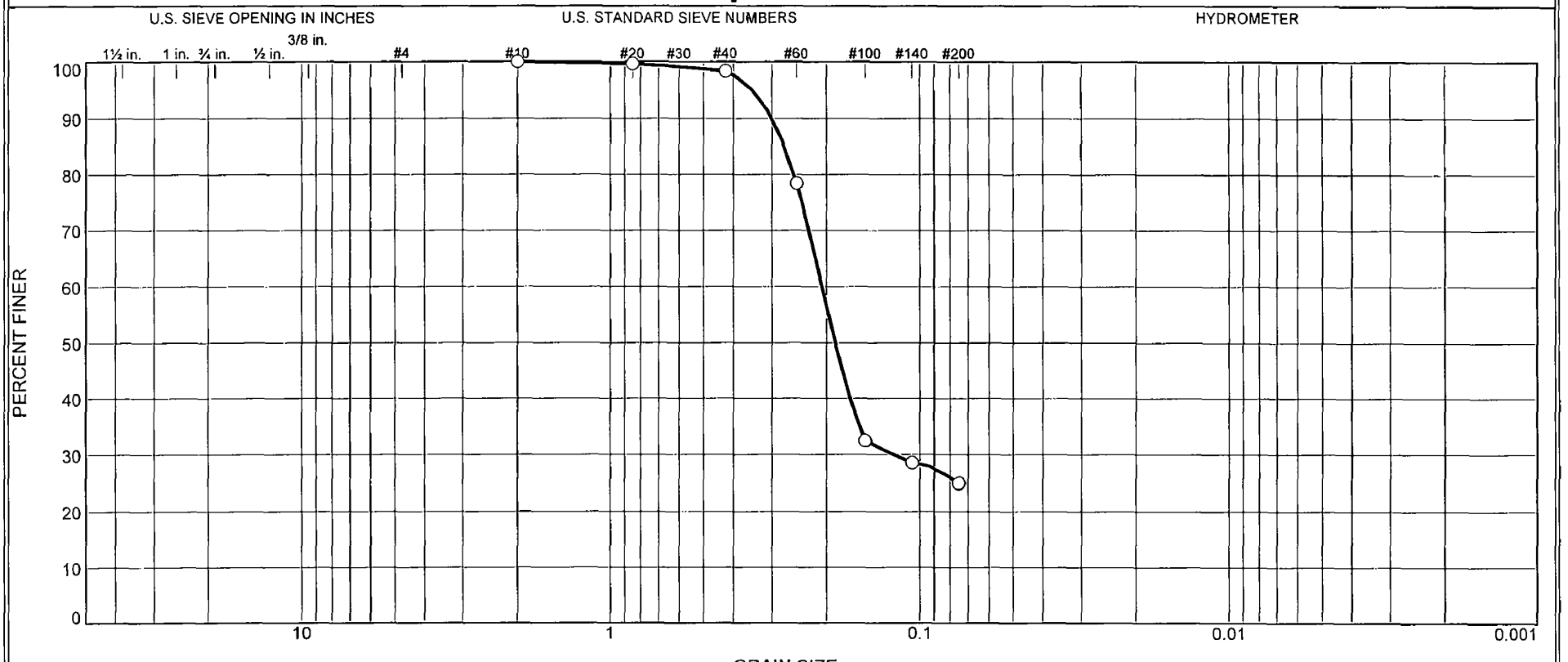
Liquid Limit= 21
Plastic Limit= 18
Plasticity Index= 3
Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	25.36	26.36			
Dry+Tare	23.89	24.69			
Tare	15.55	15.49			
Moisture	17.6	18.2			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0	0	0	2	73	25	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring B-608(DH)	608-24	248.9-250.4	4/2/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

O SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-608(DH)
Depth: 248.9-250.4 **Sample Number:** 608-24
Material Description: Greenish Gray Silty SAND (Visual)
Date: 4/2/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** 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
257.27	0.00	0.00	#10	0.00	100
102.20	0.00	0.00	#20	0.39	100
			#40	1.68	98
			#60	22.02	78
			#100	69.05	32
			#140	73.02	29
			#200	76.66	25

Fractional Components

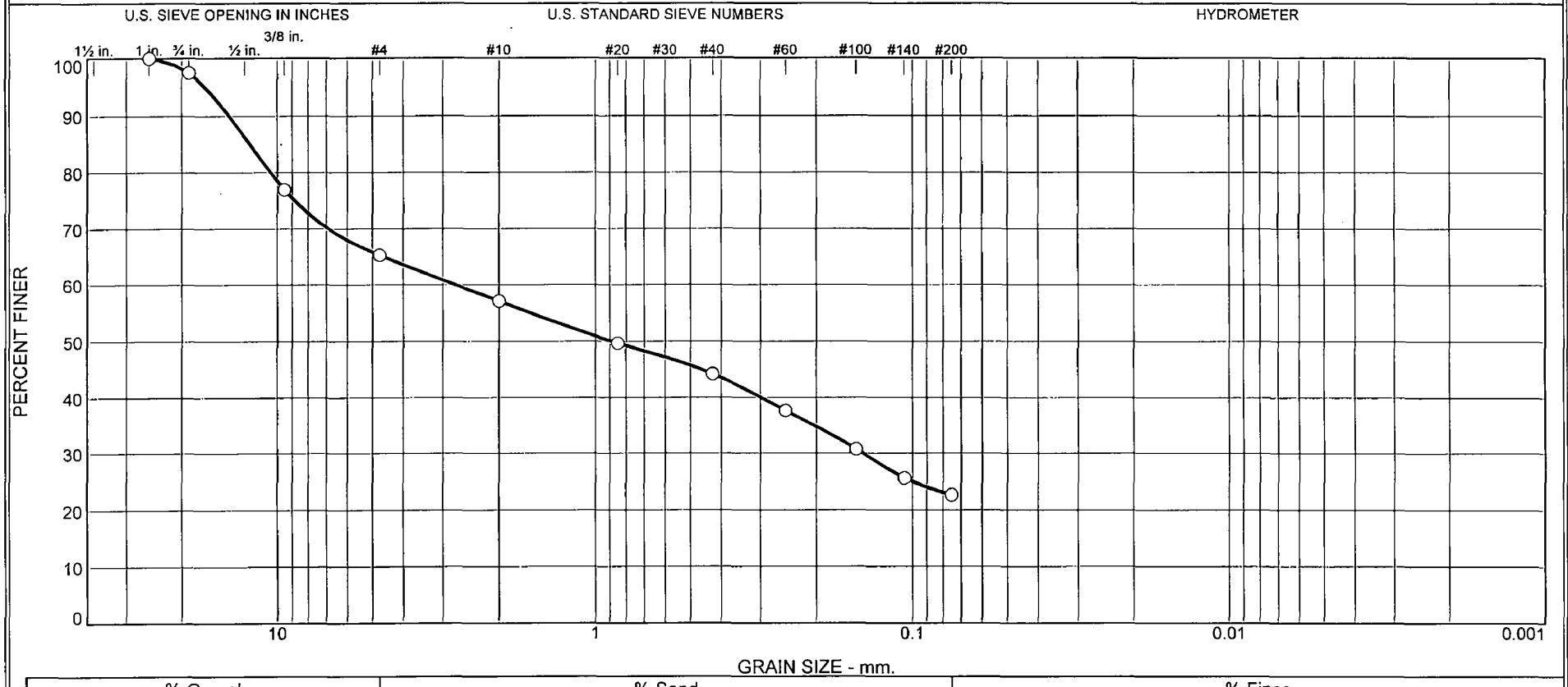
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	2	73	75			25

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.1210	0.1875	0.2065	0.2549	0.2739	0.3007	0.3473

Fineness Modulus
0.79

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	2	33	8	13	21	23	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-609	609-3	5.0-6.5	3/10/08	SM	White Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-609
Depth: 5.0-6.5 **Sample Number:** 609-3
Material Description: White Silty SAND with gravel (Visual)
Date: 3/10/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** 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
328.03	0.00	0.00	1	0.00	100
			3/4	8.13	98
			3/8"	75.46	77
			#4	113.84	65
			#10	140.65	57
98.00	0.00	0.00	#20	12.79	50
			#40	22.13	44
			#60	33.42	38
			#100	45.28	31
			#140	54.18	26
			#200	59.22	23

Fractional Components

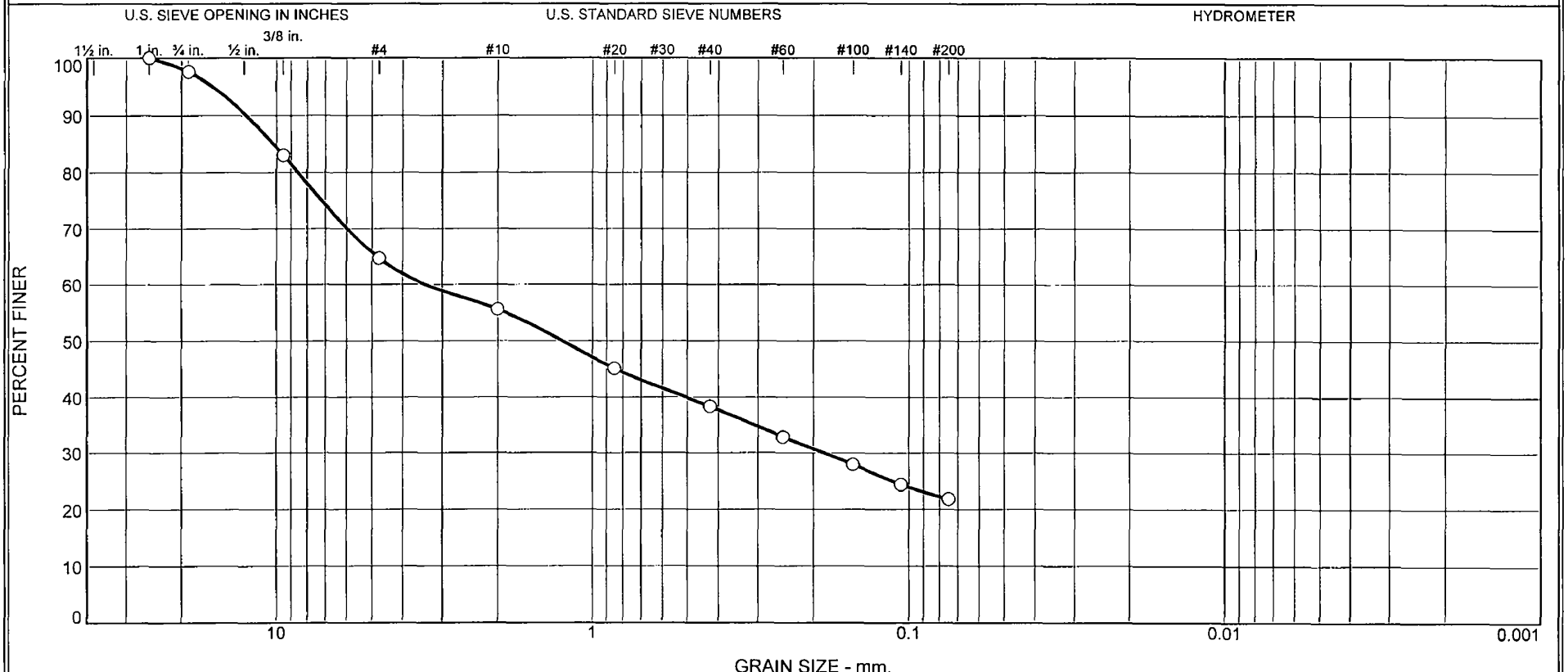
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	2	33	35	8	13	21	42		.	23

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.1431	0.8882	2.7447	10.5227	12.2262	14.1970	16.8754

Fineness Modulus
3.31

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	2	33	9	18	16	22	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-610(DH)	610-4	7.5-9.0	3/24/08	SM	White Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-610(DH)
Depth: 7.5-9.0 **Sample Number:** 610-4
Material Description: White Silty SAND with gravel (Visual)
Date: 3/24/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** 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
425.08	0.00	0.00	1	0.00	100
			3/4	10.07	98
			3/8"	72.07	83
			#4	150.00	65
			#10	188.90	56
96.14	0.00	0.00	#20	18.11	45
			#40	29.81	38
			#60	39.27	33
			#100	47.85	28
			#140	54.05	24
			#200	58.41	22

Fractional Components

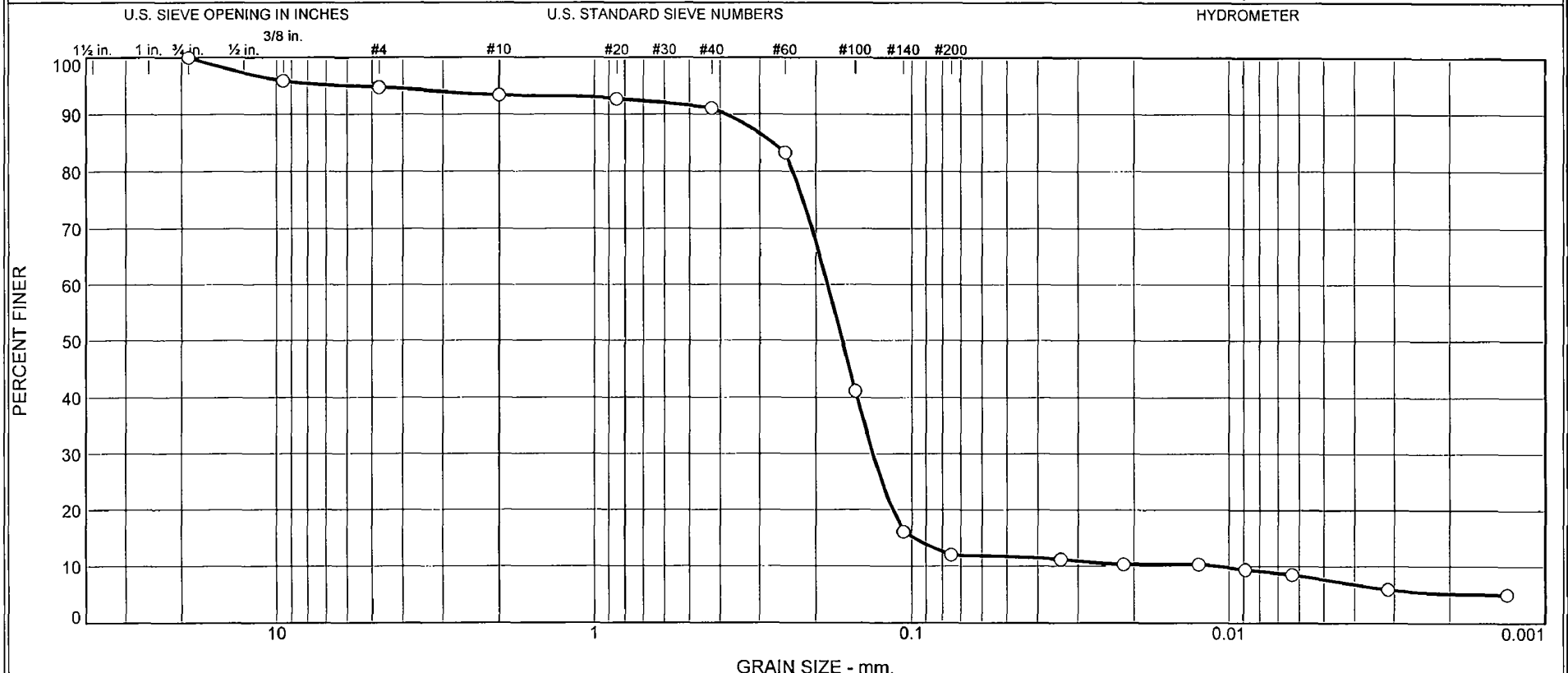
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	2	33	35	9	18	16	43			22

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.1853	1.2512	3.3970	8.5554	10.2293	12.4668	15.9006

Fineness Modulus
3.44

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	5.3	1.3	2.3	79.1	4.3	7.7

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-610(DH)	610-8	116.0-117.5	3/26/08	SP-SM	Pale Yellow Poorly Graded SAND with silt (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-610(DH)
Depth: 116.0-117.5 **Sample Number:** 610-8
Material Description: Pale Yellow Poorly Graded SAND with silt (Visual)
Date: 3/26/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SP-SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
517.28	0.00	0.00	3/4	0.00	100.0
			3/8"	21.48	95.8
			#4	27.18	94.7
			#10	34.37	93.4
106.09	0.00	0.00	#20	0.77	92.7
			#40	2.61	91.1
			#60	11.46	83.3
			#100	59.38	41.1
			#140	87.83	16.1
			#200	92.50	12.0

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =93.4
Weight of hydrometer sample =106.09
Hygroscopic moisture correction:
Moist weight and tare = 23.57
Dry weight and tare = 23.49
Tare weight = 11.14
Hygroscopic moisture =0.6%
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 =2.700
Hydrometer type =152H
Hydrometer effective depth equation: L =16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.4	18.0	12.8	0.0132	19.0	13.2	0.0339	11.2
5.00	21.4	17.0	11.8	0.0132	18.0	13.3	0.0216	10.3
15.00	21.4	17.0	11.8	0.0132	18.0	13.3	0.0125	10.3
30.00	21.3	16.0	10.7	0.0132	17.0	13.5	0.0089	9.4
60.00	21.3	15.0	9.7	0.0132	16.0	13.7	0.0063	8.5
250.00	21.5	12.0	6.8	0.0132	13.0	14.2	0.0031	6.0
1440.00	21.3	11.0	5.7	0.0132	12.0	14.3	0.0013	5.0

MACTEC Engineering and Consulting, Inc.

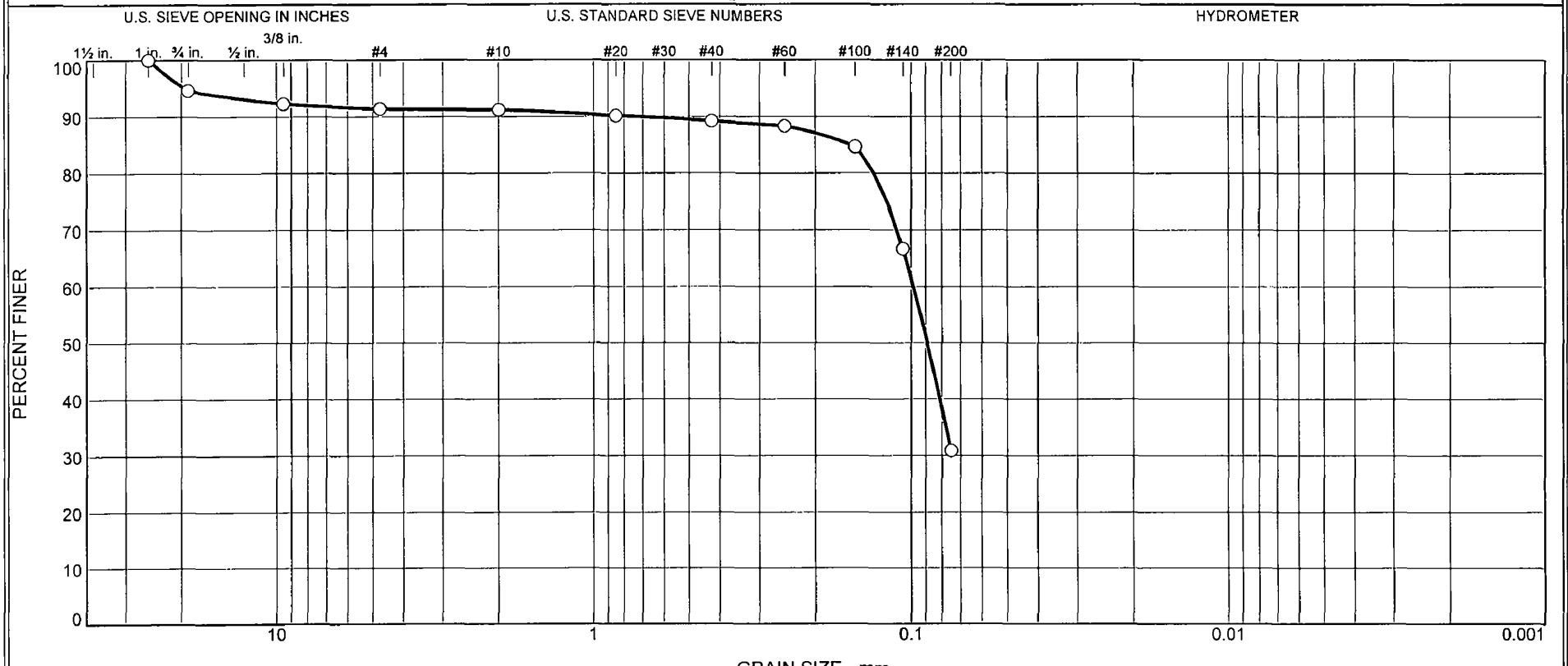
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	5.3	5.3	1.3	2.3	79.1	82.7	4.3	7.7	12.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0108	0.0985	0.1147	0.1321	0.1649	0.1835	0.2359	0.2737	0.3837	6.1795

Fineness Modulus	C_u	C_c
1.03	16.96	8.79

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	5	4	0	2	58	31	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-610(DH)	610-10	132.5-134.0	3/26/08	SM	Olive Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-610(DH)
Depth: 132.5-134.0 **Sample Number:** 610-10
Material Description: Olive Gray Silty SAND (Visual)
Date: 3/26/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** 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
528.83	0.00	0.00	1	0.00	100
			3/4	28.41	95
			3/8"	40.83	92
			#4	45.57	91
			#10	46.64	91
98.89	0.00	0.00	#20	1.12	90
			#40	2.17	89
			#60	3.13	88
			#100	7.05	85
			#140	26.59	67
			#200	65.39	31

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	5	4	9	0	2	58	60			31

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0890	0.0983	0.1314	0.1551	0.7485	19.5453

Fineness Modulus
0.77

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A

	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	10	32	12	14	13	19	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-611	611-4	7.5-9.0	2/26/08	GM	Olive Silty GRAVEL (visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = NOT DETERMINED

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-611
Depth: 7.5-9.0 **Sample Number:** 611-4
Material Description: Olive Silty GRAVEL (visual)
Date: 2/26/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
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
456.37	0.00	0.00	1.5	0.00	100
			1	15.82	97
			3/4	47.83	90
			3/8"	113.65	75
			#4	189.74	58
			#10	244.90	46
101.64	0.00	0.00	#20	19.91	37
			#40	31.89	32
			#60	41.32	27
			#100	50.49	23
			#140	55.78	21
			#200	59.77	19

Fractional Components

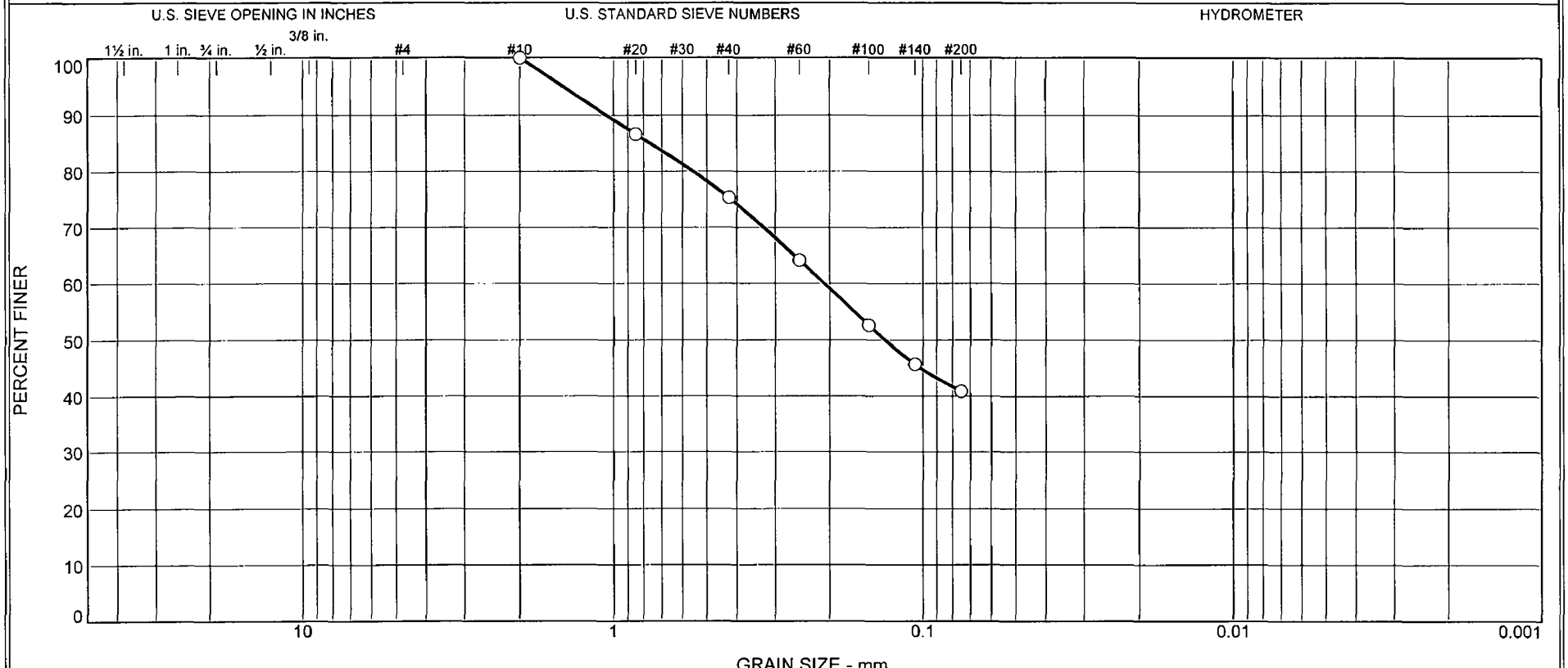
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	10	32	42	12	14	13	39			19

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0900	0.3384	2.7704	5.1110	12.1172	15.6202	19.4134	23.6131

Fineness Modulus
4.02

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0	0	0	25	34	41	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring B-614	614-3	5.1-6.6	3/20/08	SM	White Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

O SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-614
Depth: 5.1-6.6 **Sample Number:** 614-3
Material Description: White Silty SAND (Visual)
Date: 3/20/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** 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
357.66	0.00	0.00	#10	0.00	100
97.88	0.00	0.00	#20	13.07	87
			#40	24.14	75
			#60	35.11	64
			#100	46.37	53
			#140	53.15	46
			#200	57.88	41

Fractional Components

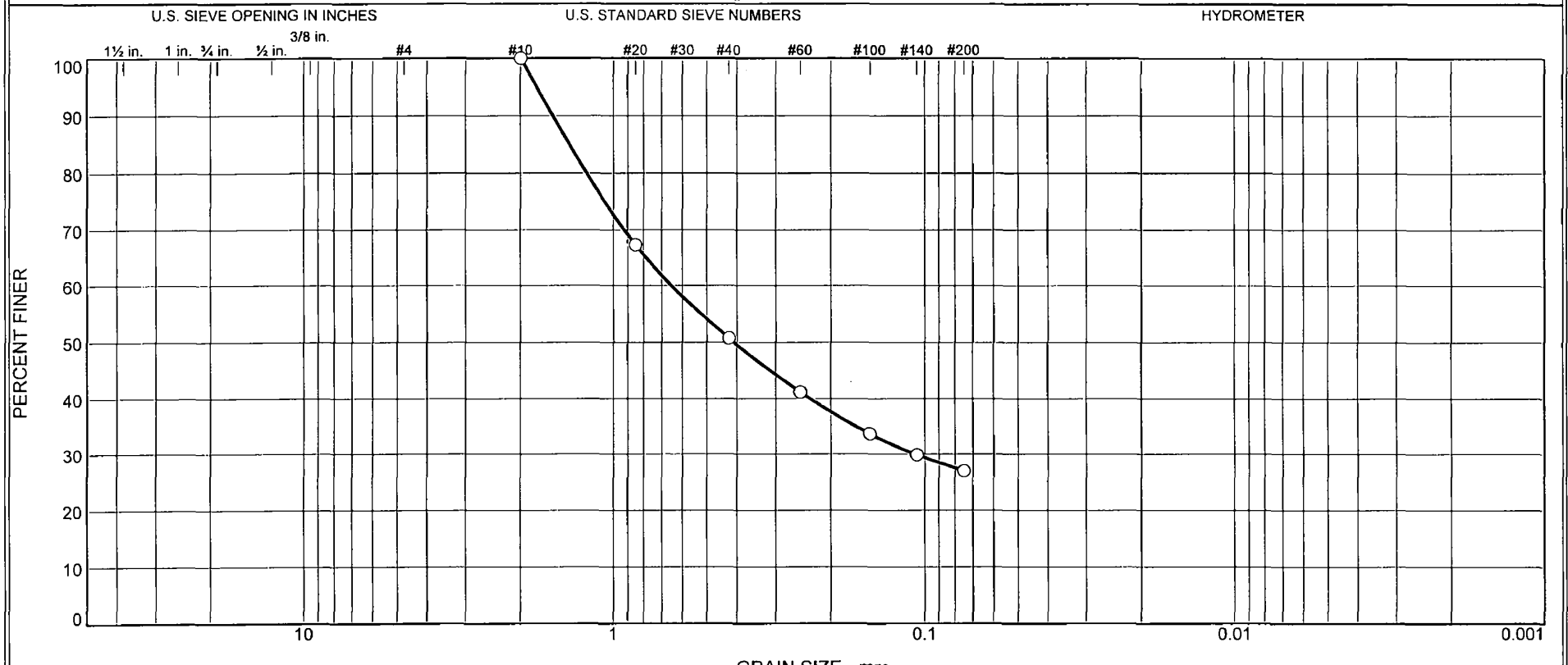
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	25	34	59			41

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.1327	0.2084	0.5545	0.7628	1.0571	1.4562

Fineness Modulus
1.06

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	49	24	27	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-614	614-7	14.6-16.1	3/20/08	SM	White Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-614
Depth: 14.6-16.1 **Sample Number:** 614-7
Material Description: White Silty SAND (Visual)
Date: 3/20/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** 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
426.31	0.00	0.00	#10	0.00	100
97.89	0.00	0.00	#20	31.95	67
			#40	48.22	51
			#60	57.60	41
			#100	64.92	34
			#140	68.63	30
			#200	71.48	27

Fractional Components

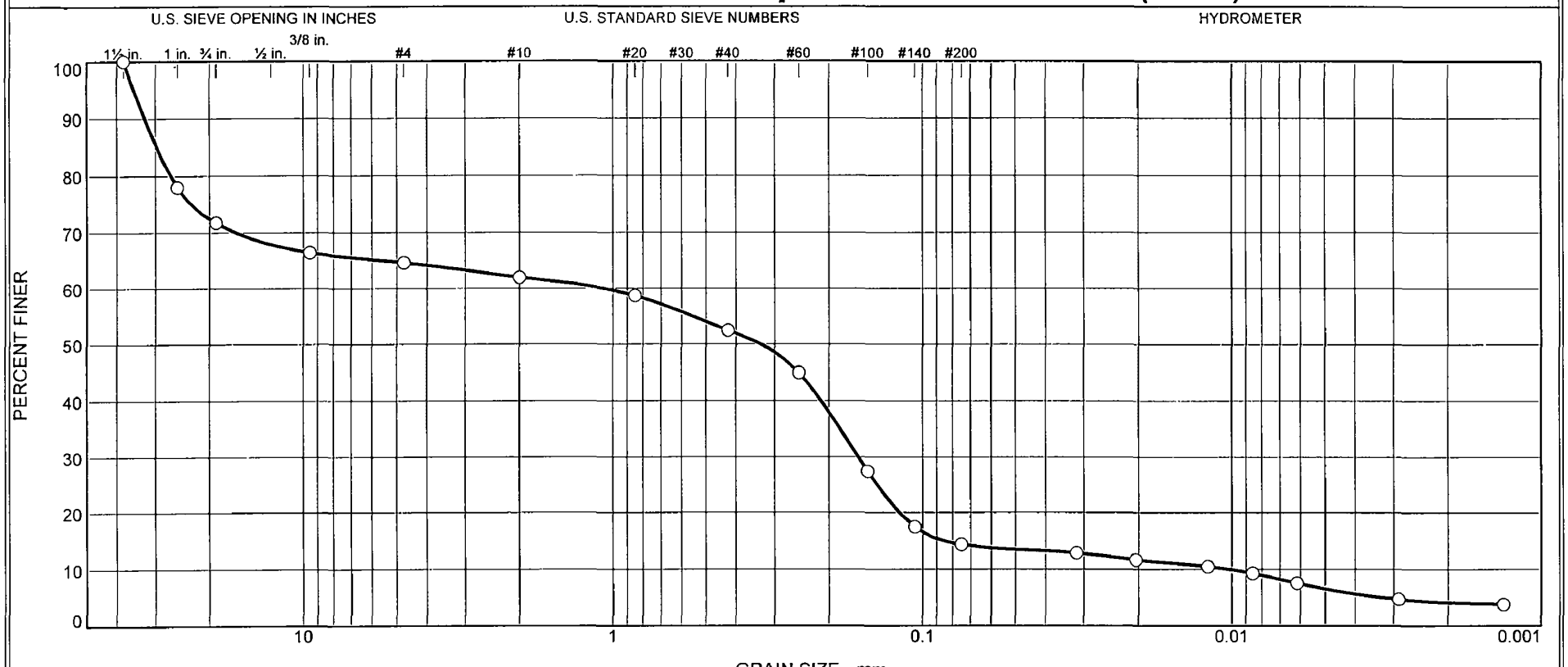
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	49	24	73			27

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.1072	0.4092	0.6507	1.2226	1.3896	1.5724	1.7745

Fineness Modulus
1.85

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	28.2	7.1	2.7	9.5	38.2	7.7	6.6

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-614	614-11	116.4-117.9	3/22/08	SM	Light Gray Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-614
Depth: 116.4-117.9 **Sample Number:** 614-11
Material Description: Light Gray Silty SAND with gravel (Visual)
Date: 3/22/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
405.70	0.00	0.00	1.5	0.00	100.0
			1	89.13	78.0
			3/4	114.60	71.8
			3/8"	136.02	66.5
			#4	143.39	64.7
			#10	154.24	62.0
104.38	0.00	0.00	#20	5.52	58.7
			#40	16.01	52.5
			#60	28.75	44.9
			#100	58.20	27.4
			#140	75.02	17.4
			#200	80.23	14.3

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =62.0
Weight of hydrometer sample =104.38
Hygroscopic moisture correction:
Moist weight and tare = 30.10
Dry weight and tare = 30.09
Tare weight = 15.74
Hygroscopic moisture =0.1%
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 =2.700
Hydrometer type =152H
Hydrometer effective depth equation: L =16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.9	27.0	21.9	0.0131	28.0	11.7	0.0318	12.9
5.00	21.7	25.0	19.9	0.0132	26.0	12.0	0.0204	11.7
15.00	21.7	23.0	17.9	0.0132	24.0	12.4	0.0119	10.5
30.00	21.7	21.0	15.9	0.0132	22.0	12.7	0.0086	9.3
60.00	21.9	18.0	12.9	0.0131	19.0	13.2	0.0062	7.6
285.00	22.4	13.0	8.0	0.0131	14.0	14.0	0.0029	4.7
1440.00	20.5	12.0	6.5	0.0134	13.0	14.2	0.0013	3.8

MACTEC Engineering and Consulting, Inc.

