SEDIMENT COMPATIBILITY ANALYSIS

LIDO KEY, SARASOTA COUNTY SHORE PROTECTION PROJECT

AUGUST 2015

Prepared by

Geotechnical Branch

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SEDIMENT COMPATIBILITY ANALYSIS

LIDO KEY, SARASOTA COUNTY SHORE PROTECTION PROJECT

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SEDIMENT COMPATIBILITY ANALYSIS

LIDO KEY, SARASOTA COUNTY SHORE PROTECTION PROJECT

MAY 2015

1 BACKGROUND

The federally authorized Sarasota County Coastal and Storm Reduction project, Lido Key entails the periodic nourishment of 1.6 miles of shoreline on Lido Key between R-monuments R-35 and R-44 with sand dredged from the Big Sarasota Pass ebb shoal. To ensure the sediments of the borrow areas are compatible with the sediments on the beach, a compatibility analysis was completed. The results and conclusions of the compatibility analysis are described below and summarized in **Table 1 through Table 5**.

2 CHARACTER OF MATERIALS

2.1 EXISTING BEACH

The existing beach of Lido Key is nourished periodically using sand from New Pass. The last renourishment was in 2014. Post construction samples were collected from the berm between R-monuments R-38 and R-44 in February 2015.

Grain size analyses were performed on all six (6) samples (**Table 1**). A representative arithmetic composite sample was created using all samples. The beach composite sample was classified as poorly-graded, fine-grained sand with a mean grain size of 2.66 phi, or 0.16 mm, and a standard deviation of 0.8. The average percentage of fines passing the #230 sieve is 0.76 %, ranging from 0.37 % to 1.17 %. Material retained in the #4 sieve averages 0.36 %. The typical wet Munsell color value is 2.5Y 7/1.

The composite gradation graph and granularmetric report is included in paragraph 6. Gradation graphs and granularmetric reports of individual samples are included in paragraph 7.1 and 7.2, respectively.

Table 1. Grain size analysis results for the existing beach

R-Monument	Location	Mean mm	Mean phi	Median phi	PHI Sorting	Retained in # 4 Sieve in %	Passing the #230 Sieve in %	Munsell Color
R-38	Berm	0.15	2.74	2.80	0.66	0.2	0.41	2.5Y 7/1
R-39	Berm	0.17	2.53	2.77	1.04	0.7	0.92	2.5Y 7/1
R-40	Berm	0.14	2.8	2.86	0.69	0.49	0.37	2.5Y 8/1
R-41	Berm	0.16	2.65	2.8	0.82	0.31	0.9	2.5Y 7/1
R-42	Berm	0.18	2.5	2.72	0.95	0.47	1.17	2.5Y 7/1
R-43	Berm	0.15	2.76	2.78	0.41	0	0.79	2.5Y 7/1
Beach Composite		**0.16**	**2.66**	**2.79**	**0.8**	**0.36**	**0.76**	**2.5Y 7/1**

2.2 BORROW MATERIAL

Three borrow areas (B, C, D) were identified in the vicinity of the Big Sarasota Pass. Borrow area B and C are proposed to be used for the initial nourishment. The alternating use of borrow area B and C, and borrow area D is proposed for the subsequent nourishments. Vibracores and sediment samples were collected in all three areas in 2012 and 2014. Boring logs, grain size analysis graphs and tables, boring location map (**Plate B-1**), as well as fence diagrams are attached. The transects for the fence diagrams are depicted in **Plate B-2**.

Weighted composite samples were created for Borrow area B and C, and for Borrow Area D and are discussed in the paragraphs below. Borrow Area C and D are overlapping at their respective southern ends. Vibracore borings VB-LK14-2, VB-LK14-32, and VB-BSP-12-14 are located in the overlap and therefore are included in the analysis of borrow area B and C, and borrow area D.

2.2.1 BORROW AREAS B AND C

Six (6) vibracores were collected in borrow area B and fourteen (14) vibracores were collected in borrow area C for a total of twenty (20) vibracores **(Plate B-1**). Grain size, visual shell, and carbonate content analyses were performed on representative samples. A total of twenty-six (26) samples are located within the dredging template (**Table 2**).

A weighted arithmetic composite sample was created using all samples within the designed borrow area. Vibracores VB-LK14-1, VB-LK14-2, VB-LK14-14, VB-LK14-19 and VB-LK14-20 have elevations below the excavation depth and therefore their sediment samples weren't included in the composite sample. However the borings are still included in this study (see attached boring logs, maps, and fence diagrams) since they give valuable information of the underlying materials of the borrow area.

The borrow material composite sample was classified as poorly-sorted, fine-grained sand composed of quartz and shell fragments with a mean grain size of 1.99 phi, or 0.25 mm, and a standard deviation of 1.44 phi. The average percentage of fines passing the #230 sieve is 1.12 %, ranging from 0.39 % to 2.29 %. Material retained in the #4 sieve averages 2.58 %. The average visual shell percentage is 23 %, with a range from 2 % to 86 %. One sample (VB-BSP-12-1, depth -9.3 ft. NAVD88) was also analyzed for carbonate content and showed 14%. The typical moist Munsell color value is 5Y 8/1.

The composite gradation graph and granularmetric report is included in paragraph 6. Logs, and gradation graphs and granularmetric reports of individual samples are included in paragraph 8.1, 8.2 and 8.3, respectively.

Table 2. Grain size analysis results for Big Sarasota Pass, Area C and B

Area	Boring Number	Sample Elev.	Mean mm	Mean phi	Median phi	PHI sorting	% retained on #4	% passing #230	Visual Shell %	Munsell Color
C	VB-BSP-12-1	-5.6	0.33	1.6	2.49	1.83	6.13	0.73	32	2.5Y 7/1
		-9.3	0.2	2.32	2.68	1.29	3.14	0.92	16	2.5Y 8/1
	VB-BSP-12-3	-5.8	0.2	2.36	2.52	0.7	0	1.59	14	2.5Y 8/1
		-10.9	0.23	2.14	2.67	1.52	2.37	1.6	17	2.5Y 8/1
	VB-BSP-12-6	-4.5	0.17	2.54	2.68	0.62	0	0.39	11	2.5Y 8/1
		-8.2	0.22	2.16	2.66	1.37	1.41	0.49	15	2.5Y 8/1

Area	Boring Number	Sample Elev.	Mean mm	Mean phi	Median phi	PHI sorting	% retained on #4	% passing #230	Visual Shell %	Munsell Color
		-12	0.18	2.46	2.56	0.57	0.11	0.8	8	2.5Y 8/1
	VB-BSP-12-10	-7.3	0.17	2.52	2.72	0.85	0.02	0.54	8	2.5Y 8/1
		-11.4	0.31	1.7	2.38	1.57	2.02	0.65	28	2.5Y 8/1
	VB-BSP-12-14	-10.6	0.15	2.72	2.81	0.74	0.63	1.55	3	2.5Y 8/1
	VB-LK14-8	-2.5	0.17	2.57	2.67	0.587	3.92	0.93	4.3	5Y 8/1
		-8	0.54	0.9	1.27	1.78	1.75	1.07	53.8	5Y 8/1
		-13	0.45	1.16	1.61	1.59	20.7	0.96	47	5Y 8/1
	VB-LK14-10	-6.4	1.02	-0.03	0	2.3	0.11	0.79	64	5Y 8/1
		-9.9	0.19	2.39	2.63	0.87	0.07	2.16	11.7	5Y 8/1
	VB-LK14-11	-11	0.15	2.77	2.8	0.5	5.76	1.65	3	5Y 8/1
	VB-LK14-12	-10.7	0.86	0.22	0	1.72	2.08	1.21	73.6	5Y 8/1
	VB-LK14-13	-13.3	0.26	1.96	2.63	0.6	1.68	1.22	25.5	5Y 8/1
	VB-LK14-32	-10	0.33	1.59	2.17	1.43	13.93	1	35.9	5Y8/1
B	VB-LK14-15	-13.2	1.39	-0.47	2.97	1.7	1.25	2.29	86.9	5Y 8/1
	VB-LK14-16	-8.4	0.38	1.4	1.93	1.44	0.32	1.41	47.6	5Y 8/1
	VB-LK14-17	-7.6	0.16	2.69	2.76	0.63	0.52	0.99	5.2	5Y 8/1
		-13.1	0.16	2.65	2.75	0.72	1.83	1.1	3.9	5Y 8/1
	VB-LK14-18	-4.9	0.28	1.96	2.4	1.41	1.37	1.22	30.1	5Y 8/1
		-8.4	0.26	2.73	2.51	1.35	0	0.99	24.4	5Y 8/1
		-12.4	0.15	2.86	2.75	0.41	6.13	0.91	2.6	5Y 8/1
Weighted Composites			**0.25**	**1.99**	**2.57**	**1.44**	**2.58**	**1.12**	**23.4**	**5Y 8/1**

2.2.2 BORROW AREA D

Eleven (11) vibracores were collected in borrow area D (**Plate B-1**). Grain size and visual shell analyses were performed on representative samples. A total of thirteen (13) samples are located within the dredging template (**Table 3**).

A weighted arithmetic composite sample was created using all samples within the designed borrow area. Vibracore VB-LK14-2 has an elevation below the excavation depth and therefore its sediment samples weren't included in the composite sample. However the boring is still included in this study (see attached boring logs, maps, fence diagrams) since it gives valuable information of the underlying materials of the borrow area.

The borrow material composite sample was classified as poorly-graded, fine-grained sand composed of quartz and shell fragments with a mean grain size of 2.37 phi, or 0.19 mm, and a standard deviation of 1.21 phi. The average percentage of fines passing the #230 sieve is 1.72 %, ranging from 0.26 % to 5.86 %. Material retained in the #4 sieve averages 1.30 %. The average visual shell percentage is 16 %, with a range from 4 % to 46%.

The composite gradation graph and granularmetric report is included in paragraph 6. Logs, and gradation graphs and granularmetric reports of individual samples are included in paragraph 8.1, 8.2 and 8.3, respectively.

Table 3. Grain size analysis results for Big Sarasota Pass, Area D

Area	Sample Designation	Sample Elev.	Mean mm	Mean phi	Median phi	PHI sorting	% retained on #4	% passing #230	Visual Shell %	Munsell Color
D	VB-BSP-12-14	-10.6	0.15	2.72	2.81	0.74	0.63	1.55	3	2.5Y 8/1
	VB-BSP-12-5	-6.3	0.17	2.56	2.72	0.85	0.81	1.38	19	2.5Y 8/1
		-11.8	0.22	2.19	2.44	1.06	0.74	1.16	16	2.5Y 8/1
	VB-BSP-12-9	-12.2	0.17	2.54	2.79	1.09	0.96	0.26	10	2.5Y 8/1
	VB-LK14-3	10.3	0.17	2.57	2.98	1.25	2.00	1.11	22.5	5Y 8/1
	VB-LK14-5	-7.5	0.17	2.52	2.74	1	1.17	0.85	3.8	5Y 8/1
		-11	0.17	2.56	2.63	0.55	0.23	0.94	3.6	5Y 8/1
	VB-LK14-6	-8	0.12	3.04	3.21	0.74	0.13	5.86	4.5	5Y 8/1
		-13.5	0.22	2.18	2.66	1.42	2.35	0.9	16.4	5Y 8/1
	VB-LK14-7	-12.5	0.21	2.24	2.34	0.72	0.37	1.71	7.3	5Y 8/1
	VB-LK14-29	-11.5	0.17	2.57	2.76	0.99	0.96	1.06	11	5Y 8/1
		-15	0.25	2.23	2.43	1.37	2.62	1.33	24.5	5Y 8/1
	VB-LK14-31	-12.3	0.45	1.16	2.07	1.83	4.23	1.4	45.8	5Y 8/1
	VB-LK14-32	-10	0.33	1.59	2.17	1.43	1.68	1	35.9	5Y 8/1
Weighted Composites			**0.19**	**2.37**	**2.72**	**1.21**	**1.30**	**1.72**	**15.9**	**5Y 8/1**

3 OVERFILL RATIO AND RENOURISHMENT FACTOR

Overfill Ratio and Renourishment Factors were calculated using the weighted composite Mean phi and standard deviation of the existing beach and of borrow area B and C, and borrow area D. The values were computed using the USACE Coastal Engineering Manual Software (CEM, 2002) as seen in Figure 1 and Figure 2. The overfill method used in the CEM is the Krumbein-James technique (Krumbein and James, 1965).

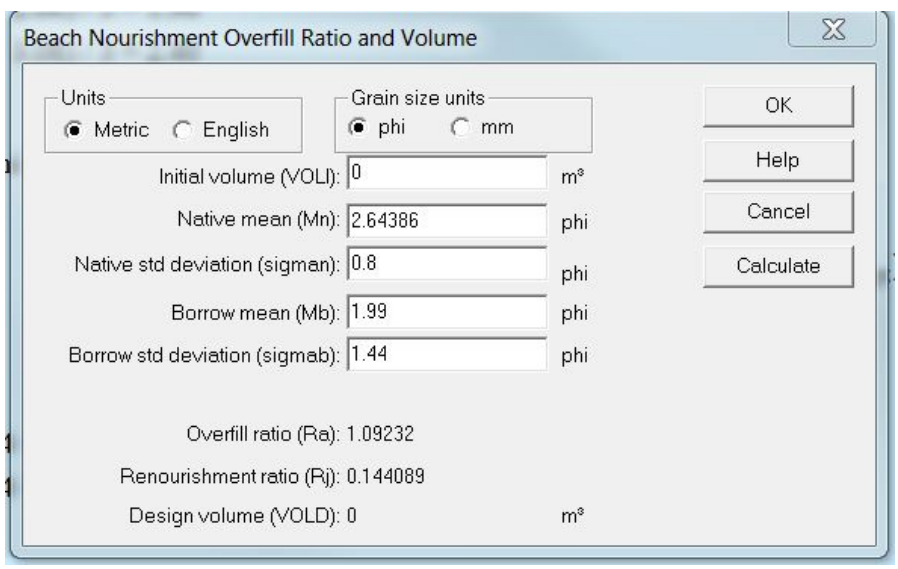

Figure 1. Screenshot: Overfill Ratio and Renourishment Factor Borrow Area B and C.

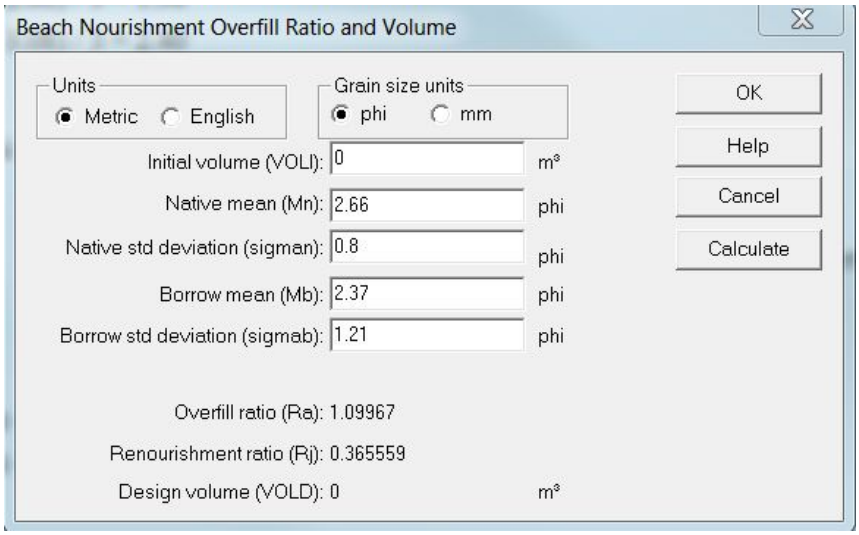

Figure 2. Screenshot: Overfill Ratio and Renourishment Factor Borrow Area D.

Results for overfill ratios and renourishment factors are summarized in **Table 4.**. The renourishment factor (Rj) for the borrow areas are well below 1 which means that the borrow material is more stable than the native material and has a slower long term erosion rate than the existing beach. The overfill ratios (R_A) for borrow area B and C, and borrow area D are both 1.1.

Table 4. Overfill Ratios and Renourishment Factors

Borrow Area	Mean (phi) M_ϕ	Mean (mm) M_{mm}	Sorting (PHI) σ_ϕ	Renourishment Factor Rj	Overfill Ratio R_A
Borrow Area B and C	1.99	0.25	1.44	0.15	1.1
Borrow Area D	2.37	019	1.21	0.37	1.1

4 SUMMARY AND CONCLUSIONS

Grain size, visual shell, and carbonate content analyses were performed on sediments from the borrow area and the existing beach. The material of the existing beach and of the borrow areas is similar and is composed of poorly sorted fine sand consisting of quartz and shell fragments. The overfill ratio for this project was determined to be 1.1 and the renourishment factor was 0.15 and 0.37, respectively.

In conclusion, the compatibility analysis shows that the borrow material is similar to the sediments of the existing beach and meets the requirements of DEP's "Sand Rule" guidelines (Chapter 62B-41.007(2)j). Compliance values, together with the values of the existing beach and the borrow areas are listed in **Table 5**.

Table 5. Compliance Values compared to Existing Beach, and Borrow Material

Sediment Parameter	Compliance Value	Existing Beach	Borrow Area B and C	Borrow Area D
Percent Silt Content	<5%	0.8	1.1	1.7
Percent Shell Content (Retained in the #4 Sieve)	<5%	0.4	2.58	1.3

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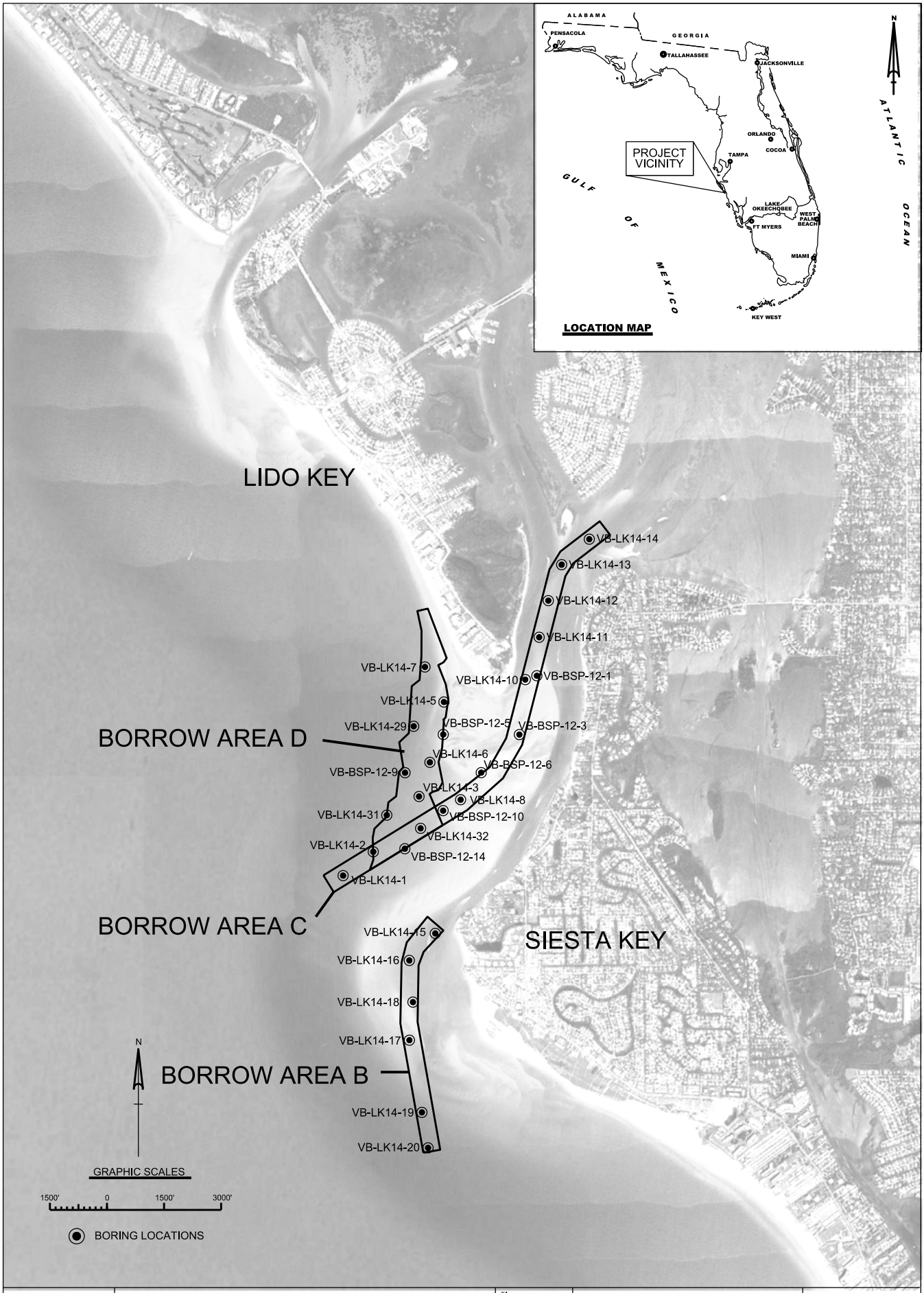


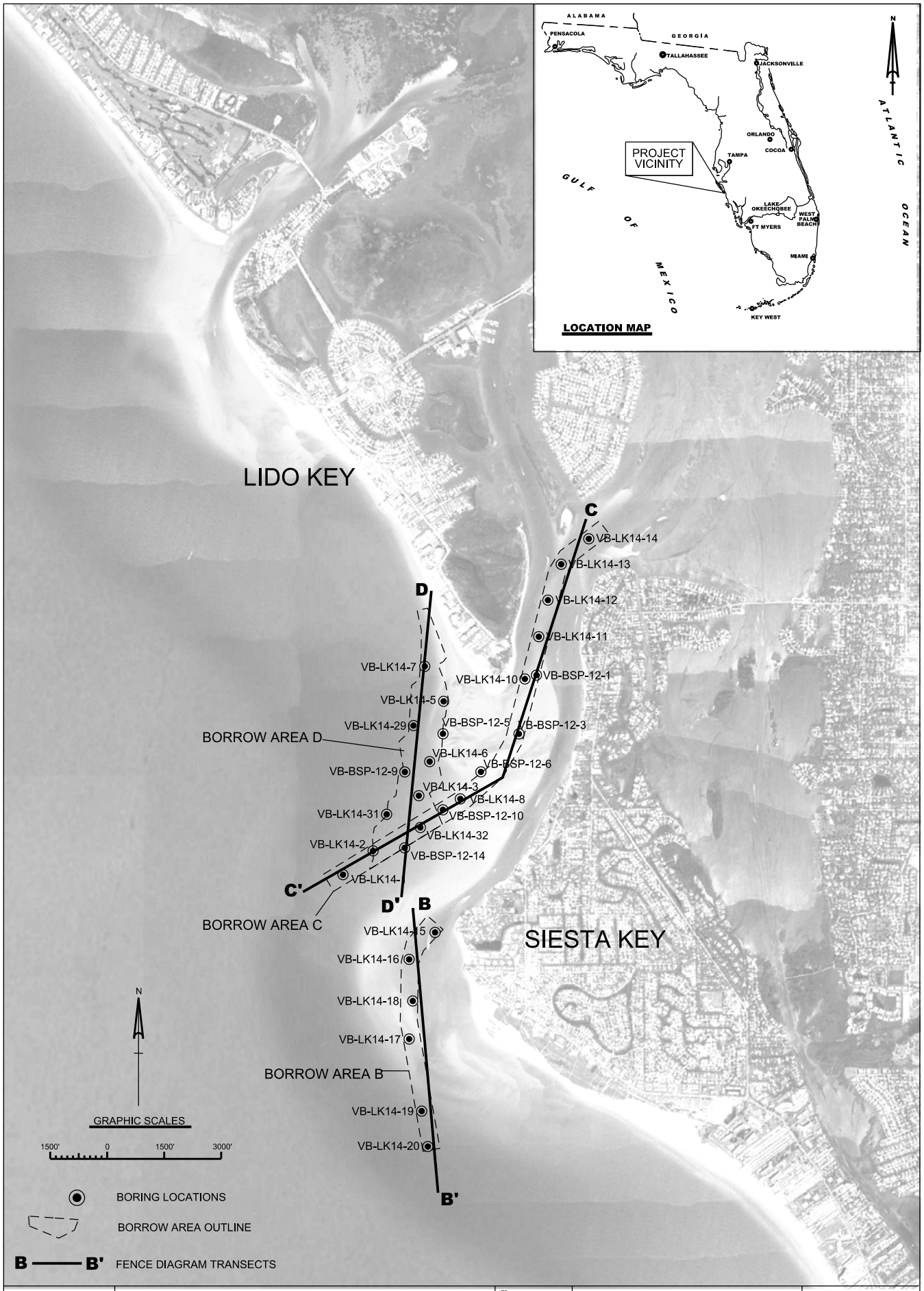
US Army Corps of Engineers
Jacksonville District

Sarasota County Shore Protection Project
Lido Key Segment
Sarasota County,Florida
Location of Field Investigations

File name: Lido.dgn
Dated: October 2014
Scale: AS SHOWN

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

PLATE NO.
Plate B-1



US Army Corps of Engineers
Jacksonville District

Sarasota County Shore Protection Project
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Sarasota County,Florida
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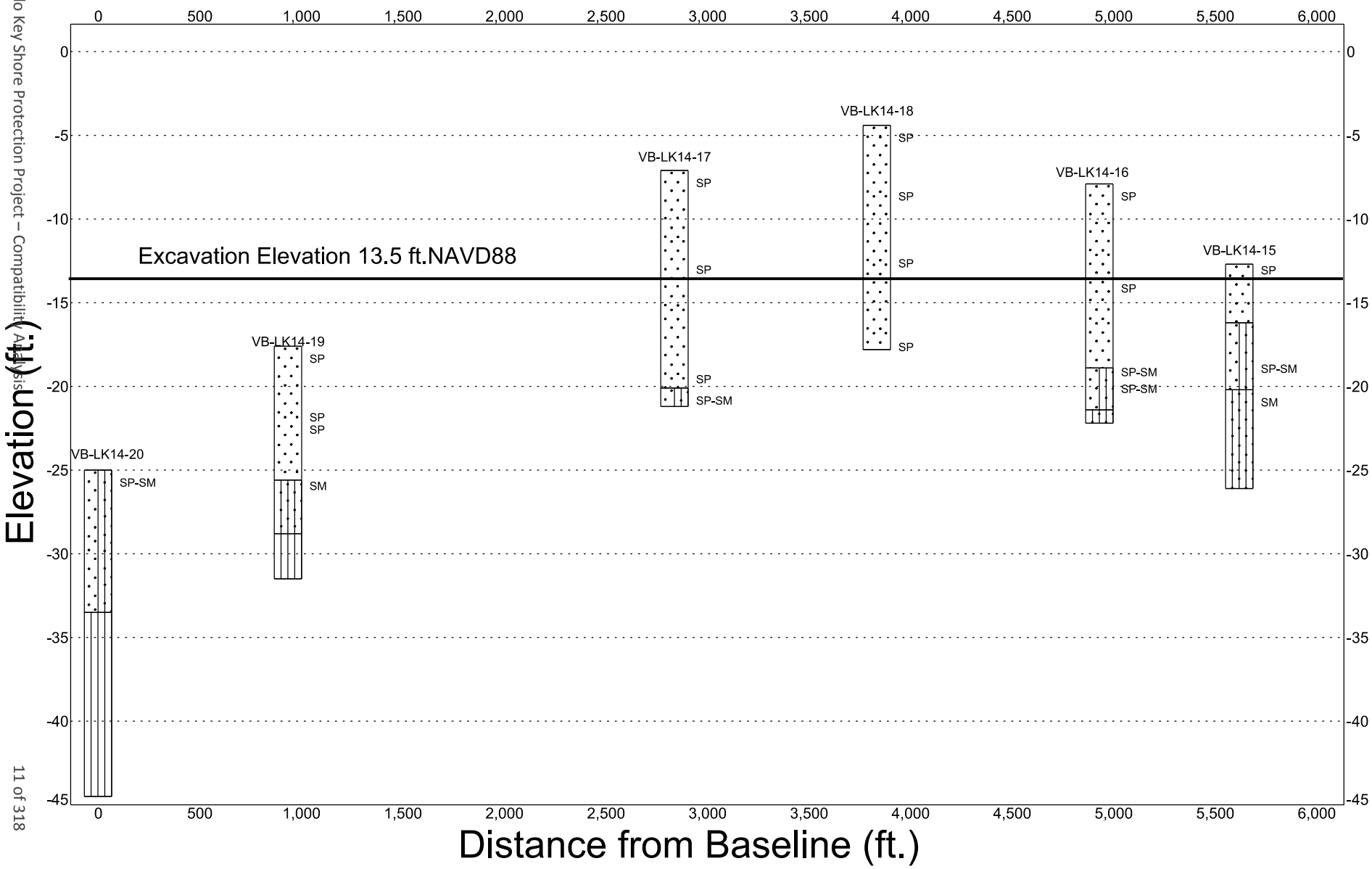
JACKSONVILLE, FLORIDA

PLATE NO.
Plate B-2

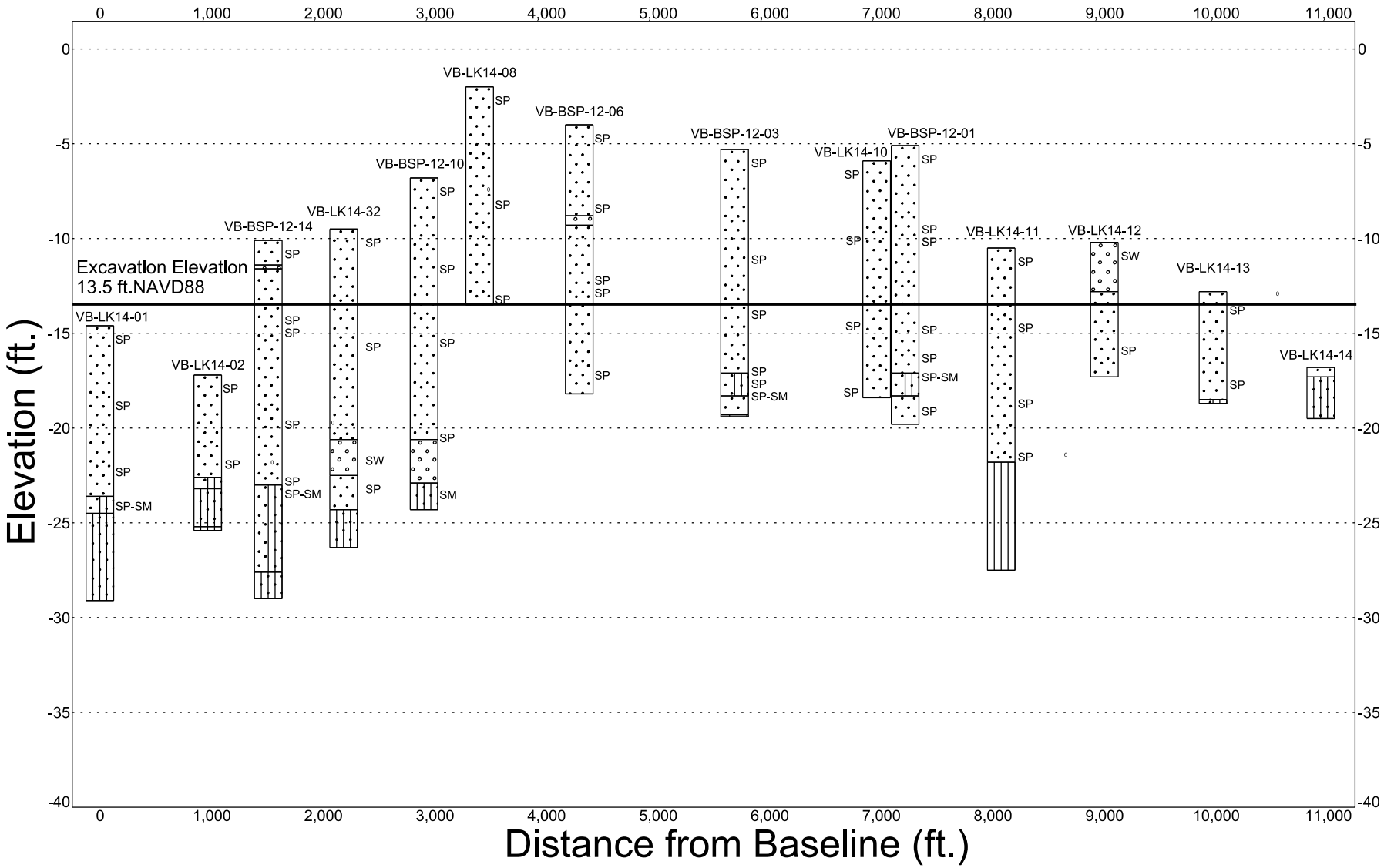
FENCE DIAGRAM BORROW AREA B

CUT B-B' at Plate B-2



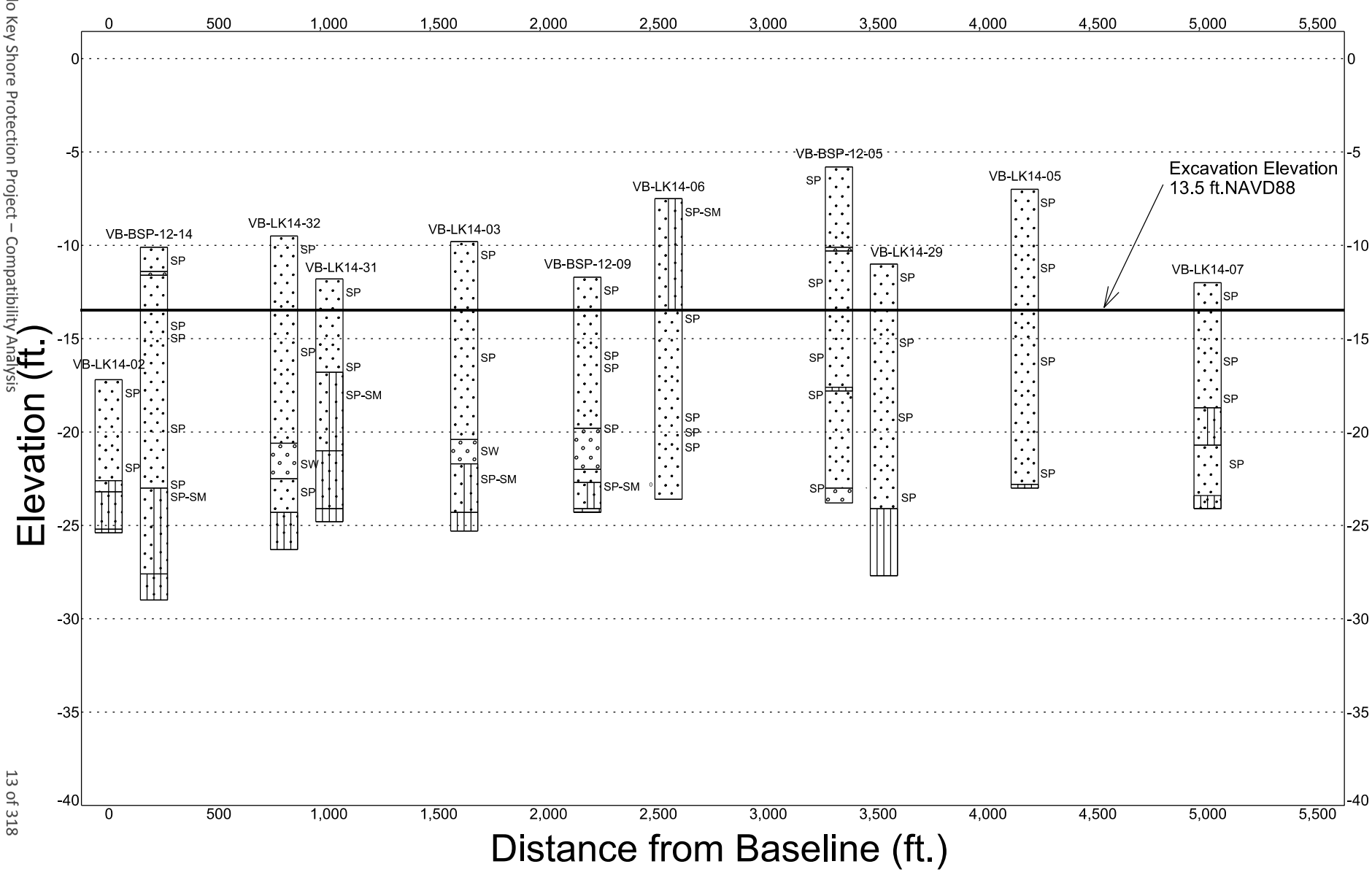
FENCE DIAGRAM BORROW AREA C

CUT C-C' at Plate B-2

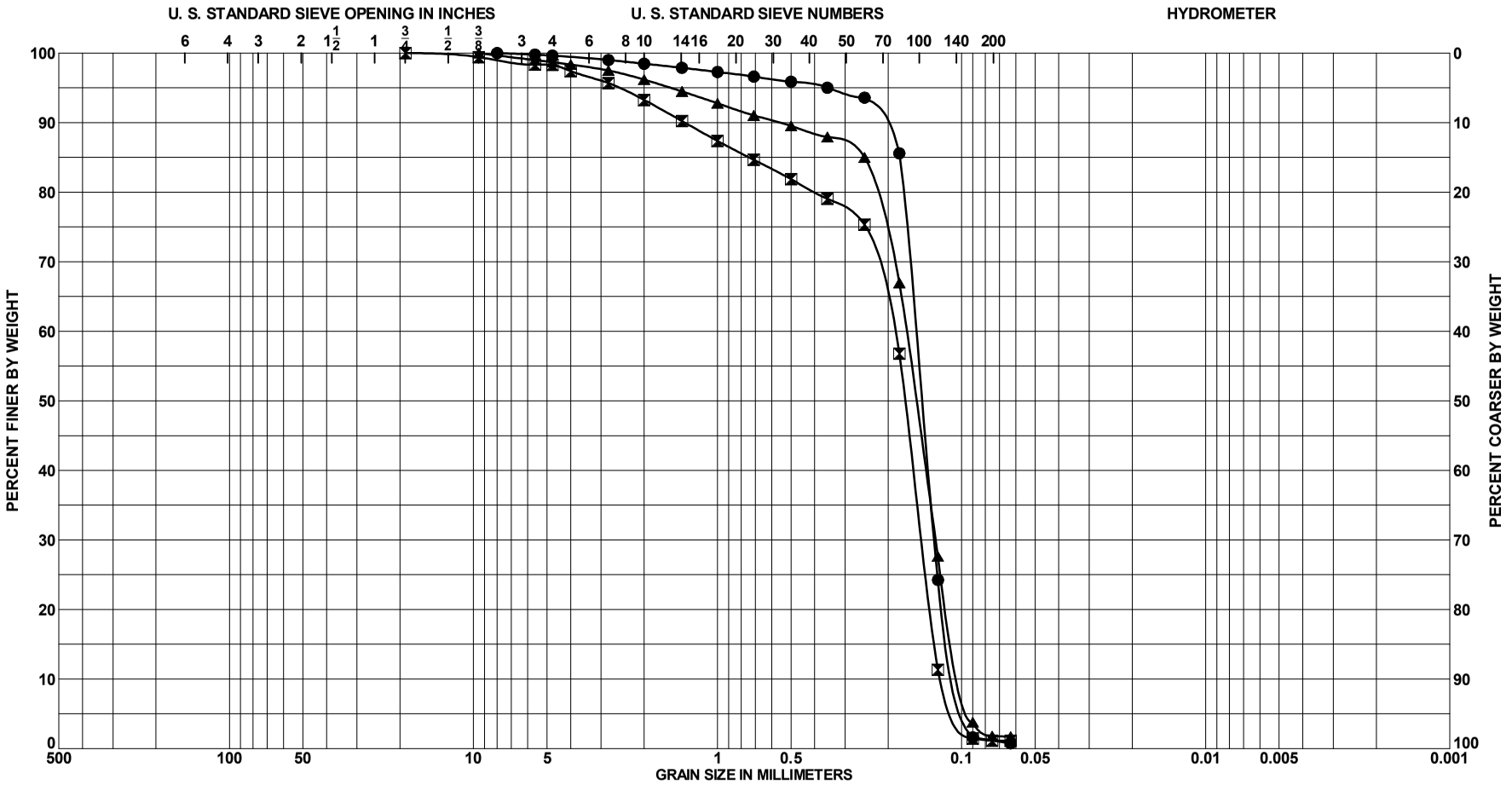


FENCE DIAGRAM BORROW AREA D

CUT D-D' at Plate B-2



6 COMPOSITE SAMPLES: GRAPHS AND GRANULOMETRIC REPORTS



Boring No.	Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	$\%CO_3$	G_s	Org %	w_n	LL	PL	PI
● COMPOSITE BEACH			(SP)									
⧗ COMPOSITE C+B			(SP)									
▲ COMPOSITE D			(SP)									

PROJECT Big Sarasota Pass Ebb Shoal

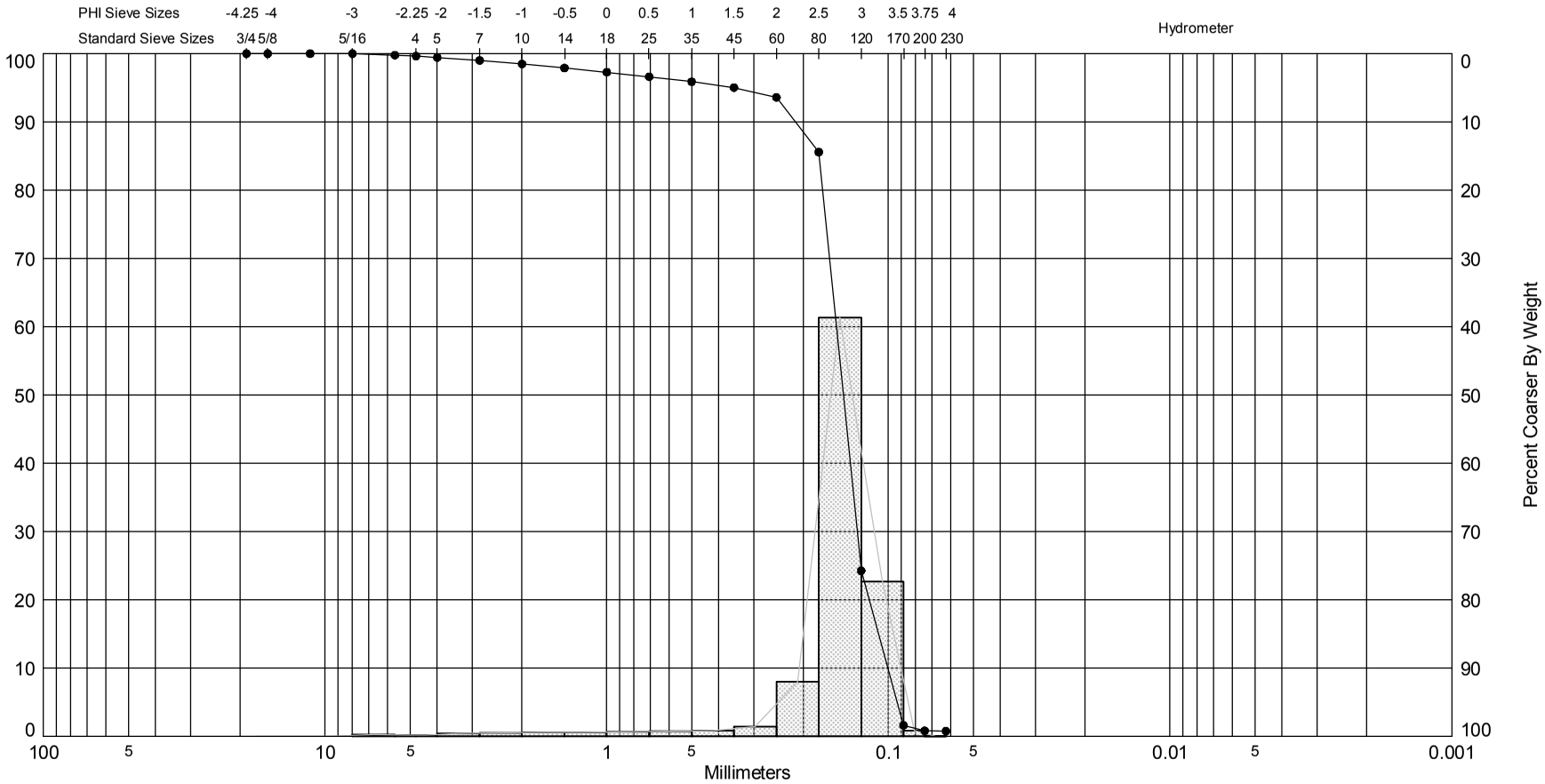
Lido Key Shore Protection

Composite Samples

DATE 08-26-15

GRADATION CURVES

SAJ FORM 2087
JUN 02



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
Lido Key Beach	—●—		SP	#200 - 0.80 #230 - 0.76			2.79	2.66	-3.89	20.91	0.8

Comments: Composite

Depths and elevations based on measured values

CB&I
Coastal Planning & Engineering, Inc.
2481 NW Boca Raton Blvd.
Boca Raton, FL 33431
ph (561) 391 8102

Sample Information	
Project Name:	Lido Key Beach Construction
Analysis Date:	05-26-15
Analyzed By:	SMT
Easting (X, ft):	
Northing (Y, ft):	
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

Granularmetric Report

Depths and elevations based on measured values

Project Name: Lido Key Beach Construction

Sample Name: Lido Key Beach

Analysis Date: 05-26-15

Analyzed By: SMT

CB&I
Coastal Planning & Engineering, Inc.
2481 NW Boca Raton Blvd.
Boca Raton, FL 33431
ph (561) 391 8102

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
		Florida State Plane West	

USCS:	Munsell:	Comments:
SP		Composite

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	0.75	0.01	#200 - 0.80 #230 - 0.76			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
3/4"	-4.25	19.03	0.00	0.00	0.00	0.00
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.22	0.22	0.22	0.22
4	-2.25	4.76	0.14	0.14	0.36	0.36
5	-2.00	4.00	0.20	0.20	0.56	0.56
7	-1.50	2.83	0.43	0.43	0.99	0.99
10	-1.00	2.00	0.53	0.53	1.52	1.52
14	-0.50	1.41	0.59	0.59	2.11	2.11
18	0.00	1.00	0.60	0.60	2.71	2.71
25	0.50	0.71	0.67	0.67	3.38	3.38
35	1.00	0.50	0.74	0.74	4.12	4.12
45	1.50	0.35	0.85	0.85	4.97	4.97
60	2.00	0.25	1.43	1.43	6.40	6.40
80	2.50	0.18	8.01	8.01	14.41	14.41
120	3.00	0.13	61.34	61.34	75.75	75.75
170	3.50	0.09	22.64	22.64	98.39	98.39
200	3.75	0.07	0.81	0.81	99.20	99.20
230	4.00	0.06	0.04	0.04	99.24	99.24

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.43	3.18	2.99	2.79	2.59	2.51	1.51

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.66	0.16	0.8	-3.89	20.91

GRANULARMETRIC REPORT LIDO_KEY_CONSTRUCTION_2015.GPJ JPBRAZIL.GDT 5/28/15

Granularmetric Report

Project Name: Lido Key Shore Protection: Composite Samples

Sample Name: Composite C+B

Analysis Date:

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
		State Plane, FLW (U.S. Ft.)	

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SW		#200 - 1.15 #230 - 1.12			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/4	-4.25	19.00	0.00	0.00
3/8	-3.25	9.50	0.59	0.59
#3.5	-2.50	5.60	1.07	1.66
#4	-2.25	4.75	0.02	1.68
#5	-2.00	4.00	0.90	2.58
#7	-1.50	2.80	1.73	4.31
#10	-1.00	2.00	2.42	6.73
#14	-0.50	1.40	3.03	9.76
#18	0.00	1.00	2.87	12.63
#25	0.50	0.71	2.72	15.35
#35	1.00	0.50	2.79	18.13
#45	1.50	0.36	2.82	20.95
#60	2.00	0.25	3.73	24.69
#80	2.50	0.18	18.55	43.23
#120	3.00	0.13	45.45	88.68
#170	3.50	0.09	9.87	98.55
#200	3.75	0.08	0.31	98.85
#230	4.00	0.06	0.02	98.88

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.32	2.95	2.85	2.57	2.01	0.62	-1.36

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	1.99	0.25	2.57	0.17	1.44	-1.84	5.67

GRANULARMETRIC REPORT % GINT CCOMBINED-FOR COMPOSITES_FINAL.GPJ CESAJ3.GDT 8/26/15

Granularmetric Report

Project Name: Lido Key Shore Protection: Composite Samples

Sample Name: Composite D

Analysis Date:

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
		State Plane, FLW (U.S. Ft.)	

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SW		#200 - 1.82 #230 - 1.72			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/8	-3.25	9.50	0.00	0.00
#3.5	-2.50	5.60	1.00	1.00
#4	-2.25	4.75	0.30	1.30
#5	-2.00	4.00	0.36	1.66
#7	-1.50	2.80	0.84	2.50
#10	-1.00	2.00	1.32	3.81
#14	-0.50	1.40	1.70	5.51
#18	0.00	1.00	1.71	7.22
#25	0.50	0.71	1.74	8.96
#35	1.00	0.50	1.51	10.46
#45	1.50	0.36	1.59	12.06
#60	2.00	0.25	2.94	15.00
#80	2.50	0.18	18.04	33.04
#120	3.00	0.13	39.31	72.35
#170	3.50	0.09	23.85	96.19
#200	3.75	0.08	1.99	98.18
#230	4.00	0.06	0.10	98.28

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.47	3.24	3.06	2.72	2.28	2.03	-0.65

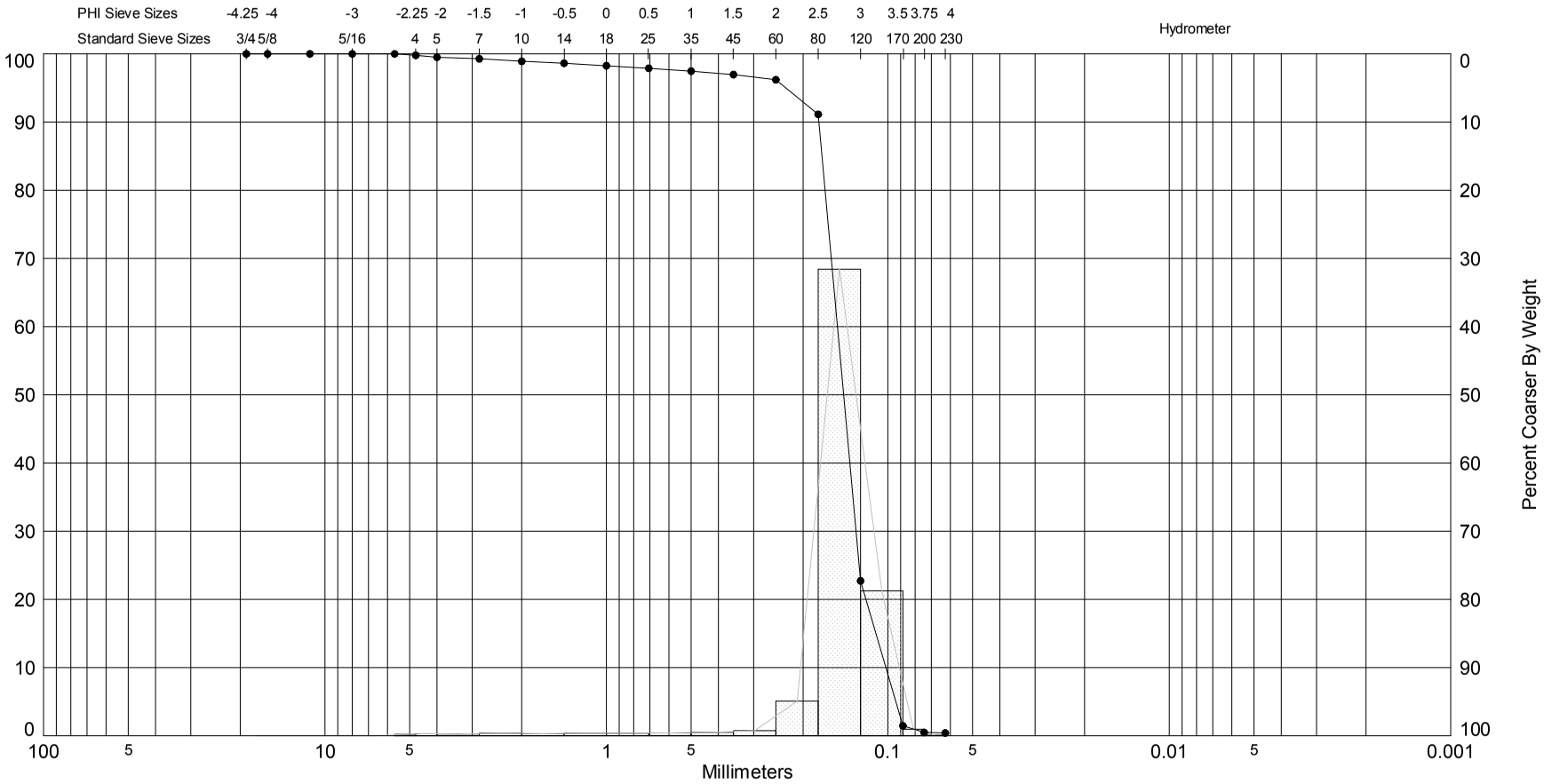
Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.37	0.19	2.72	0.15	1.21	-2.4	8.74

GRANULARMETRIC REPORT % GINT CCOMBINED-FOR COMPOSITES_FINAL.GPJ CESAJ3.GDT 8/26/15

7 LABORATORY TESTING RESULTS: BEACH

7.1 GRADATION CURVES: BEACH

Applicable gradation curves are presented on the following pages.



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
R-38 Mid Berm	—●—		SP	#200 - 0.48 #230 - 0.41			2.8	2.74	-4.78	31.6	0.66

Comments: R-38 30+08 Mid Berm @ 1400

Depths and elevations based on measured values

Sample Information	
Project Name:	Lido Key Construction Samples
Analysis Date:	02-10-15
Analyzed By:	LC
Easting (X, ft):	
Northing (Y, ft):	
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

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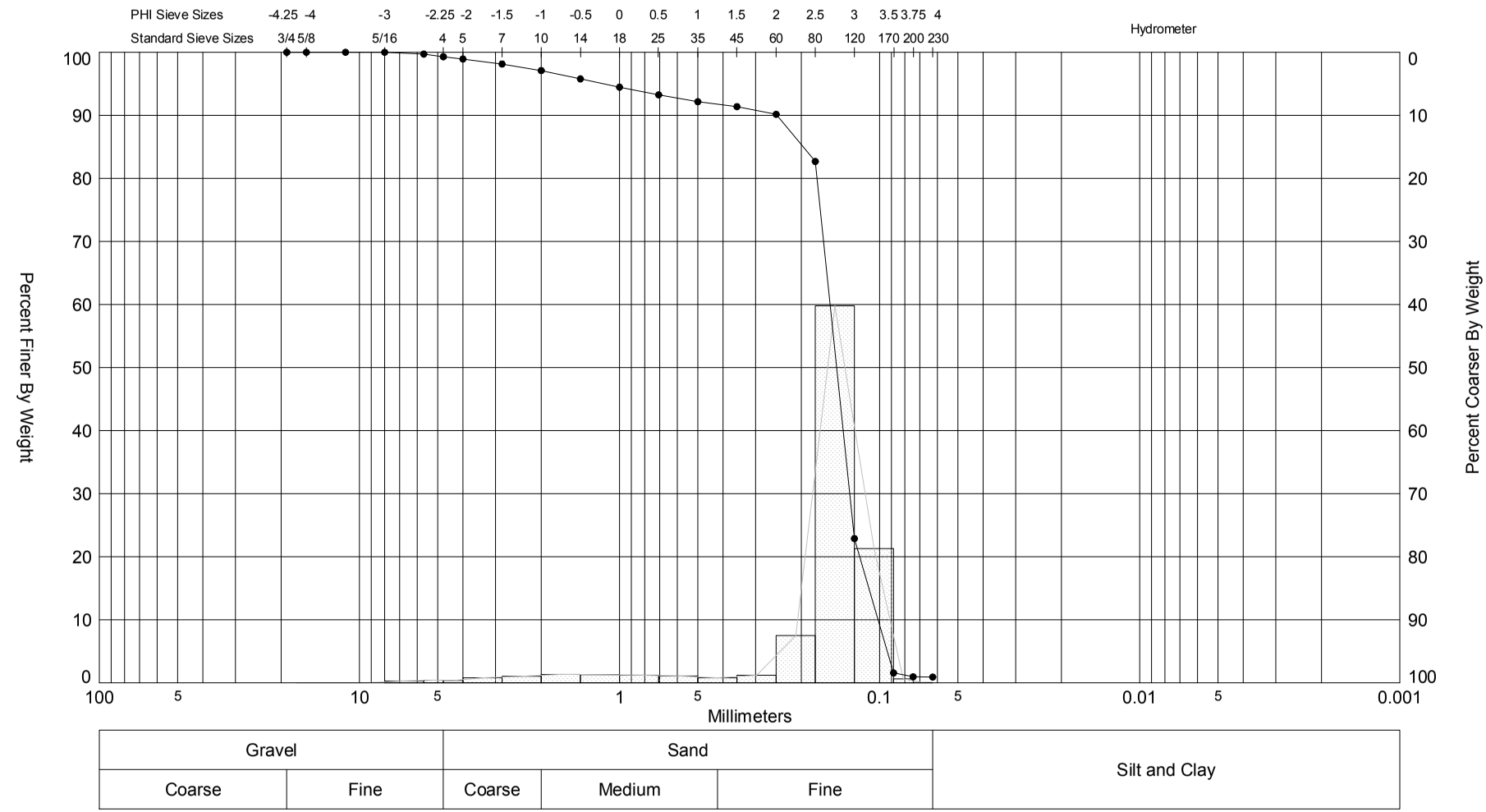
Boca Raton, FL 33431
ph (561) 391 8102



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
R39 Station 40+02	—●—		SW	#200 - 0.96 #230 - 0.92			2.77	2.53	-3.02	12.13	1.04

Comments:

Depths and elevations based on measured values

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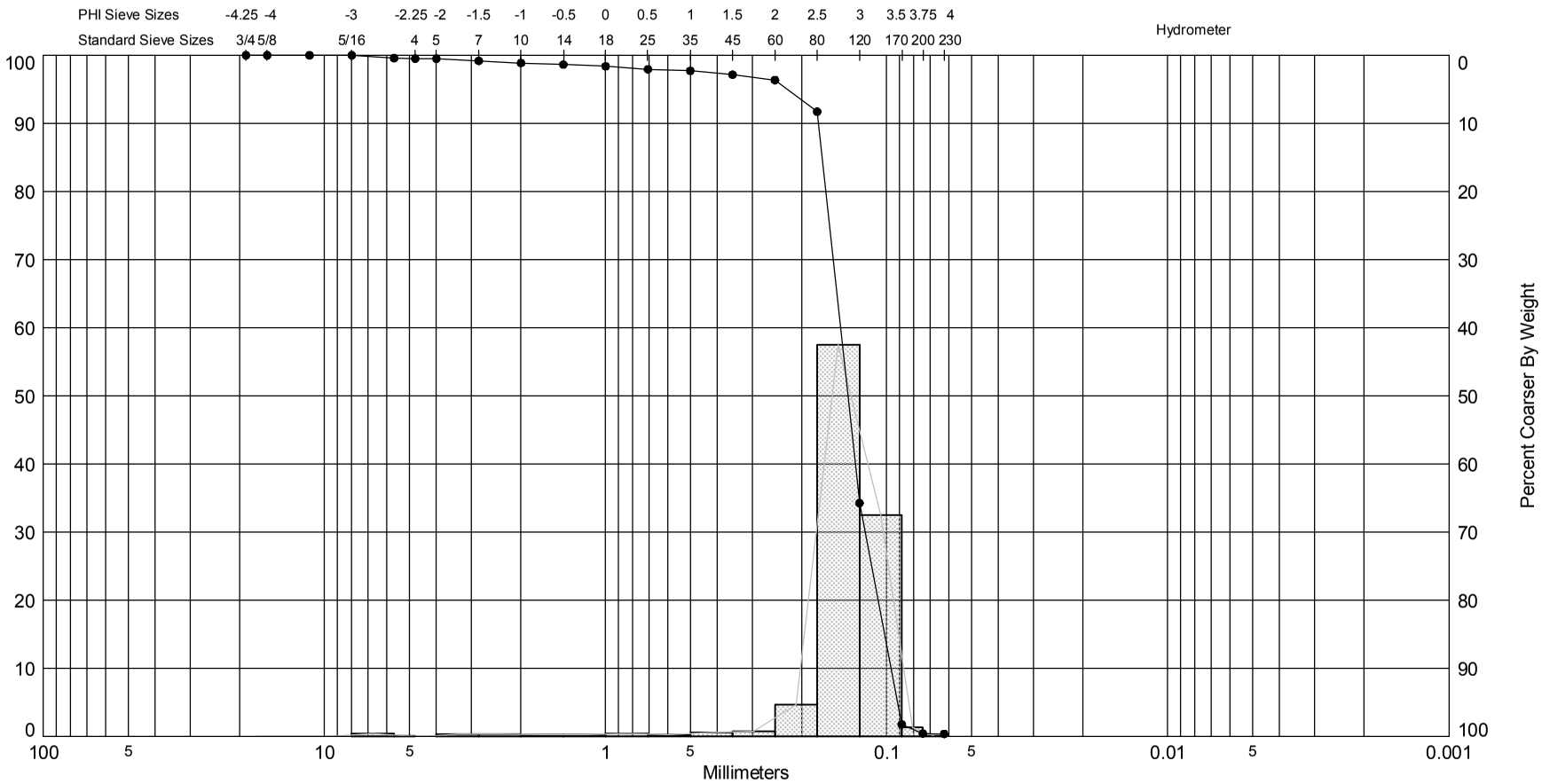
2481 NW Boca Raton Blvd.
Boca Raton, FL 33431
ph (561) 391 8102

Sample Information	
Project Name:	Lido Key Beach Construction
Analysis Date:	02-27-15
Analyzed By:	ST
Easting (X, ft):	
Northing (Y, ft):	
Horizontal System:	NAD 1983
Vertical System:	NAVD 88



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
R40 Station 49+78	—●—		SP	#200 - 0.43 #230 - 0.37			2.86	2.8	-4.93	34.01	0.69

Comments:

Depths and elevations based on measured values

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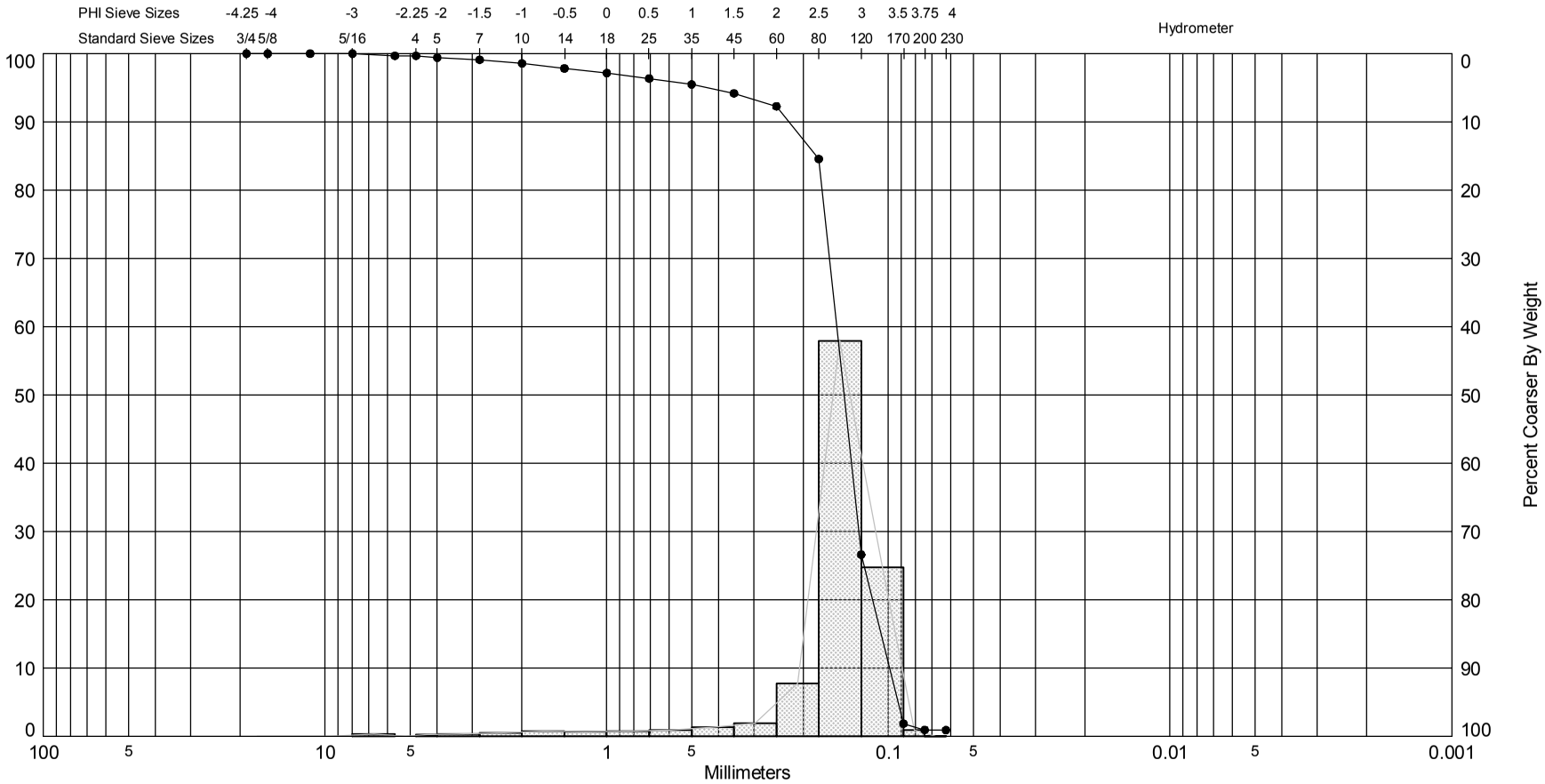
2481 NW Boca Raton Blvd.
Boca Raton, FL 33431
ph (561) 391 8102

Sample Information	
Project Name:	Lido Key Beach Construction
Analysis Date:	03-13-15
Analyzed By:	GS
Easting (X, ft):	
Northing (Y, ft):	
Horizontal System:	NAD 1983
Vertical System:	NAVD 88



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
R41 Station 60+47	—●—		SP	#200 - 0.94 #230 - 0.90			2.8	2.65	-3.61	18.54	0.82

Comments:

Depths and elevations based on measured values

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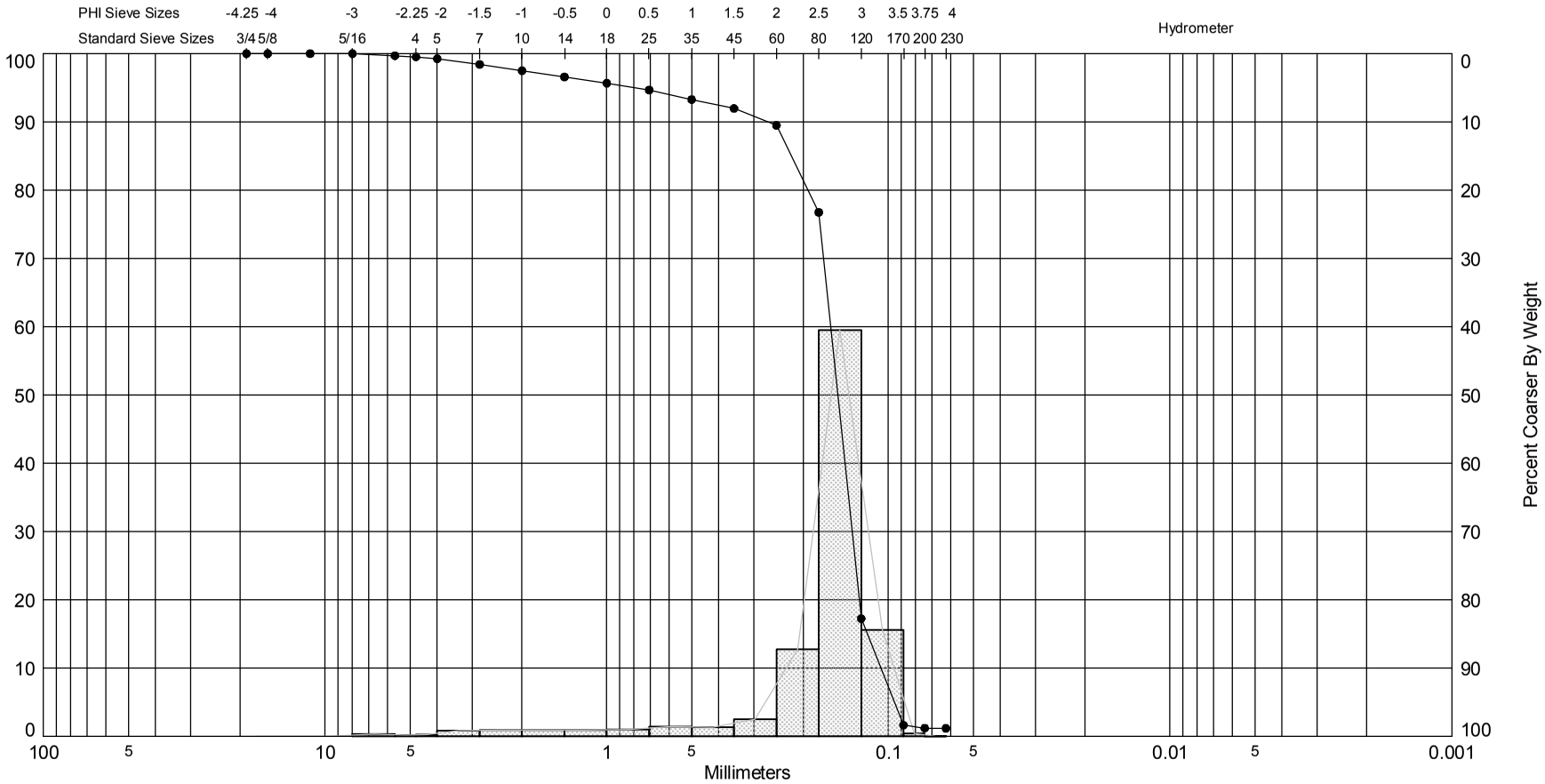
Coastal Planning & Engineering, Inc.
2481 NW Boca Raton Blvd.
Boca Raton, FL 33431
ph (561) 391 8102

Sample Information	
Project Name:	Lido Key Beach Construction
Analysis Date:	03-24-15
Analyzed By:	ST
Easting (X, ft):	
Northing (Y, ft):	
Horizontal System:	NAD 1983
Vertical System:	NAVD 88



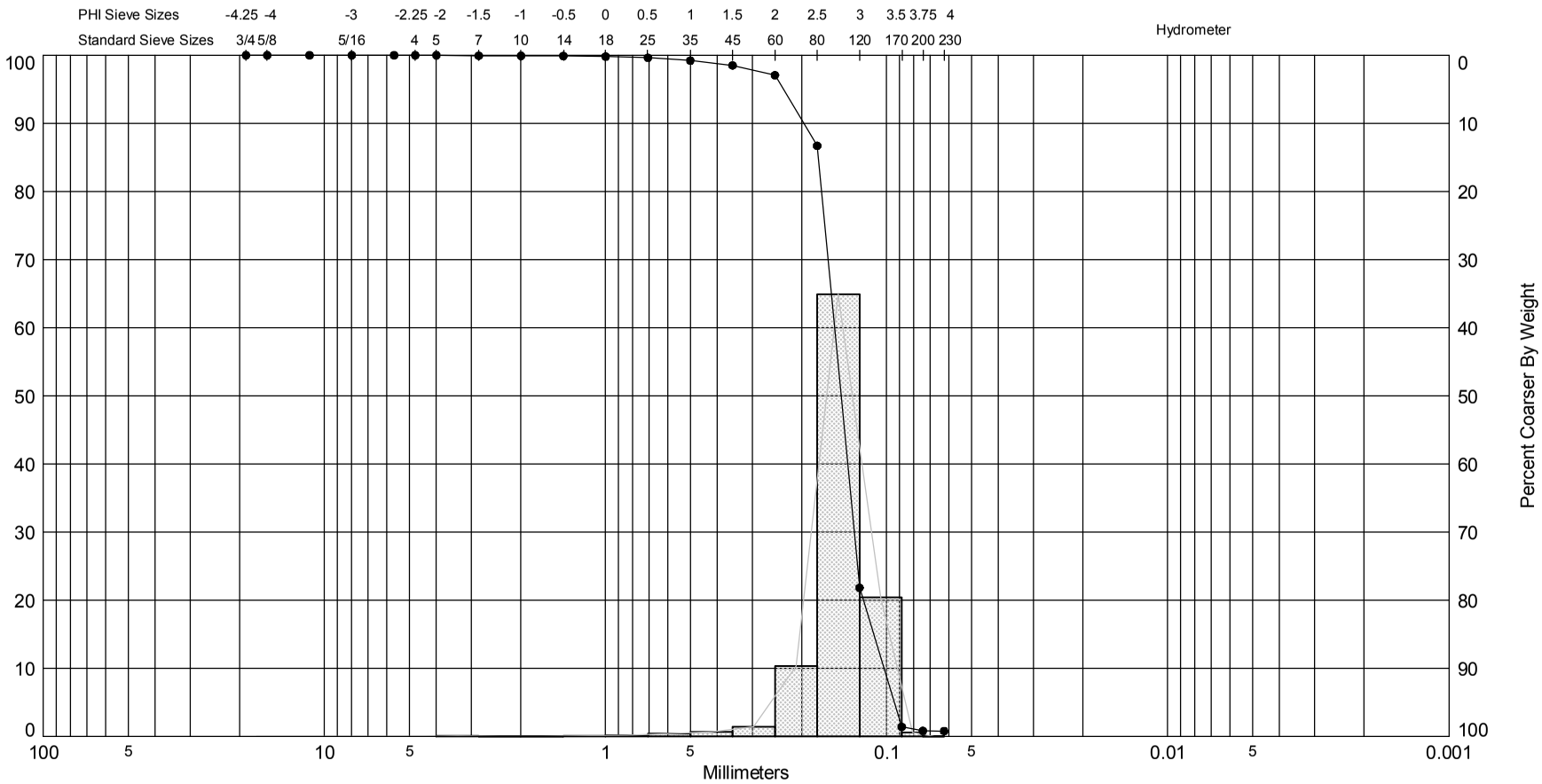
Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
R42 Station 69+06	—●—		SW	#200 - 1.20 #230 - 1.17			2.72	2.5	-3.13	13.6	0.95

Comments:

Depths and elevations based on measured values

CB&I
Coastal Planning & Engineering, Inc.
2481 NW Boca Raton Blvd.
Boca Raton, FL 33431
ph (561) 391 8102

Sample Information	
Project Name:	Lido Key Beach Construction
Analysis Date:	03-24-15
Analyzed By:	ST
Easting (X, ft):	
Northing (Y, ft):	
Horizontal System:	NAD 1983
Vertical System:	NAVD 88



Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort
R43 Station 79+53	—●—		SP	#200 - 0.80 #230 - 0.79			2.78	2.76	-2.88	23.33	0.41

Comments:

Depths and elevations based on measured values

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Boca Raton, FL 33431
ph (561) 391 8102

Sample Information	
Project Name:	Lido Key Beach Construction
Analysis Date:	03-24-15
Analyzed By:	ST
Easting (X, ft):	
Northing (Y, ft):	
Horizontal System:	NAD 1983
Vertical System:	NAVD 88

7.2 GRANULARMETRIC REPORTS: BEACH

Applicable granulometric reports are presented on the following pages.

Granularmetric Report

Depths and elevations based on measured values

Project Name: Lido Key Construction Samples

Sample Name: R-38 Mid Berm

Analysis Date: 02-10-15

Analyzed By: LC

CB&I
Coastal Planning & Engineering, Inc.
2481 NW Boca Raton Blvd.
Boca Raton, FL 33431
ph (561) 391 8102

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
		Florida State Plane West	

USCS:	Munsell:	Comments:
SP	Wet - 5Y-7/1 Dry - 5Y-8/1 Washed - 5Y-8/1	R-38 30+08 Mid Berm @ 1400

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
120.25	119.81	0.03	0.00	#200 - 0.48 #230 - 0.41			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
3/4"	-4.25	19.03	0.00	0.00	0.00	0.00
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
4	-2.25	4.76	0.24	0.20	0.24	0.20
5	-2.00	4.00	0.35	0.29	0.59	0.49
7	-1.50	2.83	0.28	0.23	0.87	0.72
10	-1.00	2.00	0.45	0.37	1.32	1.09
14	-0.50	1.41	0.34	0.28	1.66	1.37
18	0.00	1.00	0.44	0.37	2.10	1.74
25	0.50	0.71	0.45	0.37	2.55	2.11
35	1.00	0.50	0.51	0.42	3.06	2.53
45	1.50	0.35	0.60	0.50	3.66	3.03
60	2.00	0.25	0.93	0.77	4.59	3.80
80	2.50	0.18	6.10	5.07	10.69	8.87
120	3.00	0.13	82.26	68.41	92.95	77.28
170	3.50	0.09	25.58	21.27	118.53	98.55
200	3.75	0.07	1.17	0.97	119.70	99.52
230	4.00	0.06	0.08	0.07	119.78	99.59

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.42	3.16	2.98	2.80	2.62	2.55	2.12

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.74	0.15	0.66	-4.78	31.6

GRANULARMETRIC REPORT 2015_CONSTRUCTION_SAMPLES.GPJ JPBRAZIL.GDT 2/10/15

Granularmetric Report

Depths and elevations based on measured values

Project Name: Lido Key Beach Construction

Sample Name: R39 Station 40+02

Analysis Date: 02-27-15

Analyzed By: ST

CB&I
Coastal Planning & Engineering, Inc.
2481 NW Boca Raton Blvd.
Boca Raton, FL 33431
ph (561) 391 8102

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
		Florida State Plane West	

USCS:	Munsell:	Comments:
SW	Wet - 2.5Y-7/1 Dry - 2.5Y-8/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
93.35	92.54	0.04	0.01	#200 - 0.96 #230 - 0.92			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
3/4"	-4.25	19.03	0.00	0.00	0.00	0.00
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.26	0.28	0.26	0.28
4	-2.25	4.76	0.39	0.42	0.65	0.70
5	-2.00	4.00	0.35	0.37	1.00	1.07
7	-1.50	2.83	0.74	0.79	1.74	1.86
10	-1.00	2.00	0.97	1.04	2.71	2.90
14	-0.50	1.41	1.23	1.32	3.94	4.22
18	0.00	1.00	1.22	1.31	5.16	5.53
25	0.50	0.71	1.14	1.22	6.30	6.75
35	1.00	0.50	1.02	1.09	7.32	7.84
45	1.50	0.35	0.73	0.78	8.05	8.62
60	2.00	0.25	1.13	1.21	9.18	9.83
80	2.50	0.18	6.98	7.48	16.16	17.31
120	3.00	0.13	55.83	59.81	71.99	77.12
170	3.50	0.09	19.89	21.31	91.88	98.43
200	3.75	0.07	0.57	0.61	92.45	99.04
230	4.00	0.06	0.04	0.04	92.49	99.08

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.42	3.16	2.98	2.77	2.56	2.41	-0.20

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.53	0.17	1.04	-3.02	12.13

GRANULARMETRIC REPORT LIDO_KEY_CONSTRUCTION_2015.GPJ JPBRAZIL.GDT 2/27/15

Granularmetric Report

Depths and elevations based on measured values

Project Name: Lido Key Beach Construction

Sample Name: R40 Station 49+78

Analysis Date: 03-13-15

Analyzed By: GS

CB&I
Coastal Planning & Engineering, Inc.
2481 NW Boca Raton Blvd.
Boca Raton, FL 33431
ph (561) 391 8102

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
		Florida State Plane West	

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-8/1 Dry - 2.5Y-8/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
94.68	94.37	0.02	0.01	#200 - 0.43 #230 - 0.37			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
3/4"	-4.25	19.03	0.00	0.00	0.00	0.00
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.40	0.42	0.40	0.42
4	-2.25	4.76	0.07	0.07	0.47	0.49
5	-2.00	4.00	0.00	0.00	0.47	0.49
7	-1.50	2.83	0.31	0.33	0.78	0.82
10	-1.00	2.00	0.29	0.31	1.07	1.13
14	-0.50	1.41	0.23	0.24	1.30	1.37
18	0.00	1.00	0.24	0.25	1.54	1.62
25	0.50	0.71	0.41	0.43	1.95	2.05
35	1.00	0.50	0.23	0.24	2.18	2.29
45	1.50	0.35	0.53	0.56	2.71	2.85
60	2.00	0.25	0.75	0.79	3.46	3.64
80	2.50	0.18	4.39	4.64	7.85	8.28
120	3.00	0.13	54.40	57.46	62.25	65.74
170	3.50	0.09	30.76	32.49	93.01	98.23
200	3.75	0.07	1.27	1.34	94.28	99.57
230	4.00	0.06	0.06	0.06	94.34	99.63

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.45	3.28	3.14	2.86	2.65	2.57	2.15

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.8	0.14	0.69	-4.93	34.01

GRANULARMETRIC REPORT LIDO_KEY_CONSTRUCTION_2015.GPJ JPBRAZIL.GDT 3/13/15

Granularmetric Report

Depths and elevations based on measured values

Project Name: Lido Key Beach Construction

Sample Name: R41 Station 60+47

Analysis Date: 03-24-15

Analyzed By: ST

CB&I
Coastal Planning & Engineering, Inc.
2481 NW Boca Raton Blvd.
Boca Raton, FL 33431
ph (561) 391 8102

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
		Florida State Plane West	

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-7/1 Dry - 2.5Y-8/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
95.69	94.85	0.01	0.00	#200 - 0.94 #230 - 0.90			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
3/4"	-4.25	19.03	0.00	0.00	0.00	0.00
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.30	0.31	0.30	0.31
4	-2.25	4.76	0.00	0.00	0.30	0.31
5	-2.00	4.00	0.26	0.27	0.56	0.58
7	-1.50	2.83	0.31	0.32	0.87	0.90
10	-1.00	2.00	0.51	0.53	1.38	1.43
14	-0.50	1.41	0.70	0.73	2.08	2.16
18	0.00	1.00	0.66	0.69	2.74	2.85
25	0.50	0.71	0.76	0.79	3.50	3.64
35	1.00	0.50	0.84	0.88	4.34	4.52
45	1.50	0.35	1.24	1.30	5.58	5.82
60	2.00	0.25	1.81	1.89	7.39	7.71
80	2.50	0.18	7.40	7.73	14.79	15.44
120	3.00	0.13	55.45	57.95	70.24	73.39
170	3.50	0.09	23.69	24.76	93.93	98.15
200	3.75	0.07	0.87	0.91	94.80	99.06
230	4.00	0.06	0.04	0.04	94.84	99.10

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.44	3.21	3.03	2.80	2.58	2.50	1.18

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.65	0.16	0.82	-3.61	18.54

GRANULARMETRIC REPORT LIDO_KEY_CONSTRUCTION_2015.GPJ JPBRAZIL.GDT 3/26/15

Granularmetric Report

Depths and elevations based on measured values

Project Name: Lido Key Beach Construction

Sample Name: R42 Station 69+06

Analysis Date: 03-24-15

Analyzed By: ST

CB&I
Coastal Planning & Engineering, Inc.
2481 NW Boca Raton Blvd.
Boca Raton, FL 33431
ph (561) 391 8102

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
		Florida State Plane West	

USCS:	Munsell:	Comments:
SW	Wet - 2.5Y-7/1 Dry - 2.5Y-8/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
94.60	93.55	0.01	0.03	#200 - 1.20 #230 - 1.17			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
3/4"	-4.25	19.03	0.00	0.00	0.00	0.00
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.28	0.30	0.28	0.30
4	-2.25	4.76	0.16	0.17	0.44	0.47
5	-2.00	4.00	0.26	0.27	0.70	0.74
7	-1.50	2.83	0.80	0.85	1.50	1.59
10	-1.00	2.00	0.86	0.91	2.36	2.50
14	-0.50	1.41	0.87	0.92	3.23	3.42
18	0.00	1.00	0.87	0.92	4.10	4.34
25	0.50	0.71	0.95	1.00	5.05	5.34
35	1.00	0.50	1.31	1.38	6.36	6.72
45	1.50	0.35	1.24	1.31	7.60	8.03
60	2.00	0.25	2.35	2.48	9.95	10.51
80	2.50	0.18	12.05	12.74	22.00	23.25
120	3.00	0.13	56.31	59.52	78.31	82.77
170	3.50	0.09	14.76	15.60	93.07	98.37
200	3.75	0.07	0.41	0.43	93.48	98.80
230	4.00	0.06	0.03	0.03	93.51	98.83

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.39	3.04	2.93	2.72	2.51	2.22	0.33

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.5	0.18	0.95	-3.13	13.6

GRANULARMETRIC REPORT LIDO_KEY_CONSTRUCTION_2015.GPJ JPBRAZIL.GDT 3/26/15

Granularmetric Report

Depths and elevations based on measured values

Project Name: Lido Key Beach Construction

Sample Name: R43 Station 79+53

Analysis Date: 03-24-15

Analyzed By: ST

CB&I
Coastal Planning & Engineering, Inc.
2481 NW Boca Raton Blvd.
Boca Raton, FL 33431
ph (561) 391 8102

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
		Florida State Plane West	

USCS:	Munsell:	Comments:
SP	Wet - 2.5Y-7/1 Dry - 2.5Y-8/1 Washed - 2.5Y-8/1	

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
94.75	94.06	0.04	0.01	#200 - 0.80 #230 - 0.79			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	Grams Retained	% Weight Retained	Cum. Grams Retained	C. % Weight Retained
3/4"	-4.25	19.03	0.00	0.00	0.00	0.00
5/8"	-4.00	16.00	0.00	0.00	0.00	0.00
7/16"	-3.50	11.31	0.00	0.00	0.00	0.00
5/16"	-3.00	8.00	0.00	0.00	0.00	0.00
3.5	-2.50	5.66	0.00	0.00	0.00	0.00
4	-2.25	4.76	0.00	0.00	0.00	0.00
5	-2.00	4.00	0.00	0.00	0.00	0.00
7	-1.50	2.83	0.06	0.06	0.06	0.06
10	-1.00	2.00	0.03	0.03	0.09	0.09
14	-0.50	1.41	0.02	0.02	0.11	0.11
18	0.00	1.00	0.09	0.09	0.20	0.20
25	0.50	0.71	0.16	0.17	0.36	0.37
35	1.00	0.50	0.40	0.42	0.76	0.79
45	1.50	0.35	0.65	0.69	1.41	1.48
60	2.00	0.25	1.37	1.45	2.78	2.93
80	2.50	0.18	9.82	10.36	12.60	13.29
120	3.00	0.13	61.48	64.89	74.08	78.18
170	3.50	0.09	19.35	20.42	93.43	98.60
200	3.75	0.07	0.57	0.60	94.00	99.20
230	4.00	0.06	0.01	0.01	94.01	99.21

Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.41	3.14	2.98	2.78	2.59	2.52	2.10

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.76	0.15	0.41	-2.88	23.33

GRANULARMETRIC REPORT LIDO_KEY_CONSTRUCTION_2015.GPJ JPBRAZIL.GDT 3/26/15

8 BORING LOGS AND LABORATORY TESTING RESULTS: BORROW AREAS

8.1 BORING LOGS: BORROW AREA

Applicable boring logs are presented on the following pages

Boring Designation VB-BSP-12-01

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT: Lido Key, Big Sarasota Pass Ebb Shoal, Sarasota County	9. SIZE AND TYPE OF BIT: See Remarks
	10. COORDINATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.); HORIZONTAL: NAD83; VERTICAL: MLLW
2. BORING DESIGNATION: VB-BSP-12-01; LOCATION COORDINATES: X = 473,153 Y = 1,077,510	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore; ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Athena Technologies, Inc.; CONTRACTOR FILE NO.: 6734-13-9700	12. TOTAL SAMPLES: DISTURBED 7; UNDISTURBED (UD) 0
4. NAME OF DRILLER: Palmer McClellan	13. TOTAL NUMBER CORE BOXES: 0
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED; DEG. FROM VERTICAL; BEARING	14. ELEVATION GROUND WATER: -0.4 Ft.
	15. DATE BORING: STARTED 01-17-13; COMPLETED 01-17-13
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -5.1 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 87 %
8. TOTAL DEPTH OF BORING: 14.7 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: Joel Raven, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-5.1	0.0								
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, some sand to gravel-sized shell, strong reaction with HCl, moist, 2.5Y 7/1 light gray (SP)				-5.6		
					1				
			At El. -6.4 Ft., trace fine to medium-grained sand-sized shell, no reaction with HCl, 2.5Y 8/1 white						
			At El. -7.2 Ft., little sand to gravel-sized shell, weak reaction with HCl						
							-9.3		
			At El. -9.1 Ft., little fine to medium-grained sand-sized shell, no reaction with HCl		2 2-Post		-9.3		
			From El. -10.3 to -11.1 Ft., 1.25" thick seams of organic sand, 2.5Y 6/1 gray						
			At El. -11.1 Ft., few sand to gravel-sized shell, 2.5Y 8/1 white						
			From El. -13.0 to -13.2 Ft., 0.5" thick seams of organic sand						
							-14.6		
			At El. -14.6 Ft., few medium-grained sand-sized shell		3				
							-16.1		
			At El. -16.1 Ft., few fine-grained sand-sized shell, trace silt, 2.5Y 6/1 gray		4				
-17.1	12.0		At El. -16.4 Ft., 1.5" thick seams of sandy silt				-17.1		
			At El. -16.9 Ft., 1.25" thick seams of sandy silt		5				
-18.3	13.2		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, few fine to medium-grained sand-sized shell, no reaction with HCl, moist, 2.5Y 6/1 gray (SP-SM)						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, few medium-grained sand-sized shell, no reaction with HCl, moist, 2.5Y 6/1 gray (SP)		6		-18.9		
-19.8	14.7						-19.8		
			BORING TERMINATED IN REFUSAL						

0 5 10 15

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District	SHEET 2 OF 2 SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONTAL	VERTICAL
Lido Key, Big Sarasota Pass Ebb Shoal	State Plane, FLW (U.S. Ft.)	NAD83	MLLW

LOCATION COORDINATES	ELEVATION TOP OF BORING
X = 473,153 Y = 1,077,510	-5.1 Ft.

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
			NOTES: 1. USACE Jacksonville is the custodian for these original files. 2. Soils are field visually classified in accordance with the Unified Soils Classification System. 3. Laboratory Testing Results				Abbreviations: NR = Not Recorded.		

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
1	0.5/0.7	SP*
2	4.2/4.4	SP*
2-Post	4.2/4.4	SP*
3	9.5/9.7	SP*
4	11.0/11.2	SP*
5	12.0/12.2	SP-SM*
6	13.8/14.0	SP*

*Lab visual classification based on gradation curve. No Atterberg limits.

15 20 25 30 35

Boring Designation VB-BSP-12-03

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT: Lido Key, Big Sarasota Pass Ebb Shoal, Sarasota County	9. SIZE AND TYPE OF BIT: See Remarks
	10. COORDINATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: MLLW
2. BORING DESIGNATION: VB-BSP-12-03 — LOCATION COORDINATES: X = 472,693 Y = 1,075,967	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Athena Technologies, Inc. — CONTRACTOR FILE NO.: 6734-13-9700	12. TOTAL SAMPLES — DISTURBED: 6 — UNDISTURBED (UD): 0
4. NAME OF DRILLER: Palmer McClellan	13. TOTAL NUMBER CORE BOXES: 0
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. ELEVATION GROUND WATER: -0.1 Ft.
	15. DATE BORING — STARTED: 01-15-13 — COMPLETED: 01-15-13
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -5.3 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 70 %
8. TOTAL DEPTH OF BORING: 14.1 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: Joel Raven, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-5.3	0.0								
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to medium-grained sand-sized shell, trace silt, weak reaction with HCl, moist, 2.5Y 8/1 white (SP)				-5.8		
					1				
			At El. -7.2 Ft., some sand to gravel-sized shell, strong reaction with HCl, 2.5Y 7/1 light gray						
			At El. -8.3 Ft., some fine to coarse-grained sand-sized shell, strong reaction with HCl, 2.5Y 8/1 white						
							-10.9		
			At El. -10.9 Ft., little medium to coarse-grained sand-sized shell, weak reaction with HCl		2				
			At El. -11.1 Ft., few fine to coarse gravel-sized shell, no reaction with HCl						
			At El. -12.6 Ft., some fine to coarse gravel-sized shell, strong reaction with HCl, 2.5Y 7/1 light gray						
			At El. -13.0 Ft., trace fine to medium-grained sand-sized shell, no reaction with HCl, 2.5Y 8/1 white				-13.8		
					3				
			At El. -13.6 Ft., little sand to gravel-sized shell, weak reaction with HCl						
			At El. -13.8 Ft., little fine to medium-grained sand-sized shell, no reaction with HCl						
			At El. -14.3 Ft., some fine to coarse gravel-sized shell, strong reaction with HCl, 2.5Y 7/1 light gray				-16.8		
-17.1	11.8		At El. -16.8 Ft., some sand to gravel-sized shell		4 4-Post		-16.8		
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, little sand to gravel-sized shell, little medium to coarse-grained sand-sized limestone, few silt, strong reaction with HCl, moist, 2.5Y 5/1 gray (SP-SM)				-17.6		
					5				
-18.3	13.0								
-19.3	14.0		At El. -17.5 Ft., some silt, trace sand to gravel-sized shell, no reaction with HCl				-19.4		
-19.4	14.1								
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fine to coarse				Abbreviations: NR = Not Recorded.		

