

APPENDIX 17  
PROPOSED BORROW AREAS COMPOSITE GRANULARMETRIC REPORTS  
(Digital Copy Only)

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: BORROW AREA A COMP

Analysis Date: 07-17-15

Analyzed By: ST

Easting (ft):

Northing (ft):

Coordinate System:

Elevation (ft):

North Carolina State Plane

USCS:

Munsell:

Comments:

SW

COMPOSITE

Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>0.77</b>	Sieve Loss (%): <b>0.06</b>	Fines (%): #200 - 0.90 #230 - 0.83	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.06	0.06	0.06	0.06
5/16"	-3.00	8.00	0.16	0.16	0.22	0.22
3.5	-2.50	5.66	0.18	0.18	0.40	0.40
4	-2.25	4.76	0.12	0.12	0.52	0.52
5	-2.00	4.00	0.16	0.16	0.68	0.68
7	-1.50	2.83	0.48	0.48	1.16	1.16
10	-1.00	2.00	0.84	0.84	2.00	2.00
14	-0.50	1.41	1.56	1.56	3.56	3.56
18	0.00	1.00	2.70	2.70	6.26	6.26
25	0.50	0.71	5.23	5.23	11.49	11.49
35	1.00	0.50	11.09	11.09	22.58	22.58
45	1.50	0.35	19.99	19.99	42.57	42.57
60	2.00	0.25	28.82	28.82	71.39	71.39
80	2.50	0.18	21.93	21.93	93.32	93.32
120	3.00	0.13	4.76	4.76	98.08	98.08
170	3.50	0.09	0.85	0.85	98.93	98.93
200	3.75	0.07	0.17	0.17	99.10	99.10
230	4.00	0.06	0.07	0.07	99.17	99.17

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.68	2.29	2.08	1.63	1.06	0.70	-0.23
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	1.47	0.36	0.9	-1.39	6.7	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: BORROW AREA C COMP

Analysis Date: 07-17-15

Analyzed By: ST

Easting (ft):

Northing (ft):

Coordinate System:

Elevation (ft):

North Carolina State Plane

USCS:

SW

Munsell:

Comments:

COMPOSITE

Dry Weight (g):

100.00

Wash Weight (g):

100.00

Pan Retained (g):

1.28

Sieve Loss (%):

0.08

Fines (%):

#200 - 1.58  
#230 - 1.36

Organics (%):

Carbonates (%):

Shell Hash (%):

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

0.14

0.14

0.14

0.14

5/16"

-3.00

8.00

0.24

0.24

0.38

0.38

3.5

-2.50

5.66

0.45

0.45

0.83

0.83

4

-2.25

4.76

0.26

0.26

1.09

1.09

5

-2.00

4.00

0.34

0.34

1.43

1.43

7

-1.50

2.83

0.73

0.73

2.16

2.16

10

-1.00

2.00

1.14

1.14

3.30

3.30

14

-0.50

1.41

1.72

1.72

5.02

5.02

18

0.00

1.00

2.16

2.16

7.18

7.18

25

0.50

0.71

2.88

2.88

10.06

10.06

35

1.00

0.50

5.12

5.12

15.18

15.18

45

1.50

0.35

8.93

8.93

24.11

24.11

60

2.00

0.25

17.77

17.77

41.88

41.88

80

2.50

0.18

32.61

32.61

74.49

74.49

120

3.00

0.13

21.00

21.00

95.49

95.49

170

3.50

0.09

2.31

2.31

97.80

97.80

200

3.75

0.07

0.62

0.62

98.42

98.42

230

4.00

0.06

0.22

0.22

98.64

98.64

Phi 5

Phi 16

Phi 25

Phi 50

Phi 75

Phi 84

Phi 95

2.99

2.73

2.51

2.12

1.53

1.05

-0.51

Moment

Mean Phi

Mean mm

Sorting

Skewness

Kurtosis

Statistics

1.83

0.28

1.09

-1.87

7.44

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-01 COMP

Analysis Date: 10-16-14

Analyzed By: KM

Easting (ft): <b>3,020,303</b>	Northing (ft): <b>839,465</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-58.7 NAVD 88</b>
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USCS: <b>SP</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>1.01</b>	Sieve Loss (%): <b>0.06</b>	Fines (%): <b>#200 - 1.16</b> <b>#230 - 1.07</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.05	0.05	0.05	0.05
4	-2.25	4.76	0.11	0.11	0.16	0.16
5	-2.00	4.00	0.03	0.03	0.19	0.19
7	-1.50	2.83	0.14	0.14	0.33	0.33
10	-1.00	2.00	0.22	0.22	0.55	0.55
14	-0.50	1.41	0.77	0.77	1.32	1.32
18	0.00	1.00	1.48	1.48	2.80	2.80
25	0.50	0.71	3.44	3.44	6.24	6.24
35	1.00	0.50	10.64	10.64	16.88	16.88
45	1.50	0.35	20.70	20.70	37.58	37.58
60	2.00	0.25	28.15	28.15	65.73	65.73
80	2.50	0.18	24.21	24.21	89.94	89.94
120	3.00	0.13	6.90	6.90	96.84	96.84
170	3.50	0.09	1.67	1.67	98.51	98.51
200	3.75	0.07	0.33	0.33	98.84	98.84
230	4.00	0.06	0.09	0.09	98.93	98.93

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.87	2.38	2.19	1.72	1.20	0.96	0.32
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	1.64	0.32	0.77	-0.82	5.32	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

Depths and elevations based on measured values



CB&I  
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2481 NW Boca Raton Blvd.  
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ph (561) 391 8102

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-02 COMP

Analysis Date: 10-16-14

Analyzed By: KM

Easting (ft): <b>3,019,888</b>	Northing (ft): <b>841,618</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-53.3 NAVD 88</b>
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USCS: <b>SP</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>0.80</b>	Sieve Loss (%): <b>0.01</b>	Fines (%): <b>#200 - 0.83</b> <b>#230 - 0.81</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.04	0.04	0.04	0.04
3.5	-2.50	5.66	0.02	0.02	0.06	0.06
4	-2.25	4.76	0.10	0.10	0.16	0.16
5	-2.00	4.00	0.03	0.03	0.19	0.19
7	-1.50	2.83	0.18	0.18	0.37	0.37
10	-1.00	2.00	0.36	0.36	0.73	0.73
14	-0.50	1.41	1.42	1.42	2.15	2.15
18	0.00	1.00	3.16	3.16	5.31	5.31
25	0.50	0.71	6.37	6.37	11.68	11.68
35	1.00	0.50	13.50	13.50	25.18	25.18
45	1.50	0.35	28.17	28.17	53.35	53.35
60	2.00	0.25	25.58	25.58	78.93	78.93
80	2.50	0.18	15.59	15.59	94.52	94.52
120	3.00	0.13	3.86	3.86	98.38	98.38
170	3.50	0.09	0.65	0.65	99.03	99.03
200	3.75	0.07	0.14	0.14	99.17	99.17
230	4.00	0.06	0.02	0.02	99.19	99.19

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.56	2.16	1.92	1.44	0.99	0.66	-0.05
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	1.38	0.38	0.79	-0.75	4.76	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

Depths and elevations based on measured values



CB&I  
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2481 NW Boca Raton Blvd.  
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ph (561) 391 8102

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-03 COMP

Analysis Date: 10-16-14

Analyzed By: KM

Easting (ft): <b>3,018,175</b>	Northing (ft): <b>840,247</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-60.9 NAVD 88</b>
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USCS: <b>SW</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>0.62</b>	Sieve Loss (%): <b>0.10</b>	Fines (%): <b>#200 - 0.77</b> <b>#230 - 0.72</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.80	0.80	0.80	0.80
3.5	-2.50	5.66	0.44	0.44	1.24	1.24
4	-2.25	4.76	0.47	0.47	1.71	1.71
5	-2.00	4.00	0.95	0.95	2.66	2.66
7	-1.50	2.83	2.80	2.80	5.46	5.46
10	-1.00	2.00	3.38	3.38	8.84	8.84
14	-0.50	1.41	3.53	3.53	12.37	12.37
18	0.00	1.00	5.66	5.66	18.03	18.03
25	0.50	0.71	9.95	9.95	27.98	27.98
35	1.00	0.50	16.36	16.36	44.34	44.34
45	1.50	0.35	22.34	22.34	66.68	66.68
60	2.00	0.25	18.77	18.77	85.45	85.45
80	2.50	0.18	10.72	10.72	96.17	96.17
120	3.00	0.13	2.47	2.47	98.64	98.64
170	3.50	0.09	0.47	0.47	99.11	99.11
200	3.75	0.07	0.12	0.12	99.23	99.23
230	4.00	0.06	0.05	0.05	99.28	99.28

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.45	1.96	1.72	1.13	0.35	-0.18	-1.58
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	0.89	0.54	1.18	-1.02	4.09	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

Depths and elevations based on measured values



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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-04 COMP

Analysis Date: 10-16-14

Analyzed By: KM

Easting (ft): <b>3,019,454</b>	Northing (ft): <b>843,891</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-48.7 NAVD 88</b>
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USCS: <b>SP</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>0.53</b>	Sieve Loss (%): <b>0.10</b>	Fines (%): <b>#200 - 0.66</b> <b>#230 - 0.63</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.03	0.03	0.03	0.03
3.5	-2.50	5.66	0.12	0.12	0.15	0.15
4	-2.25	4.76	0.03	0.03	0.18	0.18
5	-2.00	4.00	0.19	0.19	0.37	0.37
7	-1.50	2.83	0.83	0.83	1.20	1.20
10	-1.00	2.00	0.54	0.54	1.74	1.74
14	-0.50	1.41	2.67	2.67	4.41	4.41
18	0.00	1.00	4.49	4.49	8.90	8.90
25	0.50	0.71	8.62	8.62	17.52	17.52
35	1.00	0.50	17.31	17.31	34.83	34.83
45	1.50	0.35	30.98	30.98	65.81	65.81
60	2.00	0.25	21.85	21.85	87.66	87.66
80	2.50	0.18	9.40	9.40	97.06	97.06
120	3.00	0.13	2.01	2.01	99.07	99.07
170	3.50	0.09	0.23	0.23	99.30	99.30
200	3.75	0.07	0.04	0.04	99.34	99.34
230	4.00	0.06	0.03	0.03	99.37	99.37

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.39	1.92	1.71	1.24	0.72	0.41	-0.43

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.14	0.45	0.83	-0.92	4.89

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

Depths and elevations based on measured values



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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-05 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft):

3,020,660

Northing (ft):

847,624

Coordinate System:

North Carolina State Plane

Elevation (ft):

-49.7 NAVD 88

USCS:

SP

Munsell:

Comments:

COMPOSITE

Dry Weight (g):

100.00

Wash Weight (g):

100.00

Pan Retained (g):

0.77

Sieve Loss (%):

0.13

Fines (%):

#200 - 0.92  
#230 - 0.90

Organics (%):

Carbonates (%):

Shell Hash (%):

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

0.21

0.21

0.21

0.21

5/16"

