ANALYTICAL REPORT

Lab Number:	L1400535
Client:	CLE Engineering Incorporated 15 Creek Road Marion, MA 02738
ATTN:	Jeffrey Oakes
Phone:	(508) 748-0937
Project Name:	ROCK HARBOR DREDGING
Project Number:	12123
Report Date:	01/09/14

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Project Name: ROCK HARBOR DREDGING
Project Number: 12123

Lab Number: L1400535
Report Date: 01/09/14

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1400535-01	S-1	EASTHAM/ORLEANS	12/31/13 09:00
L1400535-02	S-2A	EASTHAM/ORLEANS	12/31/13 09:40
L1400535-03	S-2B	EASTHAM/ORLEANS	12/31/13 09:40
L1400535-04	S-3A	EASTHAM/ORLEANS	12/31/13 10:05
L1400535-05	S-3B	EASTHAM/ORLEANS	12/31/13 10:05
L1400535-06	S-4	EASTHAM/ORLEANS	12/31/13 10:21
L1400535-07	S-5	EASTHAM/ORLEANS	12/31/13 10:47
L1400535-08	S-6	EASTHAM/ORLEANS	12/31/13 11:46
L1400535-09	S-7	EASTHAM/ORLEANS	12/31/13 12:26

Project Name: ROCK HARBOR DREDGING **Lab Number:** L1400535
Project Number: 12123 **Report Date:** 01/09/14

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: ROCK HARBOR DREDGING **Lab Number:** L1400535
Project Number: 12123 **Report Date:** 01/09/14

Case Narrative (continued)

Grain Size

The WG663792-1 Laboratory Duplicate RPD, performed on sample L1400535-01, is outside of the acceptance criteria for % Coarse sand (71%). The elevated RPD has been attributed to the non-homogeneous nature of the sample utilized for the laboratory duplicate.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Elizabeth Porta

Title: Technical Director/Representative Date: 01/09/14

INORGANICS
&
MISCELLANEOUS

Project Name: ROCK HARBOR DREDGING
Project Number: 12123

Lab Number: L1400535
Report Date: 01/09/14

SAMPLE RESULTS

Lab ID: L1400535-01
Client ID: S-1
Sample Location: EASTHAM/ORLEANS
Matrix: Soil

Date Collected: 12/31/13 09:00
Date Received: 01/02/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Coarse Gravel	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Fine Gravel	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Total Gravel	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Coarse Sand	1.17		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Medium Sand	36.9		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Fine Sand	61.2		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Total Sand	99.3		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Total Fines	0.680		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE

Project Name: ROCK HARBOR DREDGING
Project Number: 12123

Lab Number: L1400535
Report Date: 01/09/14

SAMPLE RESULTS

Lab ID: L1400535-02
Client ID: S-2A
Sample Location: EASTHAM/ORLEANS
Matrix: Soil

Date Collected: 12/31/13 09:40
Date Received: 01/02/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Coarse Gravel	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Fine Gravel	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Total Gravel	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Coarse Sand	0.550		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Medium Sand	34.8		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Fine Sand	64.1		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Total Sand	99.5		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Total Fines	0.530		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE

Project Name: ROCK HARBOR DREDGING
Project Number: 12123

Lab Number: L1400535
Report Date: 01/09/14

SAMPLE RESULTS

Lab ID: L1400535-03
Client ID: S-2B
Sample Location: EASTHAM/ORLEANS
Matrix: Soil

Date Collected: 12/31/13 09:40
Date Received: 01/02/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Coarse Gravel	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Fine Gravel	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Total Gravel	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Coarse Sand	0.120		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Medium Sand	8.73		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Fine Sand	90.2		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Total Sand	99.1		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Total Fines	0.910		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE

Project Name: ROCK HARBOR DREDGING
Project Number: 12123

Lab Number: L1400535
Report Date: 01/09/14

SAMPLE RESULTS

Lab ID: L1400535-04
Client ID: S-3A
Sample Location: EASTHAM/ORLEANS
Matrix: Soil

Date Collected: 12/31/13 10:05
Date Received: 01/02/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Coarse Gravel	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Fine Gravel	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Total Gravel	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Coarse Sand	0.340		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Medium Sand	27.8		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Fine Sand	71.4		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Total Sand	99.5		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Total Fines	0.430		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE

Project Name: ROCK HARBOR DREDGING
Project Number: 12123

Lab Number: L1400535
Report Date: 01/09/14

SAMPLE RESULTS

Lab ID: L1400535-05
Client ID: S-3B
Sample Location: EASTHAM/ORLEANS
Matrix: Soil

Date Collected: 12/31/13 10:05
Date Received: 01/02/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Coarse Gravel	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Fine Gravel	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Total Gravel	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Coarse Sand	0.250		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Medium Sand	7.78		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Fine Sand	88.4		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Total Sand	96.4		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Total Fines	3.54		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE

Project Name: ROCK HARBOR DREDGING
Project Number: 12123

Lab Number: L1400535
Report Date: 01/09/14

SAMPLE RESULTS

Lab ID: L1400535-06
Client ID: S-4
Sample Location: EASTHAM/ORLEANS
Matrix: Soil

Date Collected: 12/31/13 10:21
Date Received: 01/02/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Coarse Gravel	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Fine Gravel	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Total Gravel	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Coarse Sand	0.180		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Medium Sand	5.12		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Fine Sand	84.9		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Total Sand	90.2		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Total Fines	9.83		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE

Project Name: ROCK HARBOR DREDGING
Project Number: 12123

Lab Number: L1400535
Report Date: 01/09/14

SAMPLE RESULTS

Lab ID: L1400535-07
Client ID: S-5
Sample Location: EASTHAM/ORLEANS
Matrix: Soil

Date Collected: 12/31/13 10:47
Date Received: 01/02/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Coarse Gravel	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Fine Gravel	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Total Gravel	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Coarse Sand	0.180		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Medium Sand	4.43		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Fine Sand	87.1		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Total Sand	91.7		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Total Fines	8.21		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE

Project Name: ROCK HARBOR DREDGING
Project Number: 12123

Lab Number: L1400535
Report Date: 01/09/14

SAMPLE RESULTS

Lab ID: L1400535-08
Client ID: S-6
Sample Location: EASTHAM/ORLEANS
Matrix: Soil

Date Collected: 12/31/13 11:46
Date Received: 01/02/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Coarse Gravel	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Fine Gravel	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Total Gravel	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Coarse Sand	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Medium Sand	5.54		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Fine Sand	79.2		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Total Sand	84.8		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Total Fines	15.2		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE

Project Name: ROCK HARBOR DREDGING
Project Number: 12123

Lab Number: L1400535
Report Date: 01/09/14

SAMPLE RESULTS

Lab ID: L1400535-09
Client ID: S-7
Sample Location: EASTHAM/ORLEANS
Matrix: Soil

Date Collected: 12/31/13 12:26
Date Received: 01/02/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Coarse Gravel	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Fine Gravel	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Total Gravel	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Coarse Sand	ND		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Medium Sand	18.6		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Fine Sand	38.8		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Total Sand	57.4		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE
% Total Fines	42.6		%	0.100	NA	1	-	01/09/14 00:00	12,D422	SE

Lab Duplicate Analysis
Batch Quality Control

Project Name: ROCK HARBOR DREDGING
Project Number: 12123

Lab Number: L1400535
Report Date: 01/09/14

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Grain Size Analysis - Mansfield Lab Associated sample(s): 01-09 QC Batch ID: WG663792-1 QC Sample: L1400535-01 Client ID: S-1						
Cobbles	ND	ND	%	NC		20
% Coarse Gravel	ND	ND	%	NC		20
% Fine Gravel	ND	ND	%	NC		20
% Total Gravel	ND	ND	%	NC		20
% Coarse Sand	1.17	0.560	%	**71**	Q	20
% Medium Sand	36.9	38.3	%	4		20
% Fine Sand	61.2	60.4	%	1		20
% Total Sand	99.3	99.3	%	0		20
% Total Fines	0.680	0.700	%	3		20