0 5 10 15

SAJ FORM 1836 (Continued)

JUN 02

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District		SHEET 2 OF 2 SHEETS
PROJECT Lido Key, Big Sarasota Pass Ebb Shoal	COORDINATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL MLLW
LOCATION COORDINATES X = 472,693 Y = 1,075,967	ELEVATION TOP OF BORING -5.3 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
			gravel-sized shell, no reaction with HCl, moist, 2.5Y 7/1 light gray (SP) LIMESTONE, trace of fine-grained sand-sized quartz, 2.5Y 5/1 gray						

NOTES:

1. USACE Jacksonville is the custodian for these original files.

2. Soils are field visually classified in accordance with the Unified Soils Classification System.

3. Laboratory Testing Results

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
1	0.5/0.7	SP*
2	5.6/5.8	SP*
3	8.5/8.7	SP*
4	11.5/11.7	SP*
4-Post	11.5/11.7	SP*
5	12.3/12.5	SP-SM*

*Lab visual classification based on gradation curve. No Atterberg limits.

15 20 25 30 35

Boring Designation VB-BSP-12-05

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT: Lido Key, Big Sarasota Pass Ebb Shoal, Sarasota County	9. SIZE AND TYPE OF BIT: See Remarks
	10. COORDINATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.); HORIZONTAL: NAD83; VERTICAL: MLLW
2. BORING DESIGNATION: VB-BSP-12-05; LOCATION COORDINATES: X = 470,695 Y = 1,075,969	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore; ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Athena Technologies, Inc.; CONTRACTOR FILE NO.: 6734-13-9700	12. TOTAL SAMPLES: DISTURBED 5; UNDISTURBED (UD) 0
4. NAME OF DRILLER: Palmer McClellan	13. TOTAL NUMBER CORE BOXES: 0
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED; DEG. FROM VERTICAL; BEARING	14. ELEVATION GROUND WATER: 0.1 Ft.
	15. DATE BORING: STARTED 01-16-13; COMPLETED 01-16-13
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -5.8 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 90 %
8. TOTAL DEPTH OF BORING: 18.0 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: Joel Raven, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-5.8	0.0								
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fine-grained sand-sized shell, no reaction with HCl, moist, 2.5Y 8/1 white (SP)		1		-6.3		
-10.1	4.3								
-10.3	4.5		SAND, well-graded, mostly fine-grained sand-sized quartz, some fine to coarse gravel-sized shell, strong reaction with HCl, moist, 2.5Y 7/1 light gray (SW)						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fine to coarse gravel-sized shell, no reaction with HCl, moist, 2.5Y 8/1 white (SP)		2		-11.8		
			At El. -11.8 Ft., little fine to medium-grained sand-sized shell, trace silt, weak reaction with HCl						
			At El. -15.8 Ft., trace shell, no reaction with HCl		3		-15.8		
-17.6	11.8								
-17.8	12.0		SAND, silty, mostly fine-grained sand-sized quartz, no reaction with HCl, moist, 0.25" thick sandy silt seams throughout, 2.5Y 5/1 gray (SM)		4		-17.8		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, no reaction with HCl, moist, 2.5Y 8/1 white (SP)						

0 5 10 15

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District	SHEET 2 OF 2 SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONTAL	VERTICAL
Lido Key, Big Sarasota Pass Ebb Shoal	State Plane, FLW (U.S. Ft.)	NAD83	MLLW

LOCATION COORDINATES	ELEVATION TOP OF BORING
X = 470,695 Y = 1,075,969	-5.8 Ft.

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-23.0	17.2						-22.8		
-23.8	18.0		SAND, well-graded, mostly fine-grained sand-sized quartz, some sand to gravel-sized shell, strong reaction with HCl, moist, 2.5Y 7/1 light gray (SW)		5		-23.8		

Abbreviations:
NR = Not Recorded.

NOTES:

1. USACE Jacksonville is the custodian for these original files.

2. Soils are field visually classified in accordance with the Unified Soils Classification System.

3. Laboratory Testing Results

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
1	0.5/0.7	SP*
2	6.0/6.2	SP*
3	10.0/10.2	SP*
4	12.0/12.2	SP*
5	17.0/17.2	SP*

*Lab visual classification based on gradation curve. No Atterberg limits.

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20
25
30
35

Boring Designation VB-BSP-12-06

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal Sarasota County
2. BORING DESIGNATION	VB-BSP-12-06
LOCATION COORDINATES	X = 471,692 Y = 1,074,968
3. DRILLING AGENCY	Athena Technologies, Inc.
CONTRACTOR FILE NO.	6734-13-9700
4. NAME OF DRILLER	Palmer McClellan
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	14.2 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLW (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 5 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	0.1 Ft.
15. DATE BORING	STARTED 01-16-13 / COMPLETED 01-16-13
16. ELEVATION TOP OF BORING	-4.0 Ft.
17. TOTAL RECOVERY FOR BORING	71 %
18. SIGNATURE AND TITLE OF INSPECTOR	Joel Raven, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-4.0	0.0								
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fine-grained sand-sized shell, no reaction with HCl, moist, 2.5Y 8/1 white (SP)		1		-4.5		
			At El. -8.2 Ft., little medium to coarse-grained sand-sized shell, weak reaction with HCl		2		-8.2		
-8.8	4.8								
-9.3	5.3		SAND, well-graded, mostly fine-grained sand-sized quartz, some fine to coarse gravel-sized shell, strong reaction with HCl, moist, 2.5Y 7/1 light gray (SW)						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fine to coarse gravel-sized shell, no reaction with HCl, moist, 2.5Y 8/1 white (SP)				-12.0		
			At El. -12.0 Ft., few fine-grained sand-sized shell		3 3-Post		-12.0		
			At El. -12.9 Ft., little fine to coarse gravel-sized shell, weak reaction with HCl, 2.5Y 7/1 light gray						
			At El. -15.0 Ft., few fine to coarse gravel-sized shell, no reaction with HCl				-17.0		
			At El. -17.0 Ft., little fine to coarse-grained sand-sized shell, trace silt, weak reaction with HCl		4				
-18.2	14.2						-18.2		
			NOTES:				Abbreviations: NR = Not Recorded.		

0 5 10 15

SAJ FORM 1836 (Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District	SHEET 2 OF 2 SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONTAL	VERTICAL
Lido Key, Big Sarasota Pass Ebb Shoal	State Plane, FLW (U.S. Ft.)	NAD83	MLLW

LOCATION COORDINATES	ELEVATION TOP OF BORING
X = 471,692 Y = 1,074,968	-4.0 Ft.

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE

1. USACE Jacksonville is the custodian for these original files.

2. Soils are field visually classified in accordance with the Unified Soils Classification System.

3. Laboratory Testing Results

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
1	0.5/0.7	SP*
2	4.2/4.4	SP*
3	8.0/8.2	SP*
3-Post	8.0/8.2	SP*
4	13.0/13.2	SP*

*Lab visual classification based on gradation curve. No Atterberg limits.

15 20 25 30 35

Boring Designation VB-BSP-12-09

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT: Lido Key, Big Sarasota Pass Ebb Shoal, Sarasota County	9. SIZE AND TYPE OF BIT: See Remarks
	10. COORDINATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: MLLW
2. BORING DESIGNATION: VB-BSP-12-09 — LOCATION COORDINATES: X = 469,692 Y = 1,074,966	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Athena Technologies, Inc. — CONTRACTOR FILE NO.: 6734-13-9700	12. TOTAL SAMPLES — DISTURBED: 5 — UNDISTURBED (UD): 0
4. NAME OF DRILLER: Palmer McClellan	13. TOTAL NUMBER CORE BOXES: 0
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. ELEVATION GROUND WATER: -0.8 Ft.
	15. DATE BORING — STARTED: 01-16-13 — COMPLETED: 01-16-13
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -11.7 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 89 %
8. TOTAL DEPTH OF BORING: 12.6 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: Joel Raven, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-11.7	0.0								
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fine to medium-grained sand-sized shell, no reaction with HCl, moist, 2.5Y 8/1 white (SP)		1		-12.2		
			At El. -15.7 Ft., trace shell, trace silt		2 2-Post		-15.7		
			At El. -17.2 Ft., few sand to gravel-sized shell						
-19.8	8.1		At El. -19.6 Ft., little fine to medium-grained sand-sized shell, weak reaction with HCl		3		-19.6		
			SAND, well-graded, mostly fine-grained sand-sized quartz, some sand to gravel-sized shell, strong reaction with HCl, moist, 2.5Y 7/1 light gray (SW)						
-22.0	10.3								
-22.7	11.0		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace fine to coarse gravel-sized shell, no reaction with HCl, moist, 2.5Y 7/1 light gray (SP)		4		-22.7		
-24.1	12.4		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, little medium to coarse-grained sand-sized shell, few silt, weak reaction with HCl, moist, 2.5Y 7/1 light gray (SP-SM)				-24.3		
-24.3	12.6		LIMESTONE, 2.5Y 7/1 light gray						
			BORING TERMINATED IN REFUSAL						

Abbreviations:
NR = Not Recorded.

NOTES:

1. USACE Jacksonville is the custodian for

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District		SHEET 2 OF 2 SHEETS
PROJECT Lido Key, Big Sarasota Pass Ebb Shoal	COORDINATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL MLLW
LOCATION COORDINATES X = 469,692 Y = 1,074,966	ELEVATION TOP OF BORING -11.7 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
			these original files. 2. Soils are field visually classified in accordance with the Unified Soils Classification System. 3. Laboratory Testing Results						

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
1	0.5/0.7	SP*
2	4.0/4.2	SP*
2-Post	4.0/4.2	SP*
3	7.9/8.1	SP*
4	11.0/11.2	SP-SM*

*Lab visual classification based on gradation curve. No Atterberg limits.

15 20 25 30 35

Boring Designation VB-BSP-12-10

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT: Lido Key, Big Sarasota Pass Ebb Shoal, Sarasota County	9. SIZE AND TYPE OF BIT: See Remarks
	10. COORDINATE SYSTEM/DATUM: State Plane, FLW (U.S. Ft.) — HORIZONTAL: NAD83 — VERTICAL: MLLW
2. BORING DESIGNATION: VB-BSP-12-10 — LOCATION COORDINATES: X = 470,692 Y = 1,073,971	11. MANUFACTURER'S DESIGNATION OF DRILL: Vibracore — ☐ AUTO HAMMER ☐ MANUAL HAMMER
3. DRILLING AGENCY: Athena Technologies, Inc. — CONTRACTOR FILE NO.: 6734-13-9700	12. TOTAL SAMPLES — DISTURBED: 5 — UNDISTURBED (UD): 0
4. NAME OF DRILLER: Palmer McClellan	13. TOTAL NUMBER CORE BOXES: 0
5. DIRECTION OF BORING: ☒ VERTICAL ☐ INCLINED — DEG. FROM VERTICAL: — BEARING:	14. ELEVATION GROUND WATER: 0.1 Ft.
	15. DATE BORING — STARTED: 01-16-13 — COMPLETED: 01-16-13
6. THICKNESS OF OVERBURDEN: N/A	16. ELEVATION TOP OF BORING: -6.8 Ft.
7. DEPTH DRILLED INTO ROCK: N/A	17. TOTAL RECOVERY FOR BORING: 88 %
8. TOTAL DEPTH OF BORING: 17.5 Ft.	18. SIGNATURE AND TITLE OF INSPECTOR: Joel Raven, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-6.8	0.0								
			SAND, poorly-graded, mostly medium-grained sand-sized quartz, few sand to gravel-sized shell, no reaction with HCl, moist, 2.5Y 8/1 white (SP)		1		-7.3		
			At El. -9.8 Ft., little sand to gravel-sized shell, weak reaction with HCl				-11.4		
			At El. -11.4 Ft., little medium to coarse-grained sand-sized shell At El. -11.6 Ft., trace fine to medium-grained sand-sized shell, no reaction with HCl At El. -12.1 Ft., little sand to gravel-sized shell, weak reaction with HCl		2		-15.3		
			At El. -15.1 Ft., trace fine to medium-grained sand-sized shell, no reaction with HCl At El. -16.3 Ft., few fine to coarse gravel-sized shell		3		-20.3		
-20.3	13.5								
-20.6	13.8		SAND, poorly-graded, mostly sand to gravel-sized shell, some fine-grained sand-sized quartz, strong reaction with HCl (SP)		4				
			SAND, well-graded, mostly fine-grained						

0 5 10 15

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District	SHEET 2 OF 2 SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONTAL	VERTICAL
Lido Key, Big Sarasota Pass Ebb Shoal	State Plane, FLW (U.S. Ft.)	NAD83	MLLW

LOCATION COORDINATES	ELEVATION TOP OF BORING
X = 470,692 Y = 1,073,971	-6.8 Ft.

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-22.9	16.1		sand-sized quartz, some sand to gravel-sized shell, moist, 2.5Y 7/1 light gray (SW)						
-24.3	17.5		SAND, silty, mostly fine-grained sand-sized quartz, little silt, few medium-grained sand-sized shell, no reaction with HCl, moist, 10Y 3/1 very dark greenish gray (SM)		5		-23.3 -24.3		

NOTES:

1. USACE Jacksonville is the custodian for these original files.

2. Soils are field visually classified in accordance with the Unified Soils Classification System.

3. Laboratory Testing Results

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
1	0.5/0.7	SP*
2	4.6/4.8	SP*
3	8.5/8.7	SP*
4	13.5/13.7	SP*
5	16.5/16.7	SM*

*Lab visual classification based on gradation curve. No Atterberg limits.

Abbreviations:
NR = Not Recorded.

15 20 25 30 35

Boring Designation VB-BSP-12-14

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal Sarasota County
2. BORING DESIGNATION	VB-BSP-12-14
LOCATION COORDINATES	X = 469,687 Y = 1,072,971
3. DRILLING AGENCY	Athena Technologies, Inc.
CONTRACTOR FILE NO.	6734-13-9700
4. NAME OF DRILLER	Palmer McClellan
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	18.9 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLW (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	Vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 6 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	-0.7 Ft.
15. DATE BORING	STARTED 01-15-13 / COMPLETED 01-15-13
16. ELEVATION TOP OF BORING	-10.1 Ft.
17. TOTAL RECOVERY FOR BORING	93 %
18. SIGNATURE AND TITLE OF INSPECTOR	Joel Raven, Geologist

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-10.1	0.0								
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fine to medium-grained sand-sized shell, trace silt, no reaction with HCl, moist, 2.5Y 8/1 white (SP)		1		-10.6		
-11.4	1.3								
-11.6	1.5		SAND, well-graded, mostly fine-grained sand-sized quartz, some fine to coarse gravel-sized shell, strong reaction with HCl, moist, 2.5Y 7/1 light gray (SW)						
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace fine to medium-grained sand-sized shell, no reaction with HCl, moist, 2.5Y 8/1 white (SP)				-14.1		
			At El. -14.1 Ft., some fine to coarse-grained sand-sized shell, strong reaction with HCl, 2.5Y 7/1 light gray		2 2-Post		-14.1		
			At El. -15.0 Ft., trace fine to medium-grained sand-sized shell, no reaction with HCl, 2.5Y 8/1 white						
			At El. -17.3 Ft., little fine gravel-sized shell, 2.5Y 7/1 light gray						
			At El. -18.1 Ft., trace fine to medium-grained sand-sized shell, trace silt, 2.5Y 8/1 white				-19.6		
			At El. -19.9 Ft., few sand to gravel-sized shell, 2.5Y 6/1 gray		3				
			At El. -22.6 Ft., little medium to coarse-grained sand-sized shell, weak reaction with HCl		4		-22.6 -23.1		
-23.0	12.9		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, some sand to gravel-sized shell, few silt, strong reaction with HCl, moist, 2.5Y 6/1 gray (SP-SM)		5				

0 5 10 15

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District	SHEET 2 OF 2 SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONTAL	VERTICAL
Lido Key, Big Sarasota Pass Ebb Shoal	State Plane, FLW (U.S. Ft.)	NAD83	MLLW

LOCATION COORDINATES	ELEVATION TOP OF BORING
X = 469,687 Y = 1,072,971	-10.1 Ft.

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-27.6	17.5								
-29.0	18.9		SAND, silty, mostly fine-grained sand-sized quartz, some silt, strong reaction with HCl, moist, 10Y 5/1 greenish gray (SM)				-29.0		

NOTES:

1. USACE Jacksonville is the custodian for these original files.

2. Soils are field visually classified in accordance with the Unified Soils Classification System.

3. Laboratory Testing Results

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
1	0.5/0.7	SP*
2	4.0/4.2	SP*
2-Post	4.0/4.2	SP*
3	9.5/9.7	SP*
4	12.5/12.7	SP*
5	13.0/13.2	SP-SM*

*Lab visual classification based on gradation curve. No Atterberg limits.

Abbreviations:
NR = Not Recorded.

15 20 25 30 35

Boring Designation VB-LK14-01

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal Sarasota County SPP, FL
2. BORING DESIGNATION	VB-LK14-01
LOCATION COORDINATES	X = 468,065 Y = 1,072,266
3. DRILLING AGENCY	Corps of Engineers - CESAJ
CONTRACTOR FILE NO.	6738-14-5346
4. NAME OF DRILLER	Lester Gaughf
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	18.2 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLW (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 4 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	N/A
15. DATE BORING	STARTED 05-12-14 / COMPLETED 05-12-14
16. ELEVATION TOP OF BORING	-14.6 Ft.
17. TOTAL RECOVERY FOR BORING	80 %
18. SIGNATURE AND TITLE OF INSPECTOR	Stephanie Setser, P.E., Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-14.6	0.0						-14.6		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, trace silt, no reaction with HCl, moist, 5Y 8/1 white (SP)	2900			-15.1 Vibracore		
					1				
							-18.6		
					2				
							-22.1		
					3				
			At El. -22.6 Ft., few sand to gravel-sized shell, strong reaction with HCl, 5Y 7/1 light gray						
-23.6	9.0						-23.9		
-24.5	9.9		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, few medium-grained sand-sized shell, strong reaction with HCl, moist, 5Y 6/1 gray (SP-SM)		4				
			SAND, silty, mostly fine-grained sand-sized quartz, little silt, little sand to gravel-sized shell, strong reaction with HCl, moist, 5Y 7/1 light gray (SM)						
			At El. -26.9 Ft., few sand to gravel-sized limestone, possible dissolutioned limestone, 5Y 8/1 white						
-29.1	14.5								

NO RECOVERY

0 5 10 15

(Continued)

SAJ FORM 1836
JUN 02

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District		SHEET 2 OF 2 SHEETS
PROJECT Lido Key, Big Sarasota Pass Ebb Shoal	COORDINATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL MLLW
LOCATION COORDINATES X = 468,065 Y = 1,072,266	ELEVATION TOP OF BORING -14.6 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-32.8	18.2	NO RECOVERY					-32.8		

NOTES:

1. USACE Jacksonville is the custodian for these original files.

2. Soils are field visually classified in accordance with the Unified Soils Classification System.

3. Vibracore refused due to presence of limestone.

4. Laboratory Testing Results

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
1	0.5/0.8	SP*
2	4.0/4.3	SP*
3	7.5/7.8	SP*
4	9.3/9.6	SP-SM*

*Lab visual classification based on gradation curve. No Atterberg limits.

Abbreviations:
NR = Not Recorded.

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Boring Designation VB-LK14-02

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal Sarasota County SPP, FL
2. BORING DESIGNATION	VB-LK14-02
LOCATION COORDINATES	X = 468,857 Y = 1,072,891
3. DRILLING AGENCY	Corps of Engineers - CESAJ
CONTRACTOR FILE NO.	6738-14-5346
4. NAME OF DRILLER	Lester Gaughf
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	18.5 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLW (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 2 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	N/A
15. DATE BORING	STARTED 05-12-14 / COMPLETED 05-12-14
16. ELEVATION TOP OF BORING	-17.2 Ft.
17. TOTAL RECOVERY FOR BORING	44 %
18. SIGNATURE AND TITLE OF INSPECTOR	Stephanie Setser, P.E., Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-17.2	0.0						-17.2		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, few medium-grained sand-sized shell, trace silt, weak reaction with HCl, moist, 5Y 8/1 white (SP)	1640			-17.7 Vibracore		
					1				
							-21.7		
					2				
-22.6	5.4								
-23.2	6.0		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few medium to coarse-grained sand-sized shell, few silt, strong reaction with HCl, moist, 5Y 5/1 gray (SP-SM)						
			SAND, silty, mostly fine-grained sand-sized quartz, little silt, strong reaction with HCl, moist, 5Y 6/1 gray (SM)						
-25.2	8.0		At El. -23.3 Ft., few sand to gravel-sized limestone						
-25.4	8.2		SILT, inorganic-L, few sand to cobble-sized limestone, trace shell, trace quartz, strong reaction with HCl, dissolutioned limestone, 5Y 8/1 white (ML)						
		NO RECOVERY							

0 5 10 15

(Continued)

SAJ FORM 1836
JUN 02

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District		SHEET 2 OF 2 SHEETS
PROJECT Lido Key, Big Sarasota Pass Ebb Shoal	COORDINATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL MLLW
LOCATION COORDINATES X = 468,857 Y = 1,072,891	ELEVATION TOP OF BORING -17.2 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-35.7	18.5	NO RECOVERY					-35.7		
			NOTES: 1. USACE Jacksonville is the custodian for these original files. 2. Soils are field visually classified in accordance with the Unified Soils Classification System. 3. Vibracore refused due to presence of limestone. 4. Laboratory Testing Results SAMPLE ID / SAMPLE DEPTH / LABORATORY CLASSIFICATION 1 / 0.5/0.8 / SP* 2 / 4.5/4.8 / SP* *Lab visual classification based on gradation curve. No Atterberg limits.				Abbreviations: NR = Not Recorded.		

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Boring Designation VB-LK14-03

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal Sarasota County SPP, FL
2. BORING DESIGNATION	VB-LK14-03
LOCATION COORDINATES	X = 470,059 Y = 1,074,342
3. DRILLING AGENCY	Corps of Engineers - CESAJ
CONTRACTOR FILE NO.	6738-14-5346
4. NAME OF DRILLER	Lester Gaughf
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	19.1 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLW (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 4 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	N/A
15. DATE BORING	STARTED 05-12-14 / COMPLETED 05-12-14
16. ELEVATION TOP OF BORING	-9.8 Ft.
17. TOTAL RECOVERY FOR BORING	81 %
18. SIGNATURE AND TITLE OF INSPECTOR	Stephanie Setser, P.E., Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-9.8	0.0						-9.8		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to medium-grained sand-sized shell, trace silt, weak reaction with HCl, moist, 5Y 8/1 white (SP)	3100			-10.3 Vibracore		
					1				
							-15.8		
			At El. -15.8 Ft., some fine to medium-grained sand-sized shell, strong reaction with HCl		2				
			At El. -16.6 Ft., little sand to gravel-sized shell, 5Y 7/1 light gray						
			At El. -19.7 Ft., some sand to gravel-sized shell						
-20.4	10.6								
			SAND, well-graded, mostly sand to gravel-sized shell, little fine-grained sand-sized quartz, trace silt, strong reaction with HCl, moist, 5Y 8/1 white (SW)				-20.8		
					3				
-21.7	11.9								
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, little medium to coarse-grained sand-sized shell, few silt, strong reaction with HCl, moist, 5Y 5/1 gray (SP-SM)				-22.3		
					4				
			At El. -23.3 Ft., some sand to gravel-sized shell						
-24.3	14.5								
			SILT, inorganic-L, little sand to gravel-sized						

0 5 10 15

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION	SHEET 2 OF 2 SHEETS
	Jacksonville District	

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONTAL	VERTICAL
Lido Key, Big Sarasota Pass Ebb Shoal	State Plane, FLW (U.S. Ft.)	NAD83	MLLW

LOCATION COORDINATES	ELEVATION TOP OF BORING
X = 470,059 Y = 1,074,342	-9.8 Ft.

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-25.3	15.5		shell, few silt, strong reaction with HCl, moist, 5Y 5/1 gray (ML)						
-28.9	19.1	NO RECOVERY					-28.9		

NOTES:

1. USACE Jacksonville is the custodian for these original files.

2. Soils are field visually classified in accordance with the Unified Soils Classification System.

3. Laboratory Testing Results

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
1	0.5/0.8	SP*
2	6.0/6.3	SP*
3	11.0/11.3	SW*
4	12.5/12.8	SP-SM*

*Lab visual classification based on gradation curve. No Atterberg limits.

Abbreviations:
NR = Not Recorded.

15 20 25 30 35

Boring Designation VB-LK14-05

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal Sarasota County SPP, FL
2. BORING DESIGNATION	VB-LK14-05
LOCATION COORDINATES	X = 470,712 Y = 1,076,822
3. DRILLING AGENCY	Corps of Engineers - CESAJ
CONTRACTOR FILE NO.	6738-14-5346
4. NAME OF DRILLER	Lester Gaughf
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	20.0 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLW (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 4 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	N/A
15. DATE BORING	STARTED 05-12-14 / COMPLETED 05-12-14
16. ELEVATION TOP OF BORING	-7.0 Ft.
17. TOTAL RECOVERY FOR BORING	80 %
18. SIGNATURE AND TITLE OF INSPECTOR	Stephanie Setser, P.E., Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-7.0	0.0						-7.0		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to medium-grained sand-sized shell, weak reaction with HCl, moist, 5Y 8/1 white (SP)	3200			-7.5 Vibracore		
					1				
			At El. -8.5 Ft., trace shell						
							-11.0		
					2				
							-16.0		
			At El. -16.0 Ft., trace silt		3				
			At El. -20.4 Ft., some sand to gravel-sized shell, strong reaction with HCl, 5Y 7/1 light gray				-22.0		

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(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District		SHEET 2 OF 2 SHEETS
PROJECT Lido Key, Big Sarasota Pass Ebb Shoal	COORDINATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL MLLW
LOCATION COORDINATES X = 470,712 Y = 1,076,822	ELEVATION TOP OF BORING -7.0 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
			At El. -22.0 Ft., trace shell, 5Y 8/1 white		4				
-22.8	15.8								
-23.0	16.0		SAND, silty, mostly fine-grained sand-sized quartz, little silt, few medium to coarse-grained sand-sized shell, trace limestone, strong reaction with HCl, moist, 5Y 8/1 white (SM)						
		NO RECOVERY							
-27.0	20.0						-27.0		

NOTES:

1. USACE Jacksonville is the custodian for these original files.

2. Soils are field visually classified in accordance with the Unified Soils Classification System.

3. Laboratory Testing Results

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
1	0.5/0.8	SP*
2	4.0/4.3	SP*
3	9.0/9.3	SP*
4	15.0/15.3	SP*

*Lab visual classification based on gradation curve. No Atterberg limits.

Abbreviations:
NR = Not Recorded.

Boring Designation VB-LK14-06

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal Sarasota County SPP, FL
2. BORING DESIGNATION	VB-LK14-06
LOCATION COORDINATES	X = 470,344 Y = 1,075,238
3. DRILLING AGENCY	Corps of Engineers - CESAJ
CONTRACTOR FILE NO.	6738-14-5346
4. NAME OF DRILLER	Lester Gaughf
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	20.0 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLW (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 5 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	N/A
15. DATE BORING	STARTED 05-11-14 / COMPLETED 05-11-14
16. ELEVATION TOP OF BORING	-7.5 Ft.
17. TOTAL RECOVERY FOR BORING	81 %
18. SIGNATURE AND TITLE OF INSPECTOR	Stephanie Setser, P.E., Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-7.5	0.0						-7.5		
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell, weak reaction with HCl, moist, 5Y 8/1 white (SP-SM) At El. -8.3 Ft., few sand to gravel-sized shell At El. -9.3 Ft., discontinue shell At El. -12.5 Ft., few medium to coarse-grained sand-sized shell At El. -13.2 Ft., trace shell	3220	1		-8.0 Vibracore		
-13.5	6.0						-13.5		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, little medium to coarse-grained sand-sized shell, strong reaction with HCl, moist, 5Y 8/1 white (SP) At El. -16.6 Ft., some sand to gravel-sized shell		2				
-17.5	10.0								
			SAND, poorly-graded, mostly sand to gravel-sized shell, some fine-grained sand-sized quartz (SP)				-19.0		
					3		-19.8		
			At El. -19.8 Ft., trace silt, 5Y 5/1 gray		4		-20.6		
-20.4	12.9								
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, little sand to gravel-sized shell, weak reaction with HCl, 5Y 8/1 white (SP)		5				

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(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION		SHEET 2 OF 2 SHEETS
	Jacksonville District		
PROJECT	COORDINATE SYSTEM/DATUM	HORIZONTAL	VERTICAL
Lido Key, Big Sarasota Pass Ebb Shoal	State Plane, FLW (U.S. Ft.)	NAD83	MLLW
LOCATION COORDINATES	ELEVATION TOP OF BORING		
X = 470,344 Y = 1,075,238	-7.5 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-23.6	16.1		At El. -22.5 Ft., some sand to gravel-sized shell, strong reaction with HCl, 5Y 7/1 light gray						
-27.5	20.0	NO RECOVERY					-27.5		

NOTES:

1. USACE Jacksonville is the custodian for these original files.

2. Soils are field visually classified in accordance with the Unified Soils Classification System.

3. Laboratory Testing Results

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
1	0.5/0.8	SP-SM*
2	6.0/6.3	SP*
3	11.5/11.8	SP*
4	12.3/12.6	SP*
5	13.1/13.4	SP*

*Lab visual classification based on gradation curve. No Atterberg limits.

Abbreviations:
NR = Not Recorded.

Boring Designation VB-LK14-07

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal Sarasota County SPP, FL
2. BORING DESIGNATION	VB-LK14-07
LOCATION COORDINATES	X = 470,215 Y = 1,077,741
3. DRILLING AGENCY	Corps of Engineers - CESAJ
CONTRACTOR FILE NO.	6738-14-5346
4. NAME OF DRILLER	Lester Gaughf
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	14.4 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLW (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 4 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	N/A
15. DATE BORING	STARTED 05-11-14 / COMPLETED 05-11-14
16. ELEVATION TOP OF BORING	-12.0 Ft.
17. TOTAL RECOVERY FOR BORING	79 %
18. SIGNATURE AND TITLE OF INSPECTOR	Stephanie Setser, P.E., Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-12.0	0.0						-12.0		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, few medium-grained sand-sized shell, trace silt, weak reaction with HCl, moist, 5Y 8/1 white (SP)	2280			-12.5 Vibracore		
					1				
			At El. -13.4 Ft., trace shell						
							-16.0		
			At El. -16.0 Ft., little sand to gravel-sized shell, strong reaction with HCl		2				
			At El. -16.3 Ft., trace shell, weak reaction with HCl						
							-18.0		
-18.7	6.7				3				
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, some sand to gravel-sized shell, few silt, strong reaction with HCl, moist, 5Y 5/1 gray (SP-SM)						
-20.7	8.7								
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fine-grained sand-sized shell, trace silt, weak reaction with HCl, moist, 5Y 7/1 light gray (SP)				-21.5		
					4				
-23.4	11.4		At El. -23.1 Ft., few sand to gravel-sized shell, strong reaction with HCl						
-24.1	12.1								
		NO RECOVERY	SAND, silty, mostly fine-grained sand-sized quartz, little silt, few medium to coarse-grained sand-sized shell, few sand to cobble-sized limestone, strong reaction with HCl, moist, 5Y 7/1 light gray (SM)						
-26.4	14.4						-26.4		
			NOTES:				Abbreviations:		

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SAJ FORM 1836 (Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District		SHEET 2 OF 2 SHEETS
PROJECT Lido Key, Big Sarasota Pass Ebb Shoal	COORDINATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL MLLW
LOCATION COORDINATES X = 470,215 Y = 1,077,741	ELEVATION TOP OF BORING -12.0 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
			1. USACE Jacksonville is the custodian for these original files. 2. Soils are field visually classified in accordance with the Unified Soils Classification System. 3. Laboratory Testing Results SAMPLE ID / SAMPLE DEPTH / LABORATORY CLASSIFICATION 1 / 0.5/0.8 / SP* 2 / 4.0/4.3 / SP* 3 / 6.0/6.3 / SP* 4 / 9.5/9.8 / SP* *Lab visual classification based on gradation curve. No Atterberg limits.				NR = Not Recorded.		

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Boring Designation VB-LK14-08

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal Sarasota County SPP, FL
2. BORING DESIGNATION	VB-LK14-08
LOCATION COORDINATES	X = 471,150 Y = 1,074,258
3. DRILLING AGENCY	Corps of Engineers - CESAJ
CONTRACTOR FILE NO.	6738-14-5346
4. NAME OF DRILLER	Lester Gaughf
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	13.0 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLW (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 3 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	N/A
15. DATE BORING	STARTED 05-11-14 / COMPLETED 05-11-14
16. ELEVATION TOP OF BORING	-2.0 Ft.
17. TOTAL RECOVERY FOR BORING	88 %
18. SIGNATURE AND TITLE OF INSPECTOR	Stephanie Setser, P.E., Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-2.0	0.0						-2.0		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, weak reaction with HCl, moist, 5Y 8/1 white (SP)	2300	1		-2.5 Vibracore		
-7.2	5.2		SAND, poorly-graded, mostly fine to coarse-grained sand-sized shell, some fine-grained sand-sized quartz, trace silt, strong reaction with HCl (SP)		2		-8.0		
-11.2	9.2		SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fine to coarse-grained sand-sized shell (SP) At El. -12.2 Ft., some medium to coarse-grained sand-sized shell				-13.0		
-13.5	11.5				3				
-15.0	13.0	NR					-15.0		

NOTES:

1. USACE Jacksonville is the custodian for these original files.

Abbreviations:
NR = Not Recorded.

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(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District		SHEET 2 OF 2 SHEETS
PROJECT Lido Key, Big Sarasota Pass Ebb Shoal	COORDINATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL MLLW
LOCATION COORDINATES X = 471,150 Y = 1,074,258	ELEVATION TOP OF BORING -2.0 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
			2. Soils are field visually classified in accordance with the Unified Soils Classification System.						
			3. Vibracore refused due to presence of shell.						
			4. Laboratory Testing Results						

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
1	0.5/0.8	SP*
2	6.0/6.3	SP*
3	11.0/11.3	SP*

*Lab visual classification based on gradation curve. No Atterberg limits.

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Boring Designation VB-LK14-10

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal Sarasota County SPP, FL
2. BORING DESIGNATION	VB-LK14-10
LOCATION COORDINATES	X = 472,849 Y = 1,077,410
3. DRILLING AGENCY	Corps of Engineers - CESAJ
CONTRACTOR FILE NO.	6738-14-5346
4. NAME OF DRILLER	Jared Johnson
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	18.5 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLW (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 4 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	N/A
15. DATE BORING	STARTED 05-11-14 / COMPLETED 05-11-14
16. ELEVATION TOP OF BORING	-5.9 Ft.
17. TOTAL RECOVERY FOR BORING	68 %
18. SIGNATURE AND TITLE OF INSPECTOR	Stephanie Setser, P.E., Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-5.9	0.0						-5.9		
			SAND, poorly-graded, mostly sand to gravel-sized shell, some fine-grained sand-sized quartz, strong reaction with HCl, moist, 5Y 8/1 white (SP)	2500			-6.4 Vibracore		
					1				
-8.2	2.3								
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, little medium-grained sand-sized shell (SP)						
			At El. -9.6 Ft., few medium-grained sand-sized shell, trace silt, weak reaction with HCl				-9.9		
					2				
			At El. -13.7 Ft., little fine to medium-grained sand-sized shell, 5Y 7/1 light gray				-14.4		
					3				
			At El. -14.9 Ft., few fine-grained sand-sized shell				-17.9		
-18.4	12.5				4				
		NO RECOVERY							

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(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District		SHEET 2 OF 2 SHEETS
PROJECT Lido Key, Big Sarasota Pass Ebb Shoal	COORDINATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL MLLW
LOCATION COORDINATES X = 472,849 Y = 1,077,410	ELEVATION TOP OF BORING -5.9 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-24.4	18.5	NO RECOVERY					-24.4		
			NOTES: 1. USACE Jacksonville is the custodian for these original files. 2. Soils are field visually classified in accordance with the Unified Soils Classification System. 3. Laboratory Testing Results SAMPLE ID / SAMPLE DEPTH / LABORATORY CLASSIFICATION 1 / 0.5/0.8 / SP* 2 / 4.0/4.3 / SP* 3 / 8.5/8.8 / SP* 4 / 12.0/12.3 / SP* *Lab visual classification based on gradation curve. No Atterberg limits.				Abbreviations: NR = Not Recorded.		

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SAJ FORM 1836-A
JUN 02

Boring Designation VB-LK14-11

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal Sarasota County SPP, FL
2. BORING DESIGNATION	VB-LK14-11
LOCATION COORDINATES	X = 473,213 Y = 1,078,521
3. DRILLING AGENCY	Corps of Engineers - CESAJ
CONTRACTOR FILE NO.	6738-14-5346
4. NAME OF DRILLER	Jared Johnson
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	18.8 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLW (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 4 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	N/A
15. DATE BORING	STARTED 05-11-14 / COMPLETED 05-11-14
16. ELEVATION TOP OF BORING	-10.5 Ft.
17. TOTAL RECOVERY FOR BORING	90 %
18. SIGNATURE AND TITLE OF INSPECTOR	Stephanie Setser, P.E., Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-10.5	0.0						-10.5		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, trace silt, weak reaction with HCl, moist, 5Y 8/1 white (SP)	3400			-11.0 Vibracore		
					1				
							-14.5		
			At El. -14.5 Ft., few fine-grained sand-sized shell		2				
							-18.5		
			At El. -18.5 Ft., some medium to coarse-grained sand-sized shell, strong reaction with HCl, 5Y 7/1 light gray		3				
			At El. -20.0 Ft., few fine-grained sand-sized shell				-21.3		
-21.8	11.3				4				
			SILT, inorganic-L, few fine-grained sand-sized quartz, few medium to coarse-grained sand-sized shell, few fine to coarse-grained sand-sized limestone, strong reaction with HCl, moist, dissolutioned limestone, 5Y 8/1 white (ML)						

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(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District	SHEET 2 OF 2 SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONTAL	VERTICAL
Lido Key, Big Sarasota Pass Ebb Shoal	State Plane, FLW (U.S. Ft.)	NAD83	MLLW

LOCATION COORDINATES	ELEVATION TOP OF BORING
X = 473,213 Y = 1,078,521	-10.5 Ft.

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-27.5	17.0								
-29.3	18.8	NR					-29.3		

NOTES:

1. USACE Jacksonville is the custodian for these original files.

2. Soils are field visually classified in accordance with the Unified Soils Classification System.

3. Laboratory Testing Results

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
1	0.5/0.8	SP*
2	4.0/4.3	SP*
3	8.0/8.3	SP*
4	10.8/11.1	SP*

*Lab visual classification based on gradation curve. No Atterberg limits.

Abbreviations:
NR = Not Recorded.

Boring Designation VB-LK14-12

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal Sarasota County SPP, FL
2. BORING DESIGNATION	VB-LK14-12
LOCATION COORDINATES	X = 473,453 Y = 1,079,482
3. DRILLING AGENCY	Corps of Engineers - CESAJ
CONTRACTOR FILE NO.	6738-14-5346
4. NAME OF DRILLER	Jared Johnson
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	11.6 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLW (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 2 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	N/A
15. DATE BORING	STARTED 05-11-14 / COMPLETED 05-11-14
16. ELEVATION TOP OF BORING	-10.2 Ft.
17. TOTAL RECOVERY FOR BORING	61 %
18. SIGNATURE AND TITLE OF INSPECTOR	Stephanie Setser, P.E., Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-10.2	0.0						-10.2		
			SAND, well-graded, mostly sand to gravel-sized shell, little fine-grained sand-sized quartz, trace silt, strong reaction with HCl, moist, 5Y 8/1 white (SW)	1420	1		-10.7 Vibracore		
-12.8	2.6								
			SAND, poorly-graded, mostly sand to gravel-sized shell, little fine-grained sand-sized quartz, strong reaction with HCl, moist, 5Y 8/1 white (SP)				-15.7		
-16.5	6.3				2				
-17.3	7.1		SAND, poorly-graded, mostly fine-grained sand-sized quartz, few medium to coarse-grained sand-sized shell, trace silt (SP)						
		NO RECOVERY							
-21.8	11.6						-21.8		

NOTES:

1. USACE Jacksonville is the custodian for these original files.

2. Soils are field visually classified in accordance with the Unified Soils Classification System.

3. Vibracore refused due to presence of shell.

Abbreviations:
NR = Not Recorded.

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District		SHEET 2 OF 2 SHEETS
PROJECT Lido Key, Big Sarasota Pass Ebb Shoal	COORDINATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL MLLW
LOCATION COORDINATES X = 473,453 Y = 1,079,482	ELEVATION TOP OF BORING -10.2 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
			4. Laboratory Testing Results						

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
1	0.5/0.8	SW*
2	5.5/5.8	SP*

*Lab visual classification based on gradation curve. No Atterberg limits.

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Boring Designation VB-LK14-13

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 1 SHEETS

1. PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal Sarasota County SPP, FL
2. BORING DESIGNATION	VB-LK14-13
LOCATION COORDINATES	X = 473,803 Y = 1,080,425
3. DRILLING AGENCY	Corps of Engineers - CESAJ
CONTRACTOR FILE NO.	6738-14-5346
4. NAME OF DRILLER	Jared Johnson
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	8.0 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLW (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 2 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	N/A
15. DATE BORING	STARTED 05-11-14 / COMPLETED 05-11-14
16. ELEVATION TOP OF BORING	-12.8 Ft.
17. TOTAL RECOVERY FOR BORING	74 %
18. SIGNATURE AND TITLE OF INSPECTOR	Stephanie Setser, P.E., Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-12.8	0.0						-12.8		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to coarse-grained sand-sized shell, trace silt, strong reaction with HCl, moist, 5Y 8/1 white (SP)	1180			-13.3 Vibracore		
					1				
			At El. -14.7 Ft., few fine-grained sand-sized shell, weak reaction with HCl				-17.5		
					2				
-18.5	5.7								
-18.7	5.9		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell, trace limestone, weak reaction with HCl, moist, 5Y 6/1 gray (SP-SM)						
		NR							
-20.8	8.0						-20.8		

NOTES:

1. USACE Jacksonville is the custodian for these original files.

2. Soils are field visually classified in accordance with the Unified Soils Classification System.

3. Vibracore refused due to presence of limestone.

4. Laboratory Testing Results

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
1	0.5/0.8	SP*
2	4.7/5.0	SP*

*Lab visual classification based on gradation curve. No Atterberg limits.

Abbreviations:
NR = Not Recorded.

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Boring Designation VB-LK14-14

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 1 SHEETS

1. PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal Sarasota County SPP, FL
2. BORING DESIGNATION	VB-LK14-14
LOCATION COORDINATES	X = 474,529 Y = 1,081,094
3. DRILLING AGENCY	Corps of Engineers - CESAJ
CONTRACTOR FILE NO.	6738-14-5346
4. NAME OF DRILLER	Jared Johnson
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	4.2 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLW (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 0 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	N/A
15. DATE BORING	STARTED 05-11-14 / COMPLETED 05-11-14
16. ELEVATION TOP OF BORING	-16.8 Ft.
17. TOTAL RECOVERY FOR BORING	64 %
18. SIGNATURE AND TITLE OF INSPECTOR	Stephanie Setser, P.E., Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-16.8	0.0						-16.8		
-17.3	0.5		SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, weak reaction with HCl, moist, 5Y 8/1 white (SP)						
-19.5	2.7		SAND, silty, mostly fine-grained sand-sized quartz, little silt, few sand to gravel-sized shell, strong reaction with HCl, moist, 5Y 5/1 gray (SM) At El. -18.0 Ft., few fine to coarse-grained sand-sized limestone, trace shell, possible dissolutioned limestone, 5Y 7/1 light gray	64			Vibracore		
-21.0	4.2	NR					-21.0		

NOTES:

1. USACE Jacksonville is the custodian for these original files.

2. Soils are field visually classified in accordance with the Unified Soils Classification System.

3. Vibracore refused due to presence of limestone.

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Boring Designation VB-LK14-15

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal Sarasota County SPP, FL
2. BORING DESIGNATION	VB-LK14-15
LOCATION COORDINATES	X = 470,486 Y = 1,070,749
3. DRILLING AGENCY	Corps of Engineers - CESAJ
CONTRACTOR FILE NO.	6738-14-5346
4. NAME OF DRILLER	Lester Gaughf
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	16.2 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLW (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 3 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	N/A
15. DATE BORING	STARTED 05-11-14 / COMPLETED 05-11-14
16. ELEVATION TOP OF BORING	-12.7 Ft.
17. TOTAL RECOVERY FOR BORING	83 %
18. SIGNATURE AND TITLE OF INSPECTOR	Stephanie Setser, P.E., Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-12.7	0.0						-12.7		
			SAND, poorly-graded, mostly sand to gravel-sized shell, few fine-grained sand-sized quartz, trace silt, strong reaction with HCl, moist, 5Y 8/1 white (SP)	2680			-13.2 Vibracore		
					1				
-16.2	3.5								
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, few fine-grained sand-sized shell, weak reaction with HCl, moist, 5Y 8/1 white (SP-SM) At El. -17.8 Ft., 5Y 6/1 gray				-18.7		
					2				
-20.2	7.5								
			SAND, silty, mostly fine-grained sand-sized quartz, little silt, few sand to gravel-sized shell, weak reaction with HCl, moist, 5Y 6/1 gray (SM) At El. -20.6 Ft., some sand to gravel-sized shell At El. -21.1 Ft., few sand to gravel-sized shell At El. -23.7 Ft., occasional gravel to cobble-sized cemented silty fine sand nodules				-20.7		
					3				
-26.1	13.4								
		NO RECOVERY							

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(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District		SHEET 2 OF 2 SHEETS
PROJECT Lido Key, Big Sarasota Pass Ebb Shoal	COORDINATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL MLLW
LOCATION COORDINATES X = 470,486 Y = 1,070,749	ELEVATION TOP OF BORING -12.7 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-28.9	16.2	NO RECOVERY					-28.9		

NOTES:

1. USACE Jacksonville is the custodian for these original files.

2. Soils are field visually classified in accordance with the Unified Soils Classification System.

3. Vibracore refused due to presence of cemened silty fine sand nodules.

4. Laboratory Testing Results

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
1	0.5/0.8	SP*
2	6.0/6.3	SP-SM*
3	8.0/8.3	SM*

*Lab visual classification based on gradation curve. No Atterberg limits.

Abbreviations:
NR = Not Recorded.

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Boring Designation VB-LK14-16

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal Sarasota County SPP, FL
2. BORING DESIGNATION	VB-LK14-16
LOCATION COORDINATES	X = 469,804 Y = 1,070,040
3. DRILLING AGENCY	Corps of Engineers - CESAJ
CONTRACTOR FILE NO.	6738-14-5346
4. NAME OF DRILLER	Lester Gaughf
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	17.9 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLW (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 4 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	N/A
15. DATE BORING	STARTED 05-11-14 / COMPLETED 05-11-14
16. ELEVATION TOP OF BORING	-7.9 Ft.
17. TOTAL RECOVERY FOR BORING	80 %
18. SIGNATURE AND TITLE OF INSPECTOR	Stephanie Setser, P.E., Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-7.9	0.0						-7.9		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, some fine to coarse-grained sand-sized shell, trace silt, strong reaction with HCl, moist, 5Y 8/1 white (SP)	2860			-8.4 Vibracore		
					1				
			At El. -13.4 Ft., trace shell, discontinue silt, weak reaction with HCl				-13.9		
					2				
-18.9	11.0						-18.9		
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, few medium-grained sand-sized shell, weak reaction with HCl, moist, 5Y 8/1 white (SP-SM)		3		-19.9		
			At El. -19.9 Ft., few fine-grained sand-sized shell, 5Y 6/1 gray		4				
-21.4	13.5								
-22.2	14.3		SAND, silty, mostly fine-grained sand-sized quartz, little silt, trace shell, weak reaction with HCl, moist, 5Y 6/1 gray (SM)						

NO RECOVERY

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District		SHEET 2 OF 2 SHEETS
PROJECT Lido Key, Big Sarasota Pass Ebb Shoal	COORDINATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL MLLW
LOCATION COORDINATES X = 469,804 Y = 1,070,040	ELEVATION TOP OF BORING -7.9 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-25.8	17.9	NO RECOVERY					-25.8		
			NOTES: 1. USACE Jacksonville is the custodian for these original files. 2. Soils are field visually classified in accordance with the Unified Soils Classification System. 3. Vibracore refused due to presence of limestone. 4. Laboratory Testing Results SAMPLE ID / SAMPLE DEPTH / LABORATORY CLASSIFICATION 1 / 0.5/0.8 / SP* 2 / 6.0/6.3 / SP* 3 / 11.0/11.3 / SP-SM* 4 / 12.0/12.3 / SP-SM* *Lab visual classification based on gradation curve. No Atterberg limits.				Abbreviations: NR = Not Recorded.		

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Boring Designation VB-LK14-17

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal Sarasota County SPP, FL
2. BORING DESIGNATION	VB-LK14-17
LOCATION COORDINATES	X = 469,806 Y = 1,067,947
3. DRILLING AGENCY	Corps of Engineers - CESAJ
CONTRACTOR FILE NO.	6738-14-5346
4. NAME OF DRILLER	Lester Gaughf
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	18.4 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLW (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 4 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	N/A
15. DATE BORING	STARTED 05-11-14 / COMPLETED 05-11-14
16. ELEVATION TOP OF BORING	-7.1 Ft.
17. TOTAL RECOVERY FOR BORING	77 %
18. SIGNATURE AND TITLE OF INSPECTOR	Stephanie Setser, P.E., Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-7.1	0.0						-7.1		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fine-grained sand-sized shell, trace silt, weak reaction with HCl, moist, 5Y 8/1 white (SP) At El. -7.6 Ft., trace shell	2820	1		-7.6 Vibracore		
							-13.1		
					2				
			At El. -18.4 Ft., 5Y 6/1 gray						
			At El. -19.6 Ft., trace shell		3		-19.6		
-20.1	13.0		SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell, weak reaction with HCl, moist, 5Y 6/1 gray (SP-SM)				-20.6		
-21.2	14.1	NO RECOVERY			4				

0 5 10 15

(Continued)

SAJ FORM 1836
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DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District		SHEET 2 OF 2 SHEETS
PROJECT Lido Key, Big Sarasota Pass Ebb Shoal	COORDINATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL MLLW
LOCATION COORDINATES X = 469,806 Y = 1,067,947	ELEVATION TOP OF BORING -7.1 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-25.5	18.4	NO RECOVERY					-25.5		
			NOTES: 1. USACE Jacksonville is the custodian for these original files. 2. Soils are field visually classified in accordance with the Unified Soils Classification System. 3. Laboratory Testing Results SAMPLE ID / SAMPLE DEPTH / LABORATORY CLASSIFICATION 1 / 0.5/0.8 / SP* 2 / 6.0/6.3 / SP* 3 / 12.5/12.8 / SP* 4 / 13.5/13.8 / SP-SM* *Lab visual classification based on gradation curve. No Atterberg limits.				Abbreviations: NR = Not Recorded.		

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Boring Designation VB-LK14-18

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal Sarasota County SPP, FL
2. BORING DESIGNATION	VB-LK14-18
LOCATION COORDINATES	X = 469,899 Y = 1,068,946
3. DRILLING AGENCY	Corps of Engineers - CESAJ
CONTRACTOR FILE NO.	6738-14-5346
4. NAME OF DRILLER	Lester Gaughf
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	17.0 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLW (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 4 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	N/A
15. DATE BORING	STARTED 05-11-14 / COMPLETED 05-11-14
16. ELEVATION TOP OF BORING	-4.4 Ft.
17. TOTAL RECOVERY FOR BORING	79 %
18. SIGNATURE AND TITLE OF INSPECTOR	Stephanie Setser, P.E., Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-4.4	0.0						-4.4		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, some fine to medium-grained sand-sized shell, trace silt, strong reaction with HCl, moist, 5Y 8/1 white (SP)	2680			-4.9 Vibracore		
					1				
			At El. -6.1 Ft., trace shell, weak reaction with HCl						
							-8.4		
			At El. -8.4 Ft., little fine to medium-grained sand-sized shell, strong reaction with HCl		2				
			At El. -10.3 Ft., trace shell, weak reaction with HCl				-12.4		
					3				
			At El. -15.9 Ft., 5Y 7/1 light gray				-17.4		
-17.8	13.4				4				
		NO RECOVERY							

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(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District		SHEET 2 OF 2 SHEETS
PROJECT Lido Key, Big Sarasota Pass Ebb Shoal	COORDINATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL MLLW
LOCATION COORDINATES X = 469,899 Y = 1,068,946	ELEVATION TOP OF BORING -4.4 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-21.4	17.0	NO RECOVERY					-21.4		

NOTES:

1. USACE Jacksonville is the custodian for these original files.

2. Soils are field visually classified in accordance with the Unified Soils Classification System.

3. Laboratory Testing Results

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
1	0.5/0.8	SP*
2	4.0/4.3	SP*
3	8.0/8.3	SP*
4	13.0/13.3	SP*

*Lab visual classification based on gradation curve. No Atterberg limits.

Abbreviations:
NR = Not Recorded.

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Boring Designation VB-LK14-19

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal Sarasota County SPP, FL
2. BORING DESIGNATION	VB-LK14-19
LOCATION COORDINATES	X = 470,135 Y = 1,066,052
3. DRILLING AGENCY	Corps of Engineers - CESAJ
CONTRACTOR FILE NO.	6738-14-5346
4. NAME OF DRILLER	Lester Gaughf
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	14.5 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLW (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 4 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	N/A
15. DATE BORING	STARTED 05-11-14 / COMPLETED 05-11-14
16. ELEVATION TOP OF BORING	-17.6 Ft.
17. TOTAL RECOVERY FOR BORING	96 %
18. SIGNATURE AND TITLE OF INSPECTOR	Stephanie Setser, P.E., Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-17.6	0.0						-17.6		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, few medium-grained sand-sized shell, trace silt, weak reaction with HCl, moist, 5Y 6/1 gray (SP) At El. -18.4 Ft., trace shell	2780	1		-18.1 Vibracore		
							-21.6		
					2		-22.1		
					3				
			At El. -23.4 Ft., few fine-grained sand-sized shell						
-25.6	8.0						-25.7		
			SAND, silty, mostly fine to medium-grained sand-sized quartz, some sand to gravel-sized shell, little silt, strong reaction with HCl, moist, 5Y 5/1 gray (SM) At El. -27.1 Ft., little sand to cobble-sized shell		4				
-28.8	11.2								
			SILT, inorganic-L, some fine-grained sand-sized quartz, little medium to coarse-grained sand-sized shell, few cobble-sized limestone, strong reaction with HCl, moist, dissolutioned limestone, 5Y 6/1 gray (ML) At El. -30.4 Ft., discontinue shell, discontinue limestone, no reaction with HCl						
-31.5	13.9								
-32.1	14.5	NR					-32.1		
							Abbreviations:		

0 5 10 15

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District		SHEET 2 OF 2 SHEETS
PROJECT Lido Key, Big Sarasota Pass Ebb Shoal	COORDINATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL MLLW
LOCATION COORDINATES X = 470,135 Y = 1,066,052	ELEVATION TOP OF BORING -17.6 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
			NOTES: 1. USACE Jacksonville is the custodian for these original files. 2. Soils are field visually classified in accordance with the Unified Soils Classification System. 3. Vibracore refused due to presence of limestone. 4. Laboratory Testing Results				NR = Not Recorded.		

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
1	0.5/0.8	SP*
2	4.0/4.3	SP*
3	4.5/4.8	SP*
4	8.1/8.4	SM*

*Lab visual classification based on gradation curve. No Atterberg limits.

15 20 25 30 35

DRILLING LOG

DIVISION	South Atlantic
INSTALLATION	Jacksonville District
SHEET	1 OF 2 SHEETS
1. PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal Sarasota County SPP, FL
2. BORING DESIGNATION	VB-LK14-20
LOCATION COORDINATES	X = 470,296 Y = 1,065,121
3. DRILLING AGENCY	Corps of Engineers - CESAJ
CONTRACTOR FILE NO.	6738-14-5346
4. NAME OF DRILLER	Lester Gaughf
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	20.0 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLW (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 1 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	N/A
15. DATE BORING	STARTED 05-10-14 / COMPLETED 05-10-14
16. ELEVATION TOP OF BORING	-25.0 Ft.
17. TOTAL RECOVERY FOR BORING	98 %
18. SIGNATURE AND TITLE OF INSPECTOR	Stephanie Setser, P.E., Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-25.0	0.0						-25.0		
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, few medium-grained sand-sized shell, weak reaction with HCl, moist, 5Y 6/1 gray (SP-SM)	3900	1		-25.5 Vibracore		
			At El. -28.5 Ft., little sand to gravel-sized shell, strong reaction with HCl, 5Y 8/1 white						
			At El. -30.0 Ft., trace shell, weak reaction with HCl						
			At El. -32.7 Ft., 2" diameter limestone fragment						
-33.5	8.5		SILT, inorganic-L, few sand to gravel-sized limestone, trace quartz, no reaction with HCl, moist, dissolutioned limestone, 5Y 7/4 pale yellow (ML)						
			At El. -36.5 Ft., trace limestone, 5Y 7/6 yellow						
			At El. -37.5 Ft., 5Y 5/6 olive						
			At El. -38.5 Ft., 5Y 4/3 olive						

0 5 10 15

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District	SHEET 2 OF 2 SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONTAL	VERTICAL
Lido Key, Big Sarasota Pass Ebb Shoal	State Plane, FLW (U.S. Ft.)	NAD83	MLLW

LOCATION COORDINATES	ELEVATION TOP OF BORING
X = 470,296 Y = 1,065,121	-25.0 Ft.

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
			At El. -42.5 Ft., trace shell, 5Y 6/4 pale olive						
			At El. -43.5 Ft., 5Y 6/3 pale olive						
-44.5	19.5								
-45.0	20.0	NR					-45.0		

NOTES:

1. USACE Jacksonville is the custodian for these original files.

2. Soils are field visually classified in accordance with the Unified Soils Classification System.

3. Laboratory Testing Results

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
1	0.5/0.8	SP-SM*

*Lab visual classification based on gradation curve. No Atterberg limits.

Abbreviations:
NR = Not Recorded.

15 20 25 30 35

Boring Designation VB-LK14-29

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal Sarasota County SPP, FL
2. BORING DESIGNATION	VB-LK14-29
LOCATION COORDINATES	X = 469,919 Y = 1,076,185
3. DRILLING AGENCY	Corps of Engineers - CESAJ
CONTRACTOR FILE NO.	6738-14-5346
4. NAME OF DRILLER	Lester Gaughf
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	20.0 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLW (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 4 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	N/A
15. DATE BORING	STARTED 05-10-14 / COMPLETED 05-10-14
16. ELEVATION TOP OF BORING	-11.0 Ft.
17. TOTAL RECOVERY FOR BORING	84 %
18. SIGNATURE AND TITLE OF INSPECTOR	Stephanie Setser, P.E., Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-11.0	0.0						-11.0		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fine to medium-grained sand-sized shell, trace silt, weak reaction with HCl, moist, 5Y 8/1 white (SP)	3340	1		-11.5 Vibracore		
			At El. -15.0 Ft., little fine to coarse-grained sand-sized shell		2		-15.0		
			At El. -18.8 Ft., little fine to medium-grained sand-sized shell, 5Y 6/1 gray At El. -19.3 Ft., few fine to medium-grained sand-sized shell At El. -19.9 Ft., little sand to gravel-sized shell, strong reaction with HCl, 5Y 8/1 white		3		-19.0		
			At El. -22.1 Ft., few gravel to cobble-sized limestone, weak reaction with HCl At El. -22.2 Ft., some sand to gravel-sized shell, some fine-grained sand-sized quartz, few medium-grained sand-sized limestone, strong reaction with HCl		4		-23.5		
-24.1	13.1		SILT, inorganic-L, few sand to gravel-sized limestone, trace quartz, trace shell, weak reaction with HCl, moist, dissolutioned limestone, 5Y 6/1 gray (ML)						

0 5 10 15

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District		SHEET 2 OF 2 SHEETS
PROJECT Lido Key, Big Sarasota Pass Ebb Shoal	COORDINATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL MLLW
LOCATION COORDINATES X = 469,919 Y = 1,076,185	ELEVATION TOP OF BORING -11.0 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-27.7	16.7								
-31.0	20.0	NO RECOVERY					-31.0		

NOTES:

1. USACE Jacksonville is the custodian for these original files.

2. Soils are field visually classified in accordance with the Unified Soils Classification System.

3. Vibracore refused due to presence of limestone.

4. Laboratory Testing Results

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
1	0.5/0.8	SP*
2	4.0/4.3	SP*
3	8.0/8.3	SP*
4	12.5/12.8	SP*

*Lab visual classification based on gradation curve. No Atterberg limits.

Abbreviations:
NR = Not Recorded.

15
20
25
30
35

Boring Designation VB-LK14-30

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal Sarasota County SPP, FL
2. BORING DESIGNATION	VB-LK14-30
LOCATION COORDINATES	X = 468,753 Y = 1,074,753
3. DRILLING AGENCY	Corps of Engineers - CESAJ
CONTRACTOR FILE NO.	6738-14-5346
4. NAME OF DRILLER	Lester Gaughf
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	20.0 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLW (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 4 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	N/A
15. DATE BORING	STARTED 05-10-14 / COMPLETED 05-10-14
16. ELEVATION TOP OF BORING	-13.9 Ft.
17. TOTAL RECOVERY FOR BORING	74 %
18. SIGNATURE AND TITLE OF INSPECTOR	Stephanie Setser, P.E., Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-13.9	0.0						-13.9		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, few medium-grained sand-sized shell, trace silt, weak reaction with HCl, moist, 5Y 8/1 white (SP) At El. -15.4 Ft., trace shell, 5Y 7/1 light gray	2940	1		-14.4 Vibracore -18.4		
-19.4	5.5				2		-19.4		
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few fine-grained sand-sized shell, few silt, weak reaction with HCl, moist, 5Y 7/1 light gray (SP-SM)		3				
-22.1	8.2						-23.1		
			SAND, poorly-graded, mostly sand to gravel-sized shell, some fine-grained sand-sized quartz, trace silt, strong reaction with HCl, moist, 5Y 7/1 light gray (SP)		4				
-23.9	10.0								
			SAND, silty, mostly fine-grained sand-sized quartz, little silt, trace shell, weak reaction with HCl, moist, 5Y 6/1 gray (SM) At El. -26.1 Ft., few sand to gravel-sized limestone, strong reaction with HCl, possible dissolutioned limestone						
-28.6	14.7								

NO RECOVERY

0 5 10 15

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION		SHEET 2 OF 2 SHEETS
	Jacksonville District		
PROJECT	COORDINATE SYSTEM/DATUM	HORIZONTAL	VERTICAL
Lido Key, Big Sarasota Pass Ebb Shoal	State Plane, FLW (U.S. Ft.)	NAD83	MLLW
LOCATION COORDINATES	ELEVATION TOP OF BORING		
X = 468,753 Y = 1,074,753	-13.9 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-33.9	20.0	NO RECOVERY					-33.9		

NOTES:

1. USACE Jacksonville is the custodian for these original files.

2. Soils are field visually classified in accordance with the Unified Soils Classification System.

3. Vibracore refused due to presence of limestone.

4. Laboratory Testing Results

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
1	0.5/0.8	SP*
2	4.5/4.8	SP*
3	5.5/5.8	SP-SM*
4	9.2/9.5	SP*

*Lab visual classification based on gradation curve. No Atterberg limits.

Abbreviations:
NR = Not Recorded.

Boring Designation VB-LK14-31

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal Sarasota County SPP, FL
2. BORING DESIGNATION	VB-LK14-31
LOCATION COORDINATES	X = 469,213 Y = 1,073,852
3. DRILLING AGENCY	Corps of Engineers - CESAJ
CONTRACTOR FILE NO.	6738-14-5346
4. NAME OF DRILLER	Lester Gaughf
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	20.0 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLW (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 3 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	N/A
15. DATE BORING	STARTED 05-10-14 / COMPLETED 05-10-14
16. ELEVATION TOP OF BORING	-11.8 Ft.
17. TOTAL RECOVERY FOR BORING	65 %
18. SIGNATURE AND TITLE OF INSPECTOR	Stephanie Setser, P.E., Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-11.8	0.0						-11.8		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, some medium to coarse-grained sand-sized shell, trace silt, strong reaction with HCl, moist, 5Y 8/1 white (SP)	2600	1		-12.3 Vibracore		
-16.3	4.5						-16.3		
-16.8	5.0		SAND, poorly-graded, mostly sand to gravel-sized shell, little fine-grained sand-sized quartz (SP)		2				
			SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, some sand to gravel-sized shell, few silt, strong reaction with HCl, moist, 5Y 6/1 gray (SP-SM) At El. -17.5 Ft., trace shell, weak reaction with HCl				-17.8		
					3				
-21.0	9.2								
			SAND, silty, mostly fine-grained sand-sized quartz, some silt, few medium to coarse-grained sand-sized shell, weak reaction with HCl, moist, 5Y 6/1 gray (SM) At El. -21.9 Ft., little silt, 5Y 8/1 white						
-24.1	12.3		At El. -23.3 Ft., little medium to coarse-grained sand-sized shell, strong reaction with HCl, moist, 5Y 7/1 light gray						
-24.8	13.0		SILT, inorganic-L, few medium to coarse-grained sand-sized shell, trace quartz, weak reaction with HCl, moist, 5Y 6/1 gray (ML)						
		NO RECOVERY							

0 5 10 15

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District		SHEET 2 OF 2 SHEETS
PROJECT Lido Key, Big Sarasota Pass Ebb Shoal	COORDINATE SYSTEM/DATUM State Plane, FLW (U.S. Ft.)	HORIZONTAL NAD83	VERTICAL MLLW
LOCATION COORDINATES X = 469,213 Y = 1,073,852	ELEVATION TOP OF BORING -11.8 Ft.		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-31.8	20.0	NO RECOVERY					-31.8		

NOTES:

1. USACE Jacksonville is the custodian for these original files.

2. Soils are field visually classified in accordance with the Unified Soils Classification System.

3. Laboratory Testing Results

SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
1	0.5/0.8	SP*
2	4.5/4.8	SP*
3	6.0/6.3	SP-SM*

*Lab visual classification based on gradation curve. No Atterberg limits.

Abbreviations:
NR = Not Recorded.

15
20
25
30
35

Boring Designation VB-LK14-32

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Jacksonville District	SHEET 1 OF 2 SHEETS

1. PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal Sarasota County SPP, FL
2. BORING DESIGNATION	VB-LK14-32
LOCATION COORDINATES	X = 470,100 Y = 1,073,506
3. DRILLING AGENCY	Corps of Engineers - CESAJ
CONTRACTOR FILE NO.	6738-14-5346
4. NAME OF DRILLER	Lester Gaughf
5. DIRECTION OF BORING	☒ VERTICAL ☐ INCLINED
DEG. FROM VERTICAL	
BEARING	
6. THICKNESS OF OVERBURDEN	N/A
7. DEPTH DRILLED INTO ROCK	N/A
8. TOTAL DEPTH OF BORING	20.0 Ft.
9. SIZE AND TYPE OF BIT	See Remarks
10. COORDINATE SYSTEM/DATUM	State Plane, FLW (U.S. Ft.)
HORIZONTAL	NAD83
VERTICAL	MLLW
11. MANUFACTURER'S DESIGNATION OF DRILL	vibracore
☐ AUTO HAMMER ☐ MANUAL HAMMER	
12. TOTAL SAMPLES	DISTURBED 4 / UNDISTURBED (UD) 0
13. TOTAL NUMBER CORE BOXES	0
14. ELEVATION GROUND WATER	N/A
15. DATE BORING	STARTED 05-10-14 / COMPLETED 05-10-14
16. ELEVATION TOP OF BORING	-9.5 Ft.
17. TOTAL RECOVERY FOR BORING	84 %
18. SIGNATURE AND TITLE OF INSPECTOR	Stephanie Setser, P.E., Geotechnical Engineer

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-9.5	0.0						-9.5		
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, some fine to coarse-grained sand-sized shell, trace silt, strong reaction with HCl, moist, 5Y 8/1 white (SP)	3360			-10.0 Vibracore		
					1				
			At El. -12.5 Ft., few medium to coarse-grained sand-sized shell						
			At El. -14.0 Ft., trace shell, weak reaction with HCl						
							-15.5		
			At El. -15.5 Ft., little medium to coarse-grained sand-sized shell		2				
			At El. -16.0 Ft., trace shell						
			At El. -19.6 Ft., little medium to coarse-grained sand-sized shell						
-20.6	11.1								
			SAND, well-graded, mostly sand to gravel-sized shell, little fine-grained sand-sized quartz, trace silt, strong reaction with HCl, 5Y 8/1 white (SW)				-21.5		
					3				
-22.5	13.0								
			SAND, poorly-graded, mostly fine-grained sand-sized quartz, little sand to gravel-sized shell, trace silt, strong reaction with HCl, moist, 5Y 8/1 white (SP)				-23.0		
					4				
			At El. -23.0 Ft., trace shell, 5Y 6/1 gray						
-24.3	14.8								

0 5 10 15

(Continued)

DRILLING LOG (Cont. Sheet)	INSTALLATION Jacksonville District	SHEET 2 OF 2 SHEETS

PROJECT	COORDINATE SYSTEM/DATUM	HORIZONTAL	VERTICAL
Lido Key, Big Sarasota Pass Ebb Shoal	State Plane, FLW (U.S. Ft.)	NAD83	MLLW

LOCATION COORDINATES	ELEVATION TOP OF BORING
X = 470,100 Y = 1,073,506	-9.5 Ft.

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 1 FT.	N-VALUE
-26.3	16.8		SAND, silty, mostly fine-grained sand-sized quartz, some silt, little sand to gravel-sized shell, strong reaction with HCl, moist, 5Y 6/1 gray (SM)						
-29.5	20.0	NO RECOVERY					-29.5		

NOTES:

1. USACE Jacksonville is the custodian for these original files.

2. Soils are field visually classified in accordance with the Unified Soils Classification System.

3. Laboratory Testing Results

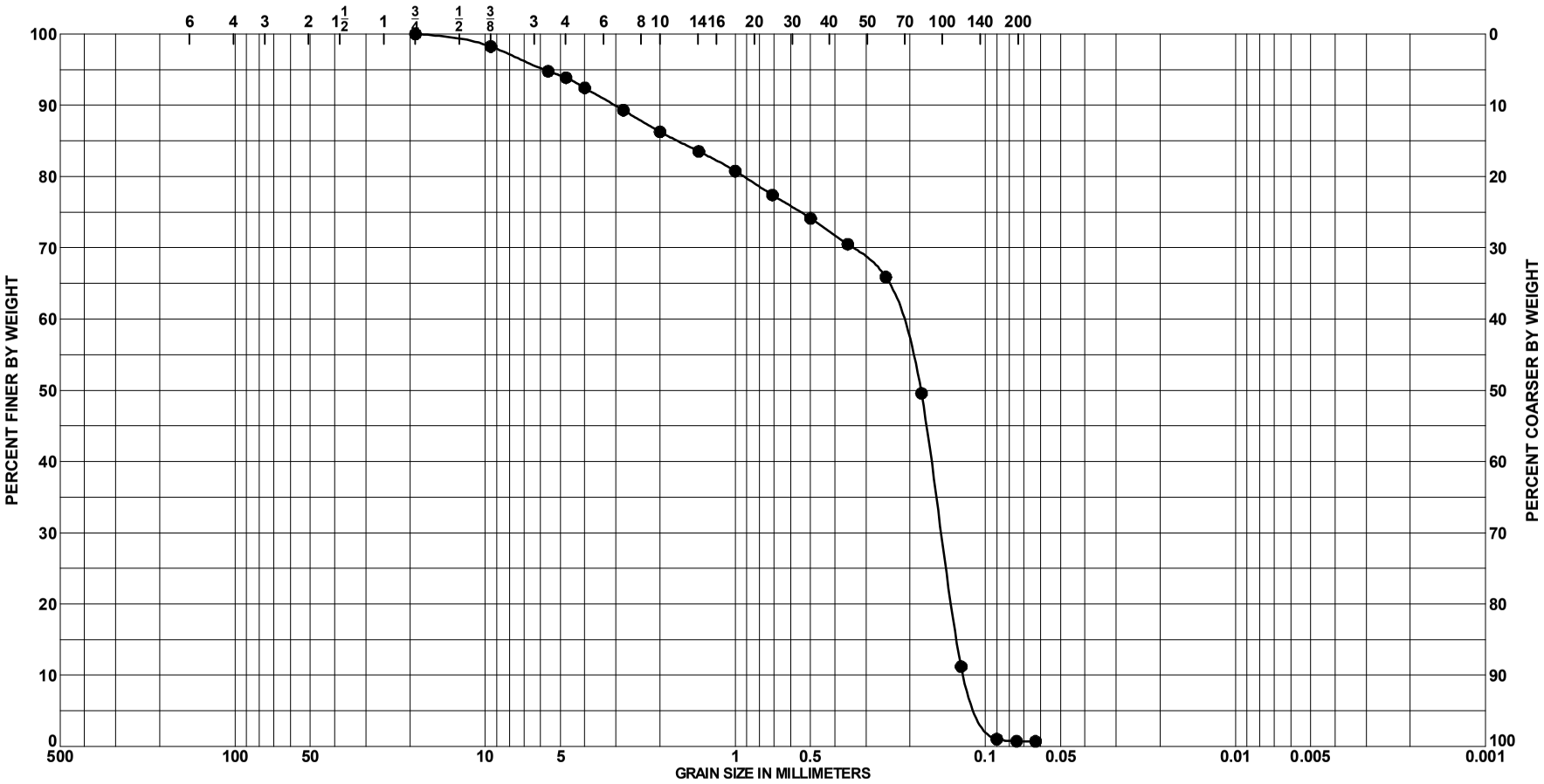
SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION
1	0.5/0.8	SP*
2	6.0/6.3	SP*
3	12.0/12.3	SW*
4	13.5/13.8	SP*

*Lab visual classification based on gradation curve. No Atterberg limits.

Abbreviations:
NR = Not Recorded.

8.2 GRADATION CURVES: BORROW AREA

Applicable gradation curves are presented on the following pages.

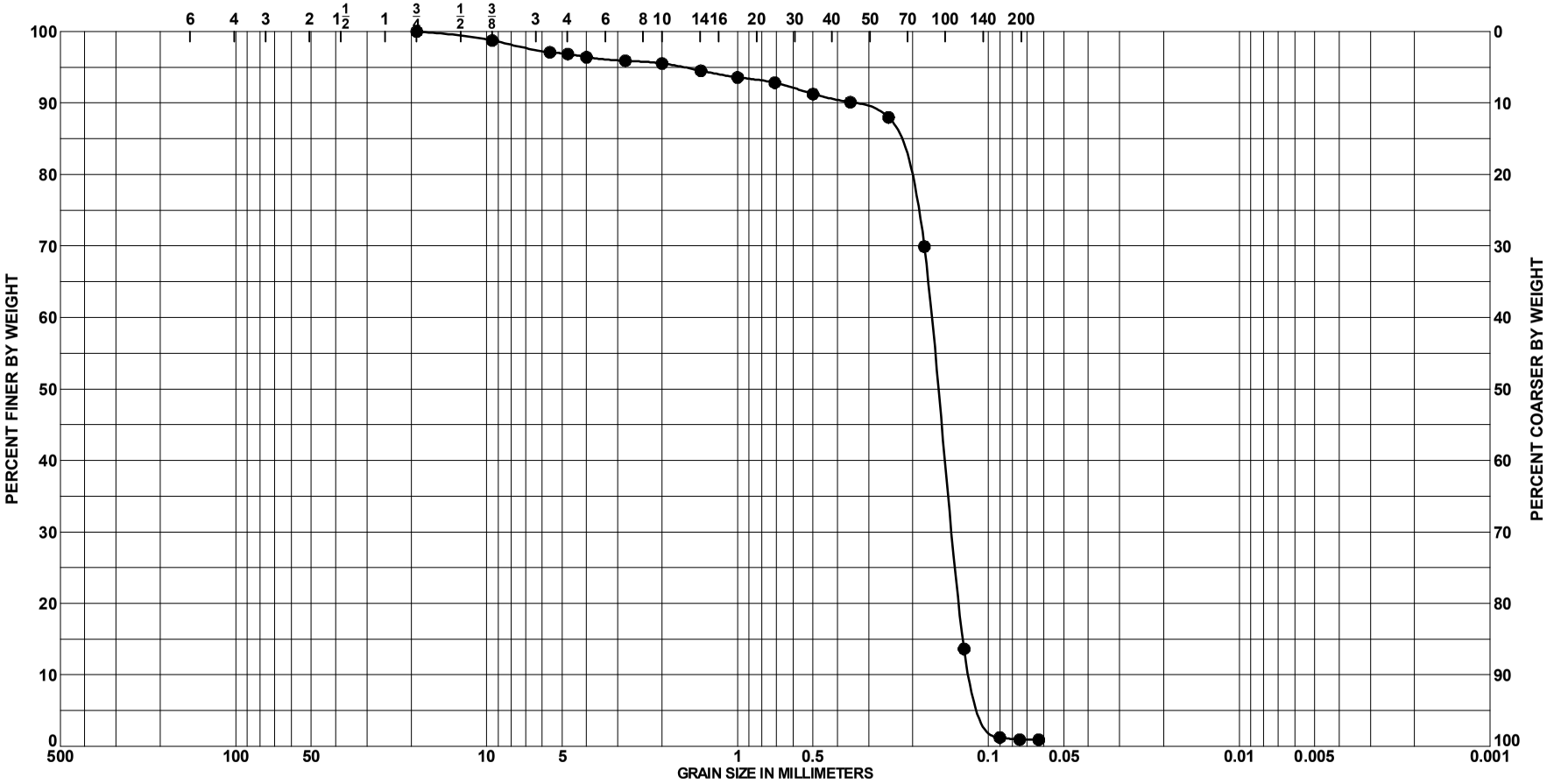


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 1	0.5 to 0.7 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, some sand to gravel-sized shell, light gray (SP)	2.5Y 7/1	32							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-01
BORING ELEV.	-5.1 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

SAJ FORM 2087
JUN 02

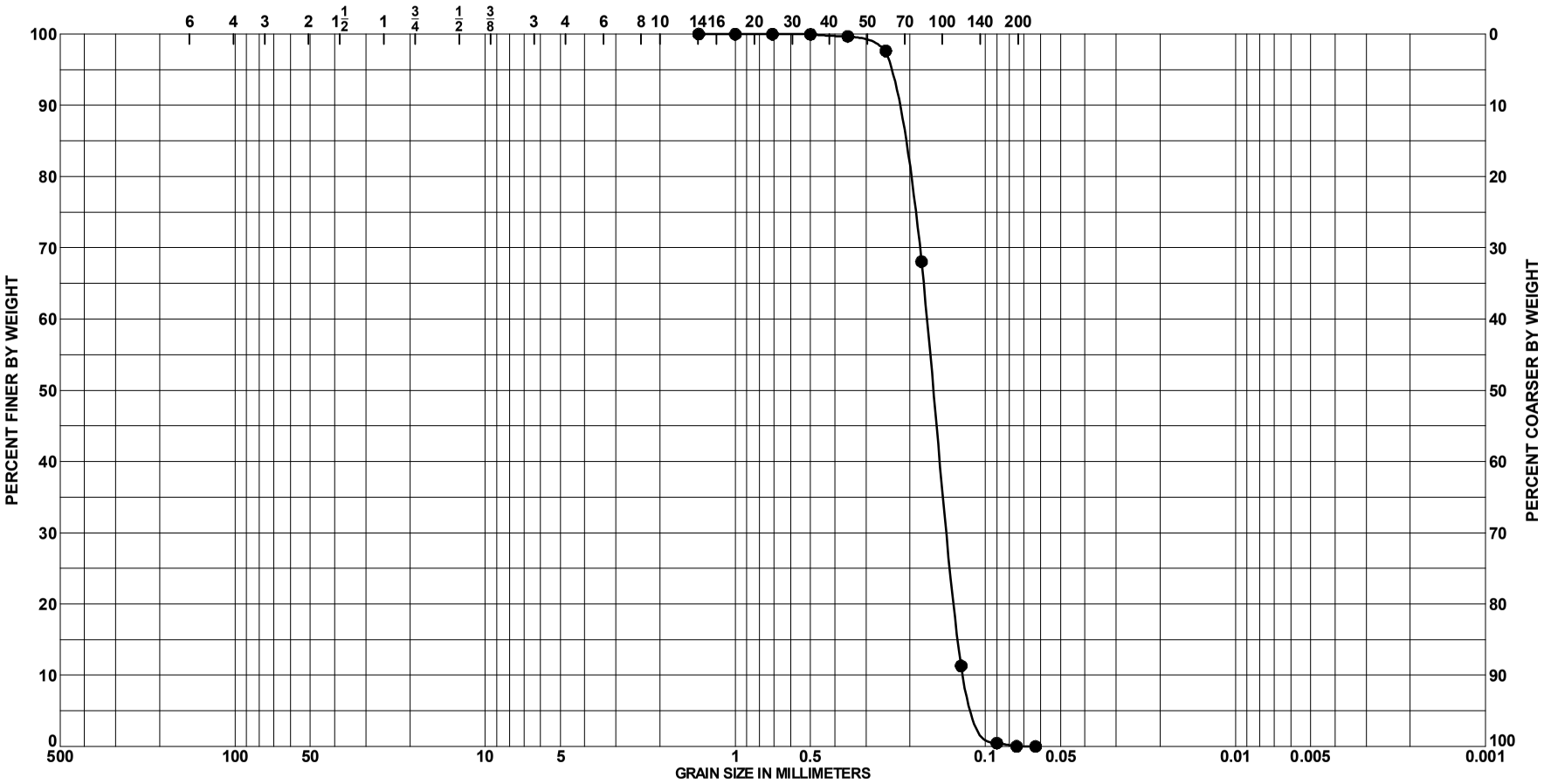


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 2	4.2 to 4.4 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to medium-grained sand-sized shell, white (SP)	2.5Y 8/1	16	14						

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-01
BORING ELEV.	-5.1 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

SAJ FORM 2087
JUN 02

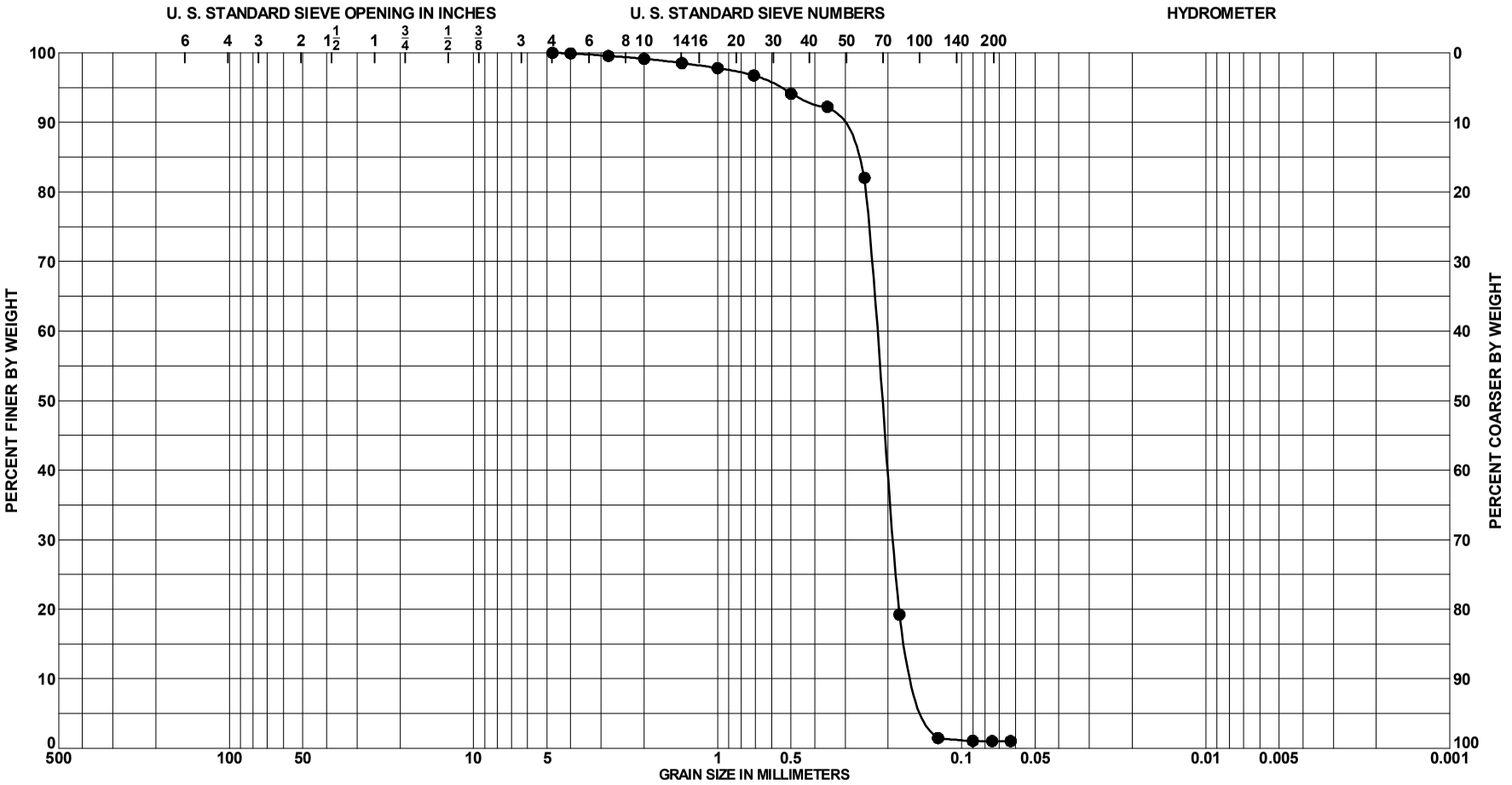


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 2-Post	4.2 to 4.4 Ft.	SAND, poorly-graded, mostly	2.5Y 8/1								
		fine-grained sand-sized quartz, white									
		(SP)									

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-01
BORING ELEV.	-5.1 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

SAJ FORM 2087
JUN 02

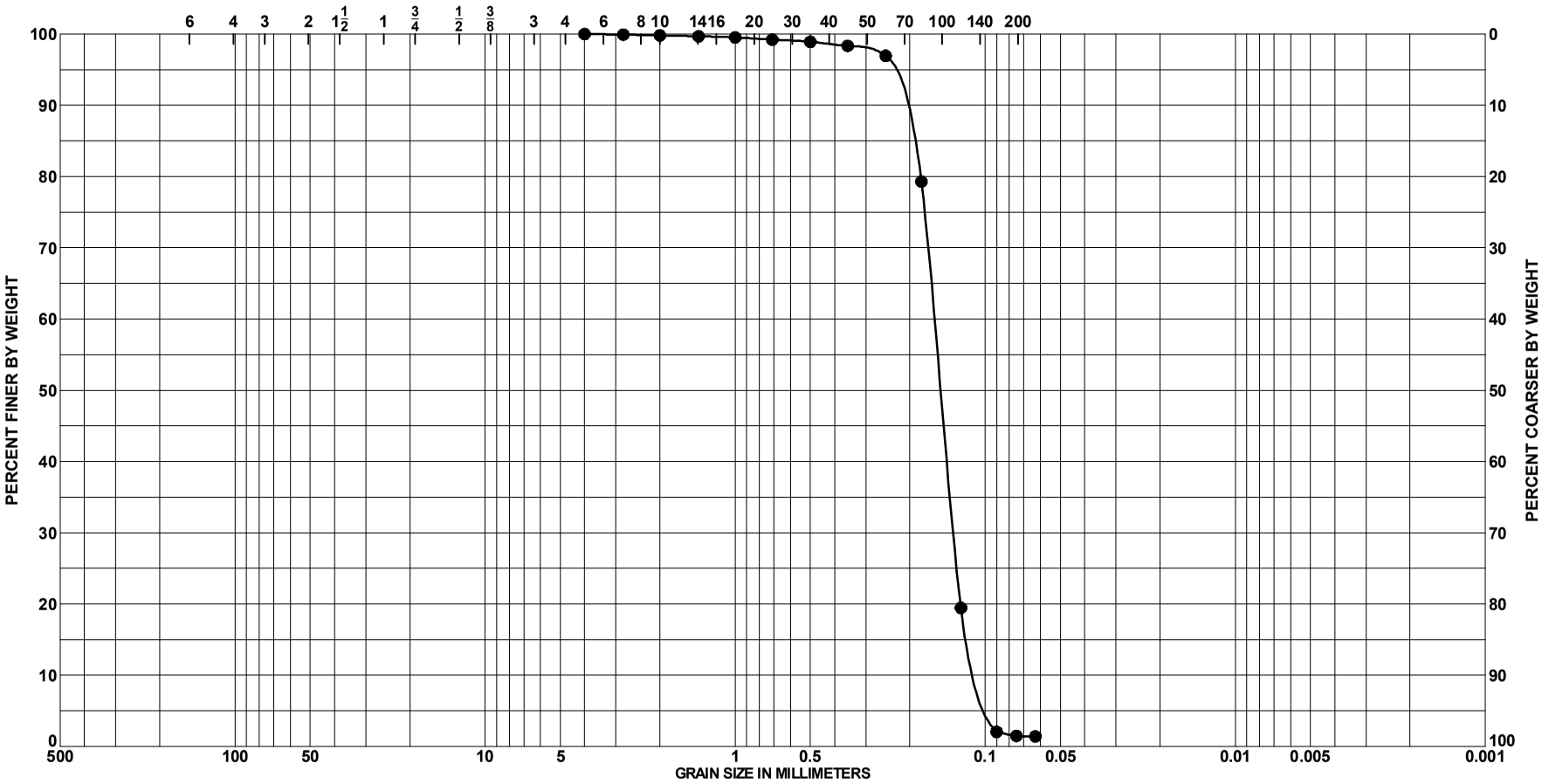


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 3	9.5 to 9.7 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, few medium-grained sand-sized shell, trace silt, white (SP)	2.5Y 8/1	8							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-01
BORING ELEV.	-5.1 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