-3.00

8.00

0.13

0.13

0.34

0.34

3.5

-2.50

5.66

0.03

0.03

0.37

0.37

4

-2.25

4.76

0.12

0.12

0.49

0.49

5

-2.00

4.00

0.05

0.05

0.54

0.54

7

-1.50

2.83

0.11

0.11

0.65

0.65

10

-1.00

2.00

0.18

0.18

0.83

0.83

14

-0.50

1.41

0.50

0.50

1.33

1.33

18

0.00

1.00

1.19

1.19

2.53

2.52

25

0.50

0.71

5.06

5.06

7.58

7.58

35

1.00

0.50

11.75

11.75

19.33

19.33

45

1.50

0.35

20.29

20.29

39.62

39.62

60

2.00

0.25

37.76

37.76

77.38

77.38

80

2.50

0.18

18.11

18.11

95.49

95.49

120

3.00

0.13

3.01

3.01

98.50

98.50

170

3.50

0.09

0.51

0.51

99.01

99.01

200

3.75

0.07

0.07

0.07

99.08

99.08

230

4.00

0.06

0.02

0.02

99.10

99.10

Phi 5

Phi 16

Phi 25

Phi 50

Phi 75

Phi 84

Phi 95

2.49

2.18

1.97

1.64

1.14

0.86

0.25

Moment

Mean Phi

Mean mm

Sorting

Skewness

Kurtosis

Statistics

1.51

0.35

0.75

-1.8

11.48

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15



# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-06 COMP

Analysis Date: 07-17-15

Analyzed By: ST

Easting (ft): <b>3,019,434</b>	Northing (ft): <b>849,130</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-58.3 NAVD 88</b>
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USCS: <b>SW</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>0.95</b>	Sieve Loss (%): <b>0.12</b>	Fines (%): <b>#200 - 1.19</b> <b>#230 - 1.07</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.45	0.45	0.45	0.45
3.5	-2.50	5.66	0.21	0.21	0.66	0.66
4	-2.25	4.76	0.12	0.12	0.78	0.78
5	-2.00	4.00	0.06	0.06	0.84	0.84
7	-1.50	2.83	0.40	0.40	1.24	1.24
10	-1.00	2.00	0.31	0.31	1.55	1.55
14	-0.50	1.41	0.79	0.79	2.34	2.34
18	0.00	1.00	1.39	1.39	3.73	3.73
25	0.50	0.71	2.88	2.88	6.61	6.61
35	1.00	0.50	4.51	4.51	11.12	11.12
45	1.50	0.35	13.31	13.31	24.43	24.43
60	2.00	0.25	31.77	31.77	56.20	56.20
80	2.50	0.18	32.41	32.41	88.61	88.61
120	3.00	0.13	8.17	8.17	96.78	96.78
170	3.50	0.09	1.62	1.62	98.40	98.40
200	3.75	0.07	0.41	0.41	98.81	98.81
230	4.00	0.06	0.12	0.12	98.93	98.93

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.89	2.43	2.29	1.90	1.51	1.18	0.22
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	1.76	0.30	0.86	-2.14	11.32	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-07 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): <b>3,021,099</b>	Northing (ft): <b>850,596</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-61.1 NAVD 88</b>
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USCS: <b>SP</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>0.62</b>	Sieve Loss (%): <b>0.00</b>	Fines (%): <b>#200 - 0.69</b> <b>#230 - 0.62</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.06	0.06	0.06	0.06
7	-1.50	2.83	0.08	0.08	0.14	0.14
10	-1.00	2.00	0.27	0.27	0.41	0.41
14	-0.50	1.41	0.19	0.19	0.60	0.60
18	0.00	1.00	0.35	0.35	0.95	0.95
25	0.50	0.71	0.77	0.77	1.72	1.72
35	1.00	0.50	3.04	3.04	4.76	4.76
45	1.50	0.35	10.30	10.30	15.06	15.06
60	2.00	0.25	35.51	35.51	50.57	50.57
80	2.50	0.18	40.19	40.19	90.76	90.76
120	3.00	0.13	7.05	7.05	97.81	97.81
170	3.50	0.09	1.34	1.34	99.15	99.15
200	3.75	0.07	0.16	0.16	99.31	99.31
230	4.00	0.06	0.07	0.07	99.38	99.38

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.80	2.42	2.30	1.99	1.64	1.51	1.01
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	1.93	0.26	0.57	-1.45	9.7	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-09 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): <b>3,017,324</b>	Northing (ft): <b>844,722</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-57.2 NAVD 88</b>
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USCS: <b>SW</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>0.64</b>	Sieve Loss (%): <b>0.00</b>	Fines (%): <b>#200 - 0.66</b> <b>#230 - 0.62</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.33	0.33	0.33	0.33
3.5	-2.50	5.66	0.72	0.72	1.05	1.05
4	-2.25	4.76	1.31	1.31	2.36	2.36
5	-2.00	4.00	1.13	1.13	3.48	3.49
7	-1.50	2.83	3.76	3.76	7.24	7.25
10	-1.00	2.00	5.69	5.69	12.93	12.94
14	-0.50	1.41	5.69	5.69	18.62	18.63
18	0.00	1.00	5.85	5.85	24.47	24.48
25	0.50	0.71	10.94	10.94	35.41	35.42
35	1.00	0.50	12.95	12.95	48.36	48.37
45	1.50	0.35	21.73	21.73	70.09	70.10
60	2.00	0.25	16.50	16.50	86.58	86.60
80	2.50	0.18	10.21	10.21	96.79	96.81
120	3.00	0.13	2.02	2.02	98.81	98.83
170	3.50	0.09	0.41	0.41	99.22	99.24
200	3.75	0.07	0.10	0.10	99.32	99.34
230	4.00	0.06	0.04	0.04	99.36	99.38

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.41	1.92	1.65	1.04	0.02	-0.73	-1.80
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	0.71	0.61	1.27	-0.75	2.98	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-10 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): 3,021,257	Northing (ft): 852,010	Coordinate System: North Carolina State Plane	Elevation (ft): -60.6 NAVD 88
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USCS: SP	Munsell:	Comments: COMPOSITE
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Dry Weight (g): 100.00	Wash Weight (g): 100.00	Pan Retained (g): 0.67	Sieve Loss (%): 0.03	Fines (%): #200 - 0.81 #230 - 0.70	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.15	0.15	0.15	0.15
5	-2.00	4.00	0.00	0.00	0.15	0.15
7	-1.50	2.83	0.03	0.03	0.18	0.18
10	-1.00	2.00	0.08	0.08	0.26	0.26
14	-0.50	1.41	0.10	0.10	0.36	0.36
18	0.00	1.00	0.25	0.25	0.61	0.61
25	0.50	0.71	0.29	0.29	0.90	0.90
35	1.00	0.50	1.08	1.08	1.98	1.98
45	1.50	0.35	3.24	3.24	5.22	5.22
60	2.00	0.25	29.52	29.52	34.74	34.74
80	2.50	0.18	50.05	50.05	84.79	84.79
120	3.00	0.13	12.33	12.33	97.12	97.12
170	3.50	0.09	1.78	1.78	98.90	98.90
200	3.75	0.07	0.29	0.29	99.19	99.19
230	4.00	0.06	0.11	0.11	99.30	99.30

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.91	2.49	2.40	2.15	1.84	1.68	1.47
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	2.11	0.23	0.5	-1.93	17.16	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-100 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): 3,020,429	Northing (ft): 851,301	Coordinate System: North Carolina State Plane	Elevation (ft): -56.1 NAVD 88
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USCS: SP	Munsell:	Comments: COMPOSITE
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Dry Weight (g): 100.00	Wash Weight (g): 100.00	Pan Retained (g): 0.81	Sieve Loss (%): 0.03	Fines (%): #200 - 0.85 #230 - 0.84	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.72	0.72	0.72	0.72
5/16"	-3.00	8.00	0.00	0.00	0.72	0.72
3.5	-2.50	5.66	0.27	0.27	0.99	0.99
4	-2.25	4.76	0.00	0.00	0.99	0.99
5	-2.00	4.00	0.00	0.00	0.99	0.99
7	-1.50	2.83	0.01	0.01	1.00	1.00
10	-1.00	2.00	0.07	0.07	1.07	1.07
14	-0.50	1.41	0.26	0.26	1.33	1.33
18	0.00	1.00	0.39	0.39	1.72	1.72
25	0.50	0.71	0.89	0.89	2.61	2.61
35	1.00	0.50	2.46	2.46	5.07	5.07
45	1.50	0.35	8.04	8.04	13.11	13.11
60	2.00	0.25	31.63	31.63	44.74	44.74
80	2.50	0.18	44.01	44.01	88.75	88.75
120	3.00	0.13	9.10	9.10	97.85	97.85
170	3.50	0.09	1.19	1.19	99.04	99.04
200	3.75	0.07	0.11	0.11	99.15	99.15
230	4.00	0.06	0.01	0.01	99.16	99.16

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.84	2.45	2.34	2.06	1.69	1.55	0.99

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.94	0.26	0.76	-3.97	28.17

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-11 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): 3,018,262	Northing (ft): 852,082	Coordinate System: North Carolina State Plane	Elevation (ft): -58.8 NAVD 88
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USCS: SP	Munsell:	Comments: COMPOSITE
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Dry Weight (g): 100.00	Wash Weight (g): 100.00	Pan Retained (g): 0.77	Sieve Loss (%): 0.02	Fines (%): #200 - 0.84 #230 - 0.78	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.39	0.39	0.39	0.39
3.5	-2.50	5.66	0.07	0.07	0.46	0.46
4	-2.25	4.76	0.00	0.00	0.46	0.46
5	-2.00	4.00	0.07	0.07	0.53	0.53
7	-1.50	2.83	0.30	0.30	0.83	0.83
10	-1.00	2.00	0.34	0.34	1.17	1.17
14	-0.50	1.41	0.60	0.60	1.77	1.77
18	0.00	1.00	1.44	1.44	3.21	3.21
25	0.50	0.71	2.96	2.96	6.16	6.17
35	1.00	0.50	7.24	7.24	13.41	13.41
45	1.50	0.35	20.04	20.04	33.45	33.45
60	2.00	0.25	34.51	34.51	67.96	67.96
80	2.50	0.18	26.34	26.34	94.30	94.30
120	3.00	0.13	4.12	4.12	98.41	98.42
170	3.50	0.09	0.63	0.63	99.04	99.05
200	3.75	0.07	0.11	0.11	99.15	99.16
230	4.00	0.06	0.06	0.06	99.21	99.22

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.58	2.30	2.13	1.74	1.29	1.06	0.30

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.63	0.32	0.77	-1.98	11.34

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-12 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): 3,018,502	Northing (ft): 853,553	Coordinate System: North Carolina State Plane	Elevation (ft): -55.5 NAVD 88
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USCS: SW	Munsell:	Comments: COMPOSITE
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Dry Weight (g): 100.00	Wash Weight (g): 100.00	Pan Retained (g): 0.81	Sieve Loss (%): 0.06	Fines (%): #200 - 0.93 #230 - 0.85	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.87	0.87	0.87	0.87
5/16"	-3.00	8.00	0.64	0.64	1.51	1.51
3.5	-2.50	5.66	0.97	0.97	2.48	2.48
4	-2.25	4.76	0.28	0.28	2.76	2.76
5	-2.00	4.00	0.29	0.29	3.04	3.05
7	-1.50	2.83	0.64	0.64	3.68	3.69
10	-1.00	2.00	0.79	0.79	4.47	4.48
14	-0.50	1.41	1.02	1.02	5.49	5.50
18	0.00	1.00	1.49	1.49	6.97	6.99
25	0.50	0.71	2.33	2.33	9.30	9.32
35	1.00	0.50	5.94	5.94	15.24	15.26
45	1.50	0.35	12.09	12.09	27.33	27.35
60	2.00	0.25	30.69	30.69	58.02	58.04
80	2.50	0.18	33.17	33.17	91.19	91.21
120	3.00	0.13	6.57	6.57	97.76	97.78
170	3.50	0.09	1.09	1.09	98.85	98.87
200	3.75	0.07	0.20	0.20	99.04	99.07
230	4.00	0.06	0.08	0.08	99.13	99.15

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.79	2.39	2.26	1.87	1.40	1.03	-0.75
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	1.6	0.33	1.14	-2.5	10.57	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

Depths and elevations based on measured values



CB&I  
Coastal Planning & Engineering, Inc.  
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ph (561) 391 8102

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-17 COMP

Analysis Date: 07-17-15

Analyzed By: ST

Easting (ft): 2,983,063	Northing (ft): 903,265	Coordinate System: North Carolina State Plane	Elevation (ft): -61.2 NAVD 88
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USCS: SW	Munsell:	Comments: COMPOSITE
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Dry Weight (g): 100.00	Wash Weight (g): 100.00	Pan Retained (g): 1.01	Sieve Loss (%): 0.06	Fines (%): #200 - 1.16 #230 - 1.07	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.27	0.27	0.27	0.27
4	-2.25	4.76	0.79	0.79	1.06	1.06
5	-2.00	4.00	0.65	0.65	1.71	1.71
7	-1.50	2.83	1.28	1.28	2.99	2.99
10	-1.00	2.00	1.68	1.68	4.67	4.67
14	-0.50	1.41	2.78	2.78	7.45	7.45
18	0.00	1.00	3.47	3.47	10.92	10.92
25	0.50	0.71	4.98	4.98	15.90	15.90
35	1.00	0.50	11.38	11.38	27.28	27.28
45	1.50	0.35	17.57	17.57	44.85	44.85
60	2.00	0.25	27.25	27.25	72.10	72.10
80	2.50	0.18	17.54	17.54	89.64	89.64
120	3.00	0.13	7.92	7.92	97.56	97.56
170	3.50	0.09	1.00	1.00	98.56	98.56
200	3.75	0.07	0.28	0.28	98.84	98.84
230	4.00	0.06	0.09	0.09	98.93	98.93