Project Name: ROCK HARBOR DREDGING
Project Number: 12123

Lab Number: L1400535
Report Date: 01/09/14

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information Custody Seal

Cooler	
A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1400535-01A	Plastic 8oz unpreserved for Grai	A	N/A	4.3	Y	Absent	A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1400535-01B	Amber 250ml unpreserved	A	N/A	4.3	Y	Absent	A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1400535-02A	Plastic 8oz unpreserved for Grai	A	N/A	4.3	Y	Absent	A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1400535-02B	Amber 250ml unpreserved	A	N/A	4.3	Y	Absent	A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1400535-03A	Plastic 8oz unpreserved for Grai	A	N/A	4.3	Y	Absent	A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()

*Values in parentheses indicate holding time in days

Project Name: ROCK HARBOR DREDGING
Project Number: 12123

Lab Number: L1400535
Report Date: 01/09/14

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1400535-03B	Amber 250ml unpreserved	A	N/A	4.3	Y	Absent	A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1400535-04A	Plastic 8oz unpreserved for Grai	A	N/A	4.3	Y	Absent	A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1400535-04B	Amber 250ml unpreserved	A	N/A	4.3	Y	Absent	A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1400535-05A	Plastic 8oz unpreserved for Grai	A	N/A	4.3	Y	Absent	A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1400535-05B	Amber 250ml unpreserved	A	N/A	4.3	Y	Absent	A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1400535-06A	Plastic 8oz unpreserved for Grai	A	N/A	4.3	Y	Absent	A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()

*Values in parentheses indicate holding time in days

Project Name: ROCK HARBOR DREDGING
Project Number: 12123

Lab Number: L1400535
Report Date: 01/09/14

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1400535-06B	Amber 250ml unpreserved	A	N/A	4.3	Y	Absent	A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1400535-07A	Plastic 8oz unpreserved for Grai	A	N/A	4.3	Y	Absent	A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1400535-07B	Amber 250ml unpreserved	A	N/A	4.3	Y	Absent	A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1400535-08A	Plastic 8oz unpreserved for Grai	A	N/A	4.3	Y	Absent	A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1400535-08B	Amber 250ml unpreserved	A	N/A	4.3	Y	Absent	A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1400535-09A	Plastic 8oz unpreserved for Grai	A	N/A	4.3	Y	Absent	A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()

*Values in parentheses indicate holding time in days

Project Name: ROCK HARBOR DREDGING
Project Number: 12123

Lab Number: L1400535
Report Date: 01/09/14

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1400535-09B	Amber 250ml unpreserved	A	N/A	4.3	Y	Absent	A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()

*Values in parentheses indicate holding time in days

Project Name:	ROCK HARBOR DREDGING	**Lab Number:**	L1400535
Project Number:	12123	**Report Date:**	01/09/14

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NI	- Not Ignitable.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

Footnotes

1	- The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

A	- Spectra identified as "Aldol Condensation Product".
B	- The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit.
C	- Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
D	- Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
E	- Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
G	- The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.
H	- The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
I	- The lower value for the two columns has been reported due to obvious interference.

Report Format: Data Usability Report

Project Name:	ROCK HARBOR DREDGING	**Lab Number:**	L1400535
Project Number:	12123	**Report Date:**	01/09/14

Data Qualifiers

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: Data Usability Report

Project Name:	ROCK HARBOR DREDGING	**Lab Number:**	L1400535
Project Number:	12123	**Report Date:**	01/09/14

REFERENCES

12 Annual Book of ASTM Standards. (American Society for Testing and Materials) ASTM International.

LIMITATION OF LIABILITIES

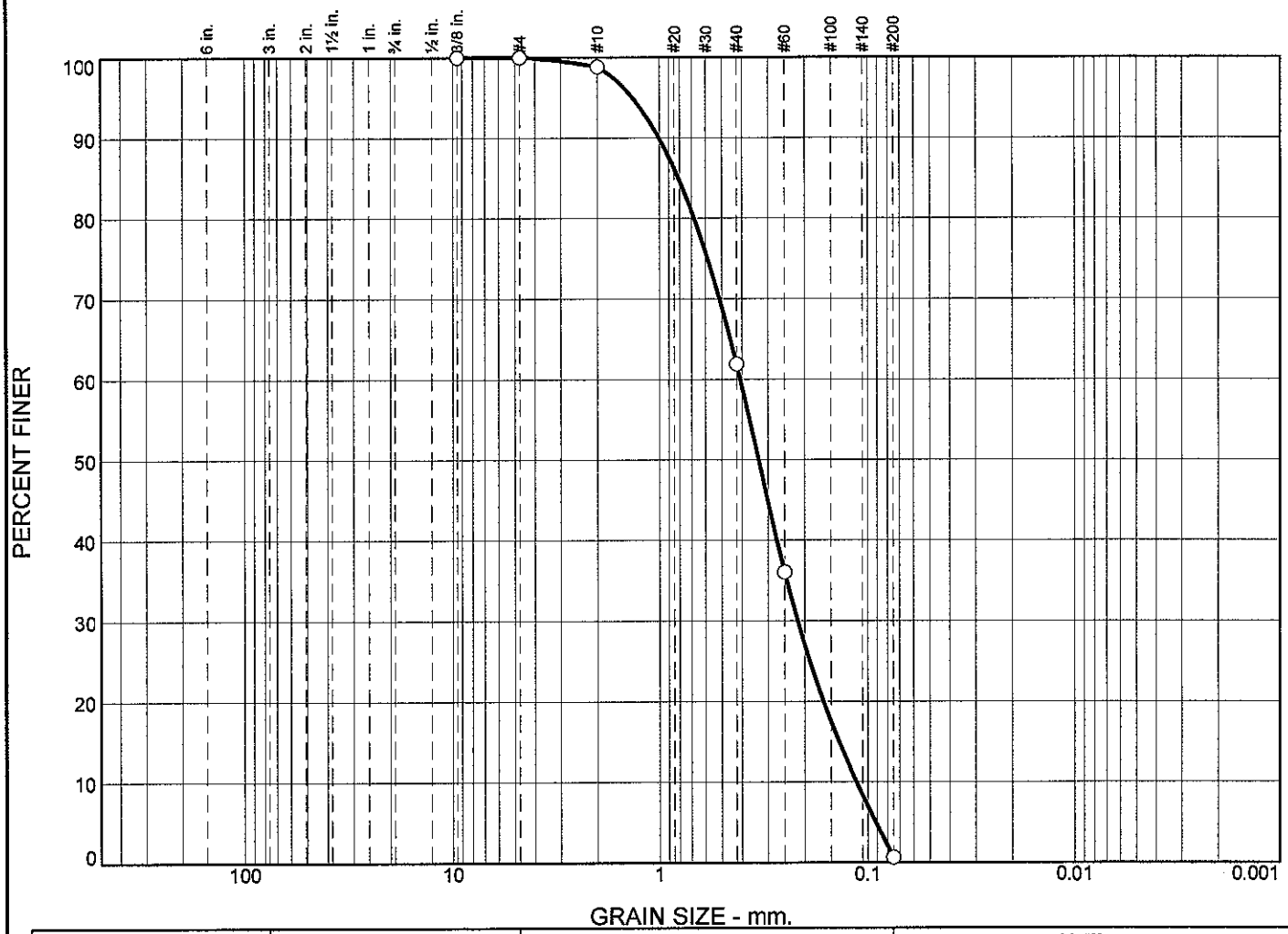
Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

ASTM D422-63

GRAIN SIZE ANALYSIS

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.00	0.00	0.00	1.17	36.91	61.24	0.68	

☒	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.8112	0.4079	0.3330	0.2165	0.1375	0.1134	1.01	3.60

	Material Description	USCS	AASHTO
○		SP	

Project No. **Client:**
Project:

○ **Source of Sample:** S-1 **Sample Number:** L1400535-01

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

1/9/2014

Location: S-1
Sample Number: L1400535-01
USCS Classification: SP

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =83.93
Tare Wt. =0.00
Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
83.93	0.00	.375	0.00	0.00	100.00
		#4	0.00	0.00	100.00
		#10	0.98	0.00	98.83
		#40	30.98	0.00	61.92
		#60	21.69	0.00	36.08
		#200	29.71	0.00	0.68