SAJ FORM 2087
JUN 02

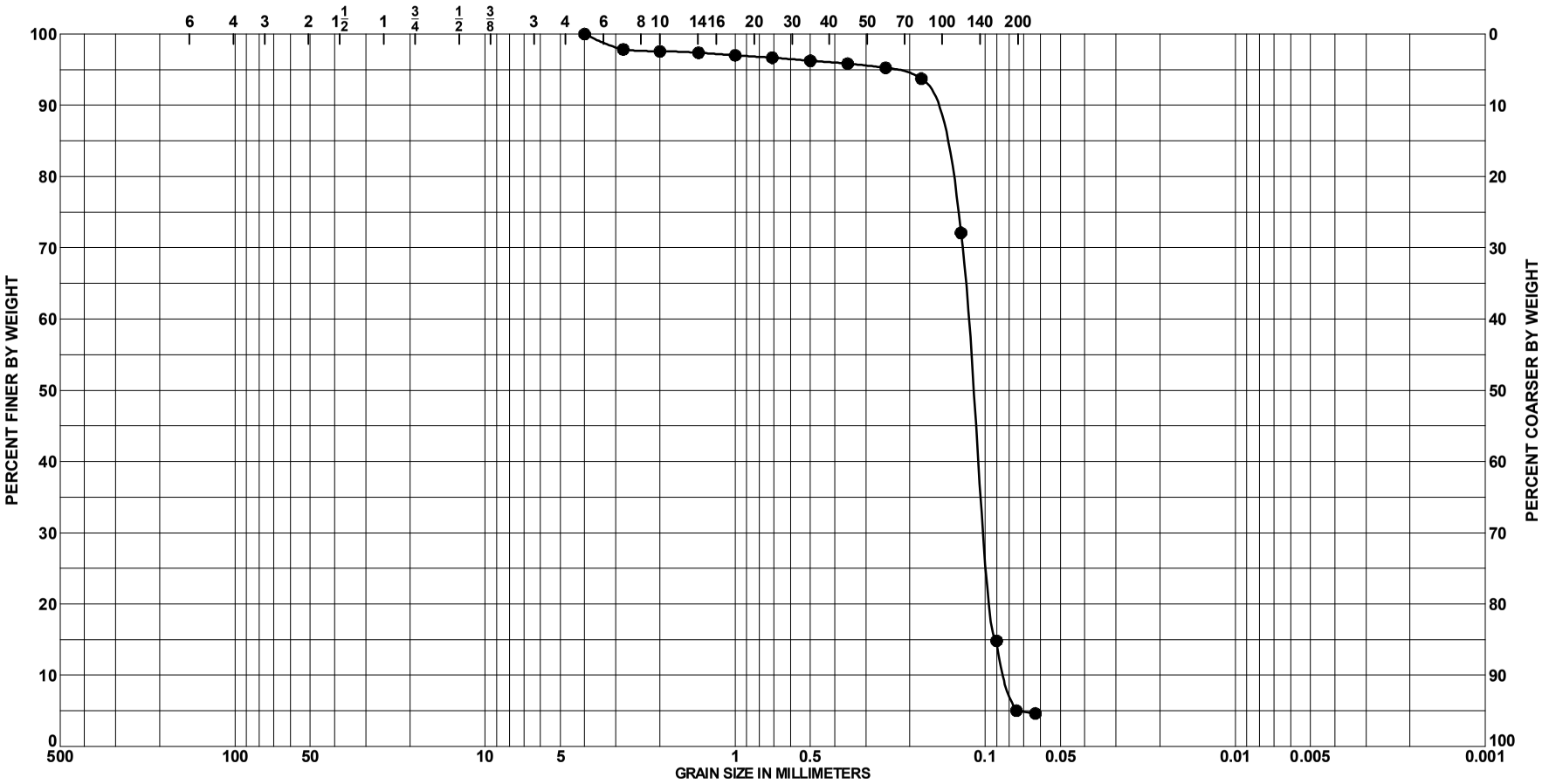


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 4	11.0 to 11.2 Ft.	SAND, poorly-graded, mostly	2.5Y 6/1	5							
		fine-grained sand-sized quartz, few									
		fine-grained sand-sized shell, trace									
		silt, gray (SP)									

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-01
BORING ELEV.	-5.1 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

SAJ FORM 2087
JUN 02

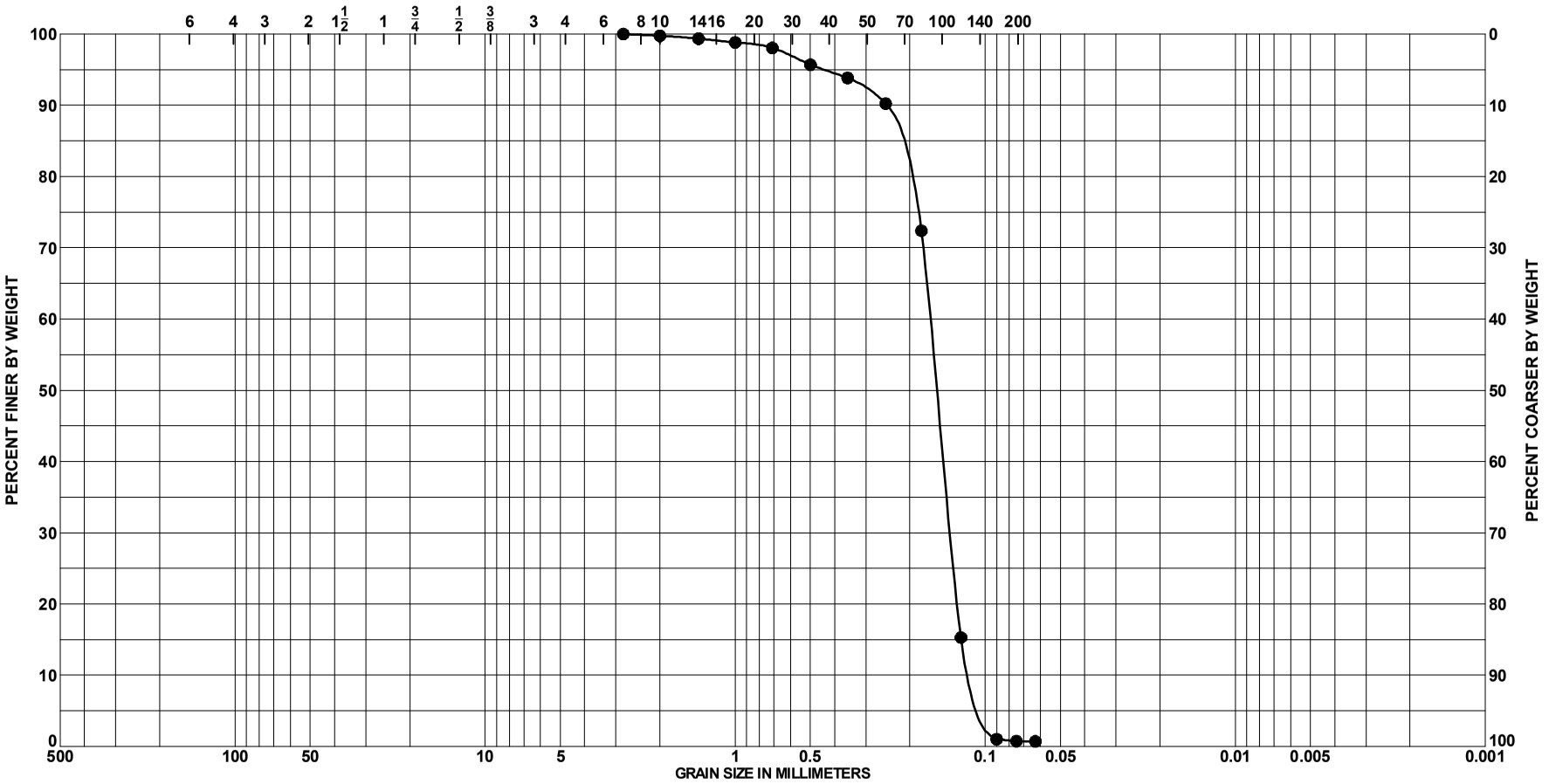


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 5	12.0 to 12.2 Ft.	SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few fine to medium-grained sand-sized shell, few silt, gray (SP-SM)	2.5Y 6/1	5							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-01
BORING ELEV.	-5.1 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

SAJ FORM 2087
JUN 02

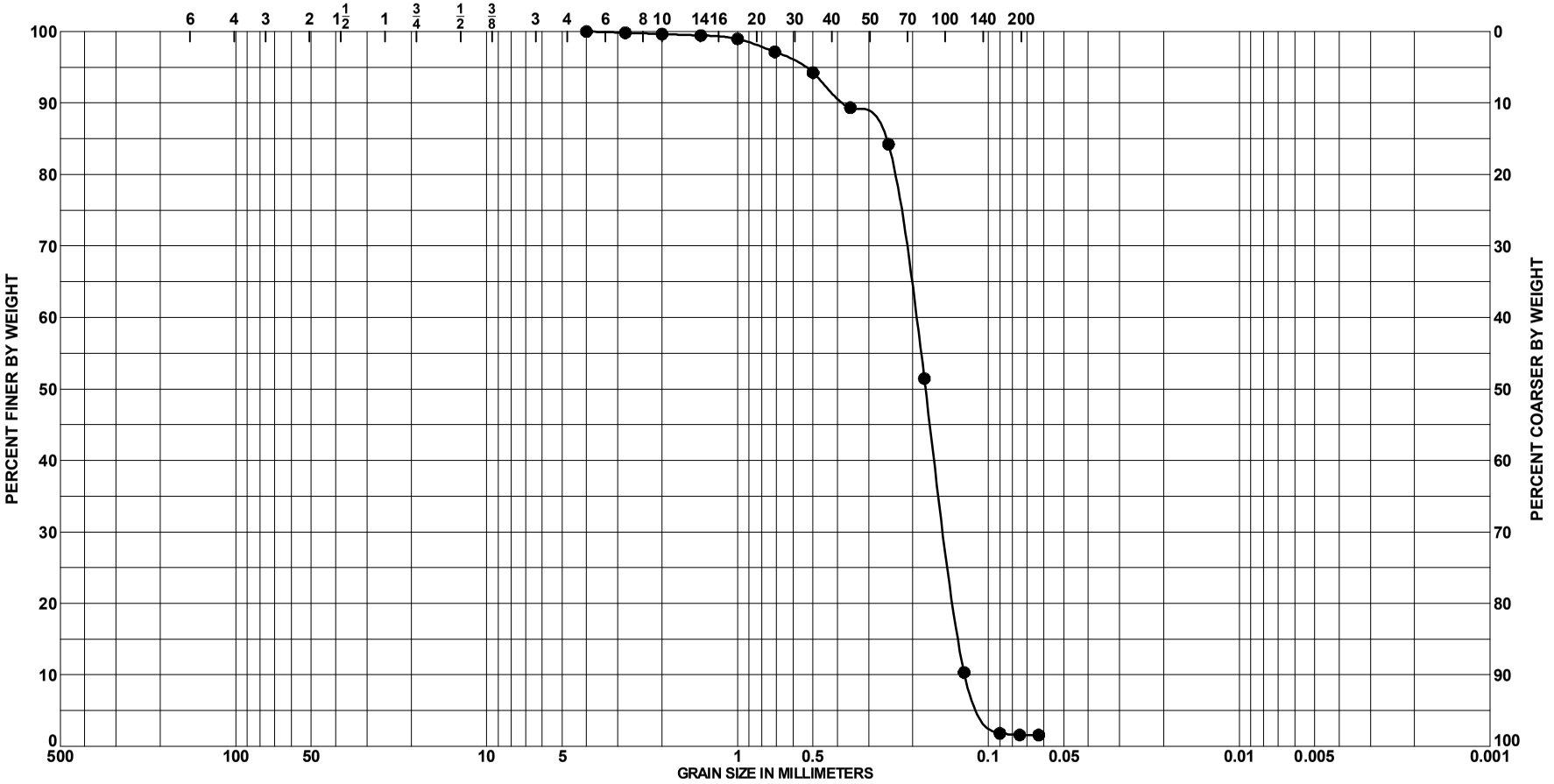


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 6	13.8 to 14.0 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz,few medium-grained sand-sized shell, gray (SP)	2.5Y 6/1	7							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-01
BORING ELEV.	-5.1 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

SAJ FORM 2087
JUN 02

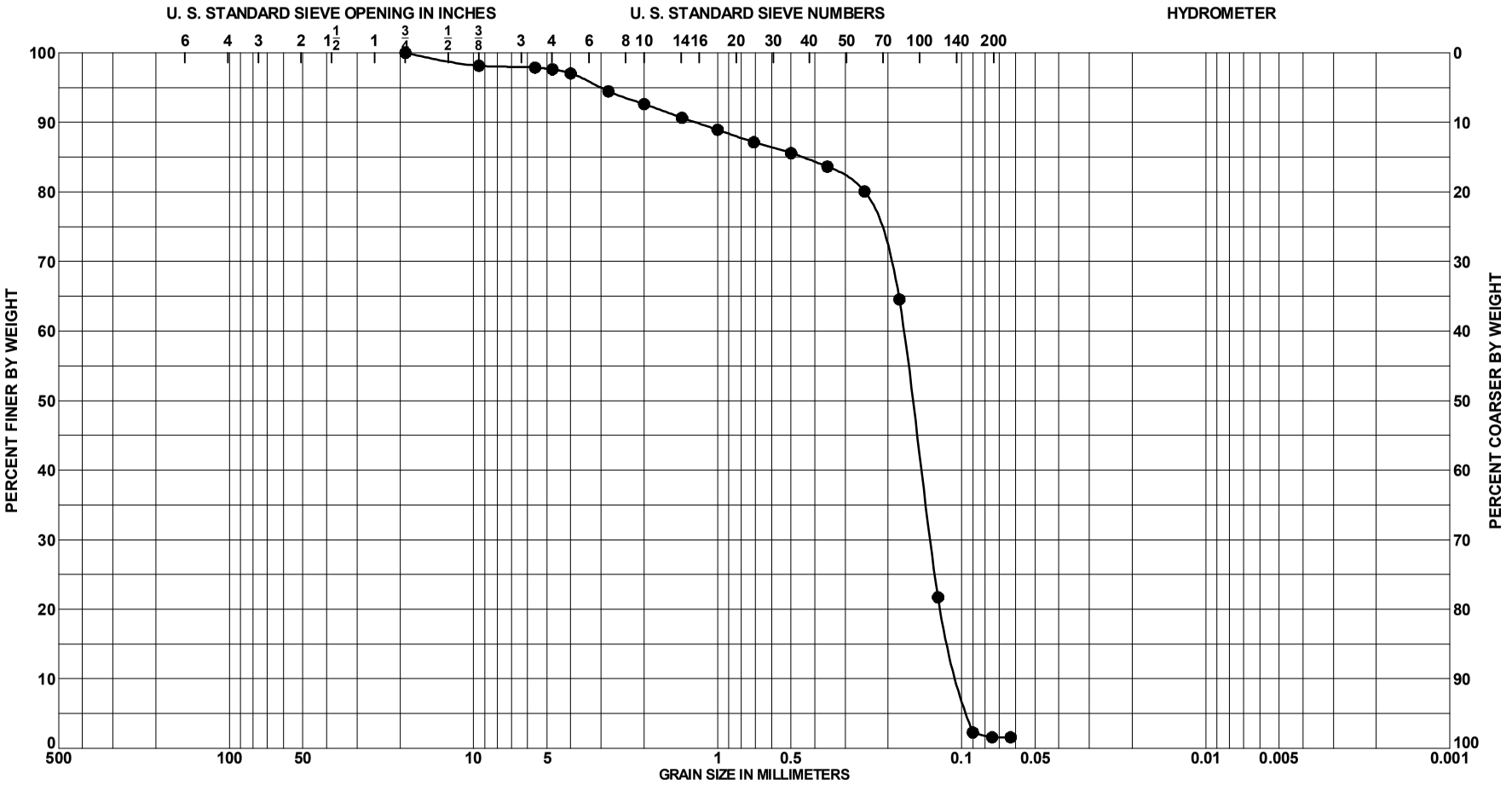


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 1	0.5 to 0.7 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to medium-grained sand-sized shell, trace silt, white (SP)	2.5Y 8/1	14							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-03
BORING ELEV.	-5.3 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

SAJ FORM 2087
JUN 02

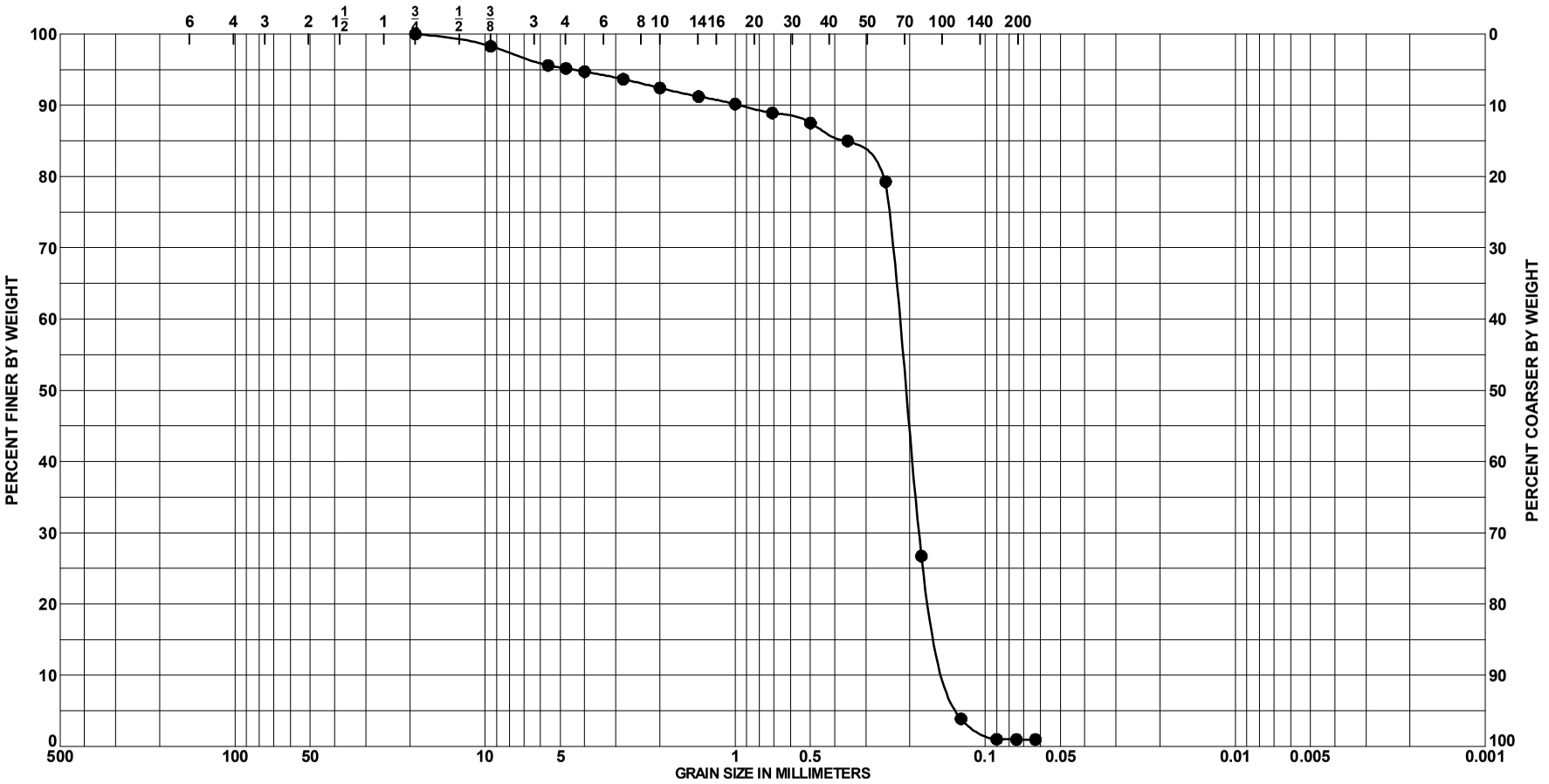


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 2	5.6 to 5.8 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, little medium to coarse-grained sand-sized shell, trace silt, white (SP)	2.5Y 8/1	17							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-03
BORING ELEV.	-5.3 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

SAJ FORM 2087
JUN 02

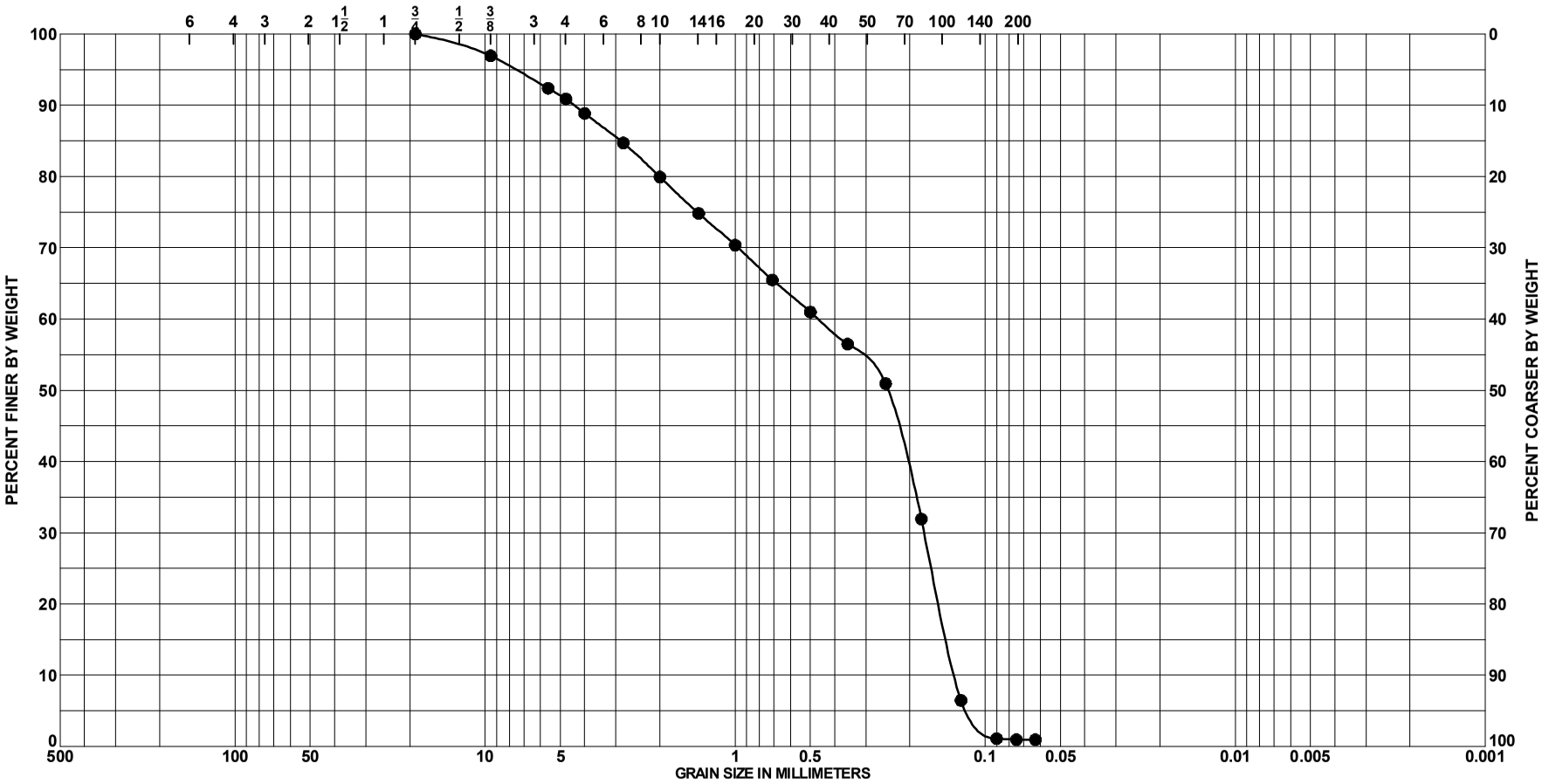


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 3	8.5 to 8.7 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to coarse-grained sand-sized shell, trace silt, white (SP)	2.5Y 8/1	17							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-03
BORING ELEV.	-5.3 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

SAJ FORM 2087
JUN 02

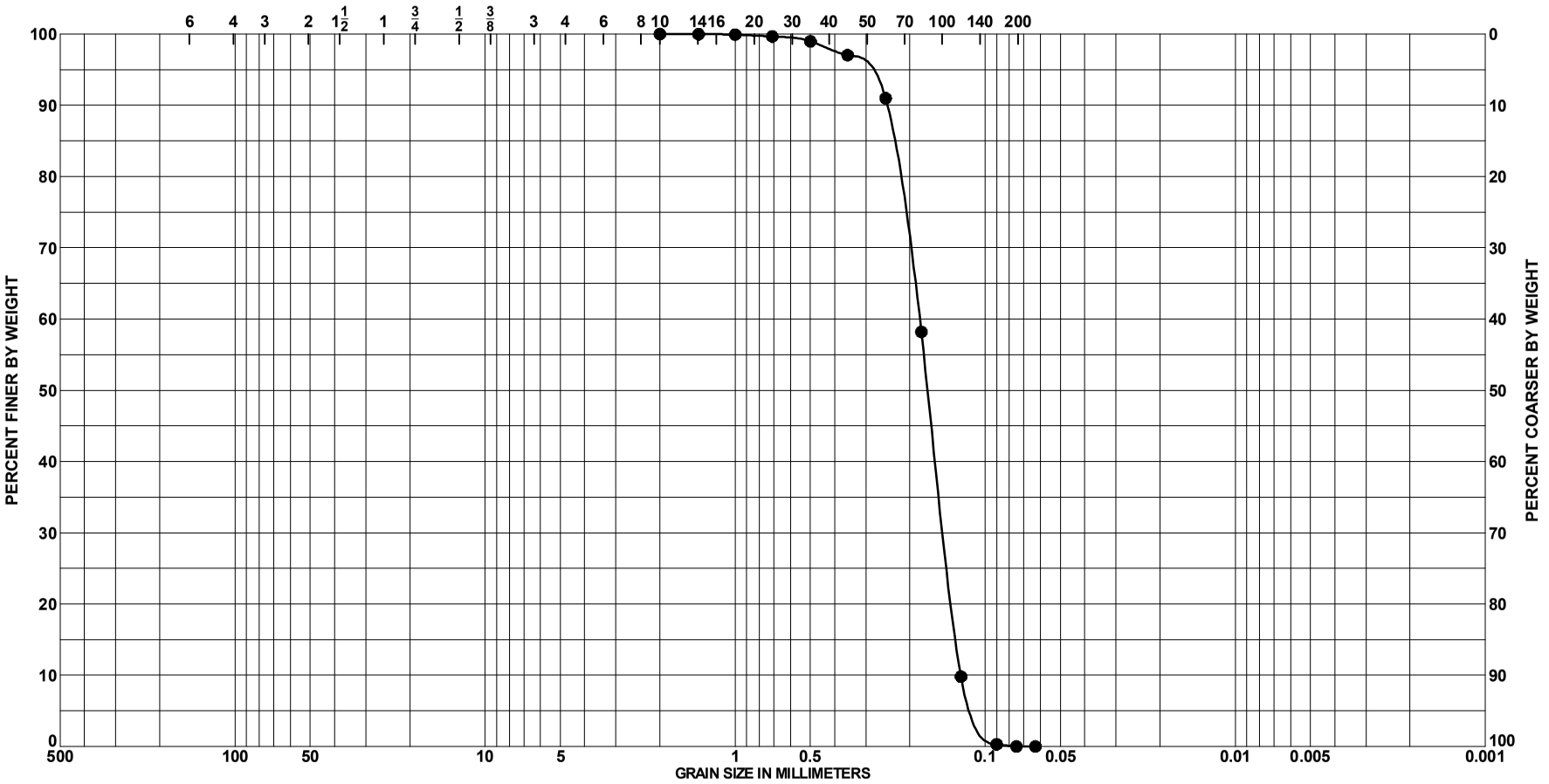


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 4	11.5 to 11.7 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, some sand to gravel-sized shell, trace silt, light gray (SP)	2.5Y 7/1	45	46						

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-03
BORING ELEV.	-5.3 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

SAJ FORM 2087
JUN 02

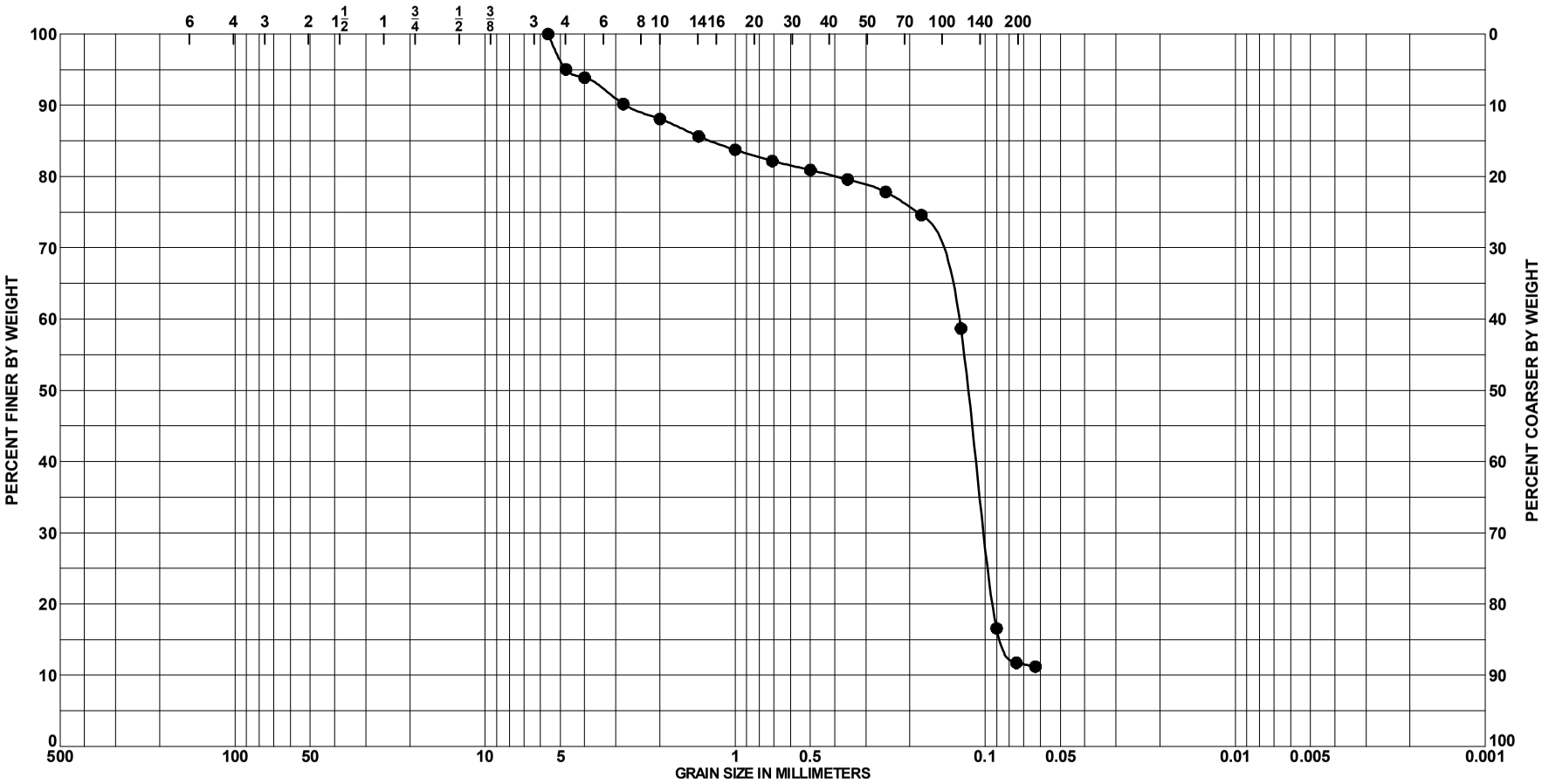


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 4-Post	11.5 to 11.7 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, light gray (SP)	2.5Y 7/1								

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-03
BORING ELEV.	-5.3 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

SAJ FORM 2087
JUN 02

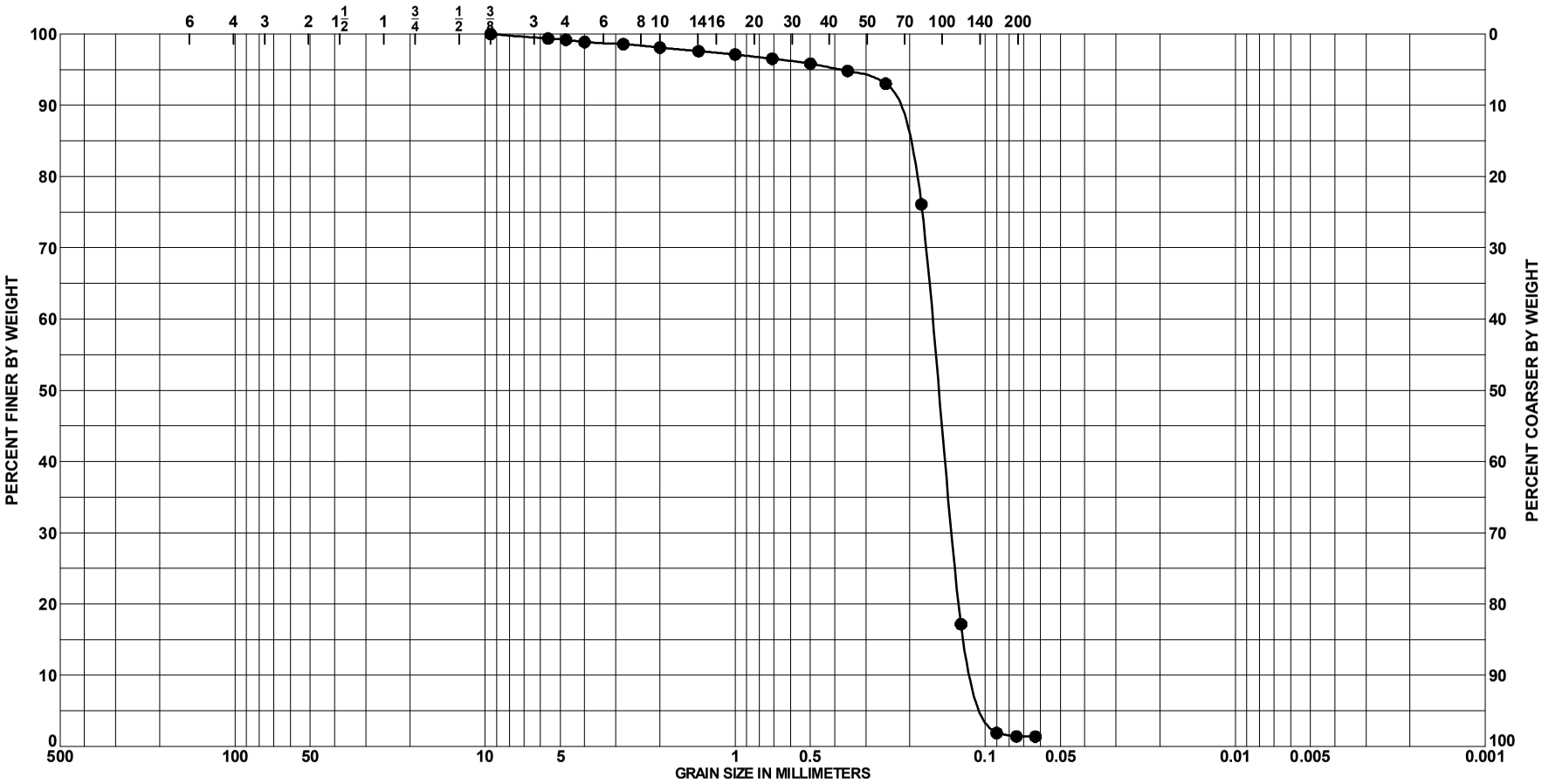


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 5	12.3 to 12.5 Ft.	SAND, poorly-graded with silt, mostly fine-grained quartz, little medium to coarse-grained shell, little sand to gravel-sized limestone, few silt, gray (SP-SM)	2.5Y 5/1	12							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-03
BORING ELEV.	-5.3 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

SAJ FORM 2087
JUN 02

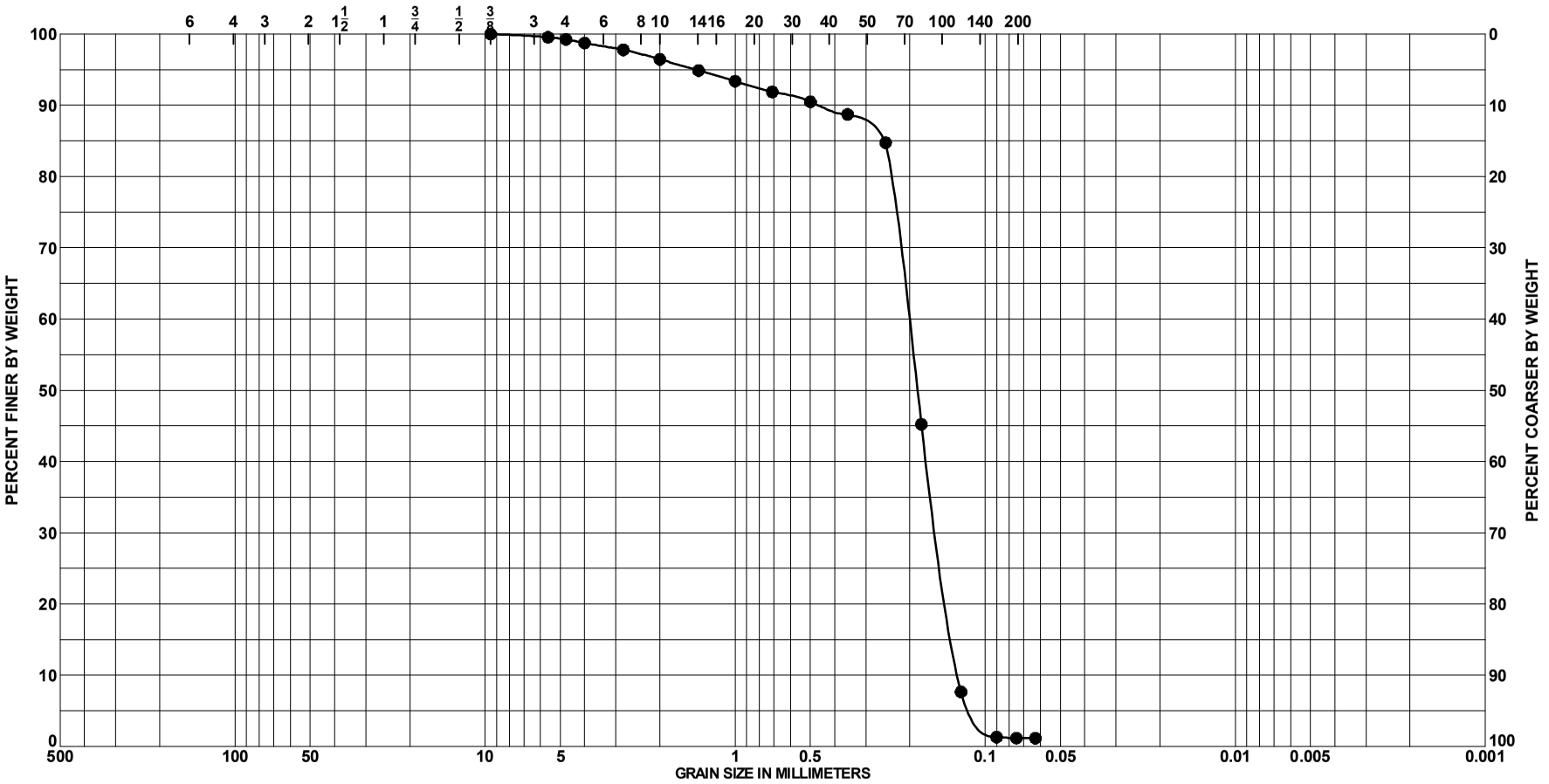


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 1	0.5 to 0.7 Ft.	SAND, poorly-graded, mostly	2.5Y 8/1	9							
		fine-grained sand-sized quartz, few									
		fine-grained sand-sized shell, white									
		(SP)									

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-05
BORING ELEV.	-5.8 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

SAJ FORM 2087
JUN 02

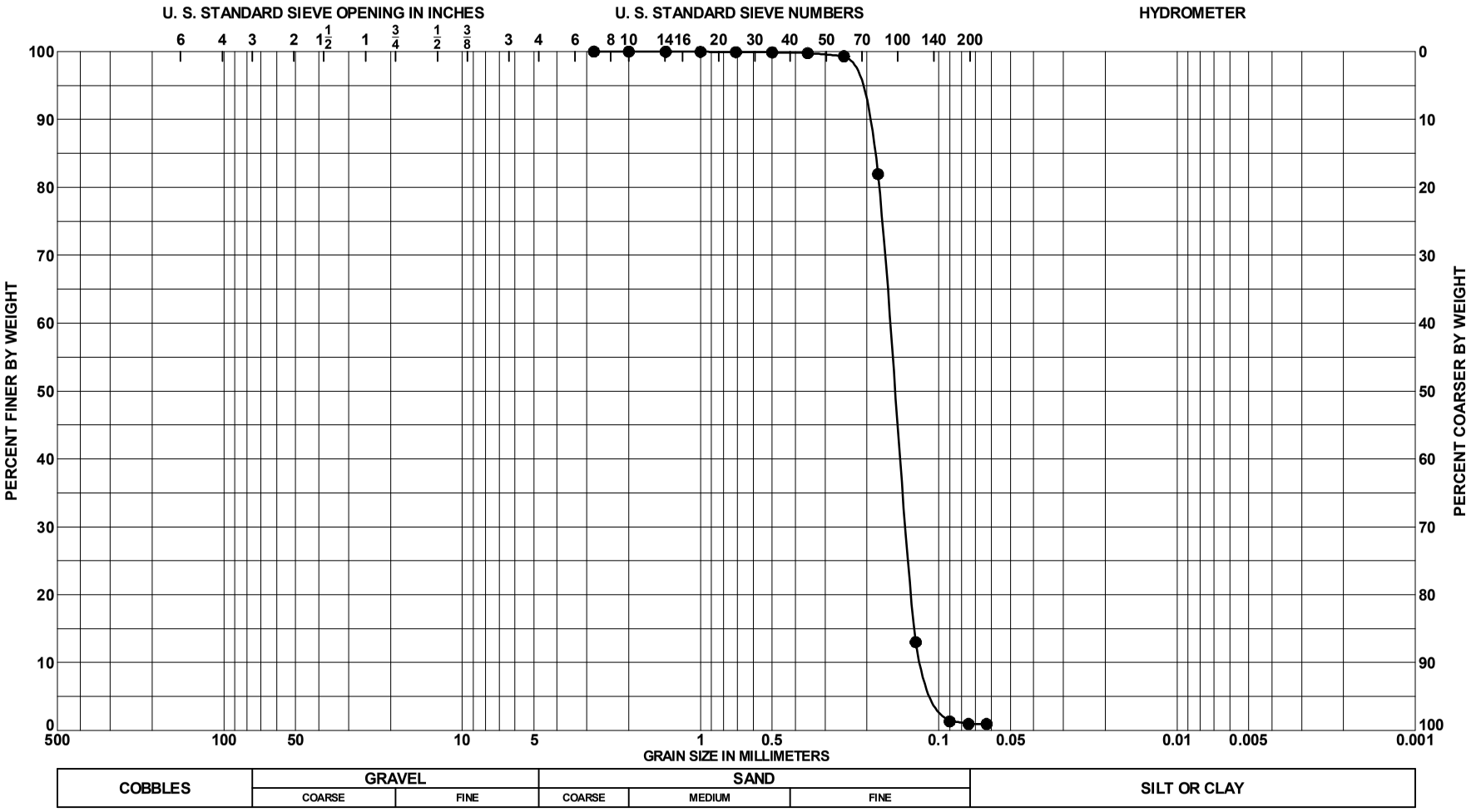


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 2	6.0 to 6.2 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to medium-grained sand-sized shell, trace silt, white (SP)	2.5Y 8/1	16							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-05
BORING ELEV.	-5.8 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

SAJ FORM 2087
JUN 02



Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 3	10.0 to 10.2 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, trace silt, white (SP)	2.5Y 8/1	3							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-05
BORING ELEV.	-5.8 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

SAJ FORM 2087
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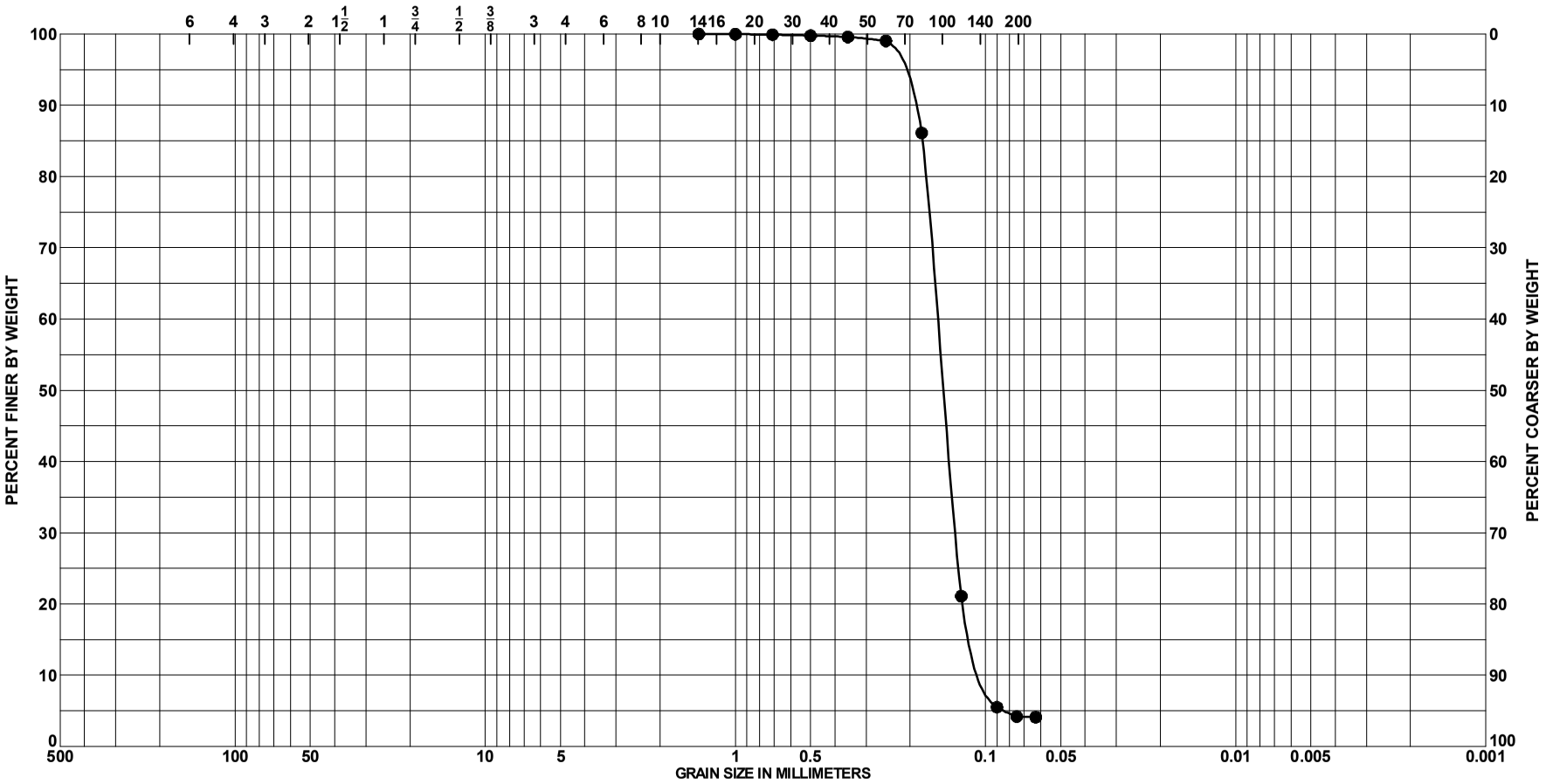
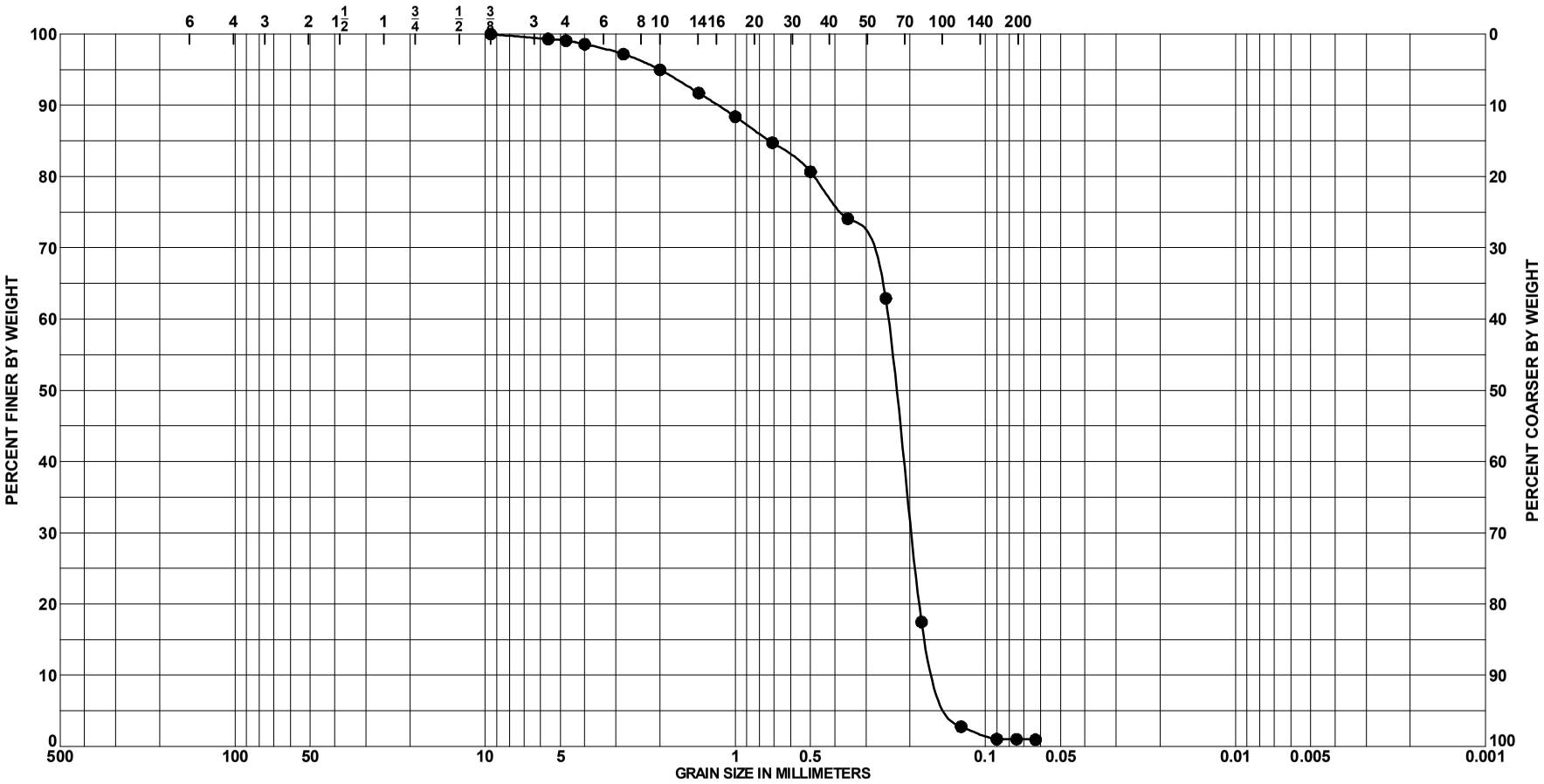


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 4	12.0 to 12.2 Ft.	SAND, poorly-graded, mostly	2.5Y 8/1	6							
		fine-grained sand-sized quartz, few									
		fine-grained sand-sized shell, trace									
		silt, white (SP)									

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-05
BORING ELEV.	-5.8 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

SAJ FORM 2087
JUN 02

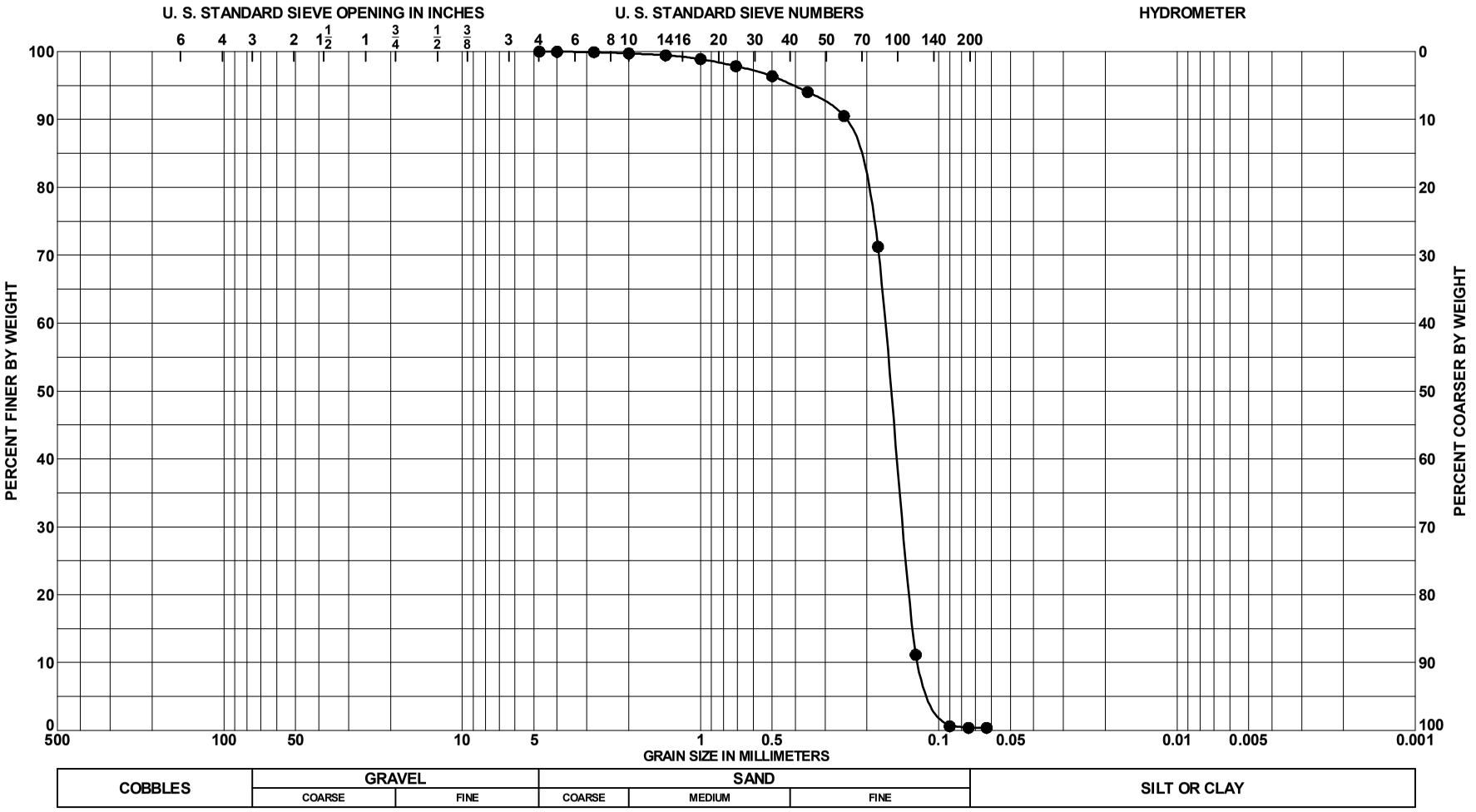


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 5	17.0 to 17.2 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, some fine to coarse-grained sand-sized shell, trace silt, white (SP)	2.5Y 8/1	38							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-05
BORING ELEV.	-5.8 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

SAJ FORM 2087
JUN 02

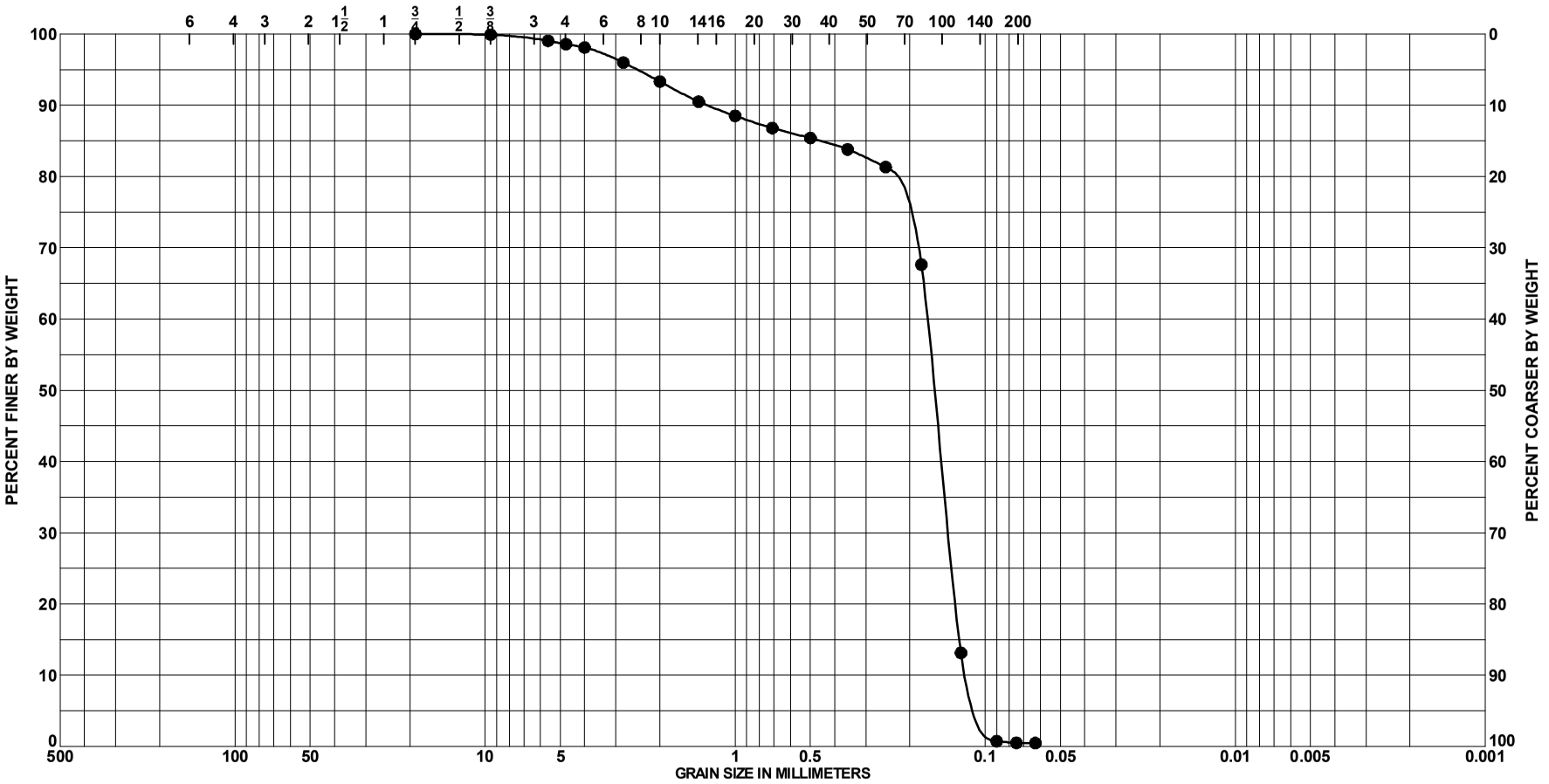


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 1	0.5 to 0.7 Ft.	SAND, poorly-graded, mostly	2.5Y 8/1	11							
		fine-grained sand-sized quartz, few									
		fine-grained sand-sized shell, white									
		(SP)									

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-06
BORING ELEV.	-4.0 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

SAJ FORM 2087
JUN 02



Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 2	4.2 to 4.4 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, little medium to coarse-grained sand-sized shell, white (SP)	2.5Y 8/1	15							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-06
BORING ELEV.	-4.0 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

SAJ FORM 2087
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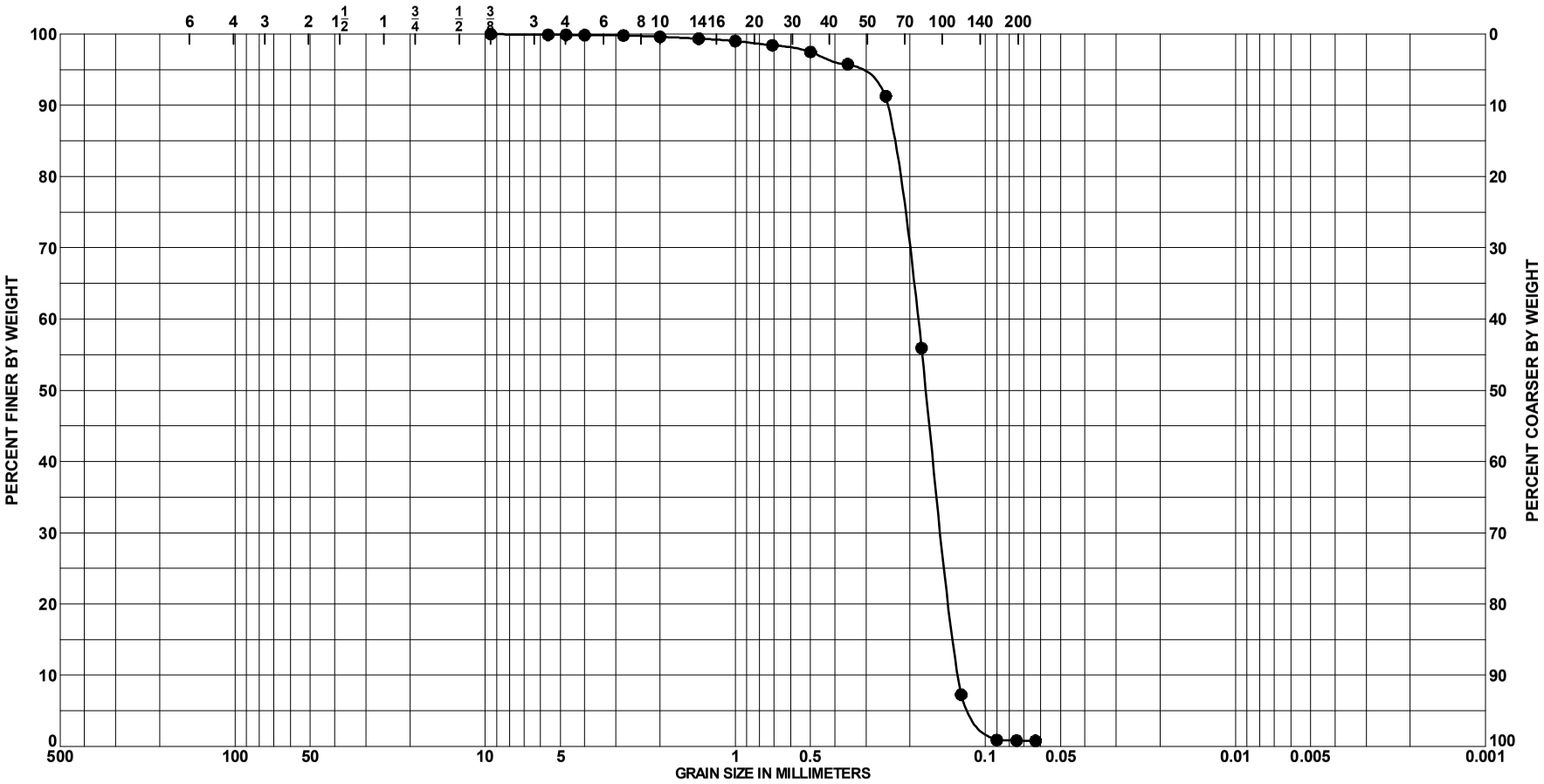
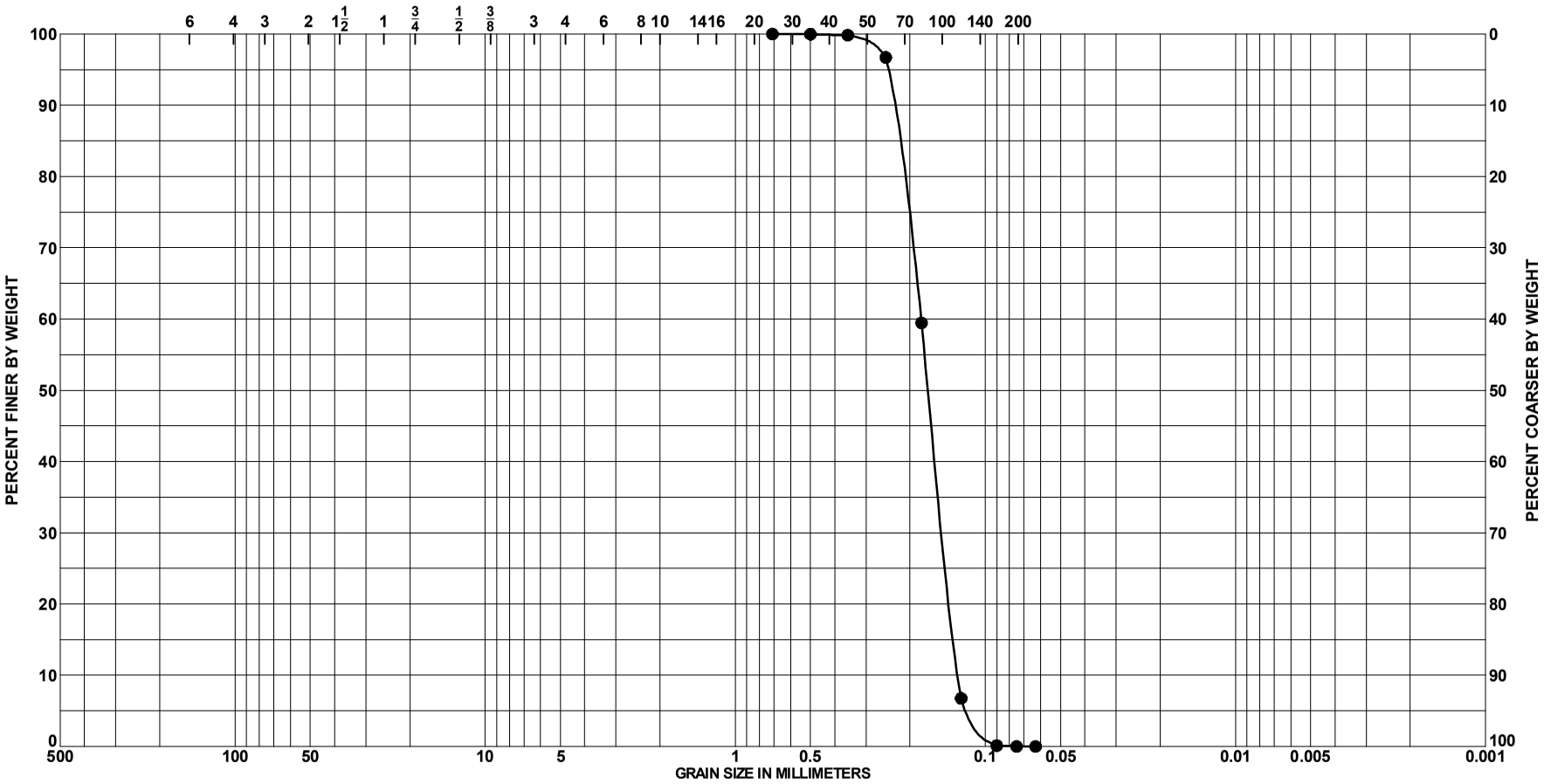


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 3	8.0 to 8.2 Ft.	SAND, poorly-graded, mostly	2.5Y 8/1	8	8						
		fine-grained sand-sized quartz, few									
		fine-grained sand-sized shell, white									
		(SP)									

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-06
BORING ELEV.	-4.0 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

SAJ FORM 2087
JUN 02



Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 3-Post	8.0 to 8.2 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, white (SP)	2.5Y 8/1								

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-06
BORING ELEV.	-4.0 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

SAJ FORM 2087
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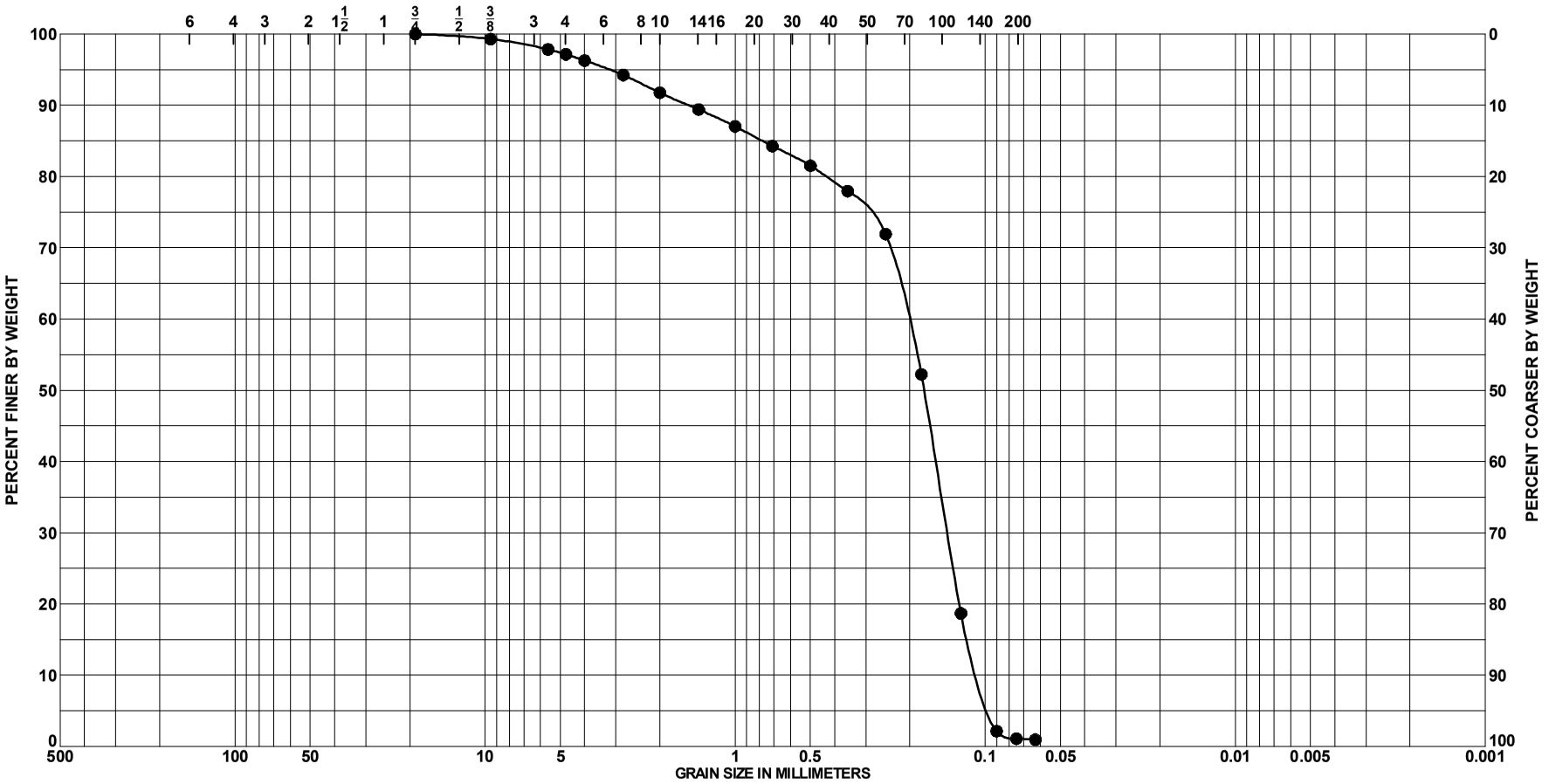

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 4	13.0 to 13.2 Ft.	SAND, poorly-graded, mostly	2.5Y 7/1	28							
		fine-grained sand-sized quartz, little									
		fine to coarse-grained sand-sized									
		shell, trace silt, light gray (SP)									

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-06
BORING ELEV.	-4.0 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

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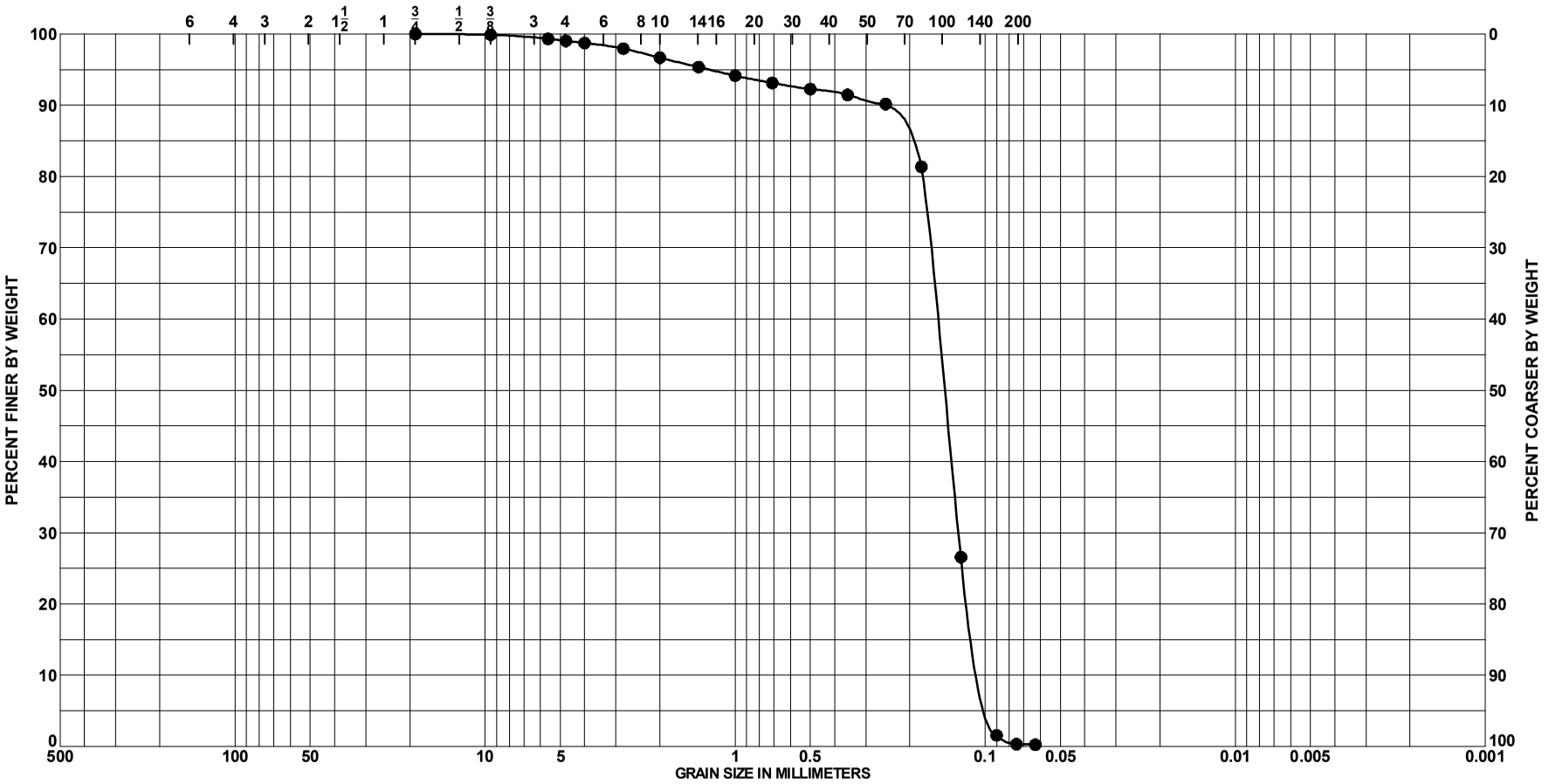
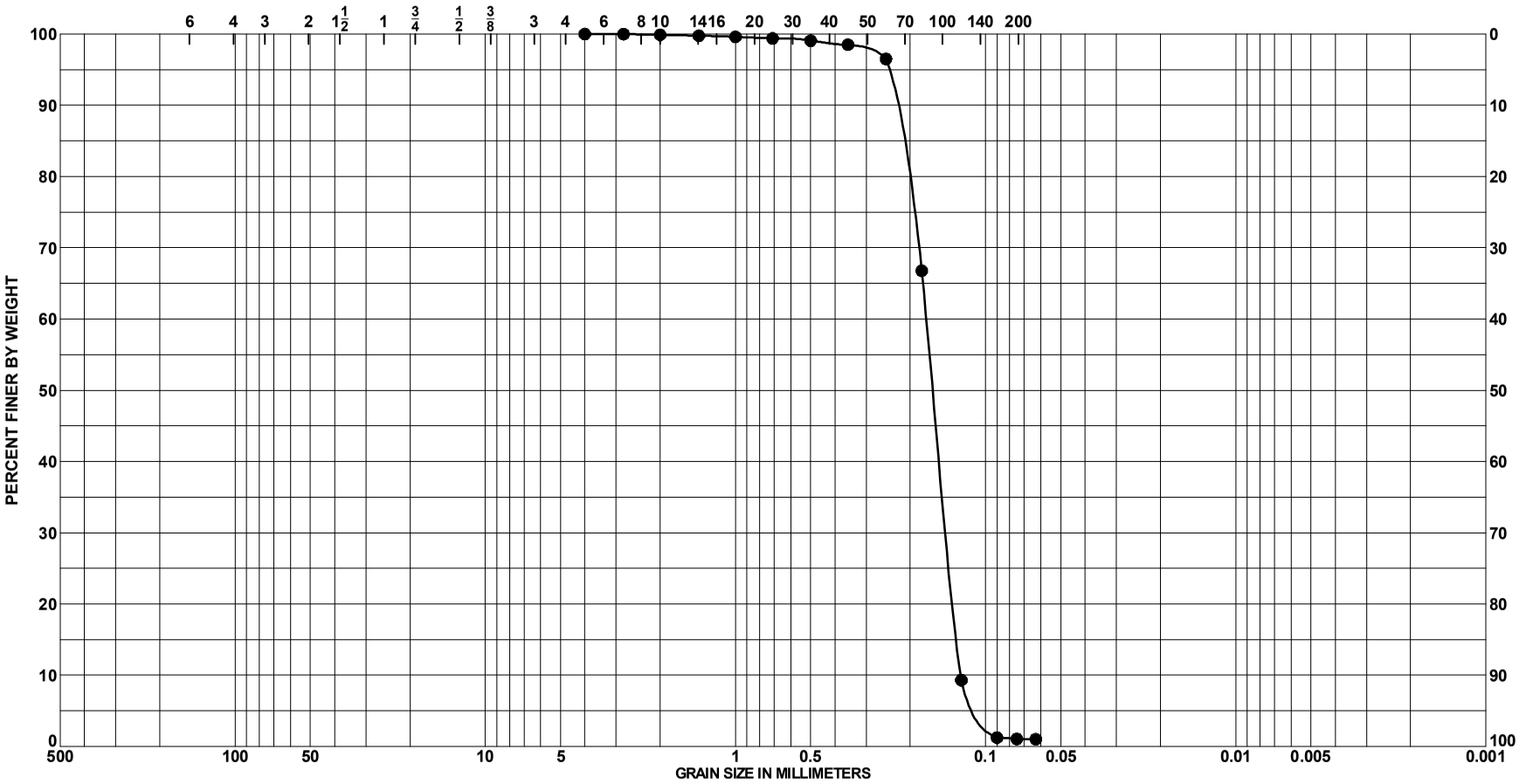


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 1	0.5 to 0.7 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, few medium-grained sand-sized shell, white (SP)	2.5Y 8/1	10							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-09
BORING ELEV.	-11.7 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

SAJ FORM 2087
JUN 02

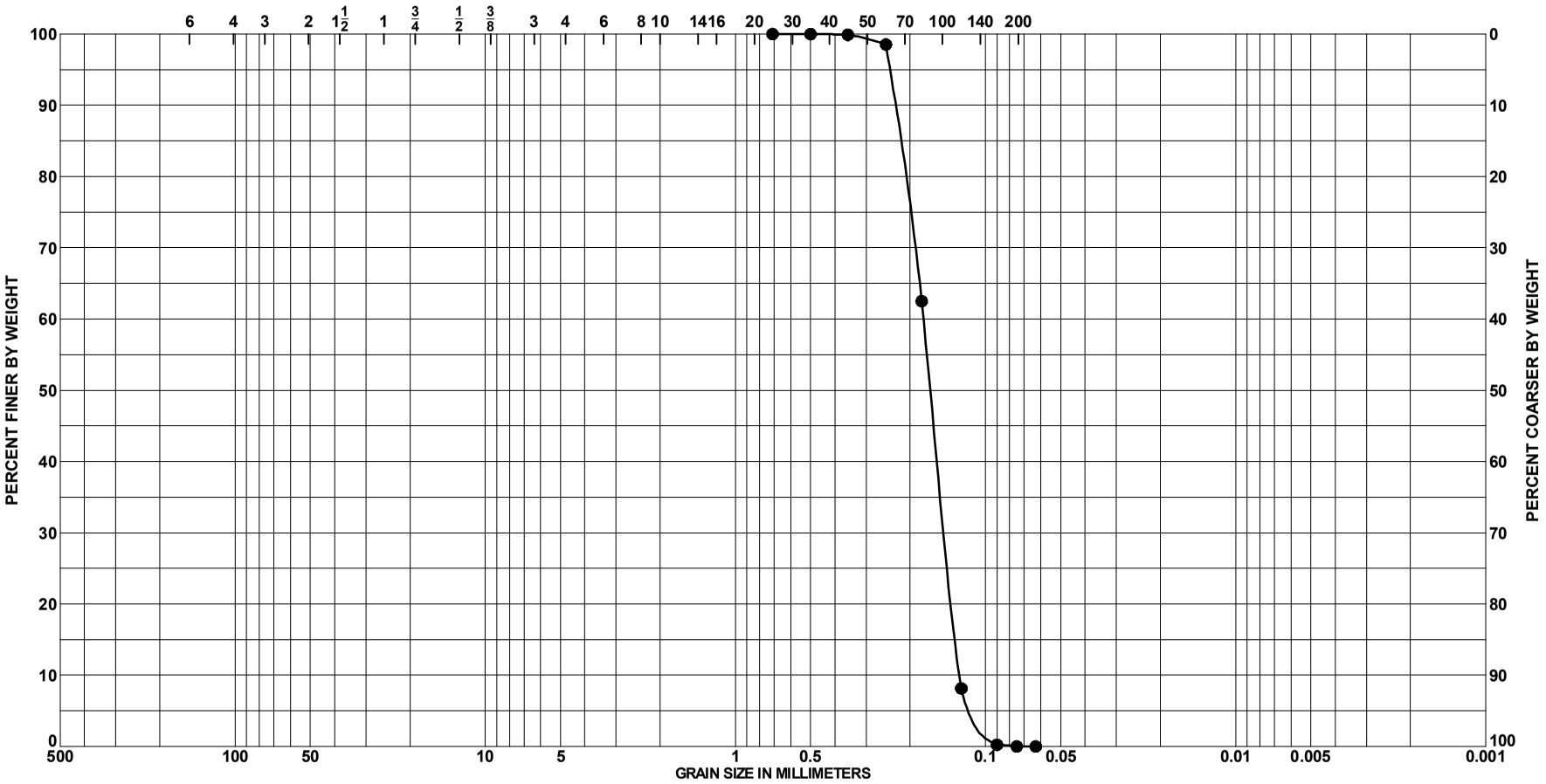


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 2	4.0 to 4.2 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, trace silt, white (SP)	2.5Y 8/1	3	5						

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-09
BORING ELEV.	-11.7 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

SAJ FORM 2087
JUN 02

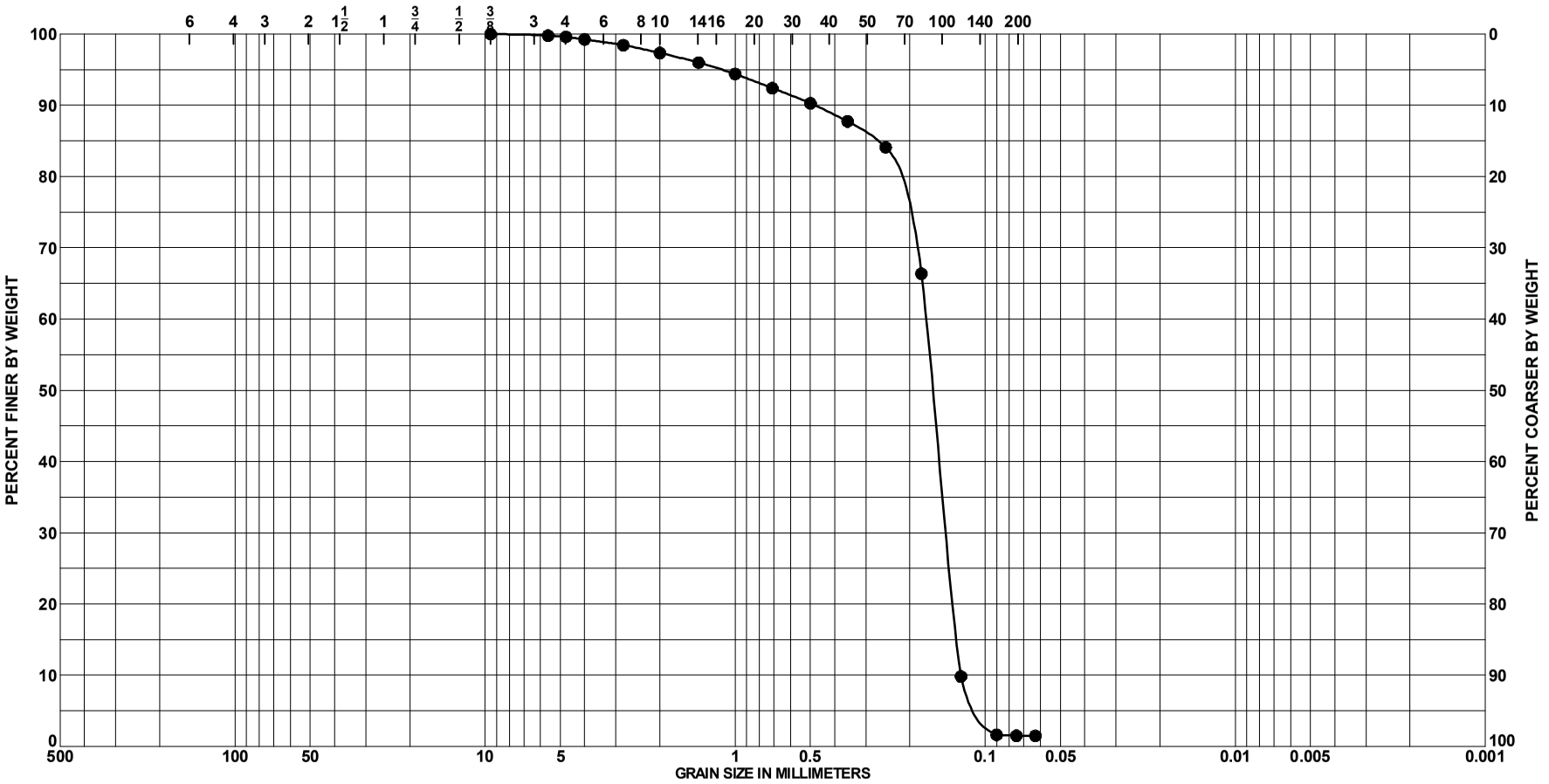


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 2-Post	4.0 to 4.2 Ft.	SAND, poorly-graded, mostly	2.5Y 8/1								
		fine-grained sand-sized quartz, white									
		(SP)									

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-09
BORING ELEV.	-11.7 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

SAJ FORM 2087
JUN 02



Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 3	7.9 to 8.1 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to medium-grained sand-sized shell, trace silt, white (SP)	2.5Y 8/1	17							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-09
BORING ELEV.	-11.7 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

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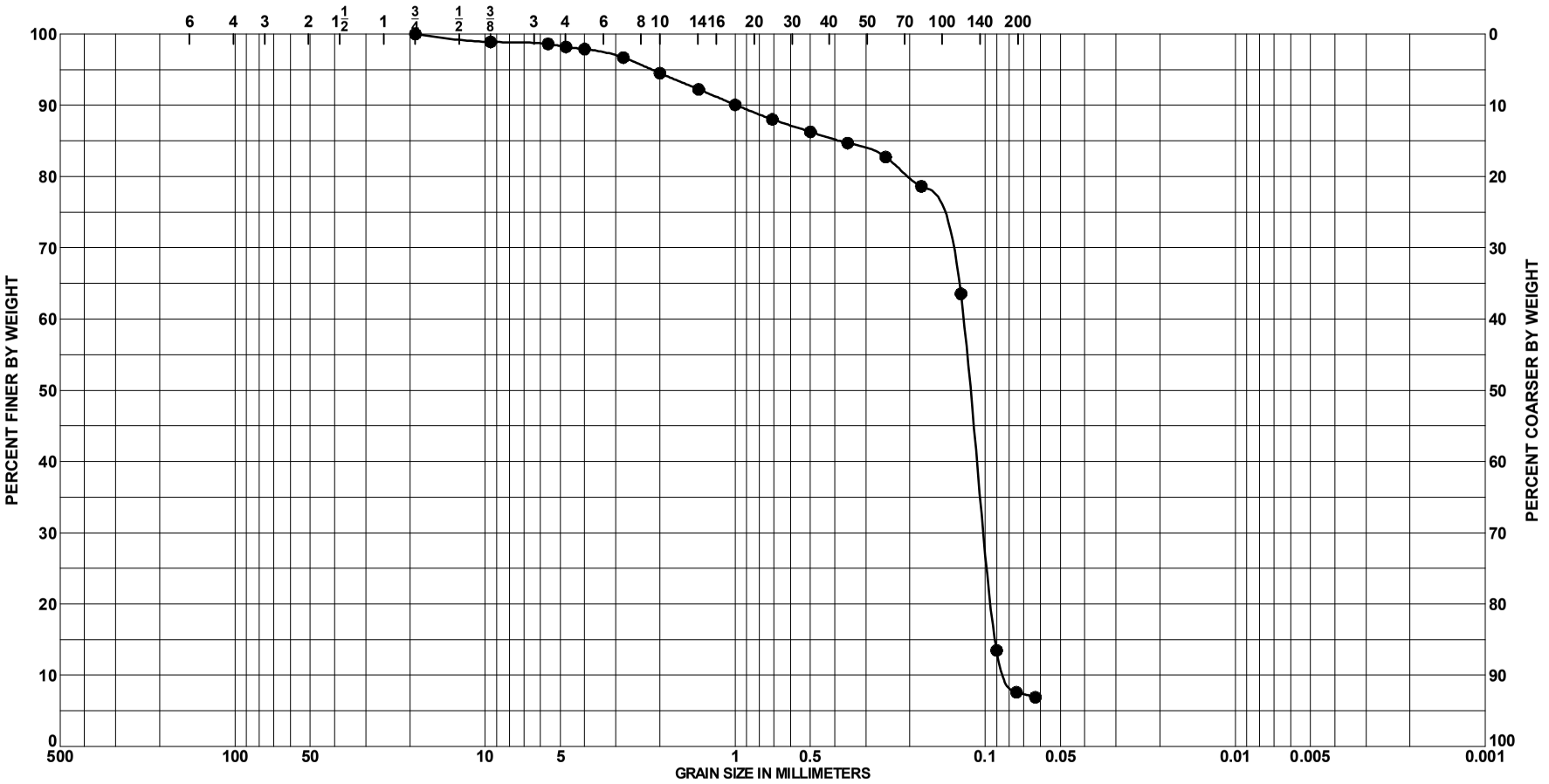
JUN 02

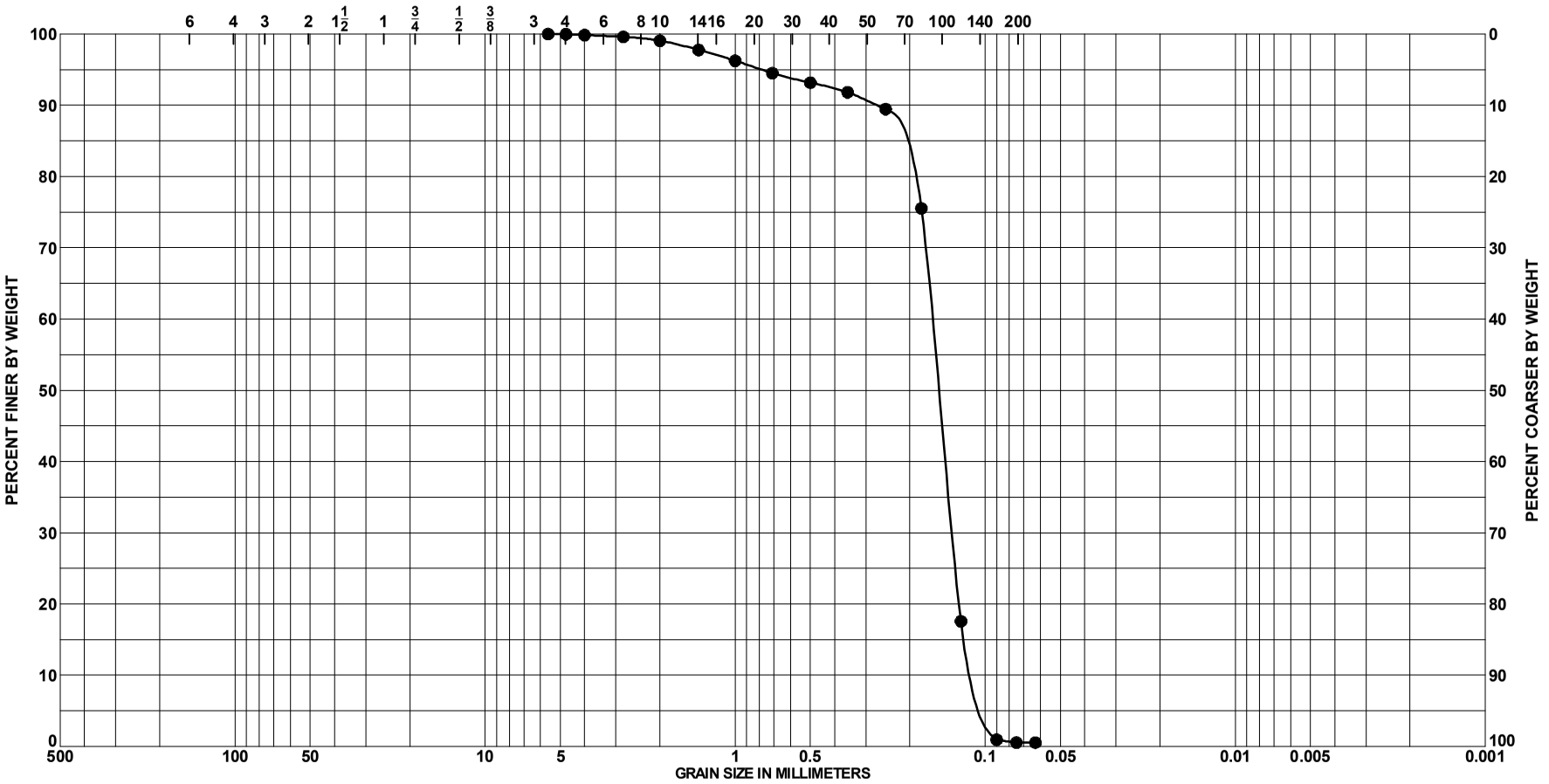


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 4	11.0 to 11.2 Ft.	SAND, poorly-graded with silt, mostly	2.5Y 7/1	14							
		fine-grained sand-sized quartz, little									
		medium to coarse-grained sand-sized									
		shell, few silt, light gray (SP-SM)									