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.84	2.34	2.08	1.59	0.90	0.50	-0.94

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.35	0.39	1.09	-1.22	4.77

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15



# Granularmetric Report

Depths and elevations based on measured values



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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-24 COMP

Analysis Date: 07-17-15

Analyzed By: ST

Easting (ft): <b>2,982,752</b>	Northing (ft): <b>910,188</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-60.2 NAVD 88</b>
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USCS: <b>SW</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>1.12</b>	Sieve Loss (%): <b>0.00</b>	Fines (%): <b>#200 - 1.32</b> <b>#230 - 1.12</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.12	0.12	0.12	0.12
3.5	-2.50	5.66	0.19	0.19	0.31	0.31
4	-2.25	4.76	0.43	0.43	0.74	0.74
5	-2.00	4.00	0.20	0.20	0.94	0.94
7	-1.50	2.83	0.70	0.70	1.64	1.64
10	-1.00	2.00	0.77	0.77	2.41	2.41
14	-0.50	1.41	1.46	1.46	3.87	3.87
18	0.00	1.00	2.21	2.21	6.08	6.08
25	0.50	0.71	2.67	2.67	8.75	8.75
35	1.00	0.50	4.56	4.56	13.31	13.31
45	1.50	0.35	6.91	6.91	20.22	20.22
60	2.00	0.25	17.46	17.46	37.68	37.68
80	2.50	0.18	41.94	41.94	79.62	79.62
120	3.00	0.13	16.58	16.58	96.20	96.20
170	3.50	0.09	1.96	1.96	98.16	98.16
200	3.75	0.07	0.52	0.52	98.68	98.68
230	4.00	0.06	0.20	0.20	98.88	98.88

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.96	2.63	2.44	2.15	1.64	1.19	-0.24

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.88	0.27	0.98	-1.96	7.9

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-25 COMP

Analysis Date: 07-17-15

Analyzed By: ST

Easting (ft): <b>2,981,664</b>	Northing (ft): <b>909,180</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-62.5 NAVD 88</b>
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USCS: <b>SW</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>1.01</b>	Sieve Loss (%): <b>0.14</b>	Fines (%): <b>#200 - 1.22</b> <b>#230 - 1.15</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.91	0.91	0.91	0.91
5/16"	-3.00	8.00	2.36	2.36	3.27	3.27
3.5	-2.50	5.66	2.45	2.45	5.72	5.72
4	-2.25	4.76	0.62	0.62	6.34	6.34
5	-2.00	4.00	1.39	1.39	7.73	7.73
7	-1.50	2.83	2.52	2.52	10.25	10.25
10	-1.00	2.00	3.51	3.51	13.76	13.76
14	-0.50	1.41	5.15	5.15	18.91	18.91
18	0.00	1.00	5.46	5.46	24.37	24.37
25	0.50	0.71	7.91	7.91	32.28	32.28
35	1.00	0.50	15.22	15.22	47.50	47.50
45	1.50	0.35	21.76	21.76	69.26	69.26
60	2.00	0.25	17.87	17.87	87.13	87.13
80	2.50	0.18	8.51	8.51	95.64	95.64
120	3.00	0.13	2.54	2.54	98.18	98.18
170	3.50	0.09	0.46	0.46	98.64	98.64
200	3.75	0.07	0.14	0.14	98.78	98.78
230	4.00	0.06	0.07	0.07	98.85	98.85

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.46	1.91	1.66	1.06	0.04	-0.78	-2.65
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	0.65	0.64	1.45	-1.11	3.79	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-26 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft):

2,982,865

Northing (ft):

907,241

Coordinate System:

North Carolina State Plane

Elevation (ft):

-54.0 NAVD 88

USCS:

SW

Munsell:

Comments:

COMPOSITE

Dry Weight (g):

100.00

Wash Weight (g):

100.00

Pan Retained (g):

1.26

Sieve Loss (%):

0.06

Fines (%):

#200 - 1.43  
#230 - 1.32

Organics (%):

Carbonates (%):

Shell Hash (%):

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

0.24

0.24

0.24

0.24

3.5

-2.50

5.66

0.37

0.37

0.61

0.61

4

-2.25

4.76

0.09

0.09

0.70

0.70

5

-2.00

4.00

0.18

0.18

0.88

0.88

7

-1.50

2.83

0.57

0.57

1.45

1.45

10

-1.00

2.00

0.74

0.74

2.19

2.19

14

-0.50

1.41

1.07

1.07

3.26

3.26

18

0.00

1.00

1.33

1.33

4.59

4.59

25

0.50

0.71

1.64

1.64

6.23

6.23

35

1.00

0.50

2.74

2.74

8.97

8.97

45

1.50

0.35

7.03

7.03

16.00

16.00

60

2.00

0.25

18.36

18.36

34.36

34.36

80

2.50

0.18

39.88

39.88

74.24

74.24

120

3.00

0.13

22.46

22.46

96.70

96.70

170

3.50

0.09

1.56

1.56

98.26

98.26

200

3.75

0.07

0.31

0.31

98.57

98.57

230

4.00

0.06

0.11

0.11

98.68

98.68

Phi 5

Phi 16

Phi 25

Phi 50

Phi 75

Phi 84

Phi 95

2.96

2.72

2.52

2.20

1.75

1.50

0.13

Moment

Mean Phi

Mean mm

Sorting

Skewness

Kurtosis

Statistics

1.99

0.25

0.92

-2.42

10.96

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-27 COMP

Analysis Date: 07-17-15

Analyzed By: ST

Easting (ft): <b>2,982,957</b>	Northing (ft): <b>905,241</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-59.9 NAVD 88</b>
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USCS: <b>SW</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>1.05</b>	Sieve Loss (%): <b>0.05</b>	Fines (%): <b>#200 - 1.16</b> <b>#230 - 1.10</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.99	0.99	0.99	0.99
5/16"	-3.00	8.00	1.17	1.17	2.16	2.16
3.5	-2.50	5.66	1.19	1.19	3.35	3.35
4	-2.25	4.76	0.50	0.50	3.85	3.85
5	-2.00	4.00	0.75	0.75	4.60	4.60
7	-1.50	2.83	1.40	1.40	6.00	6.00
10	-1.00	2.00	2.77	2.77	8.77	8.77
14	-0.50	1.41	4.10	4.10	12.87	12.87
18	0.00	1.00	4.84	4.84	17.71	17.71
25	0.50	0.71	5.38	5.38	23.09	23.09
35	1.00	0.50	7.55	7.55	30.64	30.64
45	1.50	0.35	13.02	13.02	43.66	43.66
60	2.00	0.25	22.44	22.44	66.10	66.10
80	2.50	0.18	24.85	24.85	90.95	90.95
120	3.00	0.13	7.02	7.02	97.97	97.97
170	3.50	0.09	0.69	0.69	98.66	98.66
200	3.75	0.07	0.18	0.18	98.84	98.84
230	4.00	0.06	0.06	0.06	98.90	98.90

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.79	2.36	2.18	1.64	0.63	-0.18	-1.86

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.18	0.44	1.41	-1.43	4.78

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-28 COMP

Analysis Date: 07-17-15

Analyzed By: ST

Easting (ft): <b>2,983,008</b>	Northing (ft): <b>904,296</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-60.6 NAVD 88</b>
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USCS: <b>SW</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>1.17</b>	Sieve Loss (%): <b>0.04</b>	Fines (%): <b>#200 - 1.34</b> <b>#230 - 1.21</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.15	0.15	0.15	0.15
4	-2.25	4.76	0.36	0.36	0.51	0.51
5	-2.00	4.00	0.46	0.46	0.97	0.97
7	-1.50	2.83	1.17	1.17	2.14	2.14
10	-1.00	2.00	1.46	1.46	3.60	3.60
14	-0.50	1.41	2.73	2.73	6.33	6.33
18	0.00	1.00	3.76	3.76	10.09	10.09
25	0.50	0.71	4.64	4.64	14.73	14.73
35	1.00	0.50	9.06	9.06	23.79	23.79
45	1.50	0.35	19.21	19.21	43.00	43.00
60	2.00	0.25	25.62	25.62	68.62	68.62
80	2.50	0.18	22.33	22.33	90.95	90.95
120	3.00	0.13	6.74	6.74	97.69	97.69
170	3.50	0.09	0.69	0.69	98.38	98.38
200	3.75	0.07	0.28	0.28	98.66	98.66
230	4.00	0.06	0.13	0.13	98.79	98.79

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.80	2.34	2.14	1.64	1.03	0.57	-0.74
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	1.42	0.37	1.03	-1.23	4.84	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-36 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): <b>3,019,833</b>	Northing (ft): <b>846,885</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-49.3 NAVD 88</b>
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USCS: <b>SP</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>0.79</b>	Sieve Loss (%): <b>0.08</b>	Fines (%): <b>#200 - 0.88</b> <b>#230 - 0.85</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.53	0.53	0.53	0.53
3.5	-2.50	5.66	0.00	0.00	0.53	0.53
4	-2.25	4.76	0.28	0.28	0.81	0.81
5	-2.00	4.00	0.06	0.06	0.87	0.87
7	-1.50	2.83	0.22	0.22	1.09	1.09
10	-1.00	2.00	0.22	0.22	1.31	1.31
14	-0.50	1.41	0.62	0.62	1.93	1.93
18	0.00	1.00	1.65	1.65	3.58	3.58
25	0.50	0.71	3.77	3.77	7.35	7.35
35	1.00	0.50	10.12	10.12	17.47	17.47
45	1.50	0.35	28.03	28.03	45.49	45.50
60	2.00	0.25	36.61	36.61	82.10	82.11
80	2.50	0.18	13.95	13.95	96.05	96.06
120	3.00	0.13	2.51	2.51	98.55	98.57
170	3.50	0.09	0.45	0.45	99.01	99.02
200	3.75	0.07	0.10	0.10	99.11	99.12
230	4.00	0.06	0.03	0.03	99.13	99.15

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.46	2.07	1.90	1.56	1.13	0.93	0.19
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	1.45	0.37	0.77	-2.06	12.33	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-37 COMP

Analysis Date: 10-14-17

Analyzed By: LC

Easting (ft):

3,018,970

Northing (ft):

846,181

Coordinate System:

North Carolina State Plane

Elevation (ft):

-49.2 NAVD 88

USCS:

SP

Munsell:

Comments:

COMPOSITE

Dry Weight (g):

100.00

Wash Weight (g):

100.00

Pan Retained (g):

0.67

Sieve Loss (%):

0.04

Fines (%):

#200 - 0.71  
#230 - 0.69

Organics (%):

Carbonates (%):

Shell Hash (%):

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

0.04

0.04

0.04

0.04

5

-2.00

4.00

0.05

0.05

0.09

0.09

7

-1.50

2.83

0.36

0.36

0.45

0.45

10

-1.00

2.00

0.90

0.90

1.35

1.35

14

-0.50

1.41

2.36

2.36

3.71

3.71

18

0.00

1.00

5.03

5.03

8.74

8.74

25

0.50

0.71

10.55

10.55

19.29

19.29

35

1.00

0.50

19.37

19.37

38.66

38.66

45

1.50

0.35

30.23

30.23

68.88

68.89

60

2.00

0.25

22.15

22.15

91.04

91.04

80

2.50

0.18

6.55

6.55

97.58

97.59

120

3.00

0.13

1.48

1.48

99.06

99.07

170

3.50

0.09

0.18

0.18

99.24

99.25

200

3.75

0.07

0.04

0.04

99.28

99.29

230

4.00

0.06

0.02

0.02

99.29

99.31

Phi 5

Phi 16

Phi 25

Phi 50

Phi 75

Phi 84

Phi 95

2.30

1.84

1.64

1.19

0.65

0.34

-0.37

Moment

Mean Phi

Mean mm

Sorting

Skewness

Kurtosis

Statistics

1.09

0.47

0.78

-0.66

3.97

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-38 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): <b>3,018,158</b>	Northing (ft): <b>845,419</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-51.6 NAVD 88</b>
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USCS: <b>SP</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>0.74</b>	Sieve Loss (%): <b>0.01</b>	Fines (%): <b>#200 - 0.76</b> <b>#230 - 0.75</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.16	0.16	0.16	0.16
4	-2.25	4.76	0.26	0.26	0.42	0.42
5	-2.00	4.00	0.26	0.26	0.68	0.68
7	-1.50	2.83	0.94	0.94	1.62	1.62
10	-1.00	2.00	1.65	1.65	3.27	3.27
14	-0.50	1.41	3.82	3.82	7.09	7.09
18	0.00	1.00	6.84	6.84	13.93	13.93
25	0.50	0.71	13.39	13.39	27.32	27.32
35	1.00	0.50	29.19	29.19	56.51	56.51
45	1.50	0.35	23.85	23.85	80.36	80.36
60	2.00	0.25	12.95	12.95	93.31	93.31
80	2.50	0.18	5.26	5.26	98.57	98.57
120	3.00	0.13	0.57	0.57	99.14	99.14
170	3.50	0.09	0.09	0.09	99.23	99.23
200	3.75	0.07	0.01	0.01	99.24	99.24
230	4.00	0.06	0.01	0.01	99.25	99.25