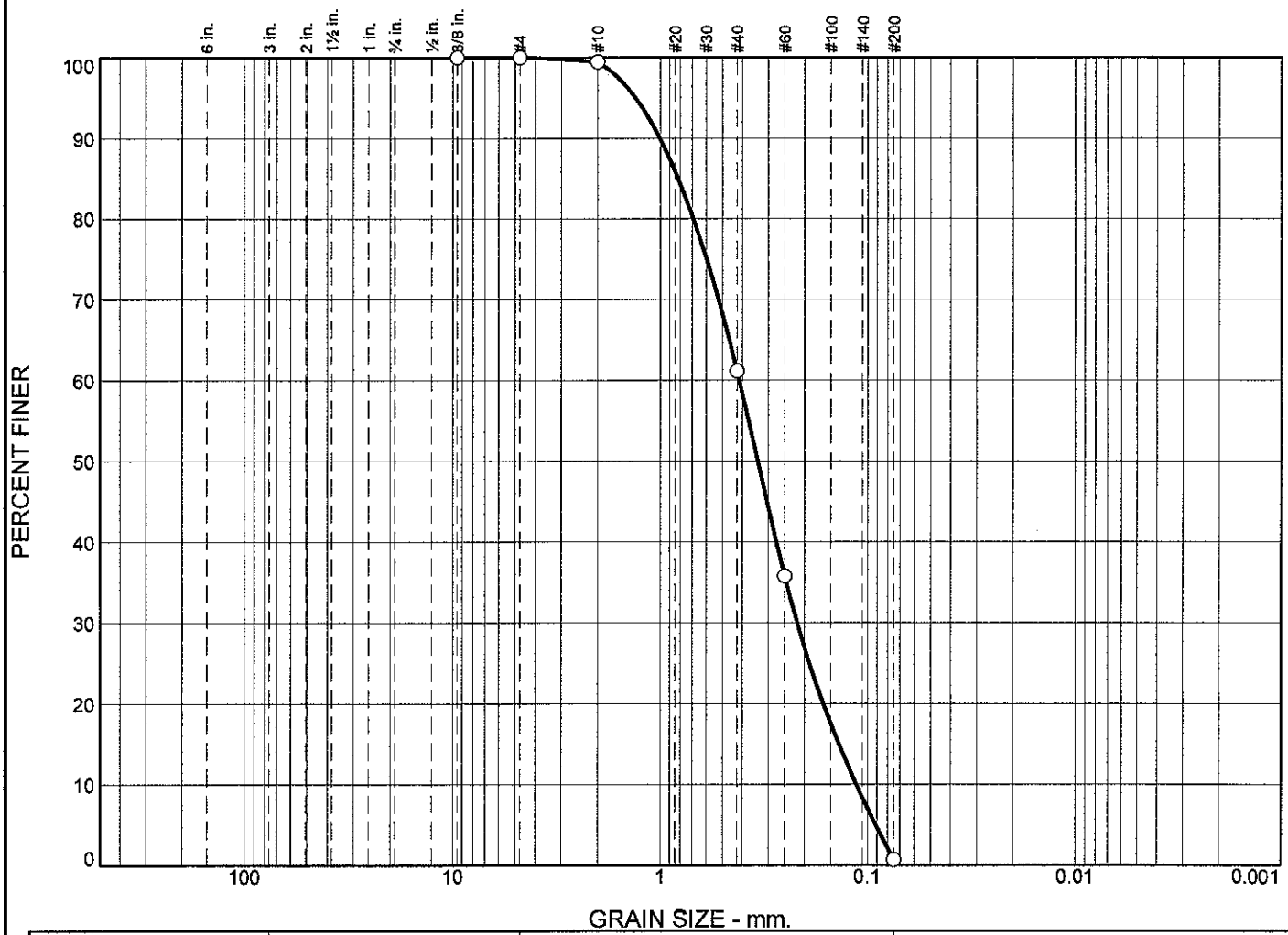
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.00	0.00	0.00	0.00	1.17	36.91	61.24	99.32			0.68

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1134	0.1375	0.1631	0.2165	0.3330	0.4079	0.6810	0.8112	1.0055	1.3484

Fineness Modulus	C_u	C_c
1.70	3.60	1.01

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.00	0.00	0.00	0.56	38.29	60.45	0.70	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.8211	0.4145	0.3370	0.2173	0.1373	0.1131	1.01	3.66

	Material Description	USCS	AASHTO
○		SP	

Project No. **Client:**
Project:

○ **Source of Sample:** S-1 **Sample Number:** WG663792-1

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

1/9/2014

Location: S-1
Sample Number: WG663792-1
USCS Classification: SP

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 75.39
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
75.39	0.00	.375	0.00	0.00	100.00
		#4	0.00	0.00	100.00
		#10	0.42	0.00	99.44
		#40	28.87	0.00	61.15
		#60	19.11	0.00	35.80
		#200	26.46	0.00	0.70

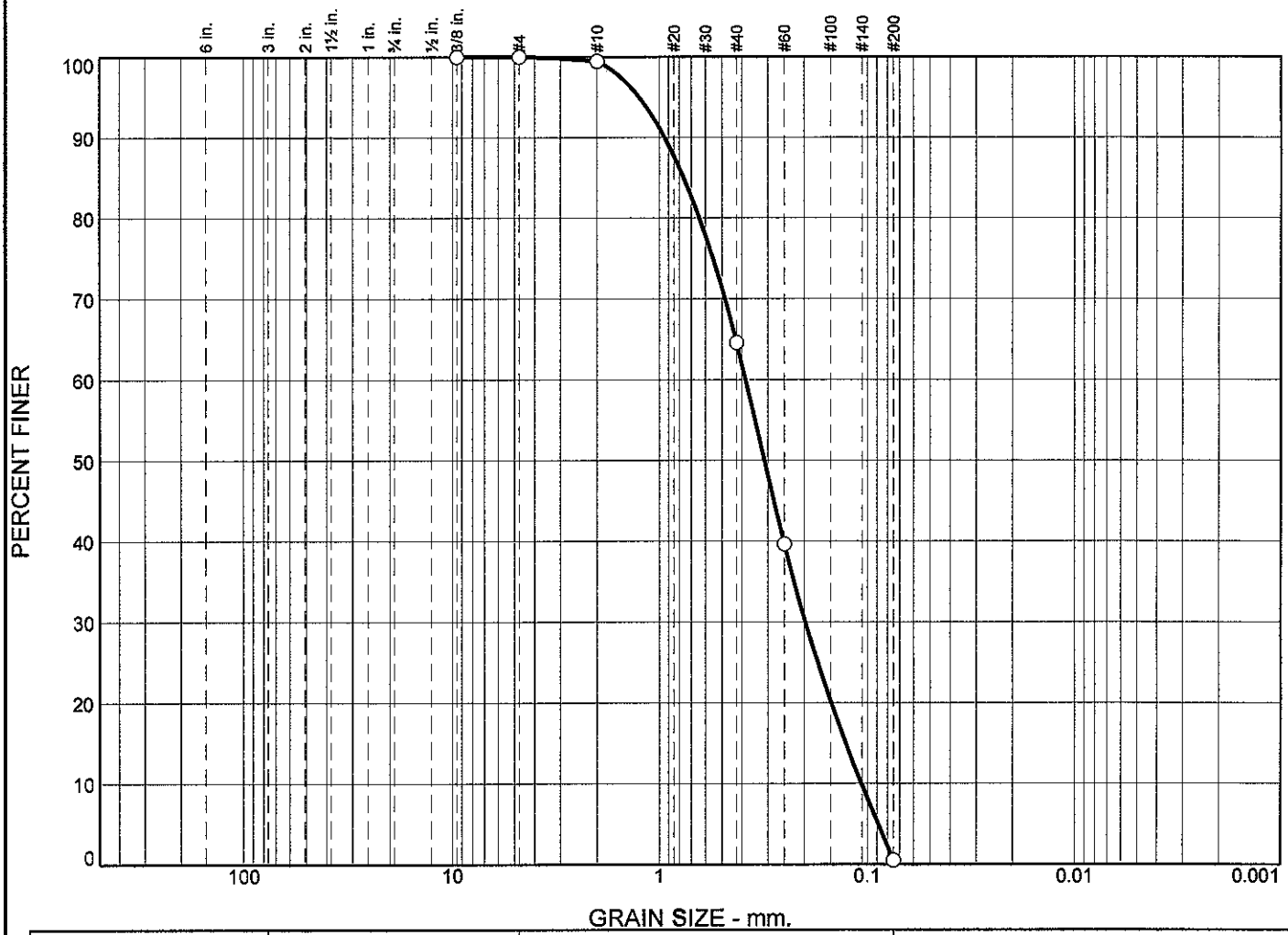
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.00	0.00	0.00	0.00	0.56	38.29	60.45	99.30			0.70