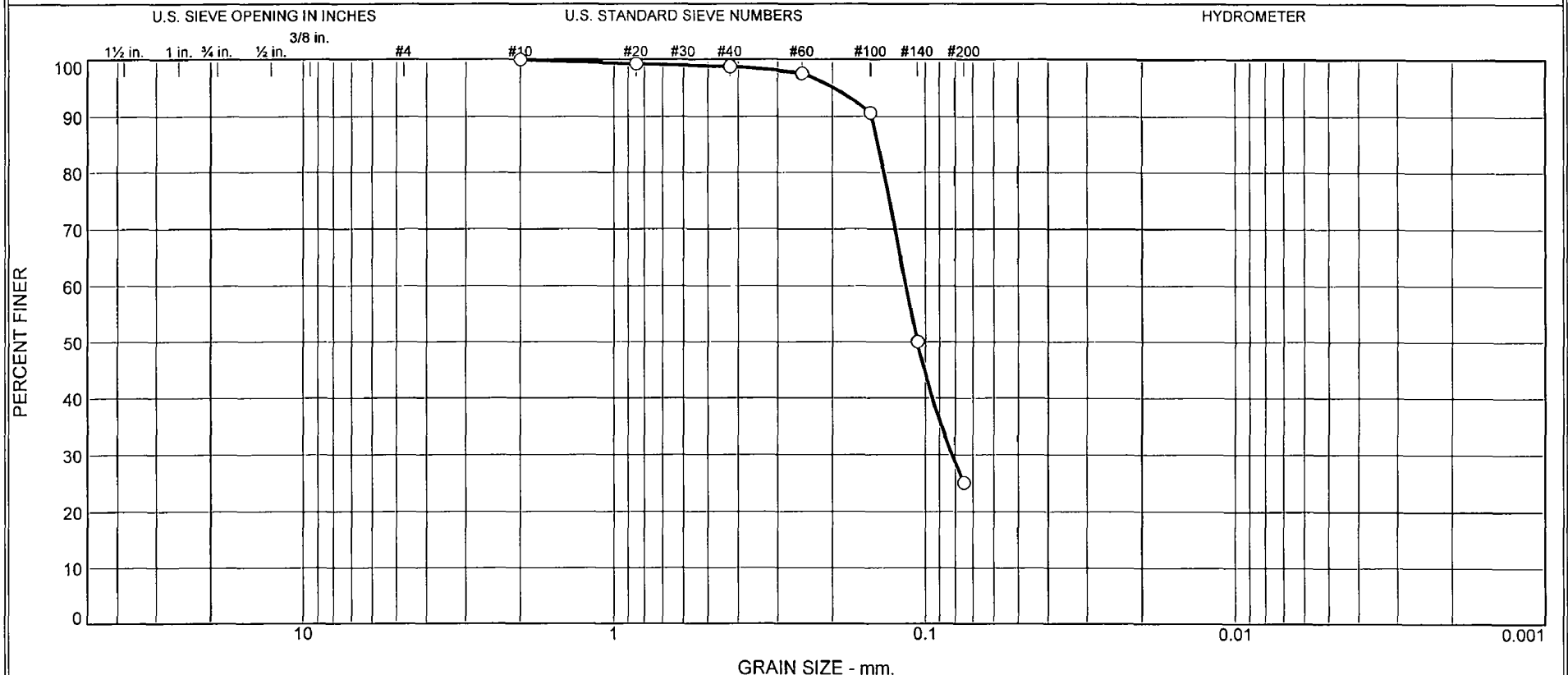
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	28.2	7.1	35.3	2.7	9.5	38.2	50.4	7.7	6.6	14.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0101	0.0863	0.1188	0.1610	0.3327	1.0710	26.7113	29.6533	32.4158	35.1930

Fineness Modulus	C_u	C_c
3.42	105.56	2.38

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0	0	0	1	74	25	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring B-614	614-12	126.5-128.0	3/22/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

O SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-614
Depth: 126.5-128.0 **Sample Number:** 614-12
Material Description: Greenish Gray Silty SAND (Visual)
Date: 3/22/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** 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
269.90	0.00	0.00	#10	0.00	100
97.72	0.00	0.00	#20	0.71	99
			#40	1.18	99
			#60	2.35	98
			#100	9.17	91
			#140	48.77	50
			#200	73.26	25

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	1	74	75			25

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0819	0.1059	0.1153	0.1352	0.1414	0.1489	0.1962

Fineness Modulus
0.13

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A

	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	12	30	13	20	15	10	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-616	616-9	24.5-26.0	3/20/08	SW-SM	White Well Graded SAND with silt and gravel (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 | Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-616
Depth: 24.5-26.0 **Sample Number:** 616-9
Material Description: White Well Graded SAND with silt and gravel (Visual)
Date: 3/20/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SW-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
507.56	0.00	0.00	1.5	0.00	100
			1	29.78	94
			3/4	60.69	88
			3/8"	156.96	69
			#4	213.20	58
			#10	281.60	45
98.12	0.00	0.00	#20	25.23	33
			#40	43.73	25
			#60	55.93	19
			#100	67.07	14
			#140	72.74	12
			#200	75.21	10

Fractional Components

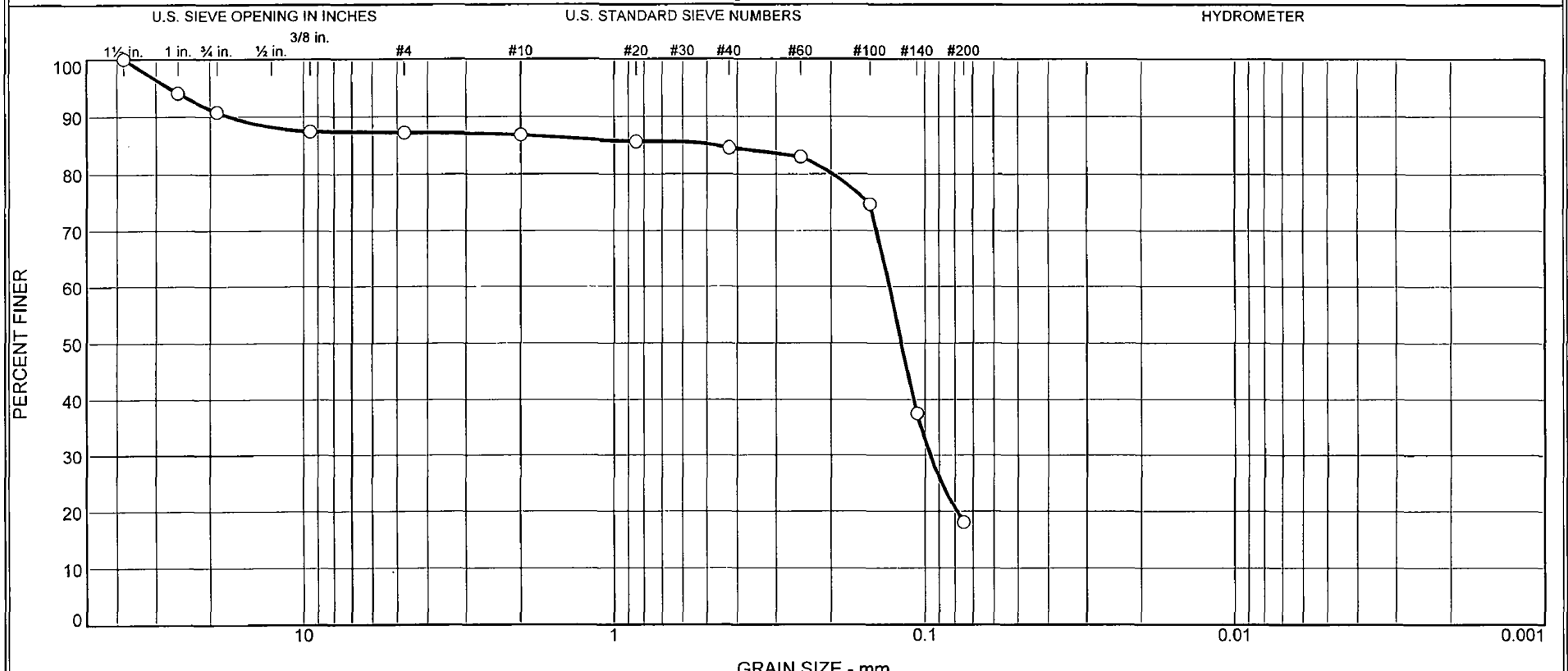
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	12	30	42	13	20	15	48			10

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1655	0.2720	0.6652	2.8307	5.5053	14.2438	16.9692	20.6824	26.7253

Fineness Modulus
4.37

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	9	4	0	2	67	18	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-616	616-12	123.5-125.0	3/21/08	SM	Light Brownish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-616
Depth: 123.5-125.0 **Sample Number:** 616-12
Material Description: Light Brownish Gray Silty SAND (Visual)
Date: 3/21/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** 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
461.17	0.00	0.00	1.5	0.00	100
			1	27.22	94
			3/4	42.51	91
			3/8"	57.99	87
			#4	58.97	87
			#10	60.82	87
100.73	0.00	0.00	#20	1.33	86
			#40	2.58	85
			#60	4.40	83
			#100	14.07	75
			#140	57.16	38
			#200	79.79	18

Fractional Components

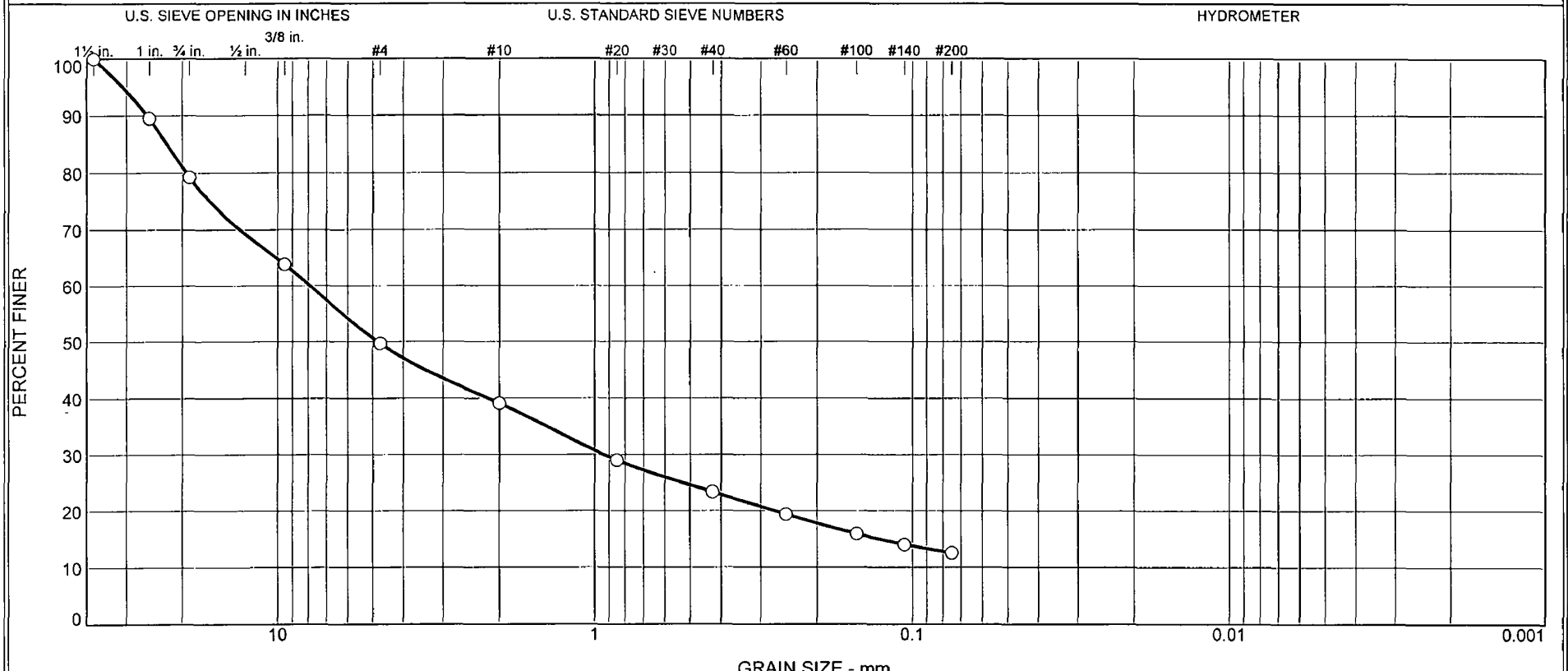
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	9	4	13	0	2	67	69			18

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0789	0.0964	0.1191	0.1297	0.1974	0.4651	17.4110	27.1476

Fineness Modulus
1.18

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	21	29	11	16	10	13	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-619	619-4	7.1-8.6	3/6/08	GM	White Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-619
Depth: 7.1-8.6 **Sample Number:** 619-4
Material Description: White Silty GRAVEL with sand (Visual)
Date: 3/6/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
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
282.11	0.00	0.00	1.5	0.00	100
			1	29.71	89
			3/4	58.47	79
			3/8"	102.02	64
			#4	141.93	50
			#10	171.80	39
95.23	0.00	0.00	#20	24.64	29
			#40	38.26	23
			#60	48.03	19
			#100	56.58	16
			#140	61.14	14
			#200	64.73	13

Fractional Components

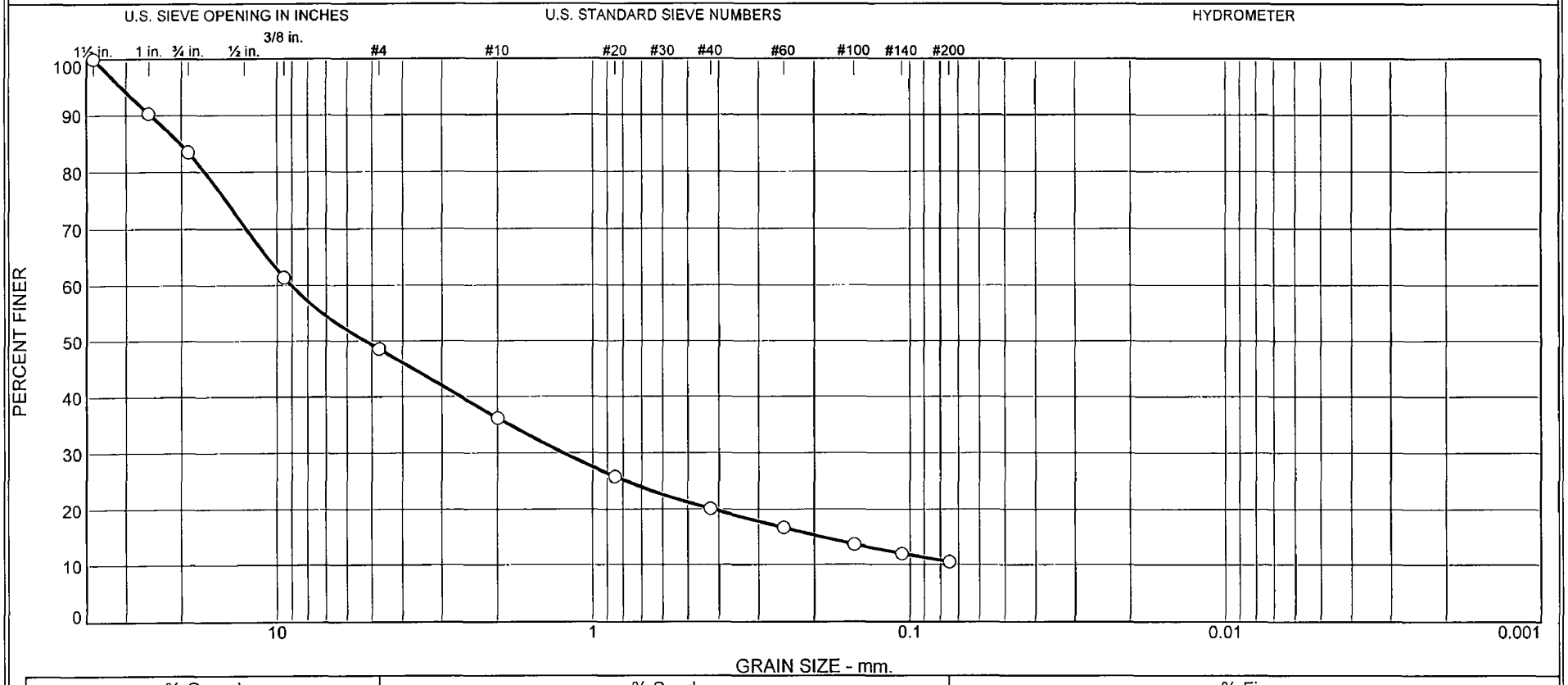
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	21	29	50	11	16	10	37			13

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1290	0.2715	0.9363	4.8355	7.8971	19.4686	22.3803	25.8177	30.7799

Fineness Modulus
4.71

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	17	34	13	16	9	11	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-619	619-6	12.1-13.6	3/6/08	GP-GM	White Well Graded GRAVEL with silt and sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 91% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-619
Depth: 12.1-13.6 **Sample Number:** 619-6
Material Description: White Well Graded GRAVEL with silt and sand (Visual)
Date: 3/6/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GP-GM
Testing Remarks: SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 91% (ASTM D 4373-02)
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
380.46	0.00	0.00	1.5	0.00	100
			1	36.98	90
			3/4	62.78	83
			3/8"	146.87	61
			#4	195.80	49
			#10	242.64	36
105.15	0.00	0.00	#20	30.33	26
			#40	46.78	20
			#60	56.79	17
			#100	65.47	14
			#140	70.38	12
			#200	74.60	11

Fractional Components

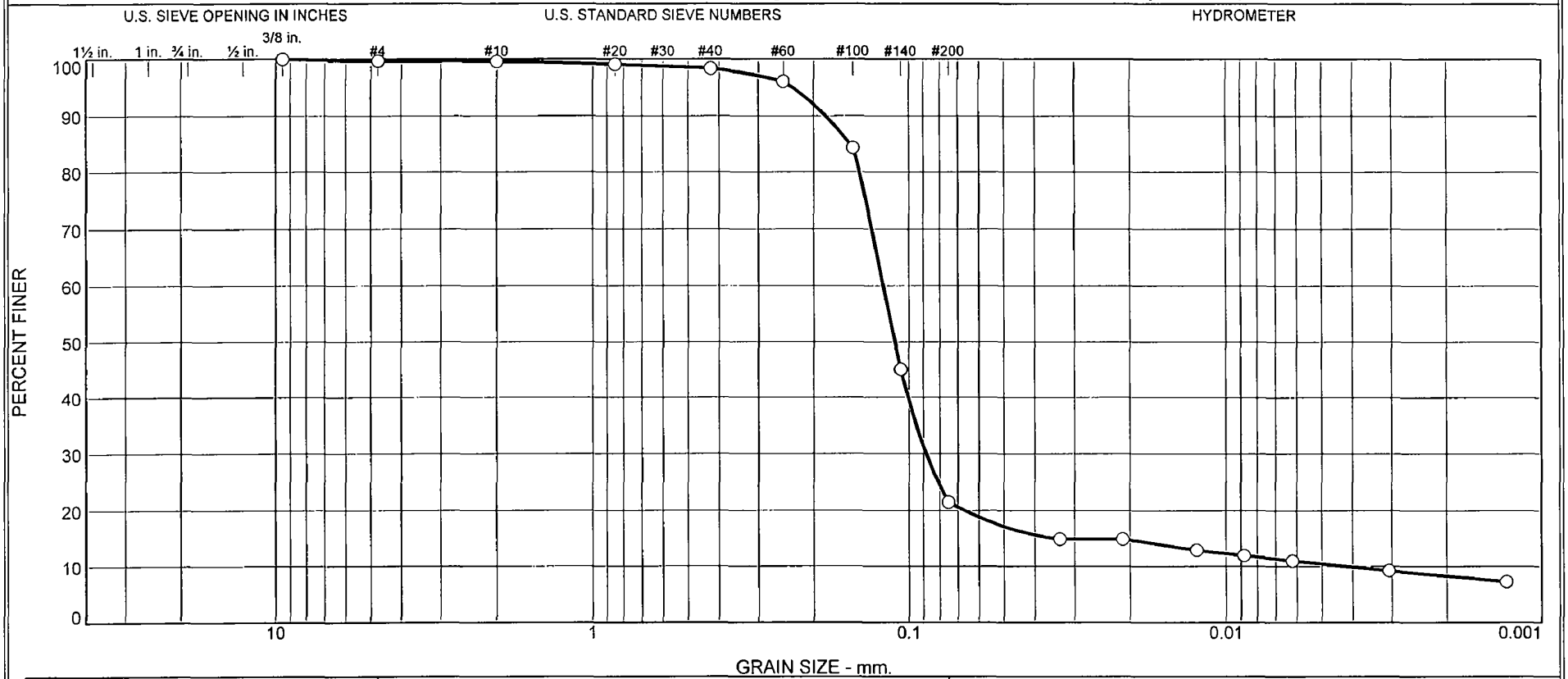
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	17	34	51	13	16	9	38			11

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1901	0.4184	1.2424	5.2646	9.0356	16.8970	20.1859	25.0861	31.0632

Fineness Modulus
4.85

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.3	0.1	1.2	76.9	11.0	10.5

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-619	619-8	121.6-123.1	3/9/08	SM	Pale Yellow Silty SAND(Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 12% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-619
Depth: 121.6-123.1 **Sample Number:** 619-8
Material Description: Pale Yellow Silty SAND(Visual)
Date: 3/9/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined
Calcite Equivalent = 12% (ASTM D 4373-02)
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
373.99	0.00	0.00	3/8"	0.00	100.0
			#4	1.26	99.7
			#10	1.48	99.6
101.75	0.00	0.00	#20	0.55	99.1
			#40	1.24	98.4
			#60	3.59	96.1
			#100	15.61	84.3
			#140	55.73	45.0
			#200	79.82	21.5

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =99.6
Weight of hydrometer sample =101.75
Hygroscopic moisture correction:
Moist weight and tare = 29.66
Dry weight and tare = 29.59
Tare weight = 15.39
Hygroscopic moisture =0.5%
Table of composite correction values:

Temp., deg. C:	11.2	28.4
Comp. corr.:	-8.0	-4.0

Meniscus correction only =1.0
Specific gravity of solids =2.700
Hydrometer type =152H
Hydrometer effective depth equation: L =16.294964 - 0.164 x **Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.2	21.0	15.3	0.0132	22.0	12.7	0.0334	14.9
5.00	21.2	21.0	15.3	0.0132	22.0	12.7	0.0211	14.9
15.00	21.1	19.0	13.3	0.0133	20.0	13.0	0.0124	12.9
30.00	21.1	18.0	12.3	0.0133	19.0	13.2	0.0088	12.0
61.00	21.2	17.0	11.3	0.0132	18.0	13.3	0.0062	11.0
250.00	22.0	15.0	9.5	0.0131	16.0	13.7	0.0031	9.3
1440.00	21.9	13.0	7.5	0.0131	14.0	14.0	0.0013	7.3

MACTEC Engineering and Consulting, Inc.

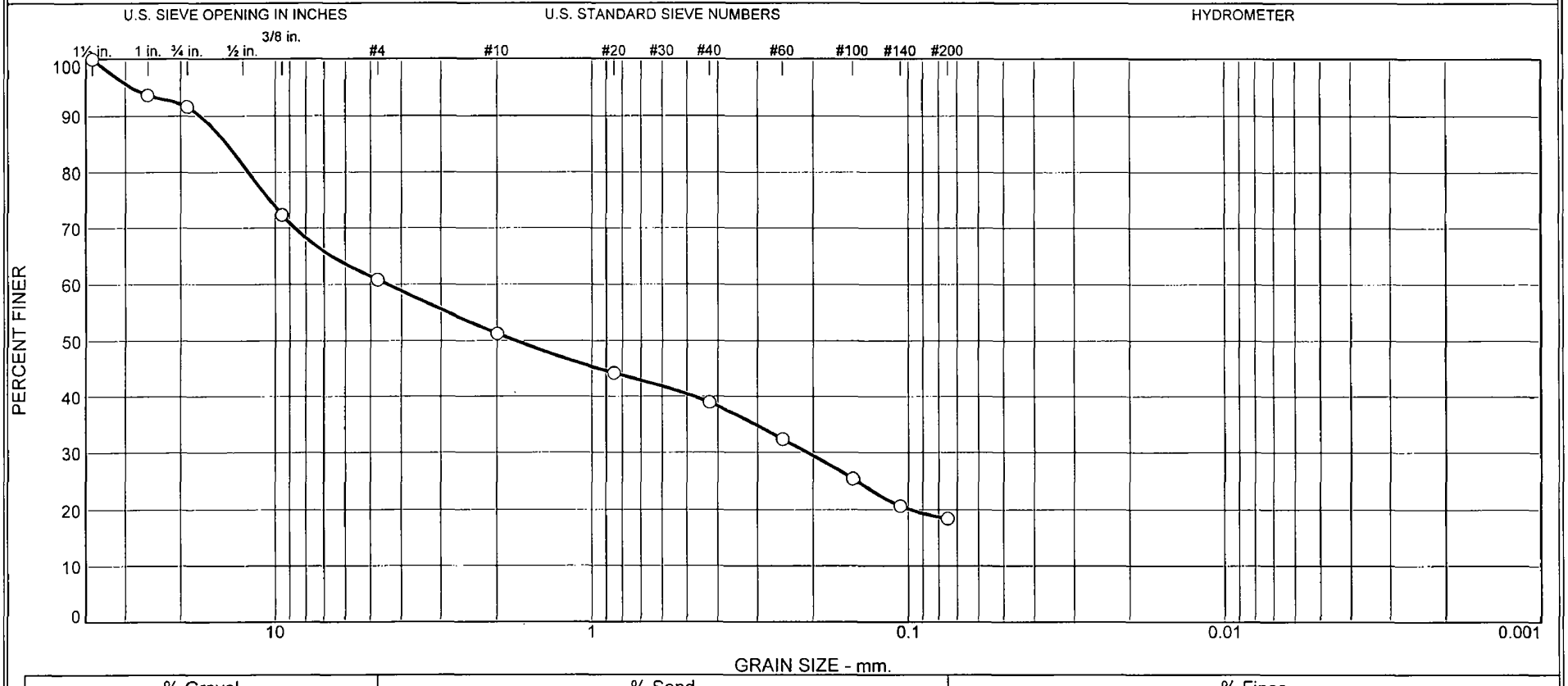
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.3	0.3	0.1	1.2	76.9	78.2	11.0	10.5	21.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0042	0.0343	0.0667	0.0886	0.1109	0.1205	0.1431	0.1532	0.1829	0.2326

Fineness Modulus	C_u	C_c
0.21	28.85	15.61

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	8	31	10	12	21	18	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-620(DH)	620-3	5.0-6.5	3/18/08	SM	Pale Yellow Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-620(DH)
Depth: 5.0-6.5 **Sample Number:** 620-3
Material Description: Pale Yellow Silty SAND with gravel (Visual)
Date: 3/18/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** 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
536.13	0.00	0.00	1.5	0.00	100
			1	34.31	94
			3/4	45.17	92
			3/8"	148.13	72
			#4	210.20	61
			#10	261.20	51
102.82	0.00	0.00	#20	14.19	44
			#40	24.84	39
			#60	38.02	32
			#100	51.89	25
			#140	61.40	21
			#200	65.96	18

Fractional Components

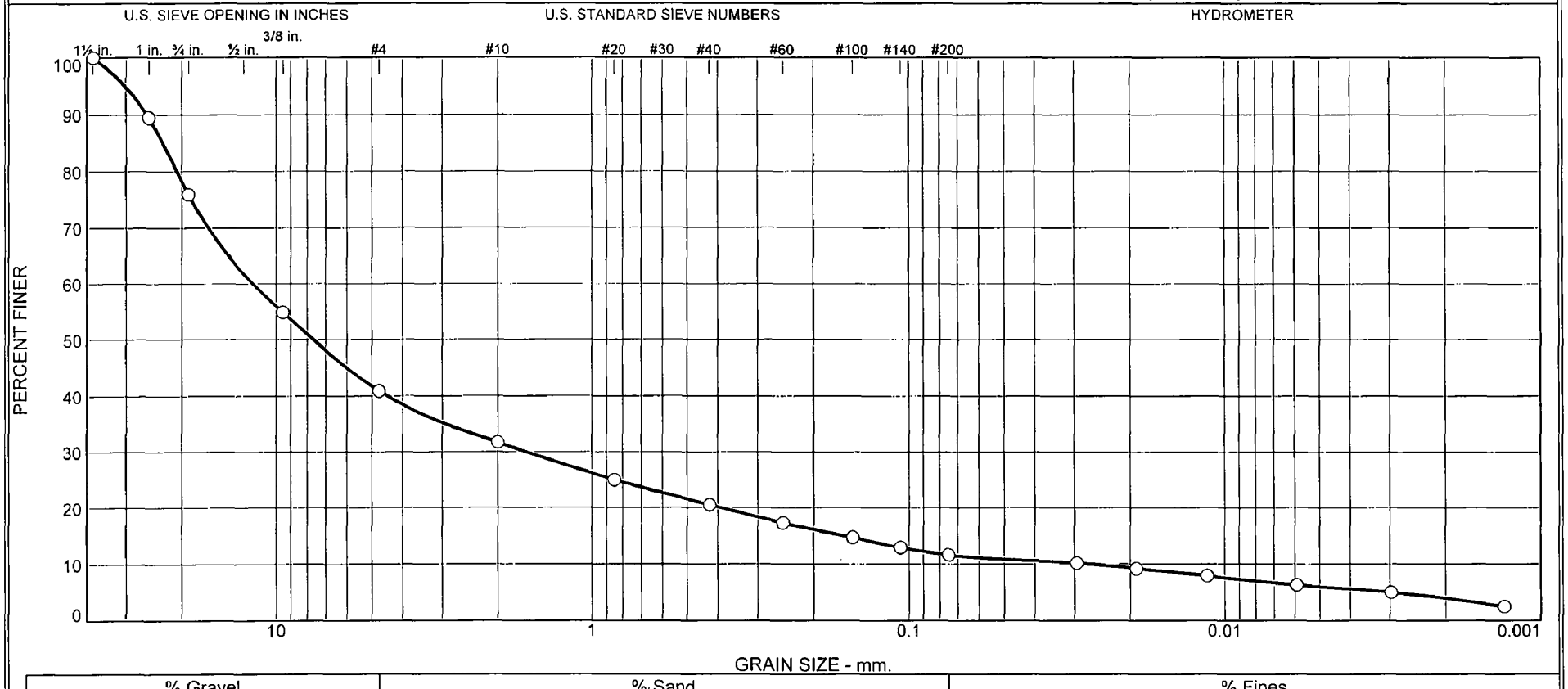
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	8	31	39	10	12	21	43			18

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0987	0.2096	1.7502	4.4323	12.1895	14.2676	17.3281	28.7421

Fineness Modulus
3.74

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	24.0	35.1	9.2	11.2	8.9	5.6	6.0

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-620(DH)	620-5	10.5-11.5	3/8/08	GP-GM	Pale Brown Poorly graded Silty GRAVEL (visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = NOT DETERMINED

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-620(DH)
Depth: 10.5-11.5 **Sample Number:** 620-5
Material Description: Pale Brown Poorly graded Silty GRAVEL (visual)
Date: 3/8/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GP-GM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
385.80	0.00	0.00	1.5	0.00	100.0
			1	40.64	89.5
			3/4	92.78	76.0
			3/8"	174.21	54.8
			#4	228.05	40.9
			#10	263.60	31.7
98.79	0.00	0.00	#20	21.00	24.9
			#40	34.82	20.5
			#60	44.91	17.3
			#100	52.88	14.7
			#140	58.40	13.0
			#200	62.51	11.6

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =31.7
Weight of hydrometer sample =98.79
Hygroscopic moisture correction:
Moist weight and tare = 28.90
Dry weight and tare = 28.79
Tare weight = 15.50
Hygroscopic moisture =0.8%
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 =2.700
Hydrometer type =152H
Hydrometer effective depth equation: L =16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.8	37.0	31.9	0.0131	38.0	10.1	0.0295	10.2
5.00	21.8	34.0	28.9	0.0131	35.0	10.6	0.0191	9.2
15.00	21.8	30.0	24.9	0.0131	31.0	11.2	0.0114	8.0
60.00	21.5	25.0	19.8	0.0132	26.0	12.0	0.0059	6.3
250.00	21.5	21.0	15.8	0.0132	22.0	12.7	0.0030	5.1
1440.00	21.3	13.0	7.7	0.0132	14.0	14.0	0.0013	2.5

MACTEC Engineering and Consulting, Inc.