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-09
BORING ELEV.	-11.7 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

SAJ FORM 2087
JUN 02

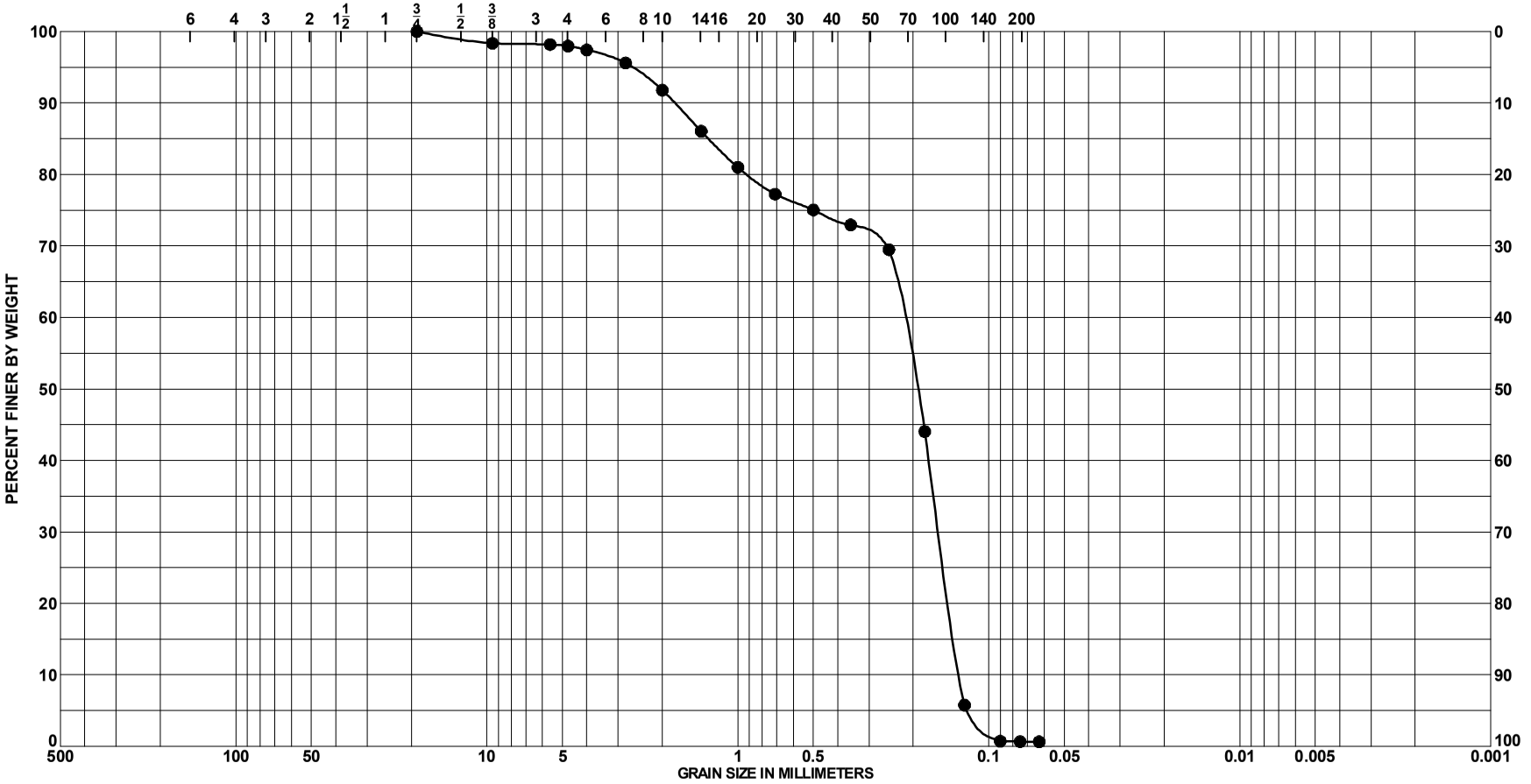


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 1	0.5 to 0.7 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, few medium-grained sand-sized shell, white (SP)	2.5Y 8/1	8							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-10
BORING ELEV.	-6.8 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

SAJ FORM 2087
JUN 02



Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 2	4.6 to 4.8 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, little medium to coarse-grained sand-sized shell, white (SP)	2.5Y 8/1	28							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-10
BORING ELEV.	-6.8 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

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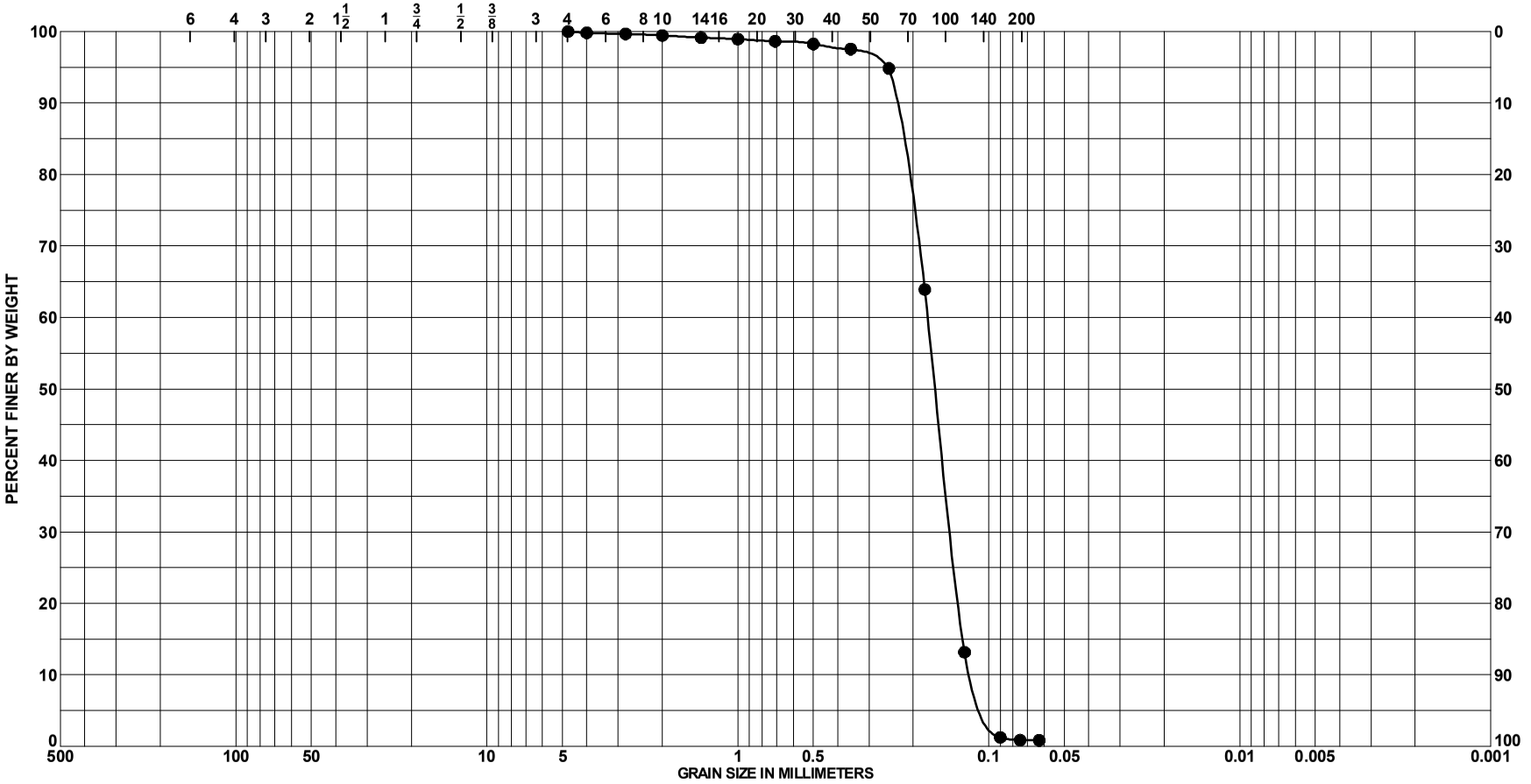

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 3	8.5 to 8.7 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, white (SP)	2.5Y 8/1	3							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-10
BORING ELEV.	-6.8 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

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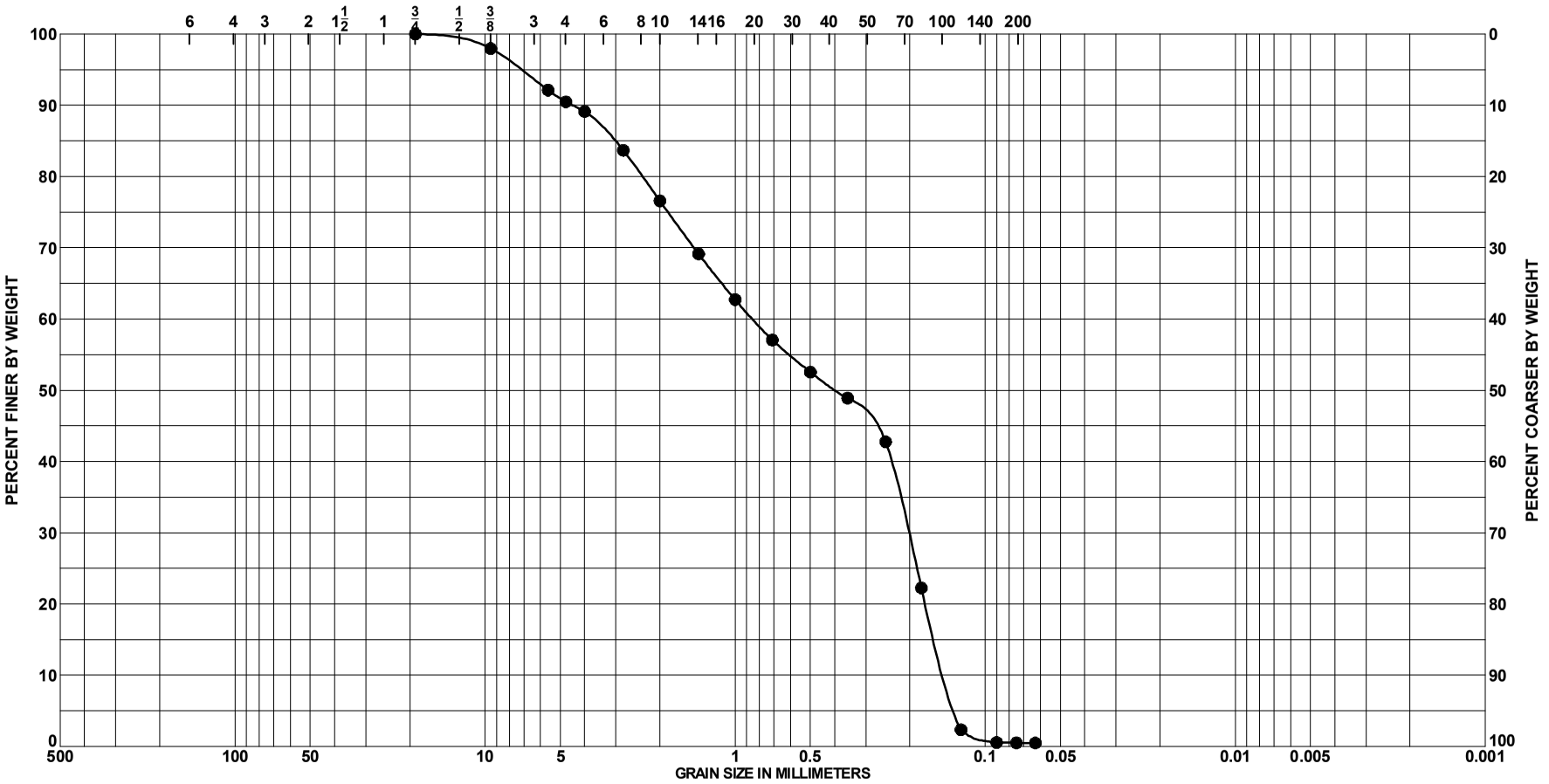

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 4	13.5 to 13.7 Ft.	SAND, poorly-graded, mostly sand to gravel-sized shell, some fine-grained sand-sized quartz, white (SP)	2.5Y 8/1	57							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-10
BORING ELEV.	-6.8 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

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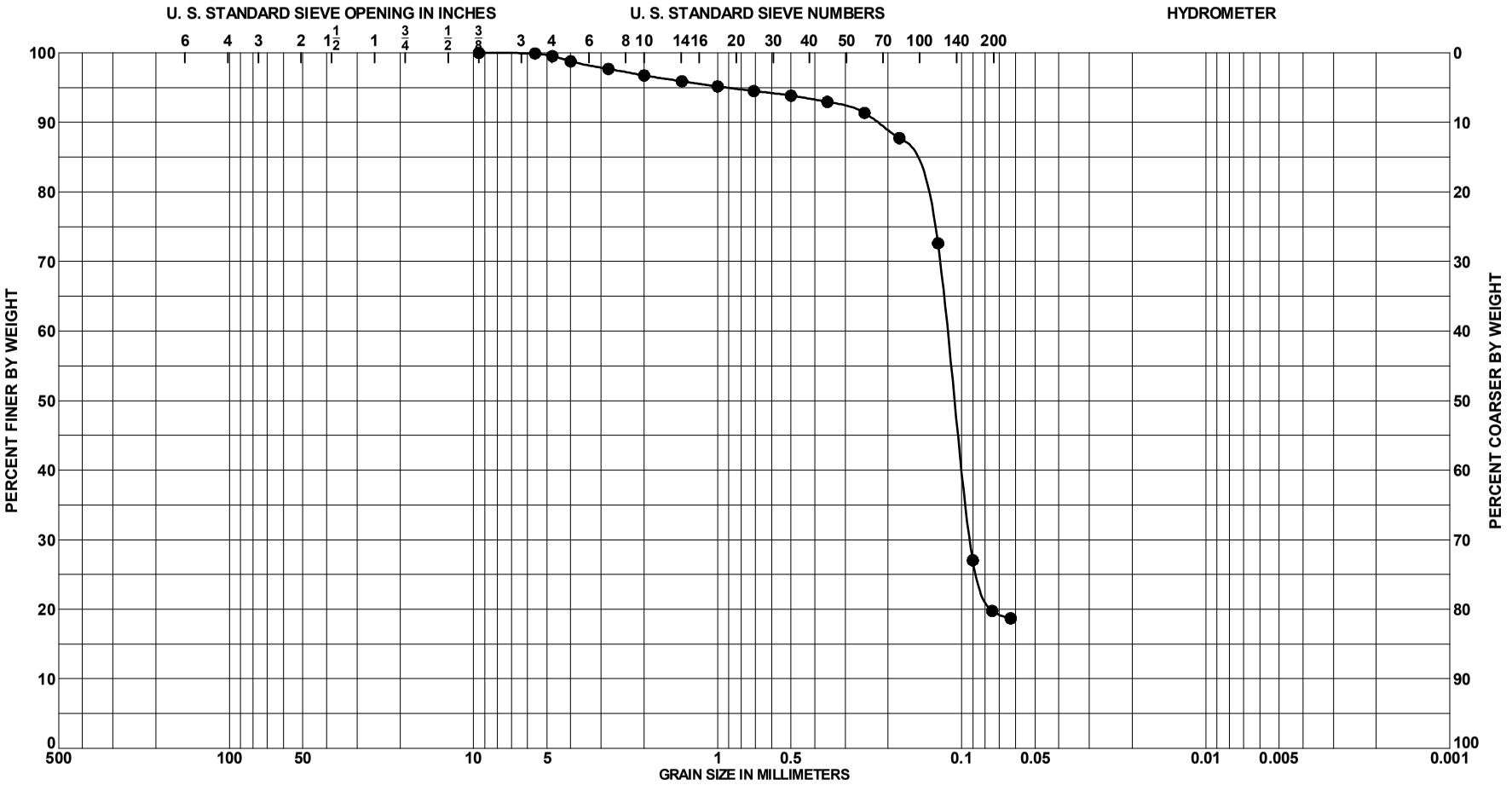

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 5	16.5 to 16.7 Ft.	SAND, silty, mostly fine-grained sand-sized quartz, little silt, few medium-grained sand-sized shell, very dark greenish gray (SM)	10Y 3/1	6							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-10
BORING ELEV.	-6.8 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

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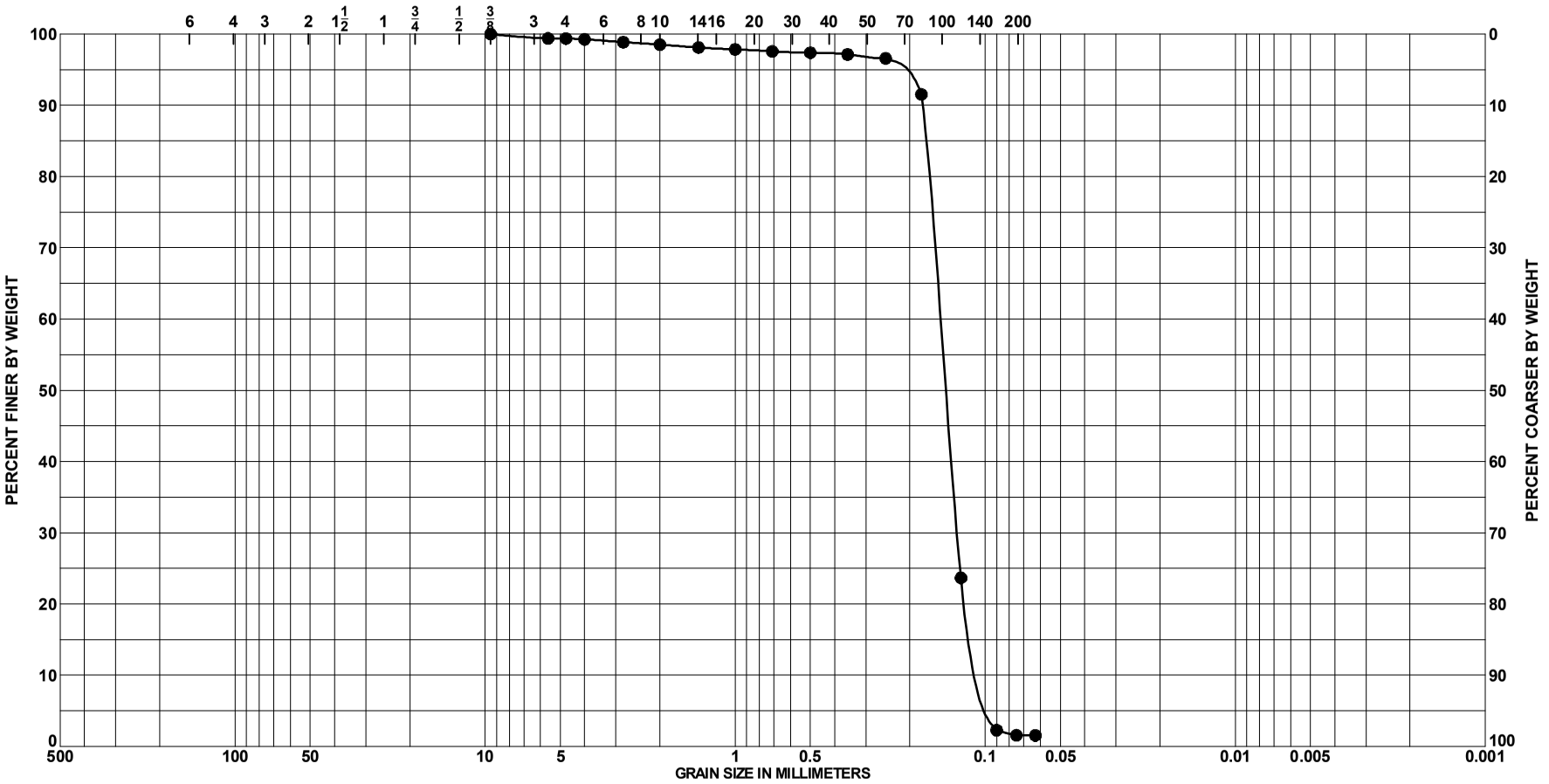

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 1	0.5 to 0.7 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, trace silt, white (SP)	2.5Y 8/1	3							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-14
BORING ELEV.	-10.1 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

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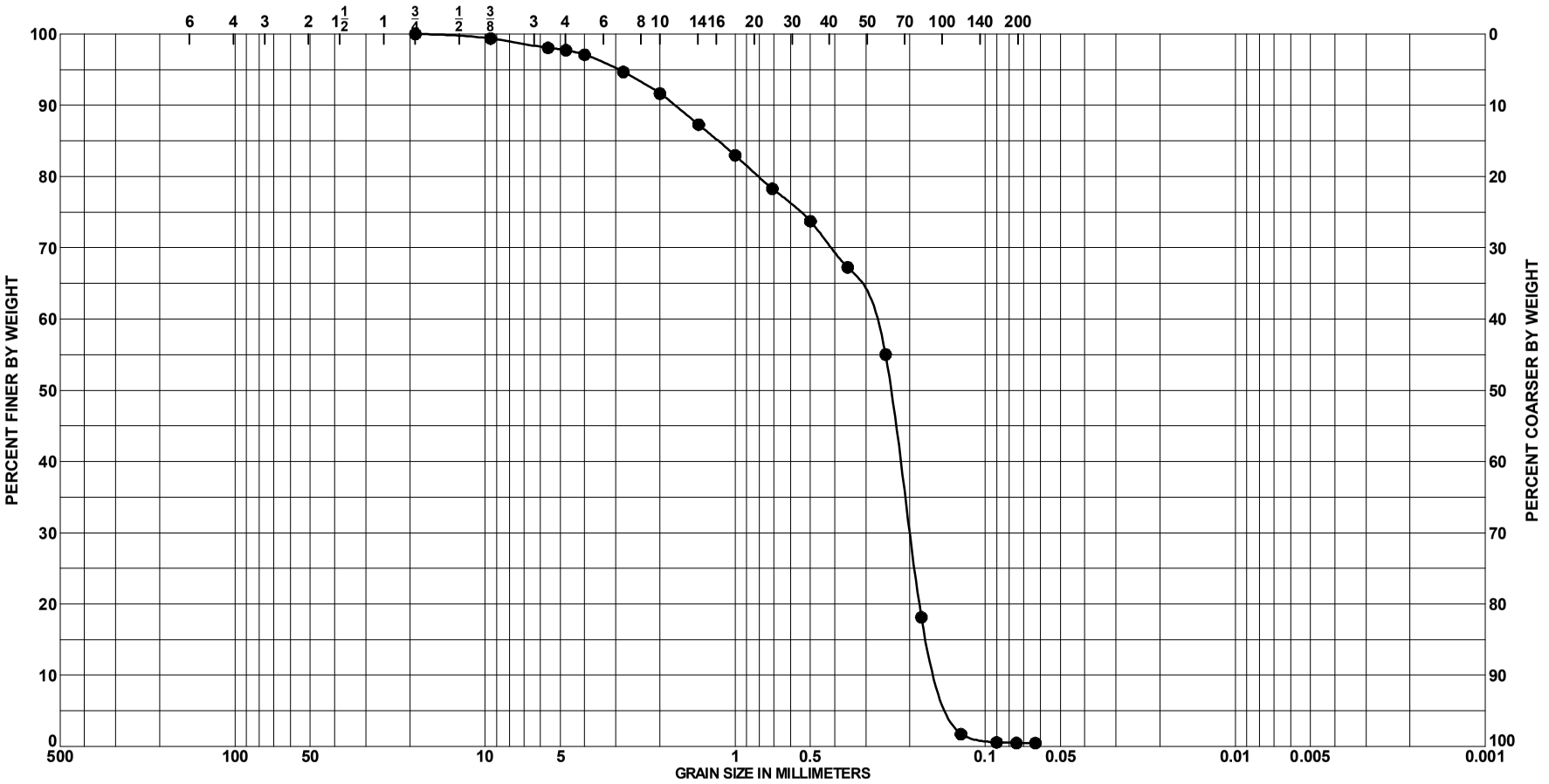

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 2	4.0 to 4.2 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, some fine to coarse-grained sand-sized shell, light gray (SP)	2.5Y 7/1	40	38						

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-14
BORING ELEV.	-10.1 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

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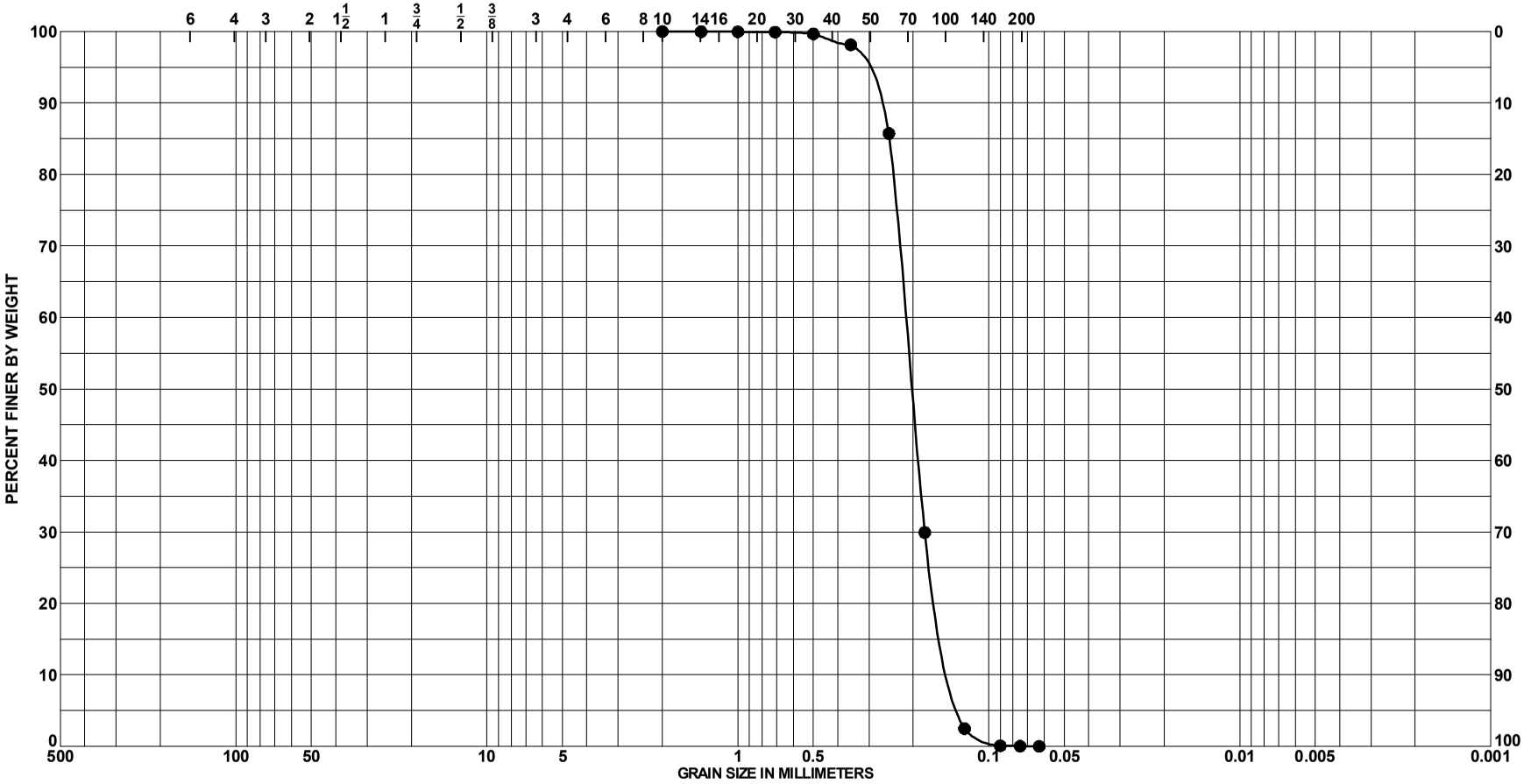

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 2-Post	4.0 to 4.2 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, light gray (SP)	2.5Y 7/1								

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-14
BORING ELEV.	-10.1 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

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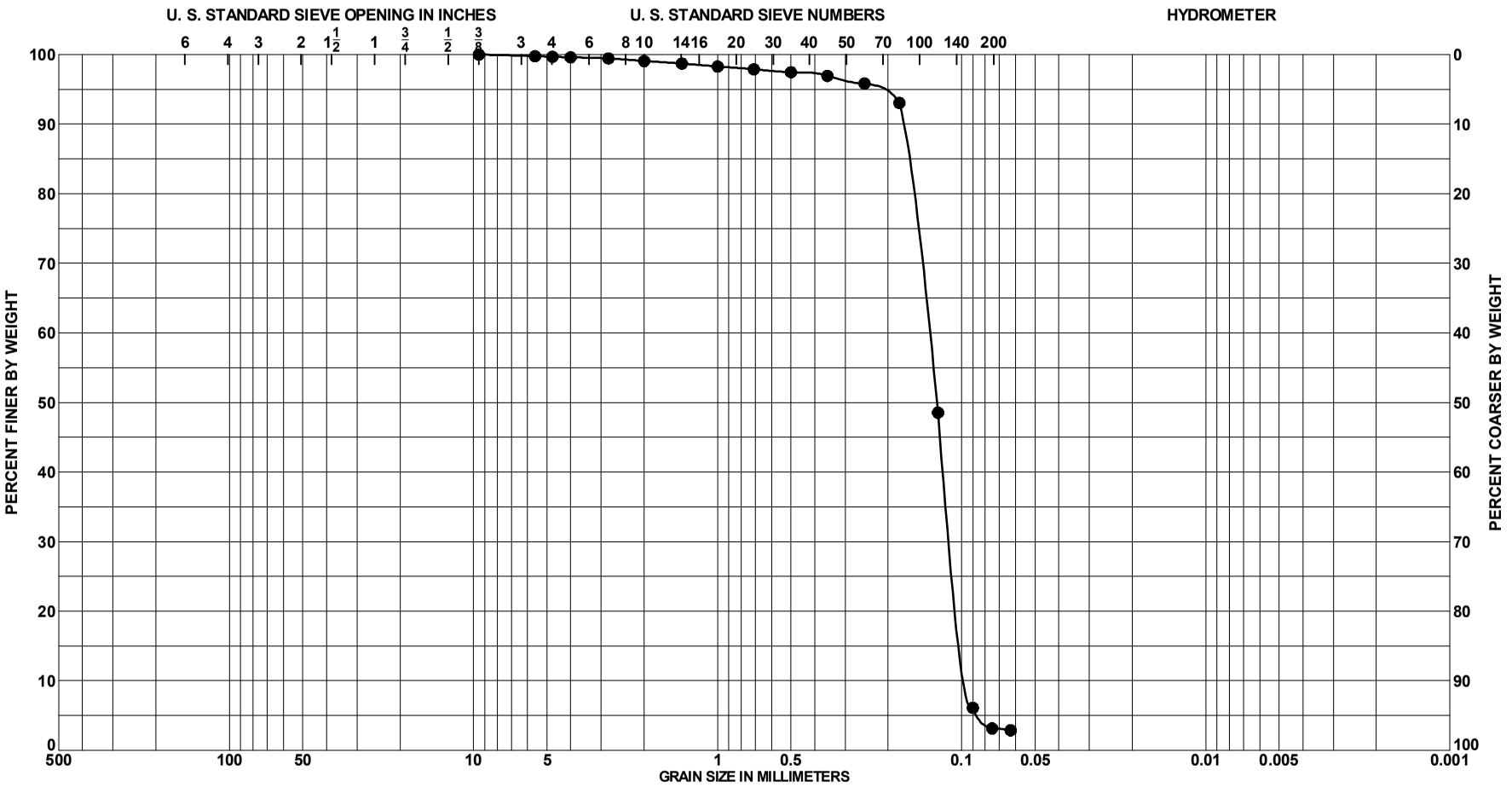

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 3	9.5 to 9.7 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, trace silt, white (SP)	2.5Y 8/1	3							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-14
BORING ELEV.	-10.1 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

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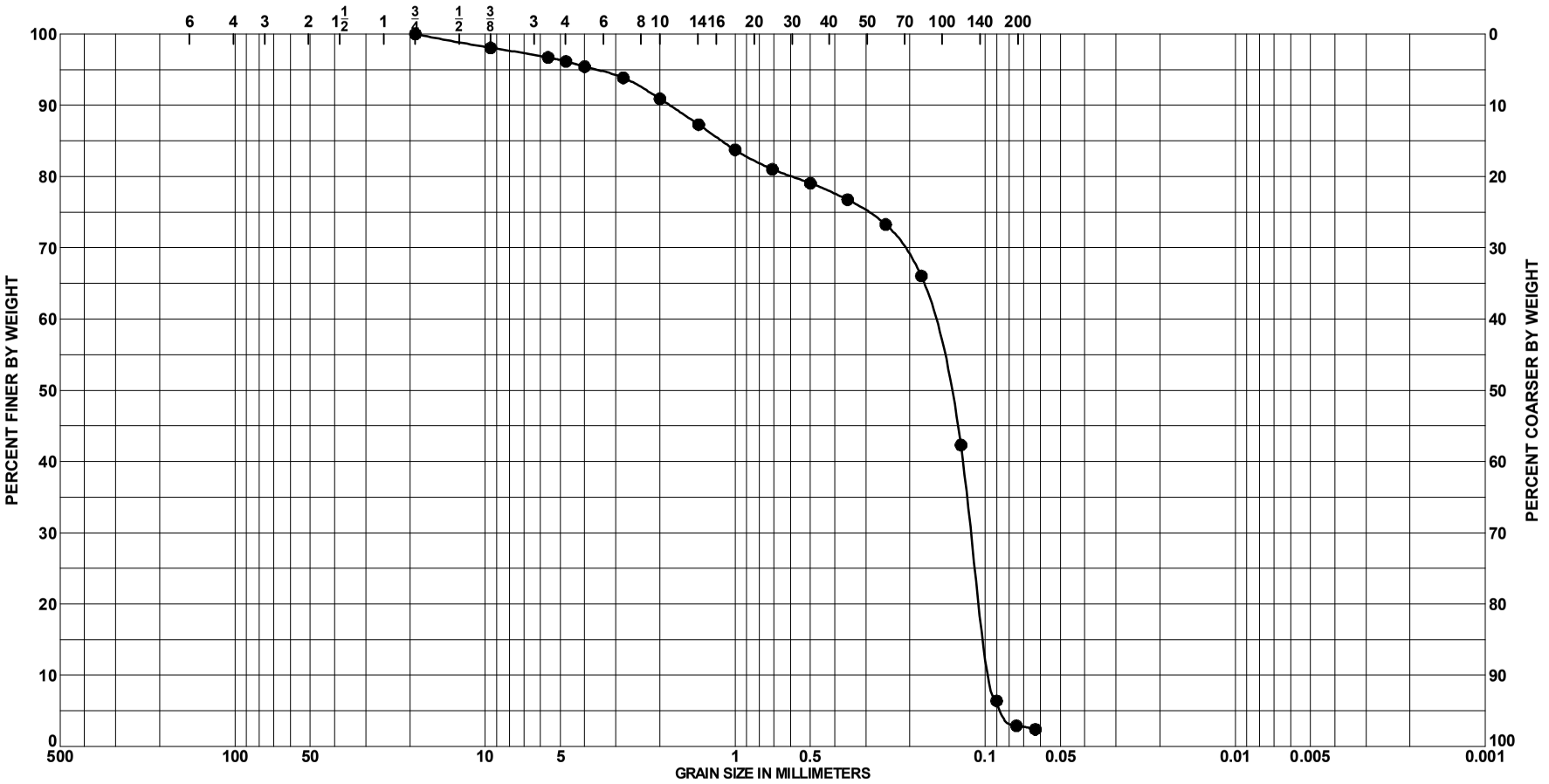

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 4	12.5 to 12.7 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, little medium to coarse-grained sand-sized shell, trace silt, gray (SP)	2.5Y 6/1	22							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-14
BORING ELEV.	-10.1 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

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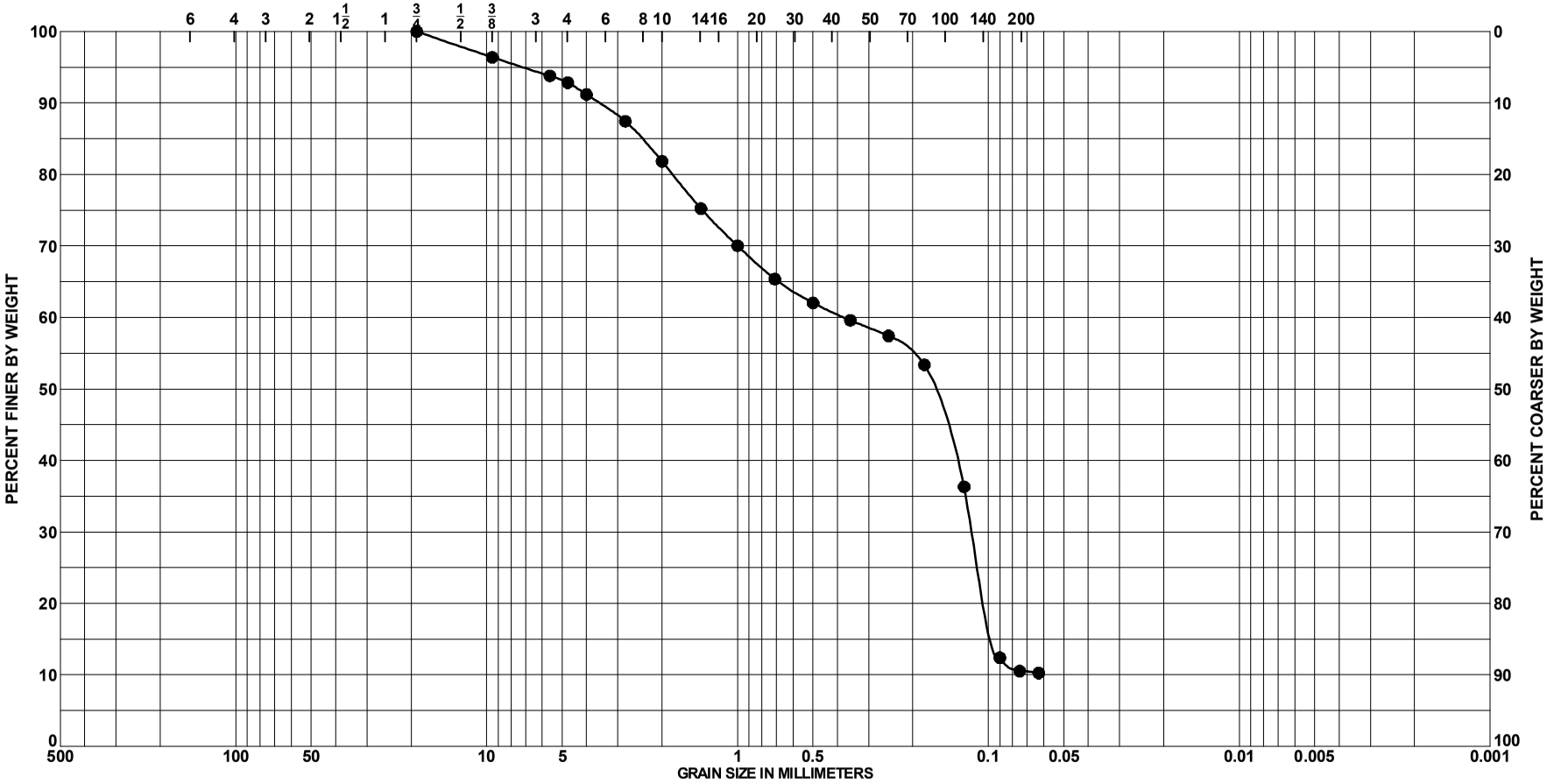

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 5	13.0 to 13.2 Ft.	SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, some sand to gravel-sized shell, few silt, gray (SP-SM)	2.5Y 6/1	39							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County
BORING NO.	VB-BSP-12-14
BORING ELEV.	-10.1 Ft., MLLW
DATE	4/26/2013

GRADATION CURVES

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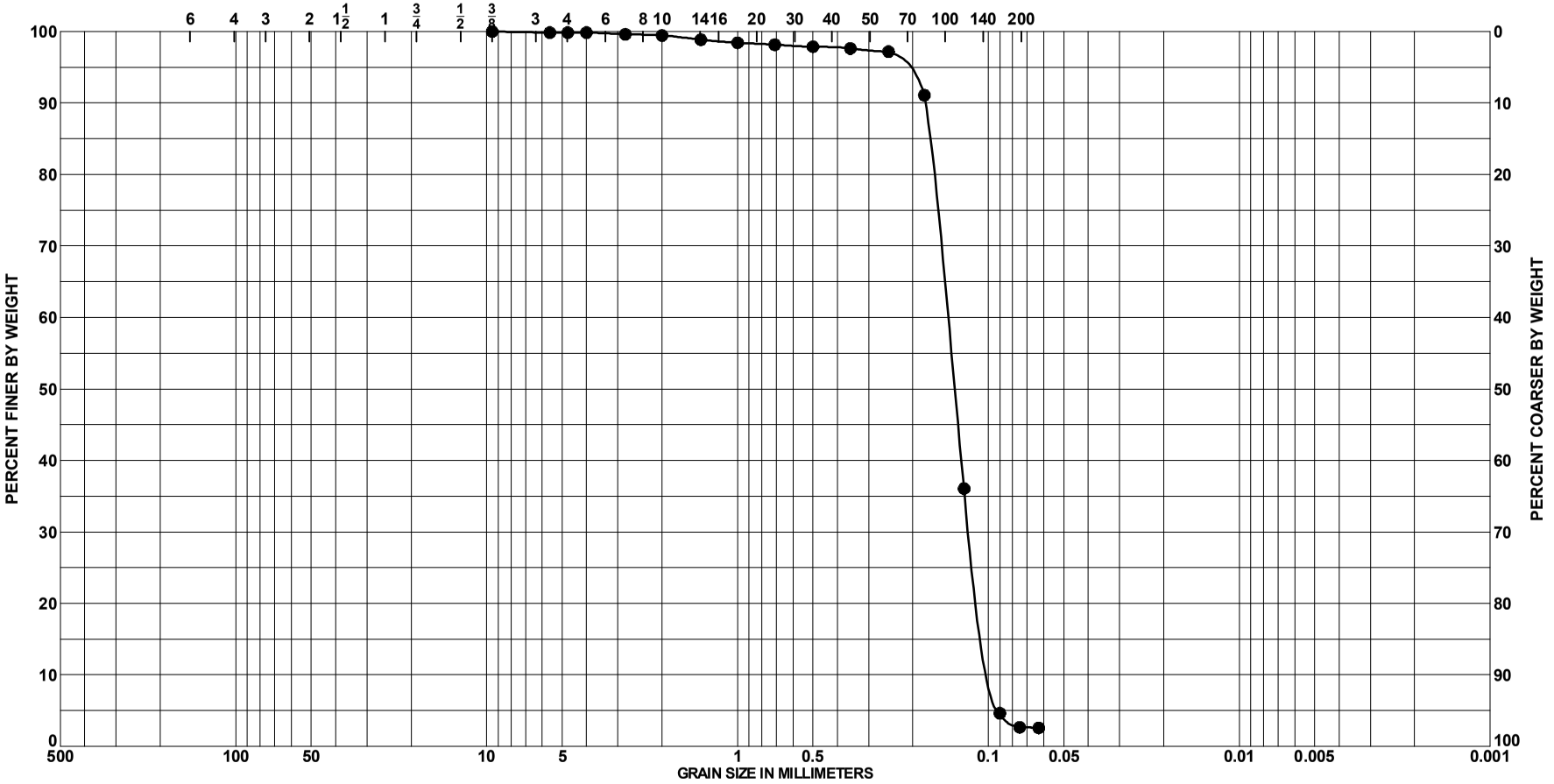

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 1	0.5 to 0.8 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, trace silt, white (SP)	5Y 8/1	4							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-01
BORING ELEV.	-14.6 Ft., MLLW
DATE	6/12/2014

GRADATION CURVES

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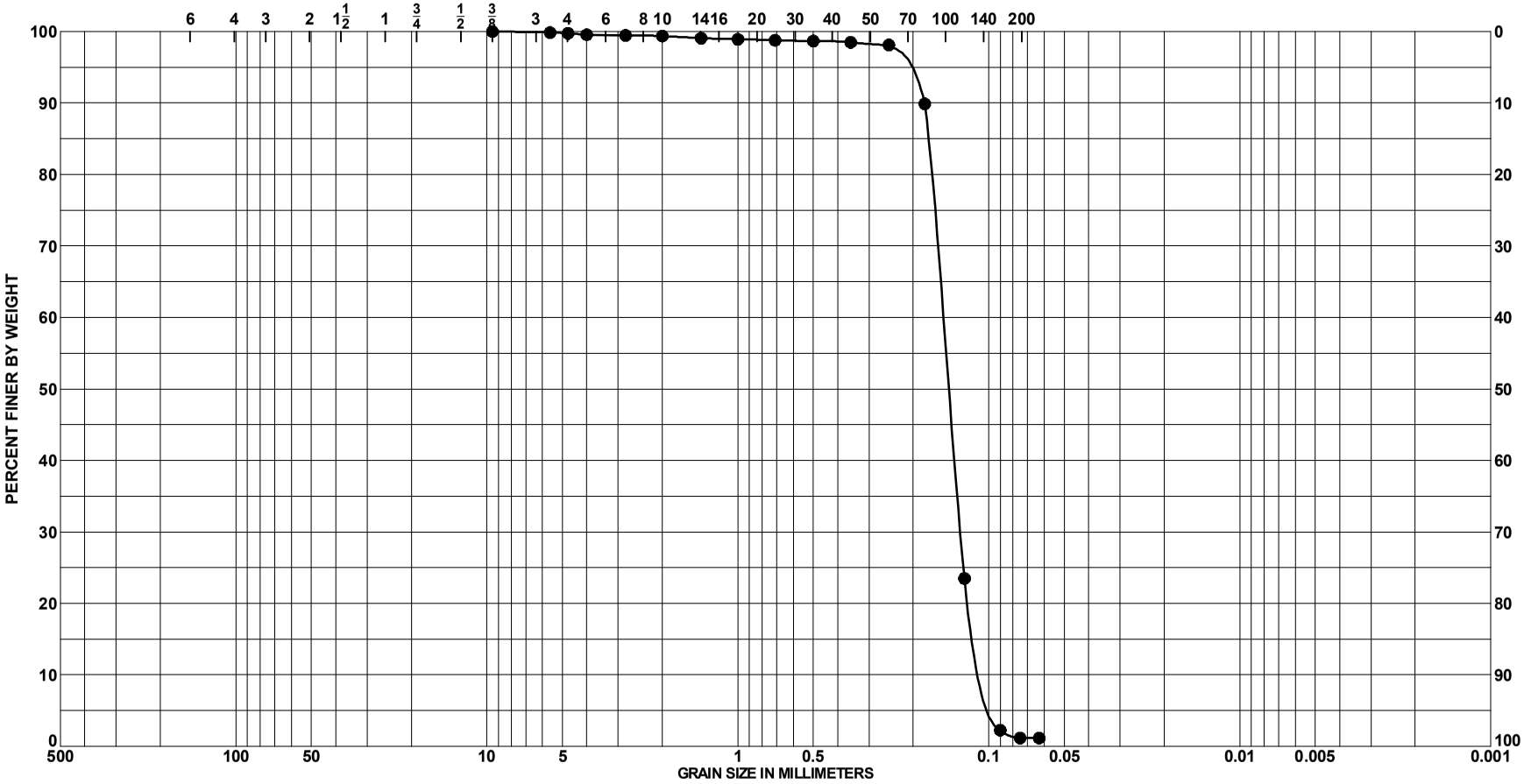

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 2	4.0 to 4.3 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, trace silt, white (SP)	5Y 8/1	3							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-01
BORING ELEV.	-14.6 Ft., MLLW
DATE	6/12/2014

GRADATION CURVES

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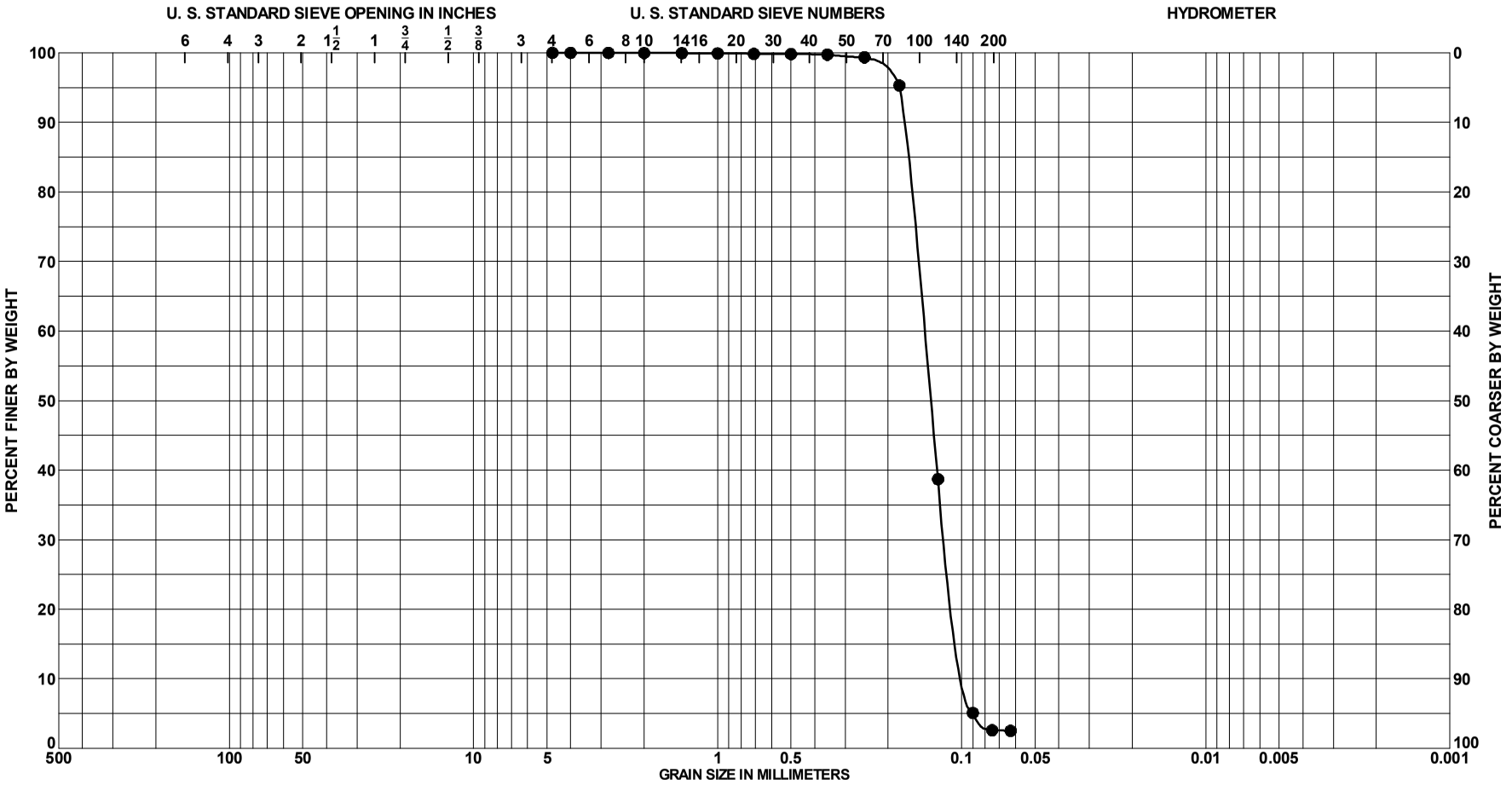

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 3	7.5 to 7.8 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell, white (SP)	5Y 8/1	1							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-01
BORING ELEV.	-14.6 Ft., MLLW
DATE	6/12/2014

GRADATION CURVES

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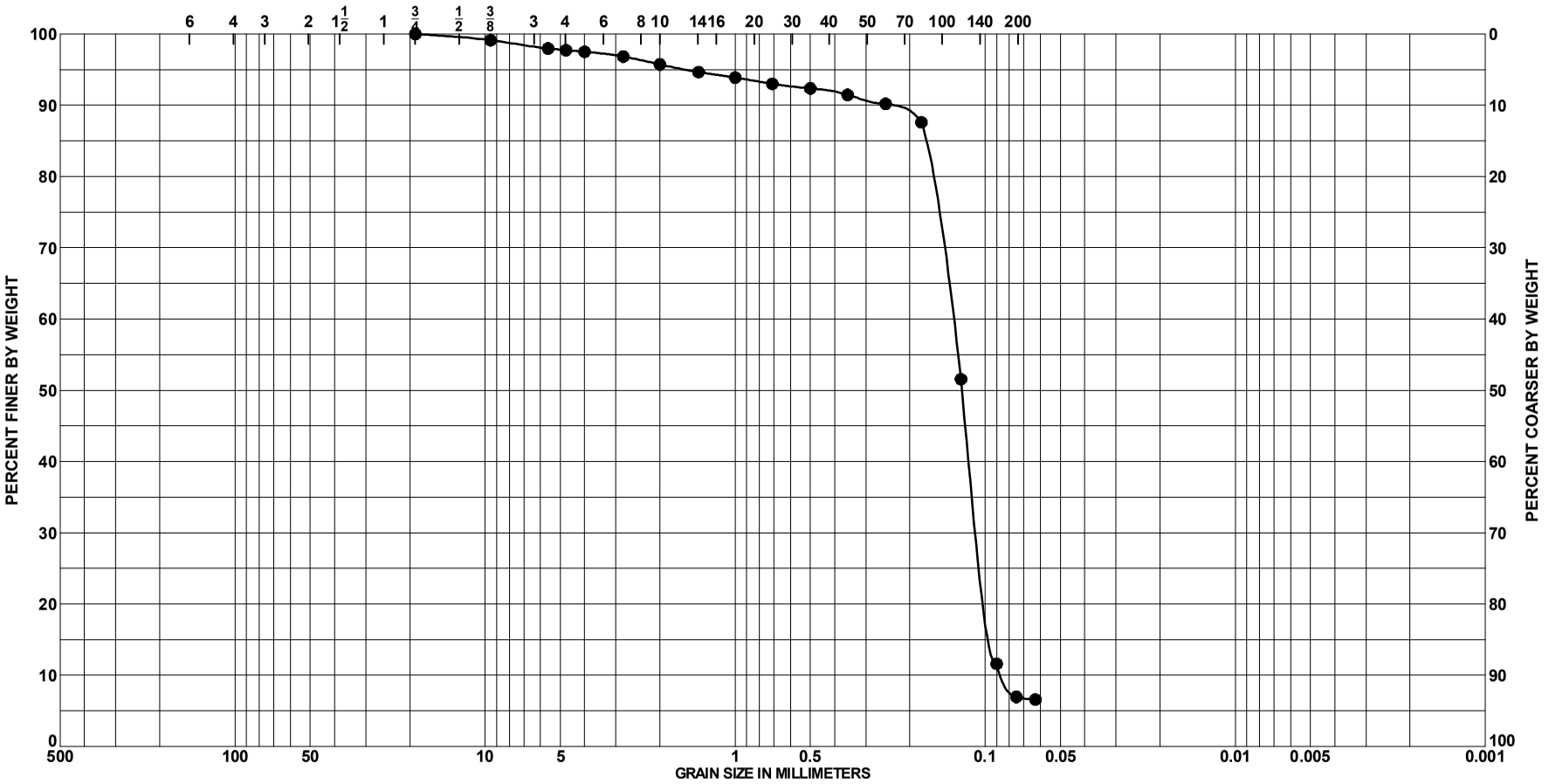

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 4	9.3 to 9.6 Ft.	SAND, poorly-graded with silt, mostly	5Y 6/1	12							
		fine-grained sand-sized quartz, few									
		medium-grained sand-sized shell, few									
		silt, gray (SP-SM)									

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-01
BORING ELEV.	-14.6 Ft., MLLW
DATE	6/12/2014

GRADATION CURVES

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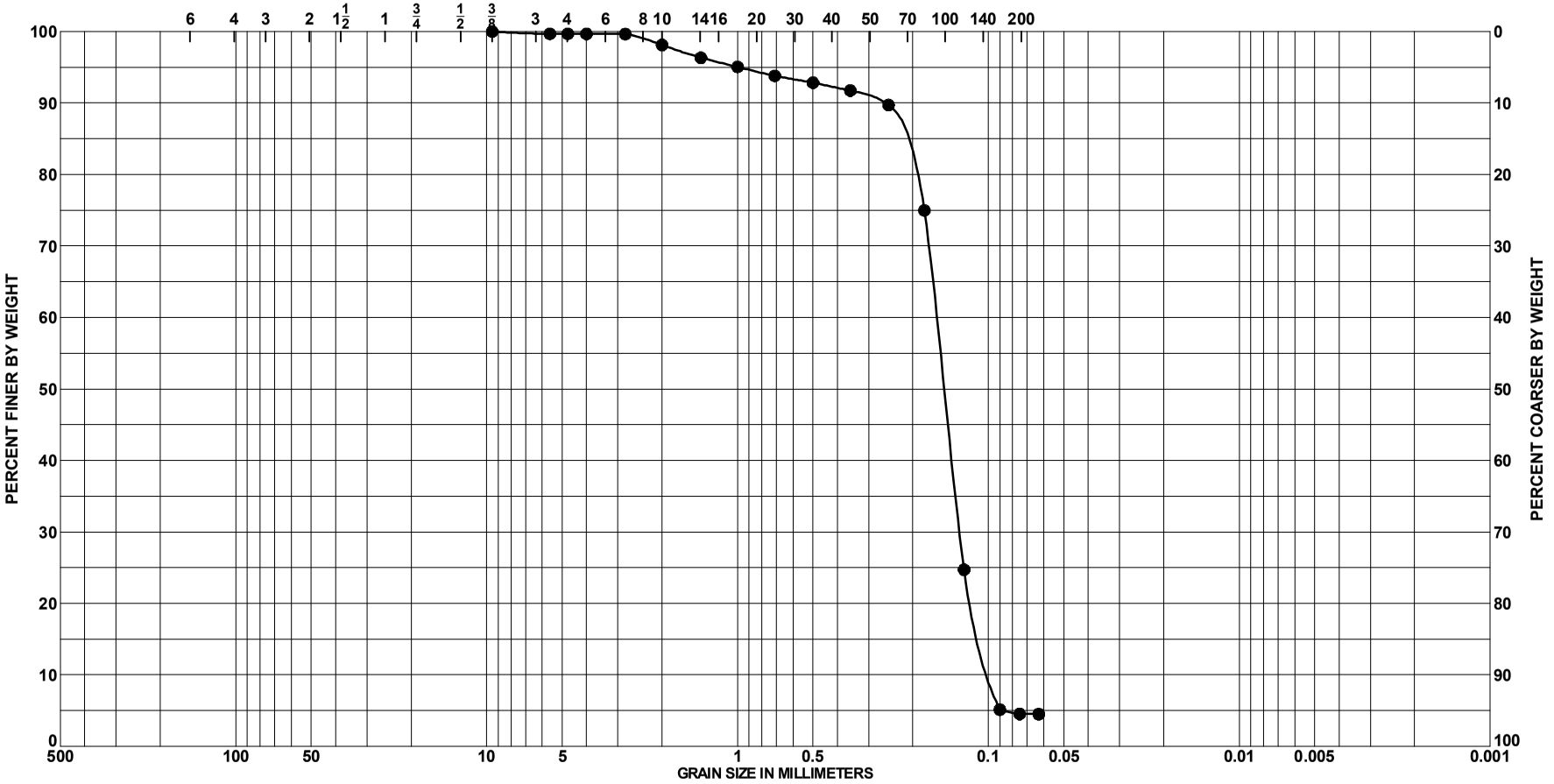
JUN 02



Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 1	0.5 to 0.8 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, few medium-grained sand-sized shell, trace silt, white (SP)	5Y 8/1	10							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-02
BORING ELEV.	-17.2 Ft., MLLW
DATE	6/12/2014

GRADATION CURVES

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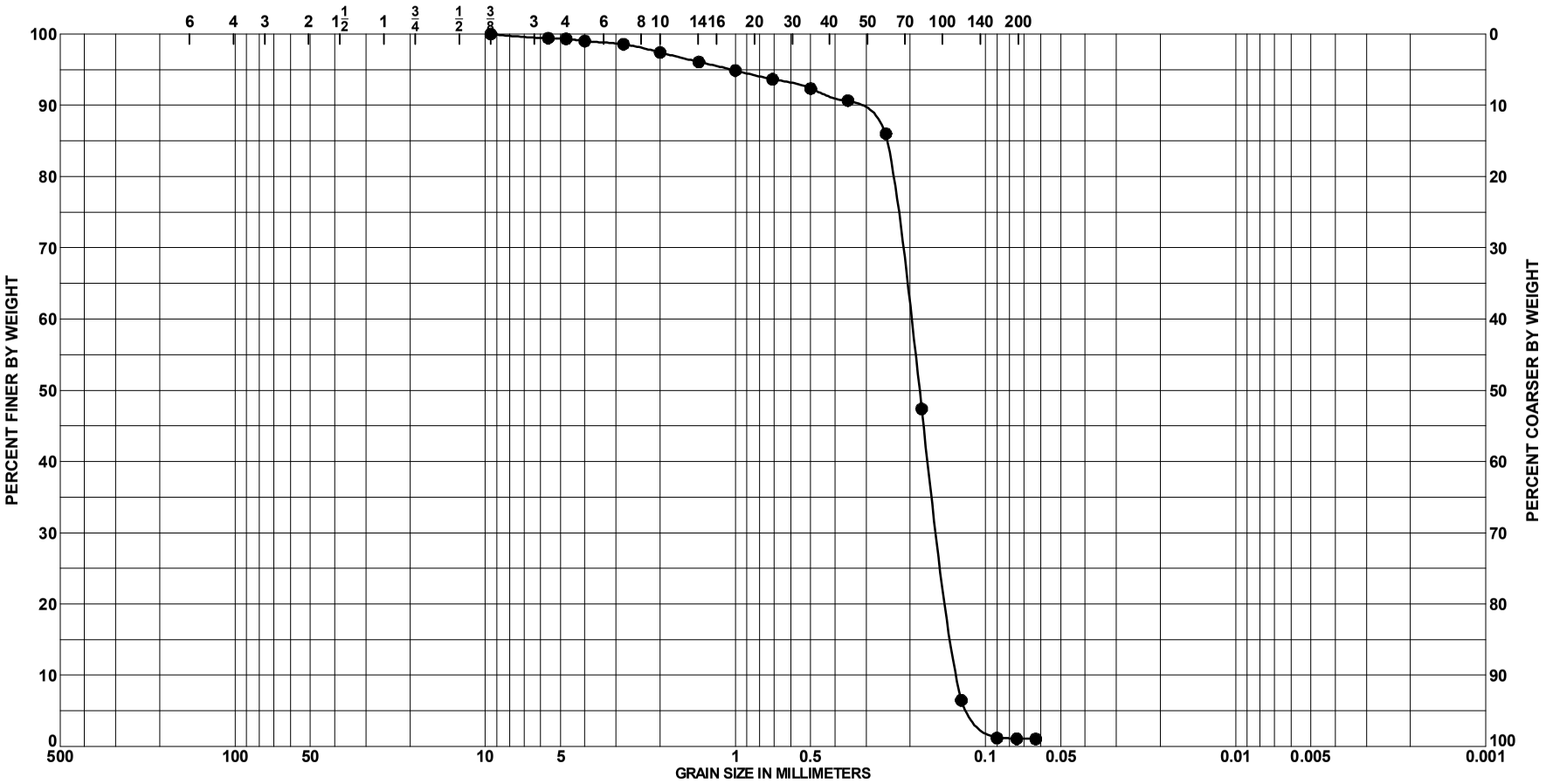
JUN 02



Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 2	4.5 to 4.8 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, little medium-grained sand-sized shell, trace silt, white (SP)	5Y 8/1	13							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-02
BORING ELEV.	-17.2 Ft., MLLW
DATE	6/12/2014

GRADATION CURVES

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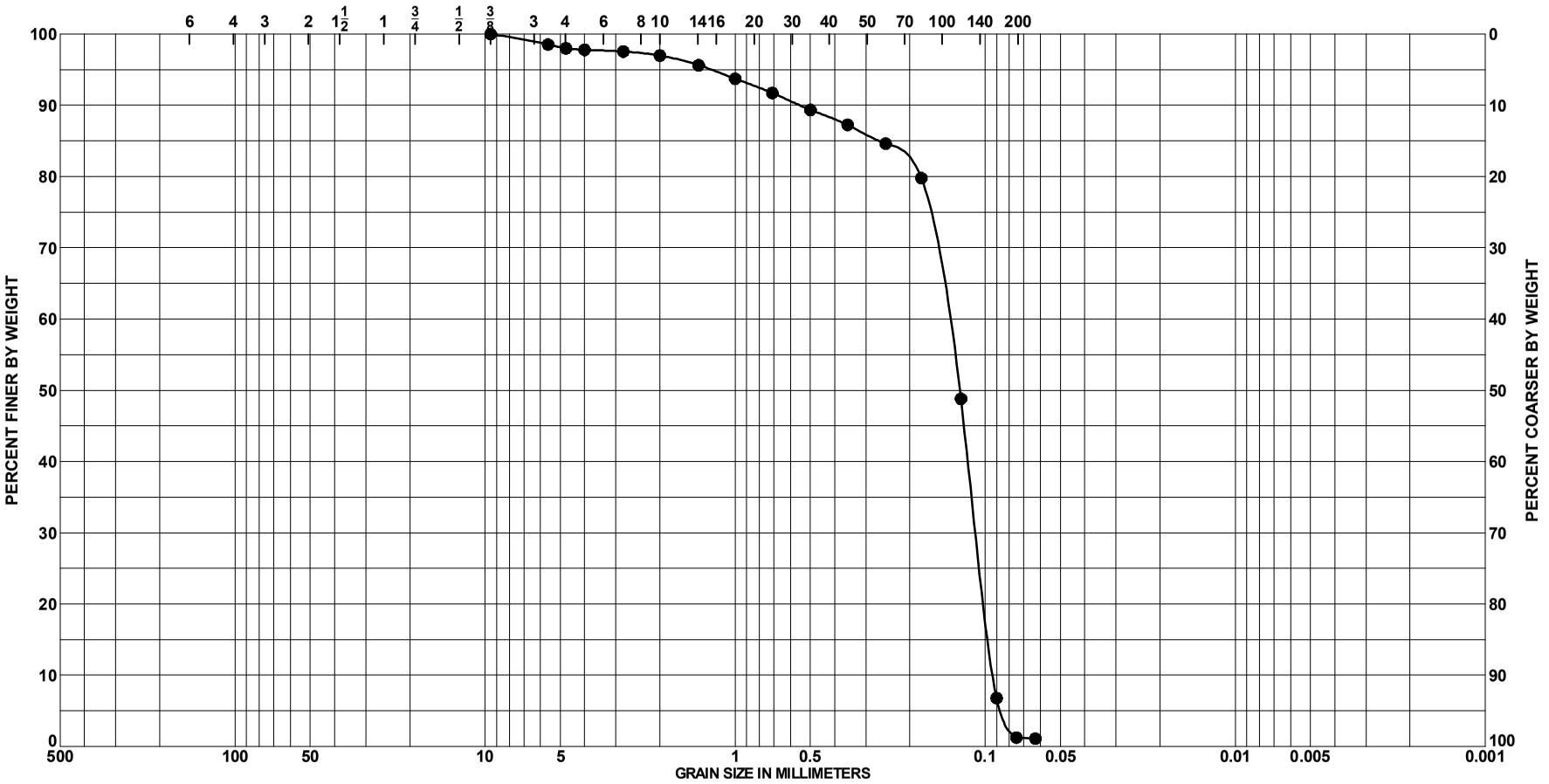

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 1	0.5 to 0.8 Ft.	SAND, poorly-graded, mostly	5Y 8/1	23							
		fine-grained sand-sized quartz, little									
		fine to medium-grained sand-sized									
		shell, trace silt, white (SP)									

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-03
BORING ELEV.	-9.8 Ft., MLLW
DATE	6/12/2014

GRADATION CURVES

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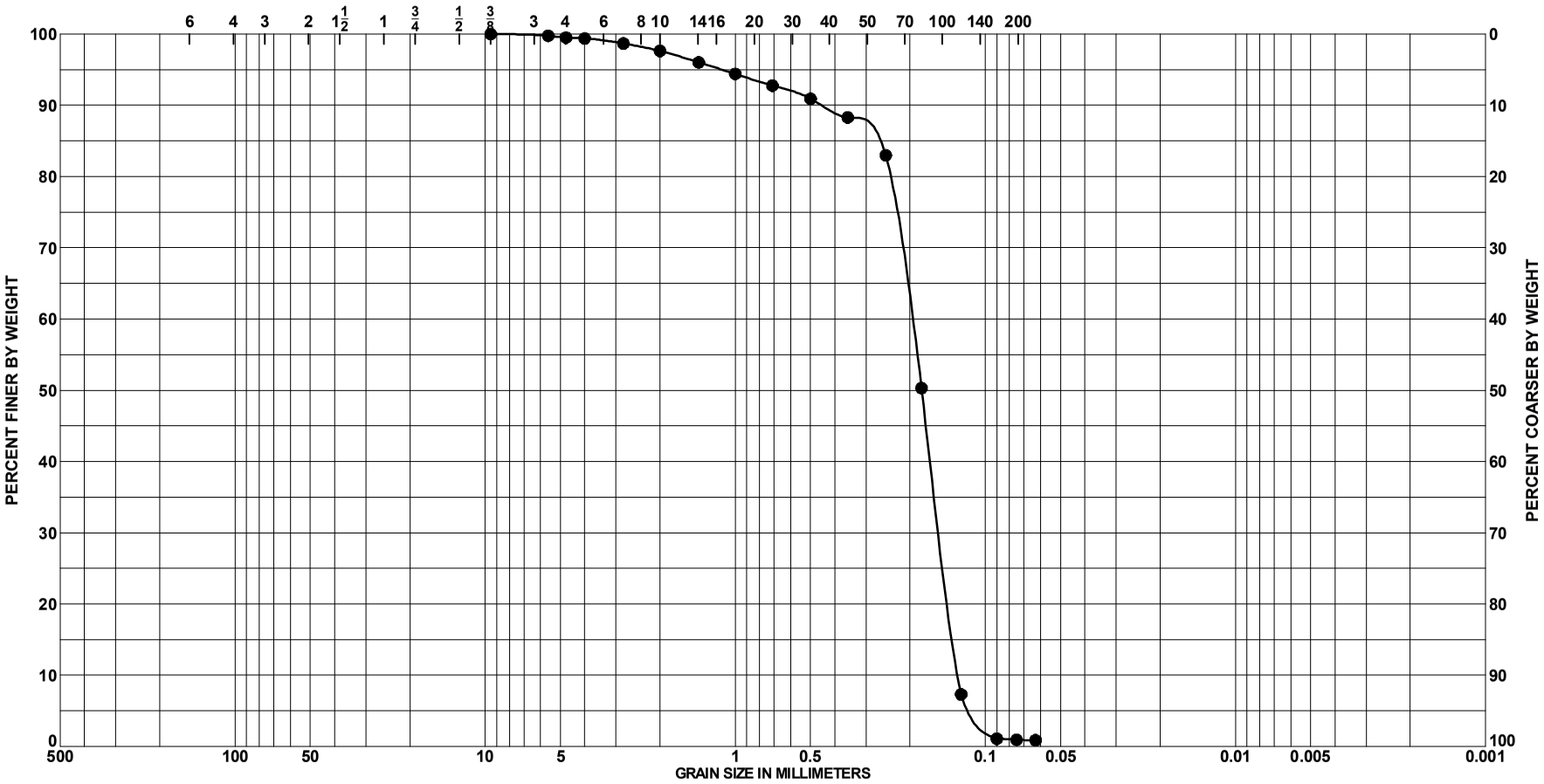

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 2	6.0 to 6.3 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, some fine to medium-grained sand-sized shell, white (SP)	5Y 8/1	33							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-03
BORING ELEV.	-9.8 Ft., MLLW
DATE	6/12/2014

GRADATION CURVES

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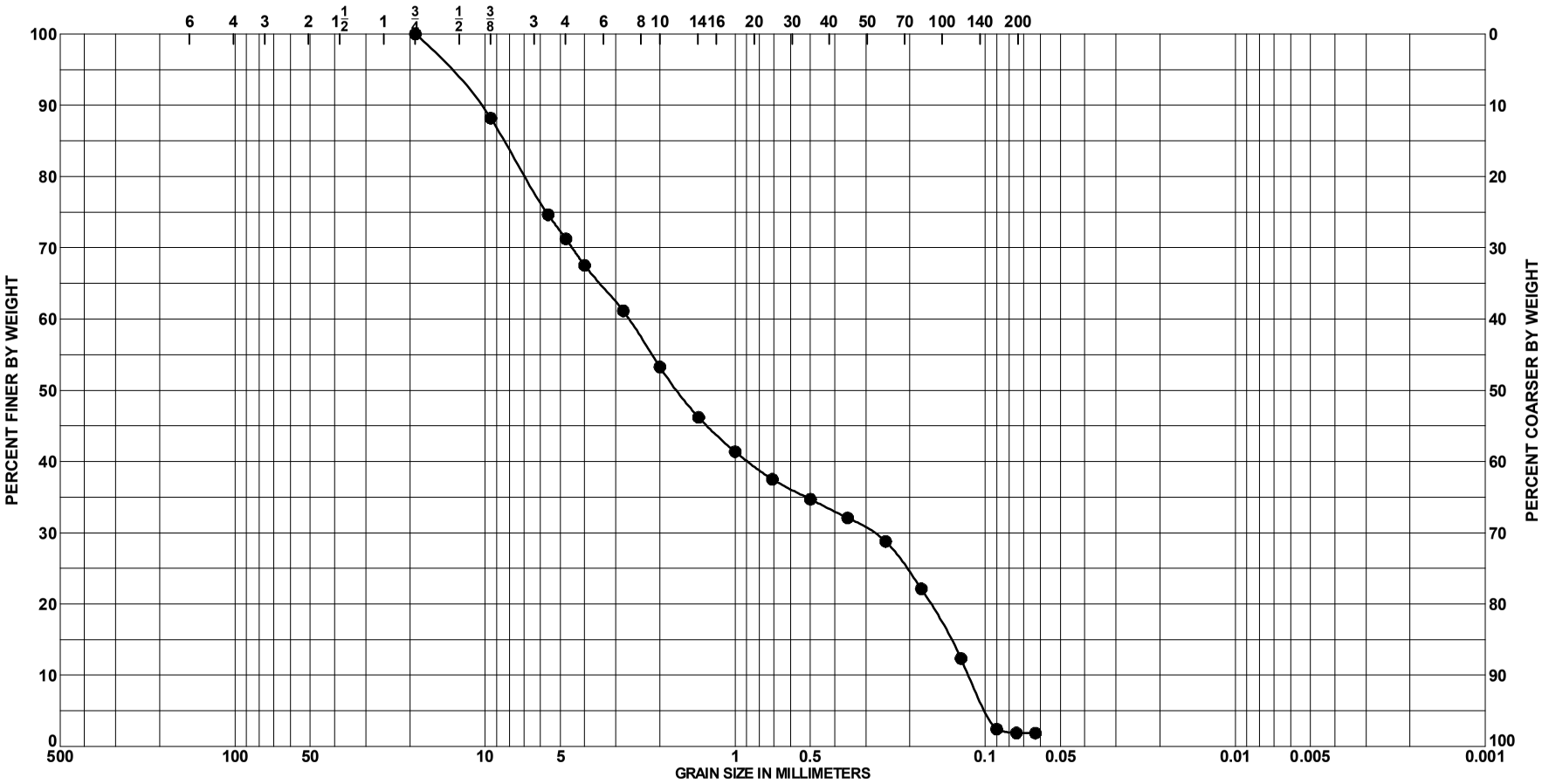

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 3	11.0 to 11.3 Ft.	SAND, well-graded, mostly sand to gravel-sized shell, little fine-grained sand-sized quartz, trace silt, white (SW)	5Y 8/1	69							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-03
BORING ELEV.	-9.8 Ft., MLLW
DATE	6/12/2014

GRADATION CURVES

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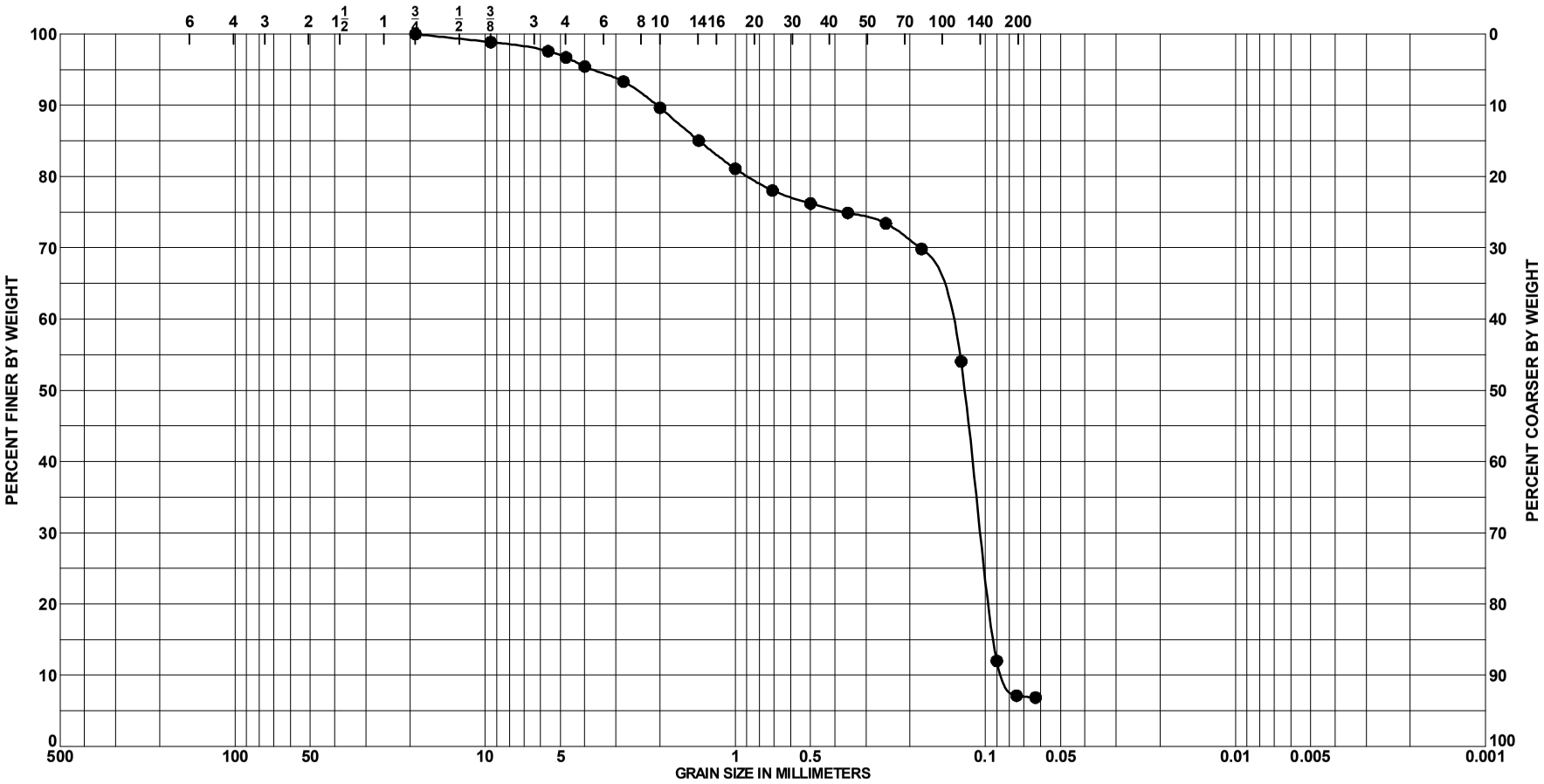

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 4	12.5 to 12.8 Ft.	SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, little medium to coarse-grained sand-sized shell, few silt, gray (SP-SM)	5Y 5/1	28							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-03
BORING ELEV.	-9.8 Ft., MLLW
DATE	6/12/2014

GRADATION CURVES

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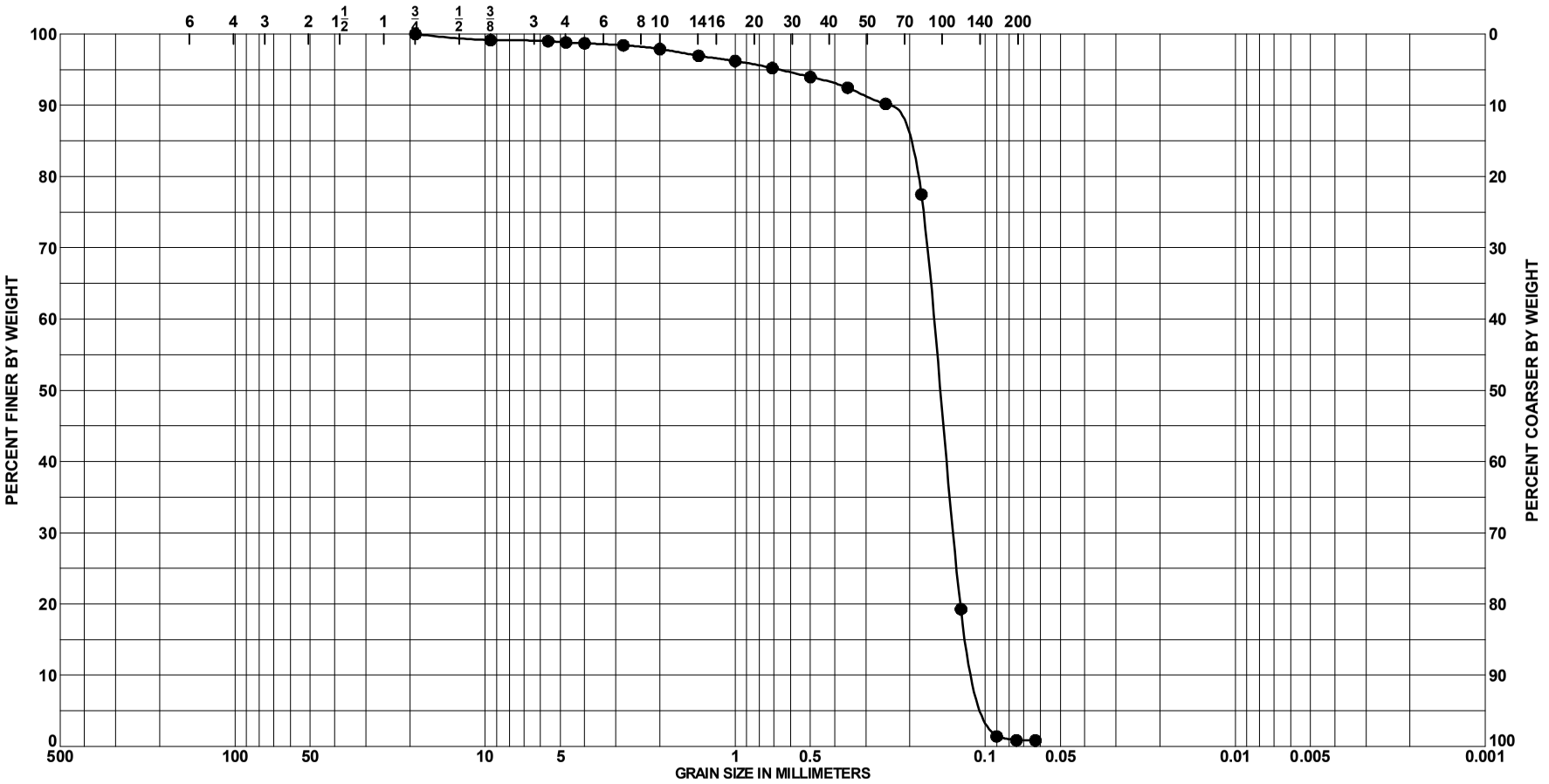

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 1	0.5 to 0.8 Ft.	SAND, poorly-graded, mostly	5Y 8/1	14							
		fine-grained sand-sized quartz, little									
		fine to medium-grained sand-sized									
		shell, white (SP)									

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-05
BORING ELEV.	-7.0 Ft., MLLW
DATE	6/18/2014

GRADATION CURVES

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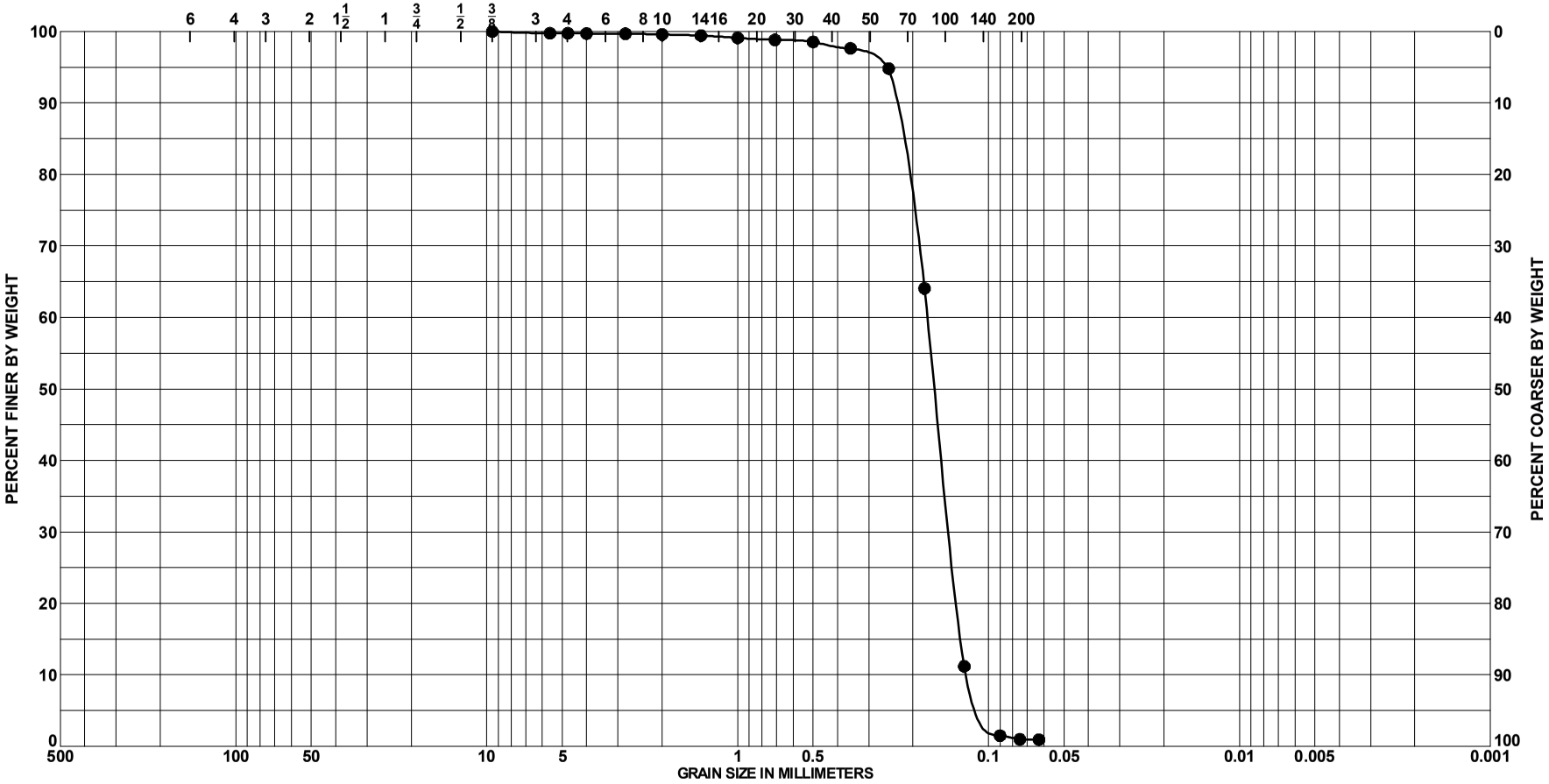

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 2	4.0 to 4.3 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, white (SP)	5Y 8/1	4							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-05
BORING ELEV.	-7.0 Ft., MLLW
DATE	6/18/2014

GRADATION CURVES

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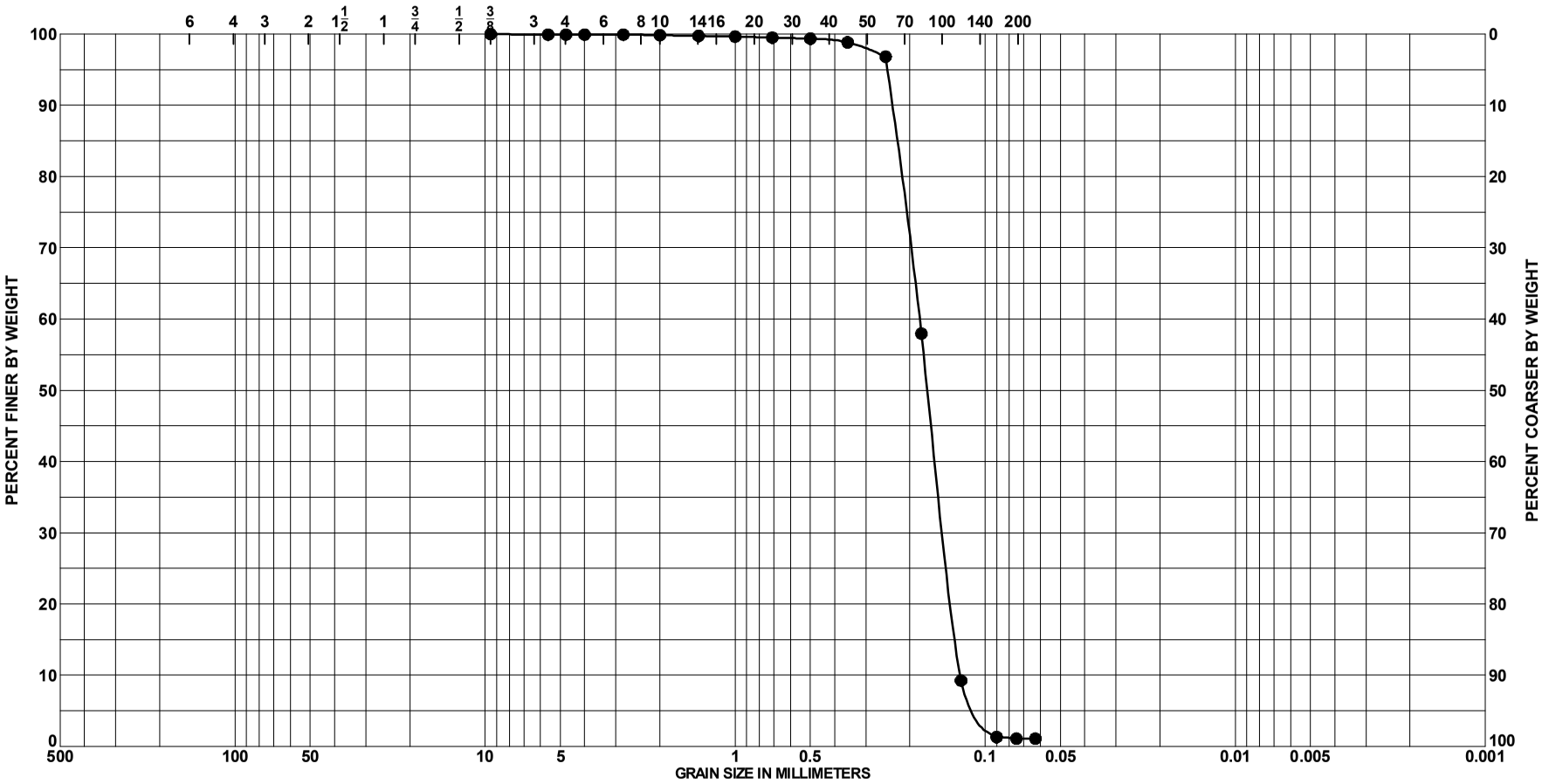