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1131	0.1373	0.1631	0.2173	0.3370	0.4145	0.6927	0.8211	1.0069	1.3172

Fineness Modulus	C_u	C_c
1.70	3.66	1.01

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.00	0.00	0.00	0.55	34.85	64.07	0.53	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.7628	0.3841	0.3117	0.1980	0.1267	0.1066	0.96	3.60

	Material Description	USCS	AASHTO
○		SP	

Project No. **Client:**

Project:

○ **Source of Sample:** S-2A **Sample Number:** L1400535-02

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

1/9/2014

Location: S-2A
Sample Number: L1400535-02
USCS Classification: SP

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =84.34
Tare Wt. =0.00
Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
84.34	0.00	.375	0.00	0.00	100.00
		#4	0.00	0.00	100.00
		#10	0.46	0.00	99.45
		#40	29.40	0.00	64.60
		#60	21.05	0.00	39.64
		#200	32.98	0.00	0.53

Fractional Components

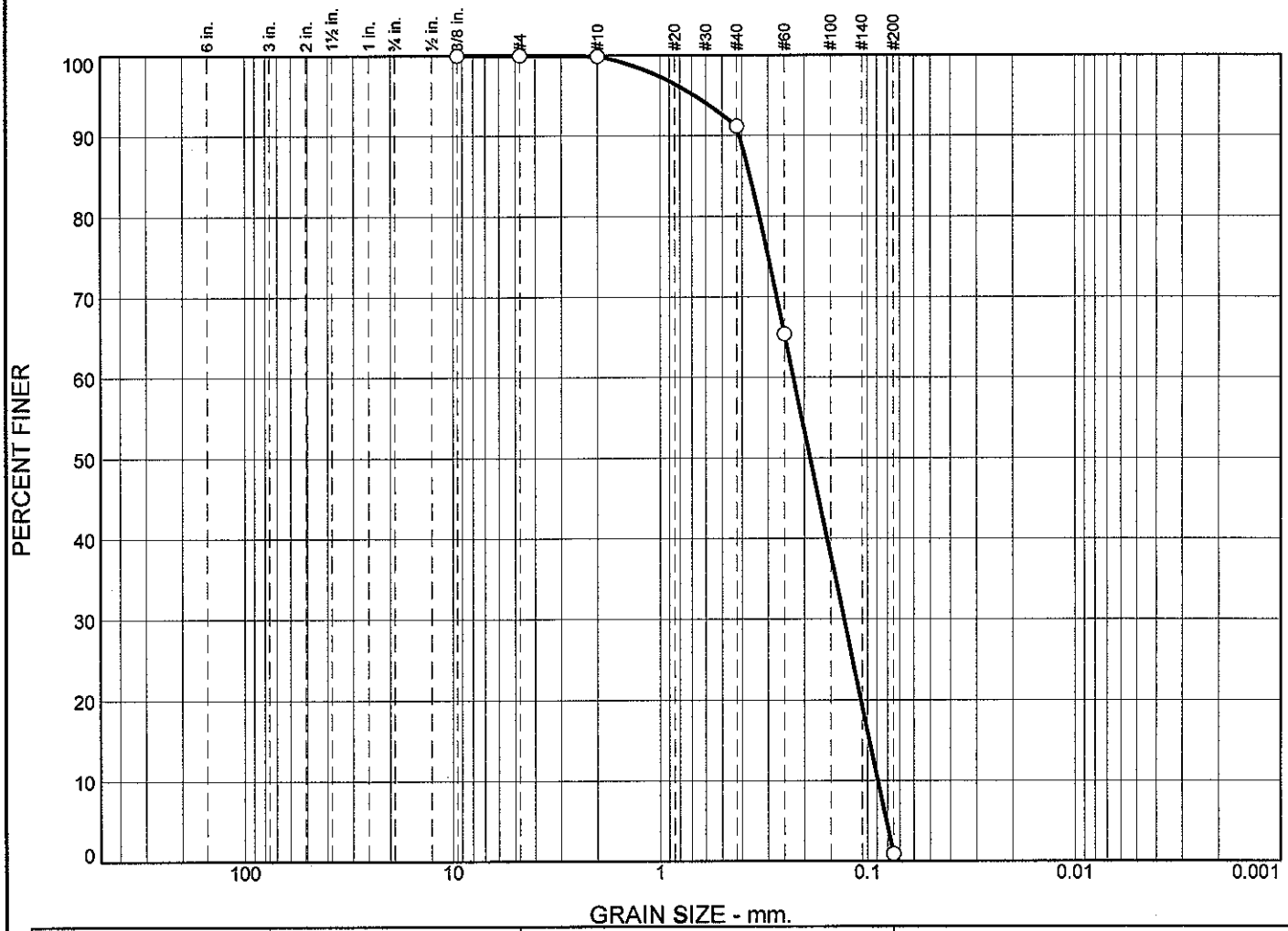
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.00	0.00	0.00	0.00	0.55	34.85	64.07	99.47			0.53

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1066	0.1267	0.1489	0.1980	0.3117	0.3841	0.6413	0.7628	0.9423	1.2526

Fineness Modulus	C_u	C_c
1.60	3.60	0.96

Alpha Analytical

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.00	0.00	0.00	0.12	8.73	90.24	0.91	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.3662	0.2264	0.1881	0.1295	0.0977	0.0890	0.83	2.54

	Material Description	USCS	AASHTO
○		SP	

Project No. **Client:**
Project:

○ **Source of Sample:** S-2B **Sample Number:** L1400535-03

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

1/9/2014

Location: S-2B
Sample Number: L1400535-03
USCS Classification: SP

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 84.18
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
84.18	0.00	.375	0.00	0.00	100.00
		#4	0.00	0.00	100.00
		#10	0.10	0.00	99.88
		#40	7.35	0.00	91.15
		#60	21.69	0.00	65.38
		#200	54.27	0.00	0.91