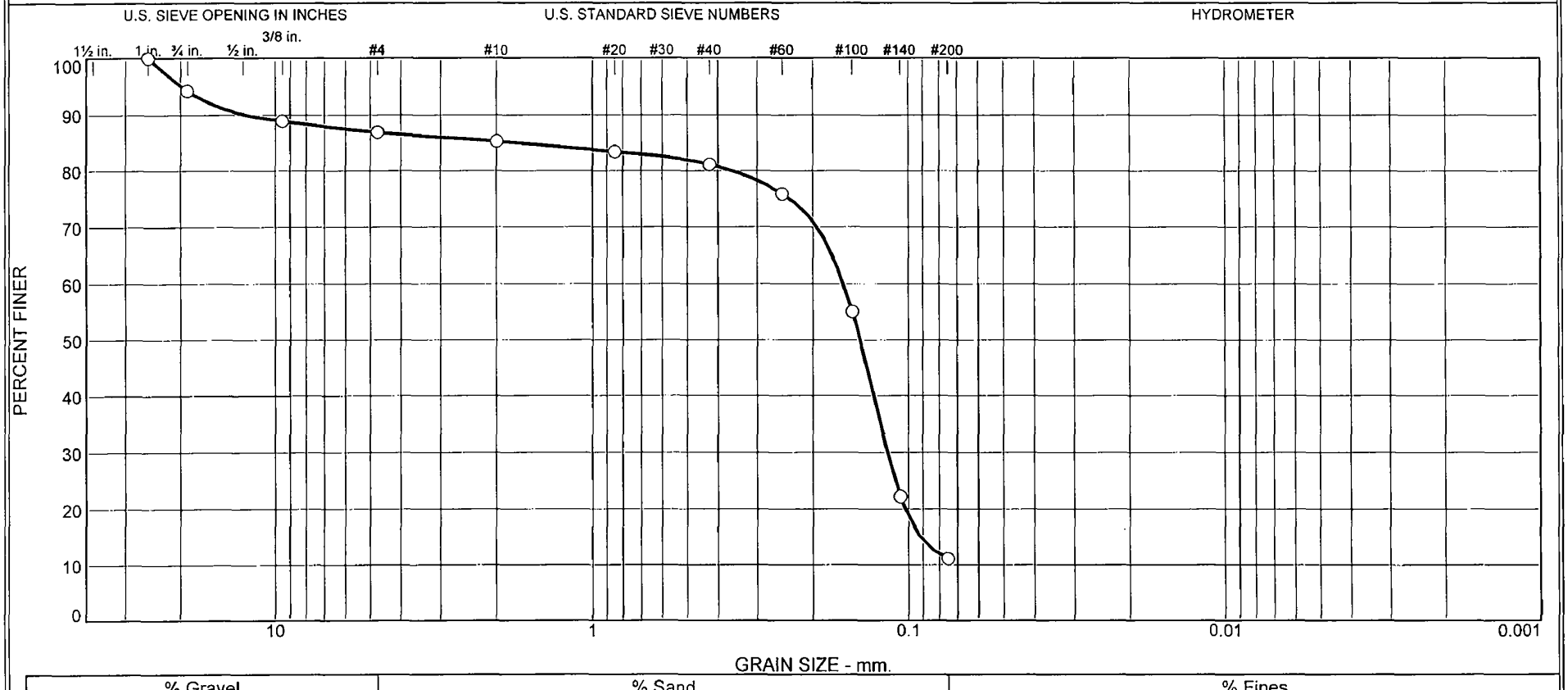
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	24.0	35.1	59.1	9.2	11.2	8.9	29.3	5.6	6.0	11.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0266	0.1586	0.3919	1.6314	7.6536	11.8678	20.7344	22.9670	25.7466	30.1254

Fineness Modulus	C_u	C_c
5.12	445.97	8.43

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	6	7	2	4	70	11	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring B-620(DH)	620-8	19.5-21.0	3/20/08	SP-SM	Brown Poorly graded Silty SAND (visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

O SIEVE ANALYSIS ONLY
ND = NOT DETERMINED

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-620(DH)
Depth: 19.5-21.0 **Sample Number:** 620-8
Material Description: Brown Poorly graded Silty SAND (visual)
Date: 3/20/08 **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
340.56	0.00	0.00	1	0.00	100
			3/4	19.47	94
			3/8"	37.77	89
			#4	44.63	87
			#10	50.08	85
99.83	0.00	0.00	#20	2.22	83
			#40	4.88	81
			#60	11.05	76
			#100	35.35	55
			#140	73.83	22
			#200	86.82	11

Fractional Components

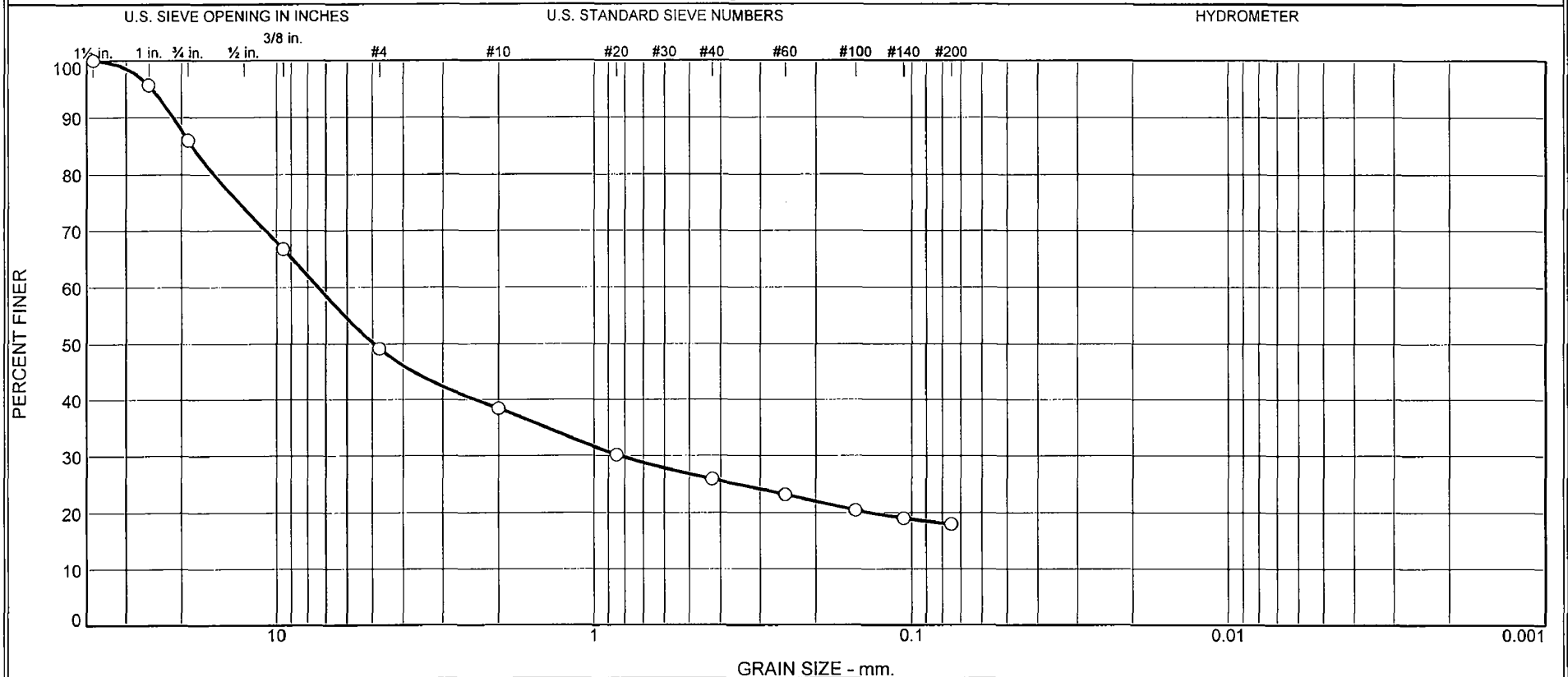
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	6	7	13	2	4	70	76			11

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0917	0.1025	0.1163	0.1419	0.1598	0.3604	1.7295	12.4642	19.8669

Fineness Modulus
1.44

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report / ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	14	37	11	12	8	18	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-620(DH)	620-10	120.5-122.0	3/20/08	GM	Pale Yellow Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 | Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-620(DH)
Depth: 120.5-122.0 **Sample Number:** 620-10
Material Description: Pale Yellow Silty GRAVEL with sand (Visual)
Date: 3/20/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
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
385.40	0.00	0.00	1.5	0.00	100
			1	16.45	96
			3/4	53.92	86
			3/8"	128.16	67
			#4	196.00	49
			#10	237.40	38
97.51	0.00	0.00	#20	20.78	30
			#40	31.65	26
			#60	38.55	23
			#100	45.63	20
			#140	49.26	19
			#200	52.00	18

Fractional Components

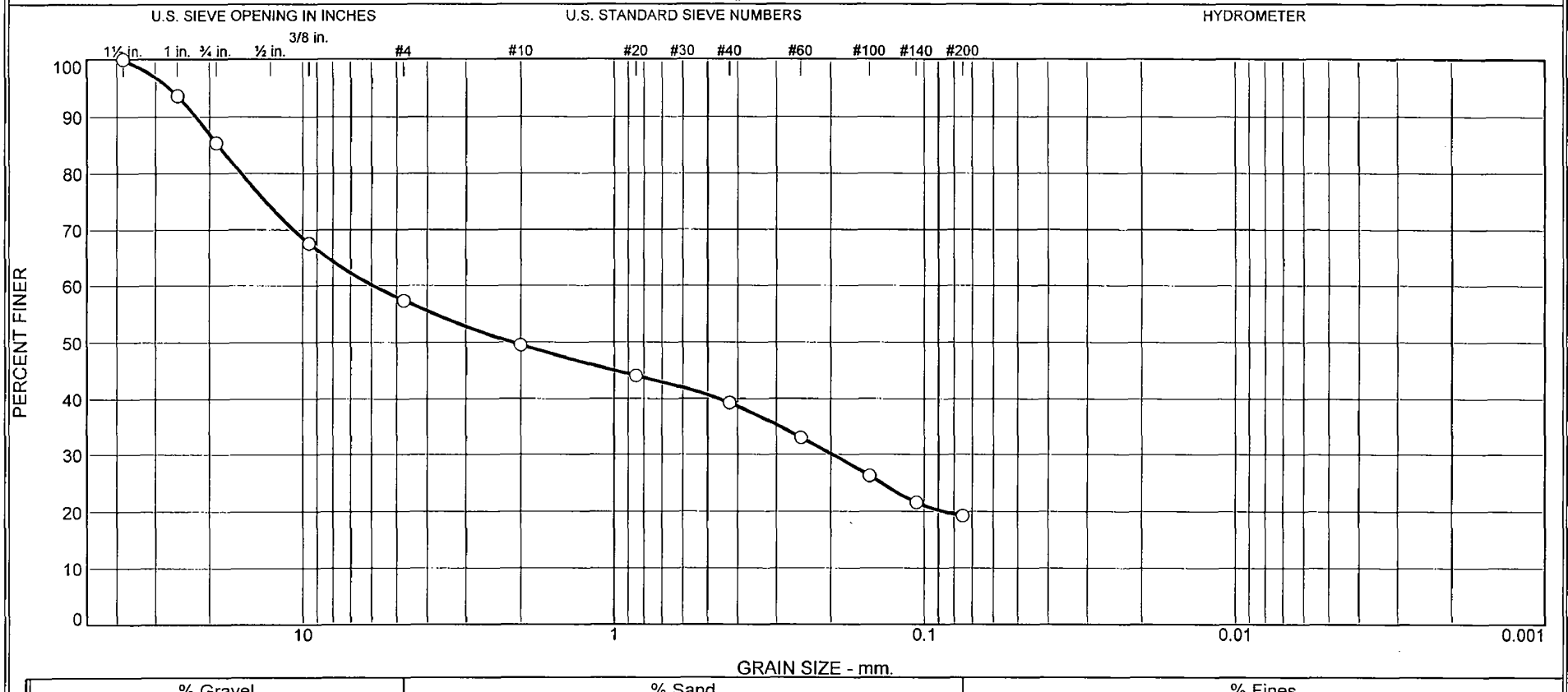
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	14	37	51	11	12	8	31			18

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.1367	0.8269	4.9516	7.4047	15.8044	18.5052	21.2567	24.7118

Fineness Modulus
4.53

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	15	28	7	11	20	19	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-621	621-4	7.5-9.0	4/3/08	GM	White Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-621
Depth: 7.5-9.0 **Sample Number:** 621-4
Material Description: White Silty GRAVEL with sand (Visual)
Date: 4/3/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
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
364.77	0.00	0.00	1.5	0.00	100
			1	23.09	94
			3/4	53.16	85
			3/8"	118.41	68
			#4	155.49	57
			#10	184.03	50
54.34	0.00	0.00	#20	6.00	44
			#40	11.31	39
			#60	18.16	33
			#100	25.60	26
			#140	30.65	22
			#200	33.24	19

Fractional Components

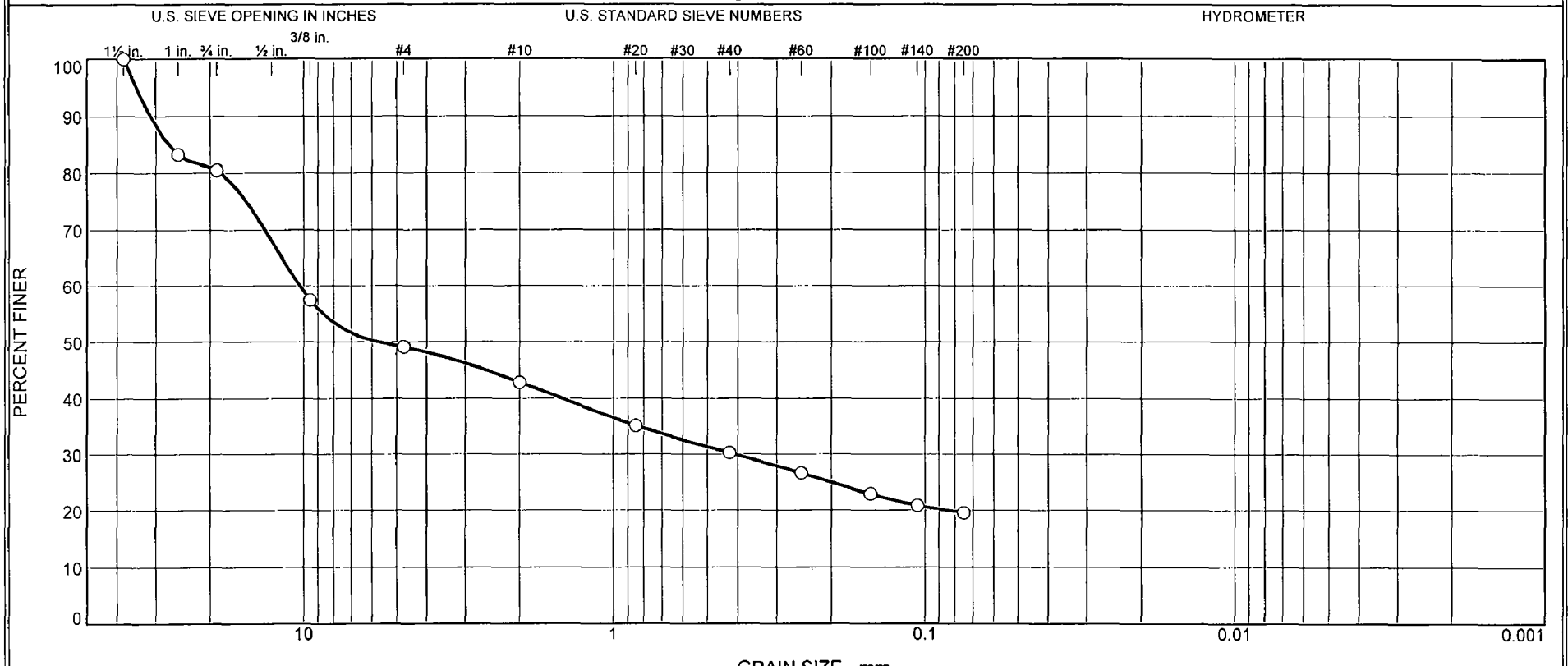
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	15	28	43	7	11	20	38			19

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0863	0.1982	2.1244	5.9352	15.8471	18.7848	22.1482	26.9956

Fineness Modulus
3.89

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	19	32	6	13	10	20	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-621	621-8	18.5-20.0	4/3/08	GM	White Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-621
Depth: 18.5-20.0 **Sample Number:** 621-8
Material Description: White Silty GRAVEL with sand (Visual)
Date: 4/3/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
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
367.59	0.00	0.00	1.5	0.00	100
			1	61.38	83
			3/4	71.57	81
			3/8"	156.33	57
			#4	187.07	49
			#10	210.10	43
95.93	0.00	0.00	#20	17.24	35
			#40	28.21	30
			#60	36.47	27
			#100	44.74	23
			#140	49.31	21
			#200	52.08	20

Fractional Components

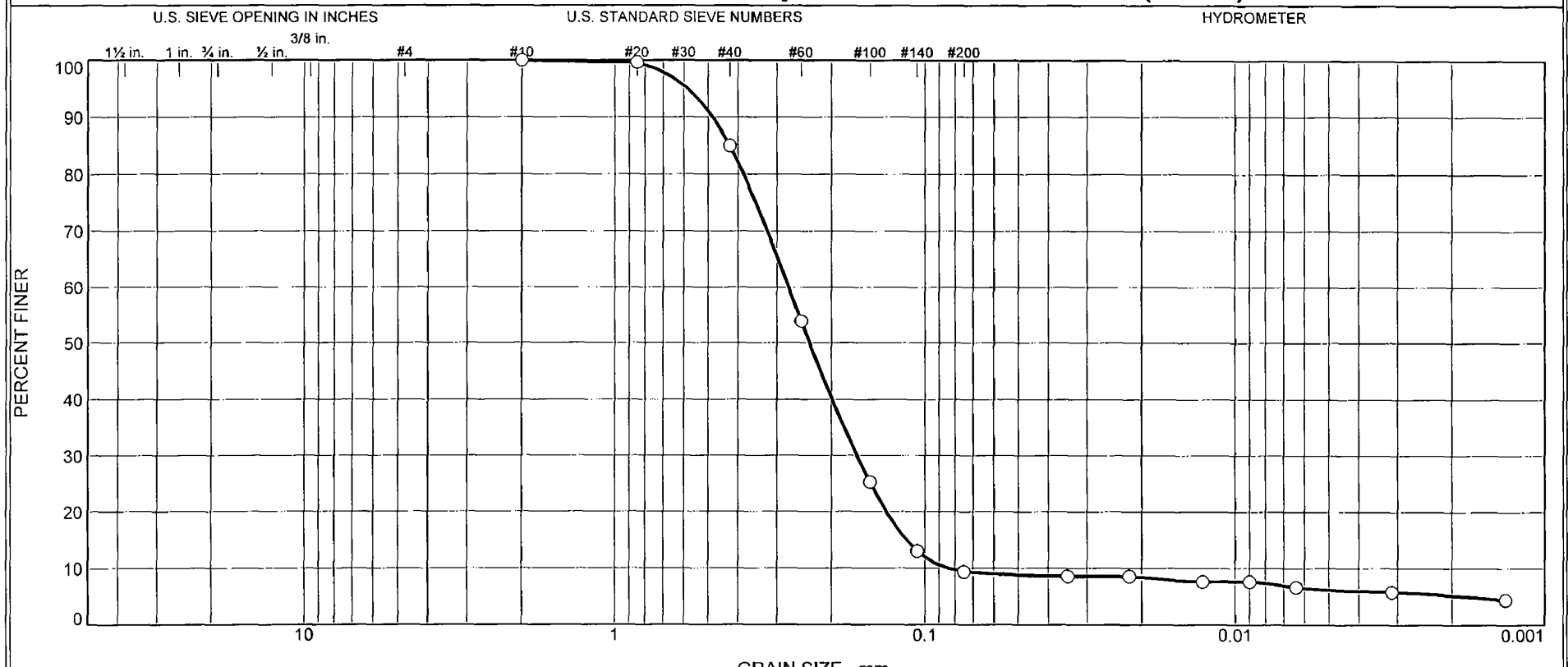
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	19	32	51	6	13	10	29			20

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0857	0.4098	5.7424	10.3036	18.4203	27.2192	31.1199	34.5760

Fineness Modulus
4.47

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	15.0	75.6	3.2	6.2

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-621	621-11	115.3-116.8	4/4/08	SP-SM	Greenish Gray Poorly Graded SAND with silt (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure NA

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
ND = Not Determined
Specific Gravity is assumed.

ZHU 7/23/08

Tested By: CS Checked By: LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-621
Depth: 115.3-116.8 **Sample Number:** 621-11
Material Description: Greenish Gray Poorly Graded SAND with silt (Visual)
Date: 4/4/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SP-SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER 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
335.75	0.00	0.00	#10	0.00	100.0
102.52	0.00	0.00	#20	0.43	99.6
			#40	15.36	85.0
			#60	47.26	53.9
			#100	76.64	25.2
			#140	89.17	13.0
			#200	92.93	9.4

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =102.52
Hygroscopic moisture correction:
Moist weight and tare = 24.62
Dry weight and tare = 24.56
Tare weight = 11.16
Hygroscopic moisture =0.4%
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 =2.700
Hydrometer type =152H
Hydrometer effective depth equation: L =16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.6	14.0	8.8	0.0132	15.0	13.8	0.0347	8.6
5.00	21.6	14.0	8.8	0.0132	15.0	13.8	0.0219	8.6
15.00	21.8	13.0	7.9	0.0131	14.0	14.0	0.0127	7.6
30.00	21.8	13.0	7.9	0.0131	14.0	14.0	0.0090	7.6
60.00	21.8	12.0	6.9	0.0131	13.0	14.2	0.0064	6.7
250.00	22.3	11.0	6.0	0.0131	12.0	14.3	0.0031	5.8
1440.00	20.7	10.0	4.6	0.0133	11.0	14.5	0.0013	4.4

MACTEC Engineering and Consulting, Inc.

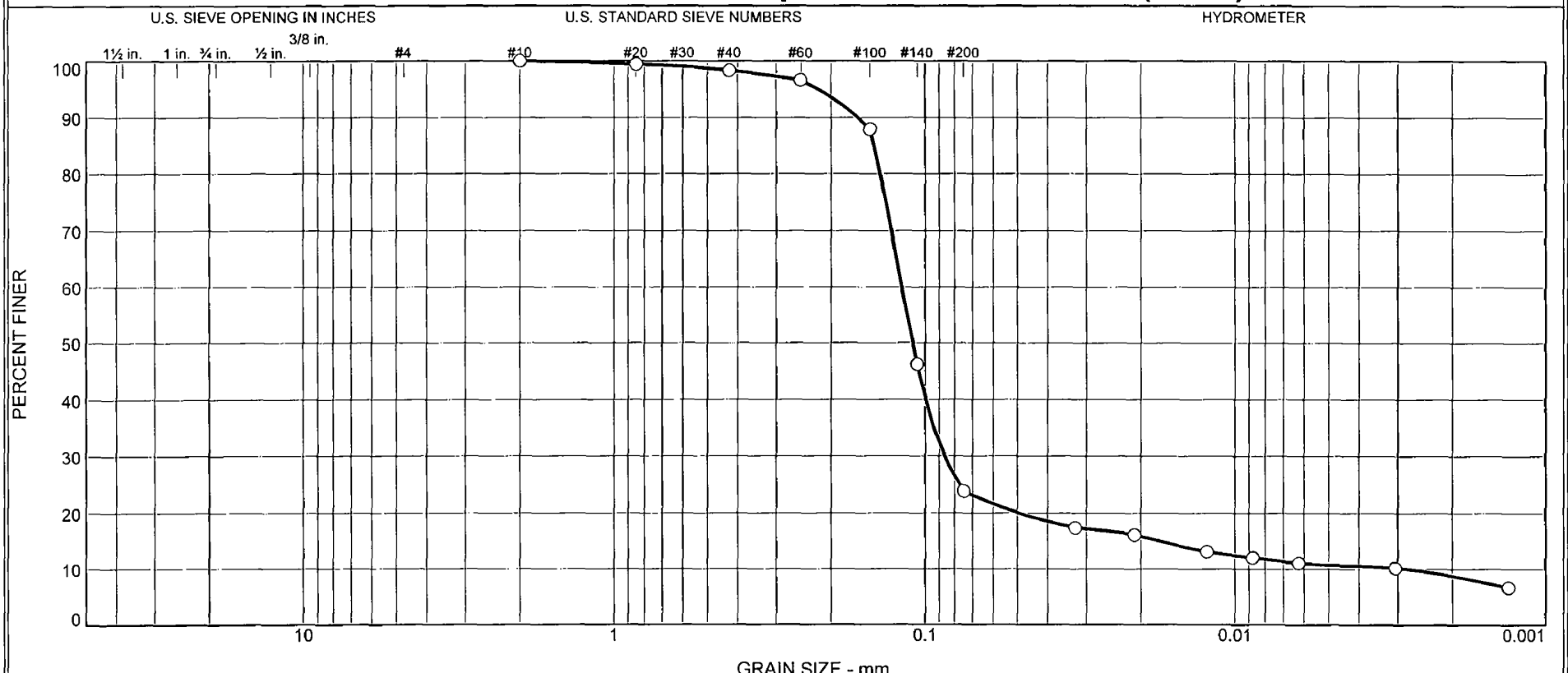
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	15.0	75.6	90.6	3.2	6.2	9.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0847	0.1146	0.1327	0.1655	0.2349	0.2750	0.3833	0.4248	0.4835	0.5829

Fineness Modulus	C_u	C_c
1.14	3.25	1.17

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	1.7	74.4	13.1	10.8

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-621	621-12	125.0-126.5	4/4/08	SM	Greenish Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-621
Depth: 125.0-126.5 **Sample Number:** 621-12
Material Description: Greenish Gray Silty SAND (Visual)
Date: 4/4/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYROMETER ONLY
Specific Gravity is assumed
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
270.27	0.00	0.00	#10	0.00	100.0
98.93	0.00	0.00	#20	0.58	99.4
			#40	1.64	98.3
			#60	3.38	96.6
			#100	11.95	87.9
			#140	53.24	46.2
			#200	75.31	23.9

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =98.93
Hygroscopic moisture correction:
Moist weight and tare = 28.25
Dry weight and tare = 28.02
Tare weight = 15.04
Hygroscopic moisture =1.8%
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 =2.700
Hydrometer type =152H
Hydrometer effective depth equation: L =16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.6	22.0	17.1	0.0130	23.0	12.5	0.0326	17.4
5.00	21.6	21.0	15.8	0.0132	22.0	12.7	0.0210	16.1
15.00	21.9	18.0	12.9	0.0131	19.0	13.2	0.0123	13.1
30.00	21.8	17.0	11.9	0.0131	18.0	13.3	0.0088	12.1
60.00	21.9	16.0	10.9	0.0131	17.0	13.5	0.0062	11.1
250.00	22.4	15.0	10.0	0.0131	16.0	13.7	0.0031	10.2
1440.00	20.8	12.0	6.6	0.0133	13.0	14.2	0.0013	6.7

MACTEC Engineering and Consulting, Inc.