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 3	9.0 to 9.3 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, trace silt, white (SP)	5Y 8/1	4							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-05
BORING ELEV.	-7.0 Ft., MLLW
DATE	6/15/2014

GRADATION CURVES

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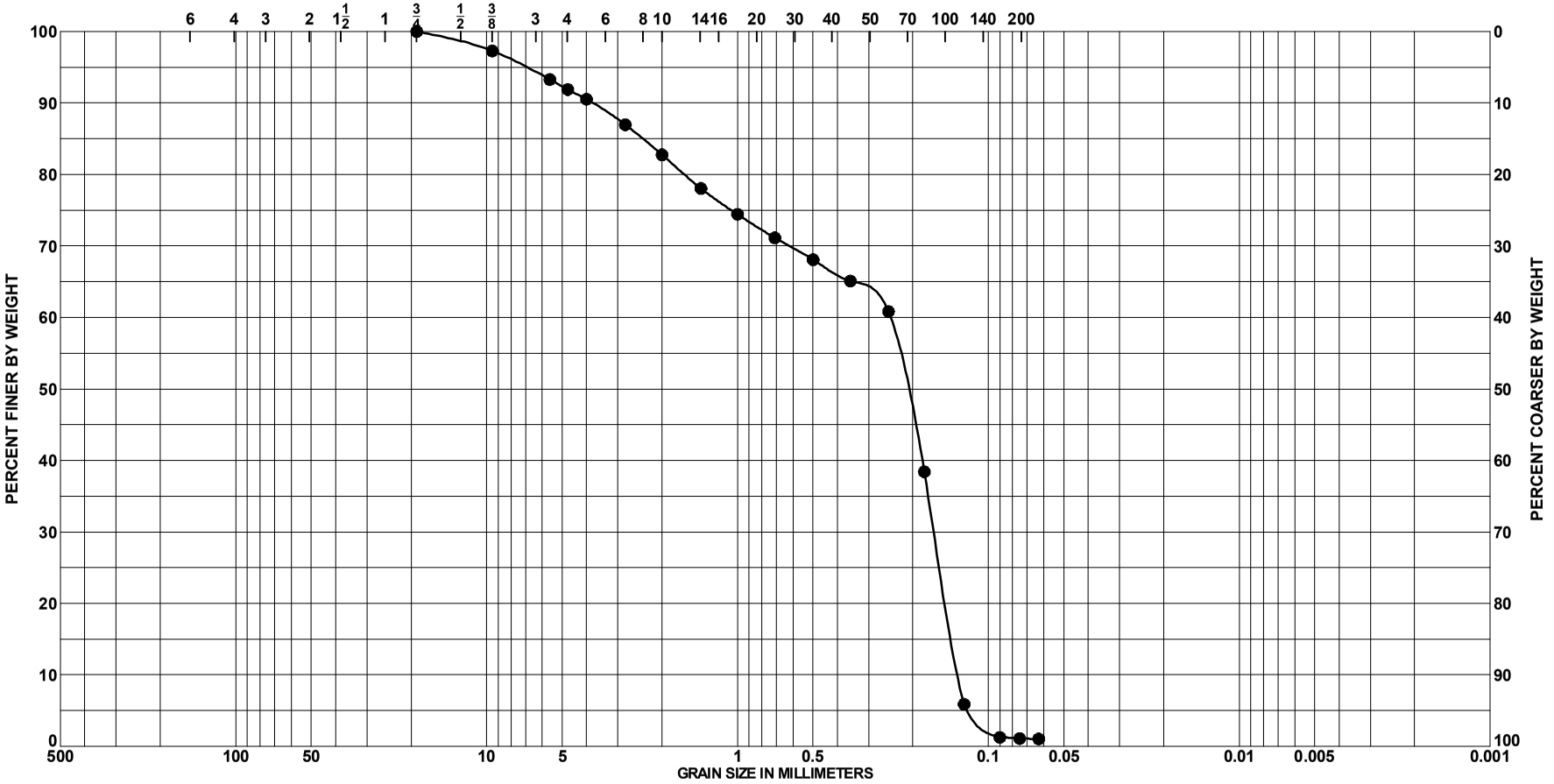

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 4	15.0 to 15.3 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, some sand to gravel-sized shell, trace silt, white (SP)	5Y 8/1	37							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-05
BORING ELEV.	-7.0 Ft., MLLW
DATE	6/18/2014

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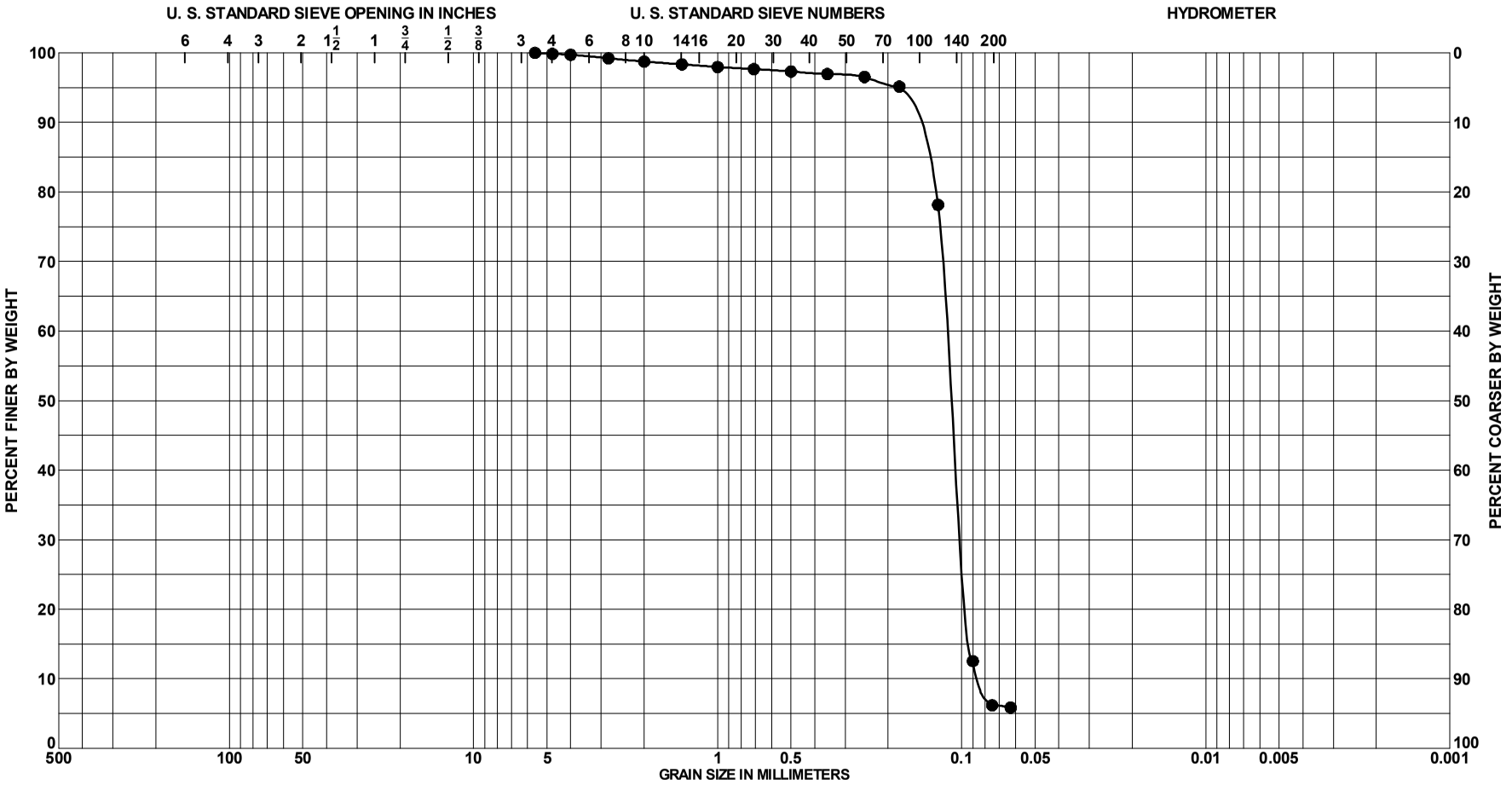

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 1	0.5 to 0.8 Ft.	SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell, white (SP-SM)	5Y 8/1	5							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-06
BORING ELEV.	-7.5 Ft., MLLW
DATE	6/18/2014

GRADATION CURVES

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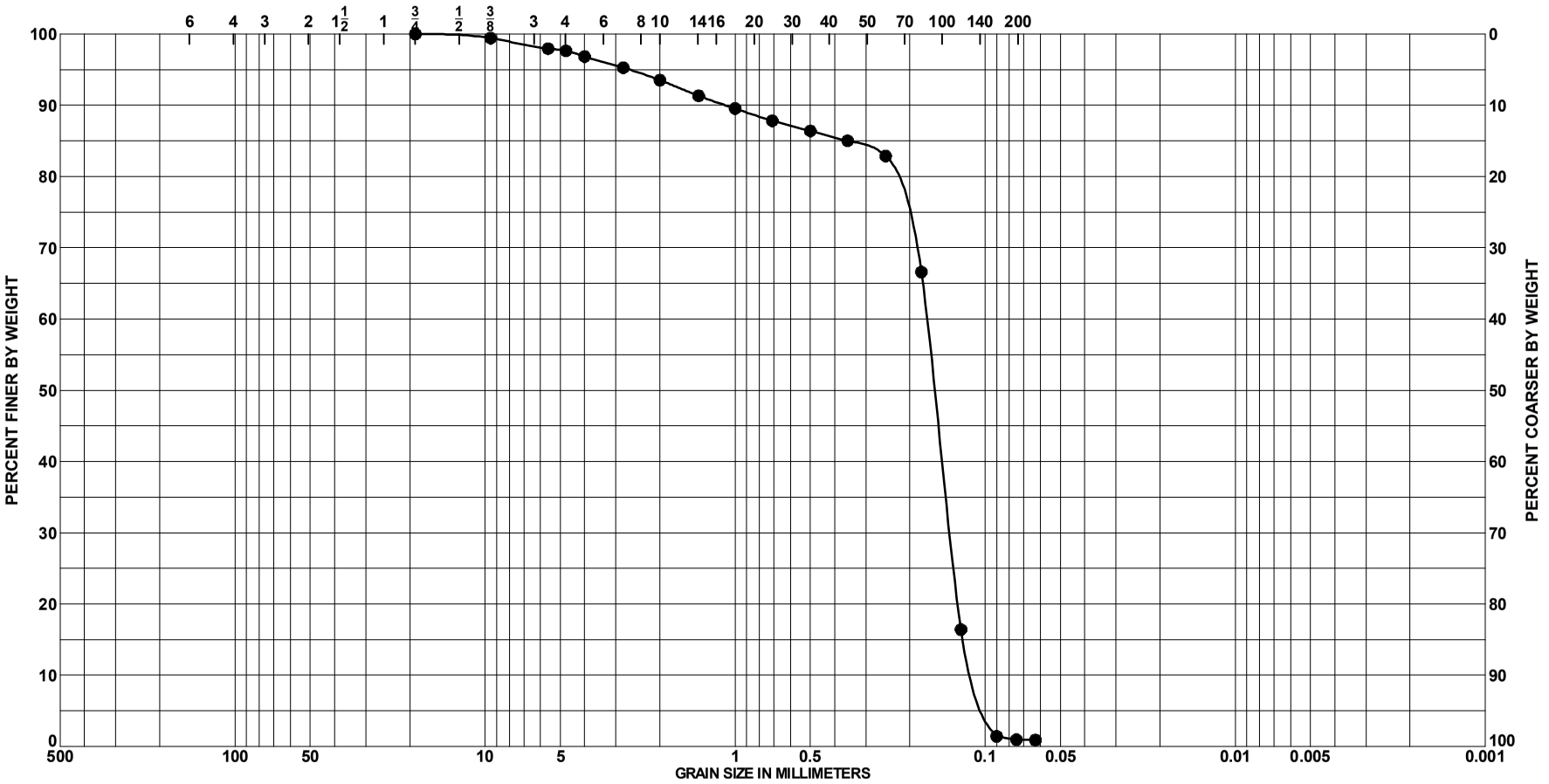
JUN 02



Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 2	6.0 to 6.3 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, little medium to coarse-grained sand-sized shell, white (SP)	5Y 8/1	16							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-06
BORING ELEV.	-7.5 Ft., MLLW
DATE	6/18/2014

GRADATION CURVES

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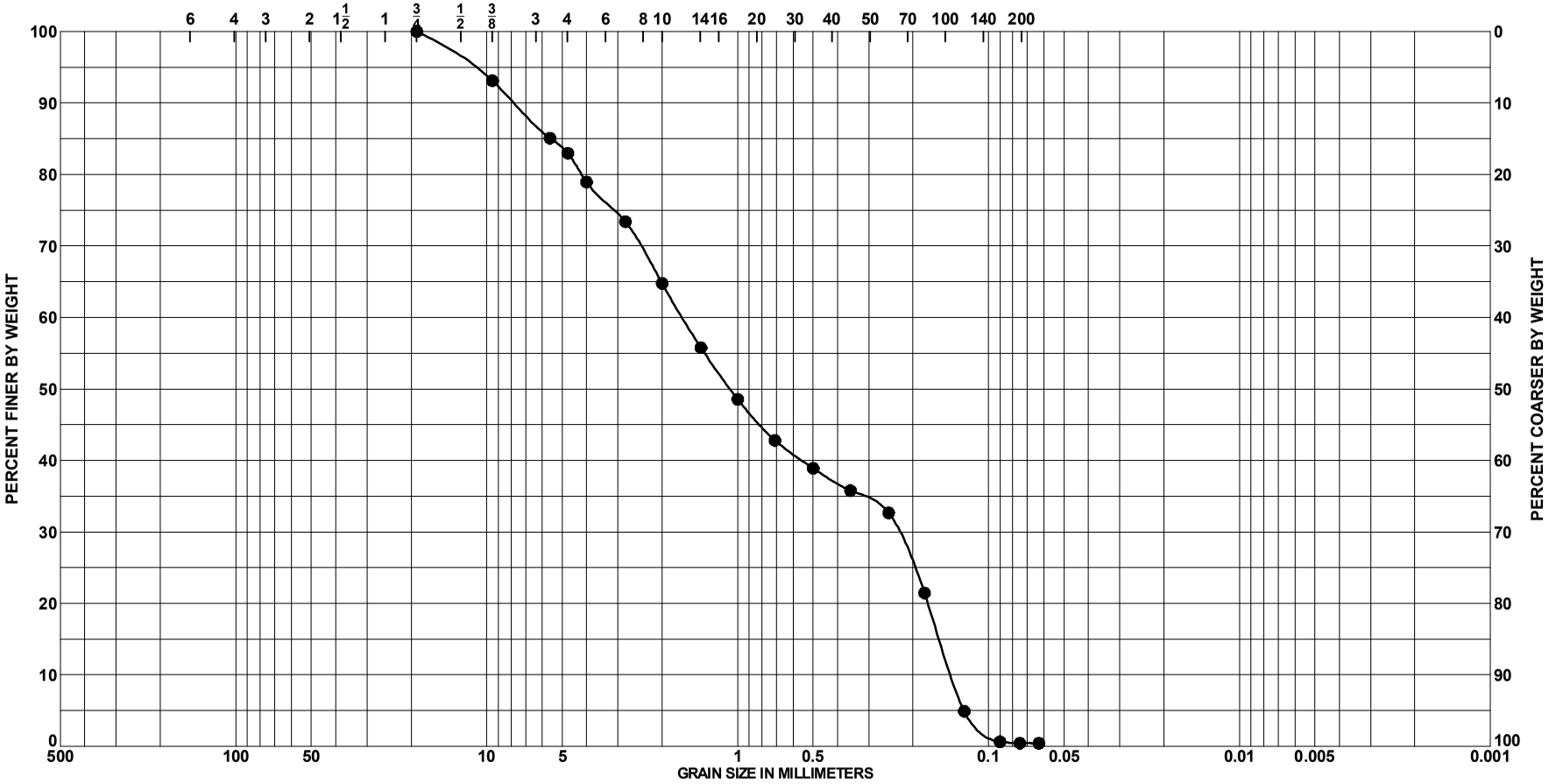
JUN 02



Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 3	11.5 to 11.8 Ft.	SAND, poorly-graded, mostly sand to gravel-sized shell, some fine-grained sand-sized quartz, white (SP)	5Y 8/1	67							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-06
BORING ELEV.	-7.5 Ft., MLLW
DATE	6/17/2014

GRADATION CURVES

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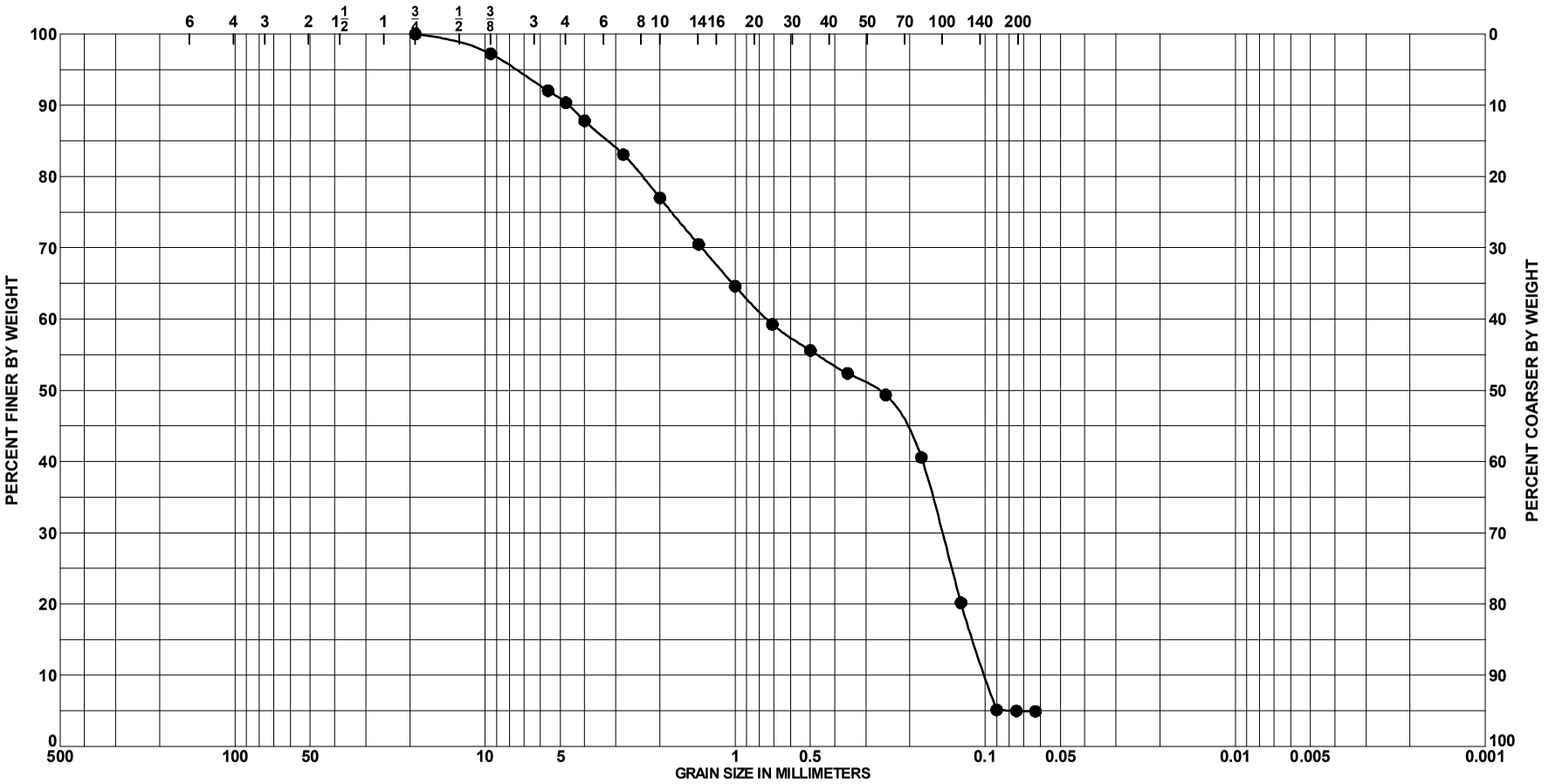

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 4	12.3 to 12.6 Ft.	SAND, poorly-graded, mostly sand to gravel-sized shell, some fine-grained sand-sized quartz, trace silt, gray (SP)	5Y 5/1	52							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal Sarasota County SPP, FL
BORING NO.	VB-LK14-06
BORING ELEV.	-7.5 Ft., MLLW
DATE	6/17/2014

GRADATION CURVES

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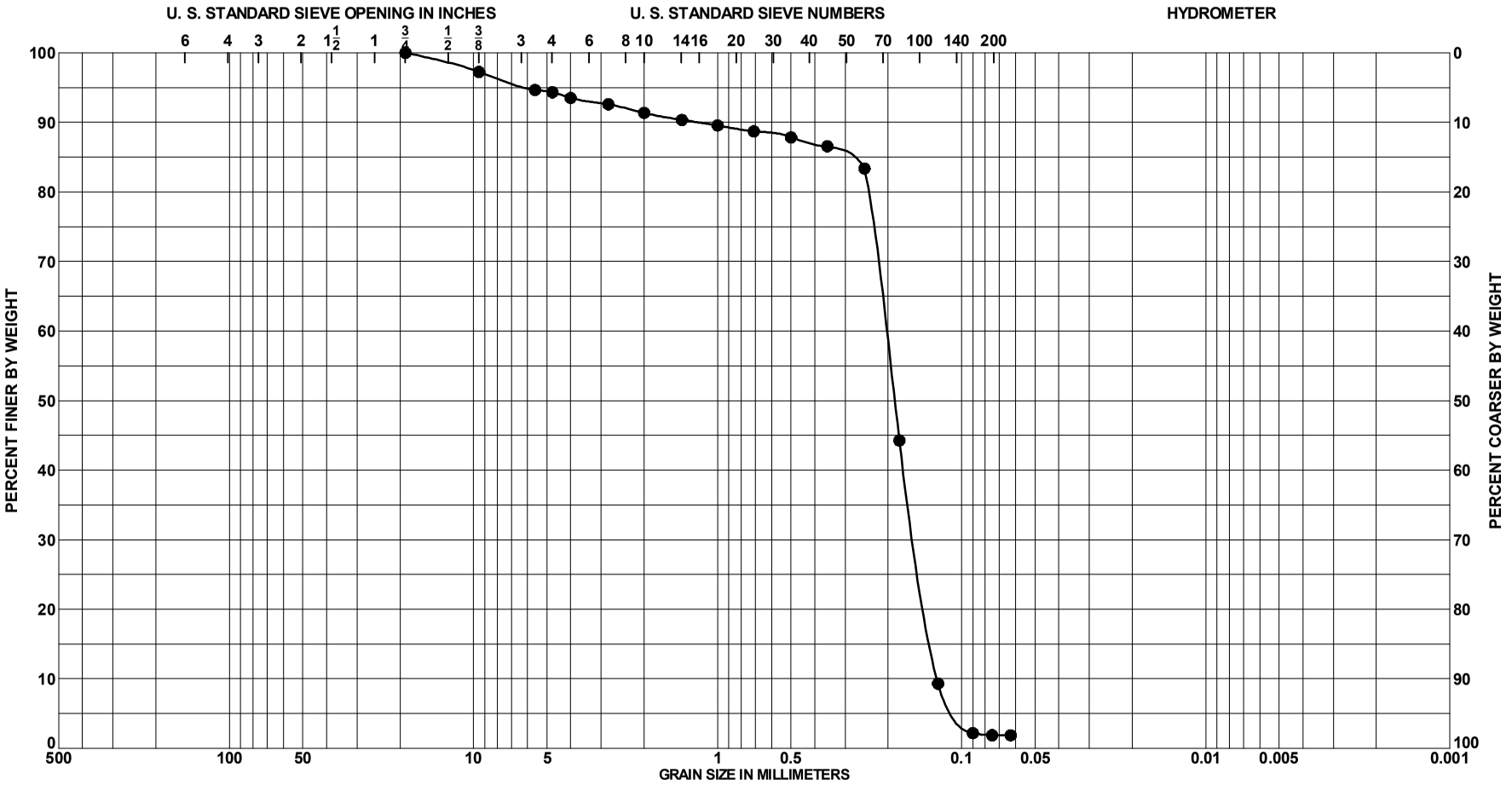

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 5	13.1 to 13.4 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, little sand to gravel-sized shell, trace silt, white (SP)	5Y 8/1	17							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-06
BORING ELEV.	-7.5 Ft., MLLW
DATE	6/17/2014

GRADATION CURVES

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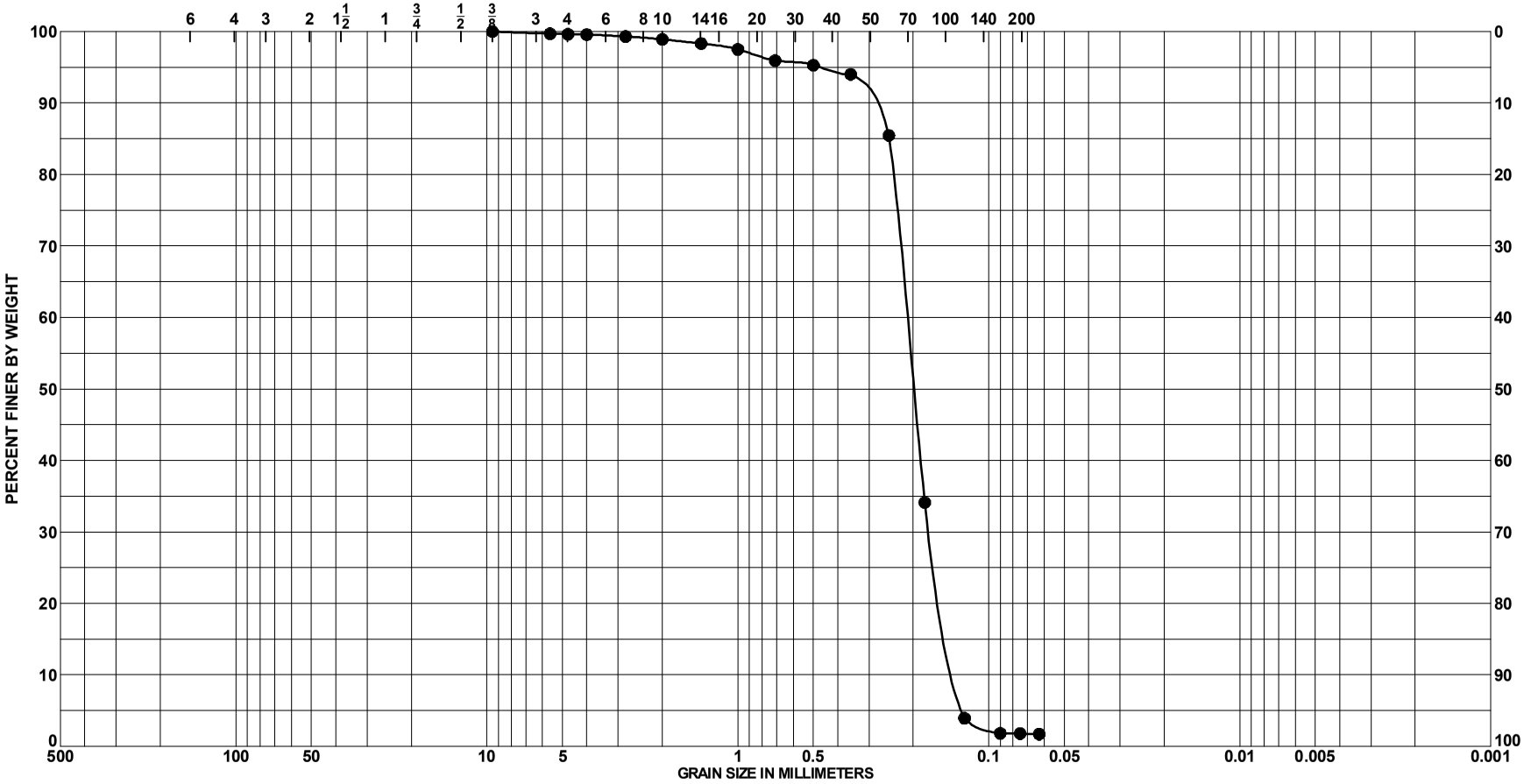

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 1	0.5 to 0.8 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, few medium-grained sand-sized shell, trace silt, white (SP)	5Y 8/1	7							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-07
BORING ELEV.	-12.0 Ft., MLLW
DATE	6/17/2014

GRADATION CURVES

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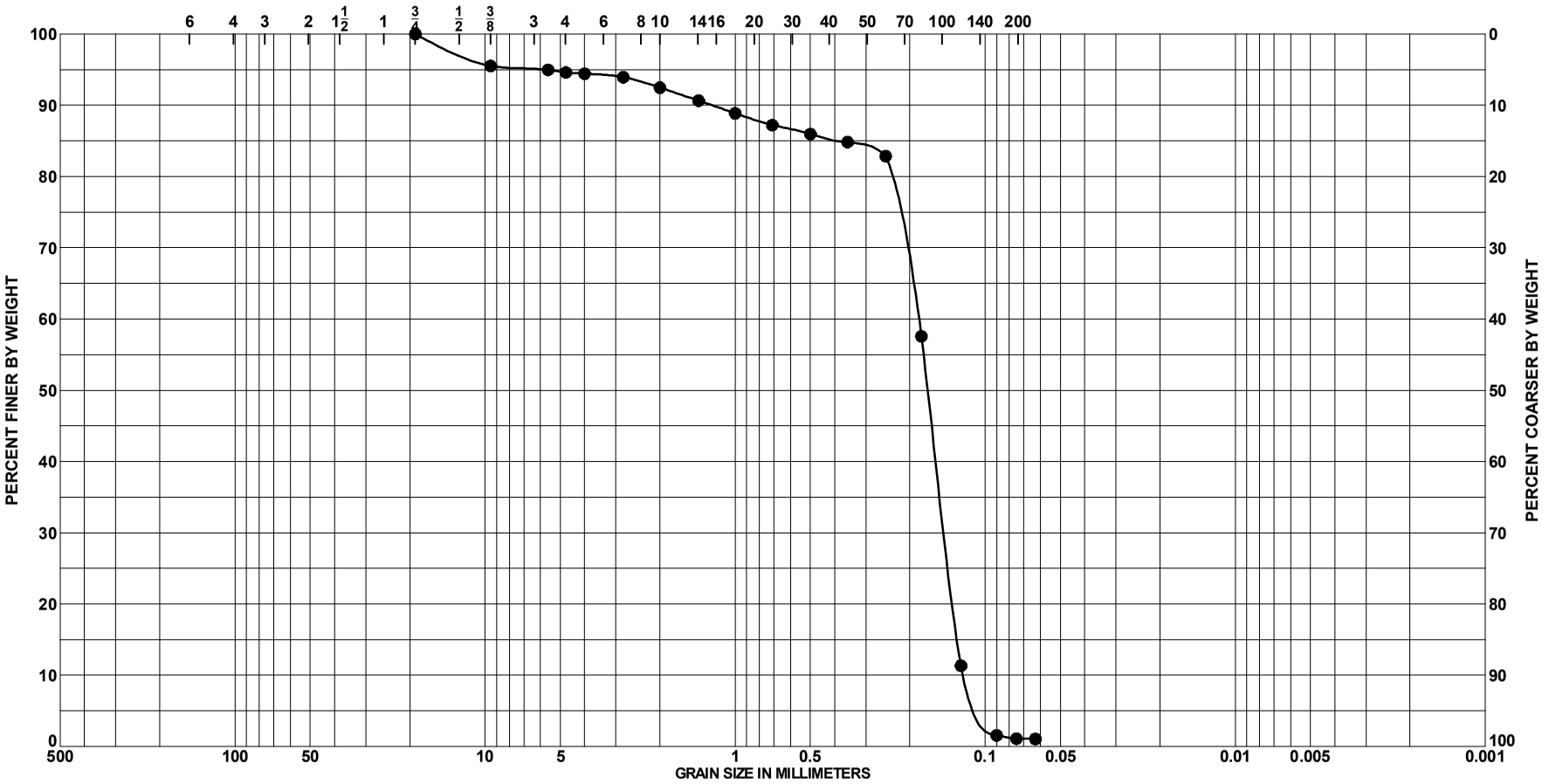

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 2	4.0 to 4.3 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, little sand to gravel-sized shell, trace silt, white (SP)	5Y 8/1	18							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-07
BORING ELEV.	-12.0 Ft., MLLW
DATE	6/17/2014

GRADATION CURVES

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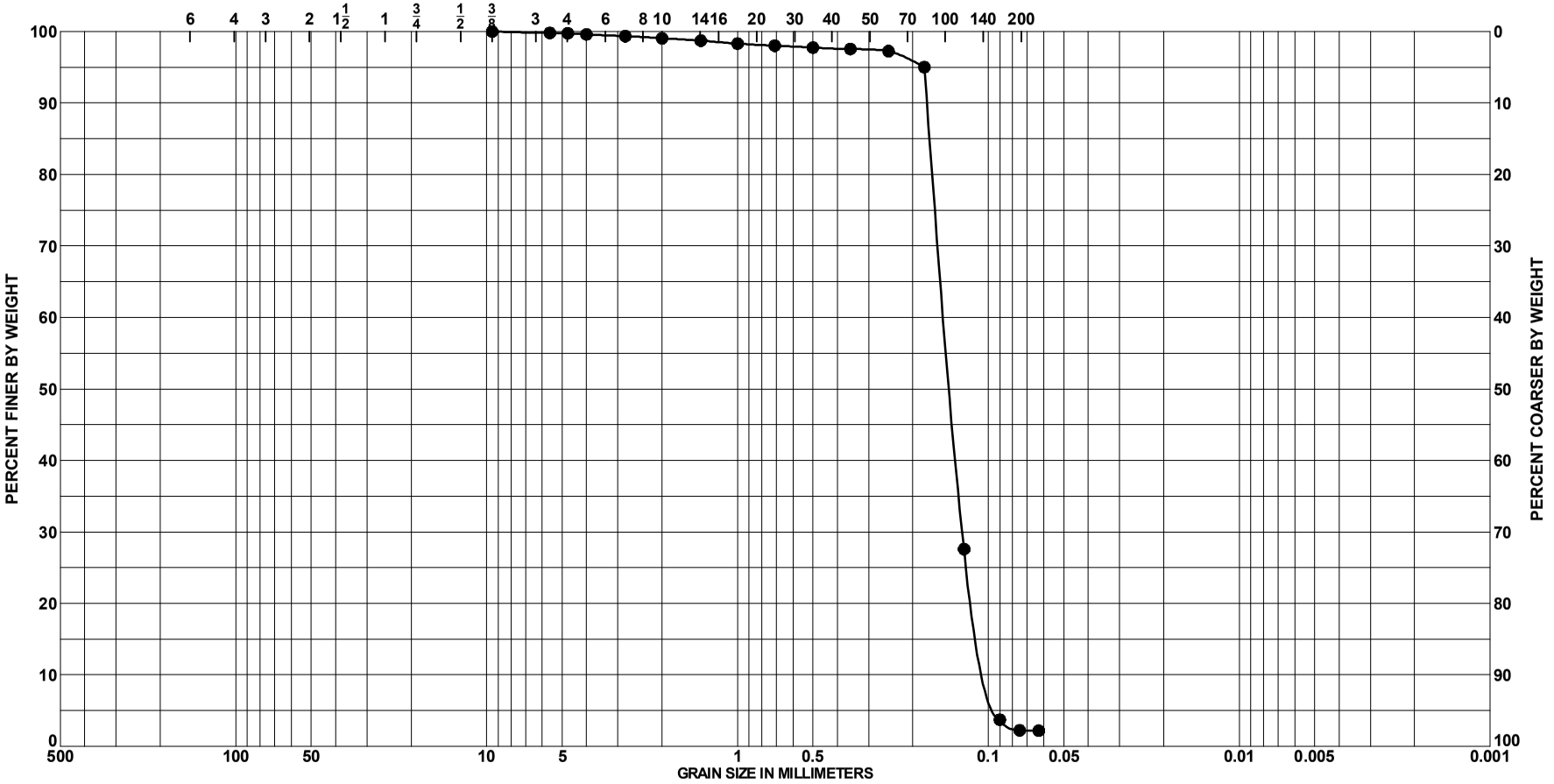

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 3	6.0 to 6.3 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, trace silt, white (SP)	5Y 8/1	4							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-07
BORING ELEV.	-12.0 Ft., MLLW
DATE	6/17/2014

GRADATION CURVES

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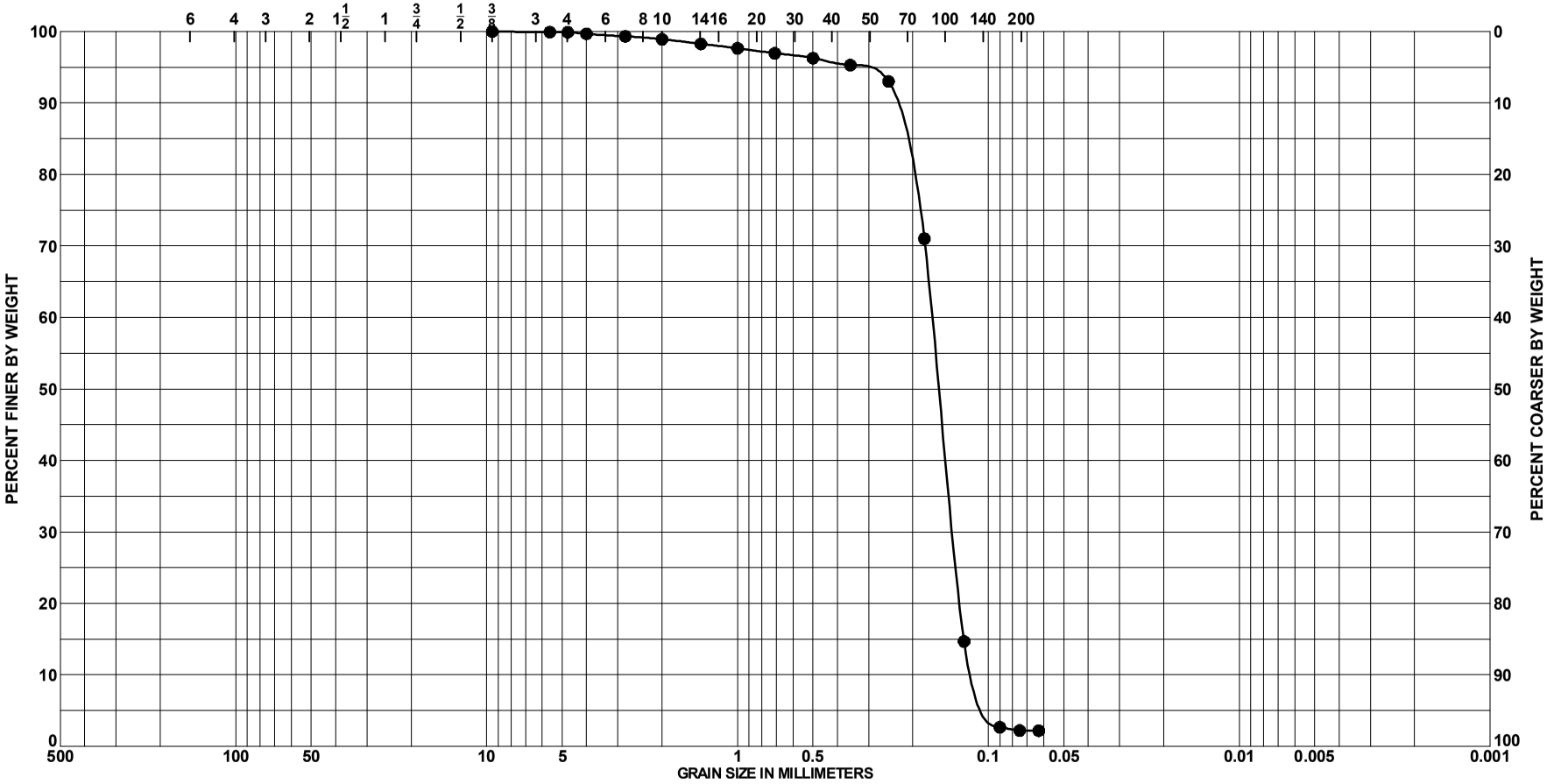
JUN 02

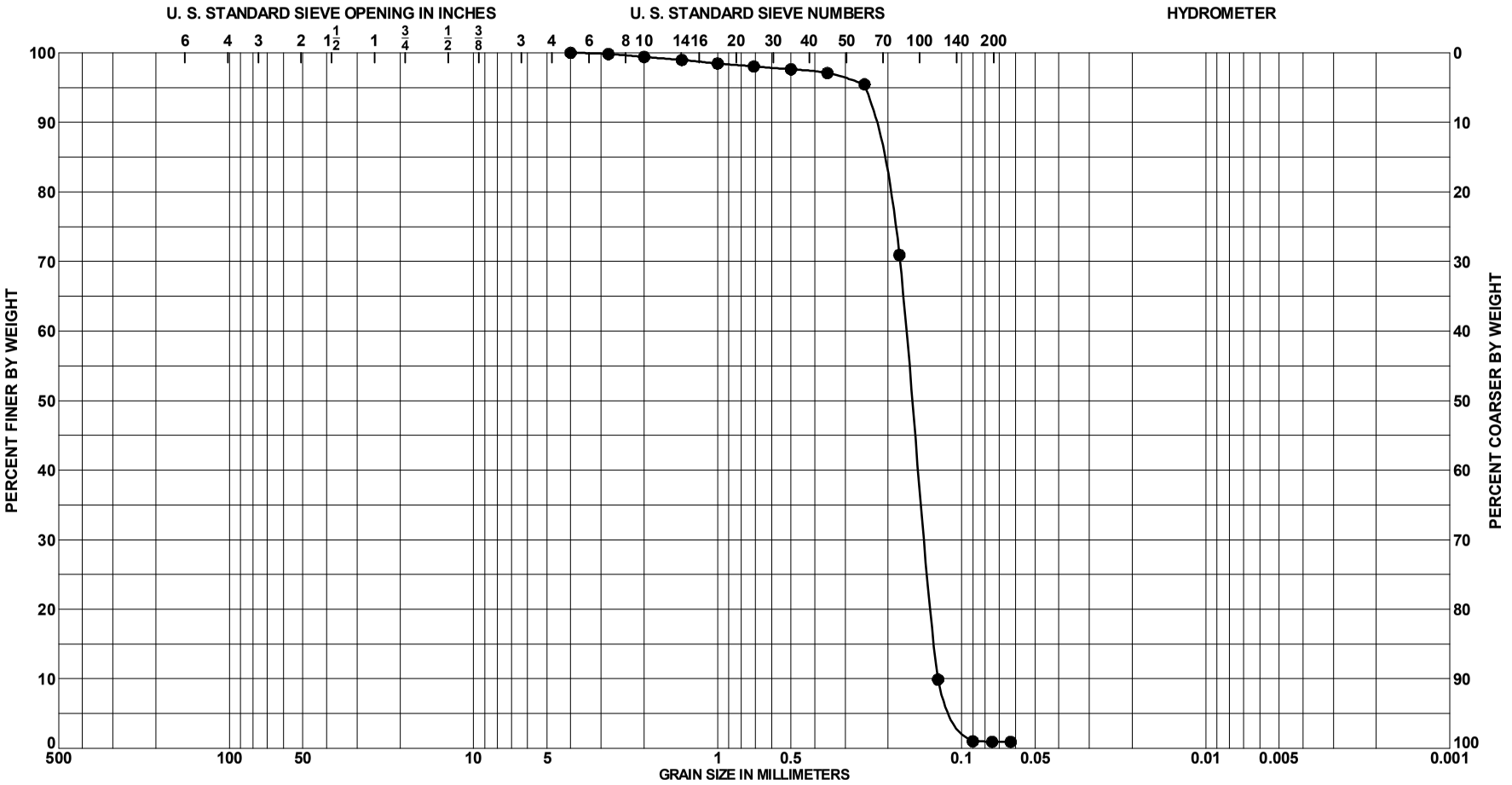


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 4	9.5 to 9.8 Ft.	SAND, poorly-graded, mostly	5Y 7/1	12							
		fine-grained sand-sized quartz, few									
		fine-grained sand-sized shell, trace									
		silt, light gray (SP)									

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-07
BORING ELEV.	-12.0 Ft., MLLW
DATE	6/17/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02



Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 1	0.5 to 0.8 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, white (SP)	5Y 8/1	4							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-08
BORING ELEV.	-2.0 Ft., MLLW
DATE	6/19/2014

GRADATION CURVES

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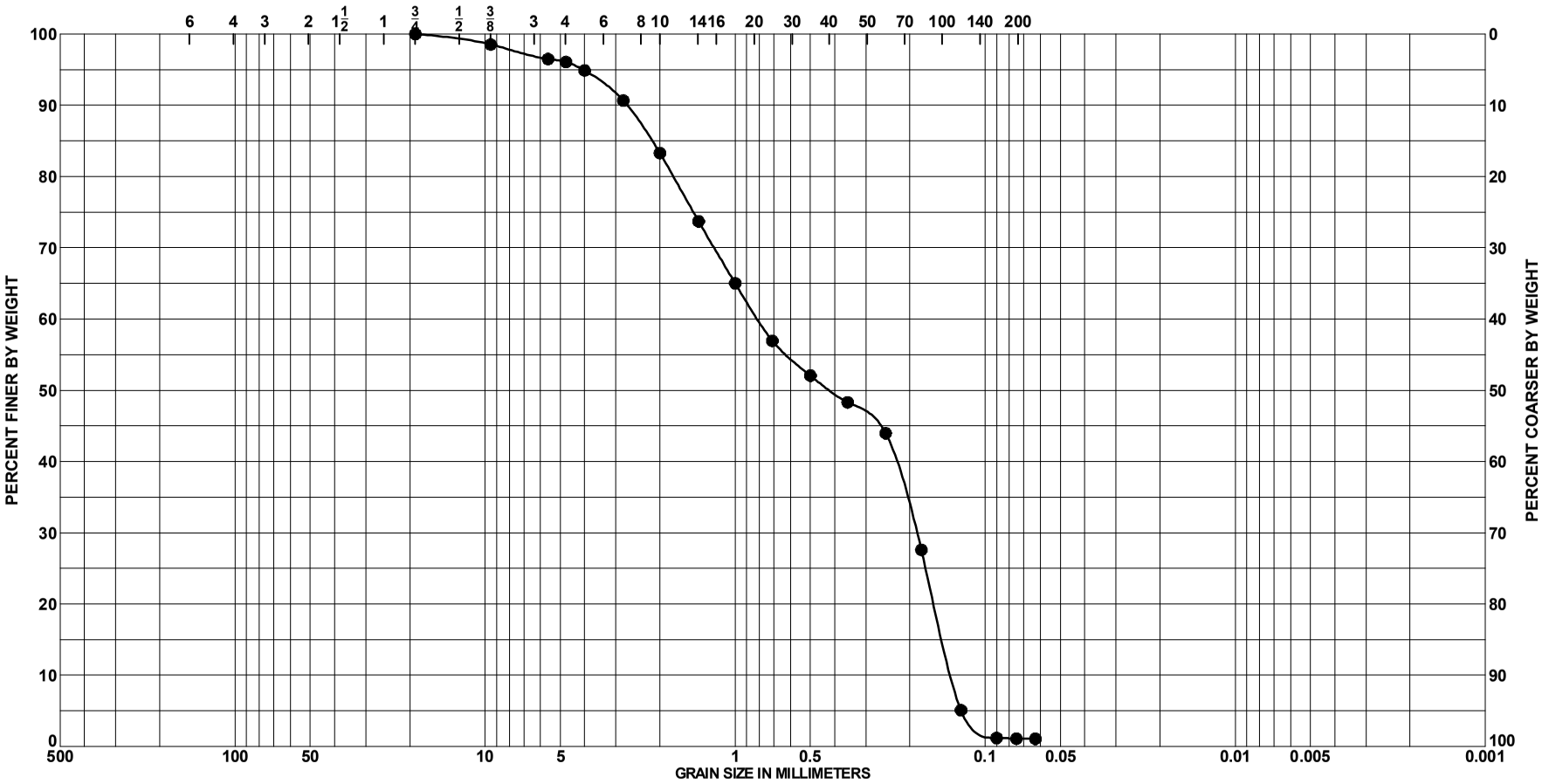

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 2	6.0 to 6.3 Ft.	SAND, poorly-graded, mostly fine to coarse-grained sand-sized shell, some fine-grained sand-sized shell, trace silt, white (SP)	5Y 8/1	54							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-08
BORING ELEV.	-2.0 Ft., MLLW
DATE	6/19/2014

GRADATION CURVES

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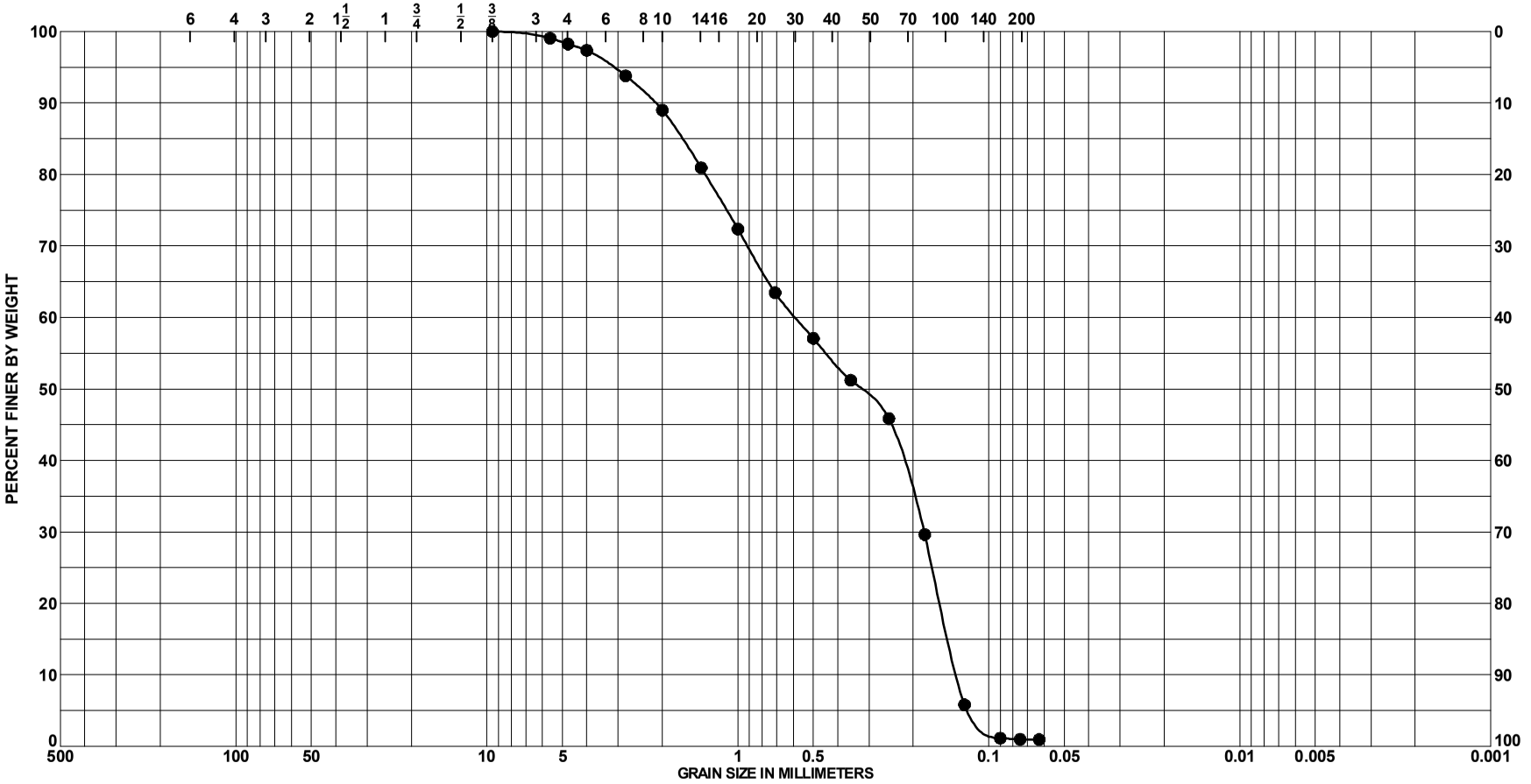

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 3	11.0 to 11.3 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, some medium to caorse-grained sand-sized shell, white (SP)	5Y 8/1	47							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-08
BORING ELEV.	-2.0 Ft., MLLW
DATE	6/19/2014

GRADATION CURVES

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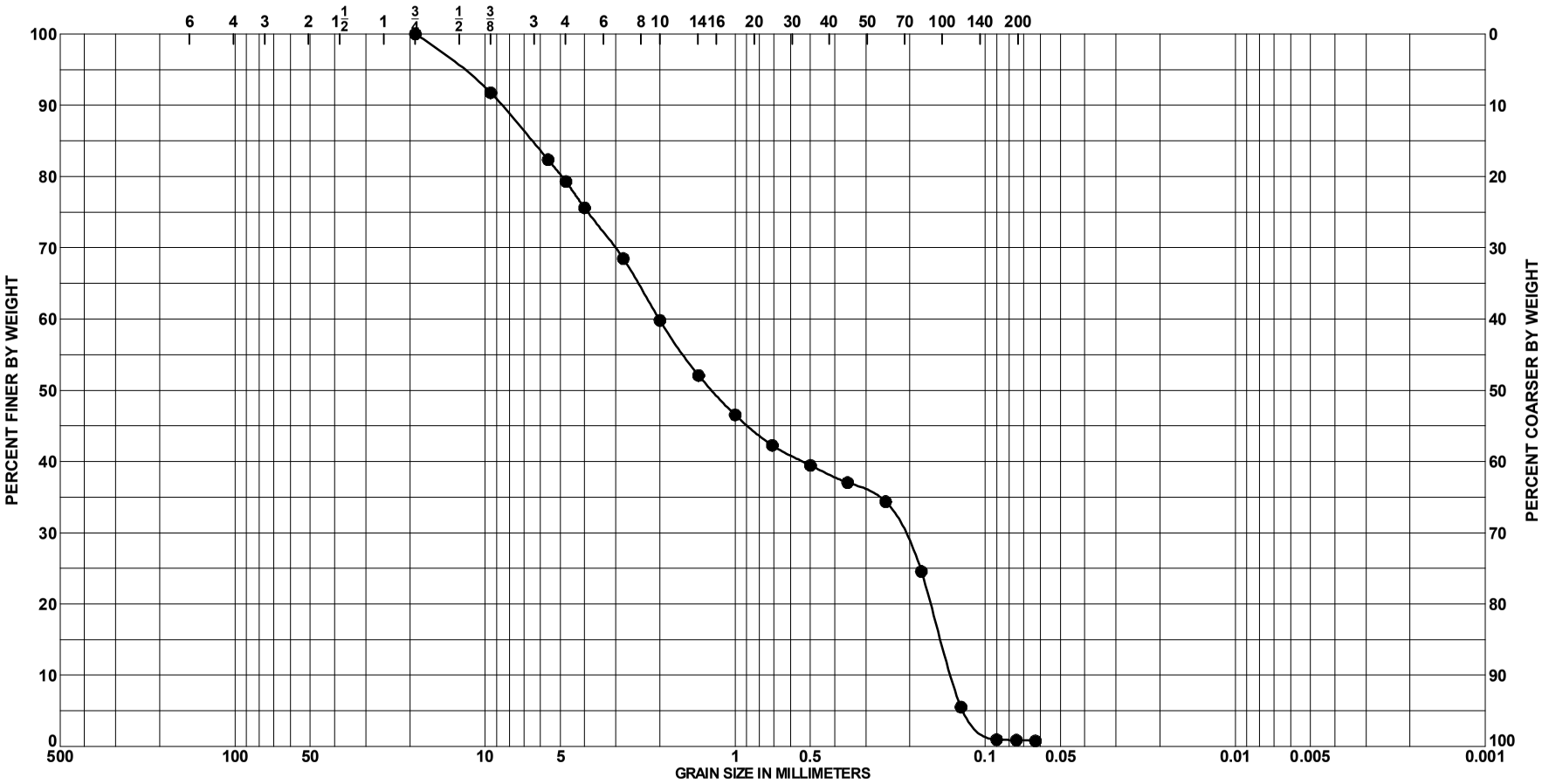

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 1	0.5 to 0.8 Ft.	SAND, poorly-graded, mostly sand to gravel-sized shell, some fine-grained sand-sized quartz, white (SP)	5Y 8/1	64							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-10
BORING ELEV.	-5.9 Ft., MLLW
DATE	6/19/2014

GRADATION CURVES

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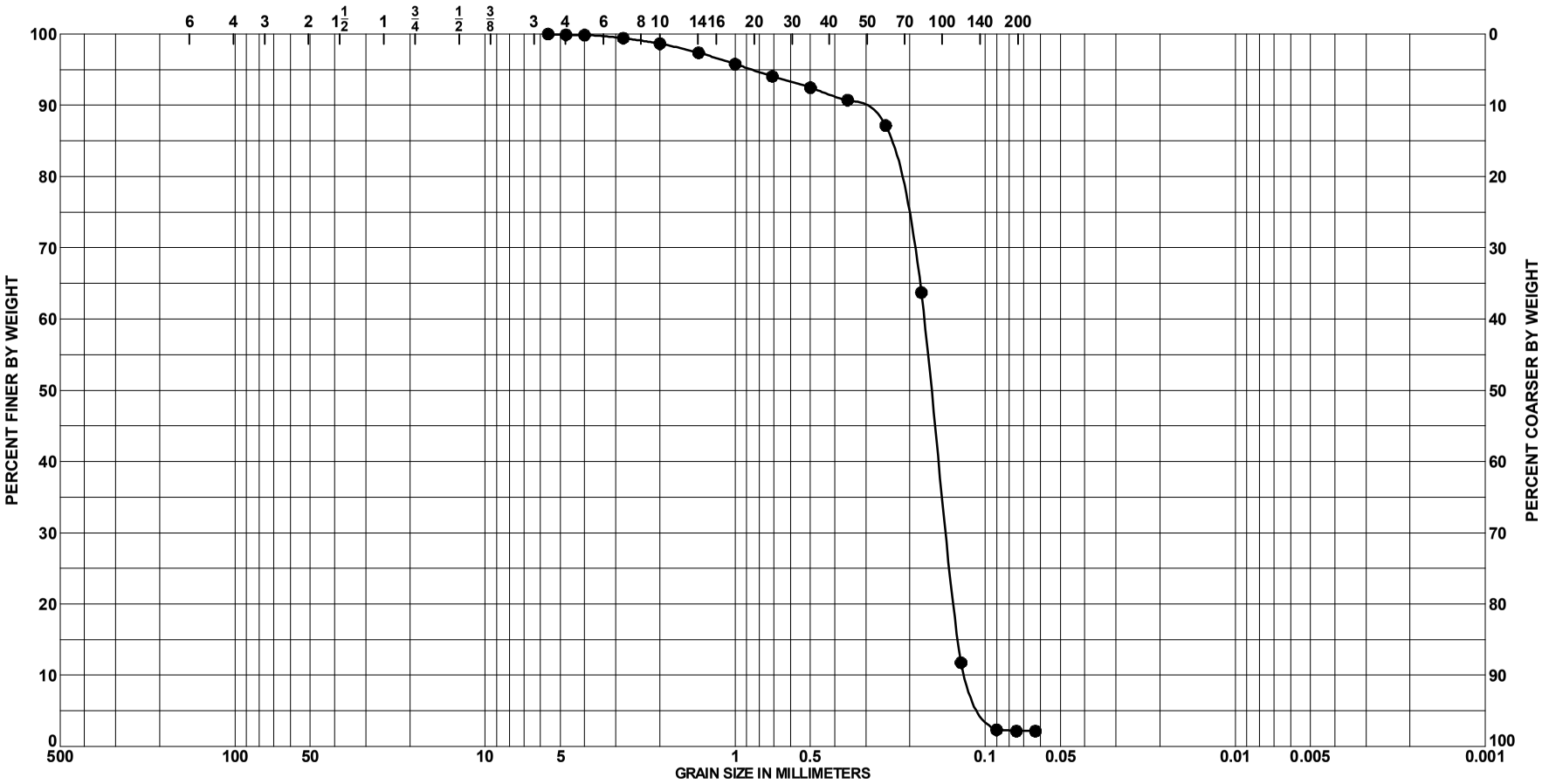

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 2	4.0 to 4.3 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, few medium-grained sand-sized shell, trace silt, white (SP)	5Y 8/1	12							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-10
BORING ELEV.	-5.9 Ft., MLLW
DATE	6/19/2014

GRADATION CURVES

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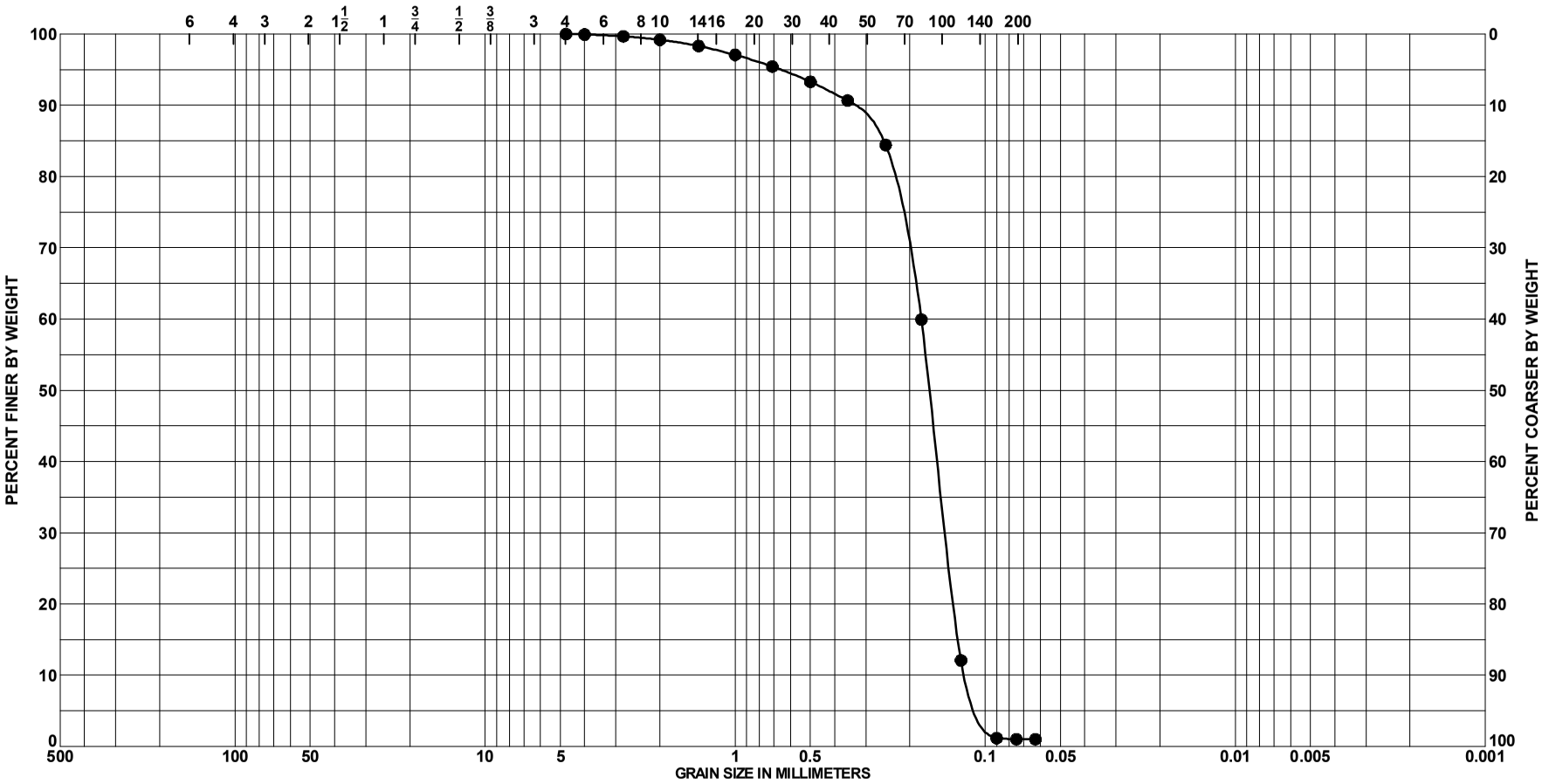

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 3	8.5 to 8.8 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to medium-grained sand-sized shell, trace silt, light gray (SP)	5Y 7/1	14							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-10
BORING ELEV.	-5.9 Ft., MLLW
DATE	6/19/2014

GRADATION CURVES

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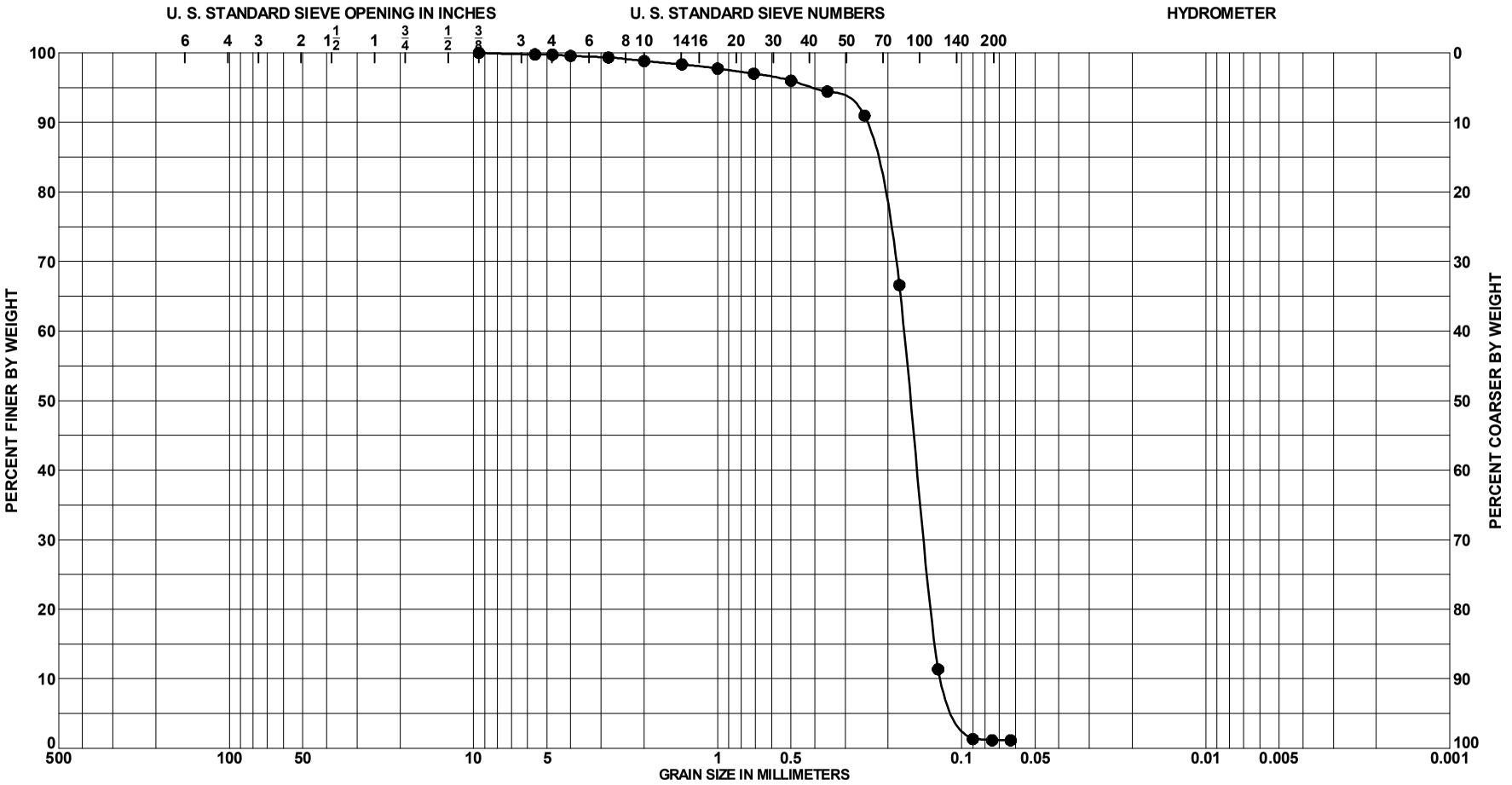

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 4	12.0 to 12.3 Ft.	SAND, poorly-graded, mostly	5Y 7/1	9							
		fine-grained sand-sized quartz, few									
		fine-grained sand-sized shell, trace									
		silt, light gray (SP)									

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-10
BORING ELEV.	-5.9 Ft., MLLW
DATE	6/19/2014

GRADATION CURVES

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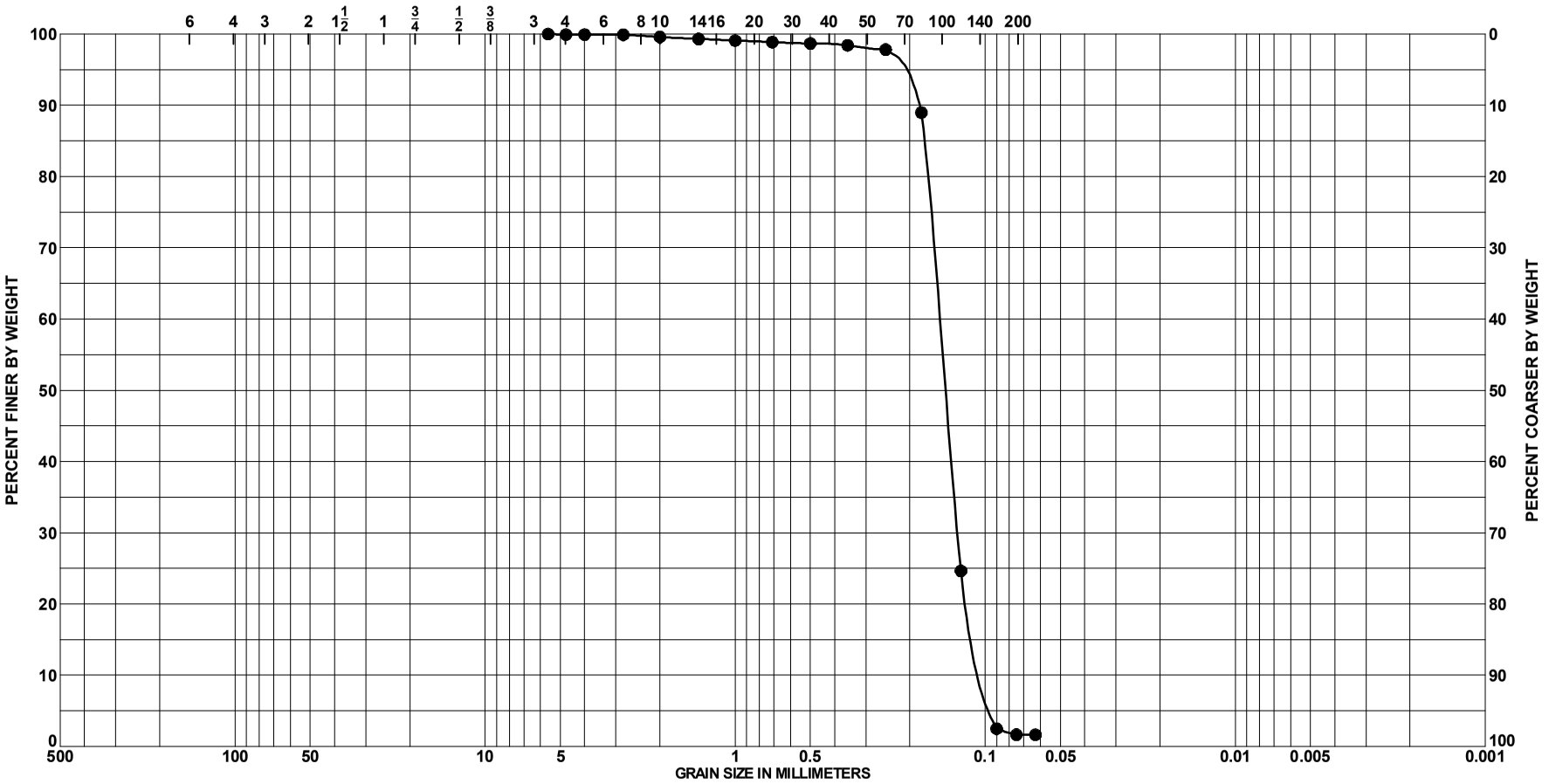

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 1	0.5 to 0.8 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, trace silt, white (SP)	5Y 8/1	3							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-11
BORING ELEV.	-10.5 Ft., MLLW
DATE	6/19/2014

GRADATION CURVES

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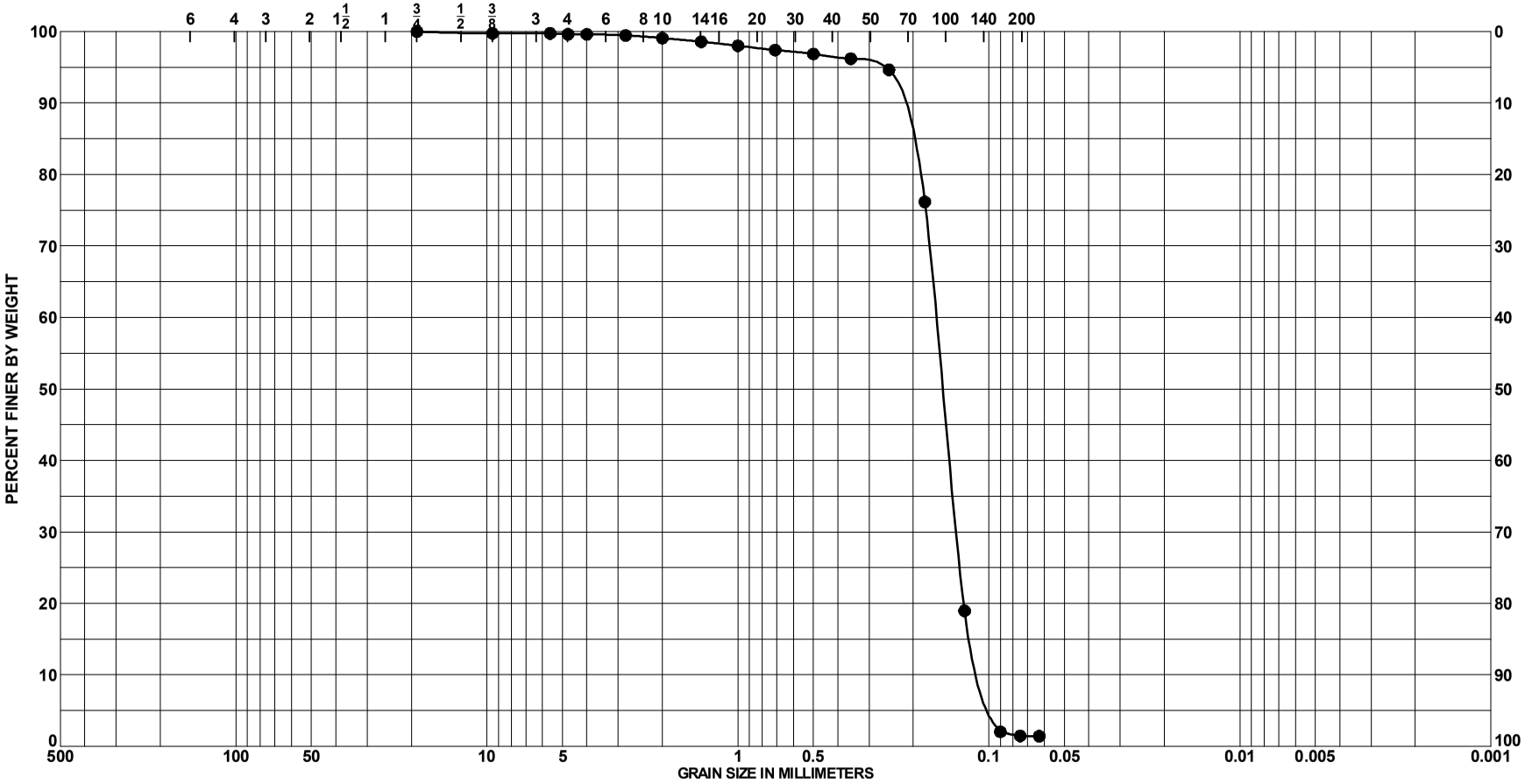

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 2	4.0 to 4.3 Ft.	SAND, poorly-graded, mostly	5Y 8/1	6							
		fine-grained sand-sized quartz, few									
		fine-grained sand-sized shell, trace									
		silt, white (SP)									

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-11
BORING ELEV.	-10.5 Ft., MLLW
DATE	6/19/2014

GRADATION CURVES

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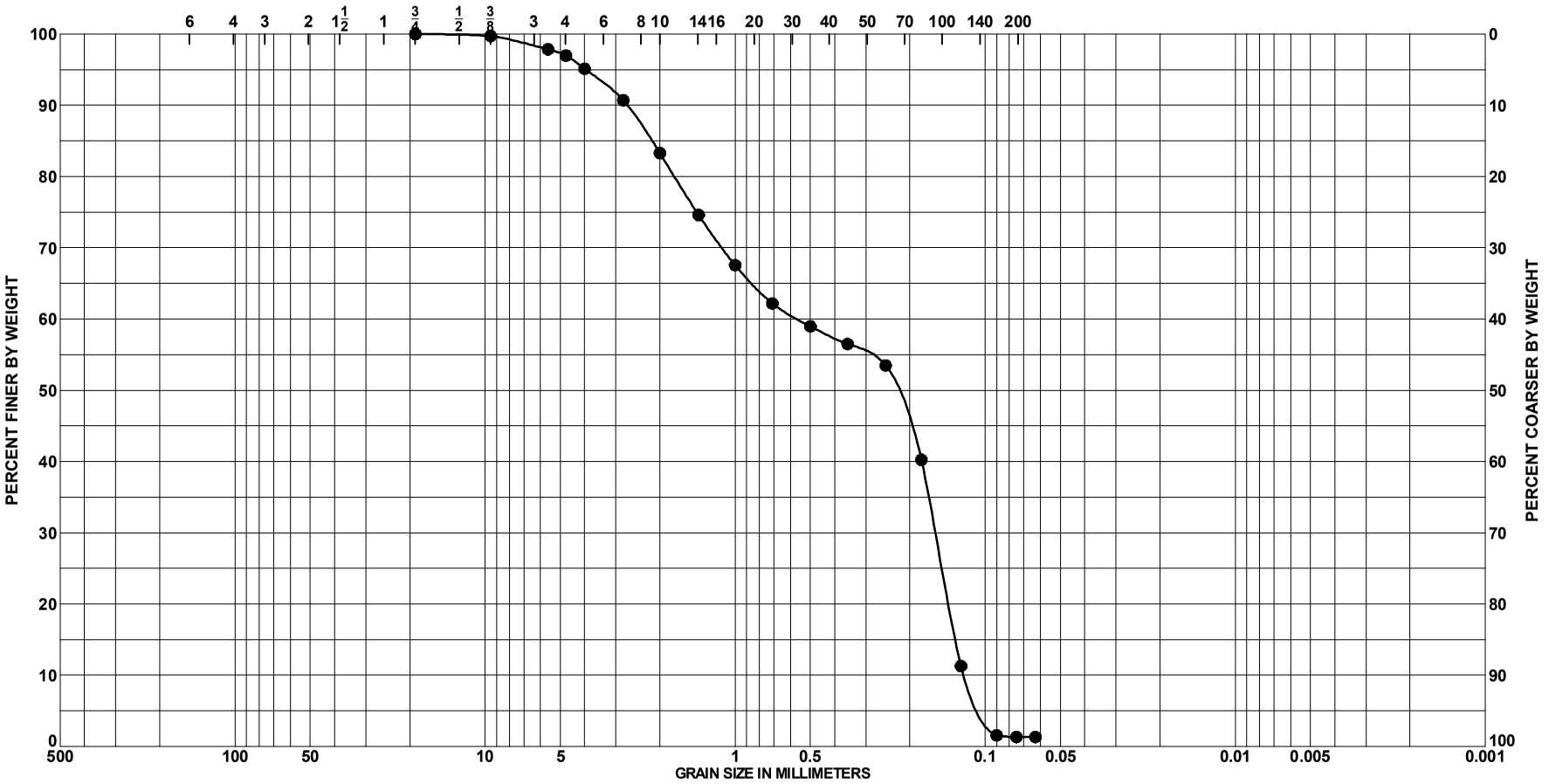

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 3	8.0 to 8.3 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, some medium to coarse-grained sand-sized shell, trace silt, light gray (SP)	5Y 7/1	46							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-11
BORING ELEV.	-10.5 Ft., MLLW
DATE	6/18/2014

GRADATION CURVES

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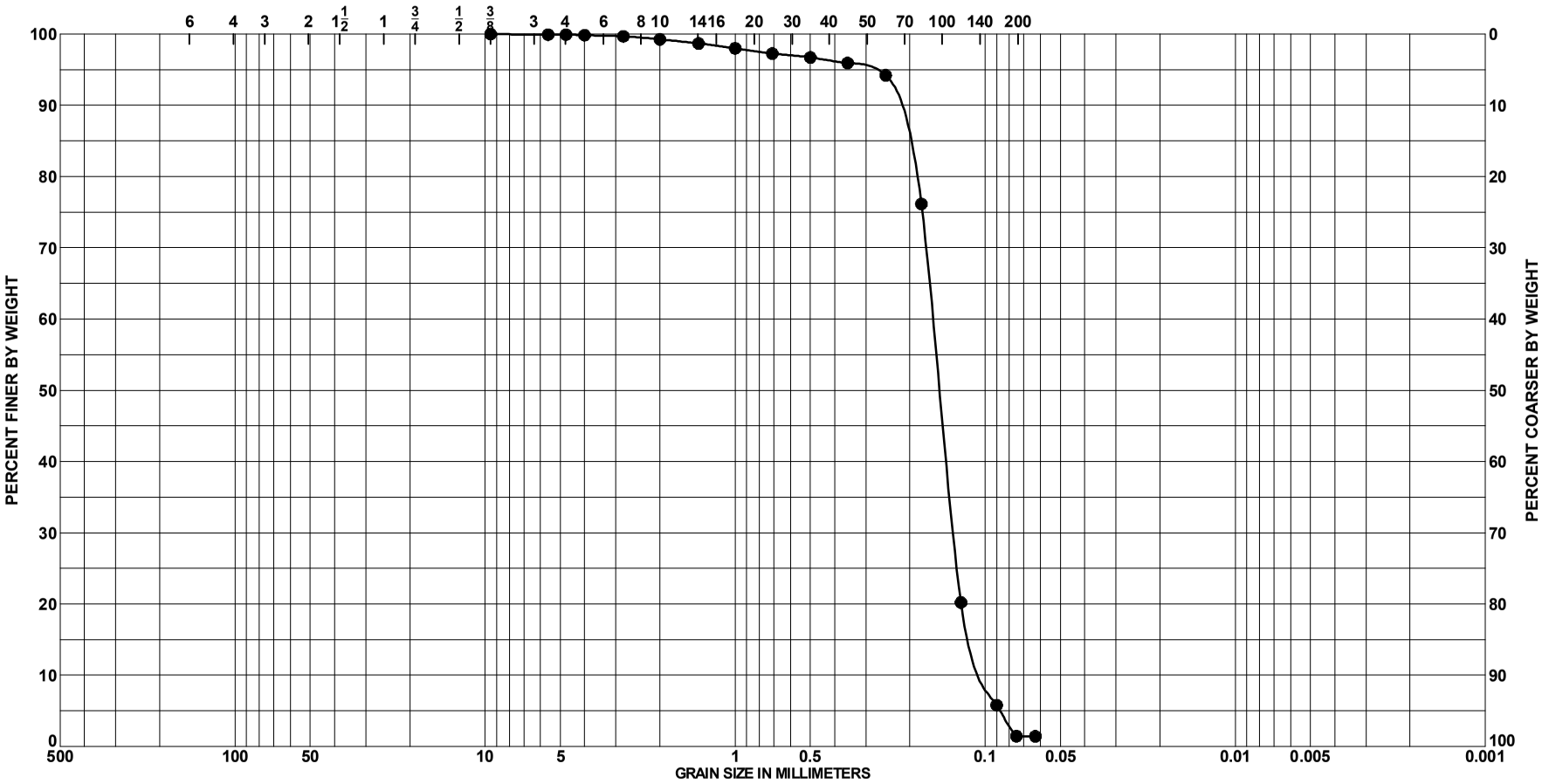

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 4	10.8 to 11.1 Ft.	SAND, poorly-graded, mostly	5Y 8/1	6							
		fine-grained sand-sized quartz, few									
		fine-grained sand-sized shell, trace									
		silt, white (SP)									

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-11
BORING ELEV.	-10.5 Ft., MLLW
DATE	6/17/2014

GRADATION CURVES

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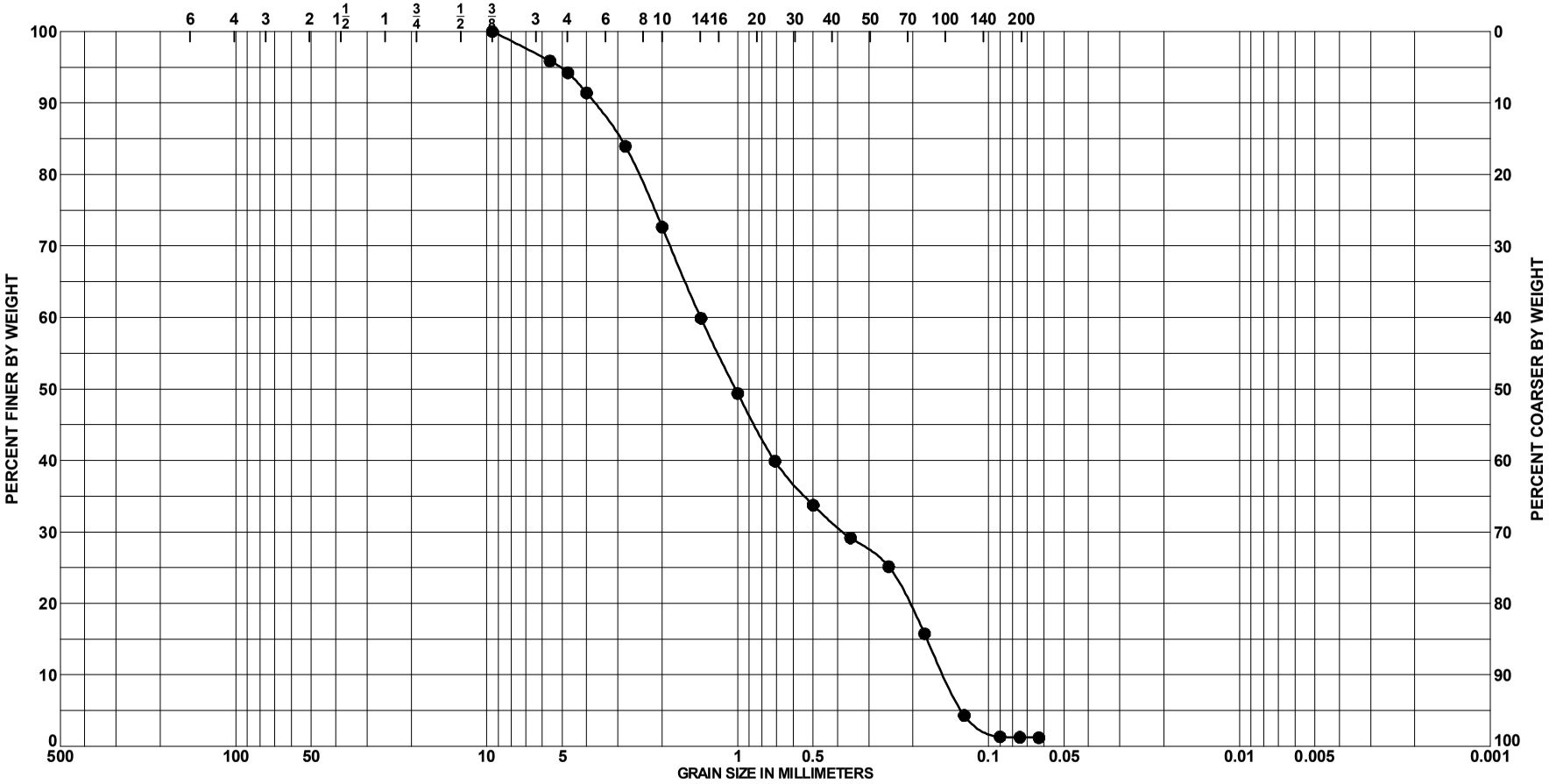

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 1	0.5 to 0.8 Ft.	SAND, well-graded, mostly sand to gravel-sized shell, little fine-grained sand-sized quartz, trace silt, white (SW)	5Y 8/1	74							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-12
BORING ELEV.	-10.2 Ft., MLLW
DATE	6/17/2014

GRADATION CURVES

SAJ FORM 2087
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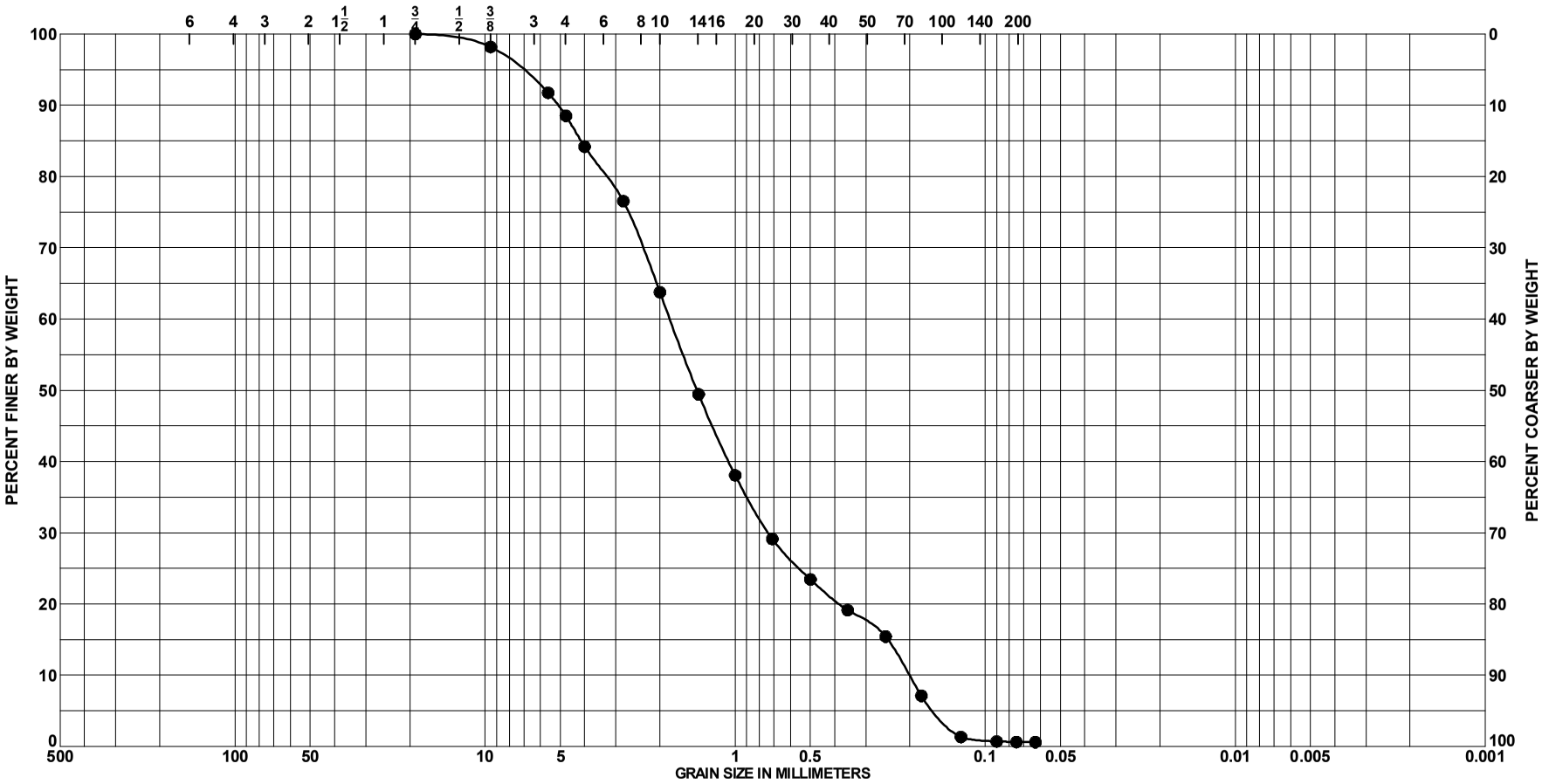

Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 2	5.5 to 5.8 Ft.	SAND, poorly-graded, mostly sand to gravel-sized shell, little fine-grained sand-sized quartz, white (SP)	5Y 8/1	84							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-12
BORING ELEV.	-10.2 Ft., MLLW
DATE	6/17/2014

GRADATION CURVES

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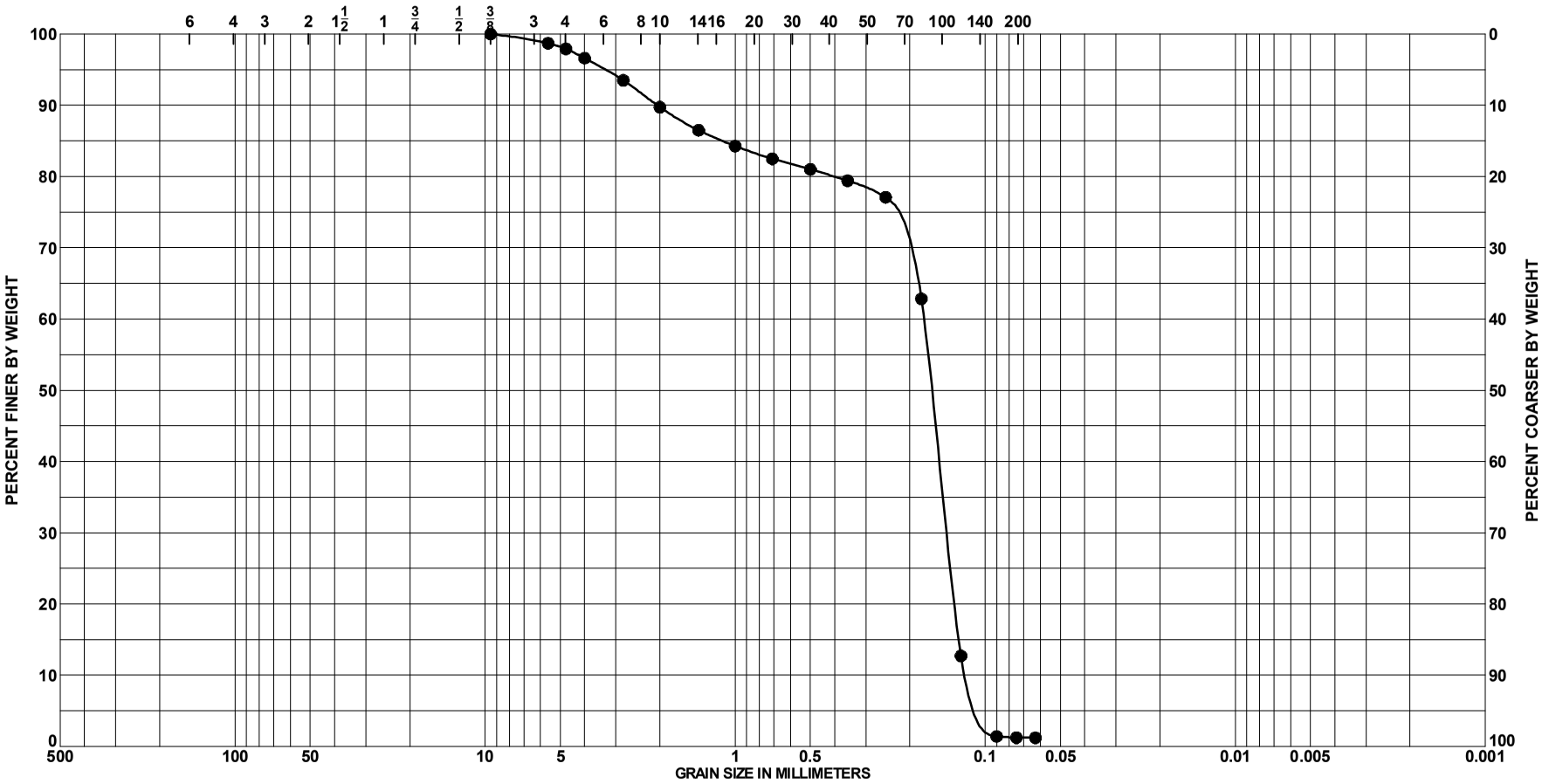
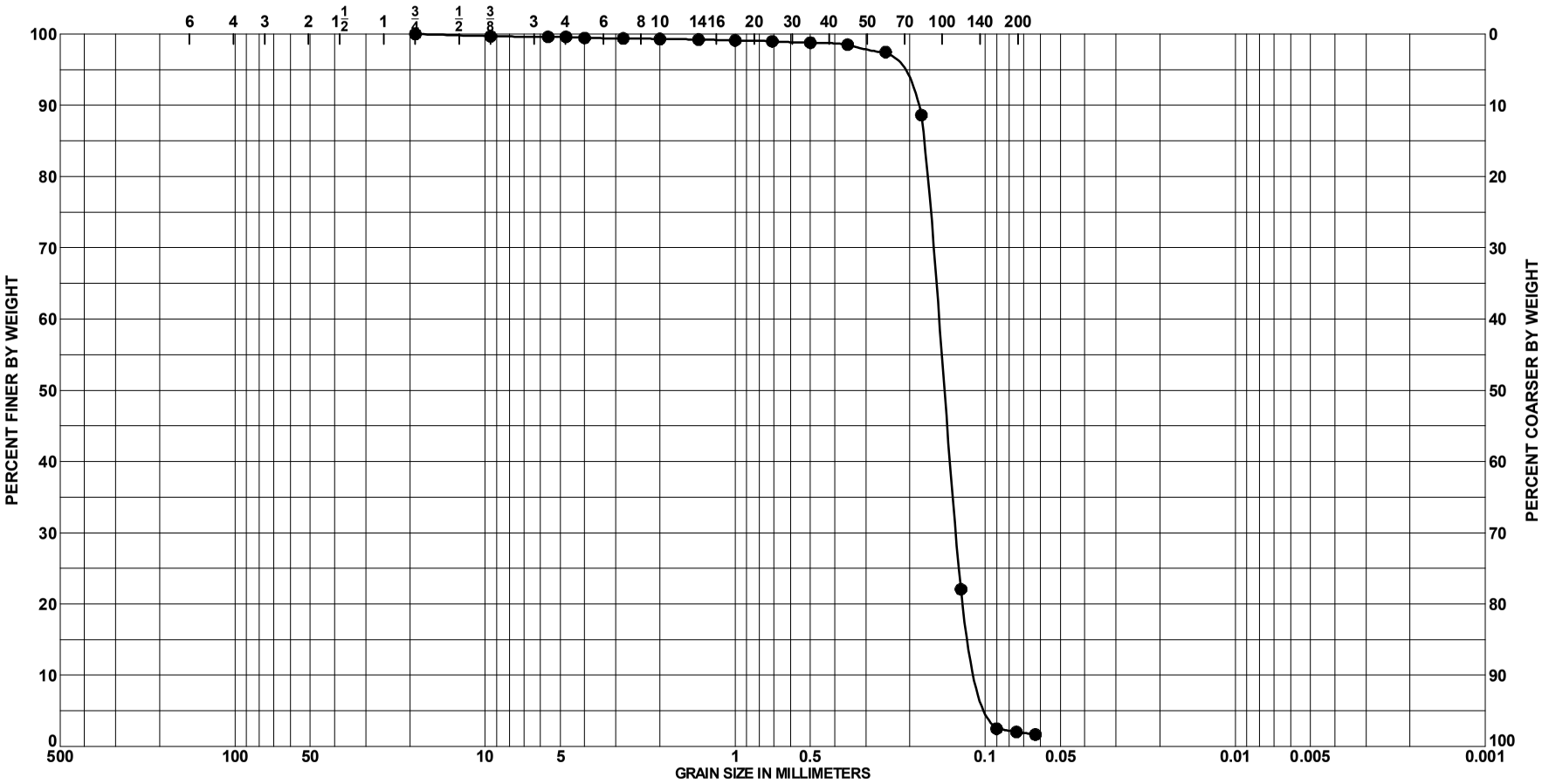


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 1	0.5 to 0.8 Ft.	SAND, poorly-graded, mostly	5Y 8/1	26							
		fine-grained sand-sized quartz, little									
		fine to coarse-grained sand-sized									
		shell, trace silt, white (SP)									

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-13
BORING ELEV.	-12.8 Ft., MLLW
DATE	6/17/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02

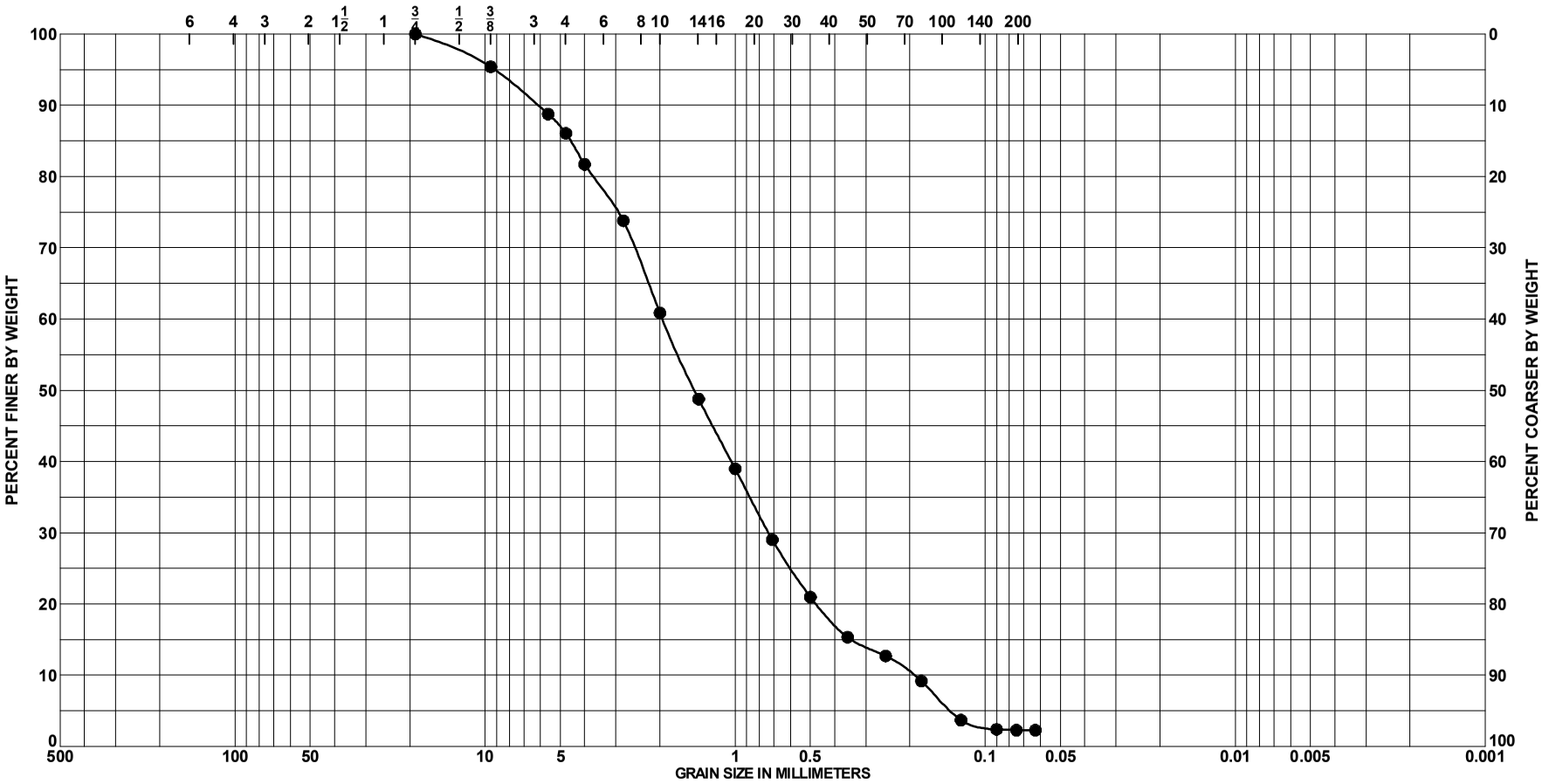


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 2	4.7 to 5.0 Ft.	SAND, poorly-graded, mostly	5Y 8/1	6							
		fine-grained sand-sized quartz, few									
		fine-grained sand-sized shell, trace									
		silt, white (SP)									

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-13
BORING ELEV.	-12.8 Ft., MLLW
DATE	6/17/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02

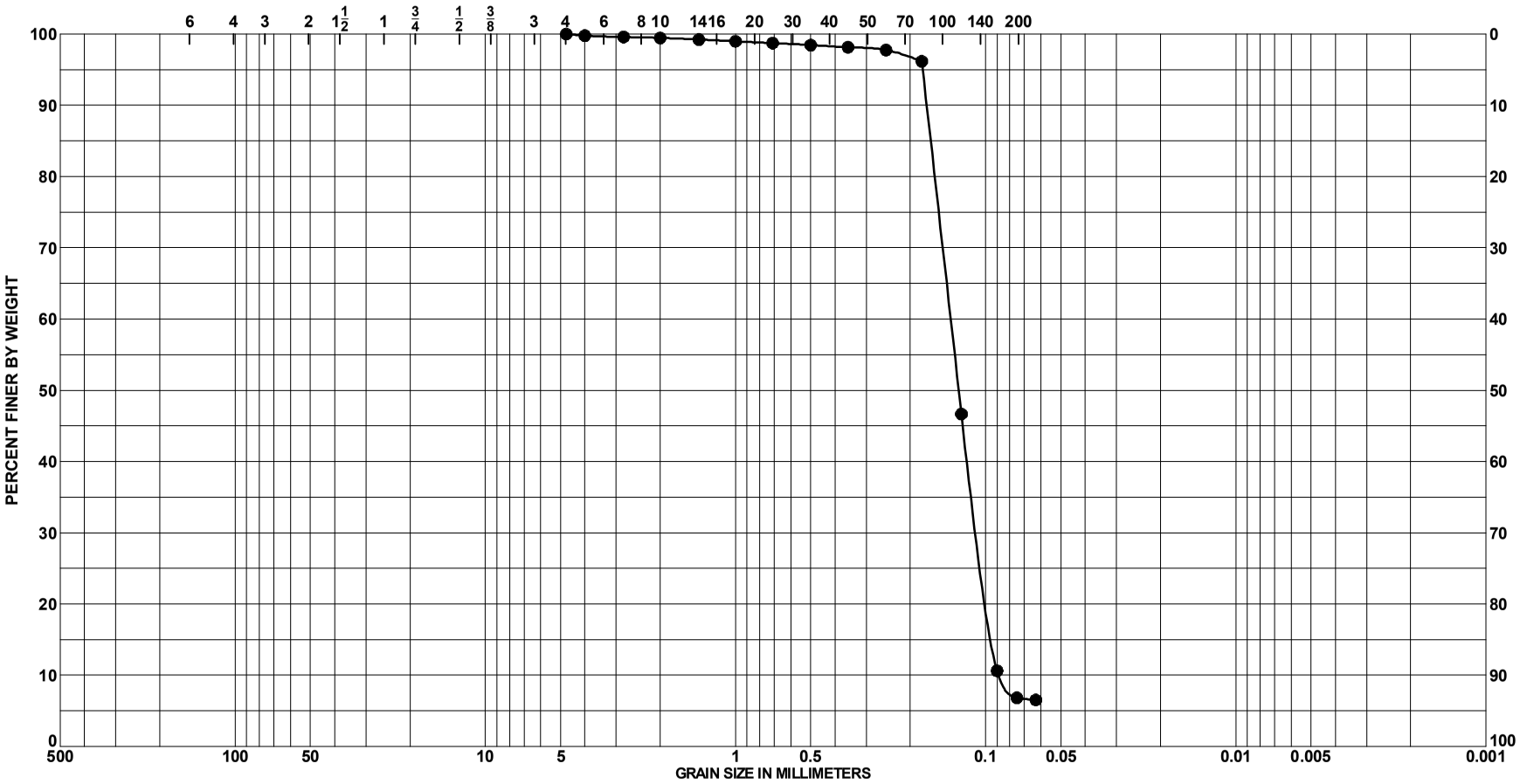


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 1	0.5 to 0.8 Ft.	SAND, poorly-graded, mostly sand to gravel-sized shell, few fine-grained sand-sized quartz, trace silt, white (SP)	5Y 8/1	87							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-15
BORING ELEV.	-12.7 Ft., MLLW
DATE	6/17/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02

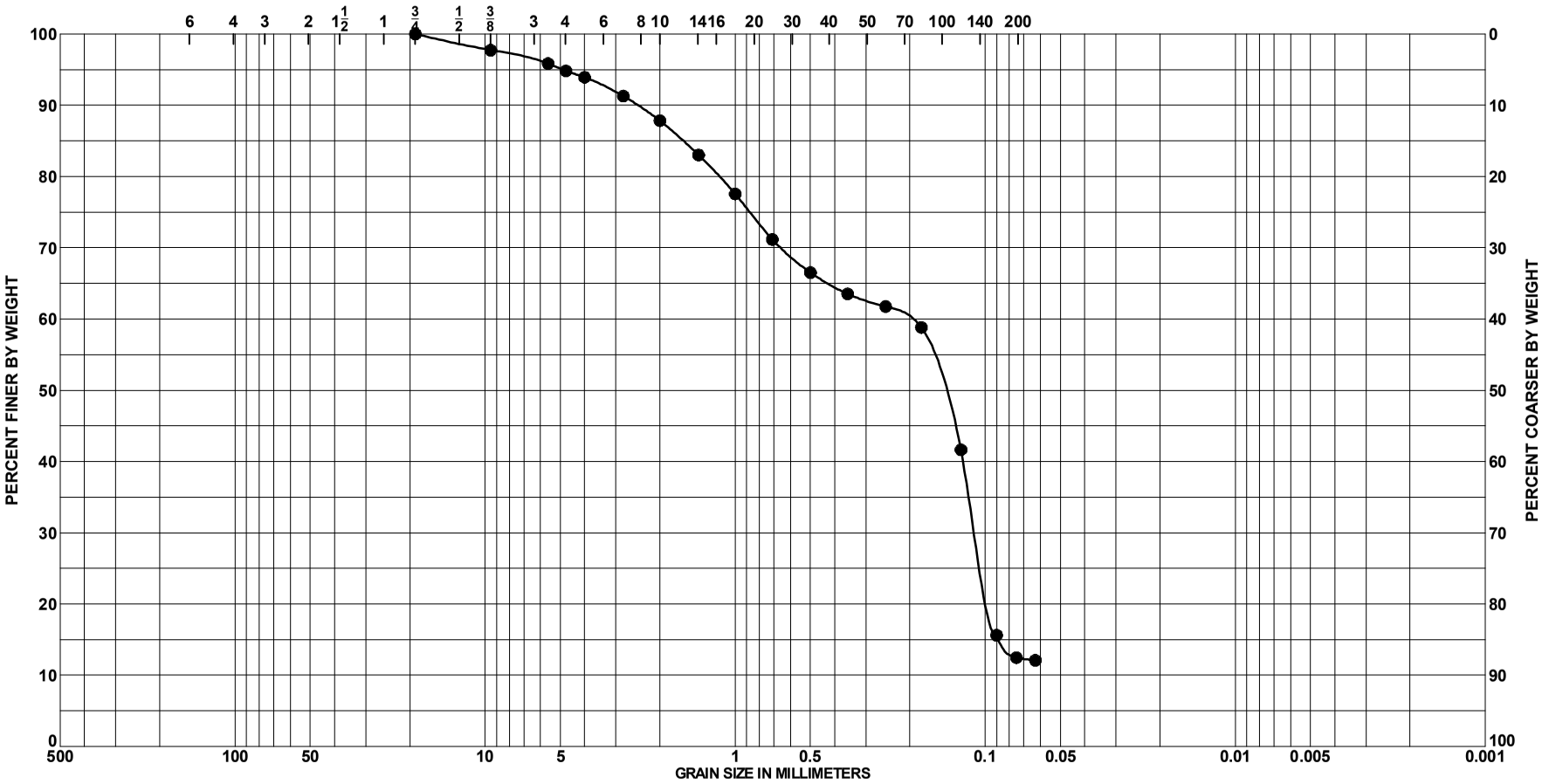


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 2	6.0 to 6.3 Ft.	SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, few fine-grained sand-sized shell, gray (SP-SM)	5Y 6/1	6							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal Sarasota County SPP, FL
BORING NO.	VB-LK14-15
BORING ELEV.	-12.7 Ft., MLLW
DATE	6/17/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02

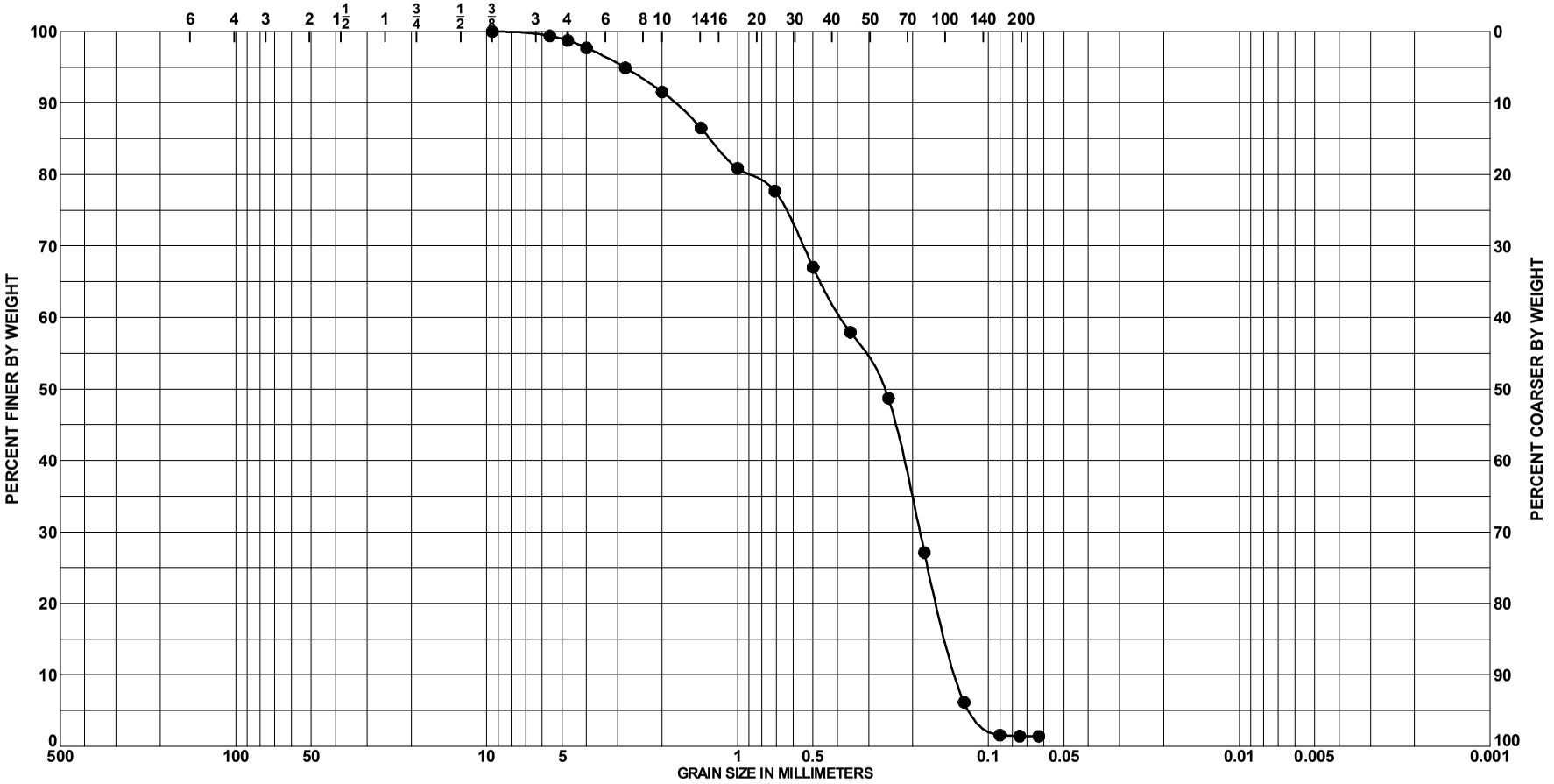


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 3	8.0 to 8.3 Ft.	SAND, silty, mostly fine-grained sand-sized quartz, some sand to gravel-sized shell, little silt, gray (SM)	5Y 6/1	33							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-15
BORING ELEV.	-12.7 Ft., MLLW
DATE	6/17/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02

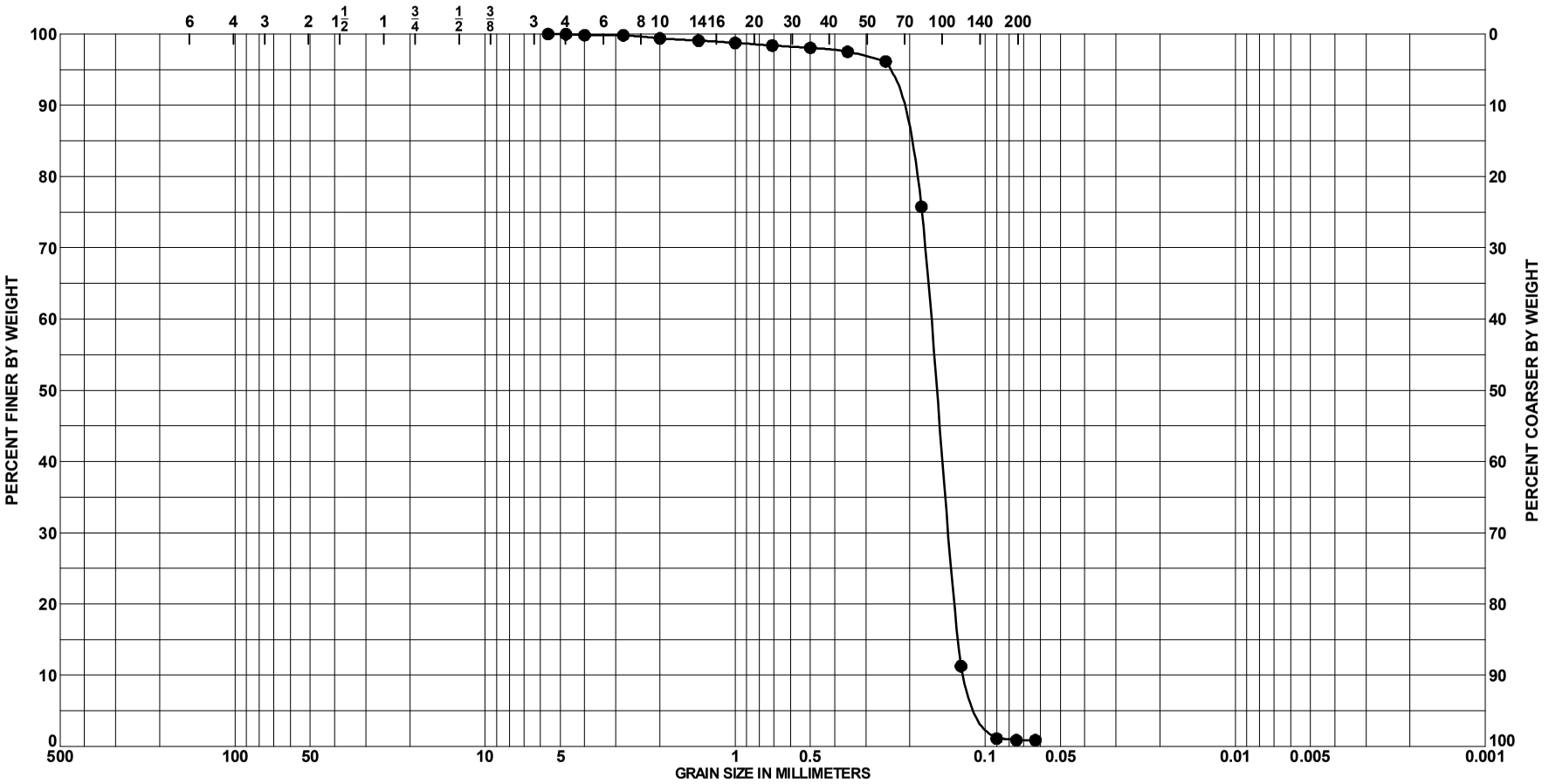


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 1	0.5 to 0.8 Ft.	SAND, poorly-graded, mostly	5Y 8/1	48							
		fine-grained sand-sized quartz, some									
		fine to coarse-grained sand-sized									
		shell, trace silt, white (SP)									

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-16
BORING ELEV.	-7.9 Ft., MLLW
DATE	6/17/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02

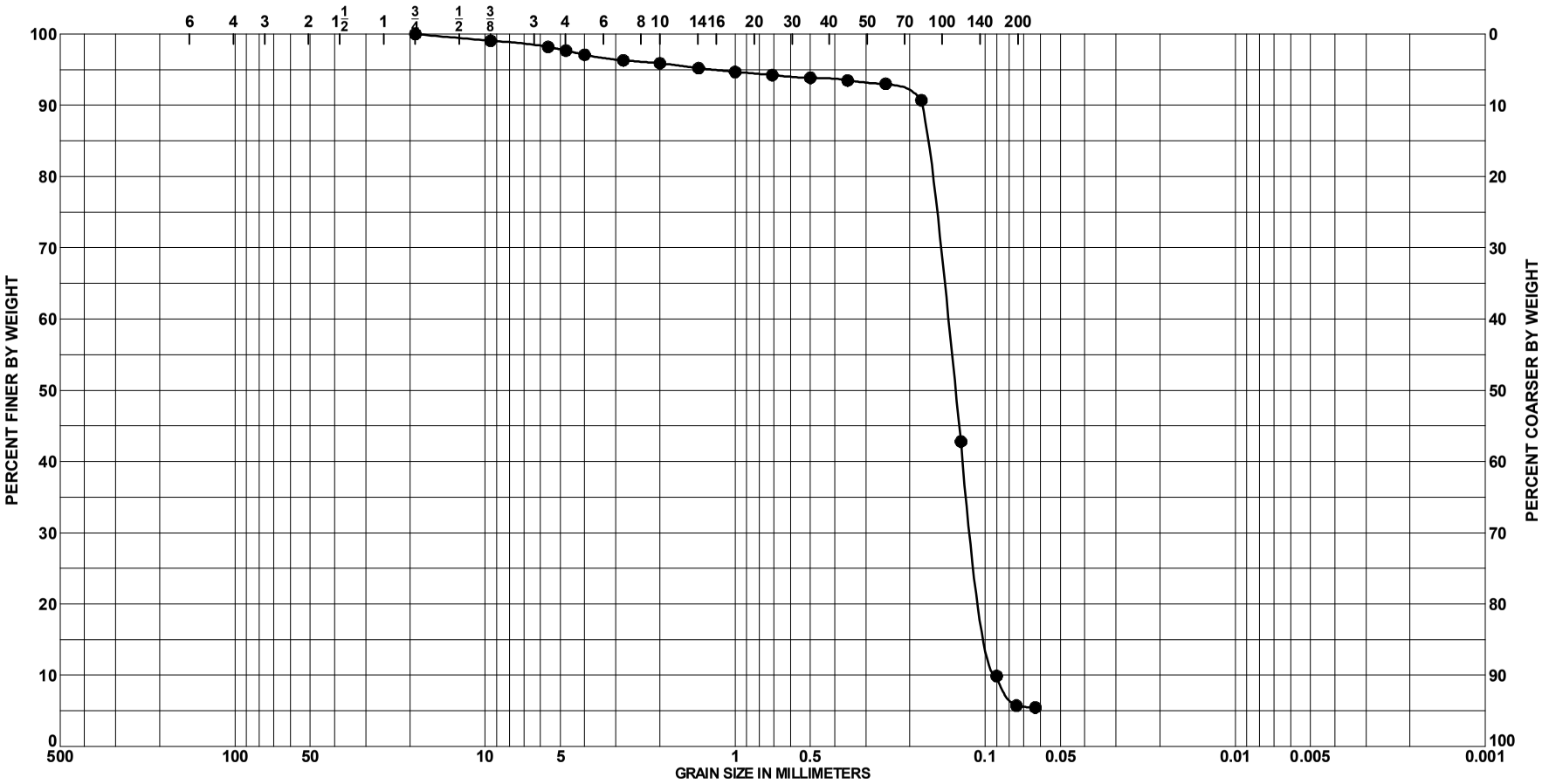


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 2	6.0 to 6.3 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, white (SP)	5Y 8/1	5							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-16
BORING ELEV.	-7.9 Ft., MLLW
DATE	6/17/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02



Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 3	11.0 to 11.3 Ft.	SAND, poorly-graded with silt, mostly	5Y 8/1	10							
		fine-grained sand-sized quartz, few									
		medium-grained sand-sized shell, few									
		silt, white (SP-SM)									

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-16
BORING ELEV.	-7.9 Ft., MLLW
DATE	6/17/2014

GRADATION CURVES

SAJ FORM 2087
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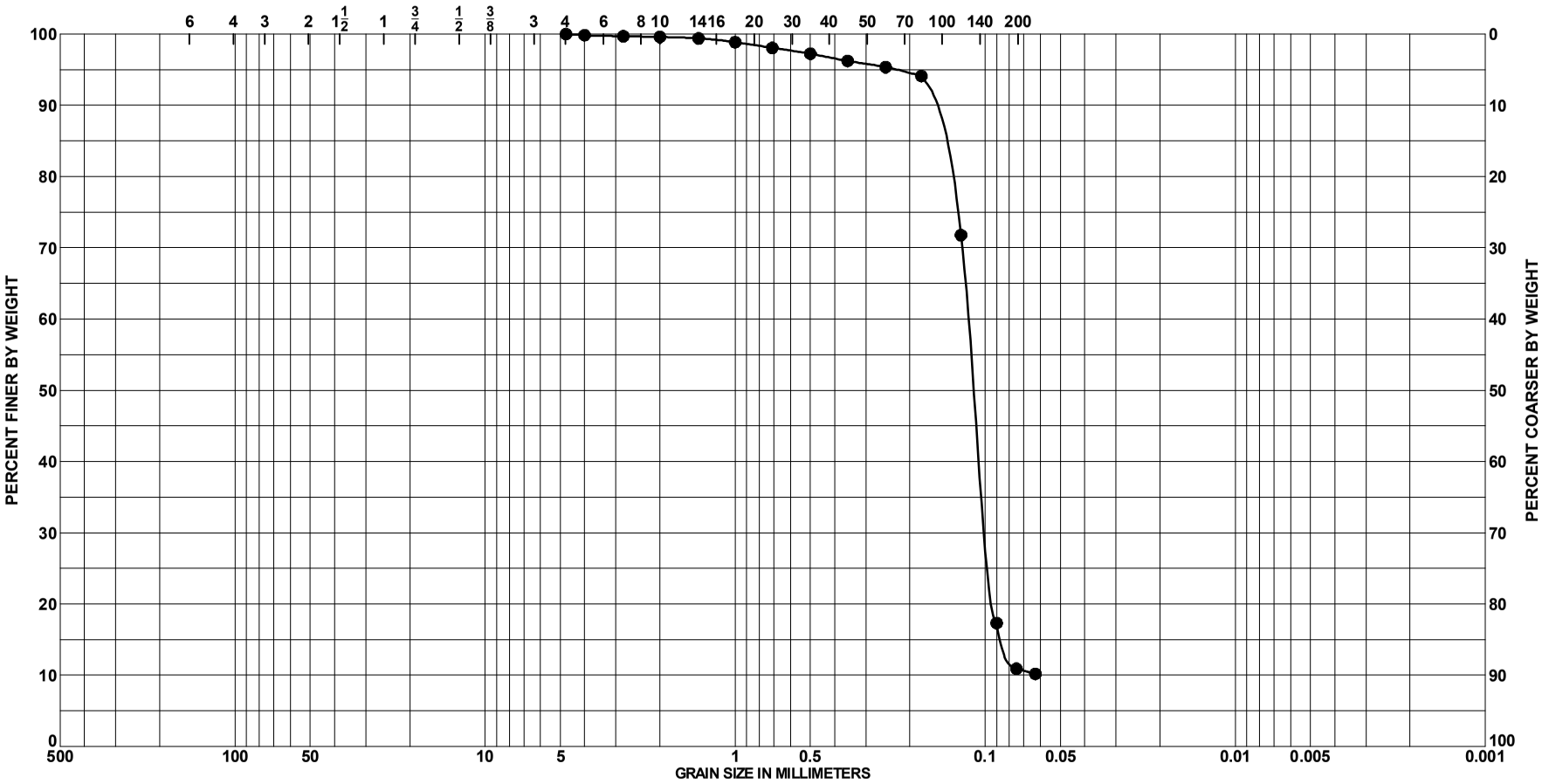
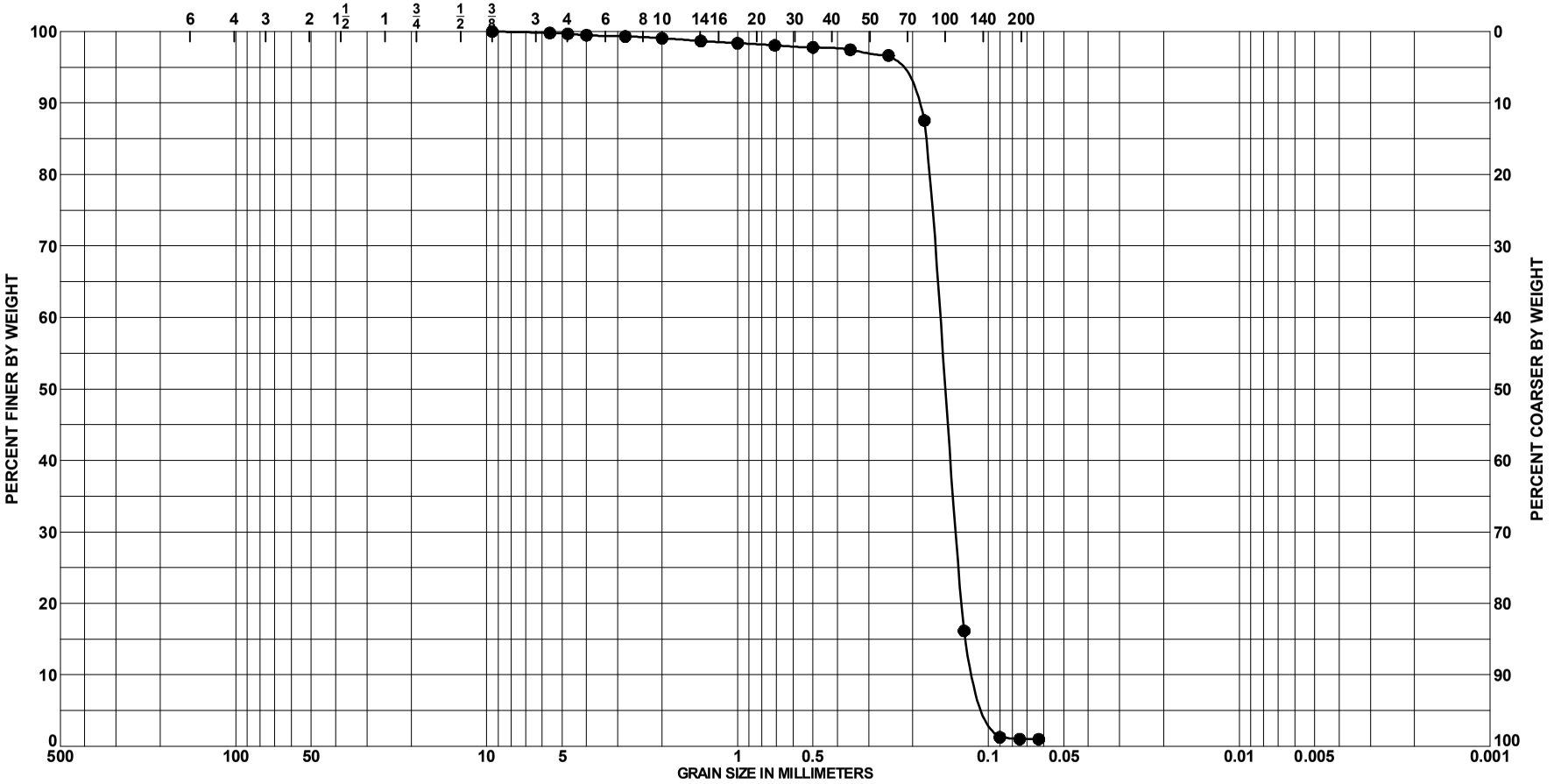


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 4	12.0 to 12.3 Ft.	SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, few fine-grained sand-sized shell, gray (SP-SM)	5Y 6/1	7							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-16
BORING ELEV.	-7.9 Ft., MLLW
DATE	6/17/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02

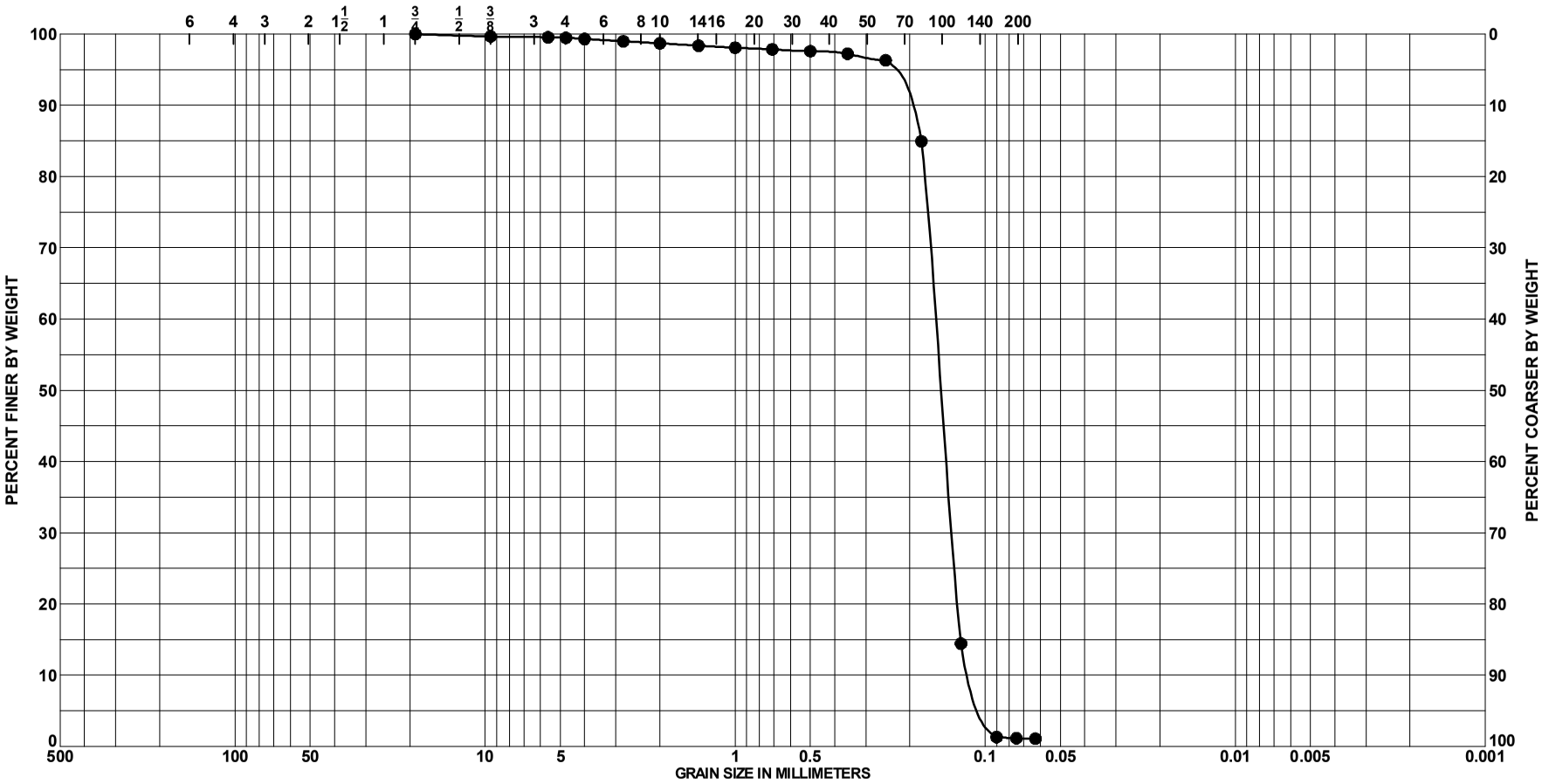


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 1	0.5 to 0.8 Ft.	SAND, poorly-graded, mostly	5Y 8/1	5							
		fine-grained sand-sized quartz, few									
		fine-grained sand-sized shell, trace									
		silt, white (SP)									

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-17
BORING ELEV.	-7.1 Ft., MLLW
DATE	6/17/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02

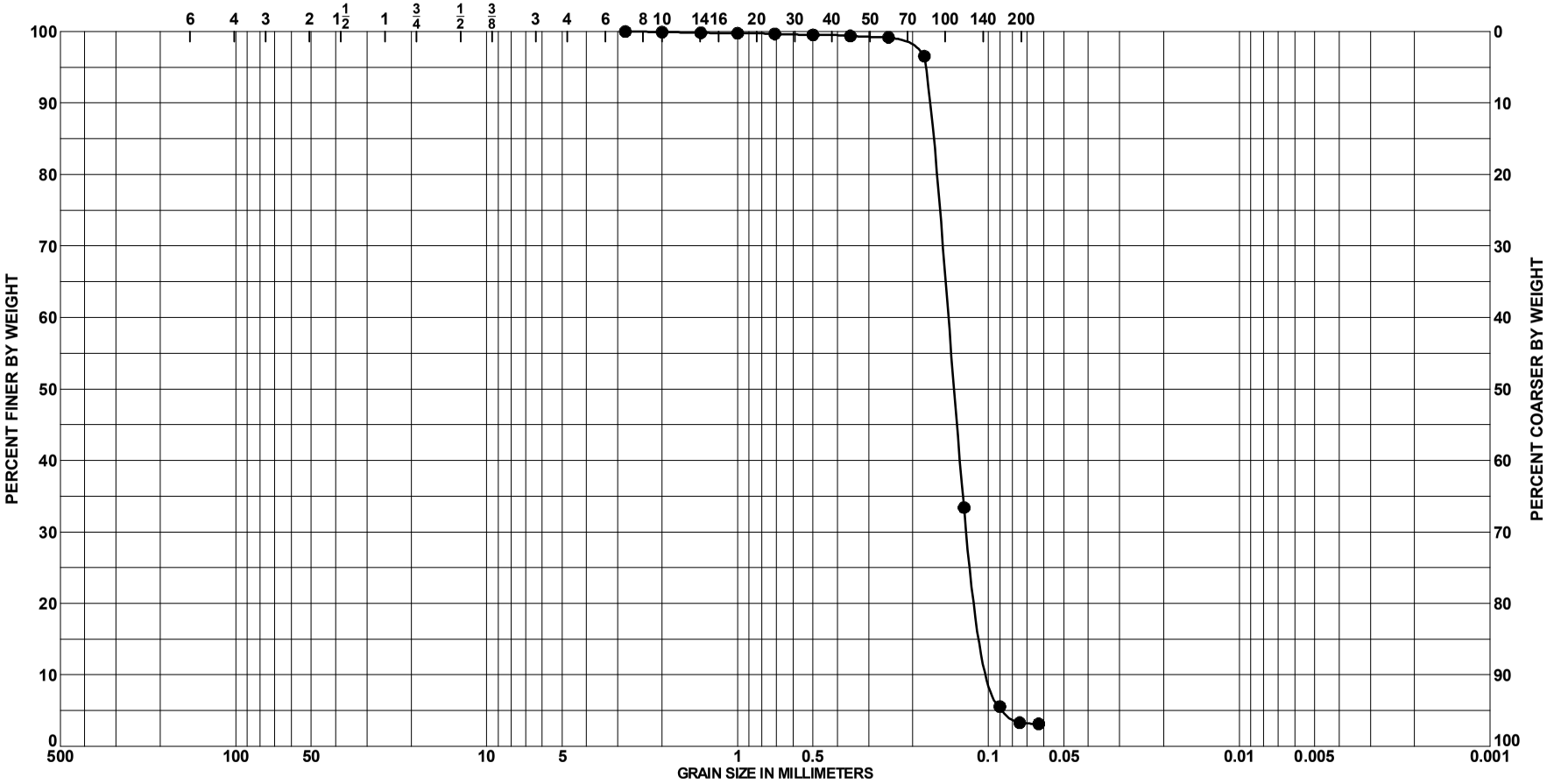


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 2	6.0 to 6.3 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, trace silt, white (SP)	5Y 8/1	4							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-17
BORING ELEV.	-7.1 Ft., MLLW
DATE	6/17/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02



Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 3	12.5 to 12.8 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell, gray (SP)	5Y 6/1	2							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-17
BORING ELEV.	-7.1 Ft., MLLW
DATE	6/17/2014

GRADATION CURVES

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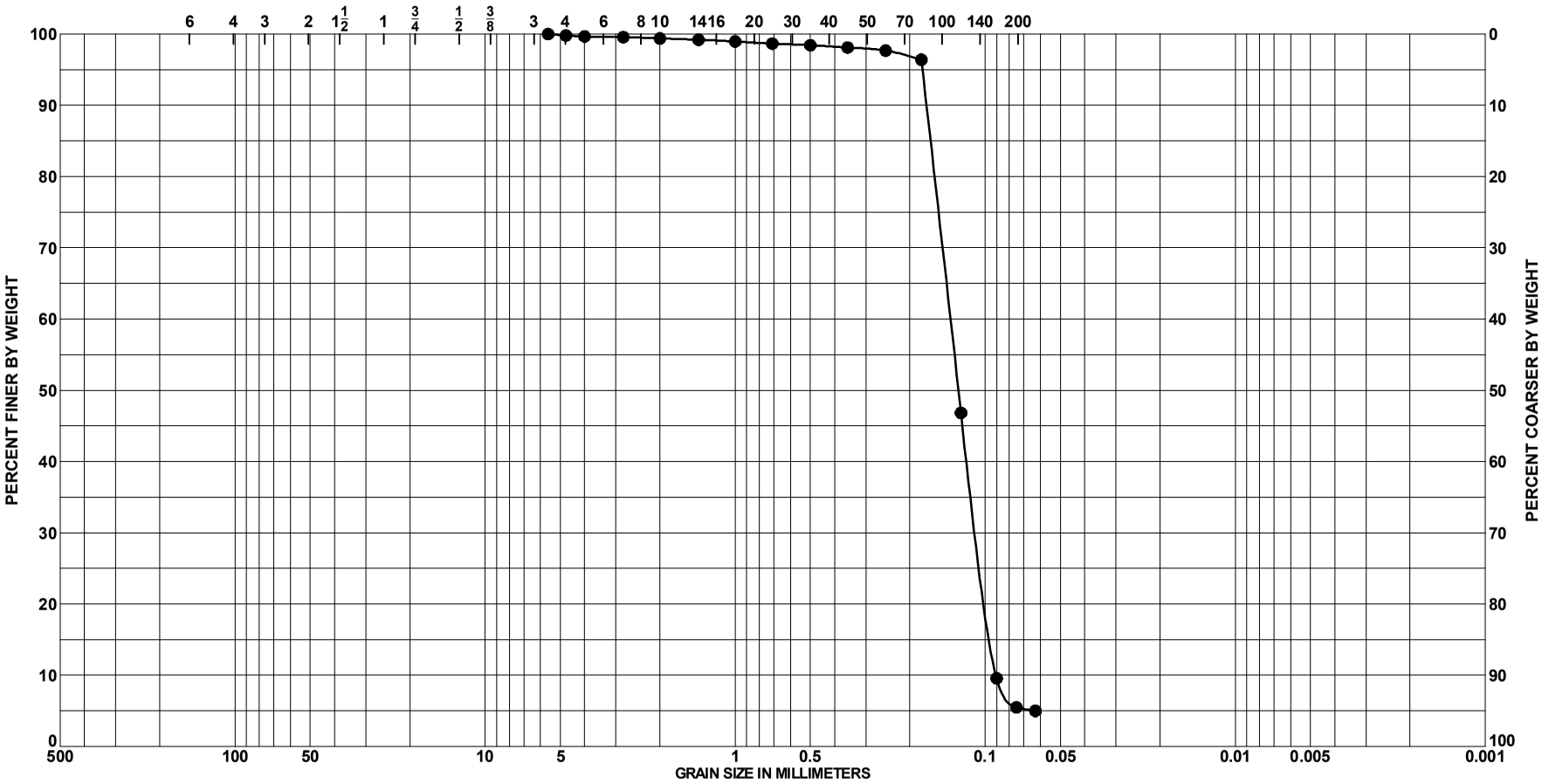
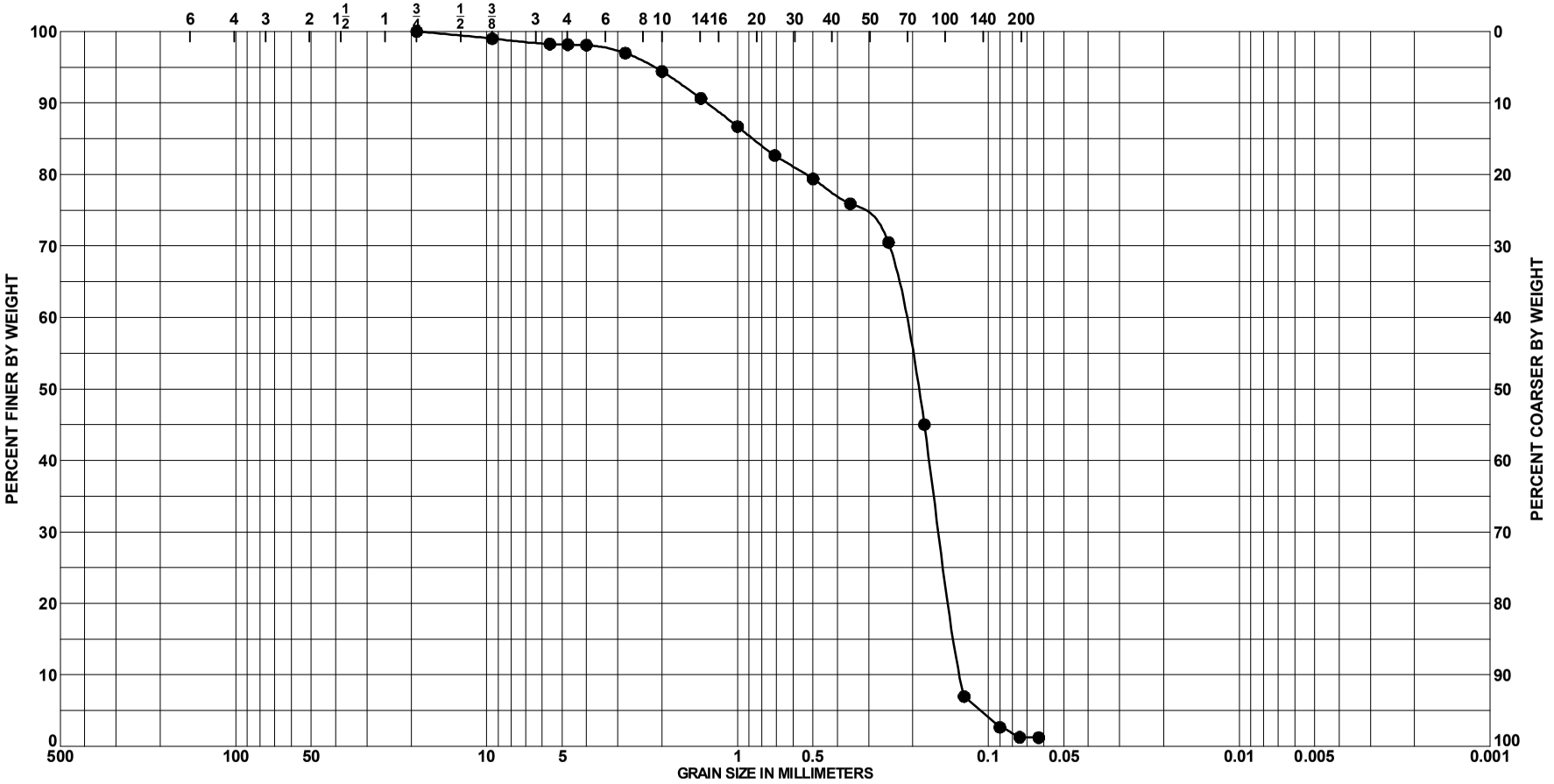


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 4	13.5 to 13.8 Ft.	SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell, gray (SP-SM)	5Y 6/1	4							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-17
BORING ELEV.	-7.1 Ft., MLLW
DATE	6/17/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02

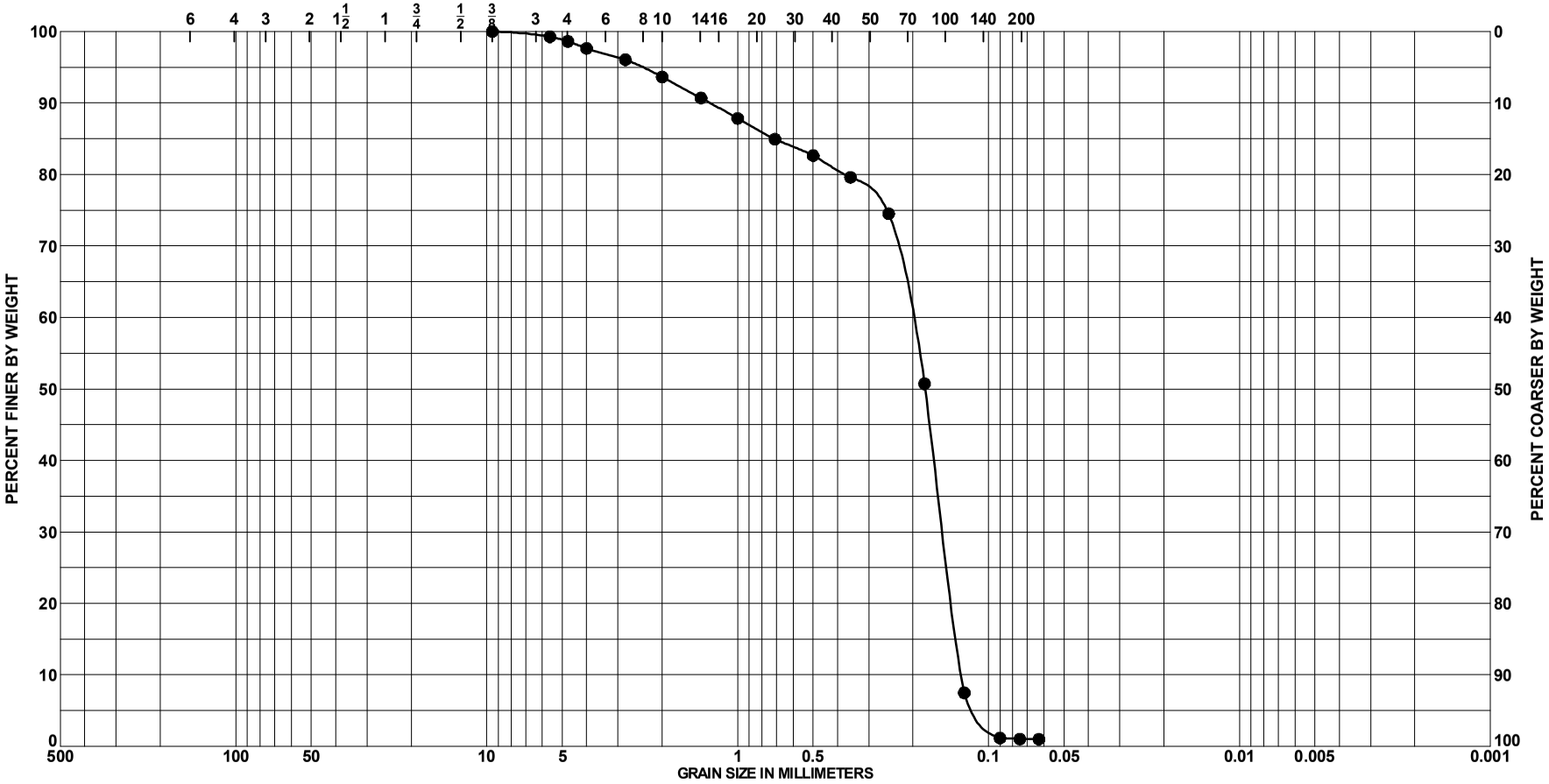


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 1	0.5 to 0.8 Ft.	SAND, poorly-graded, mostly	5Y 8/1	30							
		fine-grained sand-sized quartz, some									
		fine to medium-grained sand-sized									
		shell, trace silt, white (SP)									

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-18
BORING ELEV.	-4.4 Ft., MLLW
DATE	6/17/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02

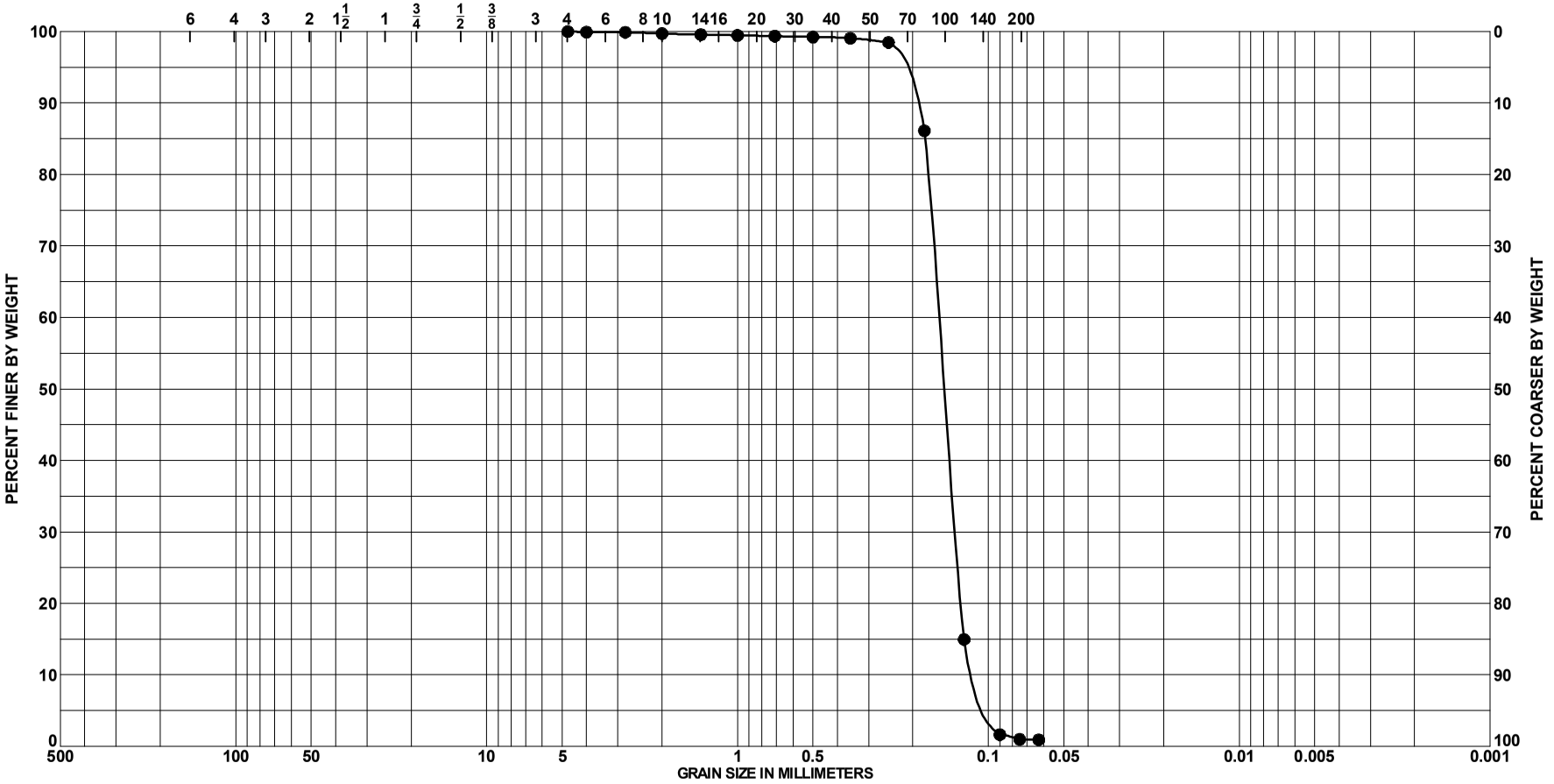


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 2	4.0 to 4.3 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to medium-grained sand-sized shell, trace silt, white (SP)	5Y 8/1	24							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-18
BORING ELEV.	-4.4 Ft., MLLW
DATE	6/17/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02

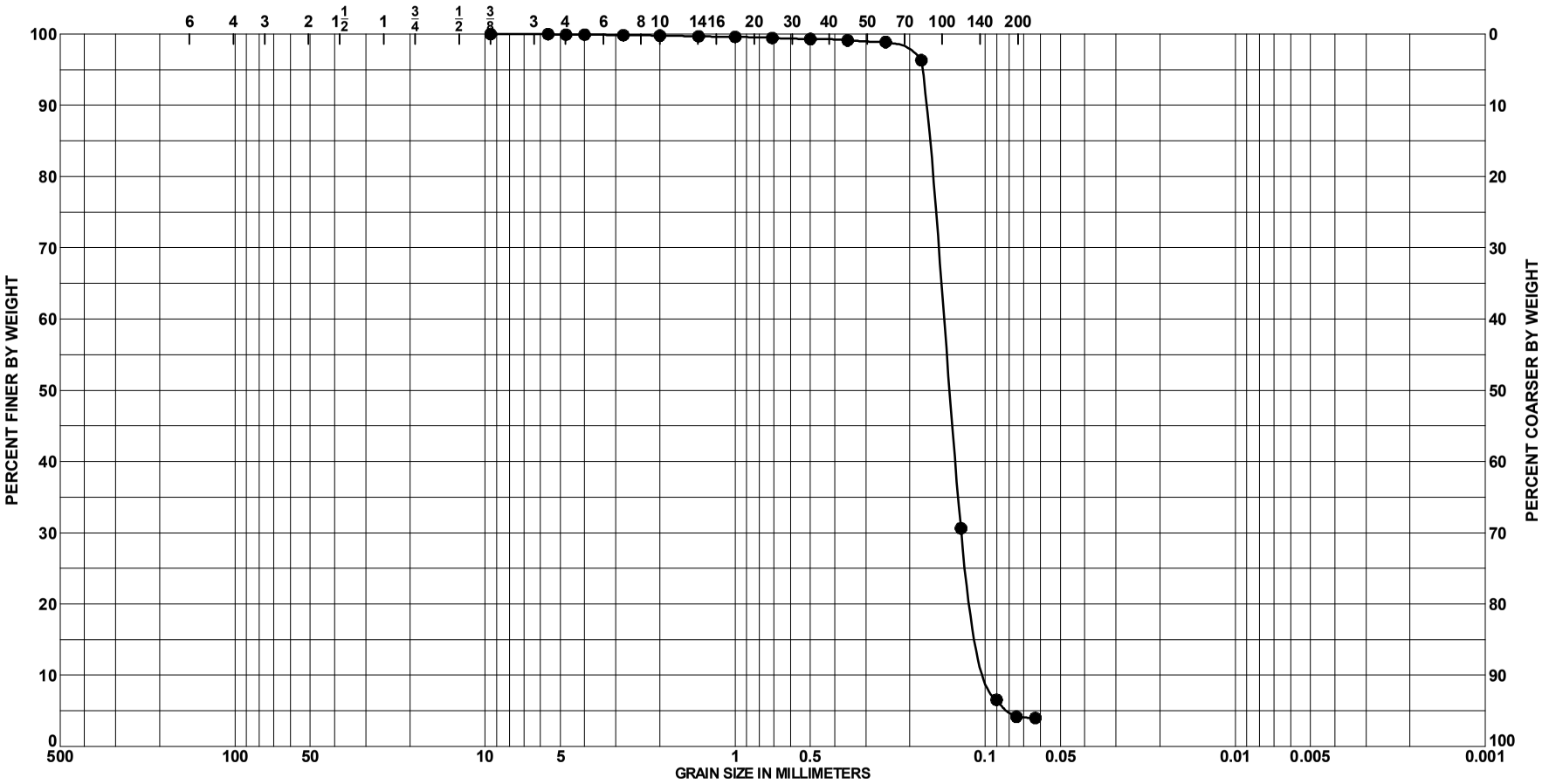


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 3	8.0 to 8.3 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, white (SP)	5Y 8/1	3							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-18
BORING ELEV.	-4.4 Ft., MLLW
DATE	6/17/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02

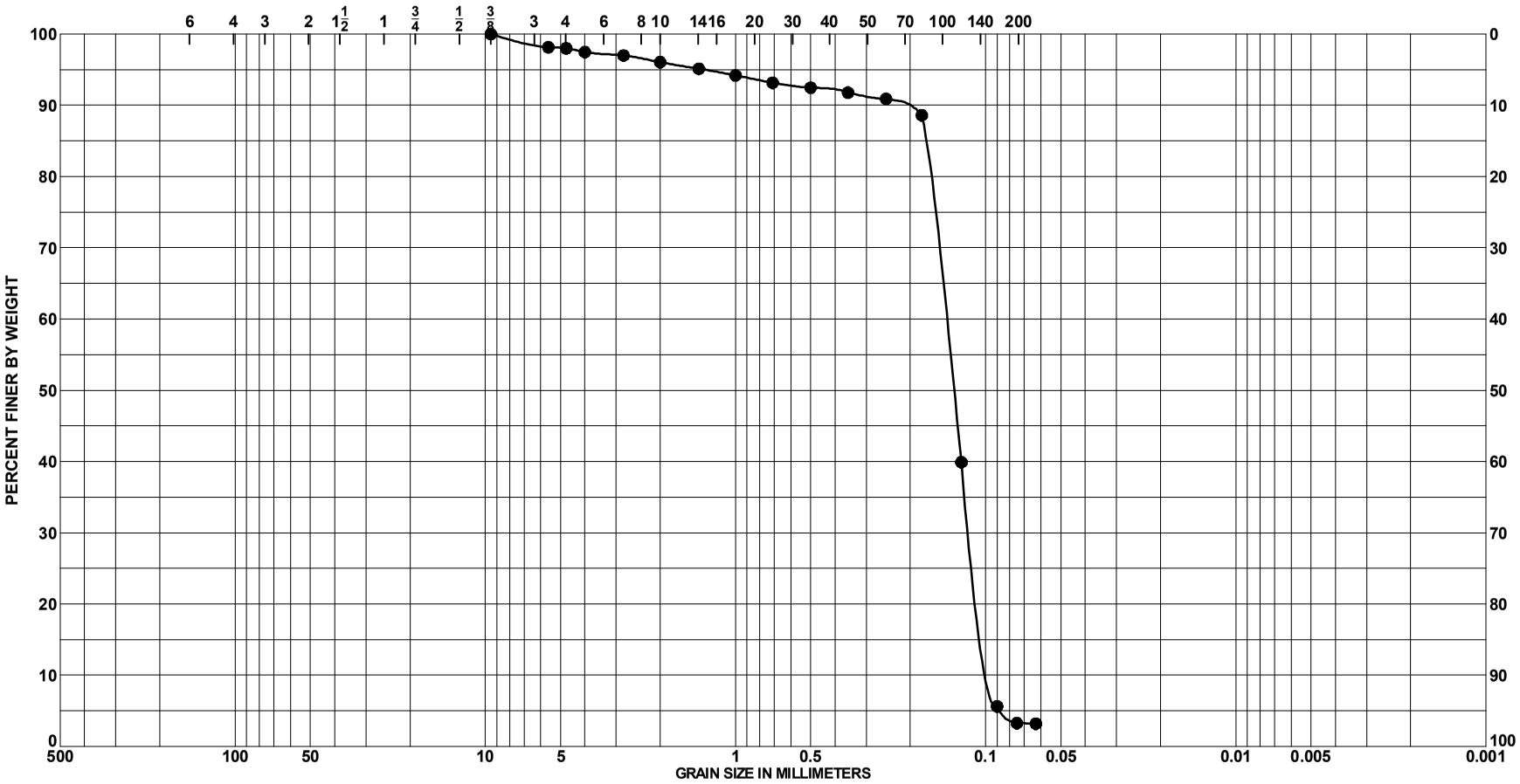


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 4	13.0 to 13.3 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell, light gray (SP)	5Y 7/1	3							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-18
BORING ELEV.	-4.4 Ft., MLLW
DATE	6/17/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02

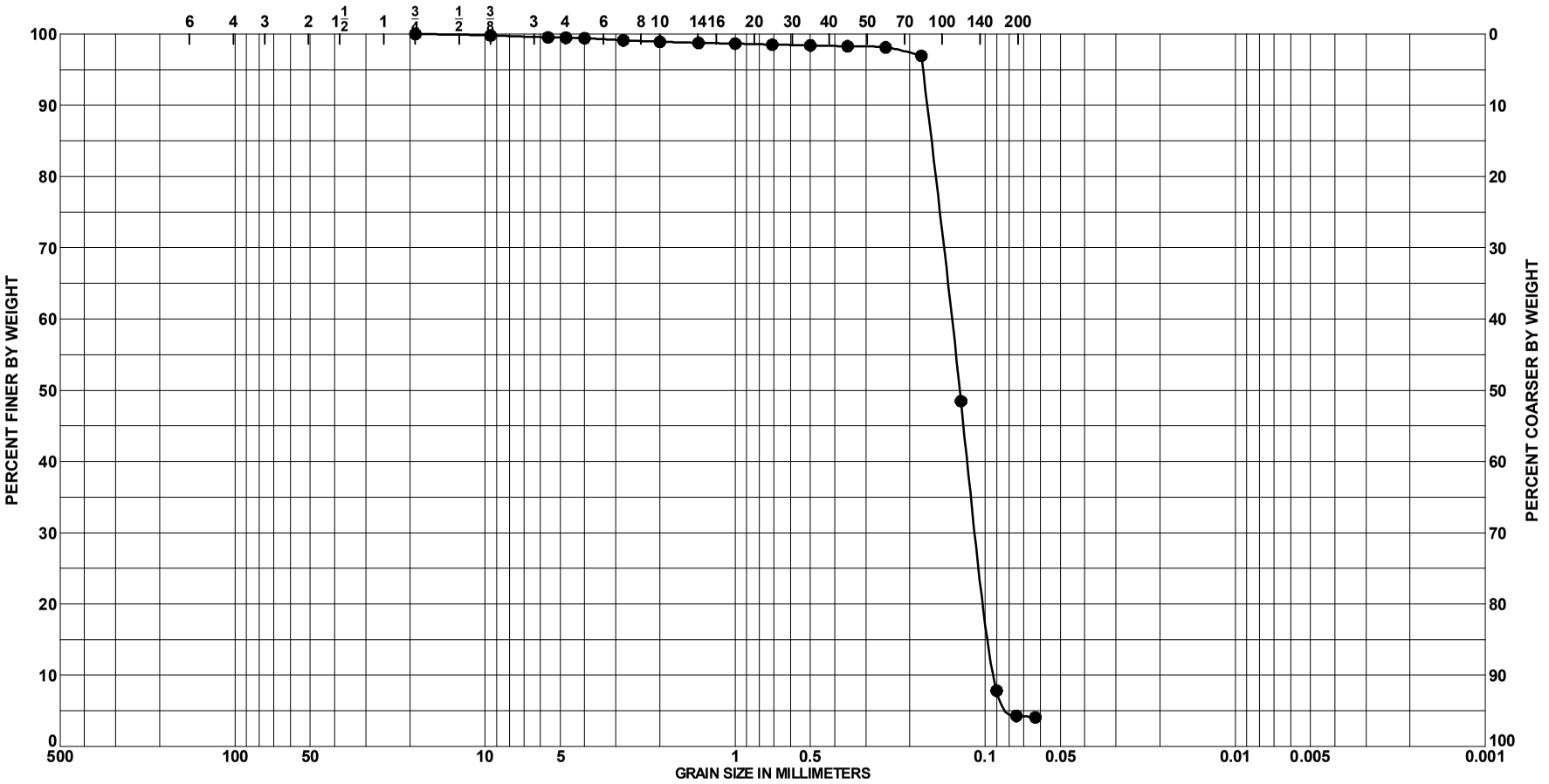


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 1	0.5 to 0.8 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, few medium-grained sand-sized shell, trace silt, gray (SP)	5Y 6/1	11							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-19
BORING ELEV.	-17.6 Ft., MLLW
DATE	6/17/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02

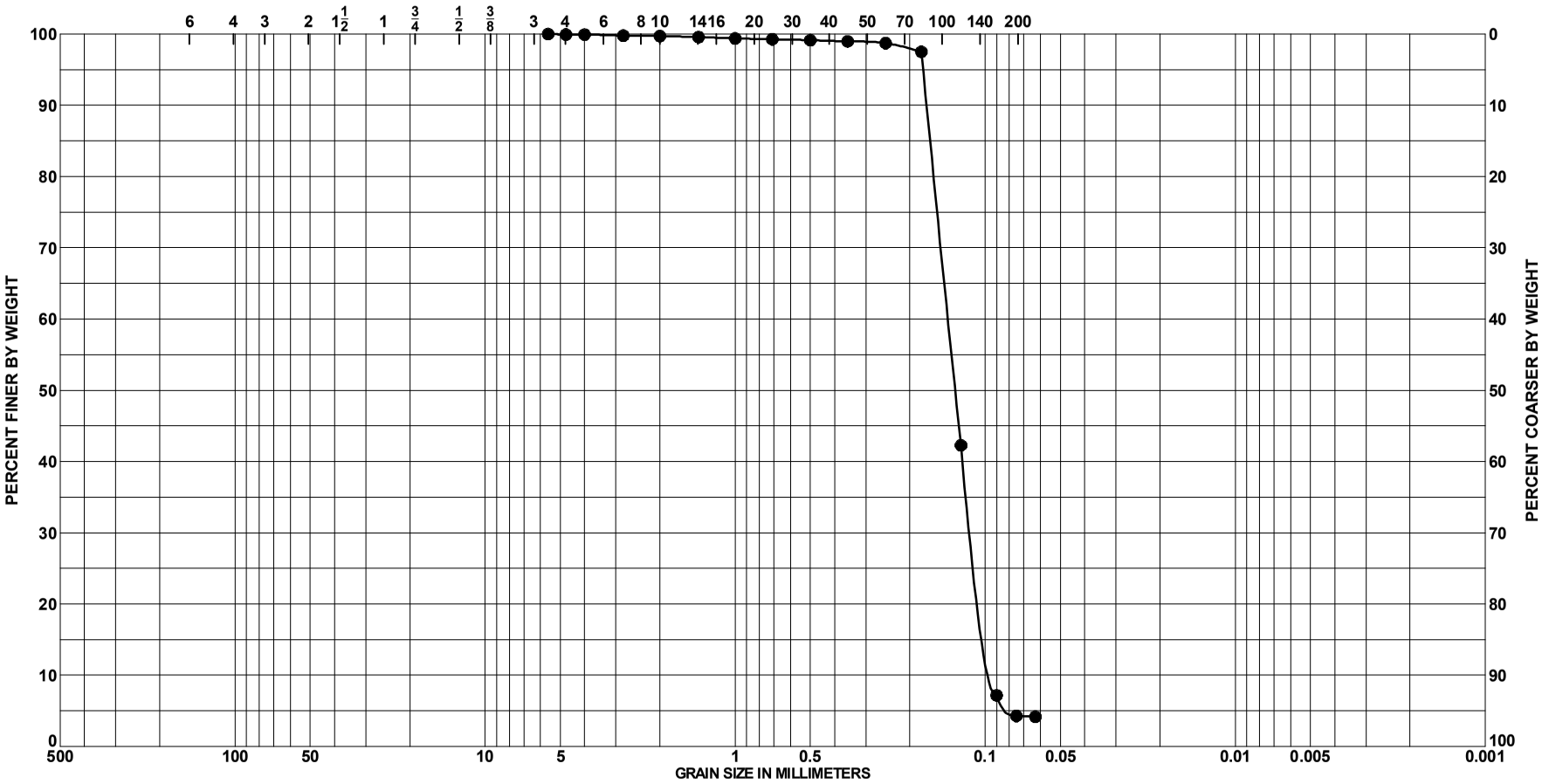


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 2	4.0 to 4.3 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell, gray (SP)	5Y 6/1	3							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal Sarasota County SPP, FL
BORING NO.	VB-LK14-19
BORING ELEV.	-17.6 Ft., MLLW
DATE	6/17/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02

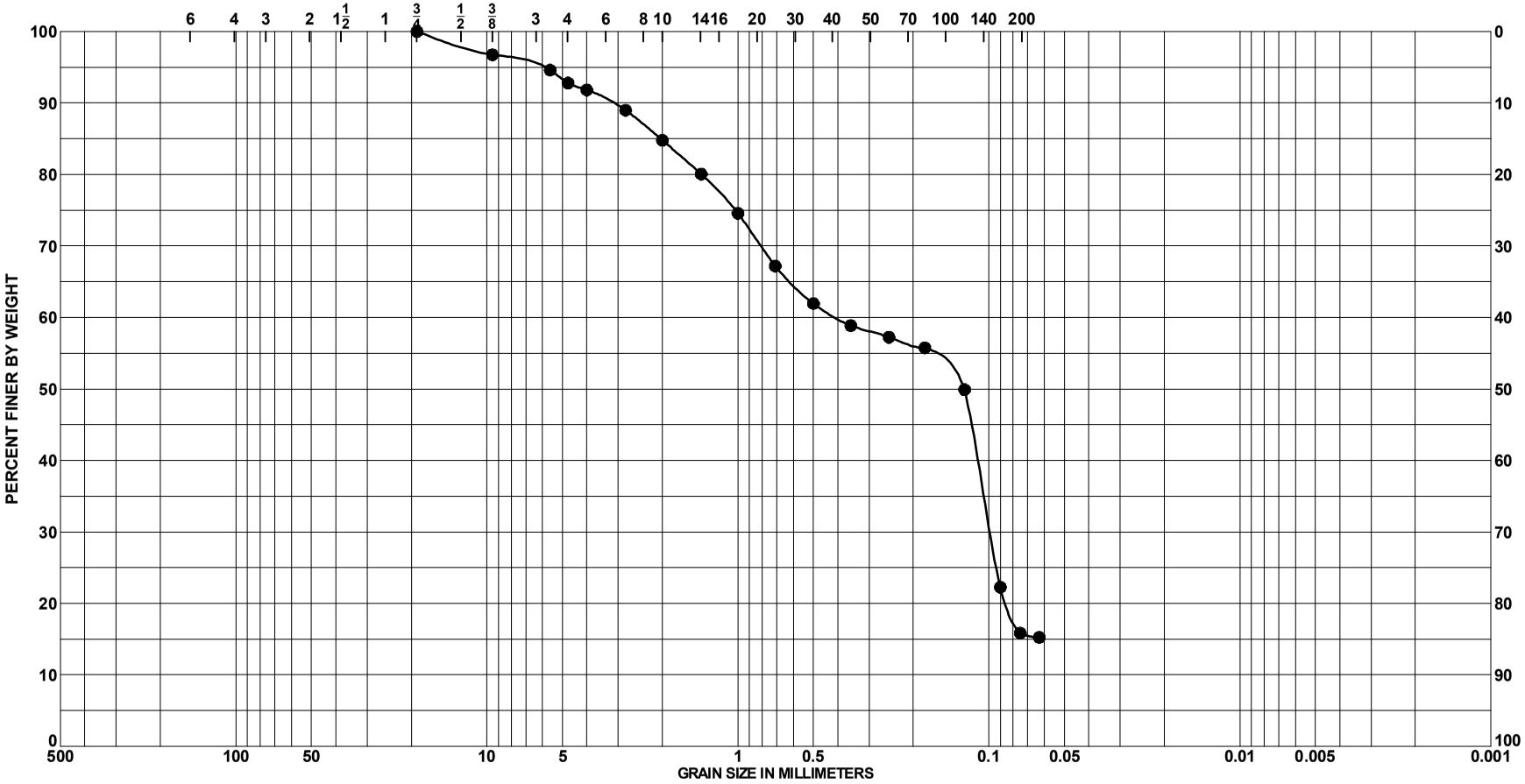


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 3	4.5 to 4.8 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell, gray (SP)	5Y 6/1	2							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-19
BORING ELEV.	-17.6 Ft., MLLW
DATE	6/17/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02

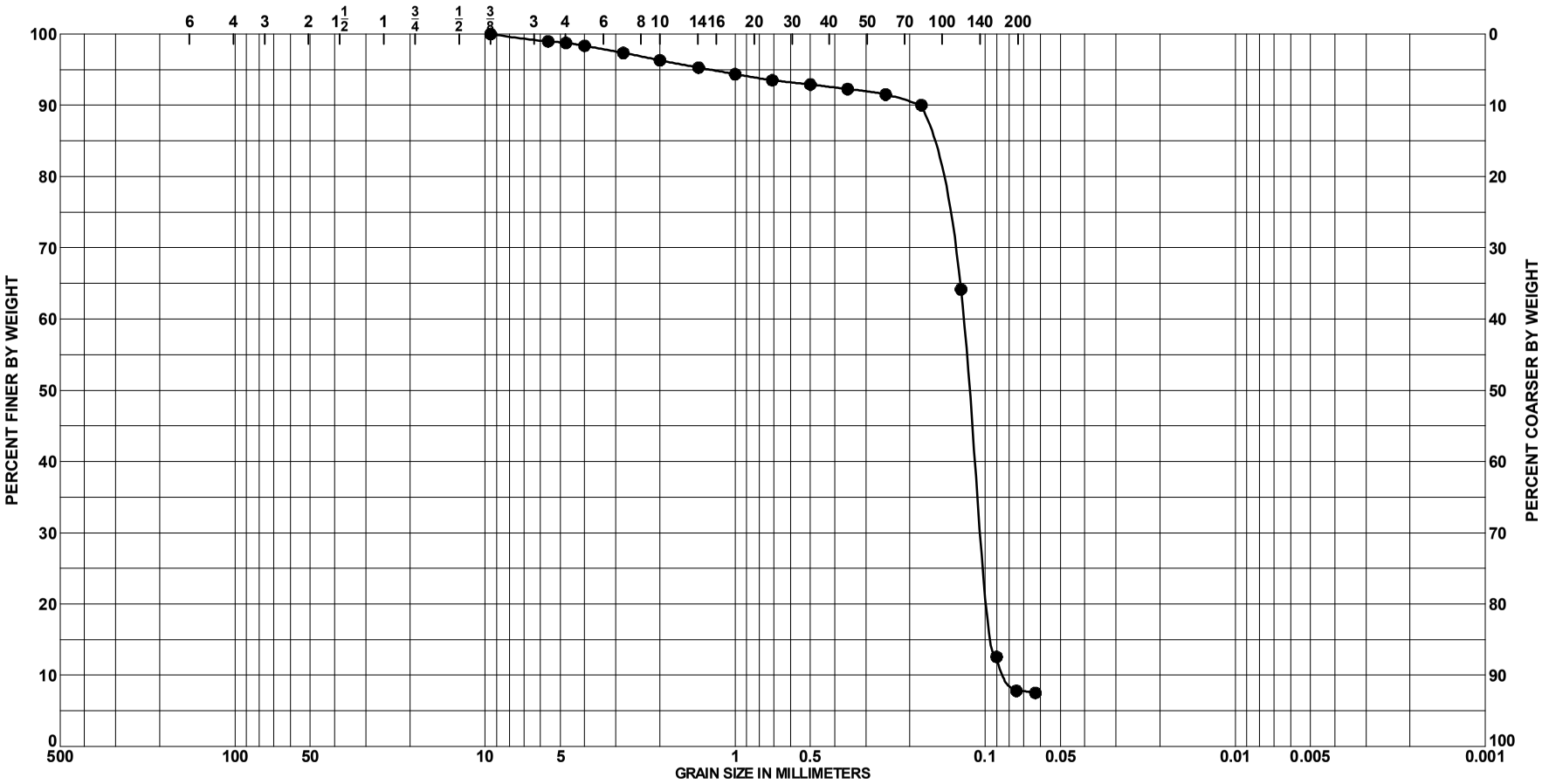


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 4	8.1 to 8.4 Ft.	SAND, silty, mostly fine to medium-grained sand-sized quartz, some sand to gravel-sized shell, little silt, gray (SM)	5Y 6/1	33							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal Sarasota County SPP, FL
BORING NO.	VB-LK14-19
BORING ELEV.	-17.6 Ft., MLLW
DATE	6/18/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02

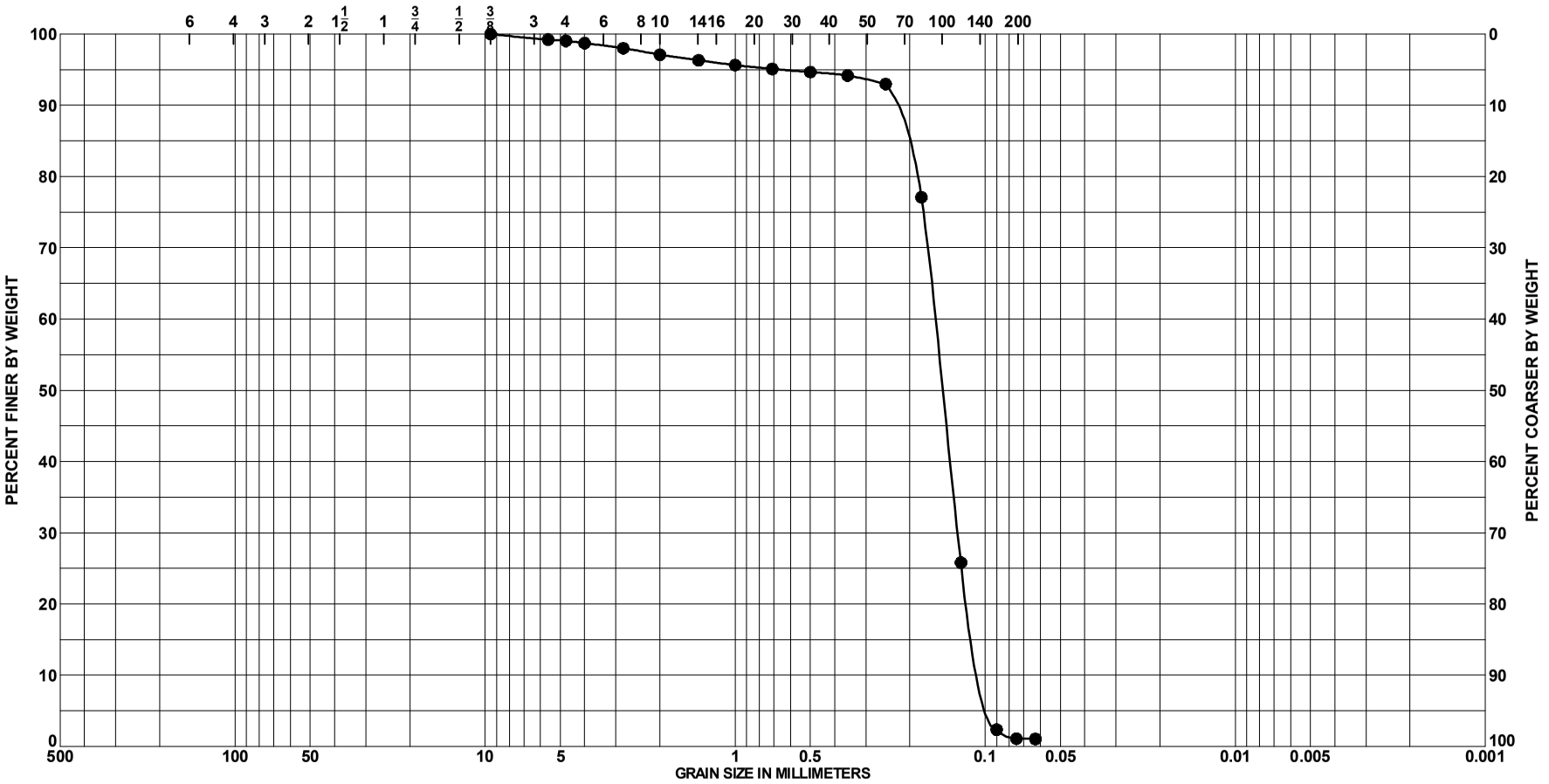


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 1	0.5 to 0.8 Ft.	SAND, poorly-graded with silt, mostly	5Y 6/1	9							
		fine-grained sand-sized quartz, few									
		medium-grained sand-sized shell, few									
		silt, gray (SP-SM)									