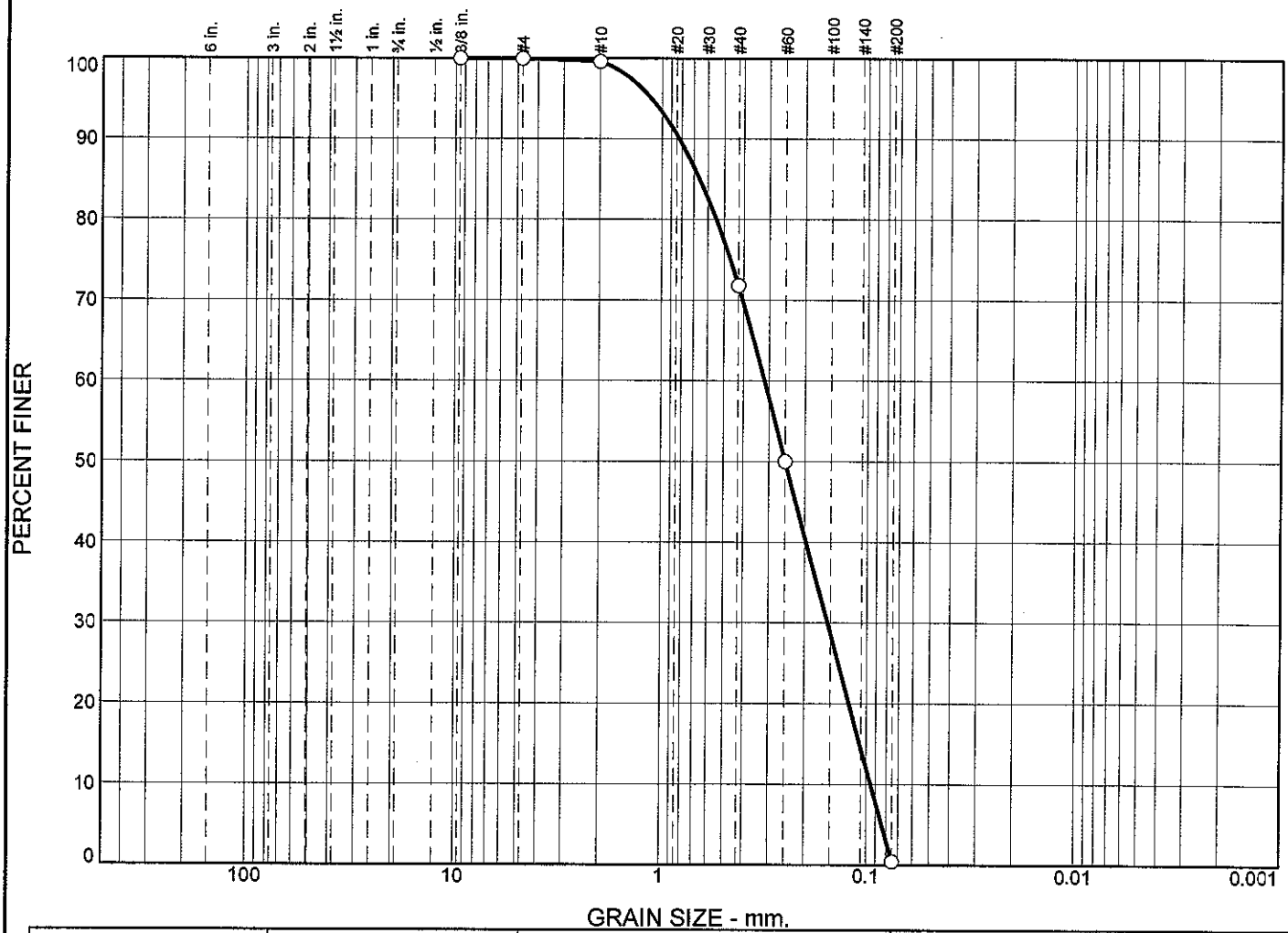
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.00	0.00	0.00	0.00	0.12	8.73	90.24	99.09			0.91

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0890	0.0977	0.1073	0.1295	0.1881	0.2264	0.3297	0.3662	0.4122	0.6844

Fineness Modulus	C_u	C_c
0.95	2.54	0.83

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.00	0.00	0.05	0.34	27.82	71.36	0.43	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.6575	0.3157	0.2498	0.1552	0.1075	0.0950	0.80	3.32

	Material Description	USCS	AASHTO
○		SP	

Project No. **Client:**
Project:

○ **Source of Sample:** S-3A **Sample Number:** L1400535-04

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

1/9/2014

Location: S-3A
Sample Number: L1400535-04
USCS Classification: SP

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =85.35
Tare Wt. =0.00
Minus #200 from wash =0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
85.35	0.00	.375	0.00	0.00	100.00
		#4	0.04	0.00	99.95
		#10	0.29	0.00	99.61
		#40	23.75	0.00	71.79
		#60	18.57	0.00	50.03
		#200	42.33	0.00	0.43

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.00	0.00	0.05	0.05	0.34	27.82	71.36	99.52			0.43

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{80}	D_{80}	D_{85}	D_{90}	D_{95}
0.0950	0.1075	0.1216	0.1552	0.2498	0.3157	0.5462	0.6575	0.8258	1.1279

Fineness Modulus	C_u	C_c
1.36	3.32	0.80

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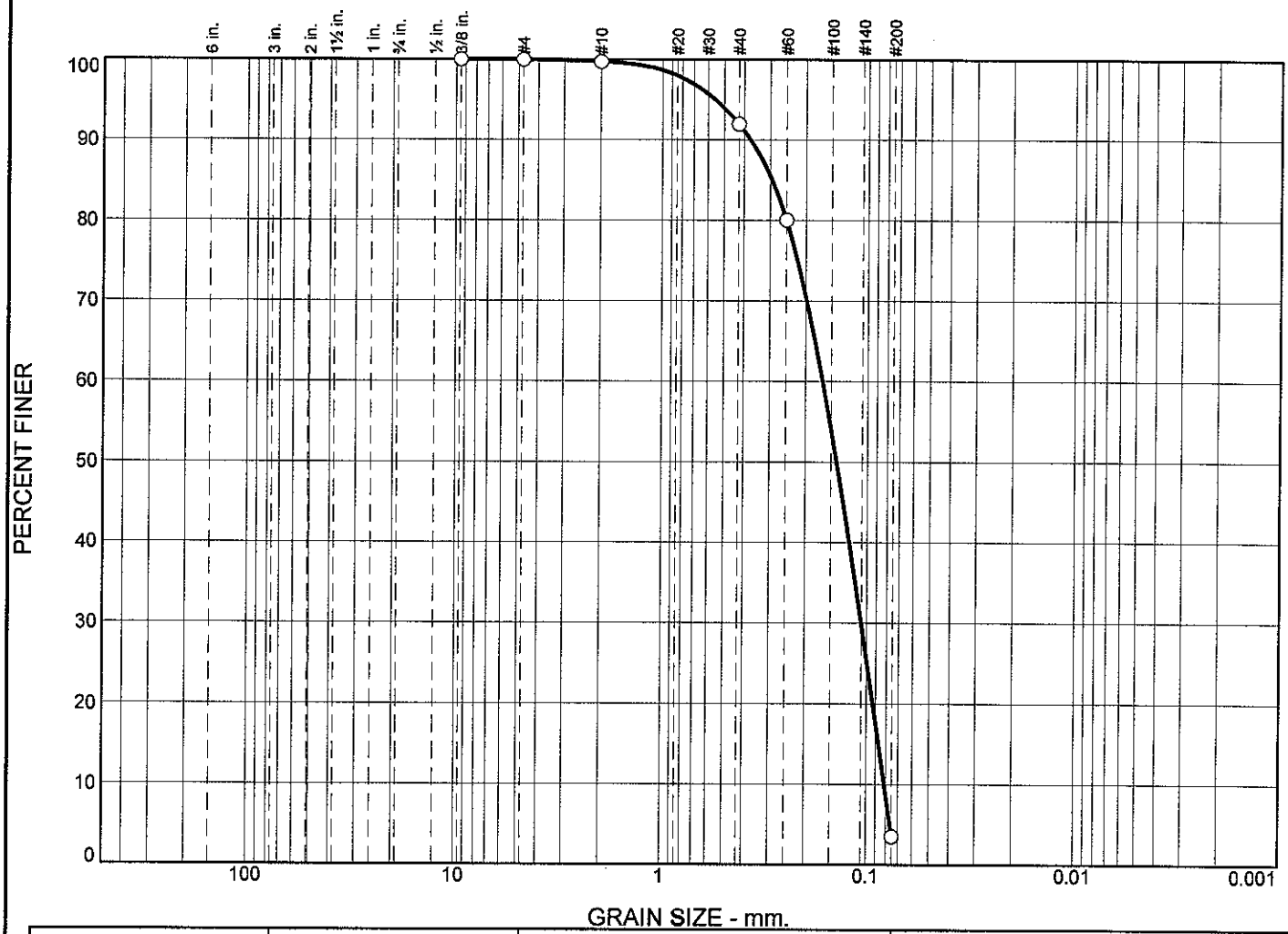
Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.00	0.00	0.03	0.25	7.78	88.40	3.54	