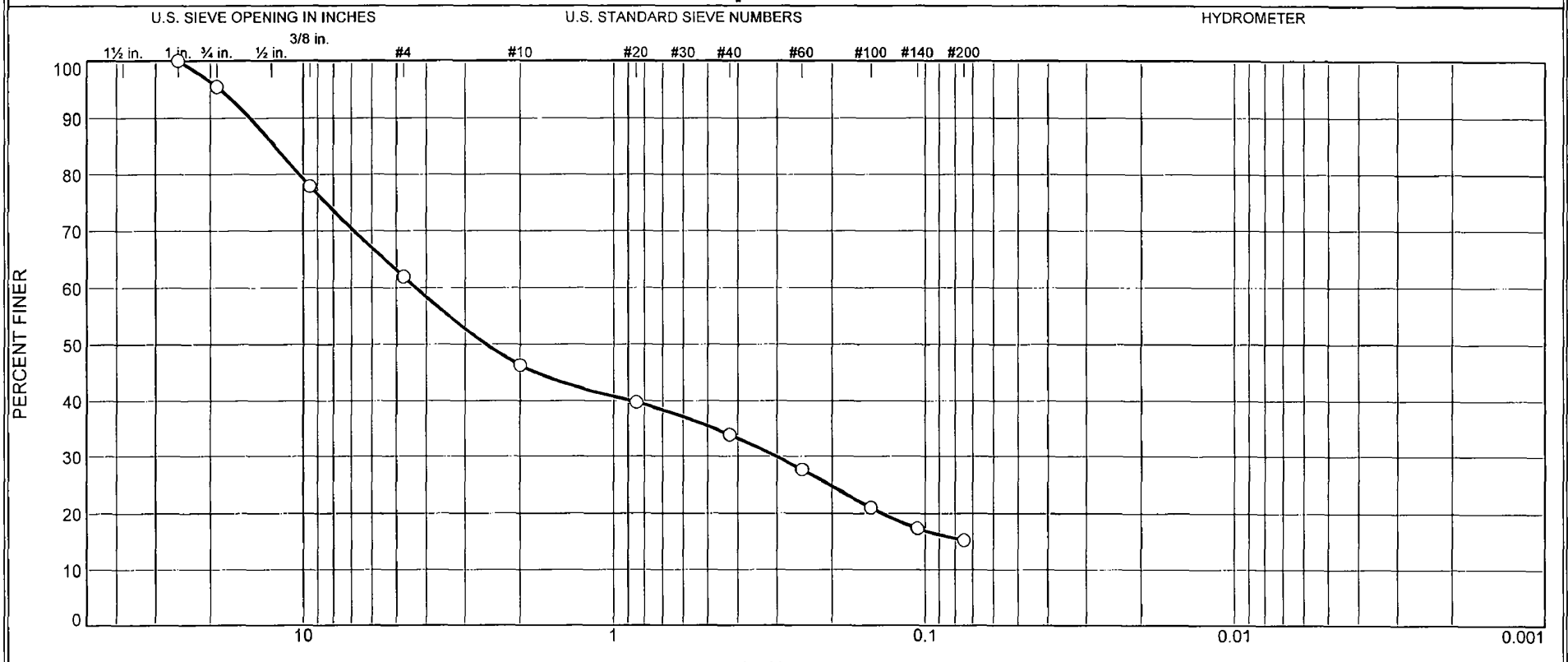
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	1.7	74.4	76.1	13.1	10.8	23.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0028	0.0174	0.0496	0.0864	0.1096	0.1187	0.1388	0.1454	0.1646	0.2191

Fineness Modulus	C_u	C_c
0.16	42.66	22.62

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	4	34	16	12	19	15	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-625	625-3	5.1-6.6	3/23/08	SM	White Silty SAND with gravel (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-625
Depth: 5.1-6.6 **Sample Number:** 625-3
Material Description: White Silty SAND with gravel (Visual)
Date: 3/23/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** 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
274.76	0.00	0.00	1	0.00	100
			3/4	12.34	96
			3/8"	60.65	78
			#4	104.47	62
			#10	147.47	46
102.31	0.00	0.00	#20	14.61	40
			#40	27.53	34
			#60	41.33	28
			#100	55.94	21
			#140	64.06	17
			#200	68.62	15

Fractional Components

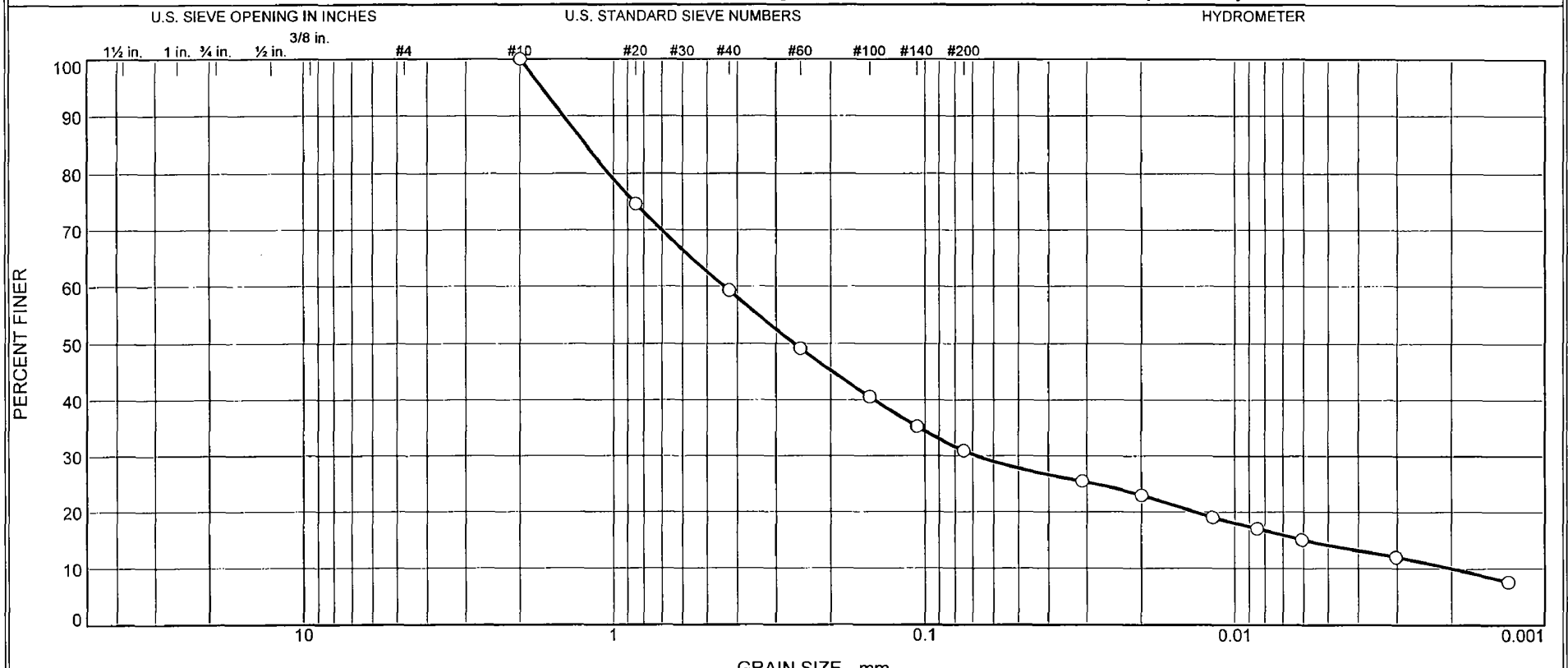
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	4	34	38	16	12	19	47			15

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.1381	0.3025	2.5711	4.3240	10.2952	12.3539	14.9108	18.5565

Fineness Modulus
3.86

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	40.7	28.3	16.9	14.1

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-625	625-6	12.5-14.0	3/23/08	SM	White Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-625
Depth: 12.5-14.0 **Sample Number:** 625-6
Material Description: White Silty SAND (Visual)
Date: 3/23/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
462.60	0.00	0.00	#10	0.00	100.0
99.30	0.00	0.00	#20	25.16	74.7
			#40	40.41	59.3
			#60	50.50	49.1
			#100	59.06	40.5
			#140	64.27	35.3
			#200	68.56	31.0

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =99.30
Hygroscopic moisture correction:
Moist weight and tare = 30.01
Dry weight and tare = 29.87
Tare weight = 15.30
Hygroscopic moisture =1.0%
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 =2.700
Hydrometer type =152H
Hydrometer effective depth equation: L =16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.6	30.5	25.3	0.0132	31.5	11.1	0.0311	25.5
5.00	21.6	28.0	22.8	0.0132	29.0	11.5	0.0200	23.0
15.00	21.9	24.0	18.9	0.0131	25.0	12.2	0.0118	19.0
30.00	21.9	22.0	16.9	0.0131	23.0	12.5	0.0085	17.0
60.00	22.0	20.0	14.9	0.0131	21.0	12.9	0.0061	15.0
250.00	22.1	17.0	12.0	0.0131	18.0	13.3	0.0030	12.0
1440.00	20.8	13.0	7.6	0.0133	14.0	14.0	0.0013	7.7

MACTEC Engineering and Consulting, Inc.

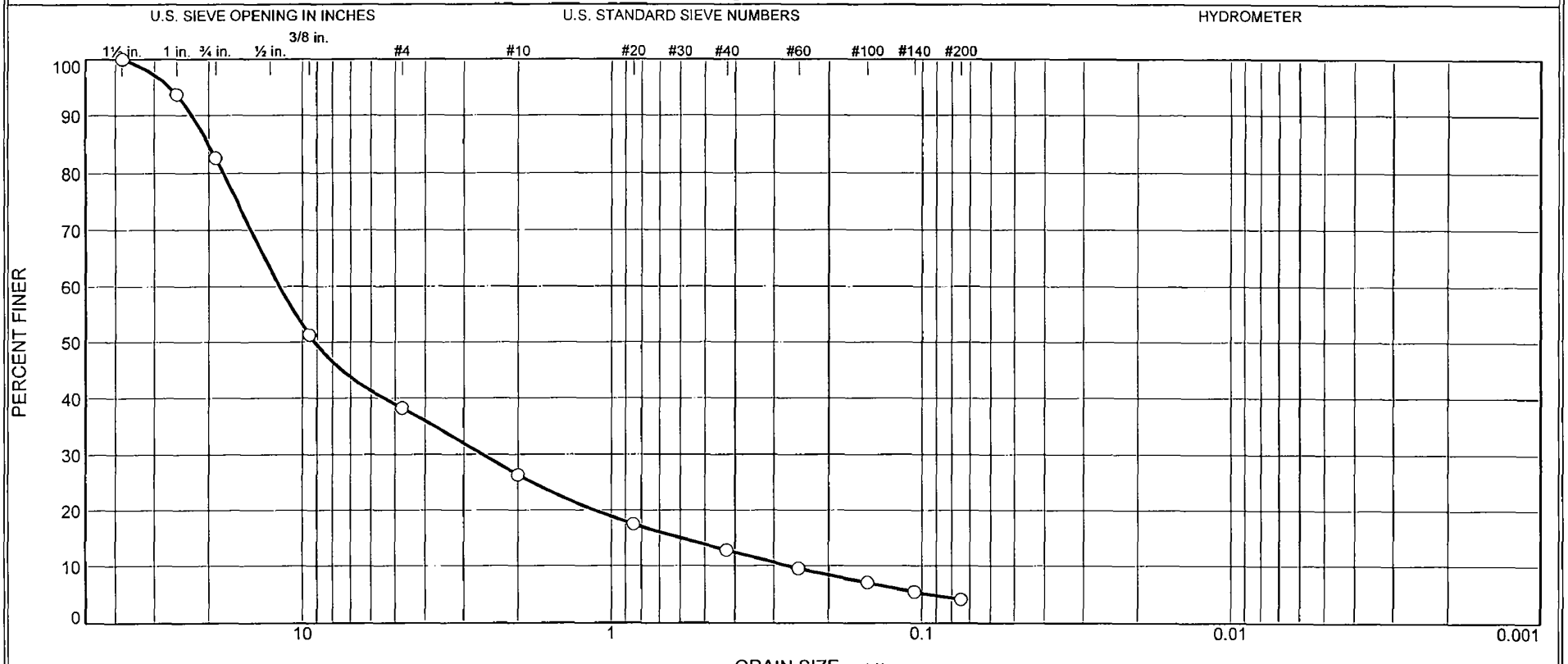
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	40.7	28.3	69.0	16.9	14.1	31.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0020	0.0060	0.0136	0.0679	0.2621	0.4400	1.0364	1.2320	1.4533	1.7067

Fineness Modulus	C_u	C_c
1.57	220.18	5.24

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	17	45	12	13	9	4	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-625	625-7	15.2-16.4	3/23/08	GW	White Well graded GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-625
Depth: 15.2-16.4 **Sample Number:** 625-7
Material Description: White Well graded GRAVEL with sand (Visual)
Date: 3/23/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GW
Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =316.87
Tare Wt. = 0.00
Minus #200 from wash =0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
316.87	0.00	0.00	1.5	0.00	100
			1	19.99	94
			3/4	54.88	83
			3/8"	154.26	51
			#4	195.60	38
			#10	233.40	26
			#20	261.50	17
			#40	276.20	13
			#60	286.60	10
			#100	294.50	7
			#140	299.60	5
			#200	303.80	4

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	17	45	62	12	13	9	34			4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.2705	0.5988	1.1371	2.6146	9.1418	11.8584	17.9834	20.0626	22.6885	26.7254

Fineness Modulus	C_u	C_c
5.46	43.85	2.13

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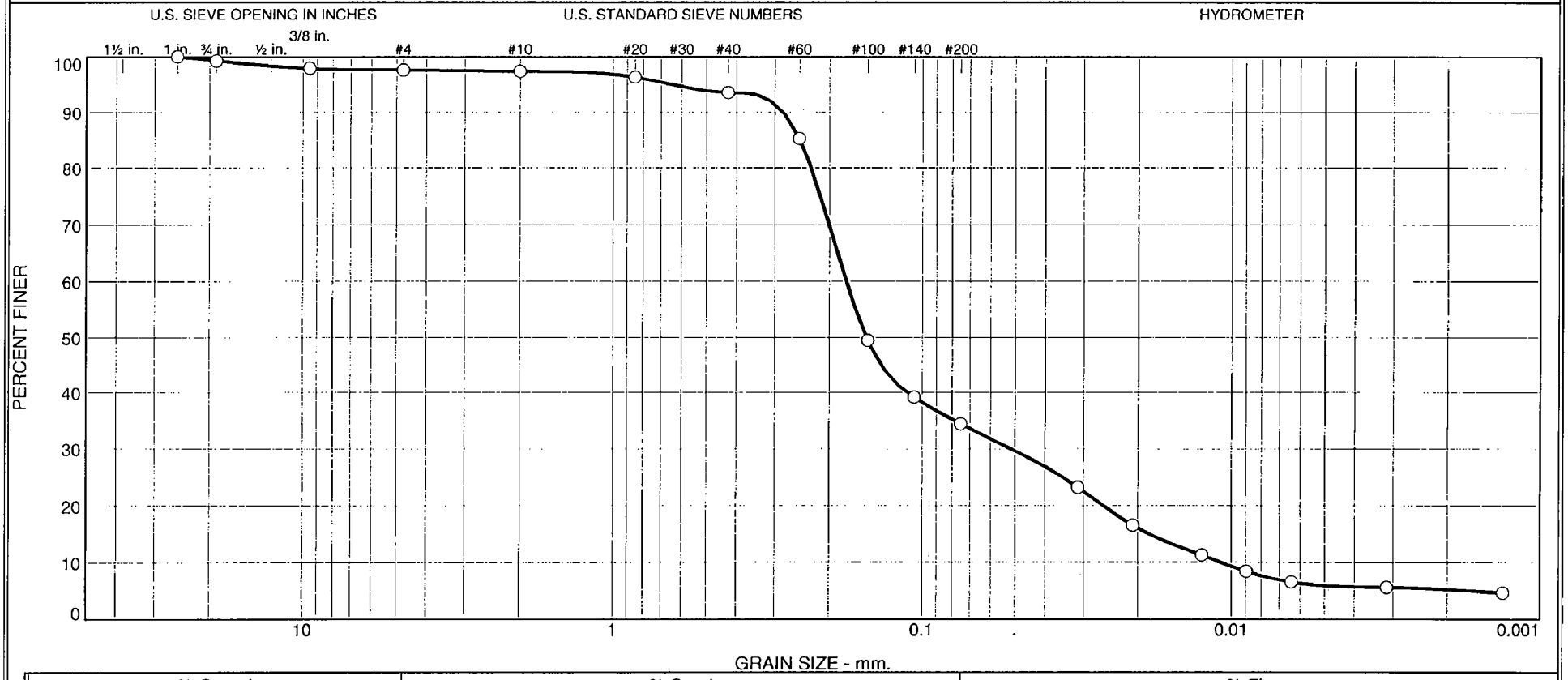
Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.7	1.6	0.3	3.8	59.2	28.5	5.9

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-625	625-8	120.4-121.3	5/8/08	SM	Light Olive Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

7/2/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-625
Depth: 120.4-121.3 **Sample Number:** 625-8
Material Description: Light Olive Gray Silty SAND (Visual)
Date: 5/8/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
399.76	0.00	0.00	1	0.00	100.0
			3/4	2.78	99.3
			3/8"	8.19	98.0
			#4	9.19	97.7
			#10	10.20	97.4
101.06	0.00	0.00	#20	1.10	96.4
			#40	3.98	93.6
			#60	12.67	85.2
			#100	49.76	49.5
			#140	60.45	39.2
			#200	65.36	34.4

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 97.4
Weight of hydrometer sample =101.06
Hygroscopic moisture correction:
Moist weight and tare = 27.63
Dry weight and tare = 27.58
Tare weight = 15.38
Hygroscopic moisture = 0.4%
Table of composite correction values:

Temp., deg. C:	11.6	29.4
Comp. corr.:	-8.0	-3.0

Meniscus correction only = 1.0
Specific gravity of solids = 2.700
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.6	29.5	24.3	0.0132	30.5	11.3	0.0313	23.3
5.00	21.6	22.5	17.3	0.0132	23.5	12.4	0.0208	16.6
15.00	21.6	17.0	11.8	0.0132	18.0	13.3	0.0124	11.3
30.00	21.6	14.0	8.8	0.0132	15.0	13.8	0.0090	8.4
60.00	21.6	12.0	6.8	0.0132	13.0	14.2	0.0064	6.5
250.00	21.7	11.0	5.8	0.0132	12.0	14.3	0.0032	5.6
1440.00	21.6	10.0	4.8	0.0132	11.0	14.5	0.0013	4.6

MACTEC Engineering and Consulting, Inc.

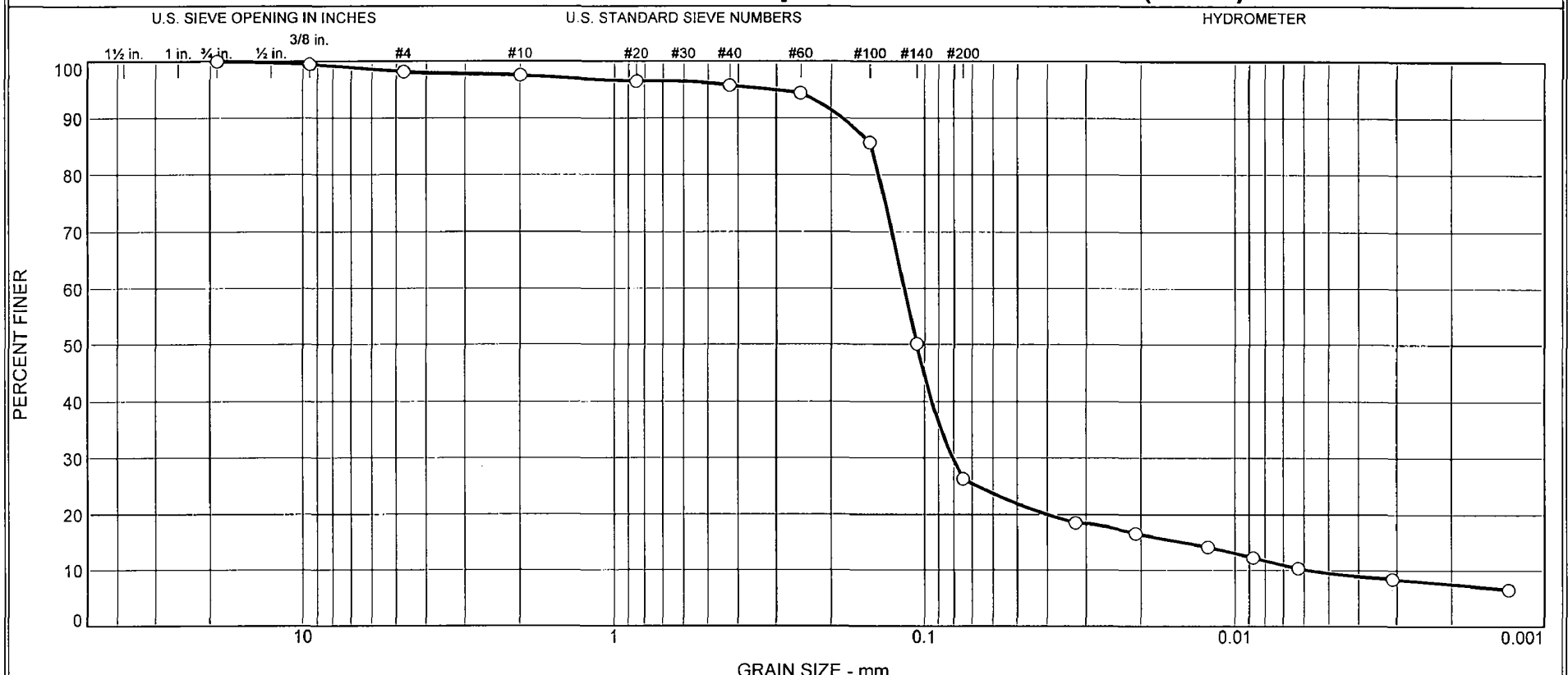
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.7	1.6	2.3	0.3	3.8	59.2	63.3	28.5	5.9	34.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0108	0.0184	0.0258	0.0514	0.1515	0.1758	0.2289	0.2489	0.2820	0.6366

Fineness Modulus	C_u	C_c
0.75	16.34	1.40

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	1.8	0.6	1.9	69.4	16.8	9.5

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-625	625-9	125.2-126.7	3/23/08	SM	Light Olive Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-625
Depth: 125.2-126.7 **Sample Number:** 625-9
Material Description: Light Olive Gray Silty SAND (Visual)
Date: 3/23/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
341.32	0.00	0.00	3/4	0.00	100.0
			3/8"	1.72	99.5
			#4	6.17	98.2
			#10	8.32	97.6
101.01	0.00	0.00	#20	1.08	96.5
			#40	1.88	95.7
			#60	3.27	94.4
			#100	12.32	85.7
			#140	49.12	50.1
			#200	73.74	26.3

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =97.6
Weight of hydrometer sample =101.01
Hygroscopic moisture correction:
Moist weight and tare = 27.36
Dry weight and tare = 27.31
Tare weight = 15.31
Hygroscopic moisture =0.4%
Table of composite correction values:

Temp., deg. C:	11.6	29.4
Comp. corr.:	-8.0	-3.0

Meniscus correction only =1.0
Specific gravity of solids =2.700
Hydrometer type =152H
Hydrometer effective depth equation: L =16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.6	24.5	19.3	0.0132	25.5	12.1	0.0324	18.5
5.00	21.6	22.5	17.3	0.0132	23.5	12.4	0.0208	16.6
15.00	21.5	20.0	14.8	0.0132	21.0	12.9	0.0122	14.2
30.00	21.5	18.0	12.8	0.0132	19.0	13.2	0.0087	12.3
60.00	21.5	16.0	10.8	0.0132	17.0	13.5	0.0063	10.3
250.00	21.6	14.0	8.8	0.0132	15.0	13.8	0.0031	8.4
1440.00	21.6	12.0	6.8	0.0132	13.0	14.2	0.0013	6.5

MACTEC Engineering and Consulting, Inc.

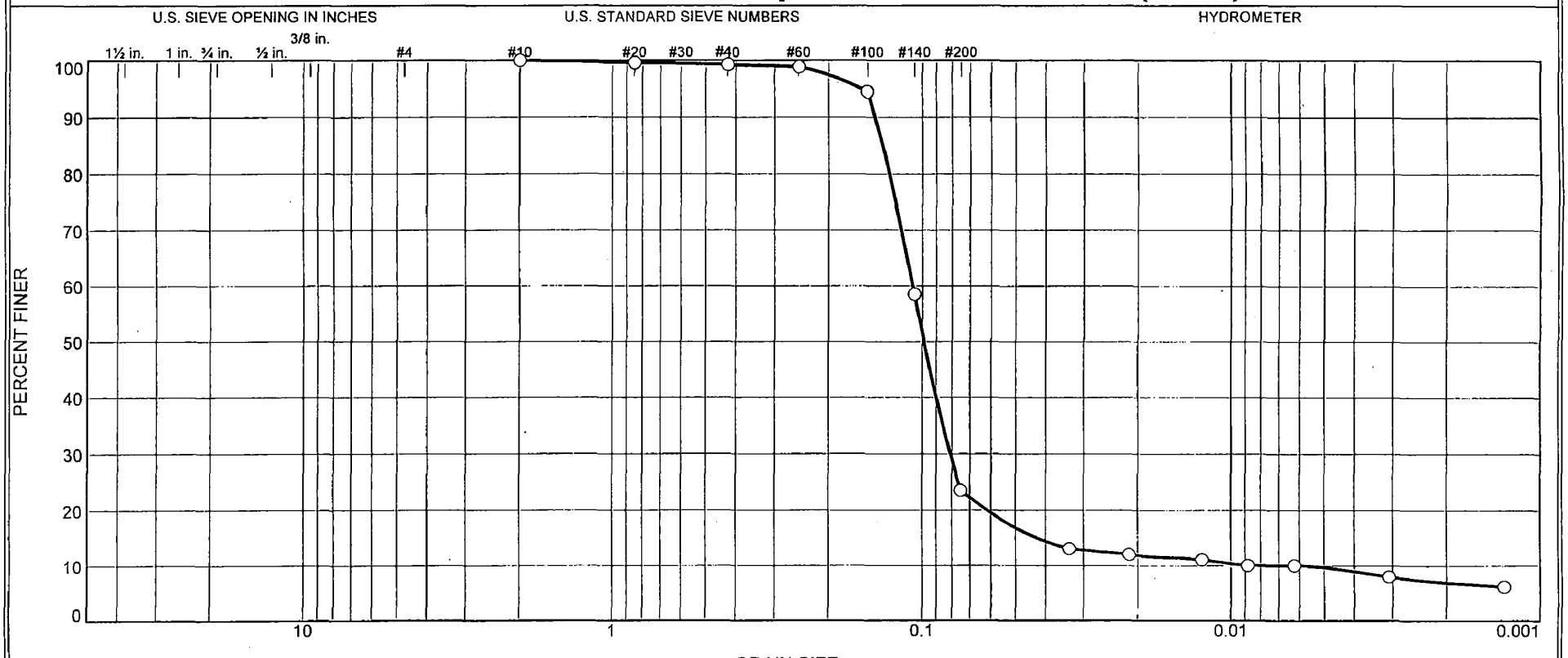
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	1.8	1.8	0.6	1.9	69.4	71.9	16.8	9.5	26.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0058	0.0147	0.0402	0.0811	0.1059	0.1163	0.1402	0.1487	0.1836	0.3069

Fineness Modulus	C_u	C_c
0.31	20.07	9.75

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.7	75.8	13.8	9.7

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-630	UD-2	129.5-132	4/17/08	SM	Light Yellowish Brown Silty SAND	32.5	25	24

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ Specific Gravity is Assumed

ZHU 7/22/08

Tested By: CS Checked By: LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-630
Depth: 129.5-132 **Sample Number:** UD-2
Material Description: Light Yellowish Brown Silty SAND
Date: 4/17/08 **Natural Moisture:** 32.5
Liquid Limit: 25 **Plastic Limit:** 24 **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
265.17	0.00	0.00	#10	0.00	100.0
99.11	0.00	0.00	#20	0.40	99.6
			#40	0.74	99.3
			#60	1.08	98.9
			#100	5.44	94.5
			#140	41.05	58.6
			#200	75.78	23.5

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 = 24.98
Dry weight and tare = 24.97
Tare weight = 11.34
Hygroscopic moisture =0.1%
Table of composite correction values:

Temp., deg. C:	29.3	11.7
Comp. corr.:	-8.0	-3.0

Meniscus correction only =1.0
Specific gravity of solids =2.7
Hydrometer type =152H
Hydrometer effective depth equation: L =16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.9	19.0	13.1	0.0131	20.0	13.0	0.0335	13.1
5.00	21.9	18.0	12.1	0.0131	19.0	13.2	0.0213	12.1
15.00	21.9	17.0	11.1	0.0131	18.0	13.3	0.0124	11.1
30.00	21.9	16.0	10.1	0.0131	17.0	13.5	0.0088	10.1
60.00	21.9	16.0	10.1	0.0131	17.0	13.5	0.0062	10.1
250.00	22.1	14.0	8.0	0.0131	15.0	13.8	0.0031	8.0
1440.00	21.7	12.0	6.2	0.0132	13.0	14.2	0.0013	6.1

MACTEC Engineering and Consulting, Inc.

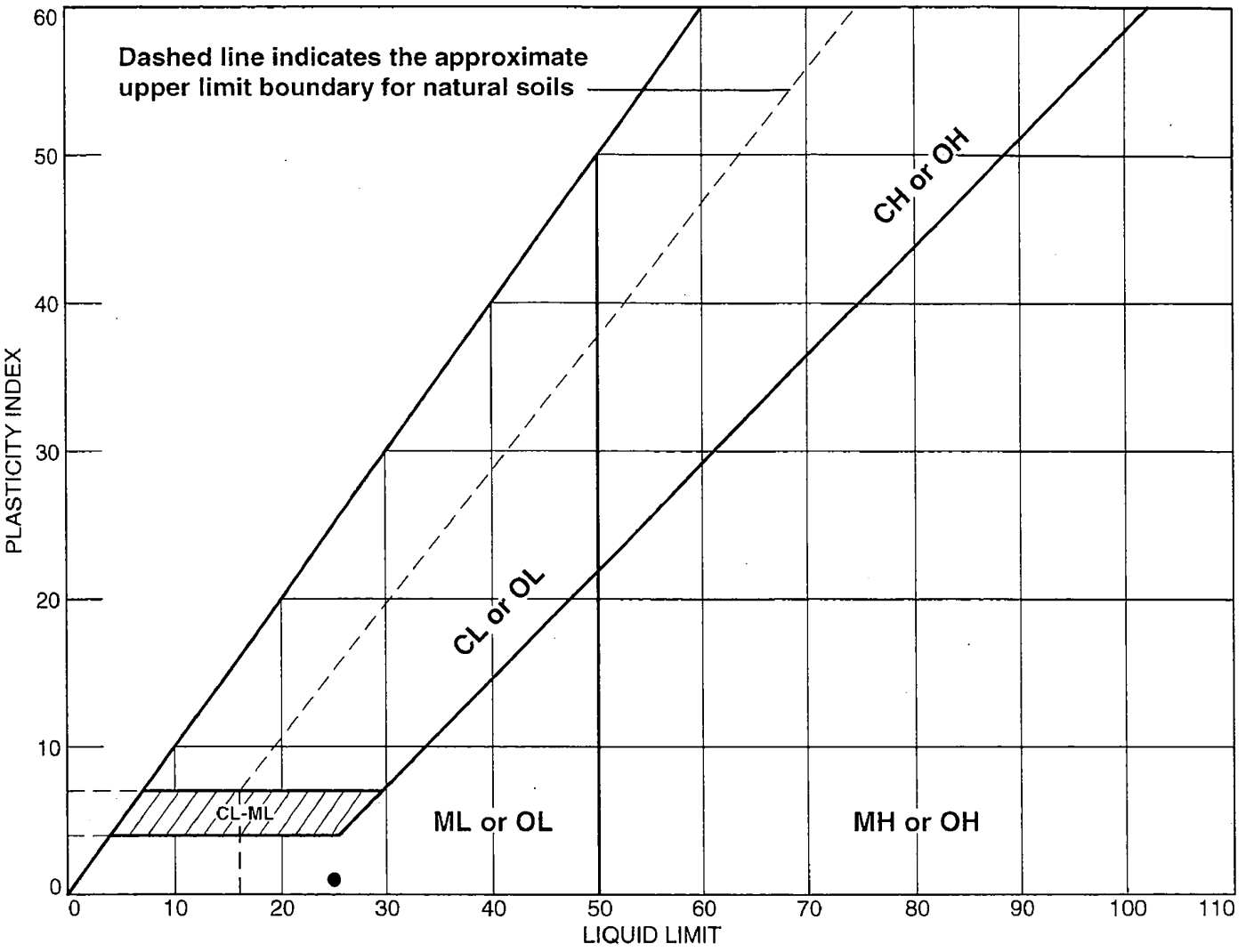
Fractional Components

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	75.8	76.5	13.8	9.7	23.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0057	0.0424	0.0618	0.0813	0.0986	0.1073	0.1273	0.1336	0.1412	0.1561

Fineness Modulus	C_u	C_c
0.07	18.88	10.84

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
●	Boring B-630	UD-2	129.5-132	32.5	24	25	1	SM

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure** N/A

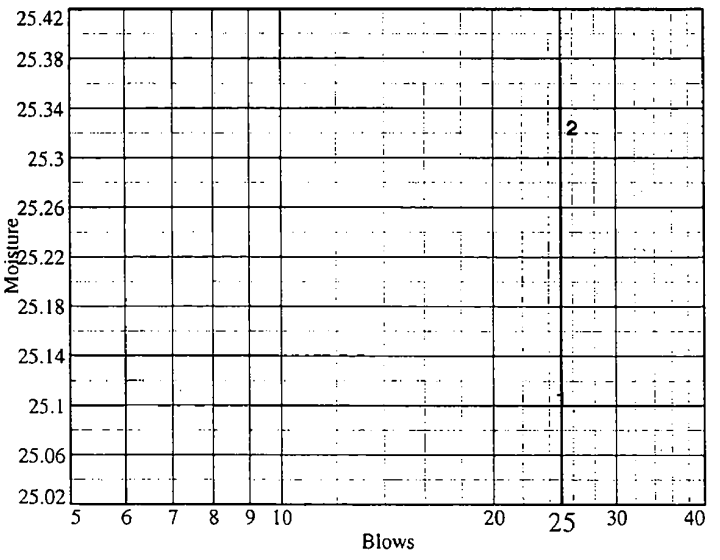
Tested By: CS **Checked By:** LBJ ZHU 7/22/08

LIQUID AND PLASTIC LIMIT TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-630
Depth: 129.5-132 **Sample Number:** UD-2
Material Description: Light Yellowish Brown Silty SAND
USCS: SM **AASHTO:** A-2-4(0)
Tested by: CS **Checked by:** LBJ

Run No.	1	2	3	4	5	6
Wet+Tare		26.79		33.21		
Dry+Tare	29.65	23.67				
Tare	15.47	11.35				
# Blows	25	26				
Moisture	25.1	25.3				



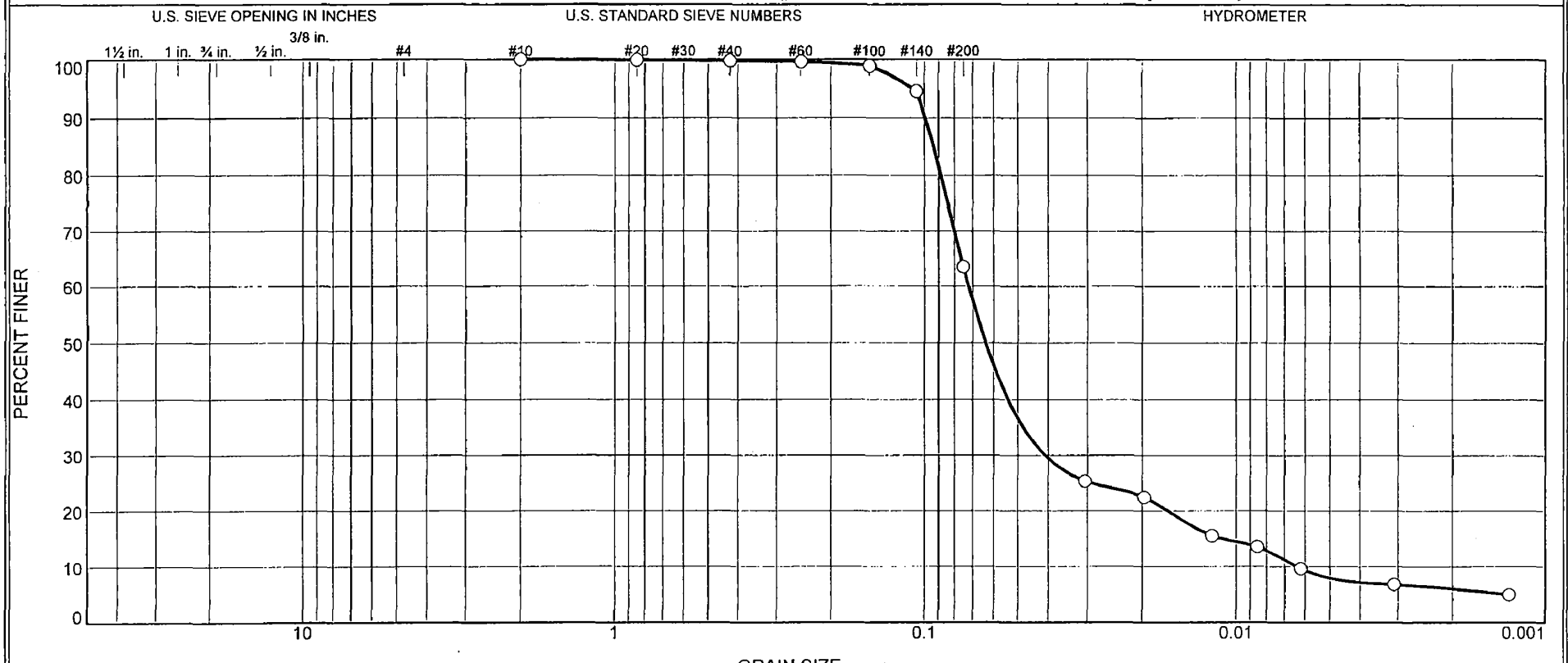
Liquid Limit= 25
Plastic Limit= 24
Plasticity Index= 1
Natural Moisture= 32.5
Liquidity Index= 8.5

Run No.	1	2	3	4	
Wet+Tare	33.26	33.56			
Dry+Tare	29.86	29.99			
Tare	15.50	15.49			
Moisture	23.7	24.6			

Wet+Tare	Dry+Tare	Tare	Moisture
129.58	99.47	6.77	32.5

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.2	36.3	55.6	7.9

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-630	UD-8	161.5-163.1	4/18/08	ML	Greenish Gray Sandy SILT	31.4	26	24

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ Specific Gravity is Assumed

ZHU 7/22/08

Tested By: CS Checked By: LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-630
Depth: 161.5-163.1 **Sample Number:** UD-8
Material Description: Greenish Gray Sandy SILT
Date: 4/18/08 **Natural Moisture:** 31.4
Liquid Limit: 26 **Plastic Limit:** 24 **USCS Class.:** ML
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
260.32	0.00	0.00	#10	0.00	100.0
102.38	0.00	0.00	#20	0.09	99.9
			#40	0.23	99.8
			#60	0.38	99.6
			#100	1.13	98.9
			#140	5.53	94.6
			#200	37.35	63.5

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =102.38
Hygroscopic moisture correction:
Moist weight and tare = 27.38
Dry weight and tare = 27.30
Tare weight = 15.46
Hygroscopic moisture =0.7%
Table of composite correction values:

Temp., deg. C:	29.3	11.7
Comp. corr.:	-8.0	-3.0

Meniscus correction only =1.0
Specific gravity of solids =2.7
Hydrometer type =152H
Hydrometer effective depth equation: L =16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.3	32.0	26.0	0.0131	33.0	10.9	0.0305	25.3
5.00	22.3	29.0	23.0	0.0131	30.0	11.4	0.0197	22.4
15.00	22.3	22.0	16.0	0.0131	23.0	12.5	0.0119	15.5
30.00	22.3	20.0	14.0	0.0131	21.0	12.9	0.0086	13.6
60.00	22.3	16.0	10.0	0.0131	17.0	13.5	0.0062	9.7
250.00	22.3	13.0	7.0	0.0131	14.0	14.0	0.0031	6.8
1440.00	21.9	11.0	5.1	0.0131	12.0	14.3	0.0013	5.0

MACTEC Engineering and Consulting, Inc.