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.16	1.64	1.39	0.89	0.41	0.08	-0.77

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	0.82	0.57	0.85	-0.76	4.37

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15



# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-39 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): <b>3,021,499</b>	Northing (ft): <b>848,321</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-57.3 NAVD 88</b>
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USCS: <b>SP</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>0.85</b>	Sieve Loss (%): <b>0.02</b>	Fines (%): <b>#200 - 0.92</b> <b>#230 - 0.89</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.05	0.05	0.05	0.05
5/16"	-3.00	8.00	0.11	0.11	0.16	0.16
3.5	-2.50	5.66	0.12	0.12	0.28	0.28
4	-2.25	4.76	0.06	0.06	0.34	0.34
5	-2.00	4.00	0.21	0.21	0.56	0.55
7	-1.50	2.83	0.37	0.37	0.93	0.92
10	-1.00	2.00	0.64	0.64	1.57	1.56
14	-0.50	1.41	1.15	1.15	2.72	2.71
18	0.00	1.00	1.69	1.69	4.41	4.40
25	0.50	0.71	2.60	2.60	7.01	7.00
35	1.00	0.50	5.45	5.45	12.46	12.45
45	1.50	0.35	11.94	11.94	24.41	24.39
60	2.00	0.25	31.93	31.93	56.34	56.32
80	2.50	0.18	35.88	35.88	92.22	92.20
120	3.00	0.13	5.90	5.90	98.11	98.10
170	3.50	0.09	0.86	0.86	98.98	98.96
200	3.75	0.07	0.12	0.12	99.09	99.08
230	4.00	0.06	0.03	0.03	99.13	99.11

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.74	2.39	2.26	1.90	1.51	1.15	0.12

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.73	0.30	0.82	-2.04	9.63

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-40 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): 3,022,311	Northing (ft): 849,078	Coordinate System: North Carolina State Plane	Elevation (ft): -58.4 NAVD 88
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USCS: SP	Munsell:	Comments: COMPOSITE
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Dry Weight (g): 100.00	Wash Weight (g): 100.00	Pan Retained (g): 0.69	Sieve Loss (%): 0.03	Fines (%): #200 - 0.77 #230 - 0.72	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.05	0.05	0.05	0.05
4	-2.25	4.76	0.00	0.00	0.05	0.05
5	-2.00	4.00	0.00	0.00	0.05	0.05
7	-1.50	2.83	0.07	0.07	0.12	0.12
10	-1.00	2.00	0.13	0.13	0.25	0.25
14	-0.50	1.41	0.39	0.39	0.64	0.64
18	0.00	1.00	0.58	0.58	1.22	1.22
25	0.50	0.71	0.95	0.95	2.17	2.17
35	1.00	0.50	2.65	2.65	4.82	4.82
45	1.50	0.35	8.06	8.06	12.88	12.88
60	2.00	0.25	32.05	32.05	44.93	44.93
80	2.50	0.18	44.84	44.84	89.77	89.77
120	3.00	0.13	7.70	7.70	97.47	97.47
170	3.50	0.09	1.62	1.62	99.09	99.09
200	3.75	0.07	0.14	0.14	99.23	99.23
230	4.00	0.06	0.05	0.05	99.28	99.28

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.84	2.44	2.34	2.06	1.69	1.55	1.01

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.97	0.26	0.58	-1.64	10.27

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-41 COMP

Analysis Date: 10-14-14

Analyzed By: LC

Easting (ft): <b>3,020,058</b>	Northing (ft): <b>848,362</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-55.3 NAVD 88</b>
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USCS: <b>SW</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>0.74</b>	Sieve Loss (%): <b>0.09</b>	Fines (%): <b>#200 - 0.87</b> <b>#230 - 0.85</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.09	0.09	0.09	0.09
3.5	-2.50	5.66	0.34	0.34	0.43	0.43
4	-2.25	4.76	0.38	0.38	0.81	0.81
5	-2.00	4.00	0.28	0.28	1.10	1.09
7	-1.50	2.83	0.50	0.50	1.59	1.58
10	-1.00	2.00	1.02	1.02	2.61	2.60
14	-0.50	1.41	1.67	1.67	4.28	4.27
18	0.00	1.00	2.60	2.60	6.89	6.87
25	0.50	0.71	4.21	4.21	11.10	11.08
35	1.00	0.50	9.21	9.21	20.31	20.29
45	1.50	0.35	20.42	20.42	40.73	40.71
60	2.00	0.25	36.69	36.69	77.42	77.40
80	2.50	0.18	18.78	18.78	96.20	96.18
120	3.00	0.13	2.30	2.30	98.50	98.48
170	3.50	0.09	0.58	0.58	99.08	99.06
200	3.75	0.07	0.07	0.07	99.15	99.13
230	4.00	0.06	0.02	0.02	99.17	99.15

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.47	2.18	1.97	1.63	1.12	0.77	-0.36
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	1.43	0.37	0.89	-1.75	7.59	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-42 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): <b>3,020,879</b>	Northing (ft): <b>849,125</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-55.4 NAVD 88</b>
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USCS: <b>SW</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>0.80</b>	Sieve Loss (%): <b>0.17</b>	Fines (%): <b>#200 - 1.02</b> <b>#230 - 0.97</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.92	0.92	0.92	0.92
3.5	-2.50	5.66	0.23	0.23	1.15	1.15
4	-2.25	4.76	0.05	0.05	1.19	1.20
5	-2.00	4.00	0.20	0.20	1.39	1.40
7	-1.50	2.83	0.37	0.37	1.76	1.77
10	-1.00	2.00	0.53	0.53	2.29	2.30
14	-0.50	1.41	1.25	1.25	3.55	3.55
18	0.00	1.00	2.22	2.22	5.77	5.77
25	0.50	0.71	4.50	4.50	10.27	10.27
35	1.00	0.50	9.27	9.27	19.55	19.54
45	1.50	0.35	21.02	21.02	40.57	40.56
60	2.00	0.25	36.35	36.35	76.92	76.91
80	2.50	0.18	17.30	17.30	94.21	94.21
120	3.00	0.13	3.91	3.91	98.12	98.12
170	3.50	0.09	0.72	0.72	98.84	98.84
200	3.75	0.07	0.14	0.14	98.98	98.98
230	4.00	0.06	0.05	0.05	99.03	99.03

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.60	2.20	1.97	1.63	1.13	0.81	-0.17
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	1.45	0.37	0.92	-2.04	10.16	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-43 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): <b>3,021,717</b>	Northing (ft): <b>849,840</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-52.9 NAVD 88</b>
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USCS: <b>SP</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>0.77</b>	Sieve Loss (%): <b>0.15</b>	Fines (%): <b>#200 - 0.98</b> <b>#230 - 0.92</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.04	0.04	0.04	0.04
4	-2.25	4.76	0.00	0.00	0.04	0.04
5	-2.00	4.00	0.04	0.04	0.08	0.08
7	-1.50	2.83	0.14	0.14	0.22	0.22
10	-1.00	2.00	0.09	0.09	0.31	0.31
14	-0.50	1.41	0.31	0.31	0.62	0.62
18	0.00	1.00	0.52	0.52	1.15	1.14
25	0.50	0.71	1.33	1.33	2.47	2.47
35	1.00	0.50	3.94	3.94	6.41	6.40
45	1.50	0.35	12.90	12.90	19.31	19.30
60	2.00	0.25	39.63	39.63	58.94	58.93
80	2.50	0.18	33.08	33.08	92.01	92.01
120	3.00	0.13	6.10	6.10	98.11	98.11
170	3.50	0.09	0.79	0.79	98.90	98.90
200	3.75	0.07	0.13	0.13	99.03	99.02
230	4.00	0.06	0.06	0.06	99.09	99.08

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.75	2.38	2.24	1.89	1.57	1.37	0.82
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	1.84	0.28	0.59	-1.43	9.3	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-45 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): <b>3,019,211</b>	Northing (ft): <b>847,744</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-51.4 NAVD 88</b>
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USCS: <b>SP</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>0.92</b>	Sieve Loss (%): <b>0.23</b>	Fines (%): <b>#200 - 1.16</b> <b>#230 - 1.15</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.16	0.16	0.16	0.16
4	-2.25	4.76	0.01	0.01	0.17	0.17
5	-2.00	4.00	0.02	0.02	0.19	0.19
7	-1.50	2.83	0.16	0.16	0.36	0.35
10	-1.00	2.00	0.36	0.36	0.72	0.71
14	-0.50	1.41	0.88	0.88	1.60	1.59
18	0.00	1.00	2.15	2.15	3.75	3.74
25	0.50	0.71	4.61	4.61	8.36	8.35
35	1.00	0.50	12.93	12.93	21.29	21.28
45	1.50	0.35	31.61	31.61	52.90	52.89
60	2.00	0.25	34.76	34.76	87.66	87.65
80	2.50	0.18	9.60	9.60	97.26	97.25
120	3.00	0.13	1.42	1.42	98.68	98.67
170	3.50	0.09	0.15	0.15	98.83	98.82
200	3.75	0.07	0.02	0.02	98.85	98.84
230	4.00	0.06	0.01	0.01	98.85	98.85

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.38	1.95	1.82	1.45	1.06	0.80	0.14

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	1.36	0.39	0.67	-1.27	7.18

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

Depths and elevations based on measured values



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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-46 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): <b>3,018,387</b>	Northing (ft): <b>846,920</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-54.1 NAVD 88</b>
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USCS: <b>SW</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>0.56</b>	Sieve Loss (%): <b>0.10</b>	Fines (%): <b>#200 - 0.68</b> <b>#230 - 0.65</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.07	0.07	0.07	0.07
5/16"	-3.00	8.00	0.00	0.00	0.07	0.07
3.5	-2.50	5.66	0.16	0.16	0.23	0.23
4	-2.25	4.76	0.07	0.07	0.30	0.30
5	-2.00	4.00	0.17	0.17	0.47	0.47
7	-1.50	2.83	0.47	0.47	0.94	0.94
10	-1.00	2.00	0.95	0.95	1.89	1.89
14	-0.50	1.41	2.48	2.48	4.37	4.37
18	0.00	1.00	3.99	3.99	8.35	8.36
25	0.50	0.71	7.01	7.01	15.36	15.37
35	1.00	0.50	16.50	16.50	31.86	31.87
45	1.50	0.35	25.10	25.10	56.96	56.97
60	2.00	0.25	25.29	25.29	82.24	82.26
80	2.50	0.18	14.14	14.14	96.39	96.40
120	3.00	0.13	2.42	2.42	98.81	98.82
170	3.50	0.09	0.42	0.42	99.23	99.24
200	3.75	0.07	0.08	0.08	99.31	99.32
230	4.00	0.06	0.03	0.03	99.34	99.35