☒	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.2936	0.1655	0.1411	0.1062	0.0870	0.0815	0.84	2.03

	Material Description	USCS	AASHTO
○		SP	

Project No. **Client:**
Project:

○ **Source of Sample:** S-3B **Sample Number:** L1400535-05

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

1/9/2014

Location: S-3B
Sample Number: L1400535-05
USCS Classification: SP

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 67.85
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
67.85	0.00	.375	0.00	0.00	100.00
		#4	0.02	0.00	99.97
		#10	0.17	0.00	99.72
		#40	5.28	0.00	91.94
		#60	8.08	0.00	80.03
		#200	51.90	0.00	3.54

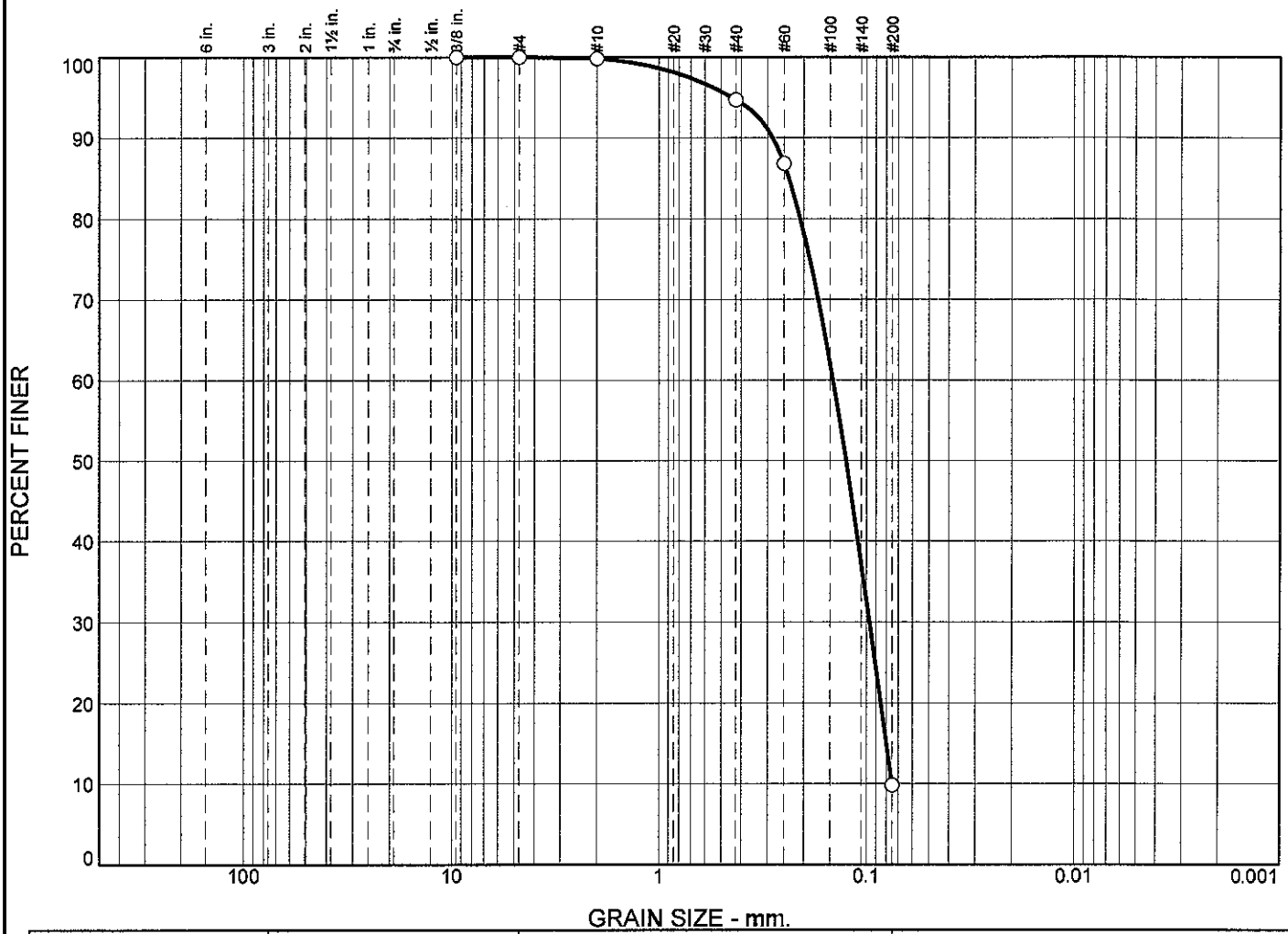
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.00	0.00	0.03	0.03	0.25	7.78	88.40	96.43			3.54

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0815	0.0870	0.0929	0.1062	0.1411	0.1655	0.2498	0.2936	0.3730	0.5548

Fineness Modulus	C_u	C_c
0.66	2.03	0.84

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.00	0.00	0.00	0.18	5.12	84.87	9.83	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.2366	0.1456	0.1258	0.0965	0.0800	0.0752	0.85	1.94

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source of Sample:** S-4 **Sample Number:** L1400535-06

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

1/9/2014

Location: S-4

Sample Number: L1400535-06

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =54.20
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
54.20	0.00	.375	0.00	0.00	100.00
		#4	0.00	0.00	100.00
		#10	0.10	0.00	99.82
		#40	2.77	0.00	94.70
		#60	4.29	0.00	86.79
		#200	41.71	0.00	9.83

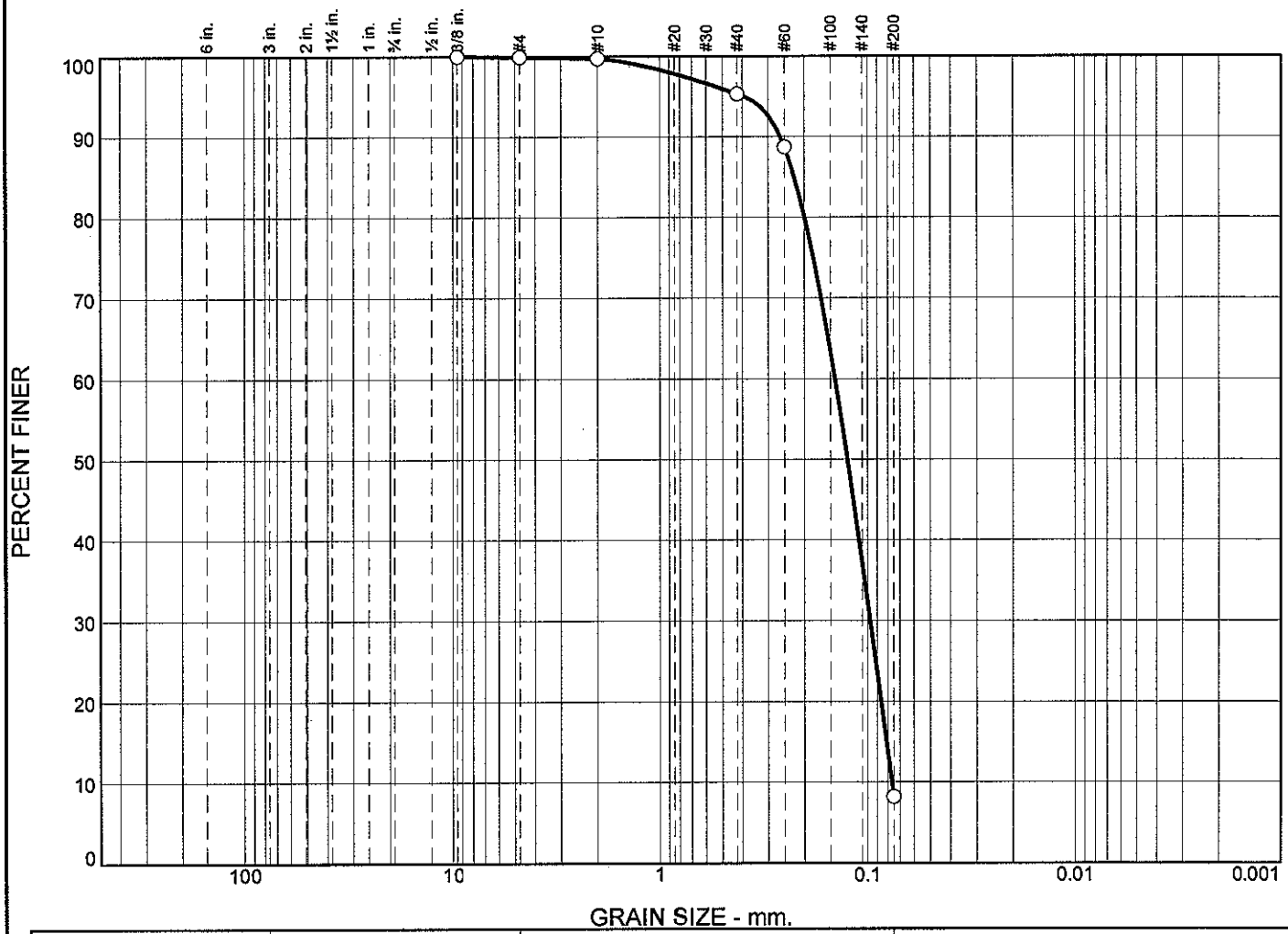
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.00	0.00	0.00	0.00	0.18	5.12	84.87	90.17			9.83