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-20
BORING ELEV.	-25.0 Ft., MLLW
DATE	6/19/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02

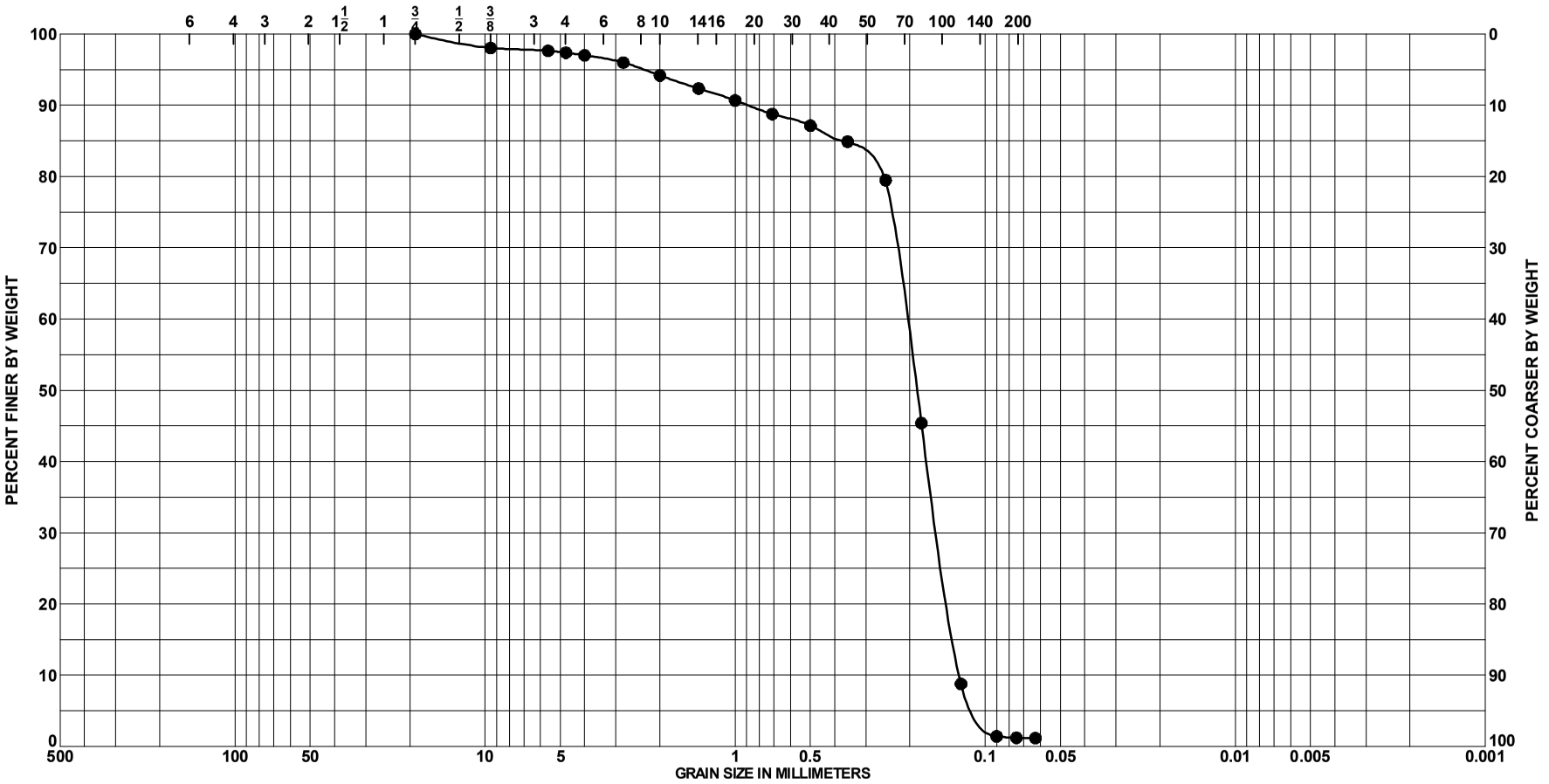


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 1	0.5 to 0.8 Ft.	SAND, poorly-graded, mostly	5Y 8/1	11							
		fine-grained sand-sized quartz, few									
		fine to medium-grained sand-sized									
		shell, trace silt, white (SP)									

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-29
BORING ELEV.	-11.0 Ft., MLLW
DATE	6/19/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02

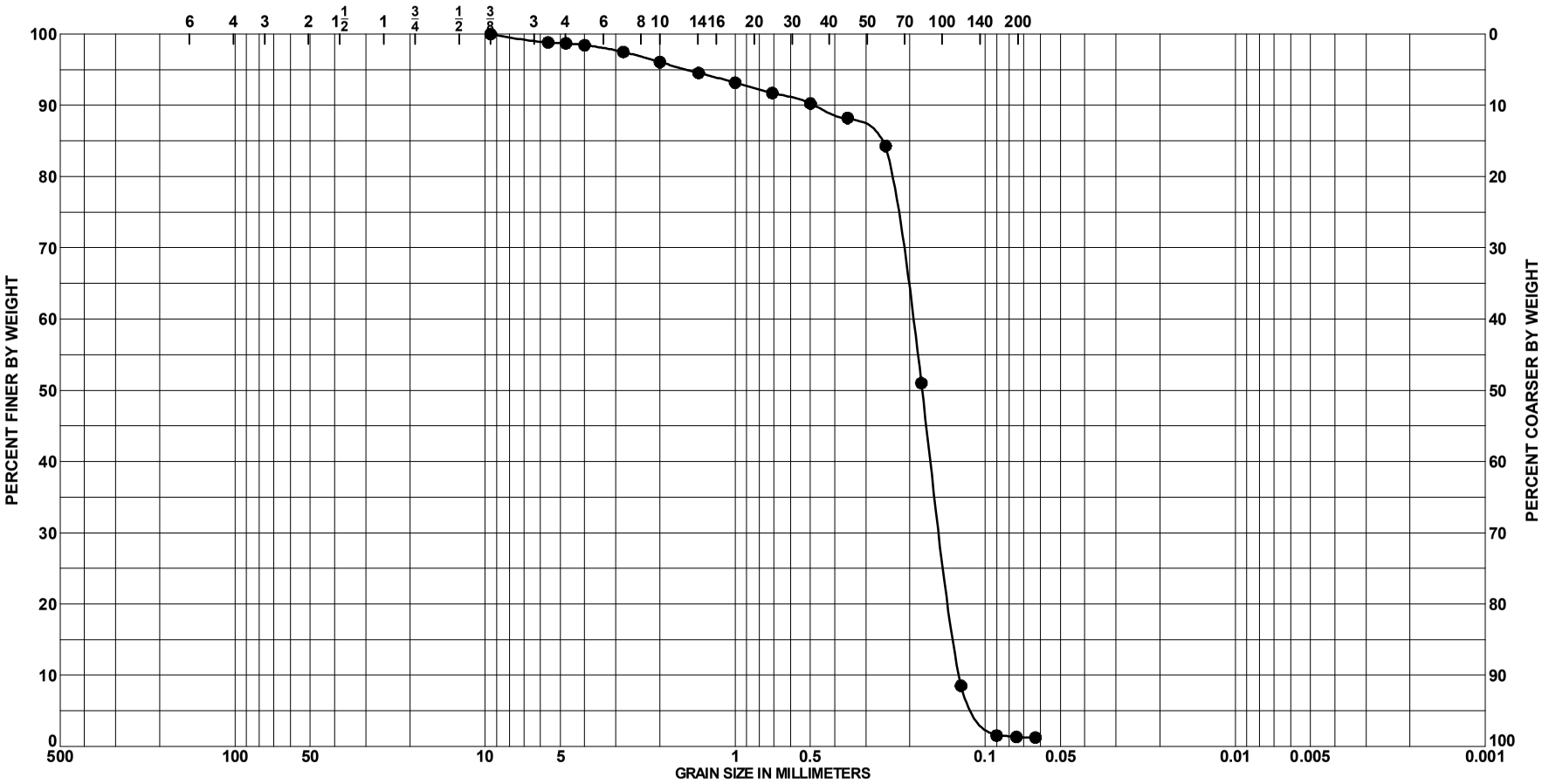


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 2	4.0 to 4.3 Ft.	SAND, poorly-graded, mostly	5Y 8/1	25							
		fine-grained sand-sized quartz, little									
		fine to coarse-grained sand-sized									
		shell, trace silt, white (SP)									

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-29
BORING ELEV.	-11.0 Ft., MLLW
DATE	6/19/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02

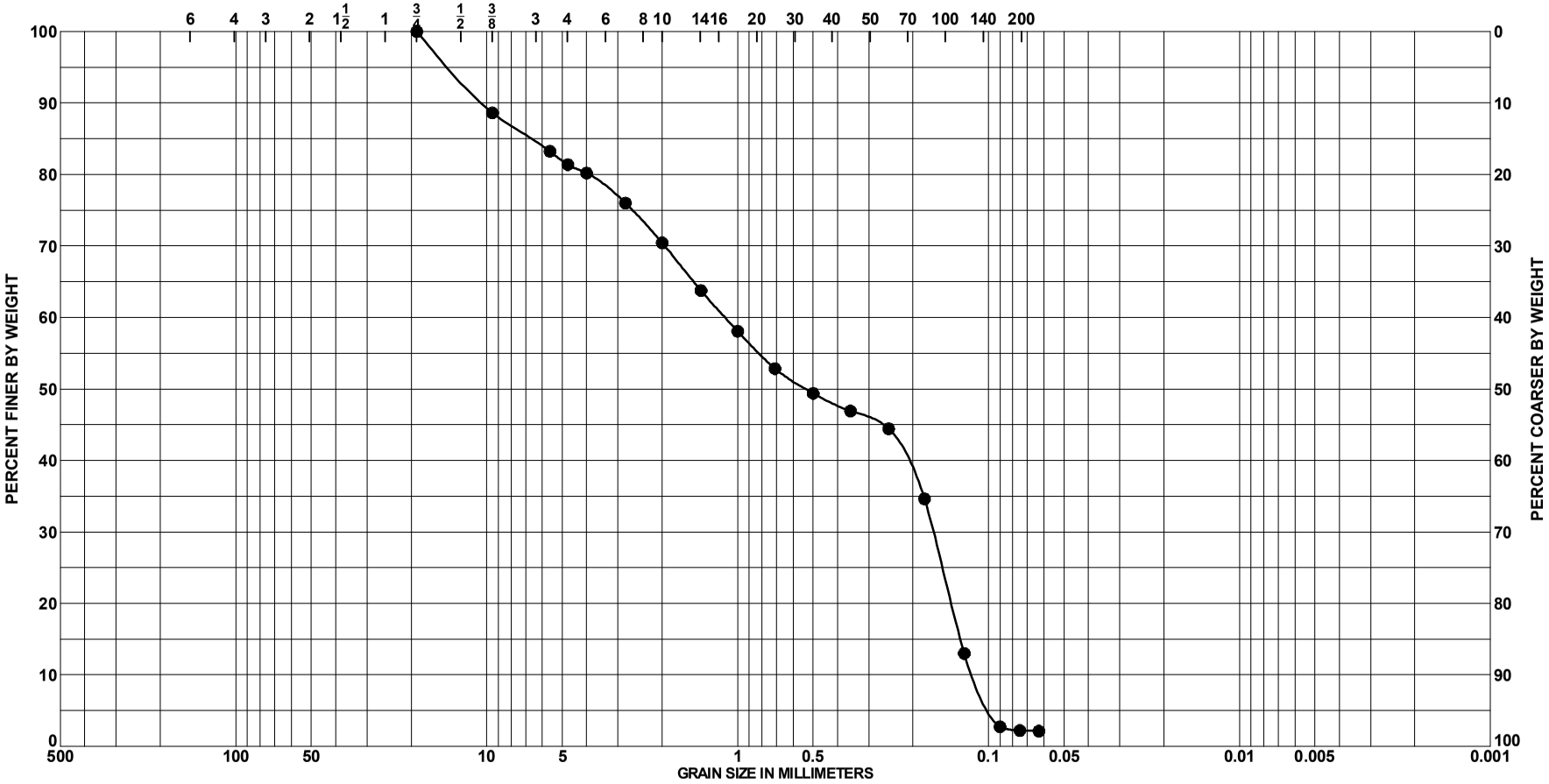


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 3	8.0 to 8.3 Ft.	SAND, poorly-graded, mostly	5Y 6/1	16							
		fine-grained sand-sized quartz, little									
		fine to medium-grained sand-sized									
		shell, trace silt, gray (SP)									

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-29
BORING ELEV.	-11.0 Ft., MLLW
DATE	6/19/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02

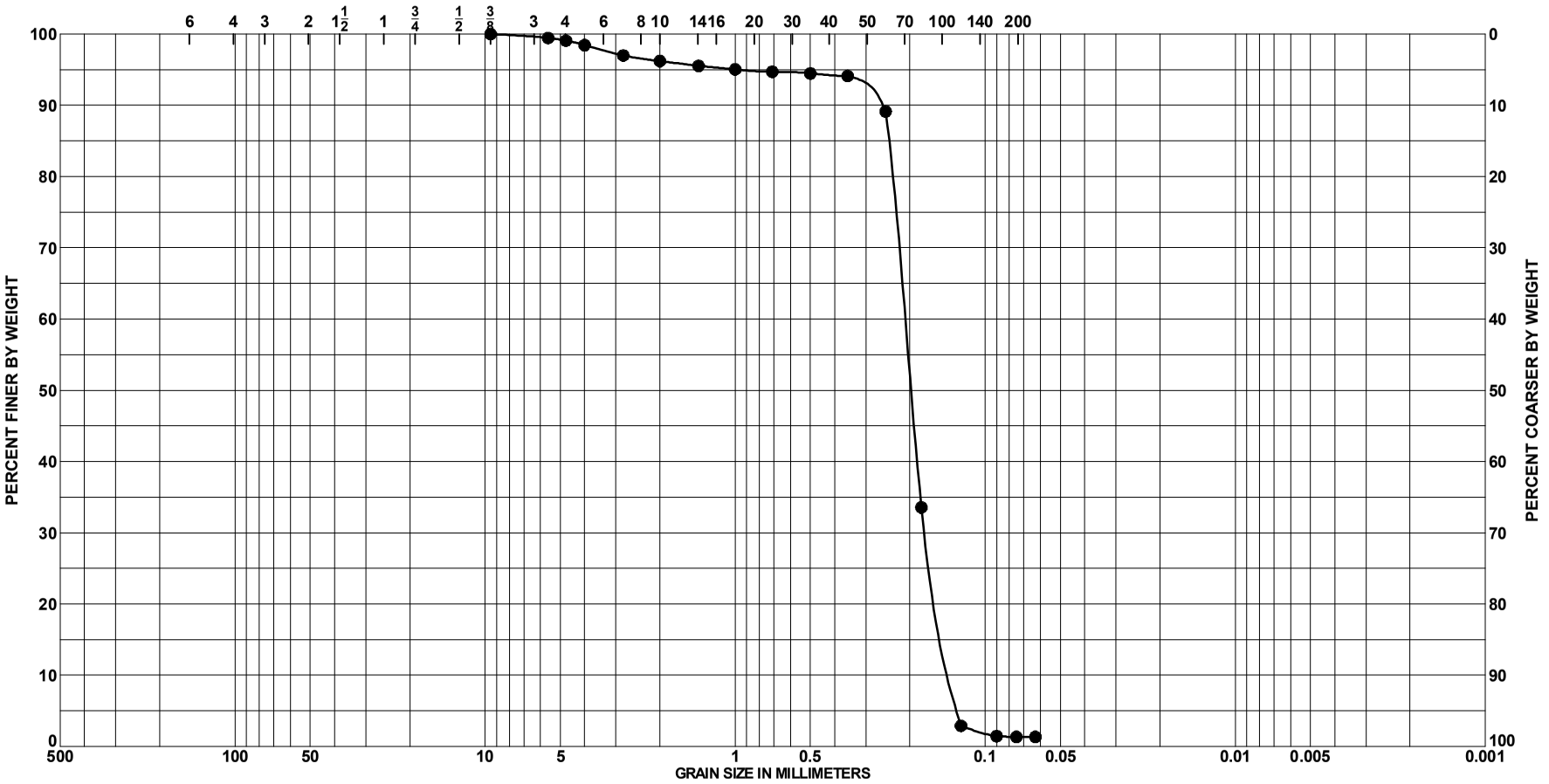


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 4	12.5 to 12.8 Ft.	SAND, poorly-graded, some sand to	5Y 8/1	45							
		gravel-sized shell, some fine-grained									
		sand-sized quartz, few									
		medium-grained sand-sized									
		limestone, trace silt, white (SP)									

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-29
BORING ELEV.	-11.0 Ft., MLLW
DATE	6/19/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02

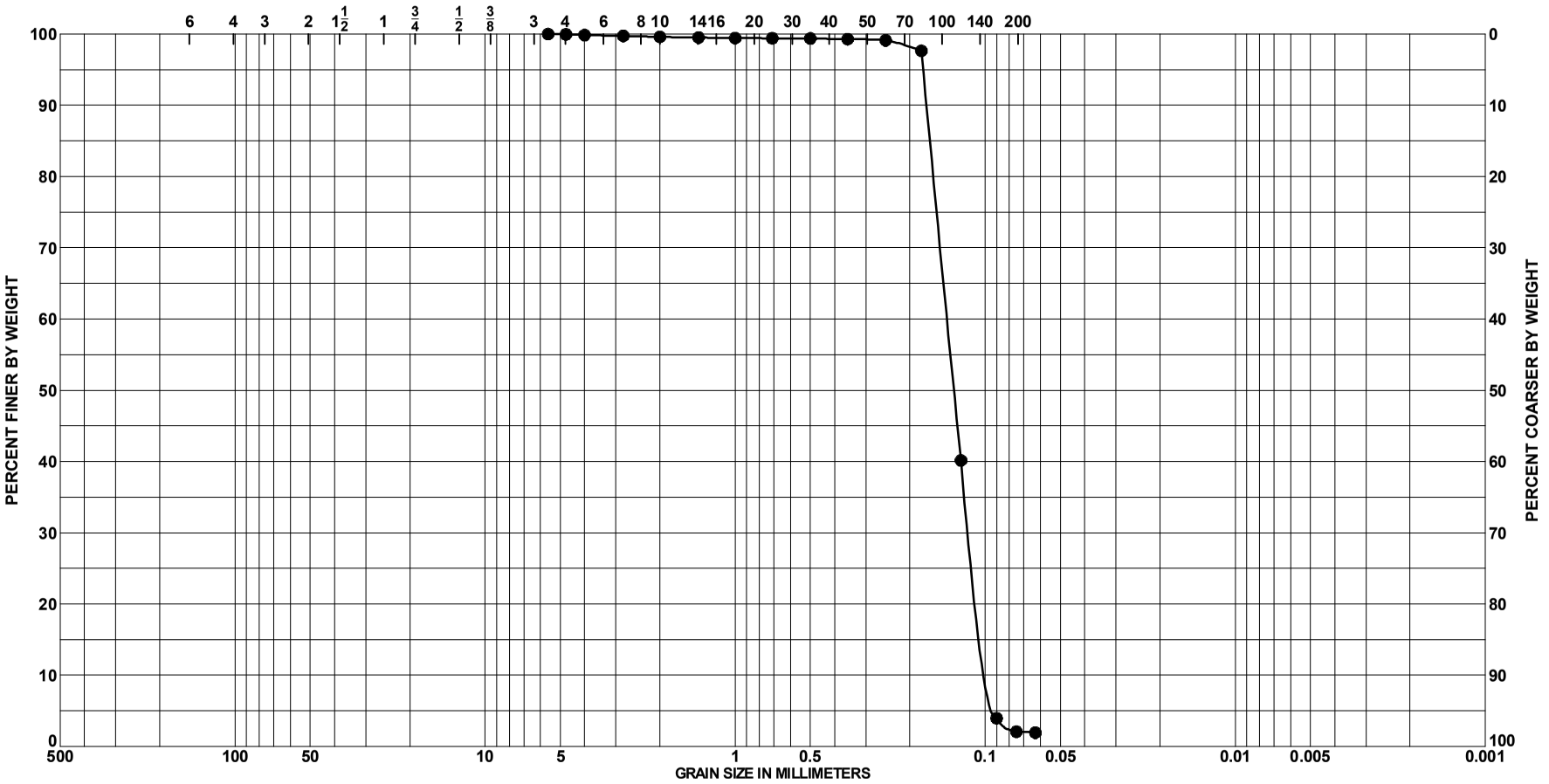


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 1	0.5 to 0.8 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, few medium-grained sand-sized shell, trace silt, white (SP)	5Y 8/1	8							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-30
BORING ELEV.	-13.9 Ft., MLLW
DATE	6/19/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02

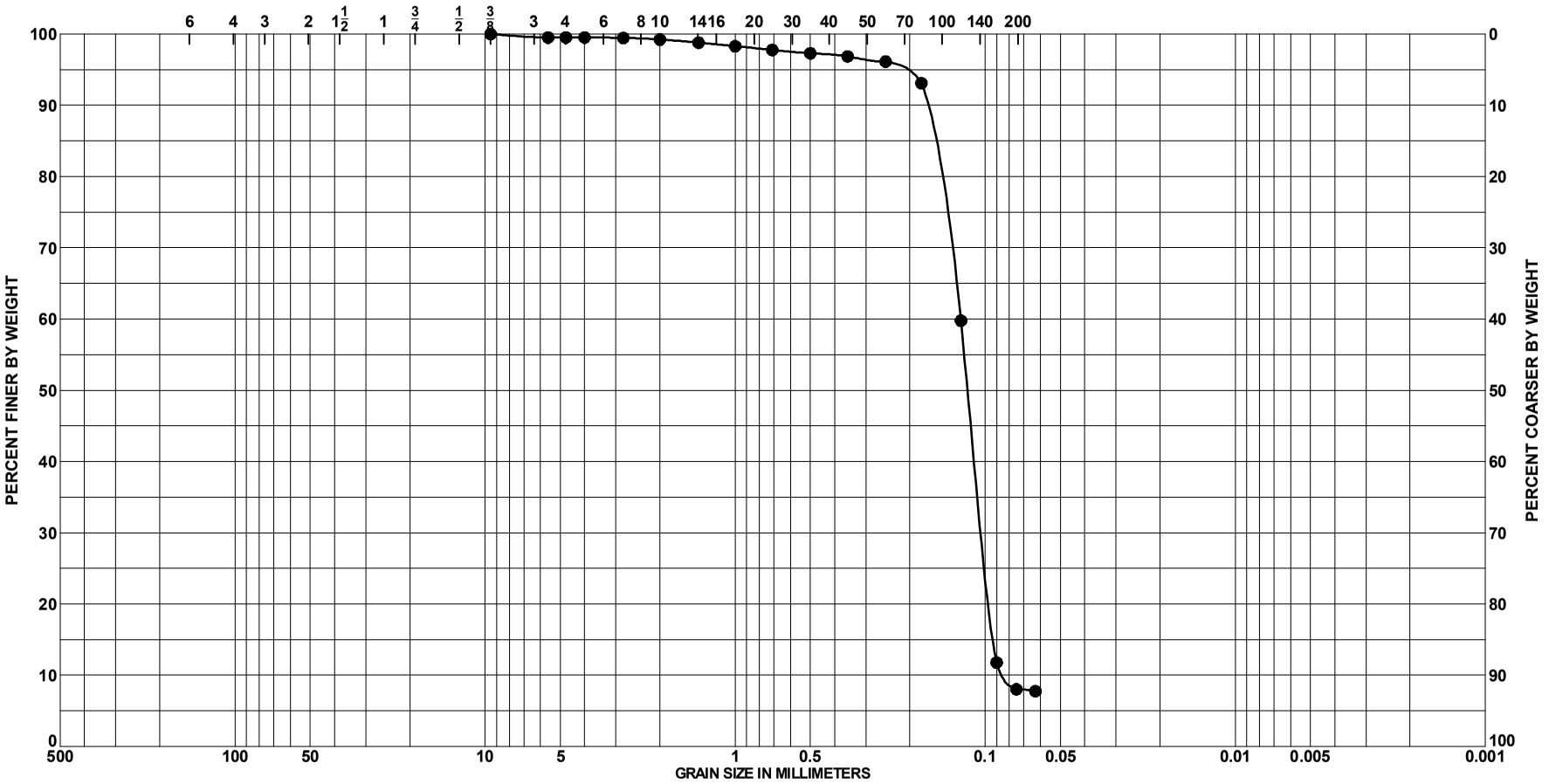


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 2	4.5 to 4.8 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell, light gray (SP)	5Y 7/1	2							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-30
BORING ELEV.	-13.9 Ft., MLLW
DATE	6/19/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02

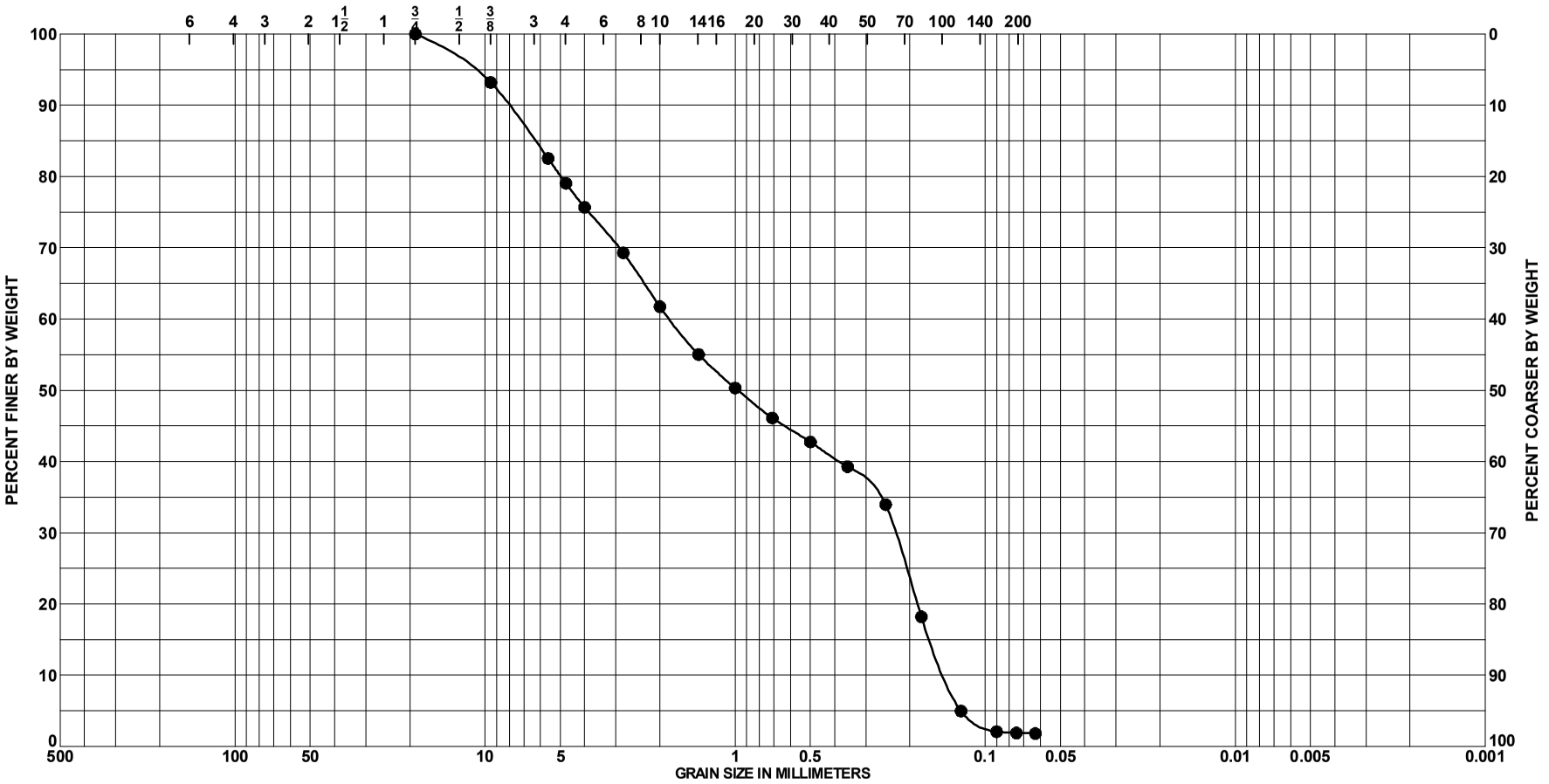


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 3	5.5 to 5.8 Ft.	SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, few fine-grained sand-sized shell, light gray (SP-SM)	5Y 7/1	5							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-30
BORING ELEV.	-13.9 Ft., MLLW
DATE	6/19/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02

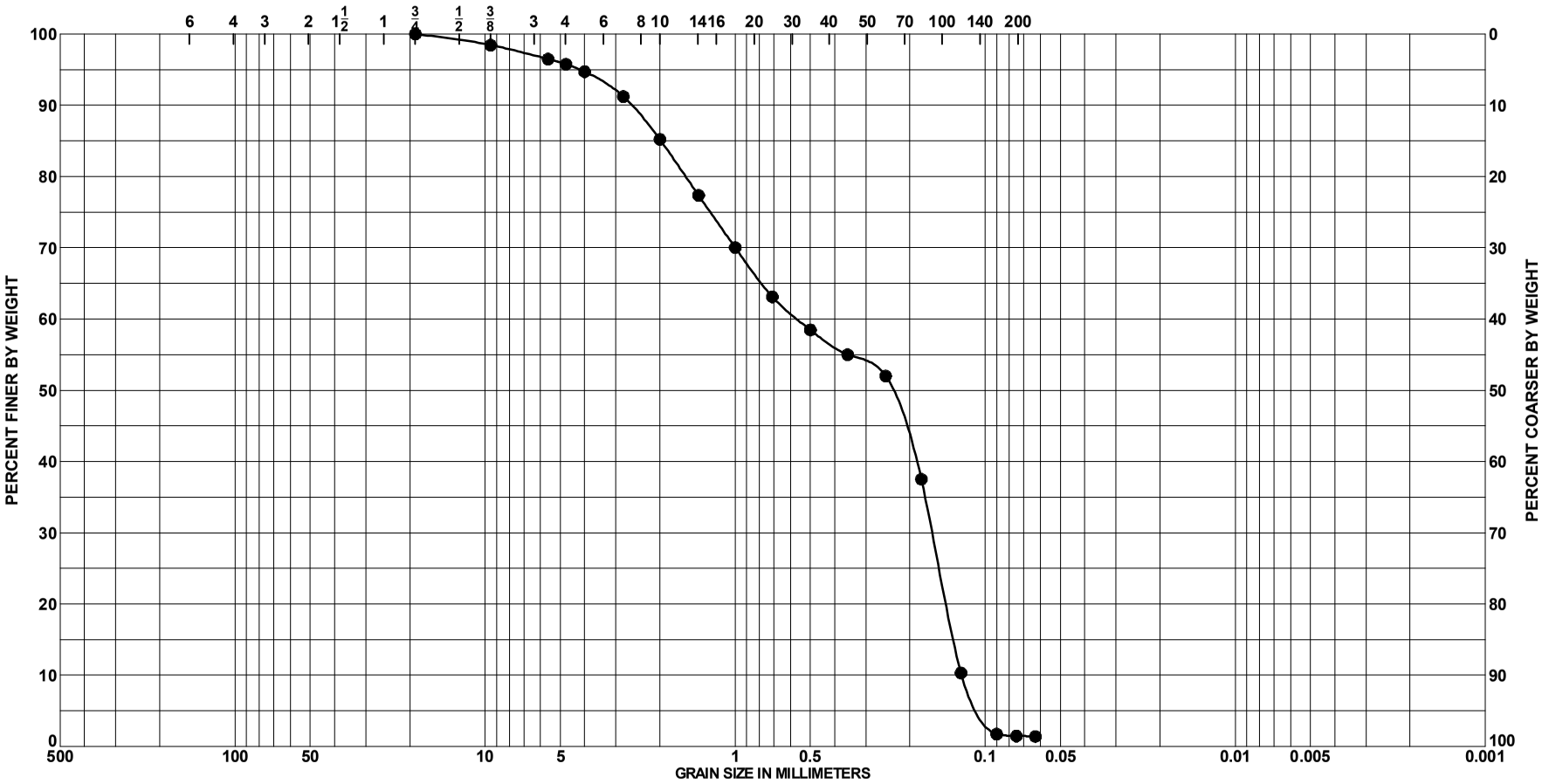


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 4	9.2 to 9.5 Ft.	SAND, poorly-graded, mostly sand to gravel-sized shell, some fine-grained sand-sized quartz, trace silt, light gray (SP)	5Y 7/1	66							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal Sarasota County SPP, FL
BORING NO.	VB-LK14-30
BORING ELEV.	-13.9 Ft., MLLW
DATE	6/19/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02

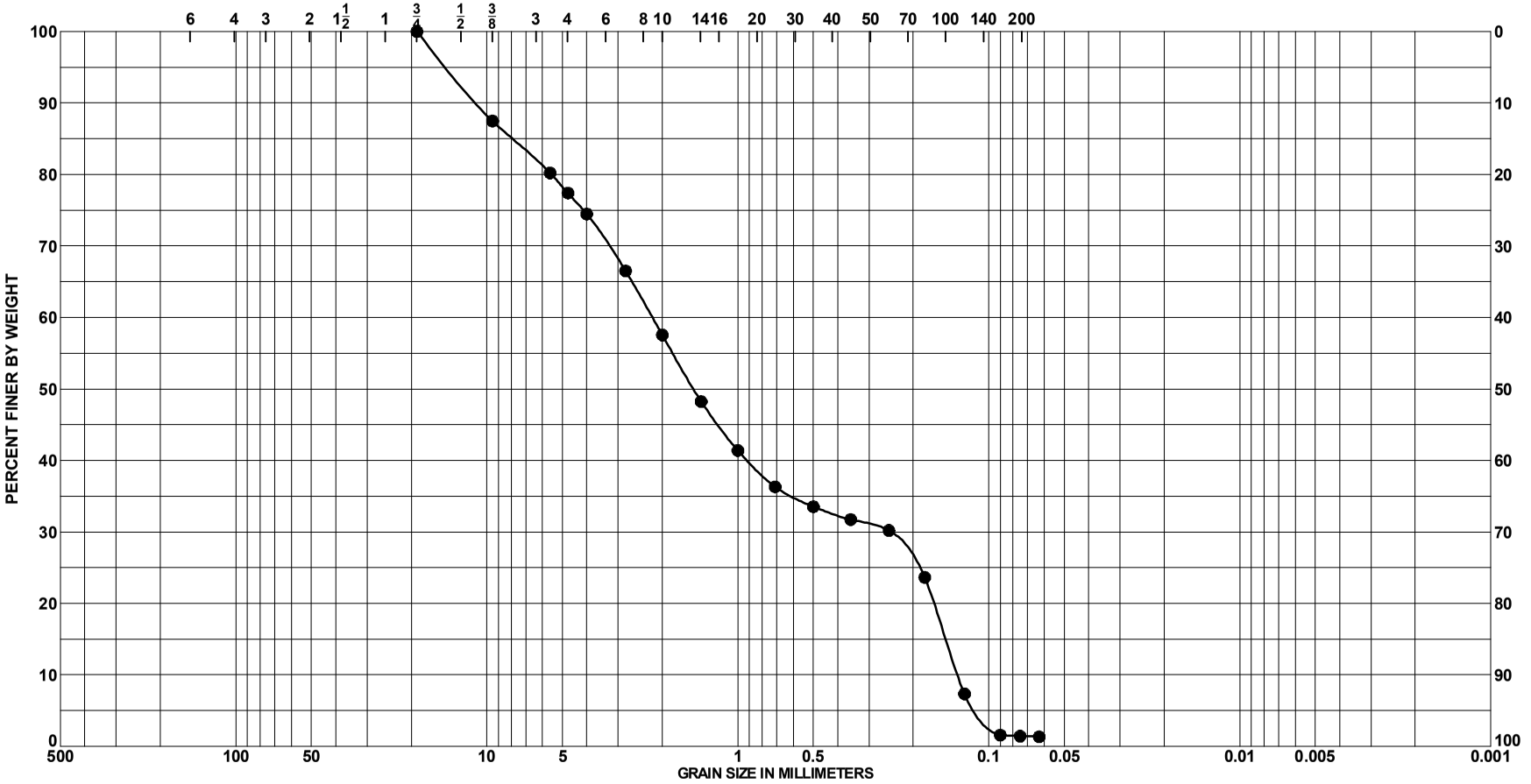


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 1	0.5 to 0.8 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, some medium to coarse-grained sand-sized shell, trace silt, white (SP)	5Y 8/1	46							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-31
BORING ELEV.	-11.8 Ft., MLLW
DATE	6/19/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02

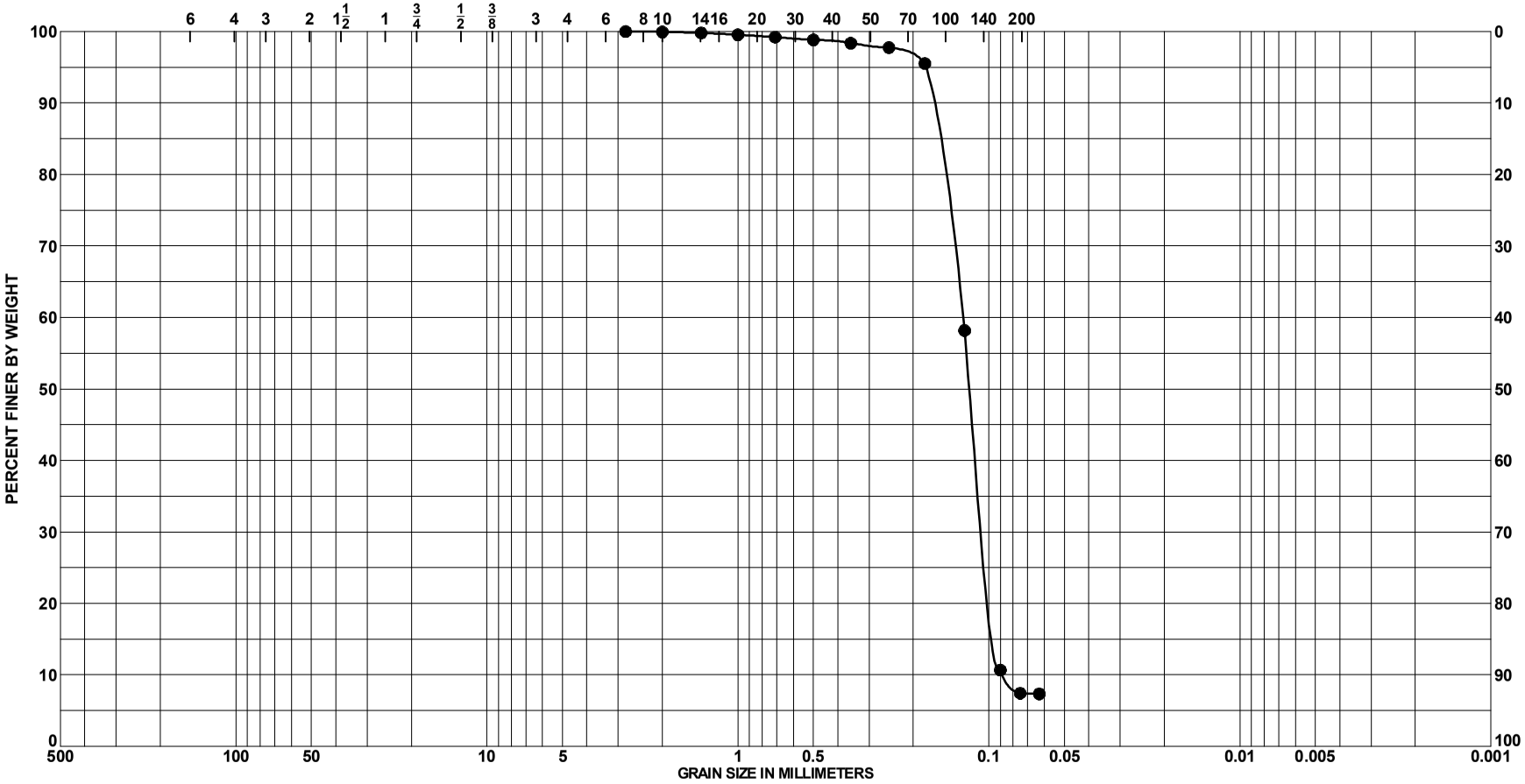


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 2	4.5 to 4.8 Ft.	SAND, poorly-graded, mostly sand to gravel-sized shell, little fine-grained sand-sized quartz, trace silt, white (SP)	5Y 8/1	69							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-31
BORING ELEV.	-11.8 Ft., MLLW
DATE	6/19/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02

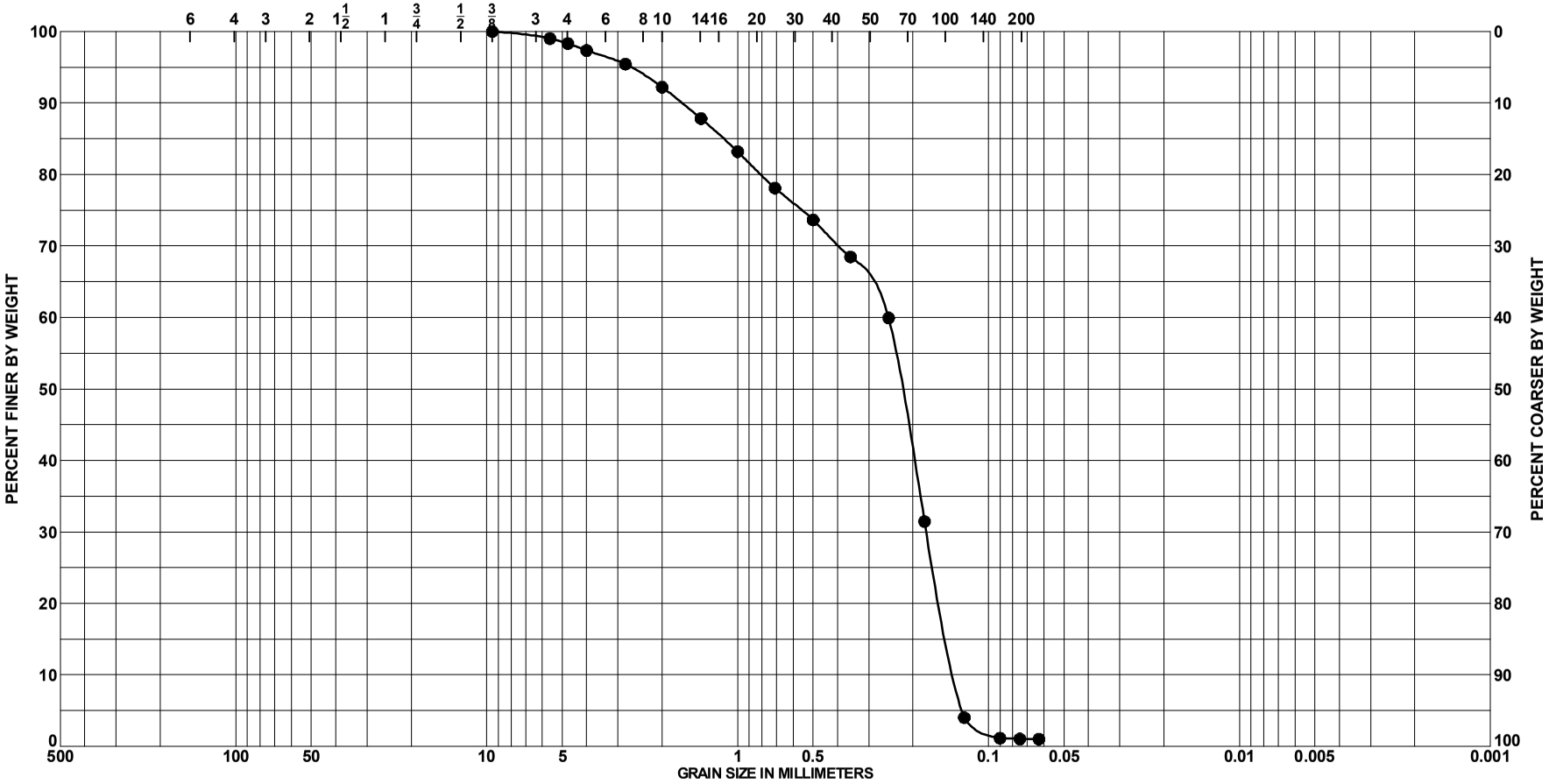


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 3	6.0 to 6.3 Ft.	SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell, gray (SP-SM)	5Y 6/1	3							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal Sarasota County SPP, FL
BORING NO.	VB-LK14-31
BORING ELEV.	-11.8 Ft., MLLW
DATE	6/19/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02

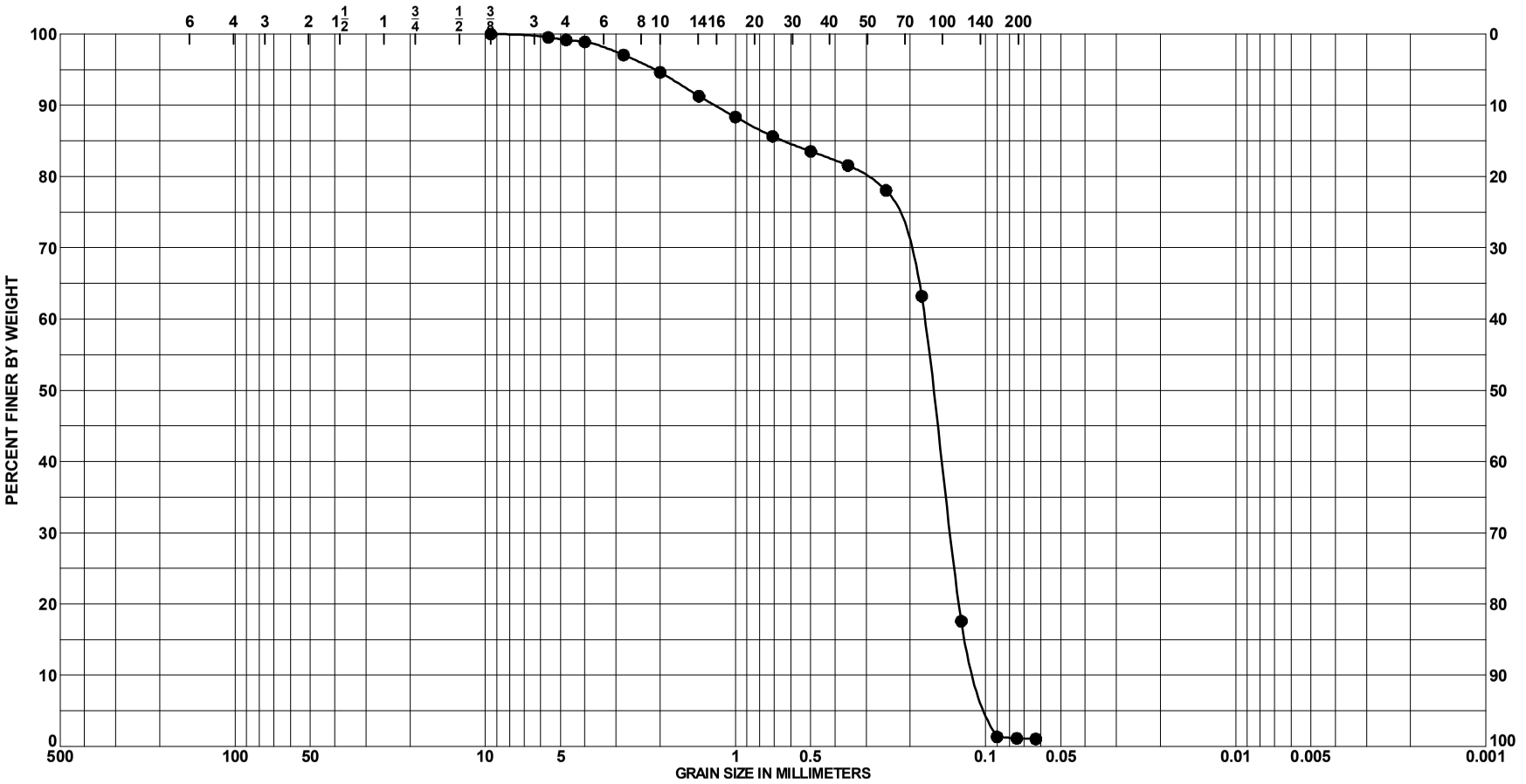


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 1	0.5 to 0.8 Ft.	SAND, poorly-graded, mostly	5Y 8/1	36							
		fine-grained sand-sized quartz, some									
		fine to coarse-grained sand-sized									
		shell, trace silt, white (SP)									

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-32
BORING ELEV.	-9.5 Ft., MLLW
DATE	6/19/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02

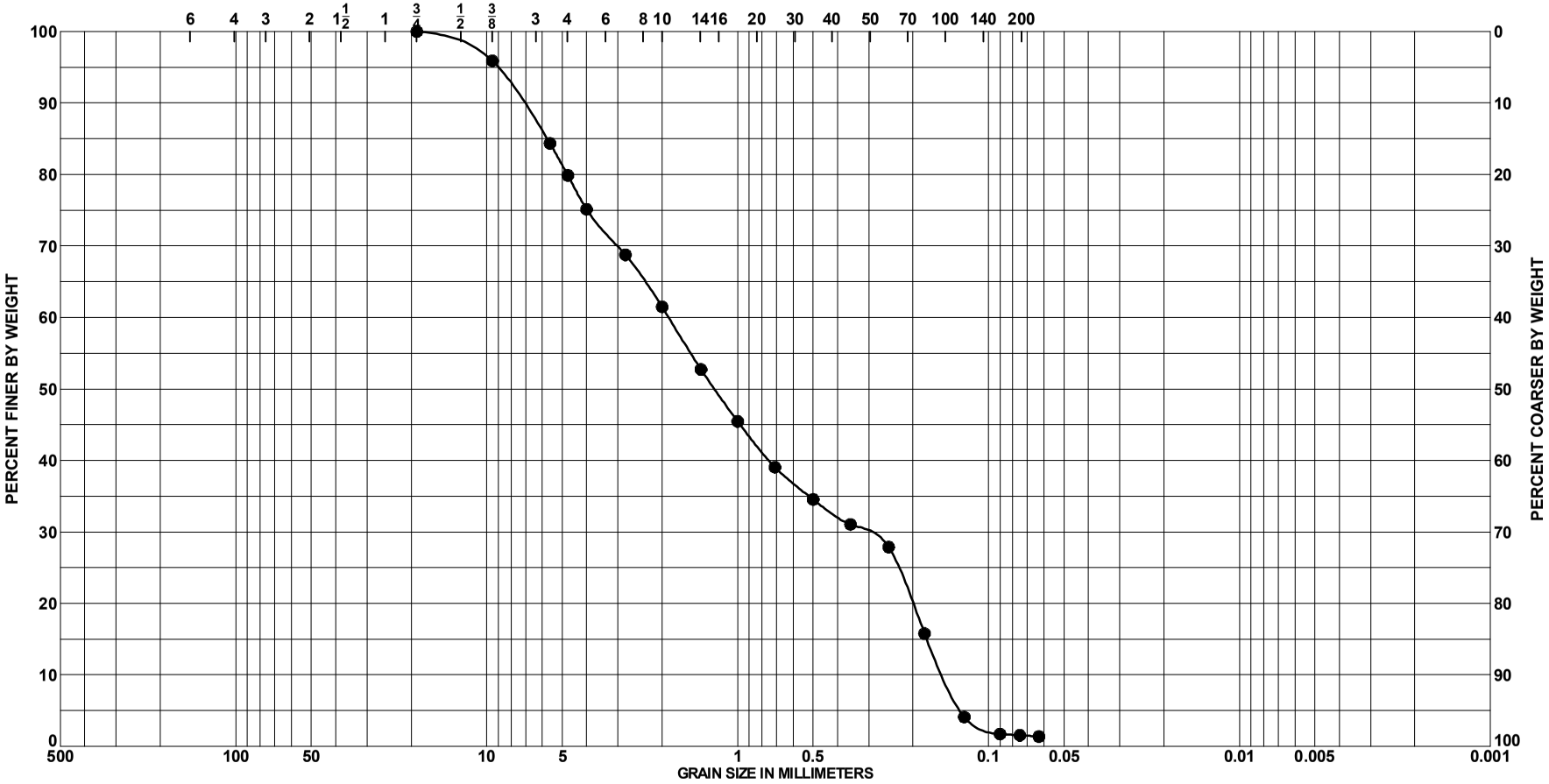


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 2	6.0 to 6.3 Ft.	SAND, poorly-graded, mostly	5Y 8/1	19							
		fine-grained sand-sized quartz, little									
		medium to coarse-grained sand-sized									
		shell, trace silt, white (SP)									

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-32
BORING ELEV.	-9.5 Ft., MLLW
DATE	6/19/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02

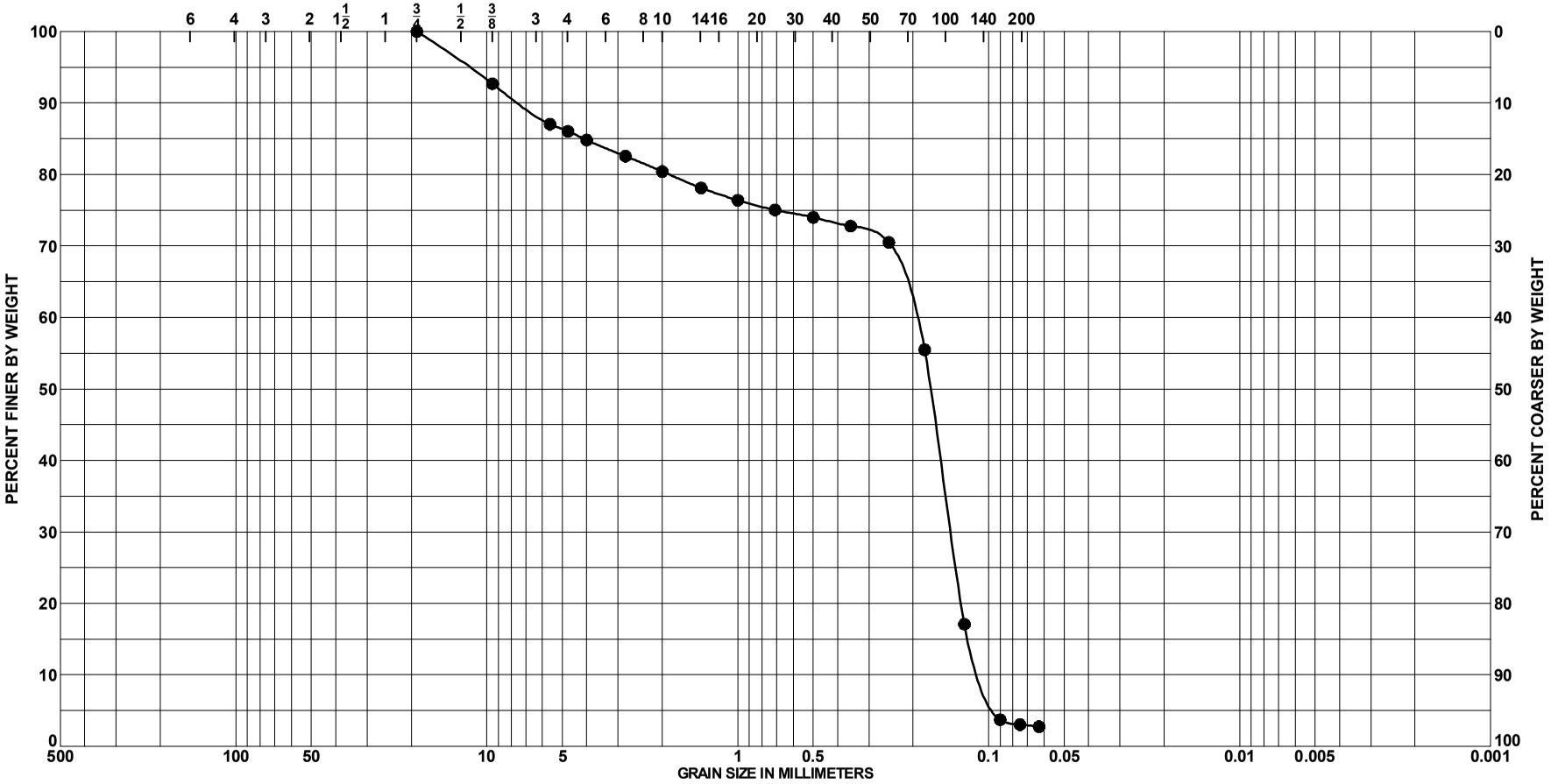


Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 3	12.0 to 12.3 Ft.	SAND, well-graded, mostly sand to gravel-sized shell, little fine-grained sand-sized quartz, trace silt, white (SW)	5Y 8/1	71							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-32
BORING ELEV.	-9.5 Ft., MLLW
DATE	6/19/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02



Sample No.	Depth	Classification	Munsell	Visual % Shell (est)	%CO_3	G_s	Org %	w_n	LL	PL	PI
● 4	13.5 to 13.8 Ft.	SAND, poorly-graded, mostly fine-grained sand-sized quartz, little sand to gravel-sized shell, trace silt, gray (SP)	5Y 6/1	29							

PROJECT	Lido Key, Big Sarasota Pass Ebb Shoal
	Sarasota County SPP, FL
BORING NO.	VB-LK14-32
BORING ELEV.	-9.5 Ft., MLLW
DATE	6/19/2014

GRADATION CURVES

SAJ FORM 2087
JUN 02

7.3 GRANULARMETRIC REPORTS: BORROW AREA

Applicable granulometric reports are presented on the following pages.

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-01 @ 0.5 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
473,153	1,077,510	State Plane, FLW (U.S. Ft.)	-5.6 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 7/1	#200 - 0.74 #230 - 0.73			32

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-4.25	19.00	0.00	0.00
	-3.25	9.50	1.74	1.74
	-2.50	5.60	3.48	5.22
	-2.25	4.75	0.91	6.13
	-2.00	4.00	1.42	7.55
	-1.50	2.80	3.14	10.69
	-1.00	2.00	3.03	13.72
	-0.50	1.40	2.74	16.46
	0.00	1.00	2.78	19.24
	0.50	0.71	3.35	22.59
	1.00	0.50	3.27	25.86
	1.50	0.36	3.64	29.50
	2.00	0.25	4.60	34.10
	2.50	0.18	16.33	50.43
	3.00	0.13	38.35	88.78
	3.50	0.09	10.18	98.96
	3.75	0.08	0.30	99.26
	4.00	0.06	0.01	99.27

SAND, poorly-graded, mostly fine-grained sand-sized quartz, some sand to gravel-sized shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.31	2.94	2.82	2.49	0.87	-0.58	-2.55

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	1.60	0.33	2.49	0.18	1.83	-1.38	3.73

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-01 @ 4.2 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
473,153	1,077,510	State Plane, FLW (U.S. Ft.)	-9.3 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 8/1	#200 - 0.94 #230 - 0.92		14.00	16

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-4.25	19.00	0.00	0.00
	-3.25	9.50	1.25	1.25
	-2.50	5.60	1.65	2.90
	-2.25	4.75	0.24	3.14
	-2.00	4.00	0.44	3.58
	-1.50	2.80	0.51	4.09
	-1.00	2.00	0.37	4.46
	-0.50	1.40	1.02	5.48
	0.00	1.00	0.93	6.41
	0.50	0.71	0.75	7.16
	1.00	0.50	1.58	8.74
	1.50	0.36	1.13	9.87
	2.00	0.25	2.14	12.01
	2.50	0.18	18.07	30.08
	3.00	0.13	56.29	86.37
	3.50	0.09	12.40	98.77
	3.75	0.08	0.29	99.06
	4.00	0.06	0.02	99.08

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to medium-grained sand-sized shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.35	2.98	2.90	2.68	2.36	2.11	-0.74

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.32	0.20	2.68	0.16	1.29	-3.17	13.07

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-01 @ 4.201 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
473,153	1,077,510	State Plane, FLW (U.S. Ft.)	-9.3 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 8/1	#200 - 0.02 #230 - 0.00			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-0.50	1.40	0.00	0.00
	0.00	1.00	0.02	0.02
	0.50	0.71	0.00	0.02
	1.00	0.50	0.02	0.04
	1.50	0.36	0.28	0.32
	2.00	0.25	2.05	2.37
	2.50	0.18	29.58	31.95
	3.00	0.13	56.73	88.68
	3.50	0.09	10.85	99.53
	3.75	0.08	0.45	99.98
	4.00	0.06	0.02	100.00

SAND, poorly-graded, mostly fine-grained sand-sized quartz

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.29	2.96	2.88	2.66	2.38	2.23	2.04

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.63	0.16	2.66	0.16	0.35	-0.33	4.53

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-01 @ 9.5 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
473,153	1,077,510	State Plane, FLW (U.S. Ft.)	-14.6 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 8/1	#200 - 1.05 #230 - 1.05			8

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-2.25	4.75	0.00	0.00
	-2.00	4.00	0.09	0.09
	-1.50	2.80	0.35	0.44
	-1.00	2.00	0.41	0.85
	-0.50	1.40	0.62	1.47
	0.00	1.00	0.73	2.20
	0.50	0.71	1.05	3.25
	1.00	0.50	2.62	5.87
	1.50	0.36	1.87	7.74
	2.00	0.25	10.23	17.97
	2.50	0.18	62.79	80.76
	3.00	0.13	17.76	98.52
	3.50	0.09	0.41	98.93
	3.75	0.08	0.02	98.95
	4.00	0.06	0.00	98.95

SAND, poorly-graded, mostly fine-grained sand-sized quartz, few medium-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.90	2.59	2.45	2.26	2.06	1.90	0.83

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.14	0.23	2.26	0.21	0.64	-3.06	15.47

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-01 @ 11 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
473,153	1,077,510	State Plane, FLW (U.S. Ft.)	-16.1 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 6/1	#200 - 1.49 #230 - 1.42			5

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-2.00	4.00	0.00	0.00
	-1.50	2.80	0.08	0.08
	-1.00	2.00	0.11	0.19
	-0.50	1.40	0.12	0.31
	0.00	1.00	0.16	0.47
	0.50	0.71	0.31	0.78
	1.00	0.50	0.30	1.08
	1.50	0.36	0.57	1.65
	2.00	0.25	1.39	3.04
	2.50	0.18	17.66	20.70
	3.00	0.13	59.83	80.53
	3.50	0.09	17.41	97.94
	3.75	0.08	0.57	98.51
	4.00	0.06	0.07	98.58

SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fine-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.42	3.10	2.95	2.74	2.54	2.37	2.06

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.70	0.15	2.74	0.15	0.46	-3.14	24.1

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-01 @ 12 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
473,153	1,077,510	State Plane, FLW (U.S. Ft.)	-17.1 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
	2.5Y 6/1	#200 - 5.03 #230 - 4.63			5

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-2.00	4.00	0.00	0.00
	-1.50	2.80	2.16	2.16
	-1.00	2.00	0.26	2.42
	-0.50	1.40	0.21	2.63
	0.00	1.00	0.36	2.99
	0.50	0.71	0.33	3.32
	1.00	0.50	0.42	3.74
	1.50	0.36	0.41	4.15
	2.00	0.25	0.59	4.74
	2.50	0.18	1.51	6.25
	3.00	0.13	21.65	27.90
	3.50	0.09	57.28	85.18
	3.75	0.08	9.79	94.97
	4.00	0.06	0.40	95.37

SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few fine to medium-grained sand-sized shell, few silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.77	3.49	3.41	3.19	2.93	2.73	2.09

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.97	0.13	3.19	0.11	0.9	-4.08	20.6

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-01 @ 13.8 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
473,153	1,077,510	State Plane, FLW (U.S. Ft.)	-18.9 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 6/1	#200 - 0.75 #230 - 0.72			7

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-1.50	2.80	0.00	0.00
	-1.00	2.00	0.25	0.25
	-0.50	1.40	0.39	0.64
	0.00	1.00	0.53	1.17
	0.50	0.71	0.77	1.94
	1.00	0.50	2.35	4.29
	1.50	0.36	1.87	6.16
	2.00	0.25	3.60	9.76
	2.50	0.18	17.86	27.62
	3.00	0.13	57.09	84.71
	3.50	0.09	14.26	98.97
	3.75	0.08	0.28	99.25
	4.00	0.06	0.03	99.28

SAND, poorly-graded, mostly fine-grained sand-sized quartz,few medium-grained sand-sized shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.36	2.99	2.91	2.70	2.43	2.17	1.19

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.56	0.17	2.70	0.15	0.64	-2.51	11.65

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-03 @ 0.5 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
472,693	1,075,967	State Plane, FLW (U.S. Ft.)	-5.8 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 8/1	#200 - 1.60 #230 - 1.59			14

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-2.00	4.00	0.00	0.00
	-1.50	2.80	0.17	0.17
	-1.00	2.00	0.18	0.35
	-0.50	1.40	0.20	0.55
	0.00	1.00	0.48	1.03
	0.50	0.71	1.82	2.85
	1.00	0.50	2.90	5.75
	1.50	0.36	4.90	10.65
	2.00	0.25	5.11	15.76
	2.50	0.18	32.79	48.55
	3.00	0.13	41.11	89.66
	3.50	0.09	8.51	98.17
	3.75	0.08	0.23	98.40
	4.00	0.06	0.01	98.41

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to medium-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.31	2.93	2.82	2.52	2.14	2.00	0.87

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.36	0.19	2.52	0.17	0.7	-1.89	8.23

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-03 @ 5.6 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
472,693	1,075,967	State Plane, FLW (U.S. Ft.)	-10.9 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 8/1	#200 - 1.60 #230 - 1.60			17

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-4.25	19.00	0.00	0.00
	-3.25	9.50	1.85	1.85
	-2.50	5.60	0.27	2.12
	-2.25	4.75	0.25	2.37
	-2.00	4.00	0.58	2.95
	-1.50	2.80	2.58	5.53
	-1.00	2.00	1.84	7.37
	-0.50	1.40	1.96	9.33
	0.00	1.00	1.73	11.06
	0.50	0.71	1.79	12.85
	1.00	0.50	1.56	14.41
	1.50	0.36	1.94	16.35
	2.00	0.25	3.57	19.92
	2.50	0.18	15.53	35.45
	3.00	0.13	42.82	78.27
	3.50	0.09	19.43	97.70
	3.75	0.08	0.70	98.40
	4.00	0.06	0.00	98.40

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little medium to coarse-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.43	3.15	2.96	2.67	2.16	1.41	-1.60

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.14	0.23	2.67	0.16	1.52	-2.2	7.28

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-03 @ 8.5 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
472,693	1,075,967	State Plane, FLW (U.S. Ft.)	-13.8 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 8/1	#200 - 0.98 #230 - 0.98			17

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-4.25	19.00	0.00	0.00
	-3.25	9.50	1.71	1.71
	-2.50	5.60	2.69	4.40
	-2.25	4.75	0.42	4.82
	-2.00	4.00	0.45	5.27
	-1.50	2.80	1.06	6.33
	-1.00	2.00	1.24	7.57
	-0.50	1.40	1.20	8.77
	0.00	1.00	1.06	9.83
	0.50	0.71	1.25	11.08
	1.00	0.50	1.41	12.49
	1.50	0.36	2.51	15.00
	2.00	0.25	5.72	20.72
	2.50	0.18	52.56	73.28
	3.00	0.13	22.83	96.11
	3.50	0.09	2.88	98.99
	3.75	0.08	0.03	99.02
	4.00	0.06	0.00	99.02

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to coarse-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.98	2.73	2.54	2.28	2.04	1.59	-2.15

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	1.86	0.28	2.28	0.21	1.44	-2.53	8.72

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-03 @ 11.5 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
472,693	1,075,967	State Plane, FLW (U.S. Ft.)	-16.8 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 7/1	#200 - 0.97 #230 - 0.96		46.00	45

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-4.25	19.00	0.00	0.00
	-3.25	9.50	3.04	3.04
	-2.50	5.60	4.57	7.61
	-2.25	4.75	1.50	9.11
	-2.00	4.00	2.03	11.14
	-1.50	2.80	4.14	15.28
	-1.00	2.00	4.77	20.05
	-0.50	1.40	5.12	25.17
	0.00	1.00	4.45	29.62
	0.50	0.71	4.90	34.52
	1.00	0.50	4.50	39.02
	1.50	0.36	4.49	43.51
	2.00	0.25	5.55	49.06
	2.50	0.18	19.01	68.07
	3.00	0.13	25.46	93.53
	3.50	0.09	5.37	98.90
	3.75	0.08	0.13	99.03
	4.00	0.06	0.01	99.04

SAND, poorly-graded, mostly fine-grained sand-sized quartz, some sand to gravel-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.14	2.81	2.64	2.02	-0.52	-1.42	-2.93

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	1.01	0.50	2.02	0.25	2	-0.84	2.45

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-03 @ 11.502 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
472,693	1,075,967	State Plane, FLW (U.S. Ft.)	-16.8 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 7/1	#200 - 0.01 #230 - 0.00			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-1.00	2.00	0.00	0.00
	-0.50	1.40	0.02	0.02
	0.00	1.00	0.06	0.08
	0.50	0.71	0.26	0.34
	1.00	0.50	0.67	1.01
	1.50	0.36	1.94	2.95
	2.00	0.25	6.05	9.00
	2.50	0.18	32.81	41.81
	3.00	0.13	48.38	90.19
	3.50	0.09	9.51	99.70
	3.75	0.08	0.29	99.99
	4.00	0.06	0.01	100.00

SAND, poorly-graded, mostly fine-grained sand-sized quartz

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.25	2.94	2.84	2.58	2.24	2.11	1.67

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.52	0.17	2.58	0.17	0.46	-1.19	6.69

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-03 @ 12.3 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
472,693	1,075,967	State Plane, FLW (U.S. Ft.)	-17.6 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
	2.5Y 5/1	#200 - 11.74 #230 - 11.21			12

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-2.50	5.60	0.00	0.00
	-2.25	4.75	4.96	4.96
	-2.00	4.00	1.15	6.11
	-1.50	2.80	3.71	9.82
	-1.00	2.00	2.09	11.91
	-0.50	1.40	2.45	14.36
	0.00	1.00	1.88	16.24
	0.50	0.71	1.59	17.83
	1.00	0.50	1.25	19.08
	1.50	0.36	1.33	20.41
	2.00	0.25	1.75	22.16
	2.50	0.18	3.25	25.41
	3.00	0.13	15.91	41.32
	3.50	0.09	42.10	83.42
	3.75	0.08	4.84	88.26
	4.00	0.06	0.53	88.79

SAND, poorly-graded with silt, mostly fine-grained quartz, little medium to coarse-grained shell, little sand to gravel-sized limestone, few silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	3.53	3.40	3.10	2.44	-0.06	-2.24

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.12	0.23	3.10	0.12	1.88	-1.44	3.48

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-05 @ 0.5 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,695	1,075,969	State Plane, FLW (U.S. Ft.)	-6.3 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 8/1	#200 - 1.40 #230 - 1.38			9

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-3.25	9.50	0.00	0.00
	-2.50	5.60	0.62	0.62
	-2.25	4.75	0.19	0.81
	-2.00	4.00	0.31	1.12
	-1.50	2.80	0.29	1.41
	-1.00	2.00	0.49	1.90
	-0.50	1.40	0.50	2.40
	0.00	1.00	0.47	2.87
	0.50	0.71	0.60	3.47
	1.00	0.50	0.69	4.16
	1.50	0.36	1.02	5.18
	2.00	0.25	1.78	6.96
	2.50	0.18	16.93	23.89
	3.00	0.13	58.94	82.83
	3.50	0.09	15.27	98.10
	3.75	0.08	0.50	98.60
	4.00	0.06	0.02	98.62

SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fine-grained sand-sized shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.40	3.04	2.93	2.72	2.51	2.27	1.41

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.56	0.17	2.72	0.15	0.85	-3.98	21.76

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-05 @ 6 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,695	1,075,969	State Plane, FLW (U.S. Ft.)	-11.8 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 8/1	#200 - 1.17 #230 - 1.16			16

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-3.25	9.50	0.00	0.00
	-2.50	5.60	0.44	0.44
	-2.25	4.75	0.30	0.74
	-2.00	4.00	0.52	1.26
	-1.50	2.80	0.95	2.21
	-1.00	2.00	1.34	3.55
	-0.50	1.40	1.57	5.12
	0.00	1.00	1.50	6.62
	0.50	0.71	1.50	8.12
	1.00	0.50	1.39	9.51
	1.50	0.36	1.76	11.27
	2.00	0.25	3.98	15.25
	2.50	0.18	39.53	54.78
	3.00	0.13	37.56	92.34
	3.50	0.09	6.35	98.69
	3.75	0.08	0.14	98.83
	4.00	0.06	0.01	98.84

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to medium-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.21	2.89	2.77	2.44	2.12	2.01	-0.54

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.19	0.22	2.44	0.18	1.06	-2.59	9.89

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-05 @ 10 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,695	1,075,969	State Plane, FLW (U.S. Ft.)	-15.8 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 8/1	#200 - 0.97 #230 - 0.96			3

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-1.50	2.80	0.00	0.00
	-1.00	2.00	0.01	0.01
	-0.50	1.40	0.01	0.02
	0.00	1.00	0.01	0.03
	0.50	0.71	0.05	0.08
	1.00	0.50	0.04	0.12
	1.50	0.36	0.11	0.23
	2.00	0.25	0.45	0.68
	2.50	0.18	17.37	18.05
	3.00	0.13	68.94	86.99
	3.50	0.09	11.68	98.67
	3.75	0.08	0.36	99.03
	4.00	0.06	0.01	99.04

SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.34	2.98	2.91	2.73	2.55	2.44	2.12

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.72	0.15	2.73	0.15	0.3	-1.03	12.38

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-05 @ 12 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,695	1,075,969	State Plane, FLW (U.S. Ft.)	-17.8 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 8/1	#200 - 4.20 #230 - 4.12			6

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-0.50	1.40	0.00	0.00
	0.00	1.00	0.02	0.02
	0.50	0.71	0.07	0.09
	1.00	0.50	0.13	0.22
	1.50	0.36	0.20	0.42
	2.00	0.25	0.54	0.96
	2.50	0.18	12.91	13.87
	3.00	0.13	65.02	78.89
	3.50	0.09	15.59	94.48
	3.75	0.08	1.32	95.80
	4.00	0.06	0.08	95.88

SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fine-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.60	3.16	2.97	2.78	2.59	2.52	2.16

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.76	0.15	2.78	0.15	0.33	-0.87	9.68

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-05 @ 17 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,695	1,075,969	State Plane, FLW (U.S. Ft.)	-22.8 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 8/1	#200 - 1.01 #230 - 0.96			38

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-3.25	9.50	0.00	0.00
	-2.50	5.60	0.69	0.69
	-2.25	4.75	0.23	0.92
	-2.00	4.00	0.51	1.43
	-1.50	2.80	1.39	2.82
	-1.00	2.00	2.20	5.02
	-0.50	1.40	3.26	8.28
	0.00	1.00	3.31	11.59
	0.50	0.71	3.66	15.25
	1.00	0.50	4.08	19.33
	1.50	0.36	6.59	25.92
	2.00	0.25	11.17	37.09
	2.50	0.18	45.44	82.53
	3.00	0.13	14.69	97.22
	3.50	0.09	1.74	98.96
	3.75	0.08	0.03	98.99
	4.00	0.06	0.05	99.04

SAND, poorly-graded, mostly fine-grained sand-sized quartz, some fine to coarse-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.92	2.55	2.42	2.14	1.43	0.59	-1.00

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	1.70	0.31	2.14	0.23	1.19	-1.66	5.28

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-06 @ 0.5 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
471,692	1,074,968	State Plane, FLW (U.S. Ft.)	-4.5 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 8/1	#200 - 0.39 #230 - 0.39			11

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-2.25	4.75	0.00	0.00
	-2.00	4.00	0.02	0.02
	-1.50	2.80	0.07	0.09
	-1.00	2.00	0.18	0.27
	-0.50	1.40	0.28	0.55
	0.00	1.00	0.56	1.11
	0.50	0.71	1.04	2.15
	1.00	0.50	1.48	3.63
	1.50	0.36	2.33	5.96
	2.00	0.25	3.52	9.48
	2.50	0.18	19.27	28.75
	3.00	0.13	60.10	88.85
	3.50	0.09	10.53	99.38
	3.75	0.08	0.23	99.61
	4.00	0.06	0.00	99.61

SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fine-grained sand-sized shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.29	2.96	2.88	2.68	2.40	2.17	1.29

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.54	0.17	2.68	0.16	0.62	-2.72	13.43

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-06 @ 4.2 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
471,692	1,074,968	State Plane, FLW (U.S. Ft.)	-8.2 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 8/1	#200 - 0.51 #230 - 0.49			15

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-4.25	19.00	0.00	0.00
	-3.25	9.50	0.08	0.08
	-2.50	5.60	0.87	0.95
	-2.25	4.75	0.46	1.41
	-2.00	4.00	0.48	1.89
	-1.50	2.80	2.11	4.00
	-1.00	2.00	2.67	6.67
	-0.50	1.40	2.81	9.48
	0.00	1.00	2.01	11.49
	0.50	0.71	1.71	13.20
	1.00	0.50	1.39	14.59
	1.50	0.36	1.60	16.19
	2.00	0.25	2.47	18.66
	2.50	0.18	13.70	32.36
	3.00	0.13	54.50	86.86
	3.50	0.09	12.40	99.26
	3.75	0.08	0.23	99.49
	4.00	0.06	0.02	99.51

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little medium to coarse-grained sand-sized shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.33	2.97	2.89	2.66	2.23	1.44	-1.31

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.16	0.22	2.66	0.16	1.37	-2.06	6.25

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-06 @ 8 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
471,692	1,074,968	State Plane, FLW (U.S. Ft.)	-12.0 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 8/1	#200 - 0.83 #230 - 0.80		8.00	8

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-3.25	9.50	0.00	0.00
	-2.50	5.60	0.11	0.11
	-2.25	4.75	0.00	0.11
	-2.00	4.00	0.03	0.14
	-1.50	2.80	0.06	0.20
	-1.00	2.00	0.18	0.38
	-0.50	1.40	0.27	0.65
	0.00	1.00	0.33	0.98
	0.50	0.71	0.60	1.58
	1.00	0.50	0.94	2.52
	1.50	0.36	1.70	4.22
	2.00	0.25	4.50	8.72
	2.50	0.18	35.35	44.07
	3.00	0.13	48.66	92.73
	3.50	0.09	6.37	99.10
	3.75	0.08	0.07	99.17
	4.00	0.06	0.03	99.20

SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fine-grained sand-sized shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.18	2.91	2.82	2.56	2.23	2.10	1.59

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.46	0.18	2.56	0.17	0.57	-3.22	21.55

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-06 @ 8.01 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
471,692	1,074,968	State Plane, FLW (U.S. Ft.)	-12.0 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 8/1	#200 - 0.00 #230 - 0.00			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	0.50	0.71	0.00	0.00
	1.00	0.50	0.02	0.02
	1.50	0.36	0.13	0.15
	2.00	0.25	3.13	3.28
	2.50	0.18	37.26	40.54
	3.00	0.13	52.70	93.24
	3.50	0.09	6.64	99.88
	3.75	0.08	0.12	100.00
	4.00	0.06	0.00	100.00

SAND, poorly-graded, mostly fine-grained sand-sized quartz

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.13	2.91	2.83	2.59	2.29	2.17	2.02

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.56	0.17	2.59	0.17	0.33	-0.17	3.26

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-06 @ 13 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
471,692	1,074,968	State Plane, FLW (U.S. Ft.)	-17.0 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 7/1	#200 - 1.09 #230 - 0.97			28

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-4.25	19.00	0.00	0.00
	-3.25	9.50	0.70	0.70
	-2.50	5.60	1.46	2.16
	-2.25	4.75	0.69	2.85
	-2.00	4.00	0.87	3.72
	-1.50	2.80	2.03	5.75
	-1.00	2.00	2.49	8.24
	-0.50	1.40	2.35	10.59
	0.00	1.00	2.38	12.97
	0.50	0.71	2.75	15.72
	1.00	0.50	2.76	18.48
	1.50	0.36	3.56	22.04
	2.00	0.25	6.04	28.08
	2.50	0.18	19.69	47.77
	3.00	0.13	33.54	81.31
	3.50	0.09	16.53	97.84
	3.75	0.08	1.07	98.91
	4.00	0.06	0.12	99.03

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to coarse-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.41	3.08	2.91	2.53	1.75	0.55	-1.68

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	1.95	0.26	2.53	0.17	1.54	-1.73	5.28

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-09 @ 0.5 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
469,692	1,074,966	State Plane, FLW (U.S. Ft.)	-12.2 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 8/1	#200 - 0.34 #230 - 0.26			10

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-4.25	19.00	0.00	0.00
	-3.25	9.50	0.10	0.10
	-2.50	5.60	0.57	0.67
	-2.25	4.75	0.29	0.96
	-2.00	4.00	0.29	1.25
	-1.50	2.80	0.80	2.05
	-1.00	2.00	1.27	3.32
	-0.50	1.40	1.31	4.63
	0.00	1.00	1.22	5.85
	0.50	0.71	1.01	6.86
	1.00	0.50	0.86	7.72
	1.50	0.36	0.81	8.53
	2.00	0.25	1.29	9.82
	2.50	0.18	8.81	18.63
	3.00	0.13	54.80	73.43
	3.50	0.09	25.01	98.44
	3.75	0.08	1.22	99.66
	4.00	0.06	0.08	99.74

SAND, poorly-graded, mostly fine-grained sand-sized quartz, few medium-grained sand-sized shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.43	3.21	3.03	2.79	2.56	2.35	-0.35

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.54	0.17	2.79	0.14	1.09	-3.05	12.55

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-09 @ 4 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
469,692	1,074,966	State Plane, FLW (U.S. Ft.)	-15.7 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 8/1	#200 - 1.06 #230 - 1.03		5.00	3

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-2.00	4.00	0.00	0.00
	-1.50	2.80	0.01	0.01
	-1.00	2.00	0.10	0.11
	-0.50	1.40	0.12	0.23
	0.00	1.00	0.16	0.39
	0.50	0.71	0.21	0.60
	1.00	0.50	0.32	0.92
	1.50	0.36	0.57	1.49
	2.00	0.25	2.00	3.49
	2.50	0.18	29.73	33.22
	3.00	0.13	57.47	90.69
	3.50	0.09	8.08	98.77
	3.75	0.08	0.17	98.94
	4.00	0.06	0.03	98.97

SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.27	2.94	2.86	2.65	2.36	2.21	2.03

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.59	0.17	2.65	0.16	0.42	-2.71	20.89

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-09 @ 4.02 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
469,692	1,074,966	State Plane, FLW (U.S. Ft.)	-15.7 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 8/1	#200 - 0.01 #230 - 0.00			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	0.50	0.71	0.00	0.00
	1.00	0.50	0.01	0.01
	1.50	0.36	0.09	0.10
	2.00	0.25	1.36	1.46
	2.50	0.18	36.04	37.50
	3.00	0.13	54.35	91.85
	3.50	0.09	7.92	99.77
	3.75	0.08	0.22	99.99
	4.00	0.06	0.01	100.00

SAND, poorly-graded, mostly fine-grained sand-sized quartz

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.20	2.93	2.84	2.61	2.33	2.20	2.05

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.60	0.16	2.61	0.16	0.32	0.02	3.12

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-09 @ 7.9 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
469,692	1,074,966	State Plane, FLW (U.S. Ft.)	-19.6 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 8/1	#200 - 1.51 #230 - 1.50			17

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-3.25	9.50	0.00	0.00
	-2.50	5.60	0.22	0.22
	-2.25	4.75	0.18	0.40
	-2.00	4.00	0.35	0.75
	-1.50	2.80	0.81	1.56
	-1.00	2.00	1.09	2.65
	-0.50	1.40	1.36	4.01
	0.00	1.00	1.60	5.61
	0.50	0.71	1.98	7.59
	1.00	0.50	2.12	9.71
	1.50	0.36	2.55	12.26
	2.00	0.25	3.63	15.89
	2.50	0.18	17.74	33.63
	3.00	0.13	56.54	90.17
	3.50	0.09	8.21	98.38
	3.75	0.08	0.11	98.49
	4.00	0.06	0.01	98.50

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to medium-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.29	2.95	2.87	2.64	2.26	2.00	-0.19

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.32	0.20	2.64	0.16	1.02	-2.54	9.54

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-09 @ 11 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
469,692	1,074,966	State Plane, FLW (U.S. Ft.)	-22.7 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
	2.5Y 7/1	#200 - 7.62 #230 - 6.91			14

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-4.25	19.00	0.00	0.00
	-3.25	9.50	1.11	1.11
	-2.50	5.60	0.26	1.37
	-2.25	4.75	0.44	1.81
	-2.00	4.00	0.29	2.10
	-1.50	2.80	1.20	3.30
	-1.00	2.00	2.19	5.49
	-0.50	1.40	2.27	7.76
	0.00	1.00	2.17	9.93
	0.50	0.71	2.04	11.97
	1.00	0.50	1.76	13.73
	1.50	0.36	1.57	15.30
	2.00	0.25	1.95	17.25
	2.50	0.18	4.12	21.37
	3.00	0.13	15.08	36.45
	3.50	0.09	50.07	86.52
	3.75	0.08	5.86	92.38
	4.00	0.06	0.71	93.09

SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, little medium to coarse-grained sand-sized shell, few silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	3.47	3.38	3.14	2.62	1.68	-1.11

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.48	0.18	3.14	0.11	1.53	-2.15	6.95

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-10 @ 0.5 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,692	1,073,971	State Plane, FLW (U.S. Ft.)	-7.3 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 8/1	#200 - 0.56 #230 - 0.54			8

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-2.50	5.60	0.00	0.00
	-2.25	4.75	0.02	0.02
	-2.00	4.00	0.12	0.14
	-1.50	2.80	0.25	0.39
	-1.00	2.00	0.54	0.93
	-0.50	1.40	1.30	2.23
	0.00	1.00	1.52	3.75
	0.50	0.71	1.73	5.48
	1.00	0.50	1.35	6.83
	1.50	0.36	1.34	8.17
	2.00	0.25	2.37	10.54
	2.50	0.18	13.92	24.46
	3.00	0.13	57.96	82.42
	3.50	0.09	16.62	99.04
	3.75	0.08	0.40	99.44
	4.00	0.06	0.02	99.46

SAND, poorly-graded, mostly fine-grained sand-sized quartz, few medium-grained sand-sized shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.38	3.05	2.94	2.72	2.50	2.20	0.36

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.52	0.17	2.72	0.15	0.85	-2.75	11.19

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-10 @ 4.6 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,692	1,073,971	State Plane, FLW (U.S. Ft.)	-11.4 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 8/1	#200 - 0.66 #230 - 0.65			28

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-4.25	19.00	0.00	0.00
	-3.25	9.50	1.64	1.64
	-2.50	5.60	0.17	1.81
	-2.25	4.75	0.21	2.02
	-2.00	4.00	0.55	2.57
	-1.50	2.80	1.82	4.39
	-1.00	2.00	3.81	8.20
	-0.50	1.40	5.74	13.94
	0.00	1.00	5.06	19.00
	0.50	0.71	3.75	22.75
	1.00	0.50	2.22	24.97
	1.50	0.36	2.07	27.04
	2.00	0.25	3.47	30.51
	2.50	0.18	25.45	55.96
	3.00	0.13	38.26	94.22
	3.50	0.09	5.05	99.27
	3.75	0.08	0.07	99.34
	4.00	0.06	0.01	99.35

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little medium to coarse-grained sand-sized shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.08	2.87	2.75	2.38	1.01	-0.30	-1.42

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	1.70	0.31	2.38	0.19	1.57	-1.47	4.33

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-10 @ 8.5 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,692	1,073,971	State Plane, FLW (U.S. Ft.)	-15.3 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 8/1	#200 - 0.87 #230 - 0.85			3

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-2.25	4.75	0.00	0.00
	-2.00	4.00	0.18	0.18
	-1.50	2.80	0.15	0.33
	-1.00	2.00	0.22	0.55
	-0.50	1.40	0.30	0.85
	0.00	1.00	0.21	1.06
	0.50	0.71	0.30	1.36
	1.00	0.50	0.39	1.75
	1.50	0.36	0.70	2.45
	2.00	0.25	2.70	5.15
	2.50	0.18	30.94	36.09
	3.00	0.13	50.74	86.83
	3.50	0.09	11.92	98.75
	3.75	0.08	0.38	99.13
	4.00	0.06	0.02	99.15

SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.34	2.97	2.88	2.64	2.32	2.18	1.97

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.56	0.17	2.64	0.16	0.57	-3.56	25.13

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-10 @ 13.5 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,692	1,073,971	State Plane, FLW (U.S. Ft.)	-20.3 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 8/1	#200 - 0.51 #230 - 0.50			57

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-4.25	19.00	0.00	0.00
	-3.25	9.50	2.02	2.02
	-2.50	5.60	5.85	7.87
	-2.25	4.75	1.65	9.52
	-2.00	4.00	1.35	10.87
	-1.50	2.80	5.45	16.32
	-1.00	2.00	7.09	23.41
	-0.50	1.40	7.46	30.87
	0.00	1.00	6.40	37.27
	0.50	0.71	5.67	42.94
	1.00	0.50	4.51	47.45
	1.50	0.36	3.65	51.10
	2.00	0.25	6.13	57.23
	2.50	0.18	20.52	77.75
	3.00	0.13	19.89	97.64
	3.50	0.09	1.79	99.43
	3.75	0.08	0.06	99.49
	4.00	0.06	0.01	99.50

SAND, poorly-graded, mostly sand to gravel-sized shell, some fine-grained sand-sized quartz

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.93	2.66	2.43	1.35	-0.89	-1.53	-2.87

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	0.71	0.61	1.35	0.39	1.95	-0.55	2.03

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-10 @ 16.5 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,692	1,073,971	State Plane, FLW (U.S. Ft.)	-23.3 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
	10Y 3/1	#200 - 19.77 #230 - 18.70			6

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-3.25	9.50	0.00	0.00
	-2.50	5.60	0.09	0.09
	-2.25	4.75	0.37	0.46
	-2.00	4.00	0.76	1.22
	-1.50	2.80	1.09	2.31
	-1.00	2.00	0.94	3.25
	-0.50	1.40	0.84	4.09
	0.00	1.00	0.73	4.82
	0.50	0.71	0.67	5.49
	1.00	0.50	0.66	6.15
	1.50	0.36	0.89	7.04
	2.00	0.25	1.59	8.63
	2.50	0.18	3.62	12.25
	3.00	0.13	15.13	27.38
	3.50	0.09	45.59	72.97
	3.75	0.08	7.26	80.23
	4.00	0.06	1.07	81.30

SAND, silty, mostly fine-grained sand-sized quartz, little silt, few medium-grained sand-sized shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
		3.57	3.25	2.92	2.62	0.13

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.78	0.15	3.25	0.11	1.18	-2.88	10.92

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-14 @ 0.5 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
469,687	1,072,971	State Plane, FLW (U.S. Ft.)	-10.6 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 8/1	#200 - 1.58 #230 - 1.55			3

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-3.25	9.50	0.00	0.00
	-2.50	5.60	0.60	0.60
	-2.25	4.75	0.03	0.63
	-2.00	4.00	0.11	0.74
	-1.50	2.80	0.40	1.14
	-1.00	2.00	0.34	1.48
	-0.50	1.40	0.41	1.89
	0.00	1.00	0.27	2.16
	0.50	0.71	0.27	2.43
	1.00	0.50	0.19	2.62
	1.50	0.36	0.24	2.86
	2.00	0.25	0.55	3.41
	2.50	0.18	5.06	8.47
	3.00	0.13	67.87	76.34
	3.50	0.09	21.36	97.70
	3.75	0.08	0.72	98.42
	4.00	0.06	0.03	98.45

SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.44	3.18	2.99	2.81	2.62	2.56	2.16

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.72	0.15	2.81	0.14	0.74	-5.17	34.15

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-14 @ 4 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
469,687	1,072,971	State Plane, FLW (U.S. Ft.)	-14.1 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 7/1	#200 - 0.49 #230 - 0.48		38.00	40