Fractional Components

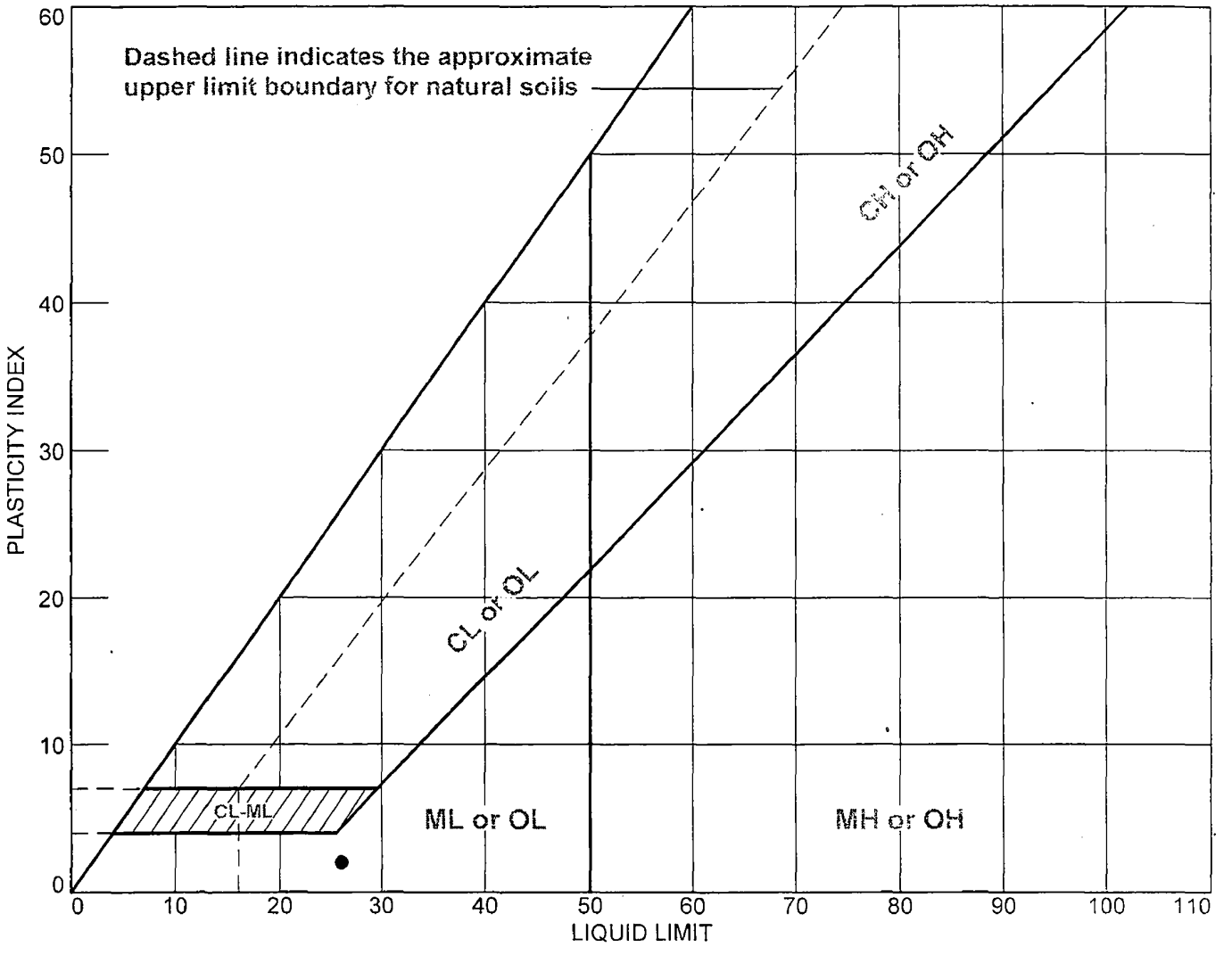
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.2	36.3	36.5	55.6	7.9	63.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0064	0.0110	0.0165	0.0411	0.0636	0.0722	0.0885	0.0932	0.0989	0.1086

Fineness Modulus	C_u	C_c
0.02	11.36	3.68

MACTEC Engineering and Consulting, Inc.

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
●	Boring B-630	UD-8	161.5-163.1	31.4	24	26	2	ML

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure** N/A

Tested By: CS **Checked By:** LBJ ZHU 7/22/08

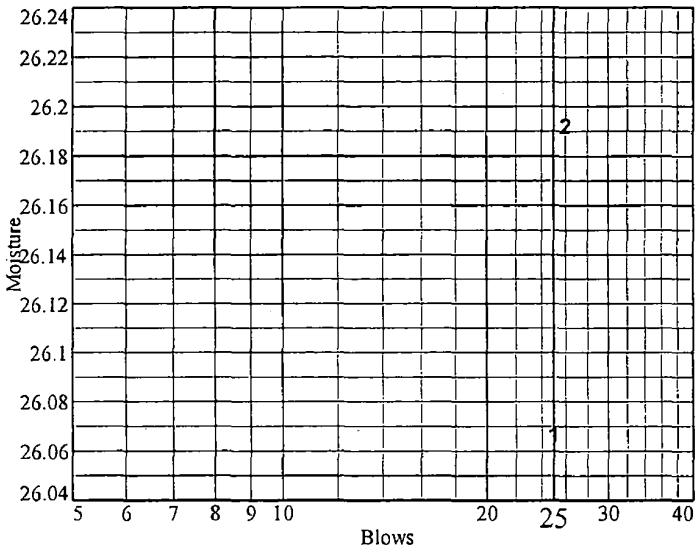
LIQUID AND PLASTIC LIMIT TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-630
Depth: 161.5-163.1 **Sample Number:** UD-8
Material Description: Greenish Gray Sandy SILT
USCS: ML **AASHTO:** A-4(0)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	37.38	27.86				
Dry+Tare	32.86	24.40				
Tare	15.52	11.19				
# Blows	25	26				
Moisture	26.1	26.2				



Liquid Limit= 26
Plastic Limit= 24
Plasticity Index= 2
Natural Moisture= 31.4
Liquidity Index= 3.7

Plastic Limit Data

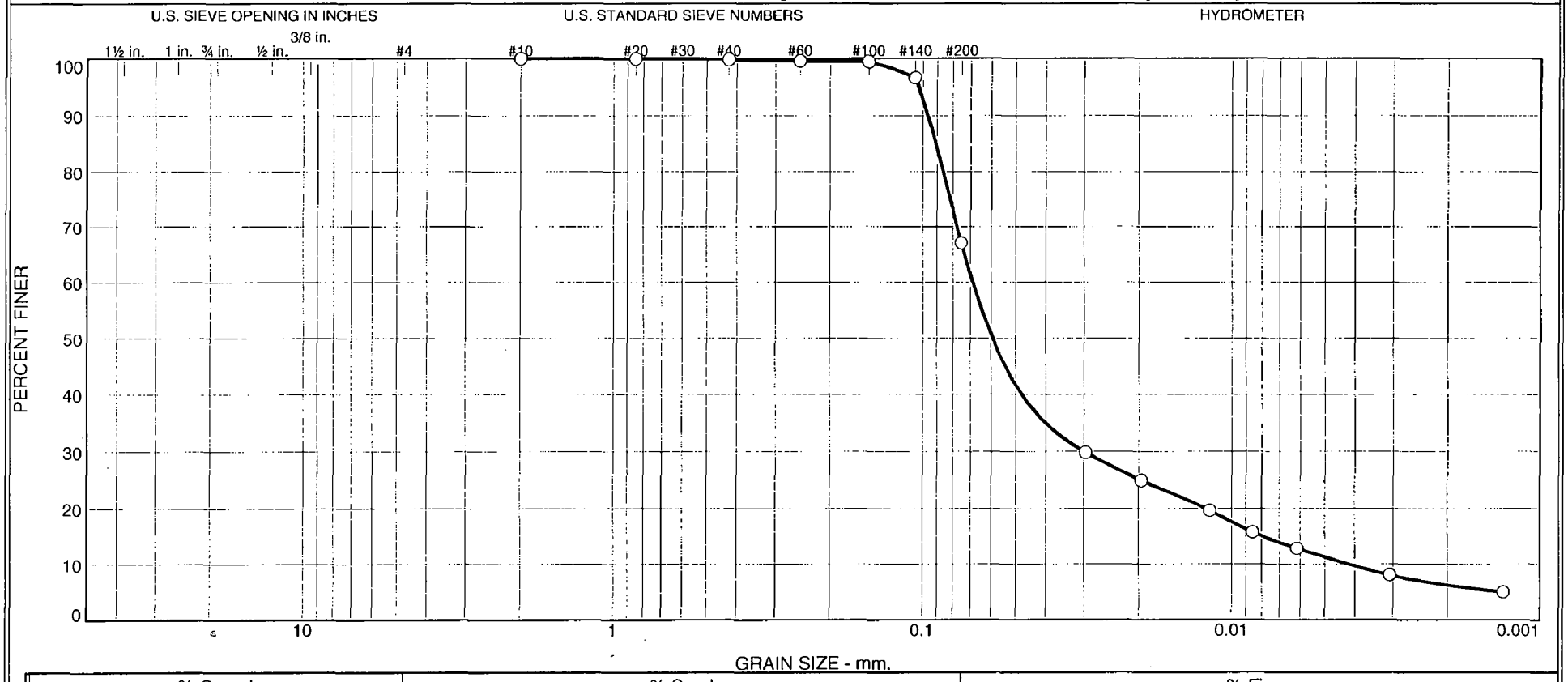
Run No.	1	2	3	4	
Wet+Tare	33.69	24.45			
Dry+Tare	30.25	21.86			
Tare	15.49	11.15			
Moisture	23.3	24.2			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
104.63	81.86	9.38	31.4

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.2	32.8	55.7	11.3

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-630	UD-12	178.9'	4/19/08	ML	Greenish Gray Sandy SILT	NA	21	20

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure NA

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ Specific Gravity is assumed
NA= Not Applicable
See triaxial test report for natural moisture.

ZHU 8-1-08

Tested By: CS **Checked By:** LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

8/1/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-630
Depth: 178.9' **Sample Number:** UD-12
Material Description: Greenish Gray Sandy SILT
Date: 4/19/08 **Natural Moisture:** NA
Liquid Limit: 21 **Plastic Limit:** 20 **USCS Class.:** ML
Testing Remarks: Specific Gravity is assumed
NA= Not Applicable
See triaxial test report for natural moisture.
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
289.65	0.00	0.00	#10	0.00	100.0
102.26	0.00	0.00	#20	0.04	100.0
			#40	0.18	99.8
			#60	0.44	99.6
			#100	0.56	99.5
			#140	3.43	96.6
			#200	33.71	67.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =102.26
Hygroscopic moisture correction:
Moist weight and tare = 25.08
Dry weight and tare = 24.98
Tare weight = 11.37
Hygroscopic moisture = 0.7%
Table of composite correction values:

Temp., deg. C:	12.2	29.4
Comp. corr.:	-8.0	-4.0

Meniscus correction only = 1.0
Specific gravity of solids = 2.700
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.5	36.5	30.7	0.0132	37.5	10.1	0.0297	29.9
5.00	21.5	31.5	25.7	0.0132	32.5	11.0	0.0195	25.0
15.00	21.5	26.0	20.2	0.0132	27.0	11.9	0.0117	19.6
30.00	21.4	22.0	16.1	0.0132	23.0	12.5	0.0085	15.7
60.00	21.6	19.0	13.2	0.0132	20.0	13.0	0.0061	12.8
250.00	22.2	14.0	8.3	0.0131	15.0	13.8	0.0031	8.1
1440.00	21.4	11.0	5.1	0.0132	12.0	14.3	0.0013	5.0

MACTEC Engineering and Consulting, Inc.

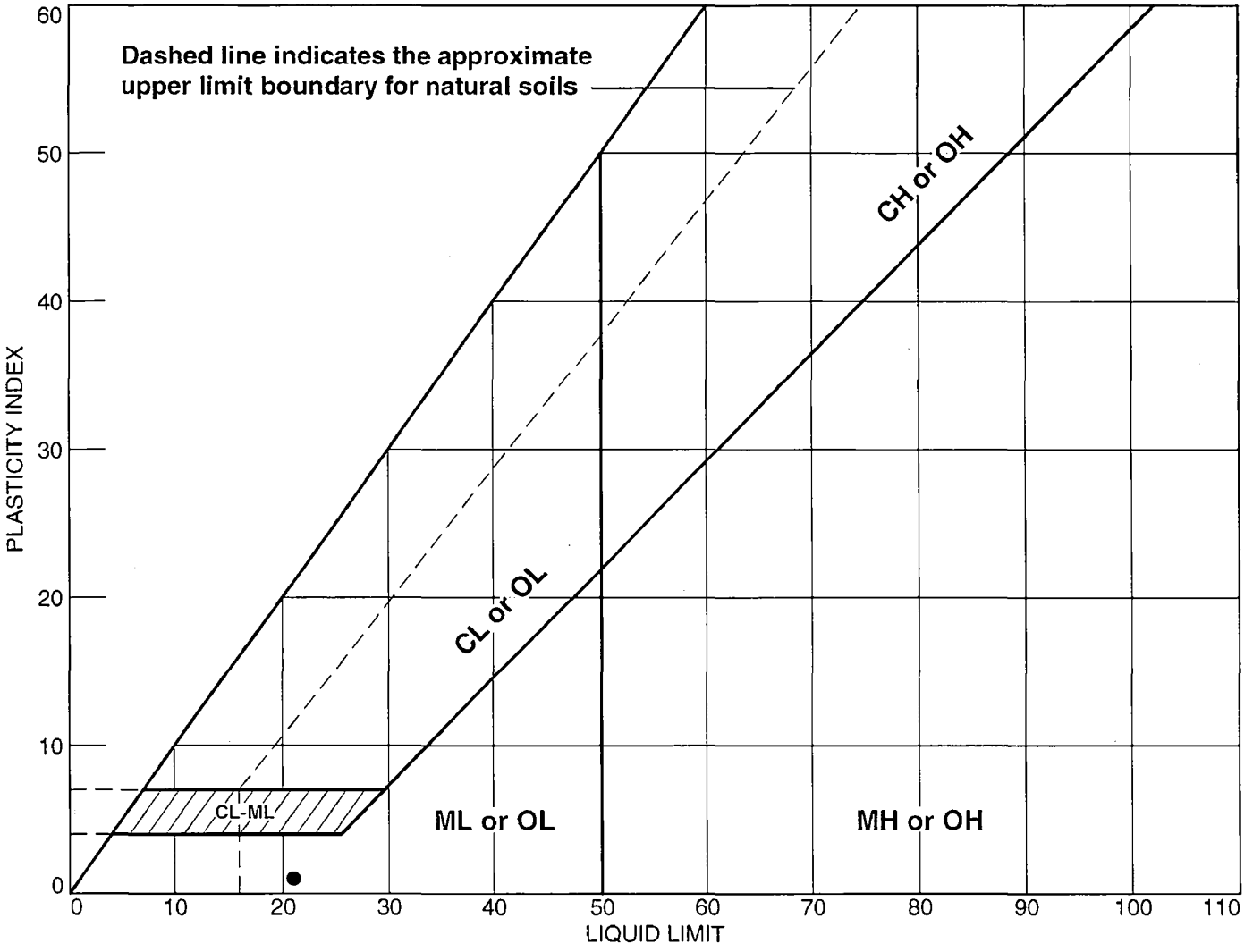
Fractional Components

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	32.8	33.0	55.7	11.3	67.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0042	0.0080	0.0121	0.0300	0.0594	0.0689	0.0859	0.0905	0.0959	0.1029

Fineness Modulus	C_u	C_c
0.01	16.52	3.13

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
●	Boring B-630	UD-12	178.9'	NA	20	21	1	ML

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

Tested By: CS **Checked By:** LBJ ZHU 8-1-08

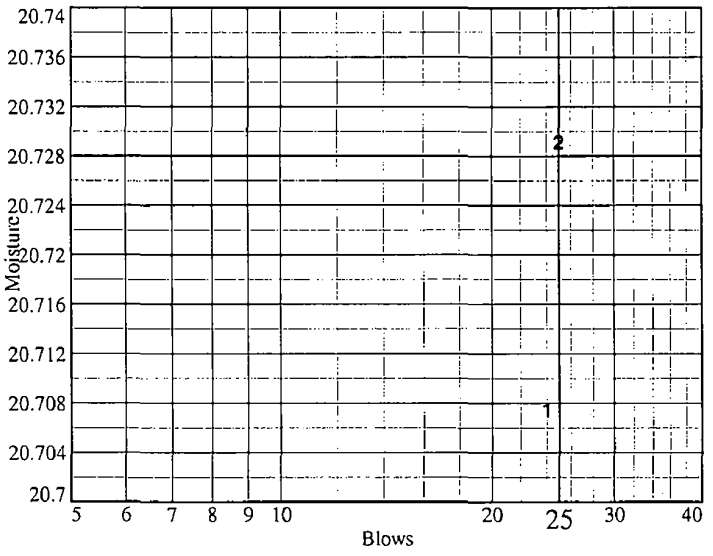
LIQUID AND PLASTIC LIMIT TEST DATA

8/1/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-630
Depth: 178.9'
Sample Number: UD-12
Material Description: Greenish Gray Sandy SILT
USCS: ML
AASHTO: A-4(0)
Tested by: CS
Checked by: LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	31.89	27.07				
Dry+Tare	29.08	25.08				
Tare	15.51	15.48				
# Blows	24	25				
Moisture	20.7	20.7				



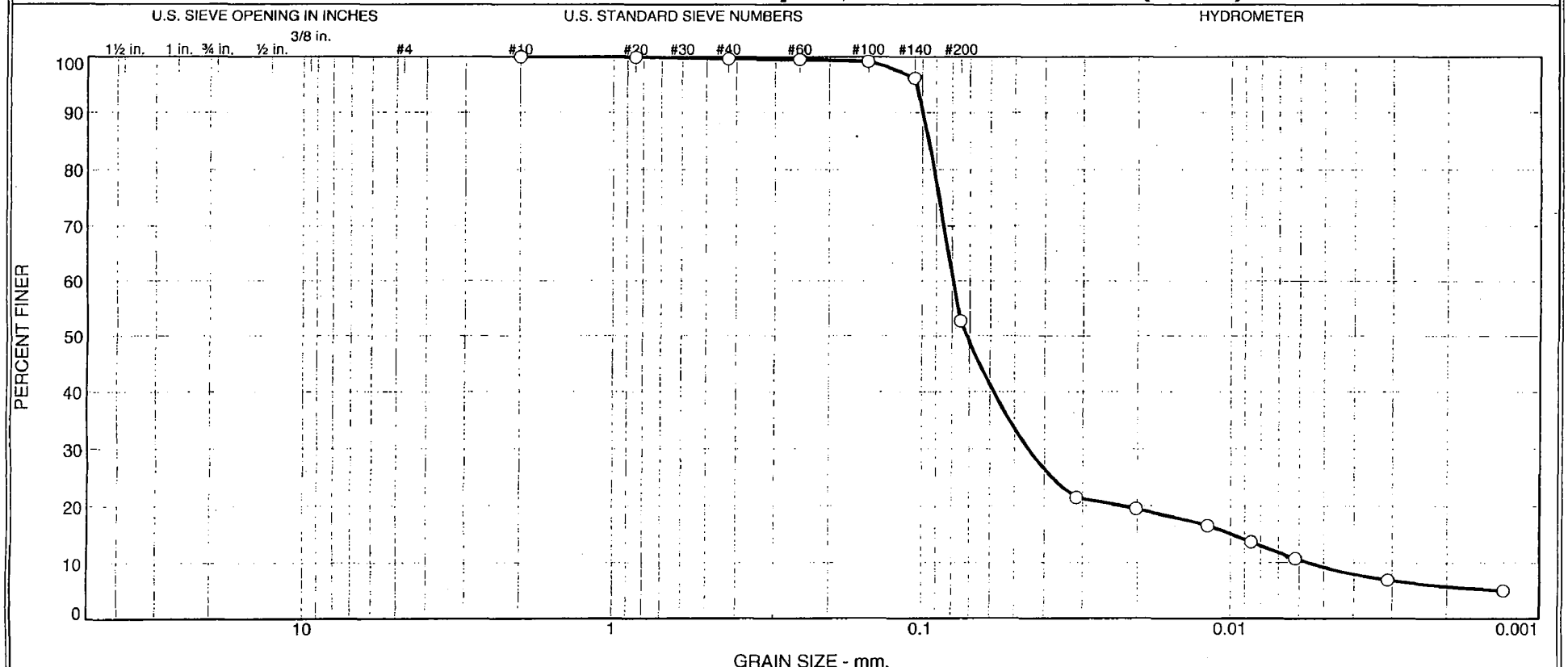
Liquid Limit= 21
Plastic Limit= 20
Plasticity Index= 1
Natural Moisture= NA

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	27.13	31.26			
Dry+Tare	24.53	28.64			
Tare	11.40	15.51			
Moisture	19.8	20.0			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
O	0.0	0.0	0.0	0.4	46.9	43.5	9.2

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
O	Boring B-630	UD-13	188.5-191	4/19/08	ML	Greenish Gray Brown Sandy SILT	30.0	22	19

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

O Specific Gravity is Assumed

ZHU 7/22/08

Tested By: CS **Checked By:** LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-630
Depth: 188.5-191 **Sample Number:** UD-13
Material Description: Greenish Gray Brown Sandy SILT
Date: 4/19/08 **Natural Moisture:** 30.0
Liquid Limit: 22 **Plastic Limit:** 19 **USCS Class.:** ML
Testing Remarks: Specific Gravity is Assumed
Tested by: CS **Checked by:** LBJ

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
229.86	0.00	0.00	#10	0.00	100.0
101.50	0.00	0.00	#20	0.03	100.0
			#40	0.37	99.6
			#60	0.48	99.5
			#100	0.85	99.2
			#140	3.88	96.2
			#200	48.06	52.7

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =101.5
Hygroscopic moisture correction:
Moist weight and tare = 29.71
Dry weight and tare = 29.68
Tare weight = 15.63
Hygroscopic moisture = 0.2%
Table of composite correction values:

Temp., deg. C:	29.3	11.7
Comp. corr.:	-8.0	-3.0

Meniscus correction only = 1.0
Specific gravity of solids = 2.7
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.3	28.0	22.0	0.0131	29.0	11.5	0.0314	21.5
5.00	22.3	26.0	20.0	0.0131	27.0	11.9	0.0201	19.5
15.00	22.3	23.0	17.0	0.0131	24.0	12.4	0.0119	16.6
30.00	22.2	20.0	14.0	0.0131	21.0	12.9	0.0086	13.7
60.00	22.2	17.0	11.0	0.0131	18.0	13.3	0.0062	10.8
250.00	22.0	13.0	7.1	0.0131	14.0	14.0	0.0031	6.9
1440.00	21.9	11.0	5.1	0.0131	12.0	14.3	0.0013	5.0

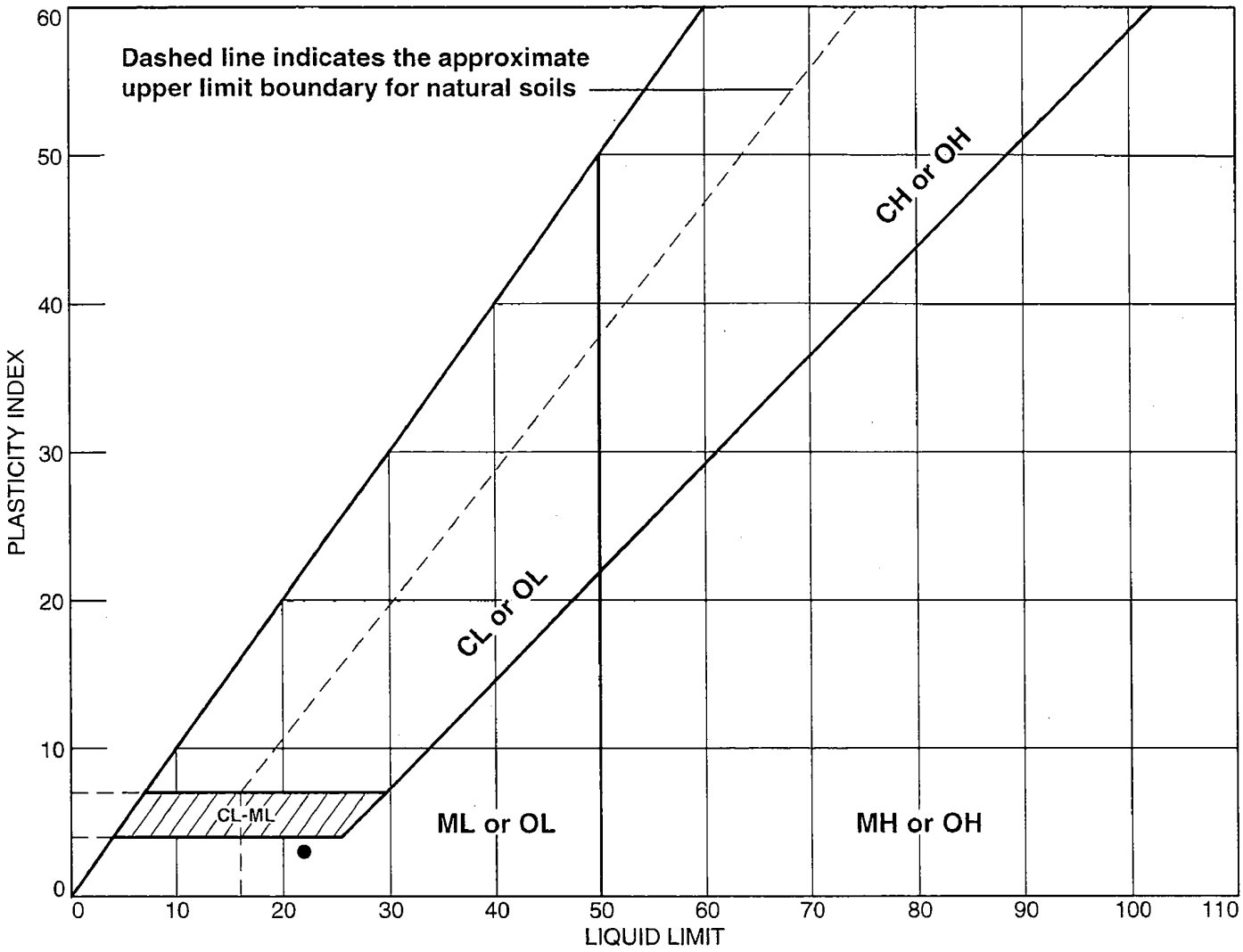
MACTEC Engineering and Consulting, Inc.