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0752	0.0800	0.0851	0.0965	0.1258	0.1456	0.2086	0.2366	0.2838	0.4449

Fineness Modulus	C_u	C_c
0.51	1.94	0.85

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.00	0.00	0.09	0.18	4.43	87.09	8.21	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.2242	0.1429	0.1245	0.0969	0.0812	0.0766	0.86	1.87

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source of Sample:** S-5 **Sample Number:** L1400535-07

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

1/9/2014

Location: S-5

Sample Number: L1400535-07

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 55.76
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
55.76	0.00	.375	0.00	0.00	100.00
		#4	0.05	0.00	99.91
		#10	0.10	0.00	99.73
		#40	2.47	0.00	95.30
		#60	3.67	0.00	88.72
		#200	44.89	0.00	8.21

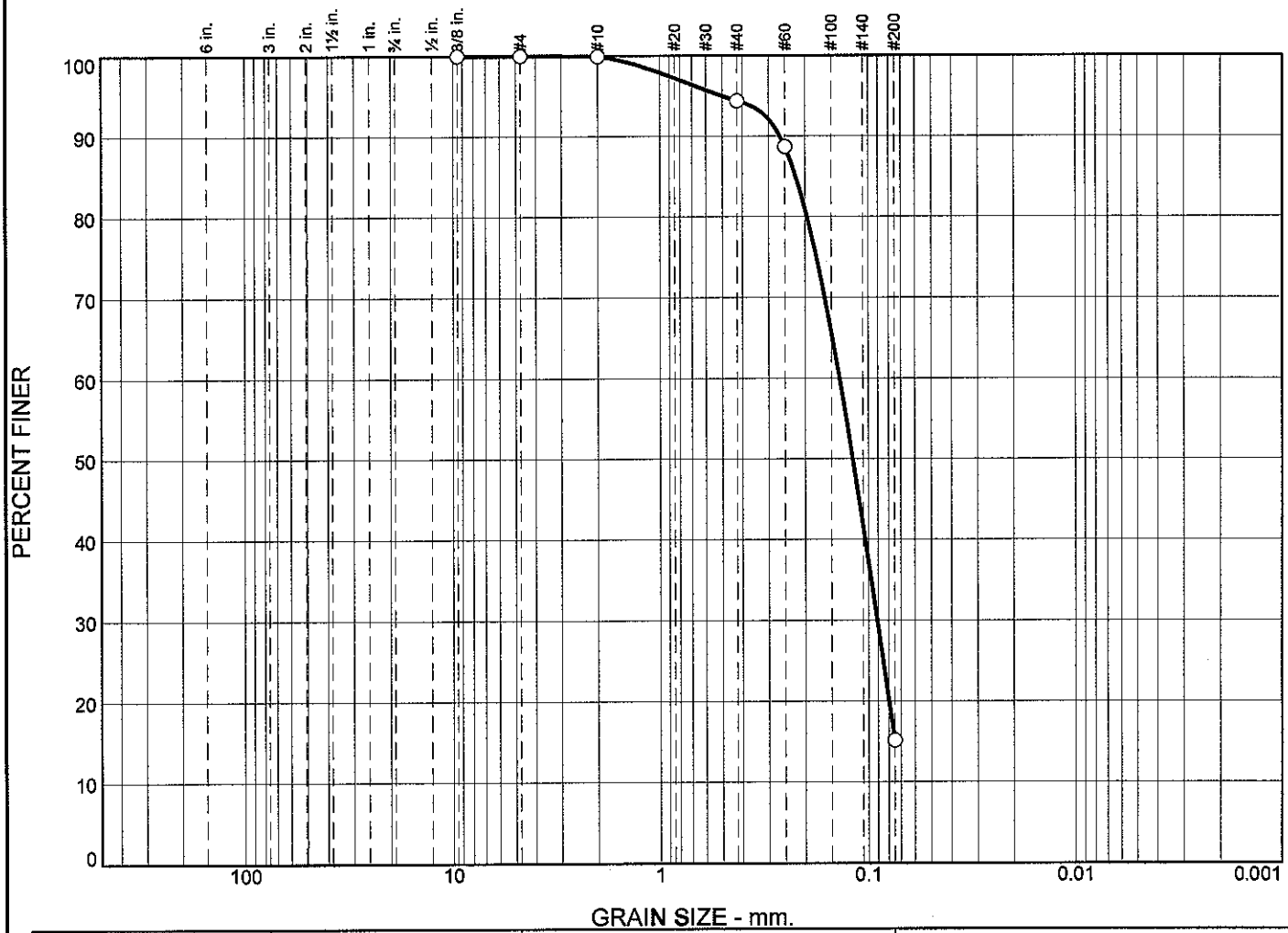
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.00	0.00	0.09	0.09	0.18	4.43	87.09	91.70			8.21

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0766	0.0812	0.0861	0.0969	0.1245	0.1429	0.1999	0.2242	0.2622	0.3953

Fineness Modulus	C_u	C_c
0.49	1.87	0.86

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.00	0.00	0.00	0.07	5.54	79.24	15.15	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.2219	0.1373	0.1186	0.0907				

Material Description	USCS	AASHTO
○		

Project No. **Client:**

Project:

○ **Source of Sample:** S-6 **Sample Number:** L1400535-08

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

1/9/2014

Location: S-6

Sample Number: L1400535-08

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 46.15
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
46.15	0.00	.375	0.00	0.00	100.00
		#4	0.00	0.00	100.00
		#10	0.03	0.00	99.93
		#40	2.56	0.00	94.39
		#60	2.63	0.00	88.69
		#200	33.94	0.00	15.15