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.45	2.06	1.86	1.36	0.79	0.52	-0.42
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	1.25	0.42	0.87	-1.03	5.21	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-47 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): <b>3,017,553</b>	Northing (ft): <b>846,211</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-60.7 NAVD 88</b>
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USCS: <b>SW</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>0.79</b>	Sieve Loss (%): <b>0.04</b>	Fines (%): <b>#200 - 1.01</b> <b>#230 - 0.83</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.04	0.04	0.04	0.04
5	-2.00	4.00	0.10	0.10	0.14	0.14
7	-1.50	2.83	0.14	0.14	0.28	0.28
10	-1.00	2.00	0.56	0.56	0.84	0.84
14	-0.50	1.41	1.57	1.57	2.41	2.41
18	0.00	1.00	3.61	3.61	6.02	6.02
25	0.50	0.71	7.39	7.39	13.41	13.41
35	1.00	0.50	12.87	12.87	26.28	26.28
45	1.50	0.35	19.38	19.38	45.66	45.66
60	2.00	0.25	24.60	24.60	70.26	70.26
80	2.50	0.18	22.51	22.51	92.77	92.77
120	3.00	0.13	4.62	4.62	97.39	97.39
170	3.50	0.09	1.26	1.26	98.65	98.65
200	3.75	0.07	0.34	0.34	98.99	98.99
230	4.00	0.06	0.18	0.18	99.17	99.17

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.74	2.31	2.11	1.59	0.95	0.60	-0.14
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	1.46	0.36	0.87	-0.63	3.7	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15



# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-49 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): <b>3,018,562</b>	Northing (ft): <b>848,419</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-56.9 NAVD 88</b>
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USCS: <b>SP</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>0.67</b>	Sieve Loss (%): <b>0.15</b>	Fines (%): <b>#200 - 0.81</b> <b>#230 - 0.79</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.05	0.05	0.05	0.05
4	-2.25	4.76	0.04	0.04	0.08	0.09
5	-2.00	4.00	0.04	0.04	0.12	0.13
7	-1.50	2.83	0.14	0.14	0.26	0.27
10	-1.00	2.00	0.25	0.25	0.51	0.52
14	-0.50	1.41	1.12	1.12	1.63	1.64
18	0.00	1.00	2.26	2.26	3.88	3.90
25	0.50	0.71	5.43	5.43	9.32	9.33
35	1.00	0.50	15.91	15.91	25.22	25.24
45	1.50	0.35	31.84	31.84	57.07	57.08
60	2.00	0.25	28.92	28.92	85.99	86.00
80	2.50	0.18	11.24	11.24	97.22	97.24
120	3.00	0.13	1.56	1.56	98.78	98.80
170	3.50	0.09	0.32	0.32	99.10	99.12
200	3.75	0.07	0.07	0.07	99.17	99.19
230	4.00	0.06	0.02	0.02	99.18	99.21

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.40	1.97	1.81	1.39	0.99	0.71	0.10

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.33	0.40	0.68	-0.81	5.3

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-50 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): 3,020,297	Northing (ft): 849,858	Coordinate System: North Carolina State Plane	Elevation (ft): -57.9 NAVD 88
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USCS: SP	Munsell:	Comments: COMPOSITE
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Dry Weight (g): 100.00	Wash Weight (g): 100.00	Pan Retained (g): 0.92	Sieve Loss (%): 0.22	Fines (%): #200 - 1.33 #230 - 1.15	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.19	0.19	0.19	0.19
4	-2.25	4.76	0.09	0.09	0.28	0.28
5	-2.00	4.00	0.09	0.09	0.37	0.37
7	-1.50	2.83	0.20	0.20	0.57	0.57
10	-1.00	2.00	0.52	0.52	1.09	1.09
14	-0.50	1.41	0.90	0.90	1.99	1.99
18	0.00	1.00	1.78	1.78	3.77	3.77
25	0.50	0.71	3.91	3.91	7.69	7.68
35	1.00	0.50	9.59	9.59	17.28	17.27
45	1.50	0.35	21.40	21.40	38.68	38.67
60	2.00	0.25	34.64	34.64	73.31	73.31
80	2.50	0.18	21.63	21.63	94.95	94.94
120	3.00	0.13	2.86	2.86	97.81	97.80
170	3.50	0.09	0.53	0.53	98.34	98.33
200	3.75	0.07	0.34	0.34	98.68	98.67
230	4.00	0.06	0.18	0.18	98.86	98.85

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.51	2.25	2.04	1.66	1.18	0.93	0.16

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.54	0.34	0.76	-1.31	7.24

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-51 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): <b>3,020,476</b>	Northing (ft): <b>846,130</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-52.8 NAVD 88</b>
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USCS: <b>SP</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>0.56</b>	Sieve Loss (%): <b>0.05</b>	Fines (%): <b>#200 - 0.62</b> <b>#230 - 0.61</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.09	0.09	0.09	0.09
4	-2.25	4.76	0.12	0.12	0.21	0.21
5	-2.00	4.00	0.05	0.05	0.26	0.26
7	-1.50	2.83	0.39	0.39	0.65	0.65
10	-1.00	2.00	0.55	0.55	1.20	1.20
14	-0.50	1.41	1.31	1.31	2.51	2.51
18	0.00	1.00	2.73	2.73	5.24	5.24
25	0.50	0.71	4.54	4.54	9.78	9.78
35	1.00	0.50	10.53	10.53	20.31	20.31
45	1.50	0.35	25.67	25.67	45.97	45.98
60	2.00	0.25	37.81	37.81	83.78	83.79
80	2.50	0.18	13.61	13.61	97.39	97.40
120	3.00	0.13	1.70	1.70	99.09	99.10
170	3.50	0.09	0.24	0.24	99.33	99.34
200	3.75	0.07	0.04	0.04	99.37	99.38
230	4.00	0.06	0.01	0.01	99.39	99.39

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.41	2.01	1.88	1.55	1.09	0.80	-0.04

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.41	0.38	0.74	-1.41	6.69

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-52 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft):

3,019,648

Northing (ft):

845,391

Coordinate System:

North Carolina State Plane

Elevation (ft):

-51.1 NAVD 88

USCS:

SP

Munsell:

Comments:

COMPOSITE

Dry Weight (g):

100.00

Wash Weight (g):

100.00

Pan Retained (g):

0.66

Sieve Loss (%):

0.09

Fines (%):

#200 - 0.79  
#230 - 0.73

Organics (%):

Carbonates (%):

Shell Hash (%):

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

0.07

0.07

0.07

0.07

4

-2.25

4.76

0.00

0.00

0.07

0.07

5

-2.00

4.00

0.24

0.24

0.31

0.31

7

-1.50

2.83

0.32

0.32

0.62

0.63

10

-1.00

2.00

0.48

0.48

1.10

1.11

14

-0.50

1.41

1.35

1.35

2.45

2.46

18

0.00

1.00

2.69

2.69

5.14

5.15

25

0.50

0.71

4.46

4.46

9.60

9.61

35

1.00

0.50

12.59

12.59

22.19

22.20

45

1.50

0.35

29.50

29.50

51.69

51.70

60

2.00

0.25

32.29

32.29

83.98

83.99

80

2.50

0.18

12.61

12.61

96.59

96.60

120

3.00

0.13

2.07

2.07

98.66

98.67

170

3.50

0.09

0.43

0.43

99.09

99.10

200

3.75

0.07

0.11

0.11

99.19

99.21

230

4.00

0.06

0.06

0.06

99.25

99.27

Phi 5

Phi 16

Phi 25

Phi 50

Phi 75

Phi 84

Phi 95

2.44

2.00

1.86

1.47

1.05

0.75

-0.03

Moment

Mean Phi

Mean mm

Sorting

Skewness

Kurtosis

Statistics

1.38

0.38

0.75

-1.14

6.17

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-53 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): 3,018,800	Northing (ft): 844,670	Coordinate System: North Carolina State Plane	Elevation (ft): -53.7 NAVD 88
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USCS: SW	Munsell:	Comments: COMPOSITE
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Dry Weight (g): 100.00	Wash Weight (g): 100.00	Pan Retained (g): 0.70	Sieve Loss (%): 0.12	Fines (%): #200 - 0.86 #230 - 0.83	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.98	0.98	0.98	0.98
3.5	-2.50	5.66	0.23	0.23	1.22	1.21
4	-2.25	4.76	0.12	0.12	1.34	1.33
5	-2.00	4.00	0.08	0.08	1.41	1.41
7	-1.50	2.83	0.65	0.65	2.07	2.06
10	-1.00	2.00	1.53	1.53	3.60	3.59
14	-0.50	1.41	3.56	3.56	7.15	7.15
18	0.00	1.00	5.21	5.21	12.36	12.36
25	0.50	0.71	8.94	8.94	21.30	21.30
35	1.00	0.50	20.69	20.69	41.99	41.99
45	1.50	0.35	27.62	27.62	69.62	69.61
60	2.00	0.25	18.96	18.96	88.58	88.57
80	2.50	0.18	8.72	8.72	97.29	97.29
120	3.00	0.13	1.50	1.50	98.79	98.79
170	3.50	0.09	0.28	0.28	99.08	99.07
200	3.75	0.07	0.07	0.07	99.14	99.14
230	4.00	0.06	0.03	0.03	99.18	99.17

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.37	1.88	1.64	1.15	0.59	0.20	-0.80

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1	0.50	0.97	-1.32	6.4

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-54 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): 3,017,962	Northing (ft): 843,967	Coordinate System: North Carolina State Plane	Elevation (ft): -58.4 NAVD 88
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USCS: SW	Munsell:	Comments: COMPOSITE
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Dry Weight (g): 100.00	Wash Weight (g): 100.00	Pan Retained (g): 0.67	Sieve Loss (%): 0.00	Fines (%): #200 - 0.75 #230 - 0.70	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.32	0.32	0.32	0.31
3.5	-2.50	5.66	0.97	0.97	1.29	1.28
4	-2.25	4.76	0.43	0.43	1.72	1.71
5	-2.00	4.00	0.50	0.50	2.22	2.21
7	-1.50	2.83	1.84	1.84	4.05	4.04
10	-1.00	2.00	3.84	3.84	7.89	7.87
14	-0.50	1.41	5.00	5.00	12.89	12.87
18	0.00	1.00	5.74	5.74	18.63	18.61
25	0.50	0.71	9.05	9.05	27.68	27.66
35	1.00	0.50	15.42	15.42	43.09	43.07
45	1.50	0.35	15.85	15.85	58.94	58.91
60	2.00	0.25	19.76	19.76	78.70	78.67
80	2.50	0.18	17.00	17.00	95.70	95.67
120	3.00	0.13	2.83	2.83	98.52	98.49
170	3.50	0.09	0.62	0.62	99.14	99.11
200	3.75	0.07	0.14	0.14	99.28	99.25
230	4.00	0.06	0.05	0.06	99.33	99.30

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.48	2.16	1.91	1.22	0.35	-0.23	-1.37

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	0.99	0.50	1.21	-0.9	3.6

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-55 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): <b>3,021,318</b>	Northing (ft): <b>846,864</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-57.2 NAVD 88</b>
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USCS: <b>SP</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>0.61</b>	Sieve Loss (%): <b>0.18</b>	Fines (%): <b>#200 - 0.82</b> <b>#230 - 0.79</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.18	0.18	0.18	0.18
3.5	-2.50	5.66	0.00	0.00	0.18	0.18
4	-2.25	4.76	0.04	0.04	0.22	0.22
5	-2.00	4.00	0.05	0.05	0.27	0.27
7	-1.50	2.83	0.16	0.16	0.43	0.43
10	-1.00	2.00	0.43	0.43	0.86	0.86
14	-0.50	1.41	0.82	0.82	1.68	1.68
18	0.00	1.00	1.68	1.68	3.36	3.36
25	0.50	0.71	3.57	3.57	6.93	6.93
35	1.00	0.50	8.45	8.45	15.38	15.38
45	1.50	0.35	19.63	19.63	35.01	35.01
60	2.00	0.25	36.48	36.48	71.49	71.49
80	2.50	0.18	23.35	23.35	94.84	94.84
120	3.00	0.13	3.56	3.56	98.40	98.40
170	3.50	0.09	0.70	0.70	99.10	99.10
200	3.75	0.07	0.08	0.08	99.18	99.18
230	4.00	0.06	0.03	0.03	99.21	99.21