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	46.9	47.3	43.5	9.2	52.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0056	0.0098	0.0223	0.0450	0.0715	0.0793	0.0914	0.0950	0.0991	0.1044

Fineness Modulus	C_u	C_c
0.02	14.20	4.58

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
●	Boring B-630	UD-13	188.5-191	30.0	19	22	3	ML

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure** N/A

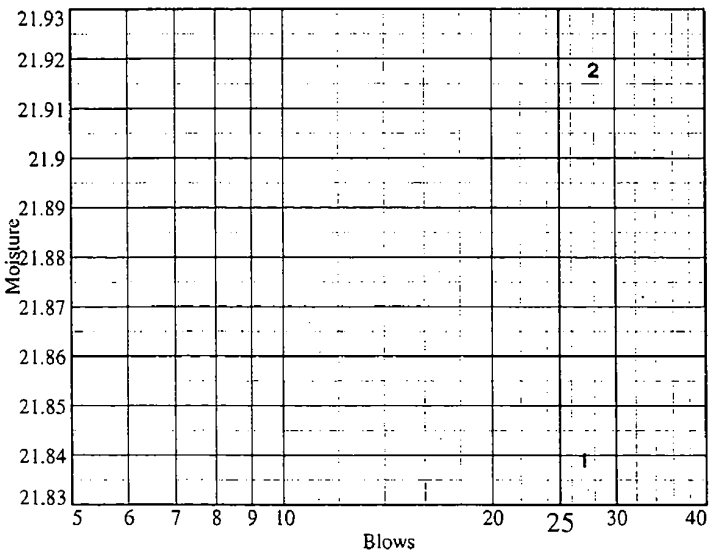
Tested By: CS **Checked By:** LBJ ZHU 7/22/08

LIQUID AND PLASTIC LIMIT TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-630
Depth: 188.5-191 **Sample Number:** UD-13
Material Description: Greenish Gray Brown Sandy SILT
USCS: ML **AASHTO:** A-4(0)
Tested by: CS **Checked by:** LBJ

Run No.	1	2	3	4	5	6
Wet+Tare	24.96	22.72				
Dry+Tare	22.49	20.64				
Tare	11.18	11.15				
# Blows	27	28				
Moisture	21.8	21.9				



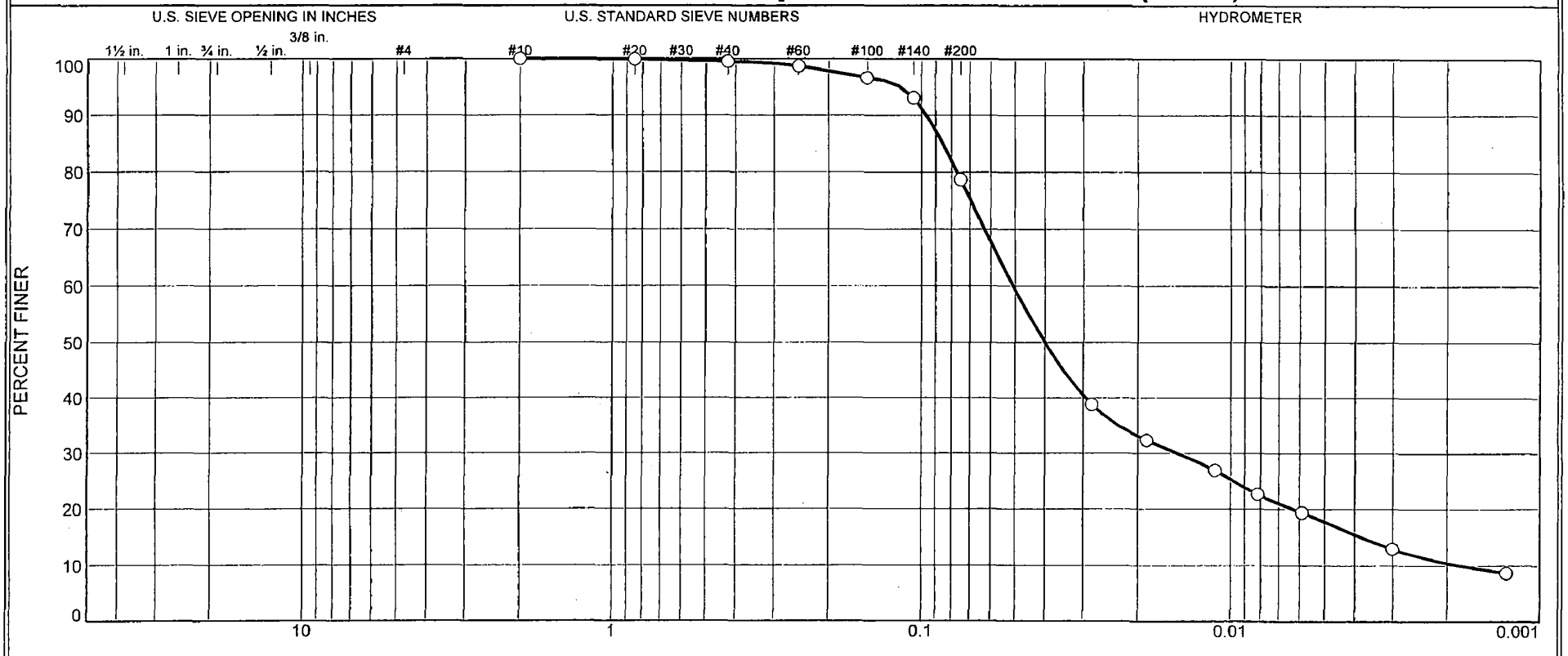
Liquid Limit= 22
Plastic Limit= 19
Plasticity Index= 3
Natural Moisture= 30.0
Liquidity Index= 3.7

Run No.	1	2	3	4	
Wet+Tare	32.69	32.96			
Dry+Tare	29.89	30.23			
Tare	15.54	15.49			
Moisture	19.5	18.5			

Wet+Tare	Dry+Tare	Tare	Moisture
122.01	95.43	6.87	30.0

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.5	20.8	60.9	17.8

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-630	UD-16	208.5-211	4-21-08	CL	Grayish Gray Lean CLAY with sand	29.8	34	24

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ Specific Gravity is Assumed

ZHU 7/22/08

Tested By: CS Checked By: LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-630
Depth: 208.5-211 **Sample Number:** UD-16
Material Description: Grayish Gray Lean CLAY with sand
Date: 4-21-08 **Natural Moisture:** 29.8
Liquid Limit: 34 **Plastic Limit:** 24 **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
253.26	0.00	0.00	#10	0.00	100.0
97.17	0.00	0.00	#20	0.09	99.9
			#40	0.49	99.5
			#60	1.27	98.7
			#100	3.30	96.6
			#140	6.69	93.1
			#200	20.67	78.7

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =97.17
Hygroscopic moisture correction:
Moist weight and tare = 22.63
Dry weight and tare = 22.00
Tare weight = 11.19
Hygroscopic moisture =5.8%
Table of composite correction values:

Temp., deg. C:	29.3	11.7
Comp. corr.:	-8.0	-3.0

Meniscus correction only =1.0
Specific gravity of solids =2.7
Hydrometer type =152H
Hydrometer effective depth equation: L =16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.1	42.0	36.0	0.0131	43.0	9.2	0.0282	38.8
5.00	22.1	36.0	30.0	0.0131	37.0	10.2	0.0187	32.4
15.00	22.2	31.0	25.0	0.0131	32.0	11.0	0.0112	26.9
30.00	22.2	27.0	21.0	0.0131	28.0	11.7	0.0082	22.6
60.00	22.2	24.0	18.0	0.0131	25.0	12.2	0.0059	19.4
250.00	22.0	18.0	12.1	0.0131	19.0	13.2	0.0030	13.0
1440.00	21.9	14.0	8.1	0.0131	15.0	13.8	0.0013	8.7

MACTEC Engineering and Consulting, Inc.

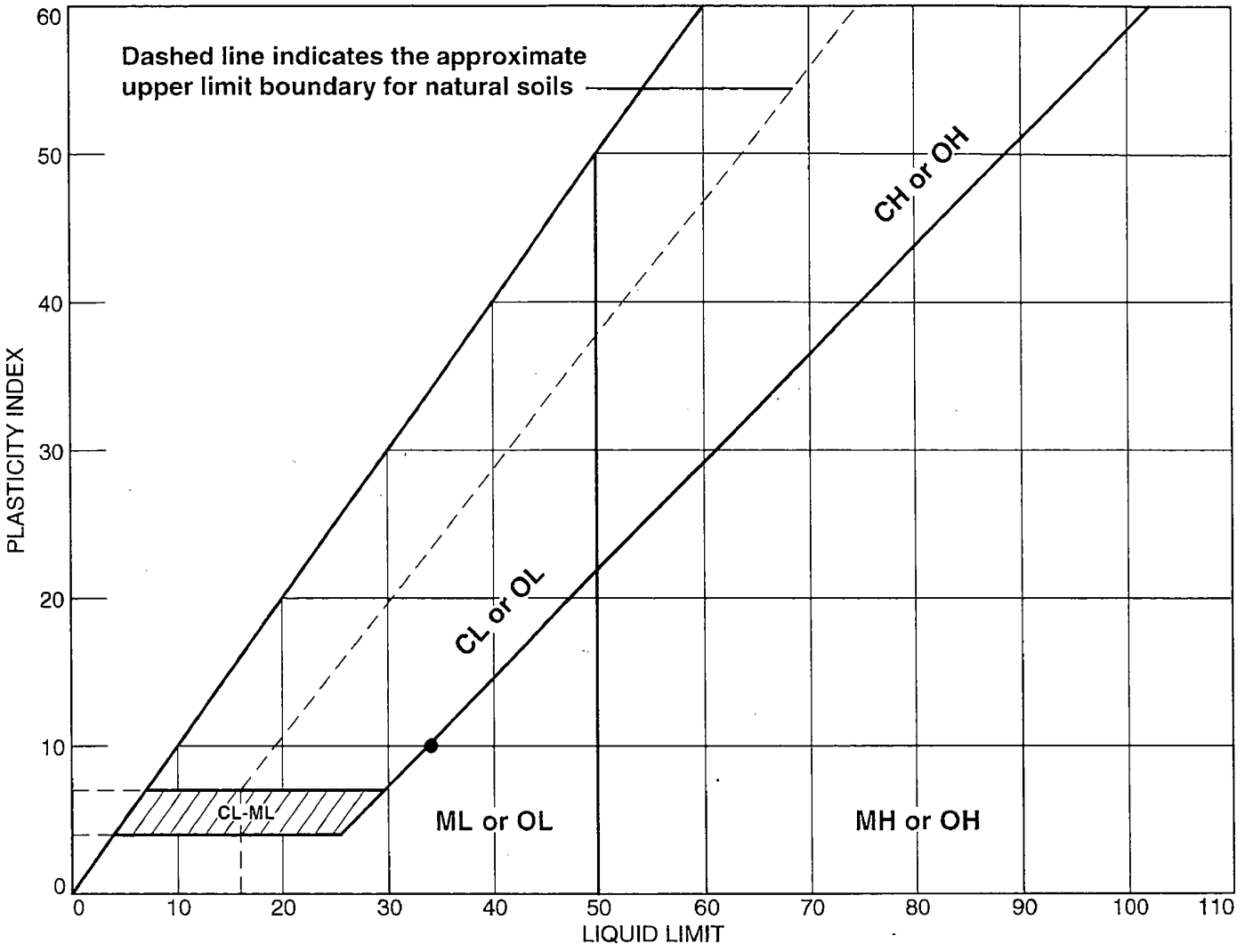
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.5	20.8	21.3	60.9	17.8	78.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0018	0.0038	0.0063	0.0148	0.0401	0.0508	0.0770	0.0854	0.0961	0.1167

Fineness Modulus	C_u	C_c
0.05	28.25	2.41

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
●	Boring B-630	UD-16	208.5-211	29.8	24	34	10	CL

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure** 1/4

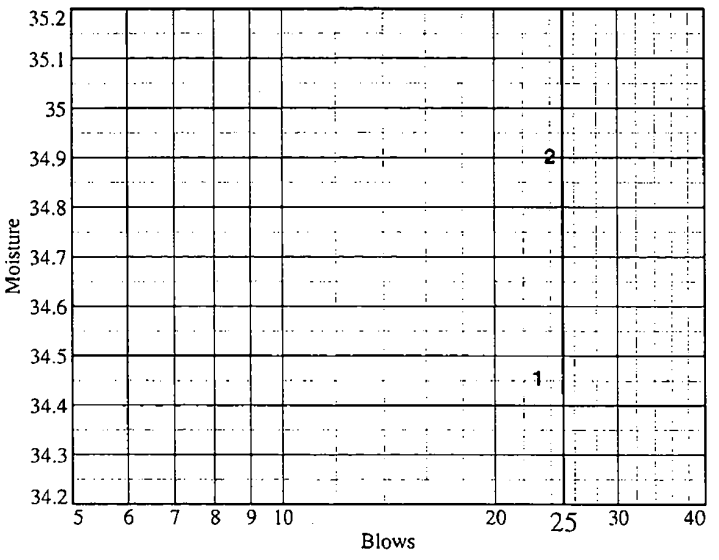
Tested By: CS **Checked By:** LBJ ZHU 7/22/08

LIQUID AND PLASTIC LIMIT TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-630
Depth: 208.5-211 **Sample Number:** UD-16
Material Description: Grayish Gray Lean CLAY with sand
USCS: CL **AASHTO:** A-4(7)
Tested by: CS **Checked by:** LBJ

Run No.	1	2	3	4	5	6
Wet+Tare	29.43	32.31				
Dry+Tare	25.85	27.94				
Tare	15.46	15.42				
# Blows	23	24				
Moisture	34.5	34.9				



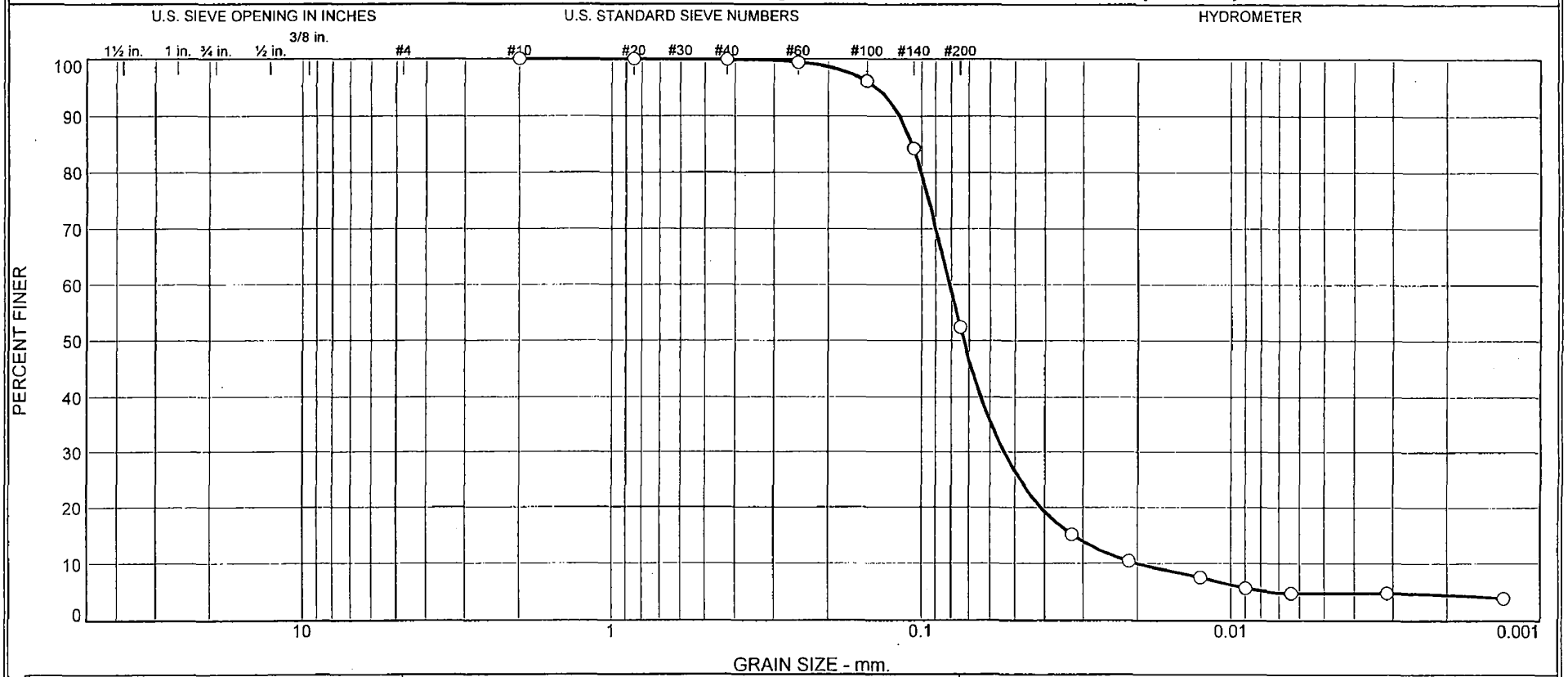
Liquid Limit= 34
Plastic Limit= 24
Plasticity Index= 10
Natural Moisture= 29.8
Liquidity Index= 0.6

Run No.	1	2	3	4	
Wet+Tare	23.58	19.34			
Dry+Tare	22.06	17.80			
Tare	15.68	11.25			
Moisture	23.8	23.5			

Wet+Tare	Dry+Tare	Tare	Moisture
113.39	88.86	6.66	29.8

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.1	47.5	47.6	4.8

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-630	UD-19	228.5-231	4/22/08	ML	Greenish Gray Sandy SILT	23.6	24	21

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/a

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ Specific Gravity is Assumed

Tested By: CS Checked By: LBJ ZHU 7/22/08

GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-630
Depth: 228.5-231 **Sample Number:** UD-19
Material Description: Greenish Gray Sandy SILT
Date: 4/22/08 **Natural Moisture:** 23.6
Liquid Limit: 24 **Plastic Limit:** 21 **USCS Class.:** ML
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
337.55	0.00	0.00	#10	0.00	100.0
104.79	0.00	0.00	#20	0.06	99.9
			#40	0.15	99.9
			#60	0.61	99.4
			#100	4.13	96.1
			#140	16.40	84.3
			#200	49.88	52.4

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =100.0
Weight of hydrometer sample =104.79
Hygroscopic moisture correction:
Moist weight and tare = 27.48
Dry weight and tare = 27.42
Tare weight = 15.51
Hygroscopic moisture =0.5%
Table of composite correction values:

Temp., deg. C:	29.3	11.7
Comp. corr.:	-8.0	-3.0

Meniscus correction only =1.0
Specific gravity of solids =2.7
Hydrometer type =152H
Hydrometer effective depth equation: L =16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.3	22.0	16.0	0.0131	23.0	12.5	0.0327	15.2
5.00	22.3	17.0	11.0	0.0131	18.0	13.3	0.0213	10.4
15.00	22.3	14.0	8.0	0.0131	15.0	13.8	0.0126	7.6
30.00	22.3	12.0	6.0	0.0131	13.0	14.2	0.0090	5.7
60.00	22.3	11.0	5.0	0.0131	12.0	14.3	0.0064	4.7
250.00	22.0	11.0	5.1	0.0131	12.0	14.3	0.0031	4.8
1440.00	21.9	10.0	4.1	0.0131	11.0	14.5	0.0013	3.9

MACTEC Engineering and Consulting, Inc.

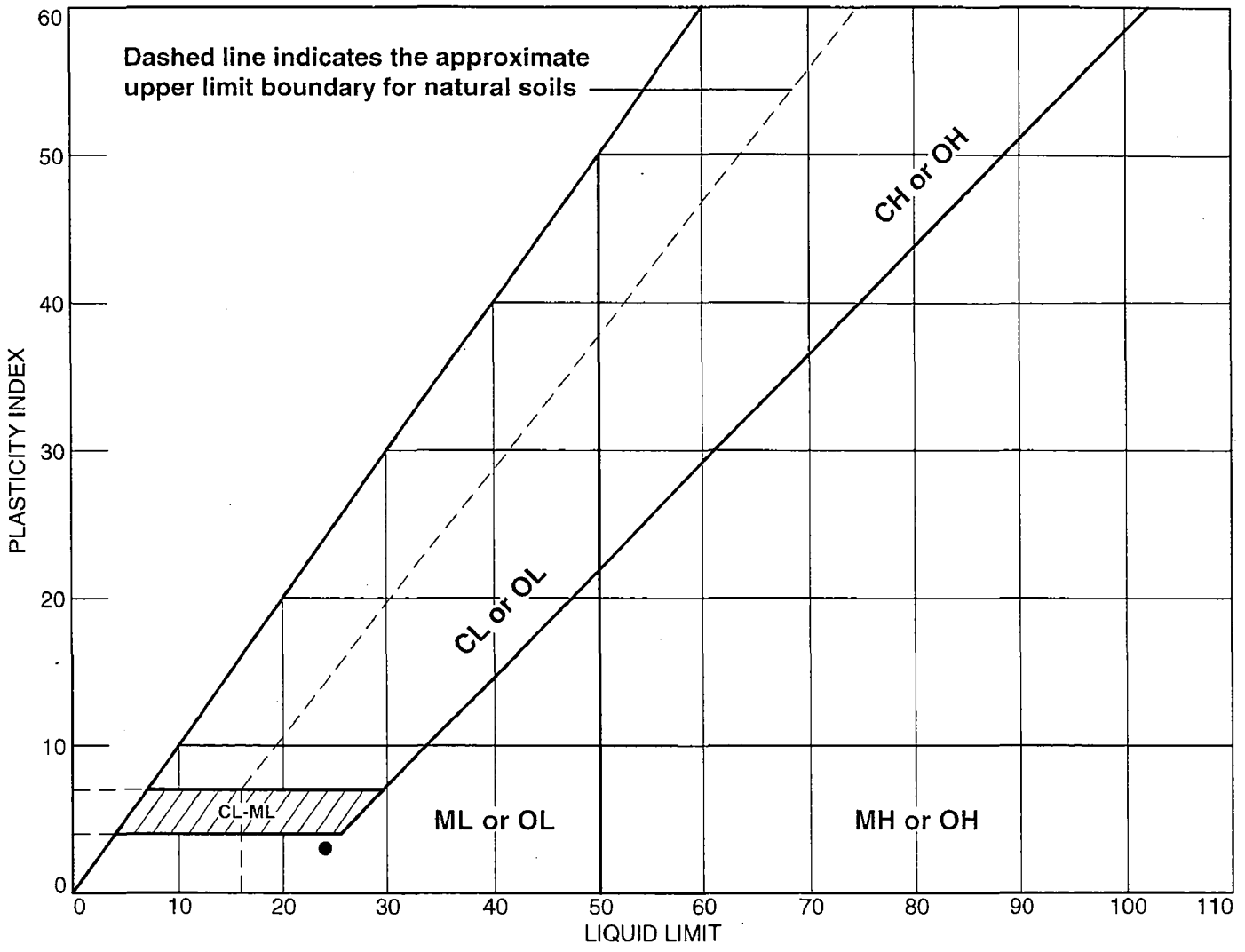
Fractional Components

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	47.5	47.6	47.6	4.8	52.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0201	0.0324	0.0413	0.0542	0.0730	0.0812	0.1001	0.1070	0.1174	0.1398

Fineness Modulus	C_u	C_c
0.04	4.05	1.80

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
●	Boring B-630	UD-19	228.5-231	23.6	21	24	3	ML

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure** N/A

ZHU 7/22/08

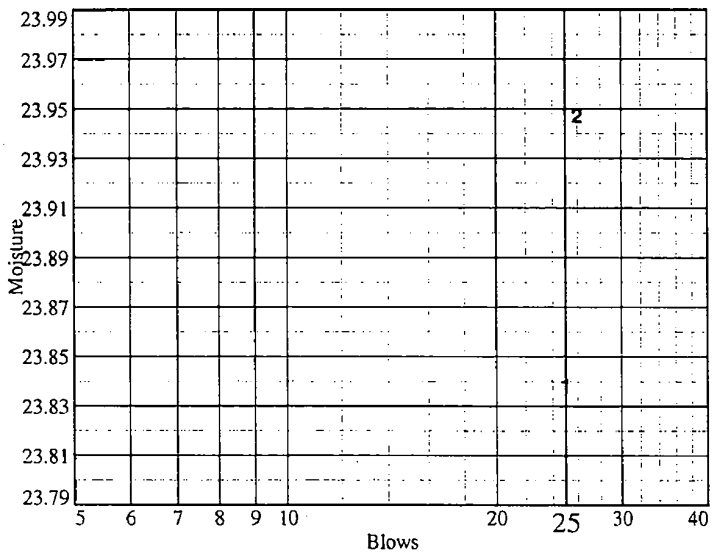
Tested By: CS **Checked By:** LBJ

LIQUID AND PLASTIC LIMIT TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-630
Depth: 228.5-231 **Sample Number:** UD-19
Material Description: Greenish Gray Sandy SILT
USCS: ML **AASHTO:** A-4(0)
Tested by: CS **Checked by:** LBJ

Run No.	1	2	3	4	5	6
Wet+Tare	36.05	33.49				
Dry+Tare	32.10	30.02				
Tare	15.53	15.53				
# Blows	25	26				
Moisture	23.8	23.9				



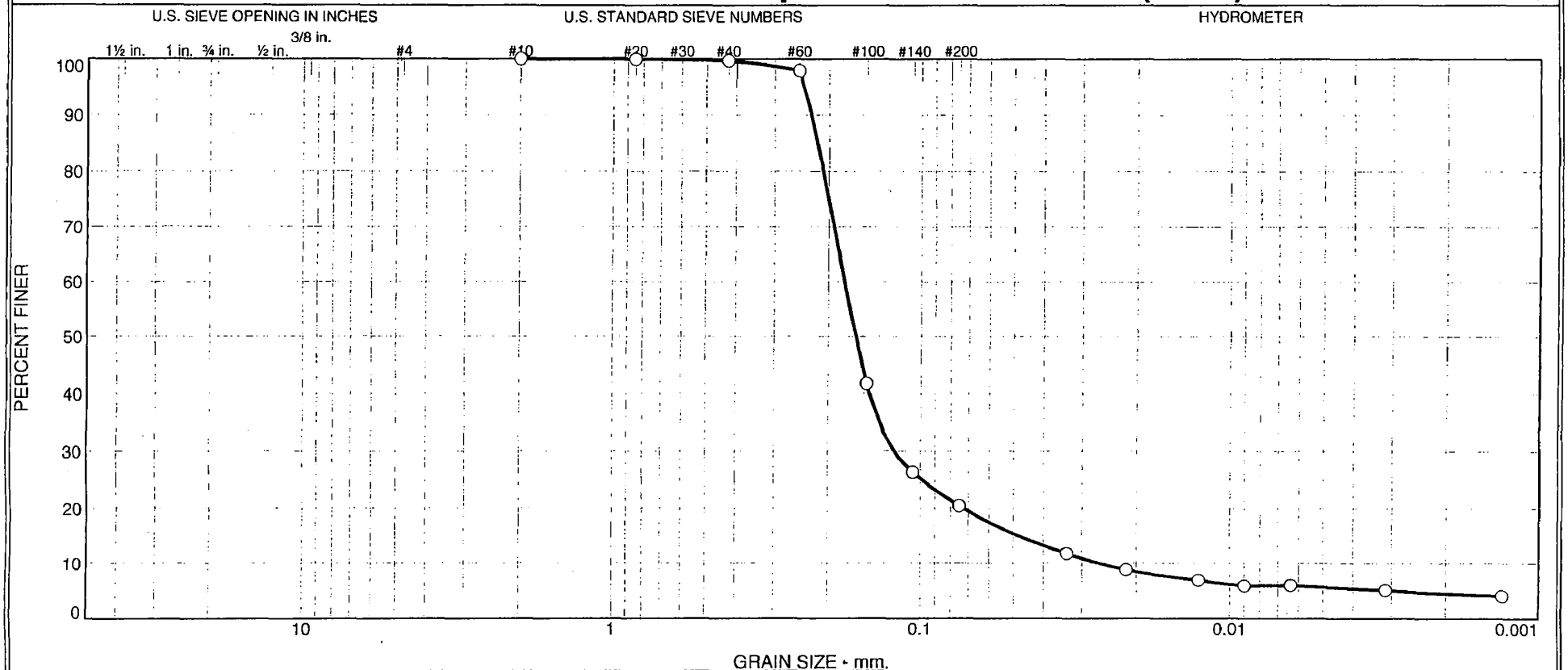
Liquid Limit= 24
Plastic Limit= 21
Plasticity Index= 3
Natural Moisture= 23.6
Liquidity Index= 0.9

Run No.	1	2	3	4	
Wet+Tare	32.26	31.69			
Dry+Tare	29.31	28.86			
Tare	15.55	15.56			
Moisture	21.4	21.3			

Wet+Tare	Dry+Tare	Tare	Moisture
150.70	123.29	6.90	23.6

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.3	79.3	14.8	5.6

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-630	UD-23	258.5-261	4/23/08	SC-SM	Dark Greenish Gray Silty Clayey SAND	22.7	20	15

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ Specific Gravity is Assumed

ZHU 7/22/08

Tested By: CS **Checked By:** LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-630
Depth: 258.5-261 **Sample Number:** UD-23
Material Description: Dark Greenish Gray Silty Clayey SAND
Date: 4/23/08 **Natural Moisture:** 22.7
Liquid Limit: 20 **Plastic Limit:** 15 **USCS Class.:** SC-SM
Testing Remarks: Specific Gravity is Assumed
Tested by: CS **Checked by:** LBJ

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
308.25	0.00	0.00	#10	0.00	100.0
101.13	0.00	0.00	#20	0.03	100.0
			#40	0.28	99.7
			#60	2.06	98.0
			#100	58.95	41.7
			#140	74.49	26.3
			#200	80.45	20.4

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =101.13
Hygroscopic moisture correction:
Moist weight and tare = 27.70
Dry weight and tare = 27.68
Tare weight = 15.65
Hygroscopic moisture = 0.2%
Table of composite correction values:

Temp., deg. C:	29.3	11.7
Comp. corr.:	-8.0	-3.0

Meniscus correction only = 1.0
Specific gravity of solids = 2.7
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.3	18.0	12.0	0.0131	19.0	13.2	0.0335	11.7
5.00	22.3	15.0	9.0	0.0131	16.0	13.7	0.0216	8.8
15.00	22.3	13.0	7.0	0.0131	14.0	14.0	0.0126	6.8
30.00	22.3	12.0	6.0	0.0131	13.0	14.2	0.0090	5.9
60.00	22.1	12.0	6.0	0.0131	13.0	14.2	0.0064	5.9
250.00	21.9	11.0	5.1	0.0131	12.0	14.3	0.0031	5.0
1440.00	21.9	10.0	4.1	0.0131	11.0	14.5	0.0013	4.0

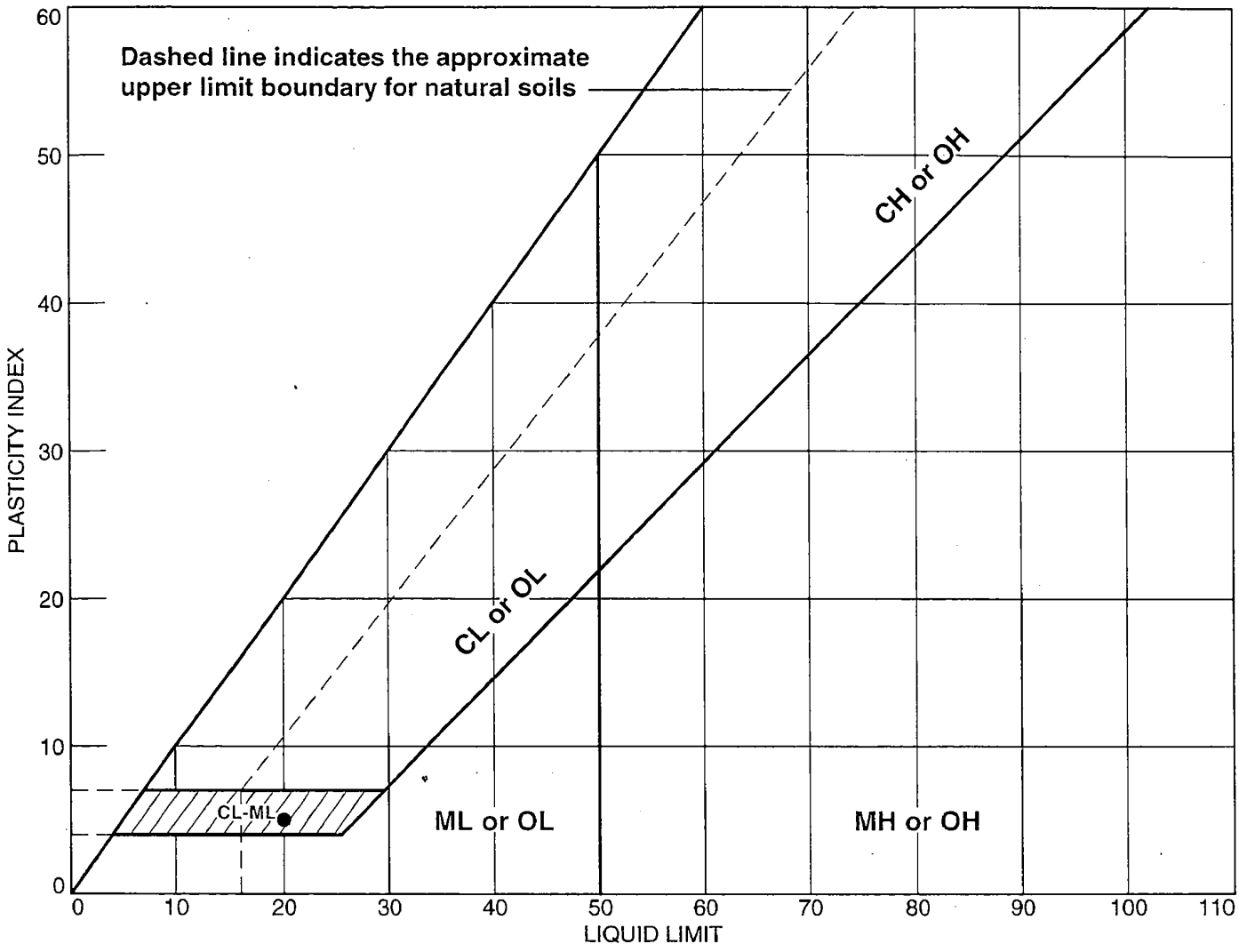
MACTEC Engineering and Consulting, Inc.