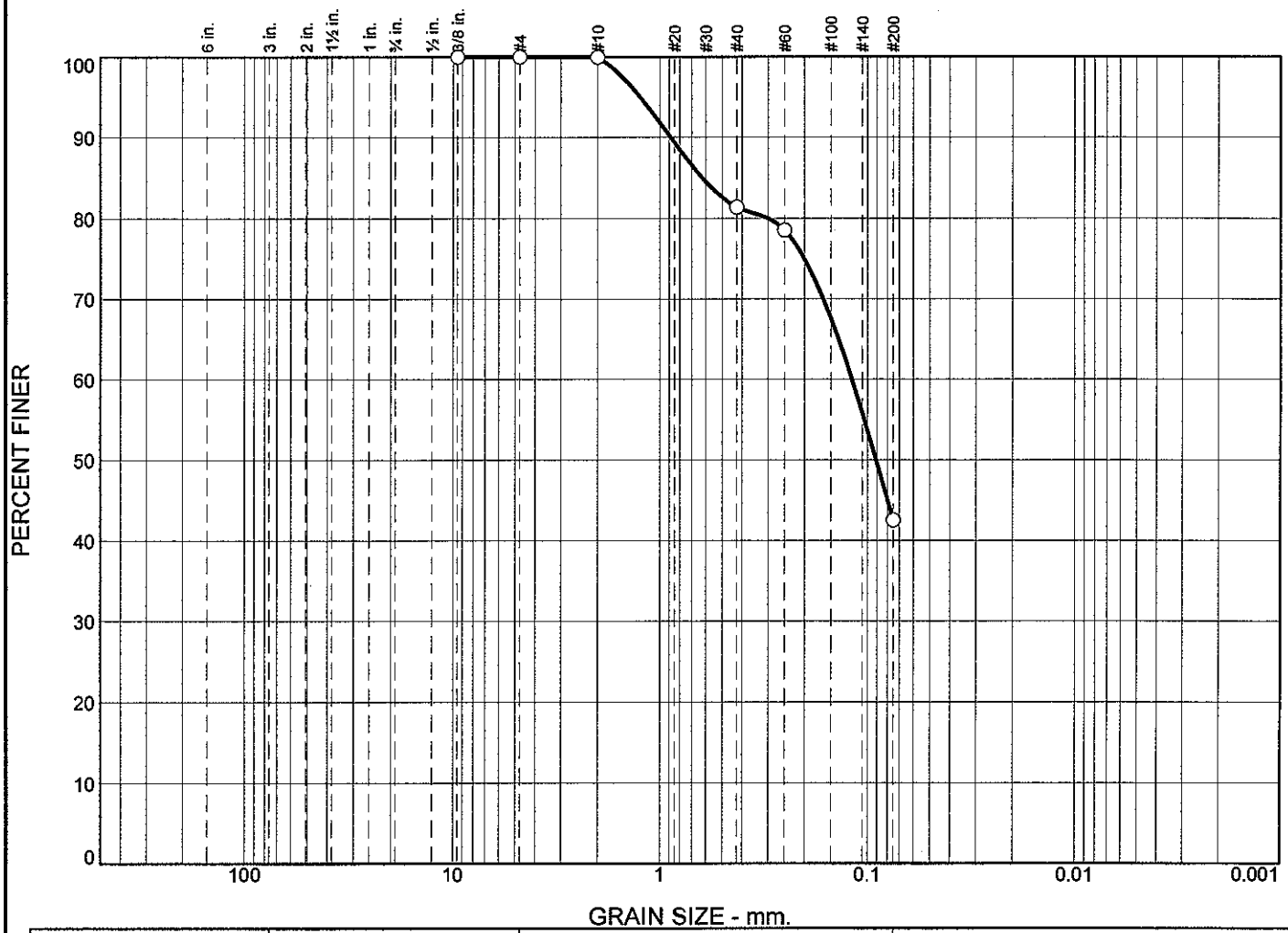
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.00	0.00	0.00	0.00	0.07	5.54	79.24	84.85			15.15

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0798	0.0907	0.1186	0.1373	0.1962	0.2219	0.2643	0.5009

Fineness Modulus
0.48

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.00	0.00	0.00	0.06	18.56	38.83	42.55	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.6233	0.1190	0.0908					

Material Description	USCS	AASHTO
○		

Project No. **Client:**
Project:

○ **Source of Sample:** S-7 **Sample Number:** L1400535-09

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

1/9/2014

Location: S-7

Sample Number: L1400535-09

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 16.97
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
16.97	0.00	.375	0.00	0.00	100.00
		#4	0.00	0.00	100.00
		#10	0.01	0.00	99.94
		#40	3.15	0.00	81.38
		#60	0.48	0.00	78.55
		#200	6.11	0.00	42.55

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.00	0.00	0.00	0.00	0.06	18.56	38.83	57.45			42.55

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0908	0.1190	0.3008	0.6233	0.8875	1.2468

Fineness Modulus
0.74

Certification Information

Last revised December 11, 2013

The following analytes are not included in our NELAP Scope of Accreditation:

Westborough Facility
EPA 524.2: Acetone, 2-Butanone (Methyl ethyl ketone (MEK)), Tert-butyl alcohol, 2-Hexanone, Tetrahydrofuran, 1,3,5-Trichlorobenzene, 4-Methyl-2-pentanone (MIBK), Carbon disulfide, Diethyl ether.
EPA 8260C: 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene, Iodomethane (methyl iodide), Methyl methacrylate, Azobenzene.
EPA 8330A/B: PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT.
EPA 8270D: 1-Methylnaphthalene, Dimethylnaphthalene,1,4-Diphenylhydrazine.
EPA 625: 4-Chloroaniline, 4-Methylphenol.
SM4500: Soil: Total Phosphorus, TKN, NO2, NO3.
EPA 9071: Total Petroleum Hydrocarbons, Oil & Grease.

Mansfield Facility
EPA 8270D: Biphenyl.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

The following analytes are included in our Massachusetts DEP Scope of Accreditation, Westborough Facility:

Drinking Water
EPA 200.8: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl; **EPA 200.7**: Ba,Be,Ca,Cd,Cr,Cu,Na; **EPA 245.1:** Mercury;
EPA 300.0: Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, Enterolert-QT.**

Non-Potable Water
EPA 200.8: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn;
EPA 200.7: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl,V,Zn;
EPA 245.1, SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2340B, SM2320B, SM4500CL-E, SM4500F-BC, SM426C, SM4500NH3-BH, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **SM4500NO3-F,**
EPA 353.2: Nitrate-N**, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, SM4500P-B, E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.**
EPA 624: Volatile Halocarbons & Aromatics,
EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9222D-MF**.

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE OF

ALPHA ANALYTICAL World Class Chemistry

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab:

ALPHA Job #: L1400535

Project Information

Project Name: Rock Harbor Dredging

Project Location: Eastham/Orleans

Project #: 12123

Project Manager: Jeff Oakes

ALPHA Quote #: M2013174

Client Information

Client: CLE Engineering, Inc.

Address: 15 Creek Road

Marion, MA 02738

Phone: 508 748 0937

Fax: 508 748 1363

Email: joakes@cleengineering.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: ASAP Time:

Report Information

☐ FAX ☐ EMAIL

☒ ADEx ☐ Add'l Deliverables

Data Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

USACE/EPA RIM

MCP PRESUMPTIVE CERTAINTY-CT REASONABLE CONFIDENCE PROTOCO

☐ Yes ☐ No Are MCP Analytical Methods Required?

☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

GRAIN SIZE ANALYSIS TO BE CONDUCTED ON ALL SAMPLES WITH RESULTS REPORTED TO CLE PRIOR TO RUNNING CHEMICAL ANALYSES.
*FREEZE ALL SAMPLES FOR CHEMICAL ANALYSIS UNTIL CLE PROVIDES COMPOSITING SCHEME TO ALPHA.

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☐ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	GRAIN SIZE	*METALS-PAHs-PEST-PCB-TOC	*TOTAL SOLIDS-WATER CONTENT										Sample Specific Comments
0535 -01	S-1	12/31/13	9:00			☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
1	S-2A	12/31/13	9:40			☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
2	S-2B	12/31/13	9:40			☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
3	S-3A	12/31/13	10:05			☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
3	S-3B	12/31/13	10:05			☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
3	S-4	12/31/13	10:21			☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
3	S-5	12/31/13	10:47			☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
4	S-6	12/31/13	11:46			☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
4	S-7	12/31/13	12:26			☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

PLEASE ANSWER QUESTIONS ABOVE!

Container Type	P	A	A	-	-	-	-	-	-	-	-	-
Preservative	A	A	A	-	-	-	-	-	-	-	-	-

IS YOUR PROJECT MA MCP *or* CT RCP?

FORM NO: 01-01(I) (rev. 5-JAN-12)

Relinquished By:	Date/Time	Received By:	Date/Time
Christy McAuliffe	1/2/14	[signature]	1/2/14 0940
[signature]	1/2/14 1:22	[signature]	1-2-14 12:20

Please print clearly, legib and completely. Sampla not be logged in and turnaround time clock wil start until any ambiguitie resolved. All samples submitted are subject to Alpha's Payment Terms.