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.52	2.27	2.08	1.71	1.25	1.02	0.23
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	1.59	0.33	0.74	-1.52	8.36	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-56 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): <b>3,022,142</b>	Northing (ft): <b>847,573</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-59.6 NAVD 88</b>
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USCS: <b>SP</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>1.01</b>	Sieve Loss (%): <b>0.04</b>	Fines (%): <b>#200 - 1.24</b> <b>#230 - 1.05</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.00	0.00	0.00	0.00
10	-1.00	2.00	0.02	0.02	0.02	0.02
14	-0.50	1.41	0.00	0.00	0.02	0.02
18	0.00	1.00	0.01	0.01	0.03	0.03
25	0.50	0.71	0.03	0.03	0.06	0.06
35	1.00	0.50	0.13	0.13	0.19	0.19
45	1.50	0.35	1.18	1.18	1.37	1.37
60	2.00	0.25	14.26	14.26	15.63	15.63
80	2.50	0.18	55.95	55.95	71.58	71.58
120	3.00	0.13	23.87	23.87	95.45	95.45
170	3.50	0.09	2.71	2.71	98.16	98.16
200	3.75	0.07	0.60	0.60	98.76	98.76
230	4.00	0.06	0.19	0.19	98.95	98.95

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.99	2.76	2.57	2.31	2.08	2.00	1.63
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	2.32	0.20	0.39	0.01	5.85	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15



# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-57 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): <b>3,020,261</b>	Northing (ft): <b>844,642</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-54.3 NAVD 88</b>
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USCS: <b>SP</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>0.74</b>	Sieve Loss (%): <b>0.01</b>	Fines (%): <b>#200 - 0.84</b> <b>#230 - 0.75</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.02	0.02	0.02	0.02
4	-2.25	4.76	0.13	0.13	0.16	0.15
5	-2.00	4.00	0.05	0.05	0.21	0.20
7	-1.50	2.83	0.11	0.11	0.31	0.31
10	-1.00	2.00	0.32	0.32	0.63	0.63
14	-0.50	1.41	0.51	0.51	1.14	1.14
18	0.00	1.00	1.29	1.29	2.43	2.43
25	0.50	0.71	3.33	3.33	5.76	5.76
35	1.00	0.50	9.03	9.03	14.79	14.79
45	1.50	0.35	21.21	21.21	36.00	36.00
60	2.00	0.25	36.63	36.63	72.63	72.63
80	2.50	0.18	21.61	21.61	94.24	94.24
120	3.00	0.13	4.04	4.04	98.28	98.28
170	3.50	0.09	0.75	0.75	99.03	99.03
200	3.75	0.07	0.13	0.13	99.16	99.16
230	4.00	0.06	0.09	0.09	99.25	99.25

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.59	2.26	2.05	1.69	1.24	1.03	0.39
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	1.61	0.33	0.69	-1.12	6.72	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-58 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): 3,018,641	Northing (ft): 843,165	Coordinate System: North Carolina State Plane	Elevation (ft): -57.8 NAVD 88
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USCS: SW	Munsell:	Comments: COMPOSITE
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Dry Weight (g): 100.00	Wash Weight (g): 100.00	Pan Retained (g): 1.07	Sieve Loss (%): 0.08	Fines (%): #200 - 1.42 #230 - 1.16	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.11	0.11	0.11	0.11
4	-2.25	4.76	0.04	0.04	0.15	0.15
5	-2.00	4.00	0.02	0.02	0.18	0.17
7	-1.50	2.83	0.28	0.28	0.45	0.45
10	-1.00	2.00	0.52	0.52	0.97	0.97
14	-0.50	1.41	1.42	1.42	2.39	2.39
18	0.00	1.00	2.67	2.67	5.06	5.06
25	0.50	0.71	4.45	4.45	9.51	9.51
35	1.00	0.50	8.98	8.98	18.49	18.49
45	1.50	0.35	13.24	13.24	31.74	31.73
60	2.00	0.25	23.03	23.03	54.77	54.76
80	2.50	0.18	31.18	31.18	85.94	85.94
120	3.00	0.13	9.76	9.76	95.70	95.69
170	3.50	0.09	2.31	2.31	98.01	98.00
200	3.75	0.07	0.58	0.58	98.59	98.58
230	4.00	0.06	0.26	0.26	98.85	98.84

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.96	2.47	2.32	1.90	1.25	0.86	-0.01

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.71	0.31	0.89	-1.02	4.75

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-59 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): <b>3,020,894</b>	Northing (ft): <b>843,881</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-60.7 NAVD 88</b>
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USCS: <b>SP</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>0.78</b>	Sieve Loss (%): <b>0.07</b>	Fines (%): <b>#200 - 0.90</b> <b>#230 - 0.85</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.06	0.06	0.06	0.06
4	-2.25	4.76	0.00	0.00	0.06	0.06
5	-2.00	4.00	0.05	0.05	0.11	0.11
7	-1.50	2.83	0.19	0.19	0.30	0.30
10	-1.00	2.00	0.35	0.35	0.65	0.65
14	-0.50	1.41	0.09	0.09	0.74	0.74
18	0.00	1.00	0.90	0.90	1.64	1.64
25	0.50	0.71	1.92	1.92	3.56	3.56
35	1.00	0.50	4.93	4.93	8.49	8.49
45	1.50	0.35	13.63	13.63	22.12	22.12
60	2.00	0.25	35.87	35.87	57.99	57.99
80	2.50	0.18	34.33	34.33	92.32	92.32
120	3.00	0.13	5.79	5.79	98.11	98.11
170	3.50	0.09	0.89	0.89	99.00	99.00
200	3.75	0.07	0.10	0.10	99.10	99.10
230	4.00	0.06	0.05	0.05	99.15	99.15

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.73	2.38	2.25	1.89	1.54	1.28	0.65
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	1.81	0.29	0.64	-1.55	8.87	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-60 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft):

3,020,065

Northing (ft):

843,184

Coordinate System:

North Carolina State Plane

Elevation (ft):

-57.7 NAVD 88

USCS:

SP

Munsell:

Comments:

COMPOSITE

Dry Weight (g):

100.00

Wash Weight (g):

100.00

Pan Retained (g):

0.78

Sieve Loss (%):

0.08

Fines (%):

#200 - 0.95  
#230 - 0.87

Organics (%):

Carbonates (%):

Shell Hash (%):

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

0.01

0.01

0.01

0.01

5

-2.00

4.00

0.00

0.00

0.01

0.01

7

-1.50

2.83

0.05

0.05

0.06

0.06

10

-1.00

2.00

0.01

0.01

0.07

0.07

14

-0.50

1.41

0.15

0.15

0.23

0.22

18

0.00

1.00

1.49

1.49

1.71

1.71

25

0.50

0.71

2.42

2.42

4.13

4.13

35

1.00

0.50

4.93

4.93

9.06

9.06

45

1.50

0.35

19.06

19.06

28.12

28.12

60

2.00

0.25

31.61

31.61

59.73

59.73

80

2.50

0.18

29.99

29.99

89.72

89.72

120

3.00

0.13

7.90

7.90

97.62

97.62

170

3.50

0.09

1.21

1.21

98.83

98.83

200

3.75

0.07

0.22

0.22

99.06

99.05

230

4.00

0.06

0.08

0.08

99.14

99.13

Phi 5

Phi 16

Phi 25

Phi 50

Phi 75

Phi 84

Phi 95

2.83

2.40

2.25

1.85

1.42

1.18

0.59

Moment

Mean Phi

Mean mm

Sorting

Skewness

Kurtosis

Statistics

1.79

0.29

0.65

-0.71

4.62

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-61 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): <b>3,019,233</b>	Northing (ft): <b>842,451</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-56.7 NAVD 88</b>
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USCS: <b>SP</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>0.92</b>	Sieve Loss (%): <b>0.05</b>	Fines (%): <b>#200 - 1.04</b> <b>#230 - 0.97</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.16	0.16	0.16	0.16
4	-2.25	4.76	0.06	0.06	0.22	0.22
5	-2.00	4.00	0.10	0.10	0.32	0.32
7	-1.50	2.83	0.24	0.24	0.56	0.56
10	-1.00	2.00	0.76	0.76	1.31	1.32
14	-0.50	1.41	1.93	1.93	3.25	3.25
18	0.00	1.00	3.85	3.85	7.10	7.10
25	0.50	0.71	7.47	7.47	14.57	14.57
35	1.00	0.50	16.48	16.48	31.05	31.05
45	1.50	0.35	22.40	22.40	53.45	53.45
60	2.00	0.25	26.27	26.27	79.72	79.72
80	2.50	0.18	15.26	15.26	94.98	94.98
120	3.00	0.13	3.10	3.10	98.08	98.08
170	3.50	0.09	0.69	0.69	98.78	98.77
200	3.75	0.07	0.19	0.19	98.96	98.96
230	4.00	0.06	0.07	0.07	99.03	99.03

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.50	2.14	1.91	1.42	0.82	0.54	-0.27
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	1.31	0.40	0.85	-0.78	4.47	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-62 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): <b>3,018,404</b>	Northing (ft): <b>841,730</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-59.9 NAVD 88</b>
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USCS: <b>SW</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>0.67</b>	Sieve Loss (%): <b>0.02</b>	Fines (%): <b>#200 - 0.75</b> <b>#230 - 0.69</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.56	0.56	0.56	0.56
3.5	-2.50	5.66	0.44	0.44	1.00	1.00
4	-2.25	4.76	0.00	0.00	1.00	1.00
5	-2.00	4.00	0.44	0.44	1.44	1.44
7	-1.50	2.83	0.64	0.64	2.09	2.08
10	-1.00	2.00	2.04	2.04	4.13	4.12
14	-0.50	1.41	4.02	4.02	8.15	8.14
18	0.00	1.00	6.43	6.43	14.58	14.57
25	0.50	0.71	11.70	11.70	26.28	26.27
35	1.00	0.50	19.31	19.31	45.59	45.58
45	1.50	0.35	17.39	17.39	62.97	62.97
60	2.00	0.25	18.60	18.60	81.57	81.57
80	2.50	0.18	14.16	14.16	95.73	95.73
120	3.00	0.13	2.66	2.66	98.39	98.39
170	3.50	0.09	0.69	0.69	99.08	99.08
200	3.75	0.07	0.17	0.17	99.25	99.25
230	4.00	0.06	0.06	0.06	99.31	99.31

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.47	2.09	1.82	1.13	0.45	0.06	-0.89
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	1.02	0.49	1.07	-0.84	4.38	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-63 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): 3,020,708	Northing (ft): 842,435	Coordinate System: North Carolina State Plane	Elevation (ft): -55.6 NAVD 88
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USCS: SP	Munsell:	Comments: COMPOSITE
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Dry Weight (g): 100.00	Wash Weight (g): 100.00	Pan Retained (g): 0.72	Sieve Loss (%): 0.07	Fines (%): #200 - 0.80 #230 - 0.79	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.04	0.04	0.04	0.04
4	-2.25	4.76	0.00	0.00	0.04	0.04
5	-2.00	4.00	0.14	0.14	0.18	0.18
7	-1.50	2.83	0.13	0.13	0.31	0.31
10	-1.00	2.00	0.23	0.23	0.54	0.54
14	-0.50	1.41	0.73	0.73	1.27	1.27
18	0.00	1.00	1.27	1.27	2.54	2.54
25	0.50	0.71	2.26	2.26	4.80	4.80
35	1.00	0.50	5.86	5.86	10.66	10.66
45	1.50	0.35	16.93	16.93	27.59	27.59
60	2.00	0.25	33.37	33.37	60.96	60.96
80	2.50	0.18	31.21	31.21	92.17	92.17
120	3.00	0.13	5.93	5.93	98.10	98.10
170	3.50	0.09	0.98	0.98	99.08	99.08
200	3.75	0.07	0.12	0.12	99.20	99.20
230	4.00	0.06	0.01	0.01	99.21	99.21

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.74	2.37	2.22	1.84	1.42	1.16	0.52

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.74	0.30	0.69	-1.38	7.23

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-64 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): <b>3,019,043</b>	Northing (ft): <b>840,963</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-55.4 NAVD 88</b>
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USCS: <b>SW</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>0.66</b>	Sieve Loss (%): <b>0.08</b>	Fines (%): <b>#200 - 0.82</b> <b>#230 - 0.76</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.13	0.13	0.13	0.13
3.5	-2.50	5.66	0.30	0.30	0.43	0.43
4	-2.25	4.76	0.04	0.04	0.47	0.47
5	-2.00	4.00	0.19	0.19	0.67	0.66
7	-1.50	2.83	0.71	0.71	1.37	1.37
10	-1.00	2.00	2.07	2.07	3.45	3.44
14	-0.50	1.41	4.08	4.08	7.53	7.52
18	0.00	1.00	7.21	7.21	14.74	14.73
25	0.50	0.71	13.46	13.46	28.20	28.19
35	1.00	0.50	24.31	24.31	52.51	52.50
45	1.50	0.35	23.19	23.19	75.70	75.69
60	2.00	0.25	14.79	14.79	90.49	90.48
80	2.50	0.18	6.98	6.98	97.48	97.46
120	3.00	0.13	1.41	1.41	98.88	98.87
170	3.50	0.09	0.28	0.28	99.17	99.15
200	3.75	0.07	0.03	0.03	99.20	99.18
230	4.00	0.06	0.06	0.06	99.26	99.24