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	79.3	79.6	14.8	5.6	20.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0265	0.0479	0.0726	0.1221	0.1631	0.1775	0.2084	0.2175	0.2279	0.2405

Fineness Modulus	C_u	C_c
0.60	6.70	3.17

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
●	Boring B-630	UD-23	258.5-261	22.7	15	20	5	SC-SM

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure** N/A

ZHU 7/22/08

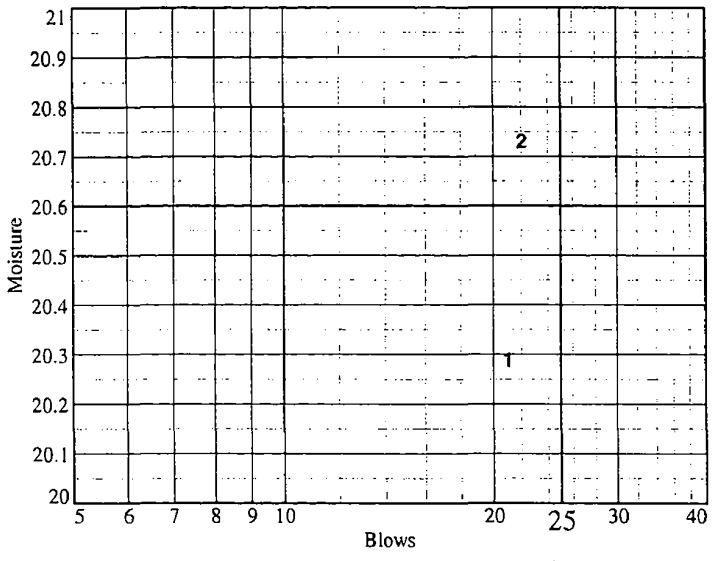
Tested By: CS **Checked By:** LBJ

LIQUID AND PLASTIC LIMIT TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-630
Depth: 258.5-261 **Sample Number:** UD-23
Material Description: Dark Greenish Gray Silty Clayey SAND
USCS: SC-SM **AASHTO:** A-2-4(0)
Tested by: CS **Checked by:** LBJ

Run No.	1	2	3	4	5	6
Wet+Tare	30.48	26.94				
Dry+Tare	27.96	24.22				
Tare	15.54	11.10				
# Blows	21	22				
Moisture	20.3	20.7				



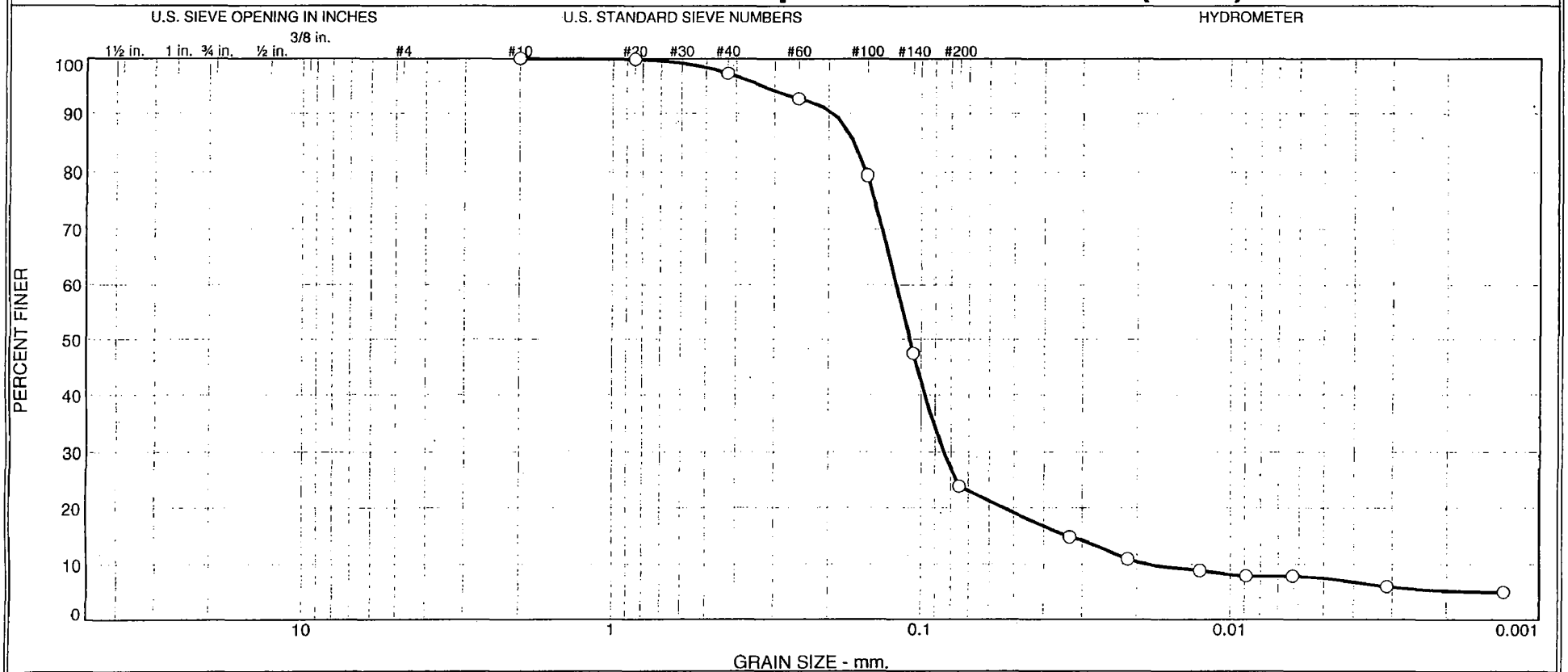
Liquid Limit= 20
Plastic Limit= 15
Plasticity Index= 5
Natural Moisture= 22.7
Liquidity Index= 1.5

Run No.	1	2	3	4	
Wet+Tare	26.56	32.69			
Dry+Tare	24.53	30.36			
Tare	11.15	15.49			
Moisture	15.2	15.7			

Wet+Tare	Dry+Tare	Tare	Moisture
133.08	110.16	9.22	22.7

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	2.7	73.4	16.4	7.5

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-630	UD-27	291.5-294	4/29/08	SM	Dark Greenish Gray Silty SAND	22.1	23	20

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/4

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ Specific Gravity is Assumed

ZHU 7/22/08

Tested By: CS **Checked By:** LBJ

GRAIN SIZE DISTRIBUTION TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-630
Depth: 291.5-294 **Sample Number:** UD-27
Material Description: Dark Greenish Gray Silty SAND
Date: 4/29/08 **Natural Moisture:** 22.1
Liquid Limit: 23 **Plastic Limit:** 20 **USCS Class.:** SM
Testing Remarks: Specific Gravity is Assumed
Tested by: CS **Checked by:** LBJ

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
282.14	0.00	0.00	#10	0.00	100.0
100.92	0.00	0.00	#20	0.14	99.9
			#40	2.70	97.3
			#60	7.44	92.6
			#100	20.73	79.5
			#140	53.05	47.4
			#200	76.78	23.9

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =100.92
Hygroscopic moisture correction:
Moist weight and tare = 28.36
Dry weight and tare = 28.30
Tare weight = 15.55
Hygroscopic moisture = 0.5%
Table of composite correction values:

Temp., deg. C:	29.3	11.7
Comp. corr.:	-8.0	-3.0

Meniscus correction only = 1.0
Specific gravity of solids = 2.7
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	22.1	21.0	15.0	0.0131	22.0	12.7	0.0330	14.8
5.00	22.1	17.0	11.0	0.0131	18.0	13.3	0.0214	10.9
15.00	22.1	15.0	9.0	0.0131	16.0	13.7	0.0125	8.9
30.00	22.1	14.0	8.0	0.0131	15.0	13.8	0.0089	7.9
60.00	22.1	14.0	8.0	0.0131	15.0	13.8	0.0063	7.9
250.00	21.9	12.0	6.1	0.0131	13.0	14.2	0.0031	6.0
1440.00	22.0	11.0	5.1	0.0131	12.0	14.3	0.0013	5.0

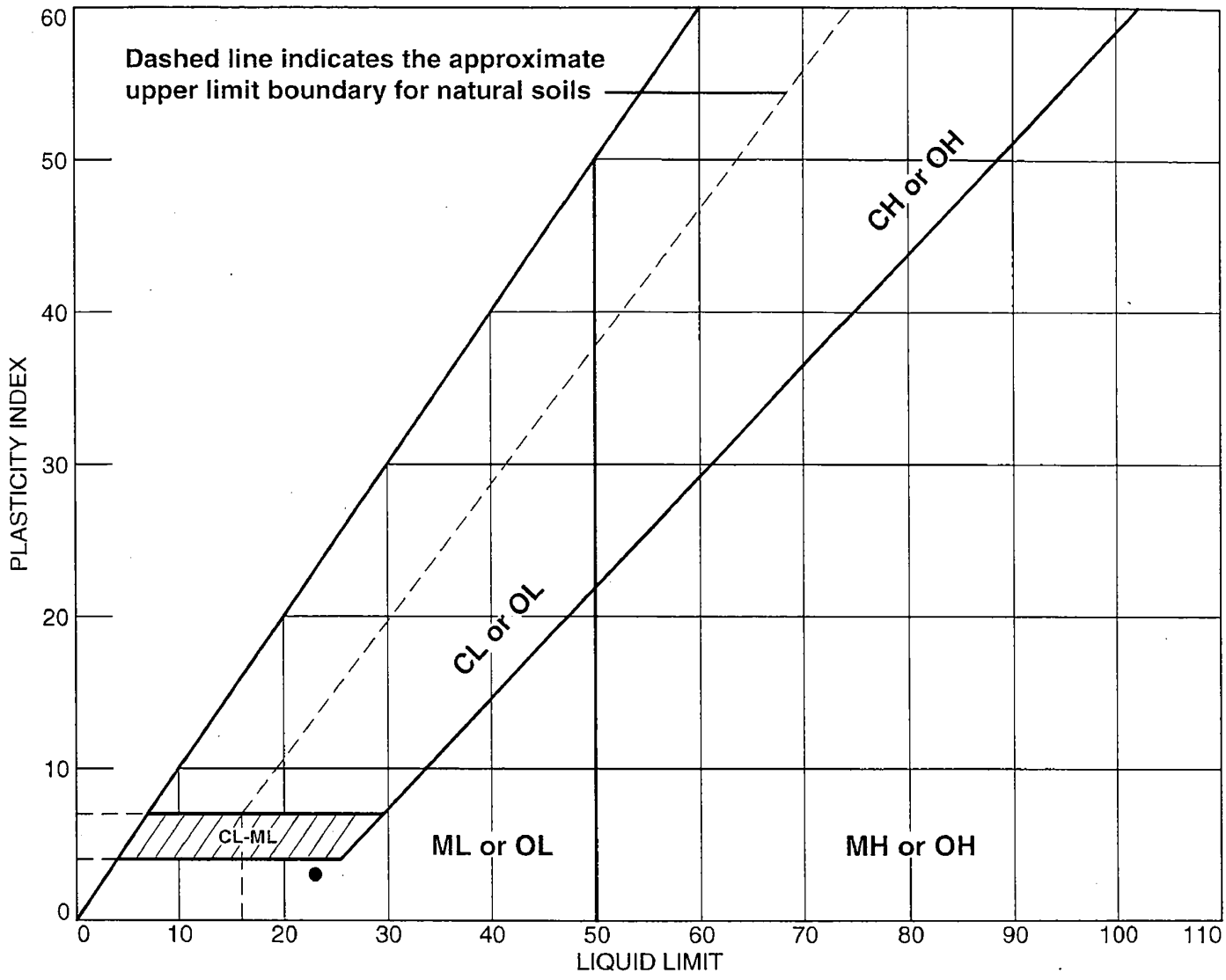
MACTEC Engineering and Consulting, Inc.

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	2.7	73.4	76.1	16.4	7.5	23.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0186	0.0336	0.0539	0.0843	0.1089	0.1206	0.1512	0.1652	0.1932	0.3293

Fineness Modulus	C_u	C_c
0.27	6.47	3.16

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
●	Boring B-630	UD-27	291.5-294	22.1	20	23	3	SM

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950

ZHU 7/22/08

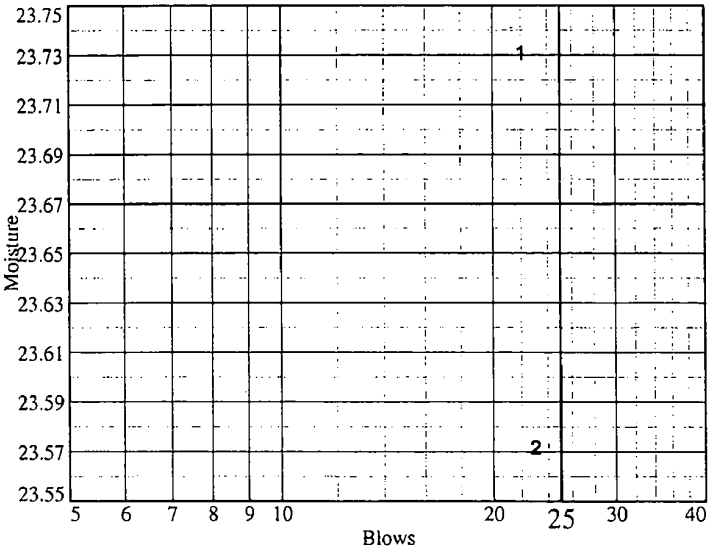
Figure N/A

LIQUID AND PLASTIC LIMIT TEST DATA

7/22/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-630
Depth: 291.5-294 **Sample Number:** UD-27
Material Description: Dark Greenish Gray Silty SAND
USCS: SM **AASHTO:** A-2-4(0)

Run No.	1	2	3	4	5	6
Wet+Tare	35.87	34.36				
Dry+Tare	31.99	30.77				
Tare	15.64	15.54				
# Blows	22	23				
Moisture	23.7	23.6				



Liquid Limit= 23
Plastic Limit= 20
Plasticity Index= 3
Natural Moisture= 22.1
Liquidity Index= 0.7

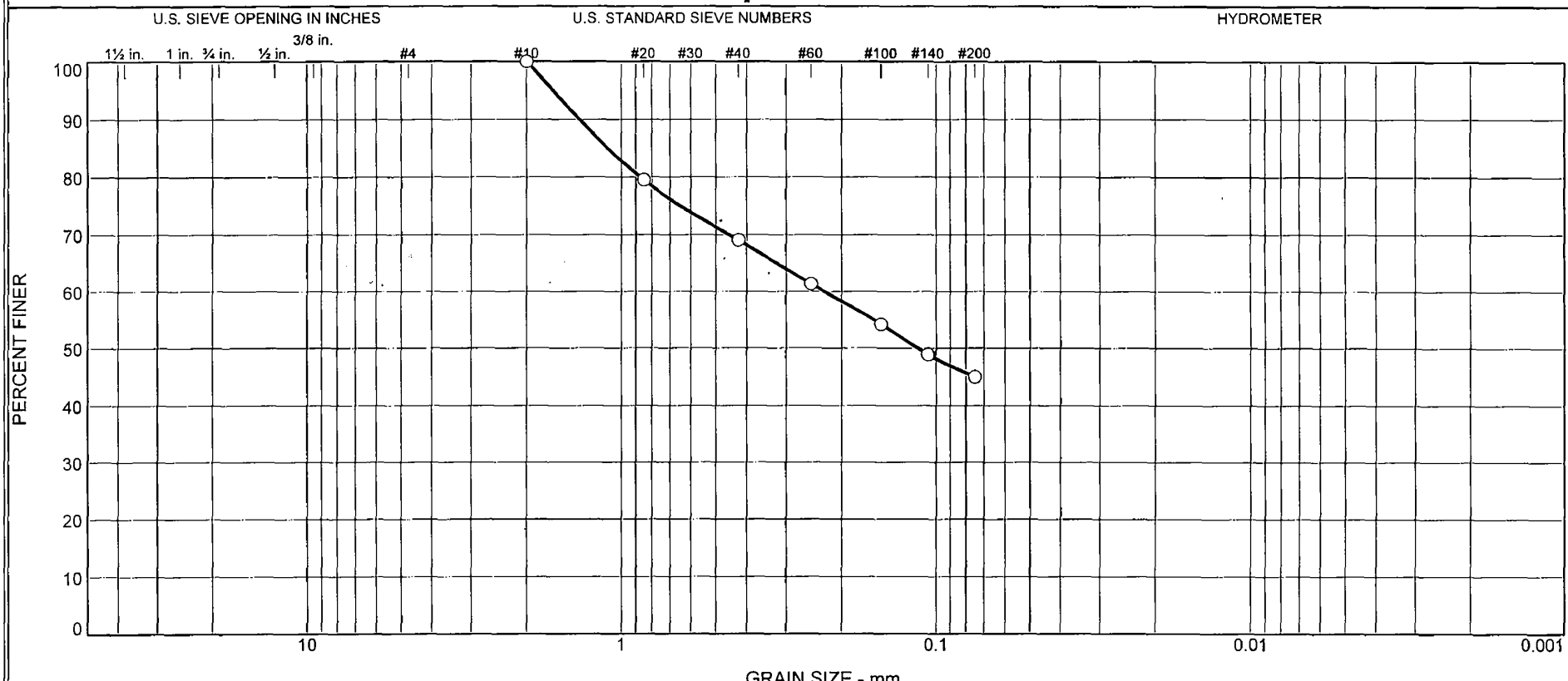
Run No.	1	2	3	4	
Wet+Tare	26.36	26.98			
Dry+Tare	24.56	25.02			
Tare	15.59	15.49			
Moisture	20.1	20.6			

Wet+Tare	Dry+Tare	Tare	Moisture
140.21	116.07	6.70	22.1

MACTEC Engineering and Consulting, Inc.

Soil Index Tests-
700 Series Boreholes

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	31	24	45	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-701(DH)	701-1	0.0-1.5	4/3/08	SM	Olive Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 0.0-1.5 **Sample Number:** 701-1
Material Description: Olive Gray Silty SAND (Visual)
Date: 4/3/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined
Tested by: CS **Checked by:** LBJ

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 62.11
Tare Wt. = 0.00
Minus #200 from wash = 0%

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
62.11	0.00	0.00	#10	0.00	100
			#20	12.71	80
			#40	19.22	69
			#60	23.99	61
			#100	28.43	54
			#140	31.74	49
			#200	34.14	45

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	31	24	55			45

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.1145	0.2262	0.8710	1.1042	1.3608	1.6545

Fineness Modulus
1.21

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A

	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	19	27	7	12	16	19	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-701(DH)	701-2B	2.9-4.0	4/3/08	GM	Pale Yellow Silty GRAVEL with sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 2.9-4.0 **Sample Number:** 701-2B
Material Description: Pale Yellow Silty GRAVEL with sand (Visual)
Date: 4/3/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GM
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
548.50	0.00	0.00	1.5	0.00	100
			1	81.31	85
			3/4	106.90	81
			3/8	188.51	66
			#4	252.01	54
			#10	293.08	47
96.30	0.00	0.00	#20	13.42	40
			#40	24.66	35
			#60	36.32	29
			#100	47.72	23
			#140	53.44	21
			#200	57.45	19

Fractional Components

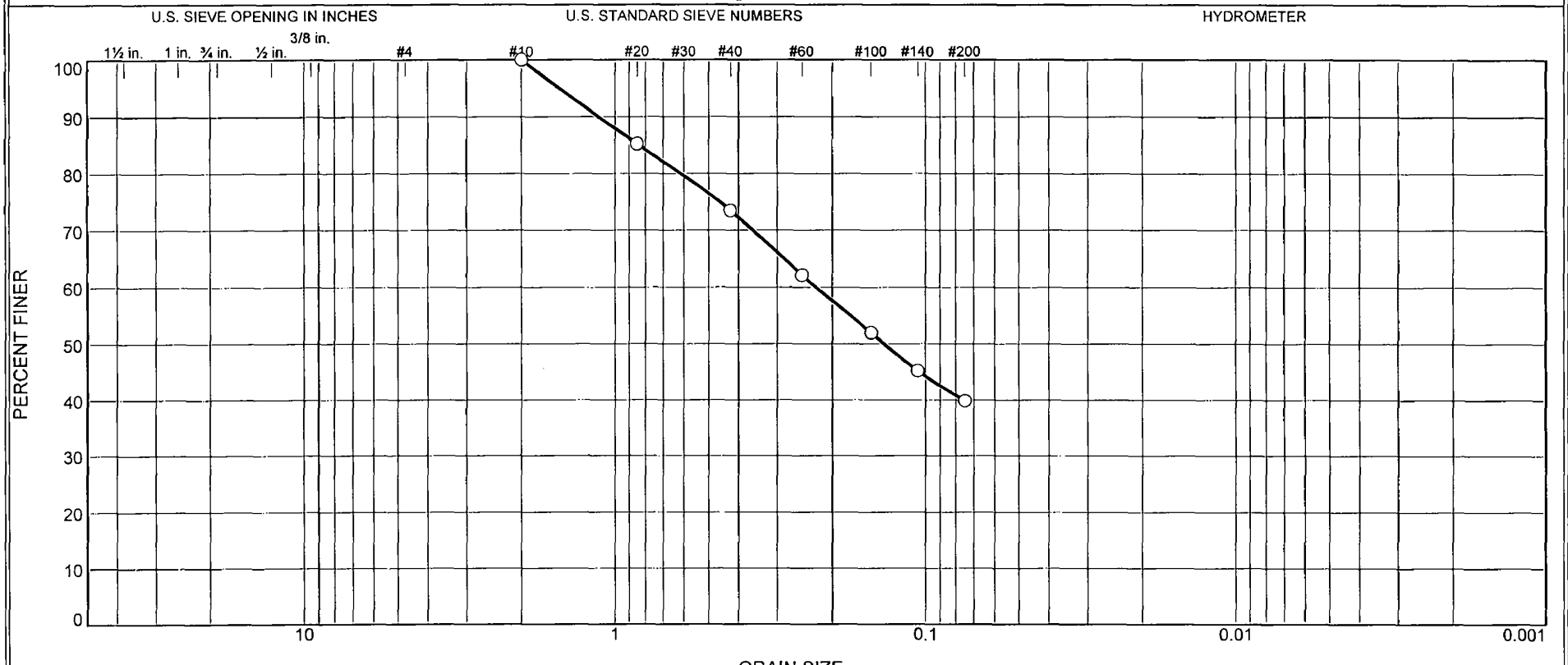
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	19	27	46	7	12	16	35			19

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0941	0.2730	3.1520	7.1427	18.4385	25.2089	29.7887	33.8684

Fineness Modulus
4.17

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	27	33	40	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-701(DH)	701-3	5.6-6.6	4/3/08	SM	Pale Yellow Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 | Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 92% (ASTM D 4373-02)

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 5.6-6.6 **Sample Number:** 701-3
Material Description: Pale Yellow Silty SAND (Visual)
Date: 4/3/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS ONLY
ND = Not Determined
Calcite Equivalent = 92% (ASTM D 4373-02)
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
311.96	0.00	0.00	#10	0.00	100
98.02	0.00	0.00	#20	14.44	85
			#40	26.03	73
			#60	37.07	62
			#100	47.04	52
			#140	53.68	45
			#200	58.90	40

Fractional Components

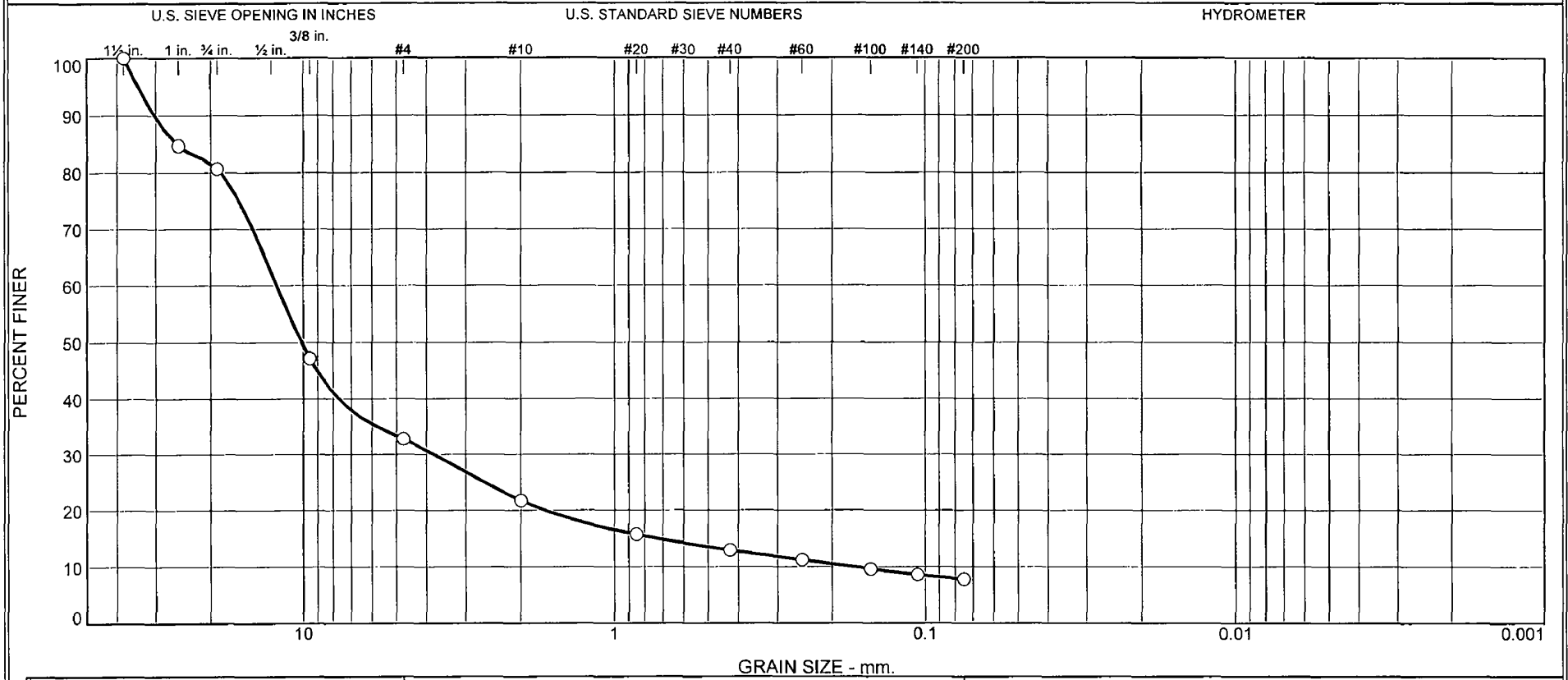
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	27	33	60			40

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.1358	0.2248	0.6140	0.8361	1.1283	1.5059

Fineness Modulus
1.12

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	19	48	11	9	5	8	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-701(DH)	701-6	12.5-14.0	4/3/08	GP-GM	White Poorly Graded GRAVEL with silt and sand (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 12.5-14.0 **Sample Number:** 701-6
Material Description: White Poorly Graded GRAVEL with silt and sand (Visual)
Date: 4/3/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** GP-GM
Testing Remarks: SIEVE ANALYSIS ONLY (OVEN DRY METHOD)
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
341.78	0.00	0.00	1.5	0.00	100
			1	52.26	85
			3/4	65.92	81
			3/8"	180.66	47
			#4	229.70	33
			#10	267.50	22
			#20	288.00	16
			#40	297.50	13
			#60	303.40	11
			#100	308.91	10
			#140	312.32	9
			#200	315.00	8

Fractional Components

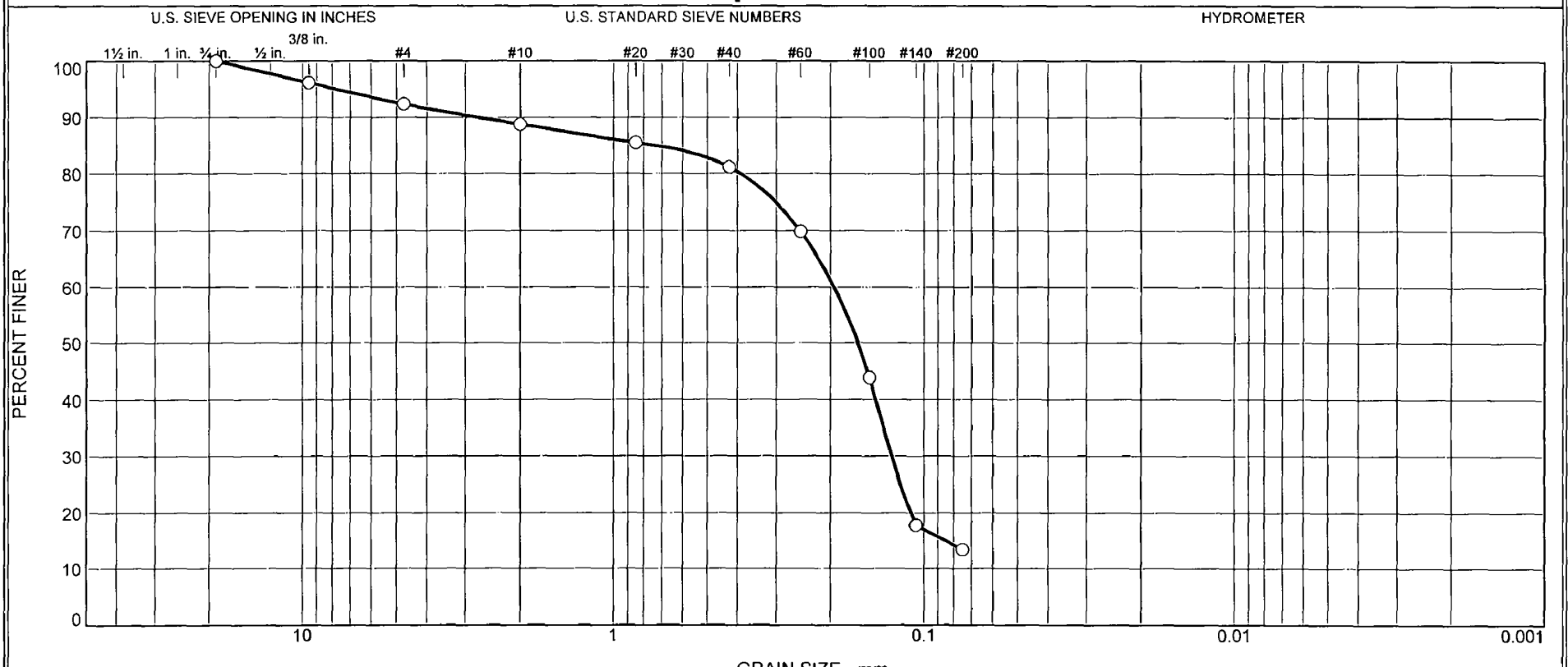
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	19	48	67	11	9	5	25			8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1696	0.7212	1.6763	3.7878	10.1325	12.1886	18.5175	25.7680	30.3633	34.1997

Fineness Modulus	C_u	C_c
5.63	71.85	6.94

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	8	3	8	68	13	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-701(DH)	701-8	115.5-117.0	4/3/08	SM	White Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 | Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 115.5-117.0 **Sample Number:** 701-8
Material Description: White Silty SAND (Visual)
Date: 4/3/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** 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
316.72	0.00	0.00	3/4	0.00	100
			3/8"	12.11	96
			#4	24.25	92
			#10	35.54	89
101.86	0.00	0.00	#20	3.80	85
			#40	8.75	81
			#60	21.70	70
			#100	51.50	44
			#140	81.45	18
			#200	86.45	13

Fractional Components

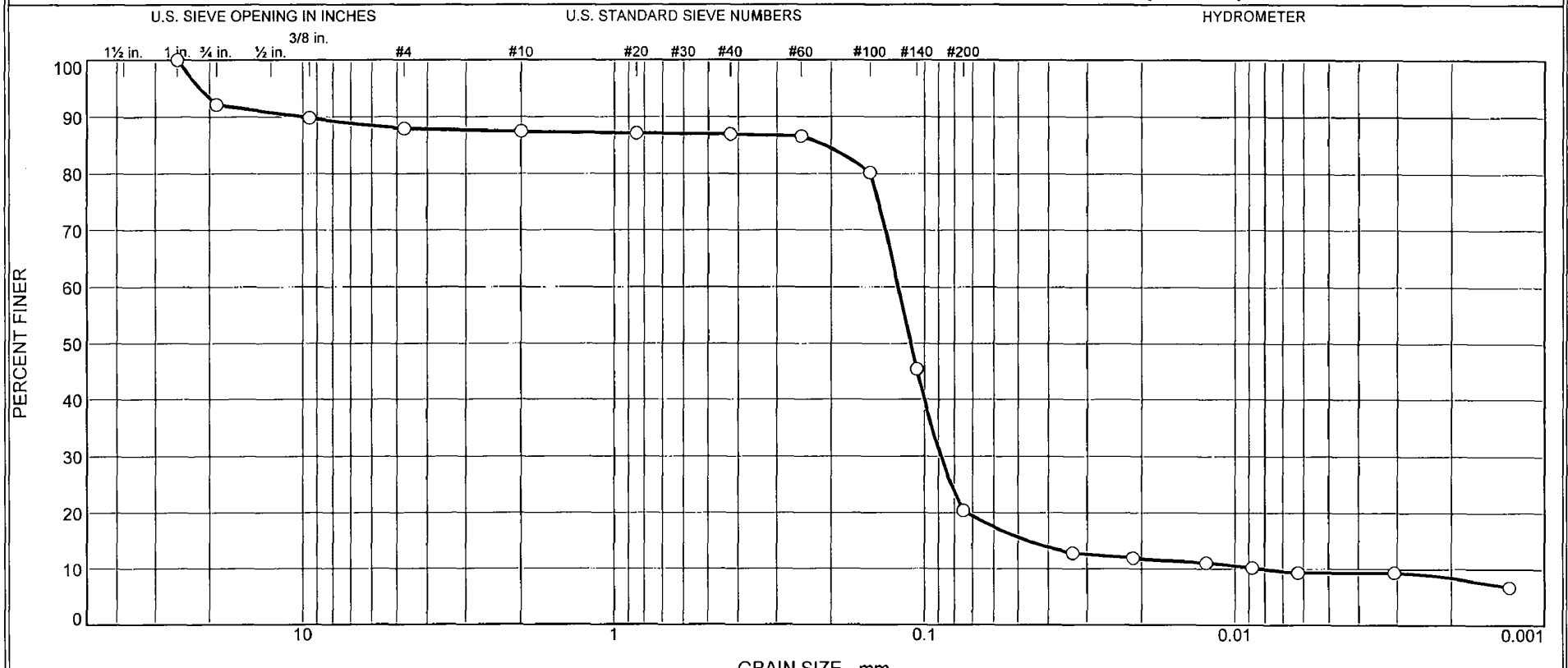
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	8	8	3	8	68	79			13

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0849	0.1105	0.1268	0.1633	0.1945	0.3904	0.7430	2.7450	7.7565

Fineness Modulus
1.32

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 422-63(2007)e1



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	7.8	4.3	0.5	0.5	66.5	11.0	9.4

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-701(DH)	701-9	122.7-124.2	4/7/08	SM	White Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 | Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 122.7-124.2 **Sample Number:** 701-9
Material Description: White Silty SAND (Visual)
Date: 4/7/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND HYDROMETER ONLY
Specific Gravity is assumed
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
452.39	0.00	0.00	1	0.00	100.0
			3/4	35.33	92.2
			3/8"	45.84	89.9
			#4	54.55	87.9
			#10	56.90	87.4
100.73	0.00	0.00	#20	0.37	87.1
			#40	0.61	86.9
			#60	0.99	86.6
			#100	8.33	80.2
			#140	48.37	45.4
			#200	77.28	20.4

Hydrometer Test Data

Hydrometer test uses material passing#10
Percent passing #10 based upon complete sample =87.4
Weight of hydrometer sample =100.73
Hygroscopic moisture correction:
Moist weight and tare = 28.21
Dry weight and tare = 28.09
Tare weight = 15.44
Hygroscopic moisture =0.9%
Table of composite correction values:

Temp., deg. C:	11.6	29.4
Comp. corr.:	-8.0	-3.0

Meniscus correction only =1.0
Specific gravity of solids =2.700
Hydrometer type =152H
Hydrometer effective depth equation: L =16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.6	20.0	14.8	0.0132	21.0	12.9	0.0334	12.8
5.00	21.6	19.0	13.8	0.0132	20.0	13.0	0.0213	12.0
15.00	21.6	18.0	12.8	0.0132	19.0	13.2	0.0124	11.1
30.00	21.6	17.0	11.8	0.0132	18.0	13.3	0.0088	10.2
60.00	21.6	16.0	10.8	0.0132	17.0	13.5	0.0063	9.4
250.00	21.6	16.0	10.8	0.0132	17.0	13.5	0.0031	9.4
1440.00	21.6	13.0	7.8	0.0132	14.0	14.0	0.0013	6.8

MACTEC Engineering and Consulting, Inc.