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-4.25	19.00	0.00	0.00
	-3.25	9.50	0.63	0.63
	-2.50	5.60	1.30	1.93
	-2.25	4.75	0.33	2.26
	-2.00	4.00	0.65	2.91
	-1.50	2.80	2.40	5.31
	-1.00	2.00	3.04	8.35
	-0.50	1.40	4.36	12.71
	0.00	1.00	4.31	17.02
	0.50	0.71	4.68	21.70
	1.00	0.50	4.58	26.28
	1.50	0.36	6.46	32.74
	2.00	0.25	12.24	44.98
	2.50	0.18	36.89	81.87
	3.00	0.13	16.40	98.27
	3.50	0.09	1.15	99.42
	3.75	0.08	0.09	99.51
	4.00	0.06	0.01	99.52

SAND, poorly-graded, mostly fine-grained sand-sized quartz, some fine to coarse-grained sand-sized shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.90	2.56	2.41	2.07	0.86	-0.12	-1.56

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	1.46	0.36	2.07	0.24	1.42	-1.41	4.33

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-14 @ 4.02 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
469,687	1,072,971	State Plane, FLW (U.S. Ft.)	-14.1 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 7/1	#200 - 0.03 #230 - 0.00			

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-1.00	2.00	0.00	0.00
	-0.50	1.40	0.02	0.02
	0.00	1.00	0.01	0.03
	0.50	0.71	0.05	0.08
	1.00	0.50	0.26	0.34
	1.50	0.36	1.51	1.85
	2.00	0.25	12.40	14.25
	2.50	0.18	55.83	70.08
	3.00	0.13	27.43	97.51
	3.50	0.09	2.42	99.93
	3.75	0.08	0.04	99.97
	4.00	0.06	0.03	100.00

SAND, poorly-graded, mostly fine-grained sand-sized quartz

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.95	2.75	2.59	2.32	2.10	2.02	1.63

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.33	0.20	2.32	0.20	0.38	-0.45	5.34

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-14 @ 9.5 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
469,687	1,072,971	State Plane, FLW (U.S. Ft.)	-19.6 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 8/1	#200 - 3.16 #230 - 2.88			3

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-3.25	9.50	0.00	0.00
	-2.50	5.60	0.23	0.23
	-2.25	4.75	0.08	0.31
	-2.00	4.00	0.08	0.39
	-1.50	2.80	0.17	0.56
	-1.00	2.00	0.36	0.92
	-0.50	1.40	0.37	1.29
	0.00	1.00	0.42	1.71
	0.50	0.71	0.40	2.11
	1.00	0.50	0.43	2.54
	1.50	0.36	0.52	3.06
	2.00	0.25	1.09	4.15
	2.50	0.18	2.79	6.94
	3.00	0.13	44.53	51.47
	3.50	0.09	42.42	93.89
	3.75	0.08	2.95	96.84
	4.00	0.06	0.28	97.12

SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.59	3.38	3.28	2.98	2.70	2.60	2.15

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.87	0.14	2.98	0.13	0.7	-4.49	29.21

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-14 @ 12.5 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
469,687	1,072,971	State Plane, FLW (U.S. Ft.)	-22.6 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	2.5Y 6/1	#200 - 2.91 #230 - 2.40			22

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-4.25	19.00	0.00	0.00
	-3.25	9.50	1.94	1.94
	-2.50	5.60	1.33	3.27
	-2.25	4.75	0.57	3.84
	-2.00	4.00	0.73	4.57
	-1.50	2.80	1.57	6.14
	-1.00	2.00	2.94	9.08
	-0.50	1.40	3.63	12.71
	0.00	1.00	3.54	16.25
	0.50	0.71	2.72	18.97
	1.00	0.50	1.97	20.94
	1.50	0.36	2.31	23.25
	2.00	0.25	3.48	26.73
	2.50	0.18	7.23	33.96
	3.00	0.13	23.73	57.69
	3.50	0.09	35.91	93.60
	3.75	0.08	3.49	97.09
	4.00	0.06	0.51	97.60

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little medium to coarse-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.60	3.37	3.24	2.84	1.75	-0.04	-1.86

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.05	0.24	2.84	0.14	1.79	-1.6	4.59

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-BSP-12-14 @ 13 ft

Analysis Date: 4/26/2013

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
469,687	1,072,971	State Plane, FLW (U.S. Ft.)	-23.1 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
	2.5Y 6/1	#200 - 10.53 #230 - 10.26			39

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
	-4.25	19.00	0.00	0.00
	-3.25	9.50	3.60	3.60
	-2.50	5.60	2.60	6.20
	-2.25	4.75	0.95	7.15
	-2.00	4.00	1.66	8.81
	-1.50	2.80	3.75	12.56
	-1.00	2.00	5.59	18.15
	-0.50	1.40	6.61	24.76
	0.00	1.00	5.21	29.97
	0.50	0.71	4.66	34.63
	1.00	0.50	3.33	37.96
	1.50	0.36	2.44	40.40
	2.00	0.25	2.16	42.56
	2.50	0.18	4.06	46.62
	3.00	0.13	17.07	63.69
	3.50	0.09	23.90	87.59
	3.75	0.08	1.88	89.47
	4.00	0.06	0.27	89.74

SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, some sand to gravel-sized shell, few silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	3.42	3.24	2.60	-0.48	-1.19	-2.85

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	1.18	0.44	2.60	0.16	2.19	-0.67	2.14

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-01 @ 0.5 ft

Analysis Date: 6/12/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
468,065	1,072,266	State Plane, FLW (U.S. Ft.)	-15.1 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 2.66 #230 - 2.58			3.8

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/8"	-3.25	9.50	0.00	0.00
#3.5	-2.50	5.60	0.14	0.14
#4	-2.25	4.75	0.00	0.14
#5	-2.00	4.00	0.00	0.14
#7	-1.50	2.80	0.24	0.38
#10	-1.00	2.00	0.16	0.54
#14	-0.50	1.40	0.60	1.14
#18	0.00	1.00	0.43	1.57
#25	0.50	0.71	0.27	1.84
#35	1.00	0.50	0.28	2.12
#45	1.50	0.36	0.25	2.37
#60	2.00	0.25	0.43	2.80
#80	2.50	0.18	6.10	8.90
#120	3.00	0.13	55.05	63.95
#170	3.50	0.09	31.41	95.36
#200	3.75	0.08	1.98	97.34
#230	4.00	0.06	0.08	97.42

SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.49	3.32	3.18	2.87	2.65	2.56	2.18

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.82	0.14	2.87	0.14	0.62	-4.53	31.43

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-01 @ 4 ft

Analysis Date: 6/12/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
468,065	1,072,266	State Plane, FLW (U.S. Ft.)	-18.6 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 1.16 #230 - 1.15			2.9

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/8"	-3.25	9.50	0.00	0.00
#3.5	-2.50	5.60	0.14	0.14
#4	-2.25	4.75	0.11	0.25
#5	-2.00	4.00	0.19	0.44
#7	-1.50	2.80	0.09	0.53
#10	-1.00	2.00	0.10	0.63
#14	-0.50	1.40	0.29	0.92
#18	0.00	1.00	0.15	1.07
#25	0.50	0.71	0.15	1.22
#35	1.00	0.50	0.10	1.32
#45	1.50	0.36	0.19	1.51
#60	2.00	0.25	0.36	1.87
#80	2.50	0.18	8.23	10.10
#120	3.00	0.13	66.41	76.51
#170	3.50	0.09	21.24	97.75
#200	3.75	0.08	1.09	98.84
#230	4.00	0.06	0.01	98.85

SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.44	3.18	2.99	2.80	2.61	2.54	2.19

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.77	0.15	2.80	0.14	0.56	-5.69	48.91

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-01 @ 7.5 ft

Analysis Date: 6/12/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
468,065	1,072,266	State Plane, FLW (U.S. Ft.)	-22.1 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 2.61 #230 - 2.53			1.4

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
#4	-2.25	4.75	0.00	0.00
#5	-2.00	4.00	0.01	0.01
#7	-1.50	2.80	0.00	0.01
#10	-1.00	2.00	0.02	0.03
#14	-0.50	1.40	0.01	0.04
#18	0.00	1.00	0.03	0.07
#25	0.50	0.71	0.07	0.14
#35	1.00	0.50	0.04	0.18
#45	1.50	0.36	0.07	0.25
#60	2.00	0.25	0.39	0.64
#80	2.50	0.18	4.04	4.68
#120	3.00	0.13	56.62	61.30
#170	3.50	0.09	33.59	94.89
#200	3.75	0.08	2.50	97.39
#230	4.00	0.06	0.08	97.47

SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.51	3.34	3.20	2.90	2.68	2.60	2.50

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.91	0.13	2.90	0.13	0.33	-1.66	20.52

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-01 @ 9.3 ft

Analysis Date: 6/12/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
468,065	1,072,266	State Plane, FLW (U.S. Ft.)	-23.9 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
	5Y 6/1	#200 - 6.96 #230 - 6.59			11.7

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/4"	-4.25	19.00	0.00	0.00
3/8"	-3.25	9.50	0.87	0.87
#3.5	-2.50	5.60	1.15	2.02
#4	-2.25	4.75	0.23	2.25
#5	-2.00	4.00	0.23	2.48
#7	-1.50	2.80	0.68	3.16
#10	-1.00	2.00	1.10	4.26
#14	-0.50	1.40	1.08	5.34
#18	0.00	1.00	0.76	6.10
#25	0.50	0.71	0.89	6.99
#35	1.00	0.50	0.64	7.63
#45	1.50	0.36	0.90	8.53
#60	2.00	0.25	1.25	9.78
#80	2.50	0.18	2.61	12.39
#120	3.00	0.13	36.05	48.44
#170	3.50	0.09	39.96	88.40
#200	3.75	0.08	4.64	93.04
#230	4.00	0.06	0.37	93.41

SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few medium-grained sand-sized shell, few silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	3.44	3.33	3.02	2.67	2.55	-0.66

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.63	0.16	3.02	0.12	1.31	-3.12	12.68

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-02 @ 0.5 ft

Analysis Date: 6/12/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
468,857	1,072,891	State Plane, FLW (U.S. Ft.)	-17.7 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SW	5Y 8/1	#200 - 4.52 #230 - 4.51			9.8

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/8"	-3.25	9.50	0.00	0.00
#3.5	-2.50	5.60	0.32	0.32
#4	-2.25	4.75	0.00	0.32
#5	-2.00	4.00	0.02	0.34
#7	-1.50	2.80	0.01	0.35
#10	-1.00	2.00	1.52	1.87
#14	-0.50	1.40	1.79	3.66
#18	0.00	1.00	1.29	4.95
#25	0.50	0.71	1.25	6.20
#35	1.00	0.50	0.96	7.16
#45	1.50	0.36	1.10	8.26
#60	2.00	0.25	2.01	10.27
#80	2.50	0.18	14.76	25.03
#120	3.00	0.13	50.25	75.28
#170	3.50	0.09	19.58	94.86
#200	3.75	0.08	0.62	95.48
#230	4.00	0.06	0.01	95.49

SAND, poorly-graded, mostly fine-grained sand-sized quartz, few medium-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.56	3.22	3.00	2.75	2.50	2.19	0.02

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.50	0.18	2.75	0.15	0.96	-2.77	11.19

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-02 @ 4.5 ft

Analysis Date: 6/12/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
468,857	1,072,891	State Plane, FLW (U.S. Ft.)	-21.7 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 1.07 #230 - 1.06			12.5

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/8"	-3.25	9.50	0.00	0.00
#3.5	-2.50	5.60	0.58	0.58
#4	-2.25	4.75	0.09	0.67
#5	-2.00	4.00	0.31	0.98
#7	-1.50	2.80	0.45	1.43
#10	-1.00	2.00	1.15	2.58
#14	-0.50	1.40	1.33	3.91
#18	0.00	1.00	1.21	5.12
#25	0.50	0.71	1.22	6.34
#35	1.00	0.50	1.31	7.65
#45	1.50	0.36	1.69	9.34
#60	2.00	0.25	4.65	13.99
#80	2.50	0.18	38.61	52.60
#120	3.00	0.13	40.91	93.51
#170	3.50	0.09	5.30	98.81
#200	3.75	0.08	0.12	98.93
#230	4.00	0.06	0.01	98.94

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little medium-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.14	2.88	2.77	2.47	2.14	2.03	-0.05

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.25	0.21	2.47	0.18	0.96	-2.91	12.52

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-03 @ 0.5 ft

Analysis Date: 6/12/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,059	1,074,342	State Plane, FLW (U.S. Ft.)	-10.3 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 1.25 #230 - 1.11			22.5

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/8"	-3.25	9.50	0.00	0.00
#3.5	-2.50	5.60	1.46	1.46
#4	-2.25	4.75	0.54	2.00
#5	-2.00	4.00	0.21	2.21
#7	-1.50	2.80	0.24	2.45
#10	-1.00	2.00	0.57	3.02
#14	-0.50	1.40	1.35	4.37
#18	0.00	1.00	1.90	6.27
#25	0.50	0.71	2.00	8.27
#35	1.00	0.50	2.37	10.64
#45	1.50	0.36	2.10	12.74
#60	2.00	0.25	2.63	15.37
#80	2.50	0.18	4.84	20.21
#120	3.00	0.13	30.98	51.19
#170	3.50	0.09	42.02	93.21
#200	3.75	0.08	5.54	98.75
#230	4.00	0.06	0.14	98.89

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to medium-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.58	3.39	3.28	2.98	2.58	2.07	-0.33

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.57	0.17	2.98	0.13	1.25	-2.53	9.46

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-03 @ 6 ft

Analysis Date: 6/12/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,059	1,074,342	State Plane, FLW (U.S. Ft.)	-15.8 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 0.93 #230 - 0.89			32.5

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/8"	-3.25	9.50	0.00	0.00
#3.5	-2.50	5.60	0.24	0.24
#4	-2.25	4.75	0.26	0.50
#5	-2.00	4.00	0.12	0.62
#7	-1.50	2.80	0.70	1.32
#10	-1.00	2.00	1.05	2.37
#14	-0.50	1.40	1.60	3.97
#18	0.00	1.00	1.63	5.60
#25	0.50	0.71	1.64	7.24
#35	1.00	0.50	1.83	9.07
#45	1.50	0.36	2.64	11.71
#60	2.00	0.25	5.30	17.01
#80	2.50	0.18	32.68	49.69
#120	3.00	0.13	42.99	92.68
#170	3.50	0.09	6.24	98.92
#200	3.75	0.08	0.15	99.07
#230	4.00	0.06	0.04	99.11

SAND, poorly-graded, mostly fine-grained sand-sized quartz, some fine to medium-grained sand-sized shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.19	2.90	2.79	2.50	2.12	1.90	-0.18

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.23	0.21	2.50	0.18	0.98	-2.51	9.83

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-03 @ 11 ft

Analysis Date: 6/12/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,059	1,074,342	State Plane, FLW (U.S. Ft.)	-20.8 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 1.91 #230 - 1.87			68.7

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/4"	-4.25	19.00	0.00	0.00
3/8"	-3.25	9.50	11.80	11.80
#3.5	-2.50	5.60	13.55	25.35
#4	-2.25	4.75	3.40	28.75
#5	-2.00	4.00	3.72	32.47
#7	-1.50	2.80	6.38	38.85
#10	-1.00	2.00	7.87	46.72
#14	-0.50	1.40	7.08	53.80
#18	0.00	1.00	4.82	58.62
#25	0.50	0.71	3.87	62.49
#35	1.00	0.50	2.81	65.30
#45	1.50	0.36	2.62	67.92
#60	2.00	0.25	3.30	71.22
#80	2.50	0.18	6.64	77.86
#120	3.00	0.13	9.78	87.64
#170	3.50	0.09	9.92	97.56
#200	3.75	0.08	0.53	98.09
#230	4.00	0.06	0.04	98.13

SAND, well-graded, mostly sand to gravel-sized shell, little fine-grained sand-sized quartz, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.37	2.81	2.28	-0.77	-2.52	-3.02	-3.83

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	-0.39	1.31			2.41	0.2	1.62

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-03 @ 12.5 ft

Analysis Date: 6/12/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,059	1,074,342	State Plane, FLW (U.S. Ft.)	-22.3 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
	5Y 5/1	#200 - 7.13 #230 - 6.87			28

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/4"	-4.25	19.00	0.00	0.00
3/8"	-3.25	9.50	1.13	1.13
#3.5	-2.50	5.60	1.27	2.40
#4	-2.25	4.75	0.87	3.27
#5	-2.00	4.00	1.28	4.55
#7	-1.50	2.80	2.11	6.66
#10	-1.00	2.00	3.70	10.36
#14	-0.50	1.40	4.59	14.95
#18	0.00	1.00	3.95	18.90
#25	0.50	0.71	3.05	21.95
#35	1.00	0.50	1.83	23.78
#45	1.50	0.36	1.32	25.10
#60	2.00	0.25	1.46	26.56
#80	2.50	0.18	3.60	30.16
#120	3.00	0.13	15.79	45.95
#170	3.50	0.09	42.03	87.98
#200	3.75	0.08	4.89	92.87
#230	4.00	0.06	0.26	93.13

SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, little medium to coarse-grained sand-sized shell, few silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	3.45	3.35	3.05	1.46	-0.37	-1.89

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.02	0.25	3.05	0.12	1.89	-1.33	3.46

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-05 @ 0.5 ft

Analysis Date: 6/18/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,712	1,076,822	State Plane, FLW (U.S. Ft.)	-7.5 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 0.86 #230 - 0.85			13.5

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/4"	-4.25	19.00	0.00	0.00
3/8"	-3.25	9.50	0.86	0.86
#3.5	-2.50	5.60	0.13	0.99
#4	-2.25	4.75	0.18	1.17
#5	-2.00	4.00	0.13	1.30
#7	-1.50	2.80	0.28	1.58
#10	-1.00	2.00	0.52	2.10
#14	-0.50	1.40	0.95	3.05
#18	0.00	1.00	0.74	3.79
#25	0.50	0.71	0.98	4.77
#35	1.00	0.50	1.25	6.02
#45	1.50	0.36	1.51	7.53
#60	2.00	0.25	2.27	9.80
#80	2.50	0.18	12.71	22.51
#120	3.00	0.13	58.22	80.73
#170	3.50	0.09	17.86	98.59
#200	3.75	0.08	0.55	99.14
#230	4.00	0.06	0.01	99.15

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to medium-grained sand-sized shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.40	3.09	2.95	2.74	2.52	2.24	0.59

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.52	0.17	2.74	0.15	1	-3.77	19.8

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-05 @ 4 ft

Analysis Date: 6/18/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,712	1,076,822	State Plane, FLW (U.S. Ft.)	-11.0 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 0.98 #230 - 0.94			3.8

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/8"	-3.25	9.50	0.00	0.00
#3.5	-2.50	5.60	0.23	0.23
#4	-2.25	4.75	0.00	0.23
#5	-2.00	4.00	0.05	0.28
#7	-1.50	2.80	0.02	0.30
#10	-1.00	2.00	0.11	0.41
#14	-0.50	1.40	0.16	0.57
#18	0.00	1.00	0.32	0.89
#25	0.50	0.71	0.26	1.15
#35	1.00	0.50	0.30	1.45
#45	1.50	0.36	0.90	2.35
#60	2.00	0.25	2.83	5.18
#80	2.50	0.18	30.76	35.94
#120	3.00	0.13	52.87	88.81
#170	3.50	0.09	9.69	98.50
#200	3.75	0.08	0.52	99.02
#230	4.00	0.06	0.04	99.06

SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.32	2.95	2.87	2.63	2.32	2.18	1.97

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.56	0.17	2.63	0.16	0.55	-4.09	34.15

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-05 @ 9 ft

Analysis Date: 6/15/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,712	1,076,822	State Plane, FLW (U.S. Ft.)	-16.0 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 1.11 #230 - 1.11			3.6

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/8"	-3.25	9.50	0.00	0.00
#3.5	-2.50	5.60	0.08	0.08
#4	-2.25	4.75	0.00	0.08
#5	-2.00	4.00	0.00	0.08
#7	-1.50	2.80	0.00	0.08
#10	-1.00	2.00	0.08	0.16
#14	-0.50	1.40	0.10	0.26
#18	0.00	1.00	0.10	0.36
#25	0.50	0.71	0.14	0.50
#35	1.00	0.50	0.15	0.65
#45	1.50	0.36	0.50	1.15
#60	2.00	0.25	2.02	3.17
#80	2.50	0.18	38.88	42.05
#120	3.00	0.13	48.70	90.75
#170	3.50	0.09	7.93	98.68
#200	3.75	0.08	0.21	98.89
#230	4.00	0.06	0.00	98.89

SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.27	2.93	2.84	2.58	2.28	2.16	2.02

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.55	0.17	2.58	0.17	0.43	-3.19	33.57

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-05 @ 15 ft

Analysis Date: 6/18/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,712	1,076,822	State Plane, FLW (U.S. Ft.)	-22.0 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 1.09 #230 - 1.05			37.4

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/4"	-4.25	19.00	0.00	0.00
3/8"	-3.25	9.50	2.71	2.71
#3.5	-2.50	5.60	4.00	6.71
#4	-2.25	4.75	1.40	8.11
#5	-2.00	4.00	1.35	9.46
#7	-1.50	2.80	3.58	13.04
#10	-1.00	2.00	4.20	17.24
#14	-0.50	1.40	4.70	21.94
#18	0.00	1.00	3.63	25.57
#25	0.50	0.71	3.28	28.85
#35	1.00	0.50	3.05	31.90
#45	1.50	0.36	3.00	34.90
#60	2.00	0.25	4.27	39.17
#80	2.50	0.18	22.42	61.59
#120	3.00	0.13	32.52	94.11
#170	3.50	0.09	4.64	98.75
#200	3.75	0.08	0.16	98.91
#230	4.00	0.06	0.04	98.95

SAND, poorly-graded, mostly fine-grained sand-sized quartz, some sand to gravel-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.10	2.84	2.71	2.24	-0.08	-1.15	-2.82

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	1.28	0.41	2.24	0.21	1.95	-1.11	2.93

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-06 @ 0.5 ft

Analysis Date: 6/18/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,344	1,075,238	State Plane, FLW (U.S. Ft.)	-8.0 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
	5Y 8/1	#200 - 6.20 #230 - 5.86			4.5

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
#3.5	-2.50	5.60	0.00	0.00
#4	-2.25	4.75	0.13	0.13
#5	-2.00	4.00	0.15	0.28
#7	-1.50	2.80	0.50	0.78
#10	-1.00	2.00	0.47	1.25
#14	-0.50	1.40	0.41	1.66
#18	0.00	1.00	0.37	2.03
#25	0.50	0.71	0.30	2.33
#35	1.00	0.50	0.36	2.69
#45	1.50	0.36	0.34	3.03
#60	2.00	0.25	0.44	3.47
#80	2.50	0.18	1.37	4.84
#120	3.00	0.13	17.01	21.85
#170	3.50	0.09	65.61	87.46
#200	3.75	0.08	6.34	93.80
#230	4.00	0.06	0.34	94.14

SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	3.47	3.41	3.21	3.02	2.83	2.50

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	3.04	0.12	3.21	0.11	0.74	-4.78	28.63

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-06 @ 6 ft

Analysis Date: 6/18/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,344	1,075,238	State Plane, FLW (U.S. Ft.)	-13.5 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 0.97 #230 - 0.90			16.4

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/4"	-4.25	19.00	0.00	0.00
3/8"	-3.25	9.50	0.57	0.57
#3.5	-2.50	5.60	1.48	2.05
#4	-2.25	4.75	0.30	2.35
#5	-2.00	4.00	0.80	3.15
#7	-1.50	2.80	1.58	4.73
#10	-1.00	2.00	1.74	6.47
#14	-0.50	1.40	2.20	8.67
#18	0.00	1.00	1.79	10.46
#25	0.50	0.71	1.71	12.17
#35	1.00	0.50	1.43	13.60
#45	1.50	0.36	1.37	14.97
#60	2.00	0.25	2.15	17.12
#80	2.50	0.18	16.27	33.39
#120	3.00	0.13	50.19	83.58
#170	3.50	0.09	14.98	98.56
#200	3.75	0.08	0.47	99.03
#230	4.00	0.06	0.07	99.10

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little medium to coarse-grained sand-sized shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.38	3.01	2.91	2.67	2.24	1.74	-1.42

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.18	0.22	2.67	0.16	1.42	-2.27	7.48

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-06 @ 11.5 ft

Analysis Date: 6/17/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,344	1,075,238	State Plane, FLW (U.S. Ft.)	-19.0 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 0.44 #230 - 0.43			66.9

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/4"	-4.25	19.00	0.00	0.00
3/8"	-3.25	9.50	6.87	6.87
#3.5	-2.50	5.60	8.05	14.92
#4	-2.25	4.75	2.10	17.02
#5	-2.00	4.00	4.04	21.06
#7	-1.50	2.80	5.54	26.60
#10	-1.00	2.00	8.63	35.23
#14	-0.50	1.40	9.00	44.23
#18	0.00	1.00	7.21	51.44
#25	0.50	0.71	5.76	57.20
#35	1.00	0.50	3.89	61.09
#45	1.50	0.36	3.12	64.21
#60	2.00	0.25	3.12	67.33
#80	2.50	0.18	11.21	78.54
#120	3.00	0.13	16.54	95.08
#170	3.50	0.09	4.27	99.35
#200	3.75	0.08	0.21	99.56
#230	4.00	0.06	0.01	99.57

SAND, poorly-graded, mostly sand to gravel-sized shell, some fine-grained sand-sized quartz

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.00	2.67	2.34	-0.10	-1.64	-2.37	-3.52

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	0.08	0.95			2.19	-0.12	1.74

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-06 @ 12.3 ft

Analysis Date: 6/17/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,344	1,075,238	State Plane, FLW (U.S. Ft.)	-19.8 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 5/1	#200 - 4.99 #230 - 4.94			51.9

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/4"	-4.25	19.00	0.00	0.00
3/8"	-3.25	9.50	2.77	2.77
#3.5	-2.50	5.60	5.18	7.95
#4	-2.25	4.75	1.68	9.63
#5	-2.00	4.00	2.55	12.18
#7	-1.50	2.80	4.73	16.91
#10	-1.00	2.00	6.09	23.00
#14	-0.50	1.40	6.52	29.52
#18	0.00	1.00	5.88	35.40
#25	0.50	0.71	5.35	40.75
#35	1.00	0.50	3.67	44.42
#45	1.50	0.36	3.21	47.63
#60	2.00	0.25	3.01	50.64
#80	2.50	0.18	8.78	59.42
#120	3.00	0.13	20.40	79.82
#170	3.50	0.09	15.05	94.87
#200	3.75	0.08	0.14	95.01
#230	4.00	0.06	0.05	95.06

SAND, poorly-graded, mostly sand to gravel-sized shell, some fine-grained sand-sized quartz, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.73	3.14	2.88	1.89	-0.85	-1.60	-2.93

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	0.86	0.55	1.89	0.27	2.14	-0.5	1.91

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-06 @ 13.1 ft

Analysis Date: 6/17/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,344	1,075,238	State Plane, FLW (U.S. Ft.)	-20.6 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 1.90 #230 - 1.88			17.4

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/4"	-4.25	19.00	0.00	0.00
3/8"	-3.25	9.50	2.73	2.73
#3.5	-2.50	5.60	2.60	5.33
#4	-2.25	4.75	0.33	5.66
#5	-2.00	4.00	0.82	6.48
#7	-1.50	2.80	0.92	7.40
#10	-1.00	2.00	1.23	8.63
#14	-0.50	1.40	1.01	9.64
#18	0.00	1.00	0.80	10.44
#25	0.50	0.71	0.84	11.28
#35	1.00	0.50	0.87	12.15
#45	1.50	0.36	1.29	13.44
#60	2.00	0.25	3.19	16.63
#80	2.50	0.18	39.10	55.73
#120	3.00	0.13	34.95	90.68
#170	3.50	0.09	7.13	97.81
#200	3.75	0.08	0.29	98.10
#230	4.00	0.06	0.02	98.12

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little sand to gravel-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.30	2.90	2.78	2.43	2.11	1.90	-2.60

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	1.96	0.26	2.43	0.19	1.59	-2.45	8.06

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-07 @ 0.5 ft

Analysis Date: 6/17/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,215	1,077,741	State Plane, FLW (U.S. Ft.)	-12.5 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 1.79 #230 - 1.71			7.3

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/8"	-3.25	9.50	0.00	0.00
#3.5	-2.50	5.60	0.30	0.30
#4	-2.25	4.75	0.07	0.37
#5	-2.00	4.00	0.06	0.43
#7	-1.50	2.80	0.26	0.69
#10	-1.00	2.00	0.40	1.09
#14	-0.50	1.40	0.59	1.68
#18	0.00	1.00	0.81	2.49
#25	0.50	0.71	1.56	4.05
#35	1.00	0.50	0.65	4.70
#45	1.50	0.36	1.29	5.99
#60	2.00	0.25	8.55	14.54
#80	2.50	0.18	51.34	65.88
#120	3.00	0.13	30.17	96.05
#170	3.50	0.09	2.12	98.17
#200	3.75	0.08	0.04	98.21
#230	4.00	0.06	0.08	98.29

SAND, poorly-graded, mostly fine-grained sand-sized quartz, few medium-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.98	2.80	2.65	2.35	2.10	2.01	1.12

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.24	0.21	2.35	0.20	0.72	-3.38	18.82

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-07 @ 4 ft

Analysis Date: 6/17/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,215	1,077,741	State Plane, FLW (U.S. Ft.)	-16.0 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 1.09 #230 - 1.06			17.6

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/4"	-4.25	19.00	0.00	0.00
3/8"	-3.25	9.50	4.47	4.47
#3.5	-2.50	5.60	0.55	5.02
#4	-2.25	4.75	0.36	5.38
#5	-2.00	4.00	0.18	5.56
#7	-1.50	2.80	0.50	6.06
#10	-1.00	2.00	1.45	7.51
#14	-0.50	1.40	1.84	9.35
#18	0.00	1.00	1.77	11.12
#25	0.50	0.71	1.66	12.78
#35	1.00	0.50	1.25	14.03
#45	1.50	0.36	1.13	15.16
#60	2.00	0.25	1.98	17.14
#80	2.50	0.18	25.28	42.42
#120	3.00	0.13	46.25	88.67
#170	3.50	0.09	9.78	98.45
#200	3.75	0.08	0.46	98.91
#230	4.00	0.06	0.03	98.94

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little sand to gravel-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.32	2.95	2.85	2.58	2.16	1.71	-2.53

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.02	0.25	2.58	0.17	1.65	-2.44	8.18

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-07 @ 6 ft

Analysis Date: 6/17/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,215	1,077,741	State Plane, FLW (U.S. Ft.)	-18.0 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 2.24 #230 - 2.20			3.8

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/8"	-3.25	9.50	0.00	0.00
#3.5	-2.50	5.60	0.19	0.19
#4	-2.25	4.75	0.05	0.24
#5	-2.00	4.00	0.16	0.40
#7	-1.50	2.80	0.24	0.64
#10	-1.00	2.00	0.29	0.93
#14	-0.50	1.40	0.35	1.28
#18	0.00	1.00	0.41	1.69
#25	0.50	0.71	0.29	1.98
#35	1.00	0.50	0.26	2.24
#45	1.50	0.36	0.20	2.44
#60	2.00	0.25	0.29	2.73
#80	2.50	0.18	2.25	4.98
#120	3.00	0.13	67.43	72.41
#170	3.50	0.09	23.86	96.27
#200	3.75	0.08	1.49	97.76
#230	4.00	0.06	0.04	97.80

SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.47	3.24	3.05	2.83	2.65	2.58	2.50

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.79	0.14	2.83	0.14	0.64	-5.27	37.79

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-07 @ 9.5 ft

Analysis Date: 6/17/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,215	1,077,741	State Plane, FLW (U.S. Ft.)	-21.5 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 7/1	#200 - 2.22 #230 - 2.19			11.5

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/8"	-3.25	9.50	0.00	0.00
#3.5	-2.50	5.60	0.07	0.07
#4	-2.25	4.75	0.03	0.10
#5	-2.00	4.00	0.22	0.32
#7	-1.50	2.80	0.35	0.67
#10	-1.00	2.00	0.40	1.07
#14	-0.50	1.40	0.66	1.73
#18	0.00	1.00	0.61	2.34
#25	0.50	0.71	0.69	3.03
#35	1.00	0.50	0.69	3.72
#45	1.50	0.36	0.97	4.69
#60	2.00	0.25	2.28	6.97
#80	2.50	0.18	22.01	28.98
#120	3.00	0.13	56.33	85.31
#170	3.50	0.09	12.01	97.32
#200	3.75	0.08	0.46	97.78
#230	4.00	0.06	0.03	97.81

SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fine-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.40	2.99	2.91	2.69	2.41	2.21	1.57

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.54	0.17	2.69	0.15	0.73	-3.59	19.62

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-08 @ 0.5 ft

Analysis Date: 6/19/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
471,150	1,074,258	State Plane, FLW (U.S. Ft.)	-2.5 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 0.93 #230 - 0.93			4.3

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
#5	-2.00	4.00	0.00	0.00
#7	-1.50	2.80	0.17	0.17
#10	-1.00	2.00	0.42	0.59
#14	-0.50	1.40	0.44	1.03
#18	0.00	1.00	0.50	1.53
#25	0.50	0.71	0.42	1.95
#35	1.00	0.50	0.42	2.37
#45	1.50	0.36	0.52	2.89
#60	2.00	0.25	1.63	4.52
#80	2.50	0.18	24.54	29.06
#120	3.00	0.13	61.03	90.09
#170	3.50	0.09	8.89	98.98
#200	3.75	0.08	0.09	99.07
#230	4.00	0.06	0.00	99.07

SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.28	2.95	2.88	2.67	2.42	2.23	2.01

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.57	0.17	2.67	0.16	0.57	-3.88	24.04

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-08 @ 6 ft

Analysis Date: 6/19/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
471,150	1,074,258	State Plane, FLW (U.S. Ft.)	-8.0 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 1.09 #230 - 1.07			53.8

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/4"	-4.25	19.00	0.00	0.00
3/8"	-3.25	9.50	1.46	1.46
#3.5	-2.50	5.60	2.04	3.50
#4	-2.25	4.75	0.42	3.92
#5	-2.00	4.00	1.19	5.11
#7	-1.50	2.80	4.22	9.33
#10	-1.00	2.00	7.38	16.71
#14	-0.50	1.40	9.58	26.29
#18	0.00	1.00	8.68	34.97
#25	0.50	0.71	8.09	43.06
#35	1.00	0.50	4.88	47.94
#45	1.50	0.36	3.75	51.69
#60	2.00	0.25	4.34	56.03
#80	2.50	0.18	16.37	72.40
#120	3.00	0.13	22.50	94.90
#170	3.50	0.09	3.90	98.80
#200	3.75	0.08	0.11	98.91
#230	4.00	0.06	0.02	98.93

SAND, poorly-graded, mostly fine to coarse-grained sand-sized shell, some fine-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.01	2.76	2.56	1.27	-0.57	-1.05	-2.02

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	0.90	0.54	1.27	0.41	1.78	-0.49	2.15

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-08 @ 11 ft

Analysis Date: 6/19/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
471,150	1,074,258	State Plane, FLW (U.S. Ft.)	-13.0 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 0.98 #230 - 0.96			47

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/8"	-3.25	9.50	0.00	0.00
#3.5	-2.50	5.60	0.92	0.92
#4	-2.25	4.75	0.83	1.75
#5	-2.00	4.00	0.88	2.63
#7	-1.50	2.80	3.56	6.19
#10	-1.00	2.00	4.81	11.00
#14	-0.50	1.40	8.05	19.05
#18	0.00	1.00	8.58	27.63
#25	0.50	0.71	8.90	36.53
#35	1.00	0.50	6.40	42.93
#45	1.50	0.36	5.85	48.78
#60	2.00	0.25	5.36	54.14
#80	2.50	0.18	16.23	70.37
#120	3.00	0.13	23.80	94.17
#170	3.50	0.09	4.69	98.86
#200	3.75	0.08	0.16	99.02
#230	4.00	0.06	0.02	99.04

SAND, poorly-graded, mostly fine-grained sand-sized quartz, some medium to caorse-grained sand-sized shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.09	2.79	2.60	1.61	-0.15	-0.69	-1.67

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	1.16	0.45	1.61	0.33	1.59	-0.52	2.07

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-10 @ 0.5 ft

Analysis Date: 6/19/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
472,849	1,077,410	State Plane, FLW (U.S. Ft.)	-6.4 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 0.89 #230 - 0.79			64

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/4"	-4.25	19.00	0.00	0.00
3/8"	-3.25	9.50	8.24	8.24
#3.5	-2.50	5.60	9.39	17.63
#4	-2.25	4.75	3.07	20.70
#5	-2.00	4.00	3.70	24.40
#7	-1.50	2.80	7.11	31.51
#10	-1.00	2.00	8.68	40.19
#14	-0.50	1.40	7.74	47.93
#18	0.00	1.00	5.52	53.45
#25	0.50	0.71	4.28	57.73
#35	1.00	0.50	2.81	60.54
#45	1.50	0.36	2.42	62.96
#60	2.00	0.25	2.67	65.63
#80	2.50	0.18	9.80	75.43
#120	3.00	0.13	19.04	94.47
#170	3.50	0.09	4.56	99.03
#200	3.75	0.08	0.08	99.11
#230	4.00	0.06	0.10	99.21

SAND, poorly-graded, mostly sand to gravel-sized shell, some fine-grained sand-sized quartz

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.06	2.73	2.48	-0.31	-1.96	-2.63	-3.64

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	-0.03	1.02			2.3	-0.05	1.6

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-10 @ 4 ft

Analysis Date: 6/19/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
472,849	1,077,410	State Plane, FLW (U.S. Ft.)	-9.9 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 2.16 #230 - 2.16			11.7

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
#3.5	-2.50	5.60	0.00	0.00
#4	-2.25	4.75	0.11	0.11
#5	-2.00	4.00	0.03	0.14
#7	-1.50	2.80	0.44	0.58
#10	-1.00	2.00	0.77	1.35
#14	-0.50	1.40	1.28	2.63
#18	0.00	1.00	1.58	4.21
#25	0.50	0.71	1.72	5.93
#35	1.00	0.50	1.58	7.51
#45	1.50	0.36	1.76	9.27
#60	2.00	0.25	3.57	12.84
#80	2.50	0.18	23.44	36.28
#120	3.00	0.13	51.96	88.24
#170	3.50	0.09	9.43	97.67
#200	3.75	0.08	0.17	97.84
#230	4.00	0.06	0.00	97.84

SAND, poorly-graded, mostly fine-grained sand-sized quartz, few medium-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.36	2.96	2.87	2.63	2.26	2.07	0.23

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.39	0.19	2.63	0.16	0.87	-2.6	10.33

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-10 @ 8.5 ft

Analysis Date: 6/19/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
472,849	1,077,410	State Plane, FLW (U.S. Ft.)	-14.4 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 7/1	#200 - 1.01 #230 - 1.01			13.9

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
#4	-2.25	4.75	0.00	0.00
#5	-2.00	4.00	0.06	0.06
#7	-1.50	2.80	0.26	0.32
#10	-1.00	2.00	0.49	0.81
#14	-0.50	1.40	0.87	1.68
#18	0.00	1.00	1.25	2.93
#25	0.50	0.71	1.63	4.56
#35	1.00	0.50	2.14	6.70
#45	1.50	0.36	2.63	9.33
#60	2.00	0.25	6.24	15.57
#80	2.50	0.18	24.50	40.07
#120	3.00	0.13	47.84	87.91
#170	3.50	0.09	10.93	98.84
#200	3.75	0.08	0.15	98.99
#230	4.00	0.06	0.00	98.99

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to medium-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.32	2.96	2.87	2.60	2.19	2.01	0.60

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.39	0.19	2.60	0.16	0.8	-2.34	9.68

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-10 @ 12 ft

Analysis Date: 6/19/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
472,849	1,077,410	State Plane, FLW (U.S. Ft.)	-17.9 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 7/1	#200 - 1.15 #230 - 1.15			8.5

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/8"	-3.25	9.50	0.00	0.00
#3.5	-2.50	5.60	0.22	0.22
#4	-2.25	4.75	0.04	0.26
#5	-2.00	4.00	0.18	0.44
#7	-1.50	2.80	0.22	0.66
#10	-1.00	2.00	0.51	1.17
#14	-0.50	1.40	0.49	1.66
#18	0.00	1.00	0.59	2.25
#25	0.50	0.71	0.75	3.00
#35	1.00	0.50	1.00	4.00
#45	1.50	0.36	1.54	5.54
#60	2.00	0.25	3.49	9.03
#80	2.50	0.18	24.35	33.38
#120	3.00	0.13	55.25	88.63
#170	3.50	0.09	10.04	98.67
#200	3.75	0.08	0.18	98.85
#230	4.00	0.06	0.00	98.85

SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fine-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.32	2.96	2.88	2.65	2.33	2.14	1.32

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.49	0.18	2.65	0.16	0.74	-3.55	19.73

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-11 @ 0.5 ft

Analysis Date: 6/19/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
473,213	1,078,521	State Plane, FLW (U.S. Ft.)	-11.0 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 1.66 #230 - 1.65			3

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
#3.5	-2.50	5.60	0.00	0.00
#4	-2.25	4.75	0.07	0.07
#5	-2.00	4.00	0.00	0.07
#7	-1.50	2.80	0.03	0.10
#10	-1.00	2.00	0.32	0.42
#14	-0.50	1.40	0.26	0.68
#18	0.00	1.00	0.23	0.91
#25	0.50	0.71	0.22	1.13
#35	1.00	0.50	0.18	1.31
#45	1.50	0.36	0.27	1.58
#60	2.00	0.25	0.59	2.17
#80	2.50	0.18	8.85	11.02
#120	3.00	0.13	64.33	75.35
#170	3.50	0.09	22.16	97.51
#200	3.75	0.08	0.83	98.34
#230	4.00	0.06	0.01	98.35

SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.44	3.20	3.00	2.80	2.61	2.54	2.16

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.77	0.15	2.80	0.14	0.5	-4.57	36.26

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-11 @ 4 ft

Analysis Date: 6/19/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
473,213	1,078,521	State Plane, FLW (U.S. Ft.)	-14.5 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 1.46 #230 - 1.44			6.3

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/4"	-4.25	19.00	0.00	0.00
3/8"	-3.25	9.50	0.26	0.26
#3.5	-2.50	5.60	0.00	0.26
#4	-2.25	4.75	0.11	0.37
#5	-2.00	4.00	0.02	0.39
#7	-1.50	2.80	0.15	0.54
#10	-1.00	2.00	0.37	0.91
#14	-0.50	1.40	0.52	1.43
#18	0.00	1.00	0.56	1.99
#25	0.50	0.71	0.60	2.59
#35	1.00	0.50	0.55	3.14
#45	1.50	0.36	0.66	3.80
#60	2.00	0.25	1.56	5.36
#80	2.50	0.18	18.46	23.82
#120	3.00	0.13	57.22	81.04
#170	3.50	0.09	16.93	97.97
#200	3.75	0.08	0.57	98.54
#230	4.00	0.06	0.02	98.56

SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fine-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.41	3.09	2.95	2.73	2.51	2.29	1.88

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.61	0.16	2.73	0.15	0.72	-4.32	29.26

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-11 @ 8 ft

Analysis Date: 6/18/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
473,213	1,078,521	State Plane, FLW (U.S. Ft.)	-18.5 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 7/1	#200 - 1.33 #230 - 1.33			45.9

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/4"	-4.25	19.00	0.00	0.00
3/8"	-3.25	9.50	0.27	0.27
#3.5	-2.50	5.60	1.87	2.14
#4	-2.25	4.75	0.88	3.02
#5	-2.00	4.00	1.85	4.87
#7	-1.50	2.80	4.43	9.30
#10	-1.00	2.00	7.40	16.70
#14	-0.50	1.40	8.69	25.39
#18	0.00	1.00	7.05	32.44
#25	0.50	0.71	5.37	37.81
#35	1.00	0.50	3.22	41.03
#45	1.50	0.36	2.47	43.50
#60	2.00	0.25	3.02	46.52
#80	2.50	0.18	13.23	59.75
#120	3.00	0.13	28.95	88.70
#170	3.50	0.09	9.74	98.44
#200	3.75	0.08	0.23	98.67
#230	4.00	0.06	0.00	98.67

SAND, poorly-graded, mostly fine-grained sand-sized quartz, some medium to coarse-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.32	2.92	2.76	2.13	-0.52	-1.05	-1.99

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	1.18	0.44	2.13	0.23	1.84	-0.57	1.91

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-11 @ 10.8 ft

Analysis Date: 6/17/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
473,213	1,078,521	State Plane, FLW (U.S. Ft.)	-21.3 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 1.45 #230 - 1.44			6.2

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/8"	-3.25	9.50	0.00	0.00
#3.5	-2.50	5.60	0.08	0.08
#4	-2.25	4.75	0.00	0.08
#5	-2.00	4.00	0.08	0.16
#7	-1.50	2.80	0.16	0.32
#10	-1.00	2.00	0.42	0.74
#14	-0.50	1.40	0.58	1.32
#18	0.00	1.00	0.68	2.00
#25	0.50	0.71	0.73	2.73
#35	1.00	0.50	0.55	3.28
#45	1.50	0.36	0.77	4.05
#60	2.00	0.25	1.73	5.78
#80	2.50	0.18	18.06	23.84
#120	3.00	0.13	55.95	79.79
#170	3.50	0.09	14.41	94.20
#200	3.75	0.08	4.35	98.55
#230	4.00	0.06	0.01	98.56

SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fine-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.55	3.15	2.96	2.73	2.51	2.28	1.77

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.64	0.16	2.73	0.15	0.7	-3.26	18.57

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-12 @ 0.5 ft

Analysis Date: 6/17/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
473,453	1,079,482	State Plane, FLW (U.S. Ft.)	-10.7 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 1.27 #230 - 1.21			73.6

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/8"	-3.25	9.50	0.00	0.00
#3.5	-2.50	5.60	4.12	4.12
#4	-2.25	4.75	1.64	5.76
#5	-2.00	4.00	2.83	8.59
#7	-1.50	2.80	7.46	16.05
#10	-1.00	2.00	11.30	27.35
#14	-0.50	1.40	12.76	40.11
#18	0.00	1.00	10.52	50.63
#25	0.50	0.71	9.47	60.10
#35	1.00	0.50	6.15	66.25
#45	1.50	0.36	4.59	70.84
#60	2.00	0.25	4.02	74.86
#80	2.50	0.18	9.38	84.24
#120	3.00	0.13	11.43	95.67
#170	3.50	0.09	3.00	98.67
#200	3.75	0.08	0.06	98.73
#230	4.00	0.06	0.06	98.79

SAND, well-graded, mostly sand to gravel-sized shell, little fine-grained sand-sized quartz, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.97	2.49	2.01	-0.03	-1.10	-1.50	-2.37

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	0.22	0.86			1.72	0.17	1.92

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-12 @ 5.5 ft

Analysis Date: 6/17/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
473,453	1,079,482	State Plane, FLW (U.S. Ft.)	-15.7 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 0.62 #230 - 0.60			84.3

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/4"	-4.25	19.00	0.00	0.00
3/8"	-3.25	9.50	1.81	1.81
#3.5	-2.50	5.60	6.43	8.24
#4	-2.25	4.75	3.24	11.48
#5	-2.00	4.00	4.33	15.81
#7	-1.50	2.80	7.64	23.45
#10	-1.00	2.00	12.79	36.24
#14	-0.50	1.40	14.32	50.56
#18	0.00	1.00	11.37	61.93
#25	0.50	0.71	8.94	70.87
#35	1.00	0.50	5.67	76.54
#45	1.50	0.36	4.31	80.85
#60	2.00	0.25	3.72	84.57
#80	2.50	0.18	8.31	92.88
#120	3.00	0.13	5.79	98.67
#170	3.50	0.09	0.63	99.30
#200	3.75	0.08	0.08	99.38
#230	4.00	0.06	0.02	99.40

SAND, poorly-graded, mostly sand to gravel-sized shell, little fine-grained sand-sized quartz

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.68	1.92	0.86	-0.52	-1.44	-1.99	-2.88

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	-0.30	1.23			1.66	0.25	2.32

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-13 @ 0.5 ft

Analysis Date: 6/17/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
473,803	1,080,425	State Plane, FLW (U.S. Ft.)	-13.3 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 1.24 #230 - 1.22			25.5

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/8"	-3.25	9.50	0.00	0.00
#3.5	-2.50	5.60	1.29	1.29
#4	-2.25	4.75	0.79	2.08
#5	-2.00	4.00	1.30	3.38
#7	-1.50	2.80	3.11	6.49
#10	-1.00	2.00	3.77	10.26
#14	-0.50	1.40	3.24	13.50
#18	0.00	1.00	2.22	15.72
#25	0.50	0.71	1.79	17.51
#35	1.00	0.50	1.48	18.99
#45	1.50	0.36	1.60	20.59
#60	2.00	0.25	2.32	22.91
#80	2.50	0.18	14.24	37.15
#120	3.00	0.13	50.13	87.28
#170	3.50	0.09	11.31	98.59
#200	3.75	0.08	0.17	98.76
#230	4.00	0.06	0.02	98.78

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to coarse-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.34	2.97	2.88	2.63	2.07	0.08	-1.74

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	1.96	0.26	2.63	0.16	1.57	-1.66	4.4

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-13 @ 4.7 ft

Analysis Date: 6/17/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
473,803	1,080,425	State Plane, FLW (U.S. Ft.)	-17.5 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 2.04 #230 - 1.68			6.2

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/4"	-4.25	19.00	0.00	0.00
3/8"	-3.25	9.50	0.30	0.30
#3.5	-2.50	5.60	0.09	0.39
#4	-2.25	4.75	0.00	0.39
#5	-2.00	4.00	0.16	0.55
#7	-1.50	2.80	0.05	0.60
#10	-1.00	2.00	0.09	0.69
#14	-0.50	1.40	0.08	0.77
#18	0.00	1.00	0.12	0.89
#25	0.50	0.71	0.13	1.02
#35	1.00	0.50	0.19	1.21
#45	1.50	0.36	0.28	1.49
#60	2.00	0.25	1.04	2.53
#80	2.50	0.18	8.84	11.37
#120	3.00	0.13	66.56	77.93
#170	3.50	0.09	19.58	97.51
#200	3.75	0.08	0.45	97.96
#230	4.00	0.06	0.36	98.32

SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fine-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.44	3.16	2.98	2.79	2.60	2.53	2.14

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.75	0.15	2.79	0.14	0.6	-6.56	63.62

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-15 @ 0.5 ft

Analysis Date: 6/17/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,486	1,070,749	State Plane, FLW (U.S. Ft.)	-13.2 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 2.30 #230 - 2.29			86.9

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/4"	-4.25	19.00	0.00	0.00
3/8"	-3.25	9.50	4.59	4.59
#3.5	-2.50	5.60	6.64	11.23
#4	-2.25	4.75	2.70	13.93
#5	-2.00	4.00	4.36	18.29
#7	-1.50	2.80	7.91	26.20
#10	-1.00	2.00	12.95	39.15
#14	-0.50	1.40	12.08	51.23
#18	0.00	1.00	9.79	61.02
#25	0.50	0.71	9.96	70.98
#35	1.00	0.50	8.05	79.03
#45	1.50	0.36	5.63	84.66
#60	2.00	0.25	2.64	87.30
#80	2.50	0.18	3.51	90.81
#120	3.00	0.13	5.49	96.30
#170	3.50	0.09	1.30	97.60
#200	3.75	0.08	0.10	97.70
#230	4.00	0.06	0.01	97.71

SAND, poorly-graded, mostly sand to gravel-sized shell, few fine-grained sand-sized quartz, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.88	1.44	0.75	-0.55	-1.58	-2.13	-3.20

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	-0.47	1.39			1.7	0.18	2.52

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-15 @ 6 ft

Analysis Date: 6/17/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,486	1,070,749	State Plane, FLW (U.S. Ft.)	-18.7 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
	5Y 6/1	#200 - 6.84 #230 - 6.54			5.5

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
#4	-2.25	4.75	0.00	0.00
#5	-2.00	4.00	0.22	0.22
#7	-1.50	2.80	0.19	0.41
#10	-1.00	2.00	0.13	0.54
#14	-0.50	1.40	0.23	0.77
#18	0.00	1.00	0.25	1.02
#25	0.50	0.71	0.25	1.27
#35	1.00	0.50	0.27	1.54
#45	1.50	0.36	0.31	1.85
#60	2.00	0.25	0.39	2.24
#80	2.50	0.18	1.58	3.82
#120	3.00	0.13	49.51	53.33
#170	3.50	0.09	36.04	89.37
#200	3.75	0.08	3.79	93.16
#230	4.00	0.06	0.30	93.46

SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, few fine-grained sand-sized shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	3.43	3.30	2.97	2.71	2.62	2.51

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.91	0.13	2.97	0.13	0.57	-4.8	36.63

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-15 @ 8 ft

Analysis Date: 6/17/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,486	1,070,749	State Plane, FLW (U.S. Ft.)	-20.7 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
	5Y 6/1	#200 - 12.46 #230 - 12.10			32.8

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/4"	-4.25	19.00	0.00	0.00
3/8"	-3.25	9.50	2.25	2.25
#3.5	-2.50	5.60	1.88	4.13
#4	-2.25	4.75	1.04	5.17
#5	-2.00	4.00	0.90	6.07
#7	-1.50	2.80	2.63	8.70
#10	-1.00	2.00	3.46	12.16
#14	-0.50	1.40	4.82	16.98
#18	0.00	1.00	5.46	22.44
#25	0.50	0.71	6.39	28.83
#35	1.00	0.50	4.64	33.47
#45	1.50	0.36	3.00	36.47
#60	2.00	0.25	1.77	38.24
#80	2.50	0.18	2.94	41.18
#120	3.00	0.13	17.17	58.35
#170	3.50	0.09	26.02	84.37
#200	3.75	0.08	3.17	87.54
#230	4.00	0.06	0.36	87.90

SAND, silty, mostly fine-grained sand-sized quartz, some sand to gravel-sized shell, little silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	3.49	3.32	2.76	0.20	-0.60	-2.29

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	1.49	0.36	2.76	0.15	2.02	-0.87	2.62

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-16 @ 0.5 ft

Analysis Date: 6/17/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
469,804	1,070,040	State Plane, FLW (U.S. Ft.)	-8.4 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 1.44 #230 - 1.41			47.6

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/8"	-3.25	9.50	0.00	0.00
#3.5	-2.50	5.60	0.61	0.61
#4	-2.25	4.75	0.64	1.25
#5	-2.00	4.00	1.02	2.27
#7	-1.50	2.80	2.81	5.08
#10	-1.00	2.00	3.38	8.46
#14	-0.50	1.40	5.03	13.49
#18	0.00	1.00	5.64	19.13
#25	0.50	0.71	3.18	22.31
#35	1.00	0.50	10.66	32.97
#45	1.50	0.36	9.10	42.07
#60	2.00	0.25	9.23	51.30
#80	2.50	0.18	21.59	72.89
#120	3.00	0.13	20.94	93.83
#170	3.50	0.09	4.59	98.42
#200	3.75	0.08	0.14	98.56
#230	4.00	0.06	0.03	98.59

SAND, poorly-graded, mostly fine-grained sand-sized quartz, some fine to coarse-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.13	2.77	2.55	1.93	0.63	-0.28	-1.51

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	1.40	0.38	1.93	0.26	1.44	-0.91	2.93

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-16 @ 6 ft

Analysis Date: 6/17/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
469,804	1,070,040	State Plane, FLW (U.S. Ft.)	-13.9 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 0.89 #230 - 0.89			4.7

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
#3.5	-2.50	5.60	0.00	0.00
#4	-2.25	4.75	0.02	0.02
#5	-2.00	4.00	0.14	0.16
#7	-1.50	2.80	0.02	0.18
#10	-1.00	2.00	0.42	0.60
#14	-0.50	1.40	0.32	0.92
#18	0.00	1.00	0.31	1.23
#25	0.50	0.71	0.38	1.61
#35	1.00	0.50	0.32	1.93
#45	1.50	0.36	0.55	2.48
#60	2.00	0.25	1.37	3.85
#80	2.50	0.18	20.38	24.23
#120	3.00	0.13	64.50	88.73
#170	3.50	0.09	10.16	98.89
#200	3.75	0.08	0.22	99.11
#230	4.00	0.06	0.00	99.11

SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.31	2.96	2.89	2.70	2.51	2.30	2.03

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.62	0.16	2.70	0.15	0.55	-4.26	29.45

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-16 @ 11 ft

Analysis Date: 6/17/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
469,804	1,070,040	State Plane, FLW (U.S. Ft.)	-18.9 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
	5Y 8/1	#200 - 5.74 #230 - 5.47			9.7

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/4"	-4.25	19.00	0.00	0.00
3/8"	-3.25	9.50	0.93	0.93
#3.5	-2.50	5.60	0.87	1.80
#4	-2.25	4.75	0.52	2.32
#5	-2.00	4.00	0.59	2.91
#7	-1.50	2.80	0.78	3.69
#10	-1.00	2.00	0.42	4.11
#14	-0.50	1.40	0.67	4.78
#18	0.00	1.00	0.53	5.31
#25	0.50	0.71	0.45	5.76
#35	1.00	0.50	0.38	6.14
#45	1.50	0.36	0.38	6.52
#60	2.00	0.25	0.46	6.98
#80	2.50	0.18	2.31	9.29
#120	3.00	0.13	47.91	57.20
#170	3.50	0.09	32.90	90.10
#200	3.75	0.08	4.16	94.26
#230	4.00	0.06	0.27	94.53

SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few medium-grained sand-sized shell, few silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	3.41	3.27	2.92	2.66	2.57	-0.29

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.65	0.16	2.92	0.13	1.25	-3.55	15.56

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-16 @ 12 ft

Analysis Date: 6/17/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
469,804	1,070,040	State Plane, FLW (U.S. Ft.)	-19.9 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
	5Y 6/1	#200 - 10.92 #230 - 10.19			6.6

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
#4	-2.25	4.75	0.00	0.00
#5	-2.00	4.00	0.16	0.16
#7	-1.50	2.80	0.14	0.30
#10	-1.00	2.00	0.11	0.41
#14	-0.50	1.40	0.19	0.60
#18	0.00	1.00	0.54	1.14
#25	0.50	0.71	0.80	1.94
#35	1.00	0.50	0.82	2.76
#45	1.50	0.36	1.01	3.77
#60	2.00	0.25	0.87	4.64
#80	2.50	0.18	1.25	5.89
#120	3.00	0.13	22.32	28.21
#170	3.50	0.09	54.47	82.68
#200	3.75	0.08	6.40	89.08
#230	4.00	0.06	0.73	89.81

SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, few fine-grained sand-sized shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	3.55	3.43	3.20	2.93	2.73	2.14

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	3.00	0.13	3.20	0.11	0.68	-3.81	21.32

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-17 @ 0.5 ft

Analysis Date: 6/17/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
469,806	1,067,947	State Plane, FLW (U.S. Ft.)	-7.6 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 1.00 #230 - 0.99			5.2

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/8"	-3.25	9.50	0.00	0.00
#3.5	-2.50	5.60	0.20	0.20
#4	-2.25	4.75	0.12	0.32
#5	-2.00	4.00	0.19	0.51
#7	-1.50	2.80	0.17	0.68
#10	-1.00	2.00	0.25	0.93
#14	-0.50	1.40	0.39	1.32
#18	0.00	1.00	0.30	1.62
#25	0.50	0.71	0.31	1.93
#35	1.00	0.50	0.28	2.21
#45	1.50	0.36	0.34	2.55
#60	2.00	0.25	0.79	3.34
#80	2.50	0.18	9.10	12.44
#120	3.00	0.13	71.40	83.84
#170	3.50	0.09	14.88	98.72
#200	3.75	0.08	0.28	99.00
#230	4.00	0.06	0.01	99.01

SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fine-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.37	3.01	2.94	2.76	2.59	2.52	2.09

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.69	0.15	2.76	0.15	0.63	-5.27	37.96

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-17 @ 6 ft

Analysis Date: 6/17/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
469,806	1,067,947	State Plane, FLW (U.S. Ft.)	-13.1 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 1.15 #230 - 1.10			3.9

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/4"	-4.25	19.00	0.00	0.00
3/8"	-3.25	9.50	0.34	0.34
#3.5	-2.50	5.60	0.11	0.45
#4	-2.25	4.75	0.07	0.52
#5	-2.00	4.00	0.16	0.68
#7	-1.50	2.80	0.33	1.01
#10	-1.00	2.00	0.29	1.30
#14	-0.50	1.40	0.33	1.63
#18	0.00	1.00	0.29	1.92
#25	0.50	0.71	0.23	2.15
#35	1.00	0.50	0.25	2.40
#45	1.50	0.36	0.37	2.77
#60	2.00	0.25	0.91	3.68
#80	2.50	0.18	11.37	15.05
#120	3.00	0.13	70.50	85.55
#170	3.50	0.09	13.14	98.69
#200	3.75	0.08	0.16	98.85
#230	4.00	0.06	0.05	98.90

SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.36	2.99	2.93	2.75	2.57	2.51	2.06

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.65	0.16	2.75	0.15	0.72	-5.56	40.79

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-17 @ 12.5 ft

Analysis Date: 6/17/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
469,806	1,067,947	State Plane, FLW (U.S. Ft.)	-19.6 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 6/1	#200 - 3.31 #230 - 3.15			2.1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
#7	-1.50	2.80	0.00	0.00
#10	-1.00	2.00	0.07	0.07
#14	-0.50	1.40	0.11	0.18
#18	0.00	1.00	0.05	0.23
#25	0.50	0.71	0.10	0.33
#35	1.00	0.50	0.13	0.46
#45	1.50	0.36	0.15	0.61
#60	2.00	0.25	0.20	0.81
#80	2.50	0.18	2.63	3.44
#120	3.00	0.13	63.16	66.60
#170	3.50	0.09	27.83	94.43
#200	3.75	0.08	2.26	96.69
#230	4.00	0.06	0.16	96.85

SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.56	3.31	3.15	2.87	2.67	2.60	2.51

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.88	0.14	2.87	0.14	0.36	-3.2	34.74

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-17 @ 13.5 ft

Analysis Date: 6/17/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
469,806	1,067,947	State Plane, FLW (U.S. Ft.)	-20.6 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
	5Y 6/1	#200 - 5.50 #230 - 5.00			3.7

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
#3.5	-2.50	5.60	0.00	0.00
#4	-2.25	4.75	0.20	0.20
#5	-2.00	4.00	0.14	0.34
#7	-1.50	2.80	0.09	0.43
#10	-1.00	2.00	0.18	0.61
#14	-0.50	1.40	0.19	0.80
#18	0.00	1.00	0.24	1.04
#25	0.50	0.71	0.30	1.34
#35	1.00	0.50	0.23	1.57
#45	1.50	0.36	0.32	1.89
#60	2.00	0.25	0.43	2.32
#80	2.50	0.18	1.27	3.59
#120	3.00	0.13	49.58	53.17
#170	3.50	0.09	37.26	90.43
#200	3.75	0.08	4.07	94.50
#230	4.00	0.06	0.50	95.00

SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
4.00	3.41	3.29	2.97	2.72	2.63	2.51

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.92	0.13	2.97	0.13	0.58	-4.96	38.57

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-18 @ 0.5 ft

Analysis Date: 6/17/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
469,899	1,068,946	State Plane, FLW (U.S. Ft.)	-4.9 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 1.28 #230 - 1.22			30.1

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/4"	-4.25	19.00	0.00	0.00
3/8"	-3.25	9.50	0.99	0.99
#3.5	-2.50	5.60	0.76	1.75
#4	-2.25	4.75	0.08	1.83
#5	-2.00	4.00	0.07	1.90
#7	-1.50	2.80	1.12	3.02
#10	-1.00	2.00	2.57	5.59
#14	-0.50	1.40	3.77	9.36
#18	0.00	1.00	3.93	13.29
#25	0.50	0.71	4.04	17.33
#35	1.00	0.50	3.27	20.60
#45	1.50	0.36	3.50	24.10
#60	2.00	0.25	5.40	29.50
#80	2.50	0.18	25.49	54.99
#120	3.00	0.13	38.03	93.02
#170	3.50	0.09	4.32	97.34
#200	3.75	0.08	1.38	98.72
#230	4.00	0.06	0.06	98.78

SAND, poorly-graded, mostly fine-grained sand-sized quartz, some fine to medium-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.23	2.88	2.76	2.40	1.58	0.34	-1.11

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	1.86	0.28	2.40	0.19	1.41	-1.71	5.57

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-18 @ 4 ft

Analysis Date: 6/17/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
469,899	1,068,946	State Plane, FLW (U.S. Ft.)	-8.4 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 1.01 #230 - 0.99			24.4

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/8"	-3.25	9.50	0.00	0.00
#3.5	-2.50	5.60	0.73	0.73
#4	-2.25	4.75	0.64	1.37
#5	-2.00	4.00	0.99	2.36
#7	-1.50	2.80	1.59	3.95
#10	-1.00	2.00	2.40	6.35
#14	-0.50	1.40	2.95	9.30
#18	0.00	1.00	2.86	12.16
#25	0.50	0.71	2.89	15.05
#35	1.00	0.50	2.31	17.36
#45	1.50	0.36	3.04	20.40
#60	2.00	0.25	5.09	25.49
#80	2.50	0.18	23.78	49.27
#120	3.00	0.13	43.24	92.51
#170	3.50	0.09	6.34	98.85
#200	3.75	0.08	0.14	98.99
#230	4.00	0.06	0.02	99.01

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to medium-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.20	2.90	2.80	2.51	1.95	0.71	-1.28

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	1.96	0.26	2.51	0.18	1.35	-1.78	5.28

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-18 @ 8 ft

Analysis Date: 6/17/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
469,899	1,068,946	State Plane, FLW (U.S. Ft.)	-12.4 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 0.98 #230 - 0.91			3

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
#4	-2.25	4.75	0.00	0.00
#5	-2.00	4.00	0.07	0.07
#7	-1.50	2.80	0.04	0.11
#10	-1.00	2.00	0.17	0.28
#14	-0.50	1.40	0.15	0.43
#18	0.00	1.00	0.10	0.53
#25	0.50	0.71	0.11	0.64
#35	1.00	0.50	0.12	0.76
#45	1.50	0.36	0.17	0.93
#60	2.00	0.25	0.59	1.52
#80	2.50	0.18	12.35	13.87
#120	3.00	0.13	71.18	85.05
#170	3.50	0.09	13.32	98.37
#200	3.75	0.08	0.65	99.02
#230	4.00	0.06	0.07	99.09

SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.37	2.99	2.93	2.75	2.58	2.51	2.14

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.73	0.15	2.75	0.15	0.41	-4.79	46.74

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-18 @ 13 ft

Analysis Date: 6/17/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
469,899	1,068,946	State Plane, FLW (U.S. Ft.)	-17.4 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 7/1	#200 - 4.18 #230 - 4.01			2.6

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/8"	-3.25	9.50	0.00	0.00
#3.5	-2.50	5.60	0.01	0.01
#4	-2.25	4.75	0.08	0.09
#5	-2.00	4.00	0.00	0.09
#7	-1.50	2.80	0.07	0.16
#10	-1.00	2.00	0.05	0.21
#14	-0.50	1.40	0.11	0.32
#18	0.00	1.00	0.08	0.40
#25	0.50	0.71	0.15	0.55
#35	1.00	0.50	0.14	0.69
#45	1.50	0.36	0.19	0.88
#60	2.00	0.25	0.24	1.12
#80	2.50	0.18	2.55	3.67
#120	3.00	0.13	65.70	69.37
#170	3.50	0.09	24.08	93.45
#200	3.75	0.08	2.37	95.82
#230	4.00	0.06	0.17	95.99

SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.66	3.30	3.12	2.85	2.66	2.59	2.51

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.86	0.14	2.85	0.14	0.41	-5.02	55.18

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-19 @ 0.5 ft

Analysis Date: 6/17/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,135	1,066,052	State Plane, FLW (U.S. Ft.)	-18.1 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 6/1	#200 - 3.27 #230 - 3.20			11

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/8"	-3.25	9.50	0.00	0.00
#3.5	-2.50	5.60	1.85	1.85
#4	-2.25	4.75	0.15	2.00
#5	-2.00	4.00	0.53	2.53
#7	-1.50	2.80	0.48	3.01
#10	-1.00	2.00	0.94	3.95
#14	-0.50	1.40	0.92	4.87
#18	0.00	1.00	0.93	5.80
#25	0.50	0.71	1.04	6.84
#35	1.00	0.50	0.68	7.52
#45	1.50	0.36	0.70	8.22
#60	2.00	0.25	0.87	9.09
#80	2.50	0.18	2.31	11.40
#120	3.00	0.13	48.70	60.10
#170	3.50	0.09	34.27	94.37
#200	3.75	0.08	2.36	96.73
#230	4.00	0.06	0.07	96.80

SAND, poorly-graded, mostly fine-grained sand-sized quartz, few medium-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.57	3.35	3.22	2.90	2.64	2.55	-0.43

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.61	0.16	2.90	0.13	1.2	-3.2	13.03

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-19 @ 4 ft

Analysis Date: 6/17/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,135	1,066,052	State Plane, FLW (U.S. Ft.)	-21.6 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 6/1	#200 - 4.30 #230 - 4.09			2.7

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/4"	-4.25	19.00	0.00	0.00
3/8"	-3.25	9.50	0.20	0.20
#3.5	-2.50	5.60	0.26	0.46
#4	-2.25	4.75	0.05	0.51
#5	-2.00	4.00	0.08	0.59
#7	-1.50	2.80	0.29	0.88
#10	-1.00	2.00	0.20	1.08
#14	-0.50	1.40	0.16	1.24
#18	0.00	1.00	0.10	1.34
#25	0.50	0.71	0.14	1.48
#35	1.00	0.50	0.11	1.59
#45	1.50	0.36	0.11	1.70
#60	2.00	0.25	0.17	1.87
#80	2.50	0.18	1.18	3.05
#120	3.00	0.13	48.48	51.53
#170	3.50	0.09	40.64	92.17
#200	3.75	0.08	3.53	95.70
#230	4.00	0.06	0.21	95.91

SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.70	3.40	3.29	2.98	2.73	2.63	2.52

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.91	0.13	2.98	0.13	0.68	-6.1	49.96

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-19 @ 4.5 ft

Analysis Date: 6/17/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,135	1,066,052	State Plane, FLW (U.S. Ft.)	-22.1 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 6/1	#200 - 4.29 #230 - 4.17			1.9

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
#3.5	-2.50	5.60	0.00	0.00
#4	-2.25	4.75	0.06	0.06
#5	-2.00	4.00	0.01	0.07
#7	-1.50	2.80	0.15	0.22
#10	-1.00	2.00	0.06	0.28
#14	-0.50	1.40	0.15	0.43
#18	0.00	1.00	0.18	0.61
#25	0.50	0.71	0.12	0.73
#35	1.00	0.50	0.13	0.86
#45	1.50	0.36	0.16	1.02
#60	2.00	0.25	0.26	1.28
#80	2.50	0.18	1.20	2.48
#120	3.00	0.13	55.24	57.72
#170	3.50	0.09	35.10	92.82
#200	3.75	0.08	2.89	95.71
#230	4.00	0.06	0.12	95.83

SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.69	3.37	3.25	2.93	2.70	2.62	2.52

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.92	0.13	2.93	0.13	0.46	-5.08	48.77

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-19 @ 8.1 ft

Analysis Date: 6/18/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,135	1,066,052	State Plane, FLW (U.S. Ft.)	-25.7 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
	5Y 6/1	#200 - 15.85 #230 - 15.25			33

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/4"	-4.25	19.00	0.00	0.00
3/8"	-3.25	9.50	3.25	3.25
#3.5	-2.50	5.60	2.13	5.38
#4	-2.25	4.75	1.81	7.19
#5	-2.00	4.00	0.98	8.17
#7	-1.50	2.80	2.84	11.01
#10	-1.00	2.00	4.20	15.21
#14	-0.50	1.40	4.73	19.94
#18	0.00	1.00	5.49	25.43
#25	0.50	0.71	7.37	32.80
#35	1.00	0.50	5.25	38.05
#45	1.50	0.36	3.09	41.14
#60	2.00	0.25	1.62	42.76
#80	2.50	0.18	1.48	44.24
#120	3.00	0.13	5.85	50.09
#170	3.50	0.09	27.65	77.74
#200	3.75	0.08	6.41	84.15
#230	4.00	0.06	0.60	84.75

SAND, silty, mostly fine to medium-grained sand-sized quartz, some sand to gravel-sized shell, little silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	3.74	3.45	2.99	-0.04	-0.92	-2.63

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	1.27	0.41	2.99	0.13	2.2	-0.63	2.19

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-20 @ 0.5 ft

Analysis Date: 6/19/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,296	1,065,121	State Plane, FLW (U.S. Ft.)	-25.5 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
	5Y 6/1	#200 - 7.81 #230 - 7.52			8.6

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/8"	-3.25	9.50	0.00	0.00
#3.5	-2.50	5.60	1.02	1.02
#4	-2.25	4.75	0.22	1.24
#5	-2.00	4.00	0.41	1.65
#7	-1.50	2.80	0.99	2.64
#10	-1.00	2.00	1.04	3.68
#14	-0.50	1.40	1.03	4.71
#18	0.00	1.00	0.92	5.63
#25	0.50	0.71	0.85	6.48
#35	1.00	0.50	0.60	7.08
#45	1.50	0.36	0.64	7.72
#60	2.00	0.25	0.77	8.49
#80	2.50	0.18	1.49	9.98
#120	3.00	0.13	25.85	35.83
#170	3.50	0.09	51.59	87.42
#200	3.75	0.08	4.77	92.19
#230	4.00	0.06	0.29	92.48

SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few medium-grained sand-sized shell, few silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	3.47	3.38	3.14	2.79	2.62	-0.34

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.76	0.15	3.14	0.11	1.2	-3.14	12.48

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-29 @ 0.5 ft

Analysis Date: 6/19/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
469,919	1,076,185	State Plane, FLW (U.S. Ft.)	-11.5 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 1.09 #230 - 1.06			11

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/8"	-3.25	9.50	0.00	0.00
#3.5	-2.50	5.60	0.77	0.77
#4	-2.25	4.75	0.19	0.96
#5	-2.00	4.00	0.32	1.28
#7	-1.50	2.80	0.71	1.99
#10	-1.00	2.00	0.90	2.89
#14	-0.50	1.40	0.79	3.68
#18	0.00	1.00	0.68	4.36
#25	0.50	0.71	0.54	4.90
#35	1.00	0.50	0.44	5.34
#45	1.50	0.36	0.49	5.83
#60	2.00	0.25	1.18	7.01
#80	2.50	0.18	15.90	22.91
#120	3.00	0.13	51.27	74.18
#170	3.50	0.09	23.44	97.62
#200	3.75	0.08	1.29	98.91
#230	4.00	0.06	0.03	98.94

SAND, poorly-graded, mostly fine-grained sand-sized quartz, few fine to medium-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.44	3.21	3.02	2.76	2.52	2.28	0.61

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.57	0.17	2.76	0.15	0.99	-3.5	16.47

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-29 @ 4 ft

Analysis Date: 6/19/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
469,919	1,076,185	State Plane, FLW (U.S. Ft.)	-15.0 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 1.22 #230 - 1.18			24.5

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/4"	-4.25	19.00	0.00	0.00
3/8"	-3.25	9.50	1.95	1.95
#3.5	-2.50	5.60	0.40	2.35
#4	-2.25	4.75	0.27	2.62
#5	-2.00	4.00	0.36	2.98
#7	-1.50	2.80	1.03	4.01
#10	-1.00	2.00	1.81	5.82
#14	-0.50	1.40	1.82	7.64
#18	0.00	1.00	1.67	9.31
#25	0.50	0.71	1.92	11.23
#35	1.00	0.50	1.62	12.85
#45	1.50	0.36	2.25	15.10
#60	2.00	0.25	5.41	20.51
#80	2.50	0.18	34.10	54.61
#120	3.00	0.13	36.60	91.21
#170	3.50	0.09	7.36	98.57
#200	3.75	0.08	0.21	98.78
#230	4.00	0.06	0.04	98.82

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to coarse-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.26	2.90	2.78	2.43	2.07	1.58	-1.23

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.03	0.24	2.43	0.19	1.37	-2.5	9.26

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-29 @ 8 ft

Analysis Date: 6/19/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
469,919	1,076,185	State Plane, FLW (U.S. Ft.)	-19.0 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 6/1	#200 - 1.34 #230 - 1.26			15.9

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/8"	-3.25	9.50	0.00	0.00
#3.5	-2.50	5.60	1.17	1.17
#4	-2.25	4.75	0.13	1.30
#5	-2.00	4.00	0.26	1.56
#7	-1.50	2.80	0.96	2.52
#10	-1.00	2.00	1.42	3.94
#14	-0.50	1.40	1.52	5.46
#18	0.00	1.00	1.36	6.82
#25	0.50	0.71	1.46	8.28
#35	1.00	0.50	1.47	9.75
#45	1.50	0.36	2.03	11.78
#60	2.00	0.25	3.93	15.71
#80	2.50	0.18	33.28	48.99
#120	3.00	0.13	42.49	91.48
#170	3.50	0.09	6.99	98.47
#200	3.75	0.08	0.19	98.66
#230	4.00	0.06	0.08	98.74

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little fine to medium-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.25	2.91	2.81	2.51	2.14	2.00	-0.65

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.20	0.22	2.51	0.18	1.12	-2.63	10.13

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-29 @ 12.5 ft

Analysis Date: 6/19/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
469,919	1,076,185	State Plane, FLW (U.S. Ft.)	-23.5 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 2.22 #230 - 2.13			45.4

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/4"	-4.25	19.00	0.00	0.00
3/8"	-3.25	9.50	11.37	11.37
#3.5	-2.50	5.60	5.38	16.75
#4	-2.25	4.75	1.87	18.62
#5	-2.00	4.00	1.18	19.80
#7	-1.50	2.80	4.19	23.99
#10	-1.00	2.00	5.56	29.55
#14	-0.50	1.40	6.68	36.23
#18	0.00	1.00	5.69	41.92
#25	0.50	0.71	5.23	47.15
#35	1.00	0.50	3.47	50.62
#45	1.50	0.36	2.46	53.08
#60	2.00	0.25	2.49	55.57
#80	2.50	0.18	9.80	65.37
#120	3.00	0.13	21.63	87.00
#170	3.50	0.09	10.25	97.25
#200	3.75	0.08	0.53	97.78
#230	4.00	0.06	0.09	97.87

SAND, poorly-graded, some sand to gravel-sized shell, some fine-grained sand-sized quartz, few medium-grained sand-sized limestone, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.39	2.93	2.72	0.91	-1.41	-2.60	-3.81

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	0.44	0.74	0.91	0.53	2.41	-0.43	1.77

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-30 @ 0.5 ft

Analysis Date: 6/19/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
468,753	1,074,753	State Plane, FLW (U.S. Ft.)	-14.4 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 1.35 #230 - 1.35			7.9

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/8"	-3.25	9.50	0.00	0.00
#3.5	-2.50	5.60	0.55	0.55
#4	-2.25	4.75	0.36	0.91
#5	-2.00	4.00	0.63	1.54
#7	-1.50	2.80	1.47	3.01
#10	-1.00	2.00	0.78	3.79
#14	-0.50	1.40	0.67	4.46
#18	0.00	1.00	0.51	4.97
#25	0.50	0.71	0.32	5.29
#35	1.00	0.50	0.24	5.53
#45	1.50	0.36	0.35	5.88
#60	2.00	0.25	4.98	10.86
#80	2.50	0.18	55.59	66.45
#120	3.00	0.13	30.65	97.10
#170	3.50	0.09	1.45	98.55
#200	3.75	0.08	0.10	98.65
#230	4.00	0.06	0.00	98.65

SAND, poorly-graded, mostly fine-grained sand-sized quartz, few medium-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.97	2.79	2.64	2.35	2.13	2.05	0.05

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.19	0.22	2.35	0.20	0.95	-3.54	15.97

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-30 @ 4.5 ft

Analysis Date: 6/19/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
468,753	1,074,753	State Plane, FLW (U.S. Ft.)	-18.4 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 7/1	#200 - 2.08 #230 - 1.94			1.7

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
#3.5	-2.50	5.60	0.00	0.00
#4	-2.25	4.75	0.04	0.04
#5	-2.00	4.00	0.09	0.13
#7	-1.50	2.80	0.13	0.26
#10	-1.00	2.00	0.14	0.40
#14	-0.50	1.40	0.09	0.49
#18	0.00	1.00	0.08	0.57
#25	0.50	0.71	0.02	0.59
#35	1.00	0.50	0.02	0.61
#45	1.50	0.36	0.10	0.71
#60	2.00	0.25	0.17	0.88
#80	2.50	0.18	1.47	2.35
#120	3.00	0.13	57.49	59.84
#170	3.50	0.09	36.20	96.04
#200	3.75	0.08	1.88	97.92
#230	4.00	0.06	0.14	98.06

SAND, poorly-graded, mostly fine-grained sand-sized quartz, trace silt, trace shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.49	3.33	3.21	2.91	2.70	2.62	2.52

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.92	0.13	2.91	0.13	0.44	-5.81	61.71

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-30 @ 5.5 ft

Analysis Date: 6/19/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
468,753	1,074,753	State Plane, FLW (U.S. Ft.)	-19.4 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
	5Y 7/1	#200 - 8.03 #230 - 7.77			5.2

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/8"	-3.25	9.50	0.00	0.00
#3.5	-2.50	5.60	0.49	0.49
#4	-2.25	4.75	0.00	0.49
#5	-2.00	4.00	0.00	0.49
#7	-1.50	2.80	0.05	0.54
#10	-1.00	2.00	0.22	0.76
#14	-0.50	1.40	0.45	1.21
#18	0.00	1.00	0.49	1.70
#25	0.50	0.71	0.53	2.23
#35	1.00	0.50	0.47	2.70
#45	1.50	0.36	0.44	3.14
#60	2.00	0.25	0.73	3.87
#80	2.50	0.18	3.02	6.89
#120	3.00	0.13	33.33	40.22
#170	3.50	0.09	47.99	88.21
#200	3.75	0.08	3.76	91.97
#230	4.00	0.06	0.26	92.23

SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, few fine-grained sand-sized shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	3.46	3.36	3.10	2.77	2.64	2.19

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.92	0.13	3.10	0.12	0.74	-4.58	29.88

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-30 @ 9.2 ft

Analysis Date: 6/19/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
468,753	1,074,753	State Plane, FLW (U.S. Ft.)	-23.1 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 7/1	#200 - 1.91 #230 - 1.83			65.9

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/4"	-4.25	19.00	0.00	0.00
3/8"	-3.25	9.50	6.79	6.79
#3.5	-2.50	5.60	10.66	17.45
#4	-2.25	4.75	3.50	20.95
#5	-2.00	4.00	3.36	24.31
#7	-1.50	2.80	6.39	30.70
#10	-1.00	2.00	7.56	38.26
#14	-0.50	1.40	6.72	44.98
#18	0.00	1.00	4.70	49.68
#25	0.50	0.71	4.21	53.89
#35	1.00	0.50	3.37	57.26
#45	1.50	0.36	3.47	60.73
#60	2.00	0.25	5.31	66.04
#80	2.50	0.18	15.75	81.79
#120	3.00	0.13	13.23	95.02
#170	3.50	0.09	2.90	97.92
#200	3.75	0.08	0.17	98.09
#230	4.00	0.06	0.08	98.17

SAND, poorly-graded, mostly sand to gravel-sized shell, some fine-grained sand-sized quartz, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.00	2.58	2.28	0.04	-1.95	-2.60	-3.51

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	0.01	0.99	0.04	0.97	2.24	-0.14	1.6

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-31 @ 0.5 ft

Analysis Date: 6/19/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
469,213	1,073,852	State Plane, FLW (U.S. Ft.)	-12.3 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 1.47 #230 - 1.40			45.8

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/4"	-4.25	19.00	0.00	0.00
3/8"	-3.25	9.50	1.55	1.55
#3.5	-2.50	5.60	1.96	3.51
#4	-2.25	4.75	0.72	4.23
#5	-2.00	4.00	1.05	5.28
#7	-1.50	2.80	3.48	8.76
#10	-1.00	2.00	6.02	14.78
#14	-0.50	1.40	7.86	22.64
#18	0.00	1.00	7.32	29.96
#25	0.50	0.71	6.92	36.88
#35	1.00	0.50	4.65	41.53
#45	1.50	0.36	3.47	45.00
#60	2.00	0.25	2.99	47.99
#80	2.50	0.18	14.49	62.48
#120	3.00	0.13	27.20	89.68
#170	3.50	0.09	8.58	98.26
#200	3.75	0.08	0.27	98.53
#230	4.00	0.06	0.07	98.60

SAND, poorly-graded, mostly fine-grained sand-sized quartz, some medium to coarse-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.31	2.90	2.73	2.07	-0.34	-0.92	-2.07

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	1.16	0.45	2.07	0.24	1.83	-0.7	2.37

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-31 @ 4.5 ft

Analysis Date: 6/19/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
469,213	1,073,852	State Plane, FLW (U.S. Ft.)	-16.3 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 1.44 #230 - 1.34			69.3

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/4"	-4.25	19.00	0.00	0.00
3/8"	-3.25	9.50	12.51	12.51
#3.5	-2.50	5.60	7.27	19.78
#4	-2.25	4.75	2.82	22.60
#5	-2.00	4.00	2.93	25.53
#7	-1.50	2.80	7.95	33.48
#10	-1.00	2.00	8.97	42.45
#14	-0.50	1.40	9.31	51.76
#18	0.00	1.00	6.85	58.61
#25	0.50	0.71	5.08	63.69
#35	1.00	0.50	2.78	66.47
#45	1.50	0.36	1.80	68.27
#60	2.00	0.25	1.52	69.79
#80	2.50	0.18	6.57	76.36
#120	3.00	0.13	16.29	92.65
#170	3.50	0.09	5.77	98.42
#200	3.75	0.08	0.14	98.56
#230	4.00	0.06	0.10	98.66

SAND, poorly-graded, mostly sand to gravel-sized shell, little fine-grained sand-sized quartz, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.20	2.73	2.40	-0.59	-2.05	-2.89	-3.85

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	-0.27	1.21			2.32	0.09	1.71

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-31 @ 6 ft

Analysis Date: 6/19/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
469,213	1,073,852	State Plane, FLW (U.S. Ft.)	-17.8 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
	5Y 6/1	#200 - 7.42 #230 - 7.34			3.3

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
#7	-1.50	2.80	0.00	0.00
#10	-1.00	2.00	0.05	0.05
#14	-0.50	1.40	0.15	0.20
#18	0.00	1.00	0.25	0.45
#25	0.50	0.71	0.34	0.79
#35	1.00	0.50	0.37	1.16
#45	1.50	0.36	0.46	1.62
#60	2.00	0.25	0.62	2.24
#80	2.50	0.18	2.23	4.47
#120	3.00	0.13	37.36	41.83
#170	3.50	0.09	47.50	89.33
#200	3.75	0.08	3.25	92.58
#230	4.00	0.06	0.08	92.66

SAND, poorly-graded with silt, mostly fine-grained sand-sized quartz, few silt, trace shell

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
	3.44	3.35	3.09	2.77	2.65	2.51

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.98	0.13	3.09	0.12	0.47	-3.57	24.07

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-32 @ 0.5 ft

Analysis Date: 6/19/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,100	1,073,506	State Plane, FLW (U.S. Ft.)	-10.0 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 8/1	#200 - 1.04 #230 - 1.00			35.9

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/8"	-3.25	9.50	0.00	0.00
#3.5	-2.50	5.60	0.98	0.98
#4	-2.25	4.75	0.70	1.68
#5	-2.00	4.00	0.96	2.64
#7	-1.50	2.80	1.92	4.56
#10	-1.00	2.00	3.23	7.79
#14	-0.50	1.40	4.38	12.17
#18	0.00	1.00	4.63	16.80
#25	0.50	0.71	5.10	21.90
#35	1.00	0.50	4.46	26.36
#45	1.50	0.36	5.17	31.53
#60	2.00	0.25	8.53	40.06
#80	2.50	0.18	28.48	68.54
#120	3.00	0.13	27.43	95.97
#170	3.50	0.09	2.90	98.87
#200	3.75	0.08	0.09	98.96
#230	4.00	0.06	0.04	99.00

SAND, poorly-graded, mostly fine-grained sand-sized quartz, some fine to coarse-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.98	2.78	2.62	2.17	0.85	-0.09	-1.43

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	1.59	0.33	2.17	0.22	1.43	-1.24	3.57

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-32 @ 6 ft

Analysis Date: 6/19/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,100	1,073,506	State Plane, FLW (U.S. Ft.)	-15.5 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SW	5Y 8/1	#200 - 1.14 #230 - 1.06			18.8

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/8"	-3.25	9.50	0.00	0.00
#3.5	-2.50	5.60	0.46	0.46
#4	-2.25	4.75	0.37	0.83
#5	-2.00	4.00	0.28	1.11
#7	-1.50	2.80	1.83	2.94
#10	-1.00	2.00	2.43	5.37
#14	-0.50	1.40	3.35	8.72
#18	0.00	1.00	2.93	11.65
#25	0.50	0.71	2.71	14.36
#35	1.00	0.50	2.10	16.46
#45	1.50	0.36	1.99	18.45
#60	2.00	0.25	3.49	21.94
#80	2.50	0.18	14.86	36.80
#120	3.00	0.13	45.61	82.41
#170	3.50	0.09	16.23	98.64
#200	3.75	0.08	0.22	98.86
#230	4.00	0.06	0.08	98.94

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little medium to coarse-grained sand-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.39	3.05	2.92	2.64	2.10	0.89	-1.08

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	2.14	0.23	2.64	0.16	1.34	-1.78	5.22

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-32 @ 12 ft

Analysis Date: 6/19/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,100	1,073,506	State Plane, FLW (U.S. Ft.)	-21.5 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SW	5Y 8/1	#200 - 1.54 #230 - 1.37			70.8

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/4"	-4.25	19.00	0.00	0.00
3/8"	-3.25	9.50	4.10	4.10
#3.5	-2.50	5.60	11.54	15.64
#4	-2.25	4.75	4.48	20.12
#5	-2.00	4.00	4.75	24.87
#7	-1.50	2.80	6.36	31.23
#10	-1.00	2.00	7.29	38.52
#14	-0.50	1.40	8.75	47.27
#18	0.00	1.00	7.26	54.53
#25	0.50	0.71	6.42	60.95
#35	1.00	0.50	4.50	65.45
#45	1.50	0.36	3.50	68.95
#60	2.00	0.25	3.17	72.12
#80	2.50	0.18	12.09	84.21
#120	3.00	0.13	11.68	95.89
#170	3.50	0.09	2.39	98.28
#200	3.75	0.08	0.18	98.46
#230	4.00	0.06	0.17	98.63

SAND, well-graded, mostly sand to gravel-sized shell, little fine-grained sand-sized quartz, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.96	2.49	2.12	-0.31	-1.99	-2.48	-3.19

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	-0.15	1.11			2.09	0.06	1.72

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15

Granularmetric Report

Project Name: Vibracore Logging and Lab Analysis

Sample Name: VB-LK14-32 @ 13.5 ft

Analysis Date: 6/19/2014

US Army Corps of Engineers
Jacksonville District

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
470,100	1,073,506	State Plane, FLW (U.S. Ft.)	-23.0 MLLW

USCS:	Munsell:	Fines (%):	Organics (%):	Carbonates (%):	Shells (%):
SP	5Y 6/1	#200 - 3.03 #230 - 2.76			29.2

Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)	% Weight Retained	C. % Weight Retained
3/4"	-4.25	19.00	0.00	0.00
3/8"	-3.25	9.50	7.30	7.30
#3.5	-2.50	5.60	5.67	12.97
#4	-2.25	4.75	0.98	13.95
#5	-2.00	4.00	1.23	15.18
#7	-1.50	2.80	2.26	17.44
#10	-1.00	2.00	2.14	19.58
#14	-0.50	1.40	2.29	21.87
#18	0.00	1.00	1.73	23.60
#25	0.50	0.71	1.37	24.97
#35	1.00	0.50	1.03	26.00
#45	1.50	0.36	1.21	27.21
#60	2.00	0.25	2.27	29.48
#80	2.50	0.18	15.03	44.51
#120	3.00	0.13	38.40	82.91
#170	3.50	0.09	13.36	96.27
#200	3.75	0.08	0.70	96.97
#230	4.00	0.06	0.27	97.24

SAND, poorly-graded, mostly fine-grained sand-sized quartz, little sand to gravel-sized shell, trace silt

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.45	3.04	2.90	2.57	0.51	-1.82	-3.57

Moment	Mean Phi	Mean mm	Median Phi	Median mm	Sorting	Skewness	Kurtosis
Statistics	1.39	0.38	2.57	0.17	2.3	-1.26	2.99

GRANULARMETRIC REPORT % LIDO_KEYVB_2014-2009-MERGED.GPJ CESAJ3.GDT 5/27/15