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.32	1.78	1.49	0.95	0.38	0.05	-0.81
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	0.88	0.54	0.92	-0.65	4.22	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15



# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-65 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): <b>3,018,886</b>	Northing (ft): <b>839,507</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-61.8 NAVD 88</b>
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USCS: <b>SW</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>0.84</b>	Sieve Loss (%): <b>0.10</b>	Fines (%): <b>#200 - 0.99</b> <b>#230 - 0.94</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.96	0.96	0.96	0.96
5/16"	-3.00	8.00	0.53	0.53	1.49	1.49
3.5	-2.50	5.66	0.46	0.46	1.94	1.95
4	-2.25	4.76	0.28	0.28	2.22	2.23
5	-2.00	4.00	0.45	0.45	2.67	2.68
7	-1.50	2.83	1.47	1.47	4.14	4.15
10	-1.00	2.00	2.74	2.74	6.88	6.89
14	-0.50	1.41	3.54	3.54	10.42	10.43
18	0.00	1.00	5.48	5.48	15.90	15.91
25	0.50	0.71	9.73	9.73	25.63	25.64
35	1.00	0.50	14.13	14.13	39.76	39.77
45	1.50	0.35	17.05	17.05	56.81	56.82
60	2.00	0.25	21.82	21.82	78.63	78.64
80	2.50	0.18	16.40	16.40	95.03	95.04
120	3.00	0.13	3.09	3.09	98.12	98.13
170	3.50	0.09	0.69	0.69	98.82	98.82
200	3.75	0.07	0.19	0.19	99.01	99.01
230	4.00	0.06	0.05	0.05	99.06	99.06

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.50	2.16	1.92	1.30	0.47	0.00	-1.34
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	1.04	0.49	1.23	-1.28	5.21	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-66 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft):

3,019,704

Northing (ft):

840,227

Coordinate System:

North Carolina State Plane

Elevation (ft):

-56.6 NAVD 88

USCS:

SW

Munsell:

Comments:

COMPOSITE

Dry Weight (g):

100.00

Wash Weight (g):

100.00

Pan Retained (g):

0.53

Sieve Loss (%):

0.01

Fines (%):

#200 - 0.65  
#230 - 0.54

Organics (%):

Carbonates (%):

Shell Hash (%):

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

0.21

0.21

0.21

0.21

3.5

-2.50

5.66

0.17

0.17

0.38

0.38

4

-2.25

4.76

0.05

0.05

0.43

0.43

5

-2.00

4.00

0.14

0.14

0.57

0.57

7

-1.50

2.83

0.37

0.37

0.94

0.94

10

-1.00

2.00

0.83

0.83

1.77

1.77

14

-0.50

1.41

1.47

1.47

3.24

3.24

18

0.00

1.00

2.48

2.48

5.72

5.72

25

0.50

0.71

4.58

4.58

10.30

10.30

35

1.00

0.50

11.38

11.38

21.68

21.68

45

1.50

0.35

22.13

22.13

43.81

43.81

60

2.00

0.25

29.37

29.37

73.18

73.18

80

2.50

0.18

19.44

19.44

92.62

92.62

120

3.00

0.13

4.96

4.96

97.58

97.58

170

3.50

0.09

1.39

1.39

98.97

98.97

200

3.75

0.07

0.38

0.38

99.35

99.35

230

4.00

0.06

0.11

0.11

99.46

99.46

Phi 5

Phi 16

Phi 25

Phi 50

Phi 75

Phi 84

Phi 95

2.74

2.28

2.05

1.61

1.08

0.75

-0.15

Moment

Mean Phi

Mean mm

Sorting

Skewness

Kurtosis

Statistics

1.48

0.36

0.88

-1.23

6.58

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-67 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): <b>3,020,517</b>	Northing (ft): <b>840,972</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-57.8 NAVD 88</b>
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USCS: <b>SW</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>1.70</b>	Sieve Loss (%): <b>0.04</b>	Fines (%): <b>#200 - 2.20</b> <b>#230 - 1.75</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.10	0.10	0.10	0.10
3.5	-2.50	5.66	0.08	0.08	0.18	0.18
4	-2.25	4.76	0.00	0.00	0.18	0.18
5	-2.00	4.00	0.01	0.01	0.19	0.19
7	-1.50	2.83	0.06	0.06	0.25	0.25
10	-1.00	2.00	0.25	0.25	0.50	0.50
14	-0.50	1.41	0.81	0.81	1.31	1.31
18	0.00	1.00	1.96	1.96	3.28	3.27
25	0.50	0.71	3.69	3.69	6.97	6.96
35	1.00	0.50	7.16	7.16	14.13	14.12
45	1.50	0.35	15.35	15.35	29.48	29.47
60	2.00	0.25	19.34	19.34	48.82	48.81
80	2.50	0.18	25.73	25.73	74.55	74.54
120	3.00	0.13	18.34	18.34	92.89	92.88
170	3.50	0.09	3.77	3.77	96.65	96.65
200	3.75	0.07	1.15	1.15	97.81	97.80
230	4.00	0.06	0.45	0.45	98.26	98.25

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.28	2.76	2.51	2.02	1.35	1.06	0.23
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	1.87	0.27	0.89	-0.89	4.94	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-68 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): <b>3,018,116</b>	Northing (ft): <b>850,614</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-63.0 NAVD 88</b>
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USCS: <b>SP</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>1.56</b>	Sieve Loss (%): <b>0.10</b>	Fines (%): <b>#200 - 2.23</b> <b>#230 - 1.70</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.10	0.10	0.10	0.10
4	-2.25	4.76	0.03	0.03	0.13	0.12
5	-2.00	4.00	0.04	0.04	0.17	0.16
7	-1.50	2.83	0.08	0.08	0.24	0.23
10	-1.00	2.00	0.14	0.14	0.38	0.36
14	-0.50	1.41	0.24	0.24	0.62	0.60
18	0.00	1.00	0.41	0.41	1.02	1.00
25	0.50	0.71	0.92	0.92	1.94	1.91
35	1.00	0.50	2.24	2.24	4.18	4.15
45	1.50	0.35	8.07	8.07	12.24	12.21
60	2.00	0.25	17.98	17.98	30.22	30.19
80	2.50	0.18	34.89	34.89	65.11	65.07
120	3.00	0.13	25.60	25.60	90.71	90.67
170	3.50	0.09	5.61	5.61	96.32	96.28
200	3.75	0.07	1.50	1.50	97.81	97.77
230	4.00	0.06	0.53	0.53	98.34	98.30

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.39	2.87	2.69	2.28	1.86	1.61	1.05

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.21	0.22	0.7	-1.33	8.57

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-69 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): <b>3,018,937</b>	Northing (ft): <b>851,377</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-53.2 NAVD 88</b>
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USCS: <b>SP</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>0.76</b>	Sieve Loss (%): <b>0.01</b>	Fines (%): <b>#200 - 0.80</b> <b>#230 - 0.77</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.03	0.03	0.03	0.03
3.5	-2.50	5.66	0.04	0.04	0.08	0.07
4	-2.25	4.76	0.01	0.01	0.09	0.08
5	-2.00	4.00	0.03	0.03	0.12	0.11
7	-1.50	2.83	0.13	0.13	0.24	0.24
10	-1.00	2.00	0.11	0.11	0.35	0.35
14	-0.50	1.41	0.28	0.28	0.63	0.63
18	0.00	1.00	0.51	0.51	1.14	1.14
25	0.50	0.71	1.94	1.94	3.09	3.08
35	1.00	0.50	7.03	7.03	10.12	10.11
45	1.50	0.35	22.10	22.10	32.22	32.21
60	2.00	0.25	40.05	40.05	72.27	72.26
80	2.50	0.18	22.47	22.47	94.74	94.73
120	3.00	0.13	3.92	3.92	98.66	98.65
170	3.50	0.09	0.49	0.49	99.14	99.14
200	3.75	0.07	0.06	0.06	99.21	99.20
230	4.00	0.06	0.03	0.03	99.23	99.23

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.53	2.26	2.06	1.72	1.34	1.13	0.64
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	1.67	0.31	0.6	-1.2	8.67	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-70 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): <b>3,019,776</b>	Northing (ft): <b>852,080</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-53.9 NAVD 88</b>
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USCS: <b>SP</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>0.80</b>	Sieve Loss (%): <b>0.03</b>	Fines (%): <b>#200 - 0.90</b> <b>#230 - 0.83</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.10	0.10	0.10	0.10
4	-2.25	4.76	0.12	0.12	0.22	0.22
5	-2.00	4.00	0.11	0.11	0.34	0.33
7	-1.50	2.83	0.11	0.11	0.45	0.44
10	-1.00	2.00	0.37	0.37	0.82	0.81
14	-0.50	1.41	0.39	0.39	1.20	1.20
18	0.00	1.00	0.69	0.69	1.89	1.89
25	0.50	0.71	1.59	1.59	3.48	3.48
35	1.00	0.50	4.83	4.83	8.32	8.31
45	1.50	0.35	14.24	14.24	22.55	22.55
60	2.00	0.25	36.64	36.64	59.19	59.19
80	2.50	0.18	33.34	33.34	92.53	92.53
120	3.00	0.13	5.49	5.49	98.02	98.02
170	3.50	0.09	0.85	0.85	98.87	98.87
200	3.75	0.07	0.23	0.23	99.10	99.10
230	4.00	0.06	0.07	0.07	99.17	99.17

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.72	2.37	2.24	1.87	1.53	1.27	0.66

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.79	0.29	0.67	-1.82	10.82

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-71 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): <b>3,020,603</b>	Northing (ft): <b>852,813</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-56.3 NAVD 88</b>
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USCS: <b>SP</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>0.71</b>	Sieve Loss (%): <b>0.01</b>	Fines (%): <b>#200 - 0.74</b> <b>#230 - 0.72</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.55	0.55	0.55	0.55
3.5	-2.50	5.66	0.25	0.25	0.80	0.80
4	-2.25	4.76	0.10	0.10	0.90	0.90
5	-2.00	4.00	0.12	0.12	1.02	1.02
7	-1.50	2.83	0.38	0.38	1.40	1.40
10	-1.00	2.00	0.48	0.48	1.88	1.88
14	-0.50	1.41	0.75	0.75	2.63	2.63
18	0.00	1.00	1.42	1.42	4.05	4.05
25	0.50	0.71	3.01	3.01	7.06	7.06
35	1.00	0.50	8.48	8.48	15.54	15.54
45	1.50	0.35	18.31	18.31	33.85	33.85
60	2.00	0.25	35.96	35.96	69.81	69.81
80	2.50	0.18	25.56	25.56	95.37	95.37
120	3.00	0.13	3.37	3.37	98.74	98.74
170	3.50	0.09	0.47	0.47	99.21	99.21
200	3.75	0.07	0.05	0.05	99.26	99.26
230	4.00	0.06	0.02	0.02	99.28	99.28

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.49	2.28	2.10	1.72	1.26	1.01	0.16
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	1.57	0.34	0.84	-2.29	11.86	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-73 COMP