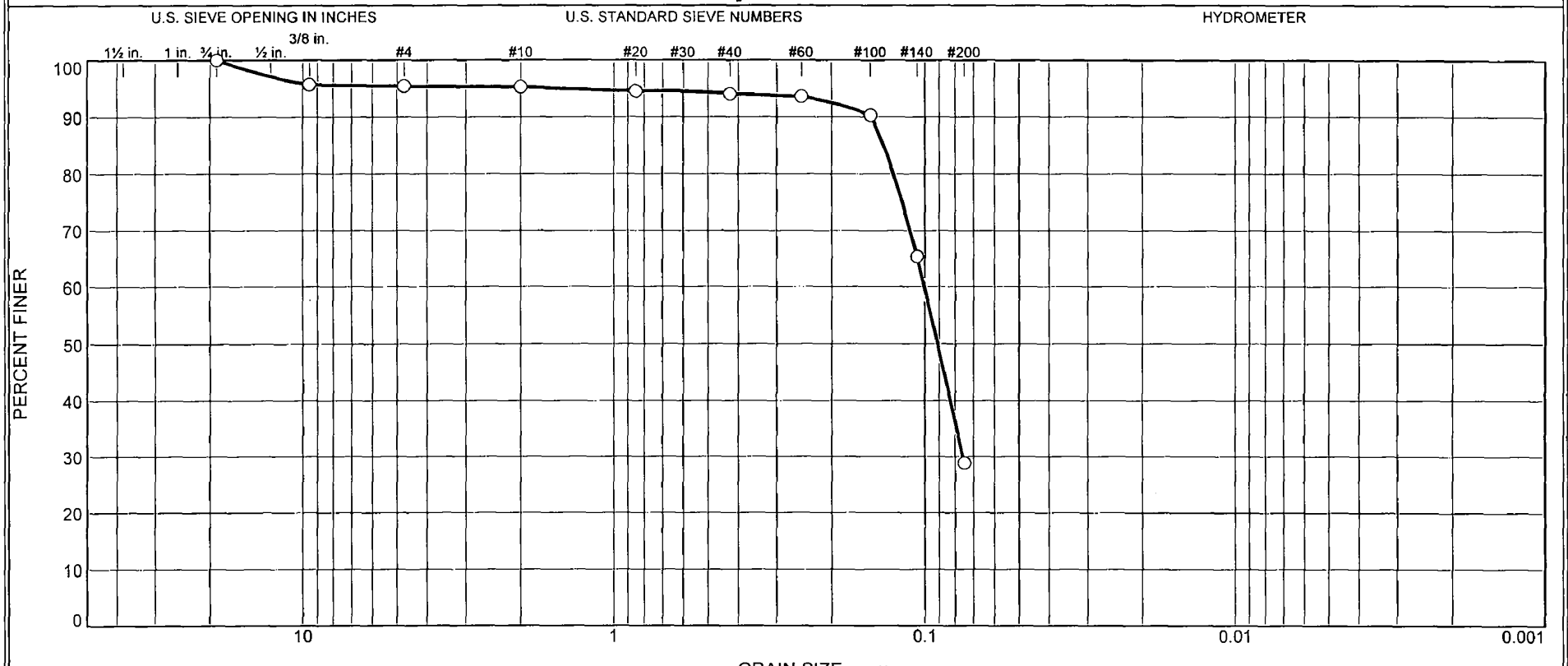
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	7.8	4.3	12.1	0.5	0.5	66.5	67.5	11.0	9.4	20.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0081	0.0466	0.0731	0.0886	0.1107	0.1213	0.1496	0.2089	9.9451	21.4615

Fineness Modulus	C_u	C_c
1.01	14.90	7.94

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	5	0	1	65	29	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-701(DH)	701-10	127.5-129.0	4/7/08	SM	Light Olive Gray Silty SAND (Visual)	ND	ND	ND

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 127.5-129.0 **Sample Number:** 701-10
Material Description: Light Olive Gray Silty SAND (Visual)
Date: 4/7/08 **Natural Moisture:** ND
Liquid Limit: ND **Plastic Limit:** ND **USCS Class.:** 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
311.68	0.00	0.00	3/4	0.00	100
			3/8"	13.56	96
			#4	14.38	95
			#10	14.78	95
100.12	0.00	0.00	#20	0.78	95
			#40	1.32	94
			#60	1.79	94
			#100	5.23	90
			#140	31.40	65
			#200	69.78	29

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	5	5	0	1	65	66			29

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0758	0.0910	0.1003	0.1258	0.1354	0.1490	1.5439

Fineness Modulus
0.41

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A

	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	1	56	43	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-701(DH)	701-12	147.5-149.0	4/7/08	SM	Olive Gray Silty SAND	ND	23	22

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

7/2/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 147.5-149.0 **Sample Number:** 701-12
Material Description: Olive Gray Silty SAND
Date: 4/7/08 **Natural Moisture:** ND
Liquid Limit: 23 **Plastic Limit:** 22 **USCS Class.:** SM
Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS 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
260.74	0.00	0.00	#4	0.00	100
			#10	0.95	100
103.66	0.00	0.00	#20	0.38	99
			#40	0.52	99
			#60	0.79	99
			#100	1.77	98
			#140	8.69	91
			#200	58.84	43

Fractional Components

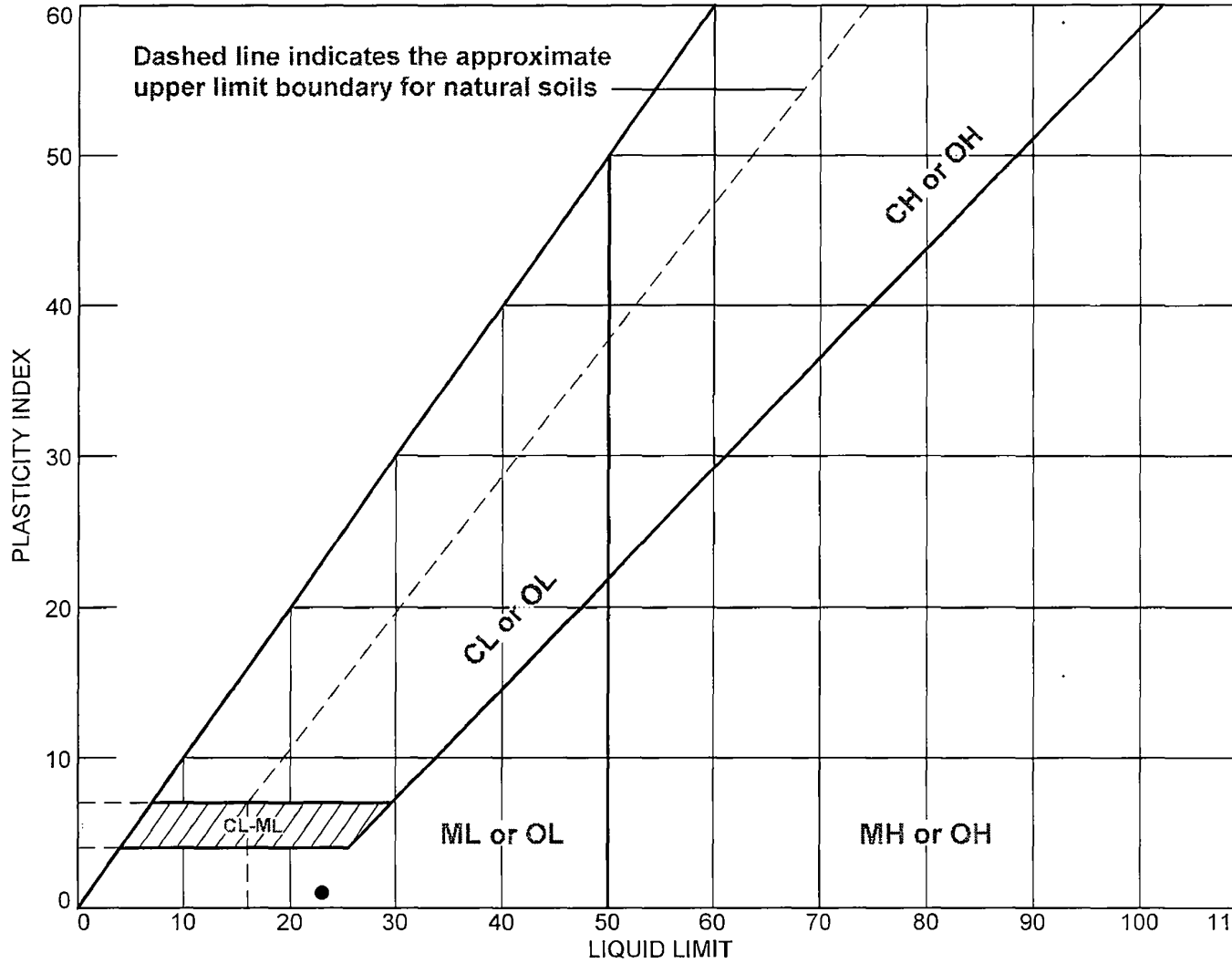
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	1	56	57			43

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0781	0.0830	0.0951	0.0992	0.1044	0.1247

Fineness Modulus
0.05

MACTEC Engineering and Consulting, Inc.

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
●	Boring B-701(DH)	701-12	147.5-149.0	ND	22	23	1	SM

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

Tested By: CS **Checked By:** LBJ

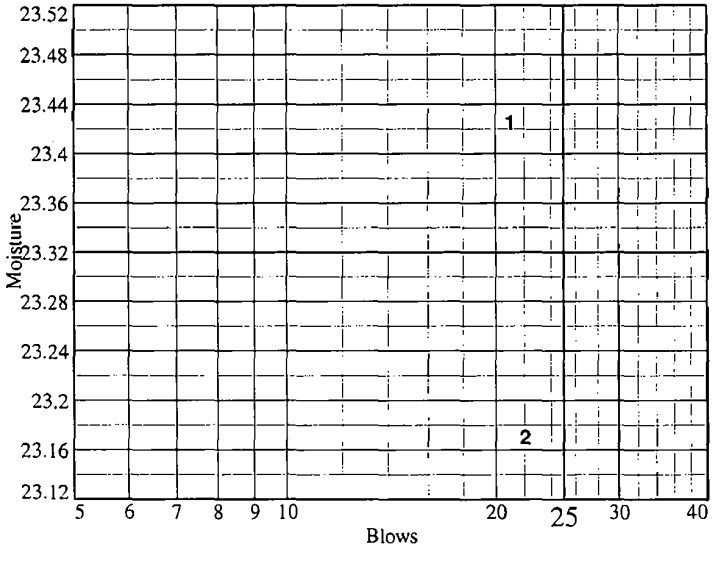
LIQUID AND PLASTIC LIMIT TEST DATA

7/2/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 147.5-149.0 **Sample Number:** 701-12
Material Description: Olive Gray Silty SAND
USCS: SM **AASHTO:** A-4(0)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	31.47	30.57				
Dry+Tare	28.42	27.72				
Tare	15.40	15.42				
# Blows	21	22				
Moisture	23.4	23.2				



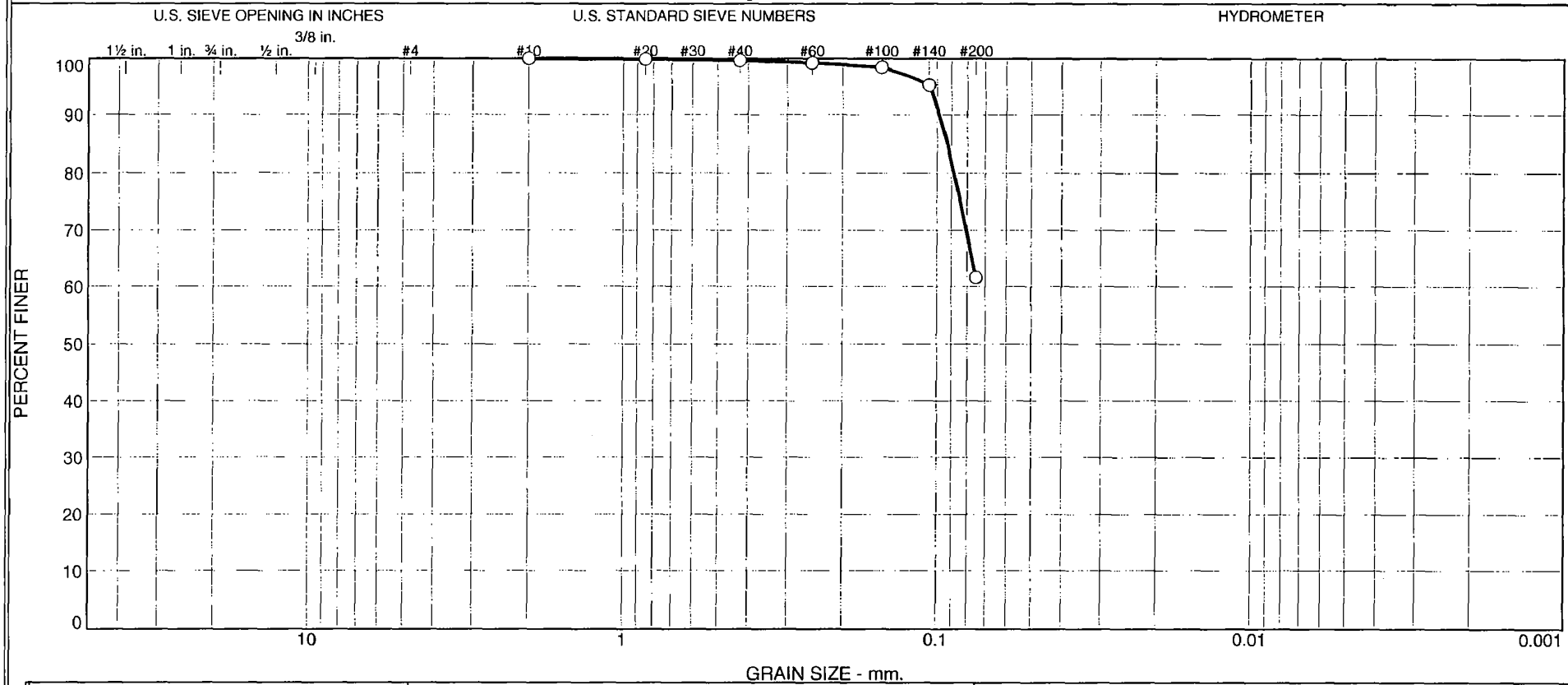
Liquid Limit= 23
Plastic Limit= 22
Plasticity Index= 1
Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	32.23	28.80			
Dry+Tare	29.24	26.43			
Tare	15.82	15.63			
Moisture	22.3	21.9			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	38	62	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-701(DH)	701-15	172.5-174.0	4/7/08	ML	Olive Gray SILT with sand	ND	22	19

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

7/2/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 172.5-174.0 **Sample Number:** 701-15
Material Description: Olive Gray SILT with sand
Date: 4/7/08 **Natural Moisture:** ND
Liquid Limit: 22 **Plastic Limit:** 19 **USCS Class.:** ML
Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS 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
372.91	0.00	0.00	#10	0.00	100
100.65	0.00	0.00	#20	0.10	100
			#40	0.34	100
			#60	0.76	99
			#100	1.56	98
			#140	4.73	95
			#200	38.60	62

Fractional Components

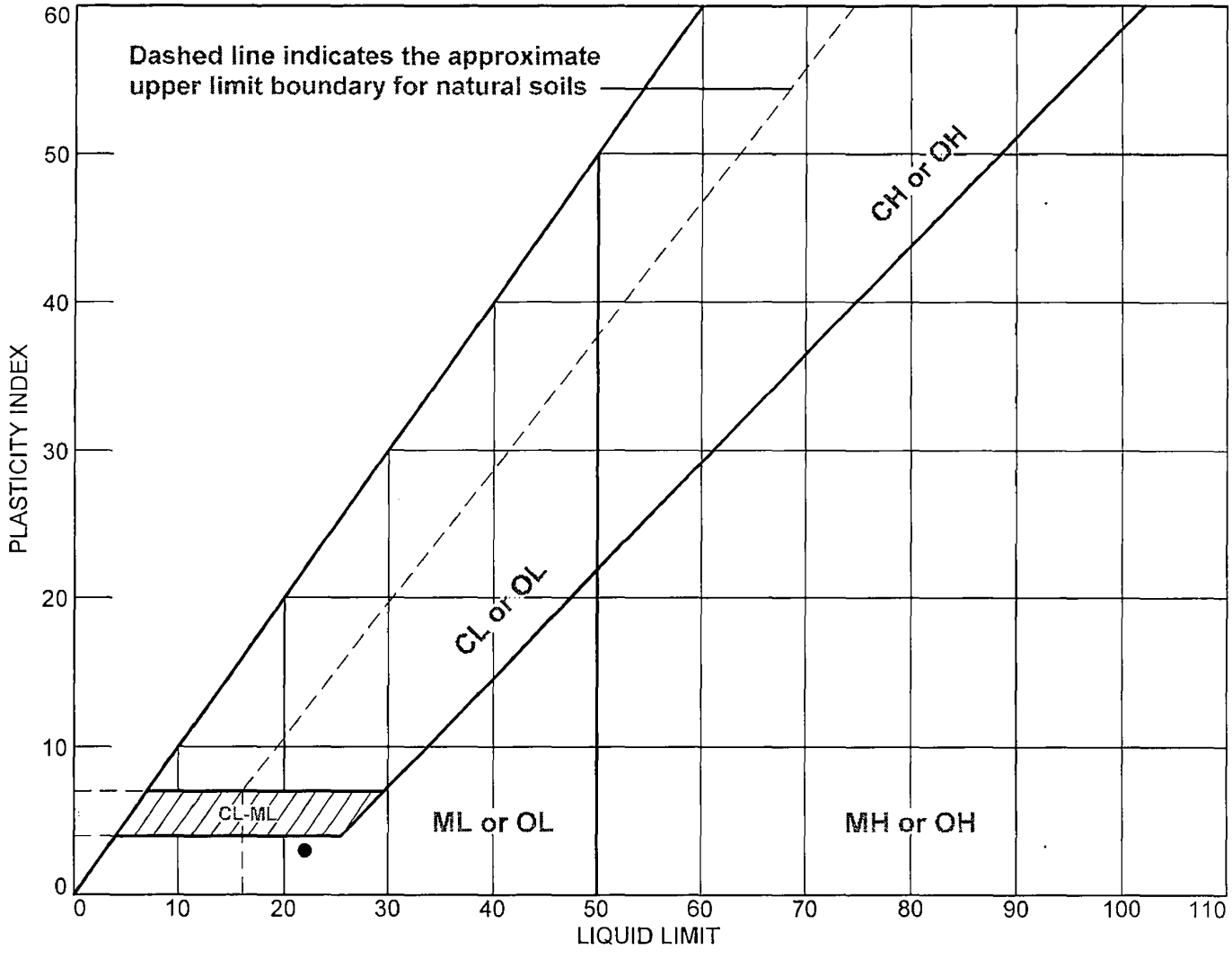
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	38	38			62

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0879	0.0924	0.0978	0.1054

Fineness Modulus
0.02

MACTEC Engineering and Consulting, Inc.

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
●	Boring B-701(DH)	701-15	172.5-174.0	ND	19	22	3	ML

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

Tested By: CS **Checked By:** LBJ

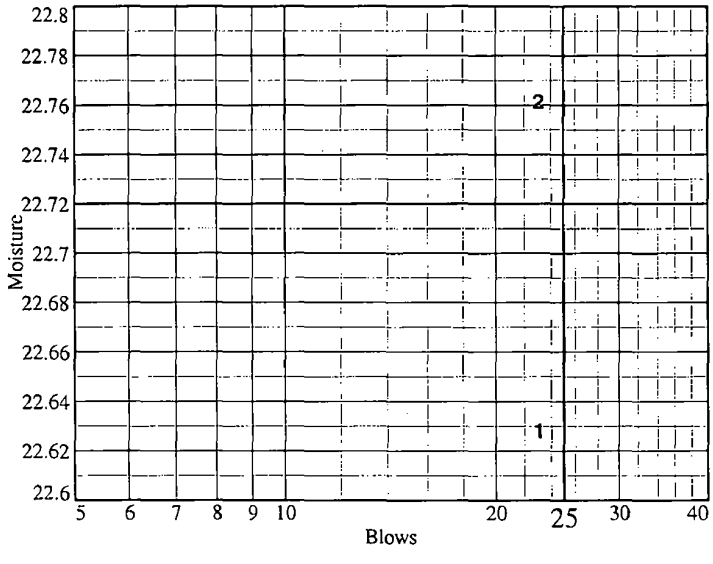
LIQUID AND PLASTIC LIMIT TEST DATA

7/2/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 172.5-174.0 **Sample Number:** 701-15
Material Description: Olive Gray SILT with sand
USCS: ML **AASHTO:** A-4(0)
Tested by: CS **Checked by:** LBJ

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	32.91	26.88				
Dry+Tare	29.69	24.77				
Tare	15.46	15.50				
# Blows	23	23				
Moisture	22.6	22.8				



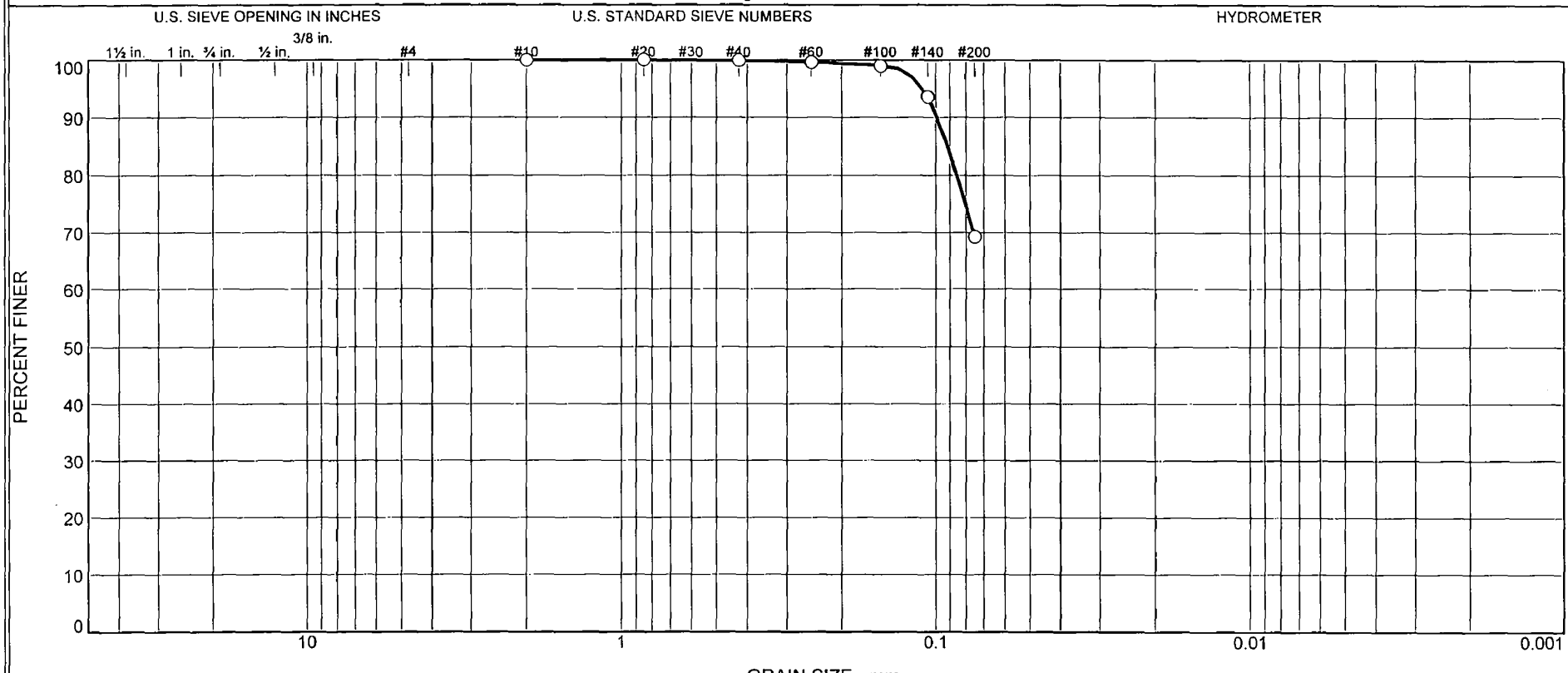
Liquid Limit= 22
Plastic Limit= 19
Plasticity Index= 3
Natural Moisture= ND

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	22.72	27.48			
Dry+Tare	20.89	25.63			
Tare	11.19	15.60			
Moisture	18.9	18.4			

MACTEC Engineering and Consulting, Inc.

Particle Size Distribution Report/ ASTM D 6913-04e1 Method A



	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0	0	0	0	31	69	

	Source	Sample #	Depth/Elev.	Date Sampled	USCS	Material Description	NM %	LL	PL
○	Boring B-701(DH)	701-18	197.6-199.1	4/8/08	ML	Gray SILT with sand	ND	25	22

Client Bechtel

Project Turkey Point COL

Project No. 6468071950 Figure N/A

MACTEC Engineering and Consulting, Inc.

Raleigh, North Carolina

○ SIEVE ANALYSIS AND ATTERBERG LIMITS ONLY
ND = Not Determined

Tested By: CS **Checked By:** LBJ DSC 7-2-08

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2008

Client: Bechtel
Project: Turkey Point COL
Project Number: 6468071950
Location: Boring B-701(DH)
Depth: 197.6-199.1 **Sample Number:** 701-18
Material Description: Gray SILT with sand
Date: 4/8/08 **Natural Moisture:** ND
Liquid Limit: 25 **Plastic Limit:** 22 **USCS Class.:** ML
Testing Remarks: SIEVE ANALYSIS AND ATTERBERG LIMITS 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
300.26	0.00	0.00	#10	0.00	100
100.24	0.00	0.00	#20	0.01	100
			#40	0.11	100
			#60	0.36	100
			#100	1.02	99
			#140	6.46	94
			#200	30.79	69

Fractional Components

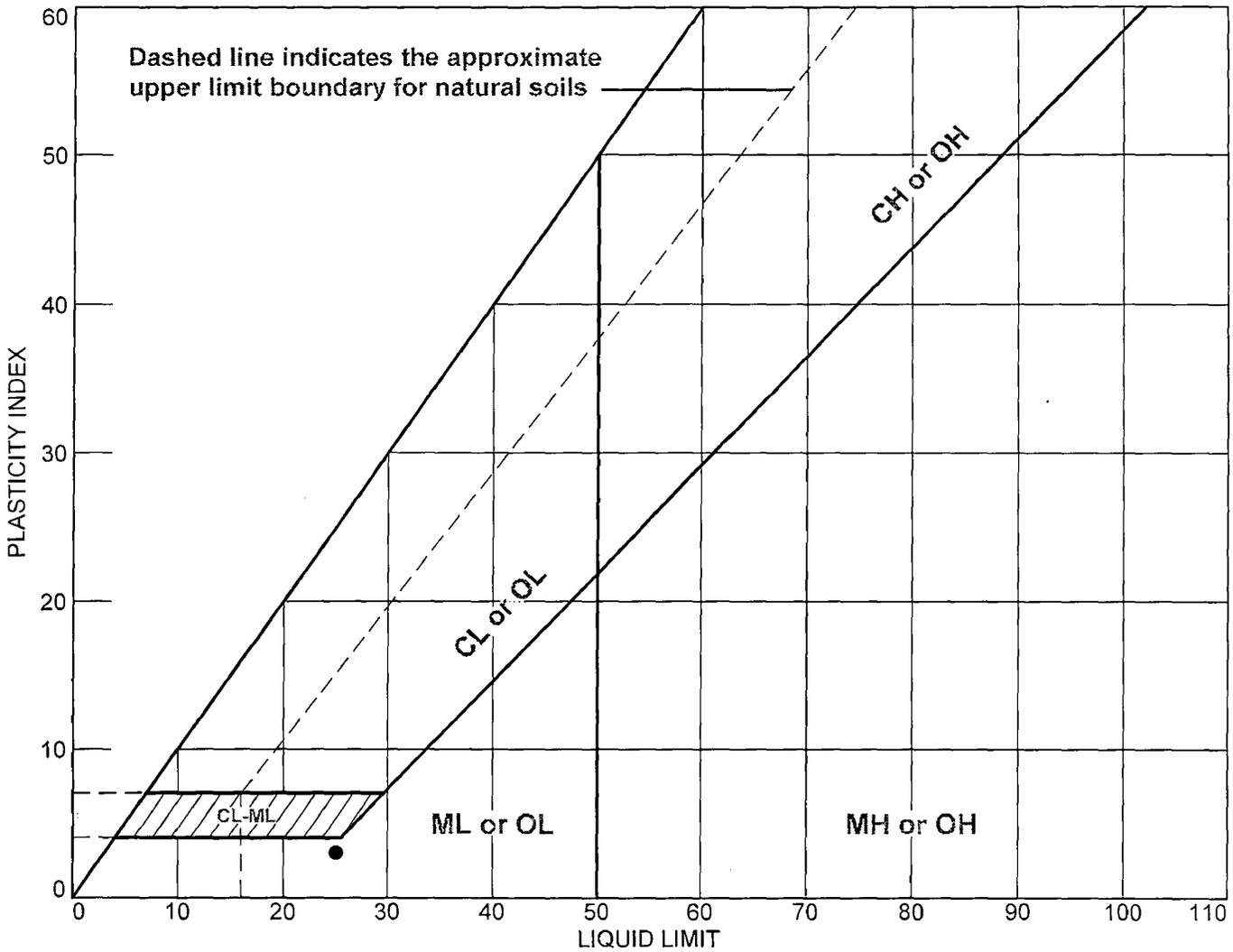
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	0	31	31			69

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
						0.0855	0.0914	0.0988	0.1100

Fineness Modulus
0.01

MACTEC Engineering and Consulting, Inc.

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
●	Boring B-701(DH)	701-18	197.6-199.1	ND	22	25	3	ML

MACTEC Engineering and Consulting, Inc. **Raleigh, North Carolina**	**Client:** Bechtel **Project:** Turkey Point COL **Project No.:** 6468071950 **Figure**

Tested By: CS **Checked By:** LBJ DSC 7-2-08