Analysis Date: 07-17-15

Analyzed By: ST

Easting (ft): 2,981,615	Northing (ft): 910,198	Coordinate System: North Carolina State Plane	Elevation (ft): -62.4 NAVD 88
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USCS: SW	Munsell:	Comments: COMPOSITE
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Dry Weight (g): 100.00	Wash Weight (g): 100.00	Pan Retained (g): 1.42	Sieve Loss (%): 0.04	Fines (%): #200 - 1.73 #230 - 1.46	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.51	0.51	0.51	0.51
4	-2.25	4.76	0.28	0.28	0.79	0.79
5	-2.00	4.00	0.26	0.26	1.05	1.05
7	-1.50	2.83	0.42	0.42	1.47	1.47
10	-1.00	2.00	0.94	0.94	2.41	2.41
14	-0.50	1.41	1.37	1.37	3.78	3.78
18	0.00	1.00	1.52	1.52	5.30	5.30
25	0.50	0.71	2.35	2.35	7.65	7.65
35	1.00	0.50	6.71	6.71	14.36	14.36
45	1.50	0.35	14.82	14.82	29.18	29.18
60	2.00	0.25	27.84	27.84	57.02	57.02
80	2.50	0.18	22.01	22.01	79.03	79.03
120	3.00	0.13	15.81	15.81	94.84	94.84
170	3.50	0.09	2.75	2.75	97.59	97.59
200	3.75	0.07	0.68	0.68	98.27	98.27
230	4.00	0.06	0.27	0.27	98.54	98.54

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.03	2.66	2.41	1.87	1.36	1.06	-0.10
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	1.75	0.30	0.98	-1.52	7.02	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15



# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-74 COMP

Analysis Date: 07-17-15

Analyzed By: ST

Easting (ft): 2,983,839	Northing (ft): 910,200	Coordinate System: North Carolina State Plane	Elevation (ft): -57.0 NAVD 88
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USCS: SW	Munsell:	Comments: COMPOSITE
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Dry Weight (g): 100.00	Wash Weight (g): 100.00	Pan Retained (g): 0.98	Sieve Loss (%): 0.22	Fines (%): #200 - 1.35 #230 - 1.20	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.12	0.12	0.12	0.12
4	-2.25	4.76	0.18	0.18	0.30	0.30
5	-2.00	4.00	0.39	0.39	0.69	0.69
7	-1.50	2.83	0.33	0.33	1.02	1.02
10	-1.00	2.00	0.98	0.98	2.00	2.00
14	-0.50	1.41	1.22	1.22	3.22	3.22
18	0.00	1.00	1.73	1.73	4.95	4.95
25	0.50	0.71	2.74	2.74	7.69	7.69
35	1.00	0.50	5.20	5.20	12.89	12.89
45	1.50	0.35	9.16	9.16	22.05	22.05
60	2.00	0.25	18.85	18.85	40.90	40.90
80	2.50	0.18	37.39	37.39	78.29	78.29
120	3.00	0.13	18.55	18.55	96.84	96.84
170	3.50	0.09	1.55	1.55	98.39	98.39
200	3.75	0.07	0.26	0.26	98.65	98.65
230	4.00	0.06	0.15	0.15	98.80	98.80

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.95	2.65	2.46	2.12	1.58	1.17	0.01
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	1.88	0.27	0.92	-1.78	7.23	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-75 COMP

Analysis Date: 07-17-15

Analyzed By: ST

Easting (ft): 2,982,770	Northing (ft): 909,199	Coordinate System: North Carolina State Plane	Elevation (ft): -63.5 NAVD 88
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USCS: SP	Munsell:	Comments: COMPOSITE
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Dry Weight (g): 100.00	Wash Weight (g): 100.00	Pan Retained (g): 2.01	Sieve Loss (%): 0.01	Fines (%): #200 - 2.56 #230 - 2.02	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.17	0.17	0.17	0.17
4	-2.25	4.76	0.13	0.13	0.30	0.30
5	-2.00	4.00	0.03	0.03	0.33	0.33
7	-1.50	2.83	0.25	0.25	0.58	0.58
10	-1.00	2.00	0.52	0.52	1.10	1.10
14	-0.50	1.41	0.80	0.80	1.90	1.90
18	0.00	1.00	1.02	1.02	2.92	2.92
25	0.50	0.71	1.55	1.55	4.47	4.47
35	1.00	0.50	2.24	2.24	6.71	6.71
45	1.50	0.35	6.47	6.47	13.18	13.18
60	2.00	0.25	13.30	13.30	26.48	26.48
80	2.50	0.18	29.99	29.99	56.47	56.47
120	3.00	0.13	34.39	34.39	90.86	90.86
170	3.50	0.09	5.11	5.11	95.97	95.97
200	3.75	0.07	1.47	1.47	97.44	97.44
230	4.00	0.06	0.54	0.54	97.98	97.98

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.41	2.90	2.77	2.39	1.94	1.61	0.62
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	2.21	0.22	0.85	-1.96	9.2	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-78 COMP

Analysis Date: 07-17-15

Analyzed By: ST

Easting (ft): 2,983,958	Northing (ft): 907,235	Coordinate System: North Carolina State Plane	Elevation (ft): -59.9 NAVD 88
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USCS: SP	Munsell:	Comments: COMPOSITE
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Dry Weight (g): 100.00	Wash Weight (g): 100.00	Pan Retained (g): 1.71	Sieve Loss (%): 0.04	Fines (%): #200 - 2.27 #230 - 1.75	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.31	0.31	0.31	0.31
4	-2.25	4.76	0.02	0.02	0.33	0.33
5	-2.00	4.00	0.07	0.07	0.40	0.40
7	-1.50	2.83	0.23	0.23	0.63	0.63
10	-1.00	2.00	0.42	0.42	1.05	1.05
14	-0.50	1.41	0.65	0.65	1.70	1.70
18	0.00	1.00	0.84	0.84	2.54	2.54
25	0.50	0.71	1.15	1.15	3.69	3.69
35	1.00	0.50	2.26	2.26	5.95	5.95
45	1.50	0.35	4.97	4.97	10.92	10.92
60	2.00	0.25	8.11	8.11	19.03	19.03
80	2.50	0.18	28.11	28.11	47.14	47.14
120	3.00	0.13	44.02	44.02	91.16	91.16
170	3.50	0.09	5.12	5.12	96.28	96.28
200	3.75	0.07	1.45	1.45	97.73	97.73
230	4.00	0.06	0.52	0.52	98.25	98.25

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.38	2.92	2.82	2.53	2.11	1.81	0.79

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.32	0.20	0.82	-2.41	11.82

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-79 COMP

Analysis Date: 07-17-15

Analyzed By: ST

Easting (ft): 2,984,016	Northing (ft): 906,248	Coordinate System: North Carolina State Plane	Elevation (ft): -63.0 NAVD 88
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USCS: SP	Munsell:	Comments: COMPOSITE
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Dry Weight (g): 100.00	Wash Weight (g): 100.00	Pan Retained (g): 2.24	Sieve Loss (%): 0.08	Fines (%): #200 - 2.79 #230 - 2.32	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.07	0.07	0.07	0.07
4	-2.25	4.76	0.03	0.03	0.10	0.10
5	-2.00	4.00	0.08	0.08	0.18	0.18
7	-1.50	2.83	0.47	0.47	0.65	0.65
10	-1.00	2.00	0.36	0.36	1.01	1.01
14	-0.50	1.41	0.70	0.70	1.71	1.71
18	0.00	1.00	0.56	0.56	2.27	2.27
25	0.50	0.71	0.76	0.76	3.03	3.03
35	1.00	0.50	1.14	1.14	4.17	4.17
45	1.50	0.35	2.22	2.22	6.39	6.39
60	2.00	0.25	5.10	5.10	11.49	11.49
80	2.50	0.18	34.00	34.00	45.49	45.49
120	3.00	0.13	44.63	44.63	90.12	90.12
170	3.50	0.09	5.48	5.48	95.60	95.60
200	3.75	0.07	1.61	1.61	97.21	97.21
230	4.00	0.06	0.47	0.47	97.68	97.68

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.45	2.93	2.83	2.55	2.20	2.07	1.19
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	2.41	0.19	0.74	-2.86	15.14	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-80 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): 2,982,928	Northing (ft): 906,242	Coordinate System: North Carolina State Plane	Elevation (ft): -57.4 NAVD 88
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USCS: SW	Munsell:	Comments: COMPOSITE
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Dry Weight (g): 100.00	Wash Weight (g): 100.00	Pan Retained (g): 1.08	Sieve Loss (%): 0.09	Fines (%): #200 - 1.20 #230 - 1.17	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.42	0.42	0.42	0.42
5/16"	-3.00	8.00	0.14	0.14	0.56	0.56
3.5	-2.50	5.66	0.28	0.28	0.84	0.84
4	-2.25	4.76	0.29	0.29	1.13	1.13
5	-2.00	4.00	0.43	0.43	1.56	1.56
7	-1.50	2.83	0.72	0.72	2.28	2.28
10	-1.00	2.00	1.20	1.20	3.48	3.48
14	-0.50	1.41	2.00	2.00	5.48	5.48
18	0.00	1.00	2.51	2.51	7.98	7.98
25	0.50	0.71	3.15	3.15	11.13	11.13
35	1.00	0.50	5.31	5.31	16.44	16.44
45	1.50	0.35	11.90	11.90	28.34	28.34
60	2.00	0.25	23.63	23.63	51.97	51.97
80	2.50	0.18	31.91	31.91	83.88	83.88
120	3.00	0.13	13.16	13.16	97.03	97.04
170	3.50	0.09	1.48	1.48	98.52	98.52
200	3.75	0.07	0.28	0.28	98.79	98.80
230	4.00	0.06	0.03	0.03	98.83	98.83

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.92	2.50	2.36	1.96	1.36	0.96	-0.62

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.68	0.31	1.08	-1.92	7.85

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-81 COMP

Analysis Date: 07-17-15

Analyzed By: ST

Easting (ft): 2,981,836	Northing (ft): 906,248	Coordinate System: North Carolina State Plane	Elevation (ft): -62.3 NAVD 88
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USCS: SW	Munsell:	Comments: COMPOSITE
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Dry Weight (g): 100.00	Wash Weight (g): 100.00	Pan Retained (g): 1.00	Sieve Loss (%): 0.12	Fines (%): #200 - 1.14 #230 - 1.12	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.51	0.51	0.51	0.51
5/16"	-3.00	8.00	0.55	0.55	1.06	1.06
3.5	-2.50	5.66	2.45	2.45	3.51	3.51
4	-2.25	4.76	0.64	0.64	4.15	4.15
5	-2.00	4.00	1.80	1.80	5.95	5.95
7	-1.50	2.83	3.51	3.51	9.46	9.46
10	-1.00	2.00	4.74	4.74	14.20	14.20
14	-0.50	1.41	6.36	6.36	20.56	20.56
18	0.00	1.00	8.05	8.05	28.61	28.61
25	0.50	0.71	11.11	11.11	39.72	39.72
35	1.00	0.50	17.18	17.18	56.90	56.90
45	1.50	0.35	15.88	15.88	72.78	72.78
60	2.00	0.25	12.36	12.36	85.14	85.14
80	2.50	0.18	10.52	10.52	95.66	95.66
120	3.00	0.13	2.86	2.86	98.52	98.52
170	3.50	0.09	0.28	0.28	98.80	98.80
200	3.75	0.07	0.06	0.06	98.86	98.86
230	4.00	0.06	0.02	0.02	98.88	98.88

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.47	1.95	1.59	0.80	-0.22	-0.86	-2.13
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	0.56	0.68	1.37	-0.73	3.13	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-83 COMP

Analysis Date: 07-17-15

Analyzed By: ST

Easting (ft): <b>2,981,221</b>	Northing (ft): <b>905,784</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-59.8 NAVD 88</b>
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USCS: <b>SW</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>1.18</b>	Sieve Loss (%): <b>0.14</b>	Fines (%): #200 - 1.52 #230 - 1.32	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.15	0.15	0.15	0.15
5/16"	-3.00	8.00	0.81	0.81	0.96	0.96
3.5	-2.50	5.66	0.85	0.85	1.81	1.81
4	-2.25	4.76	0.36	0.36	2.17	2.17
5	-2.00	4.00	0.49	0.49	2.66	2.66
7	-1.50	2.83	1.00	1.00	3.66	3.66
10	-1.00	2.00	1.94	1.94	5.60	5.60
14	-0.50	1.41	2.97	2.97	8.57	8.57
18	0.00	1.00	3.95	3.95	12.52	12.52
25	0.50	0.71	5.06	5.06	17.58	17.58
35	1.00	0.50	7.22	7.22	24.80	24.80
45	1.50	0.35	7.48	7.48	32.28	32.28
60	2.00	0.25	15.40	15.40	47.68	47.68
80	2.50	0.18	32.60	32.60	80.28	80.28
120	3.00	0.13	16.29	16.29	96.57	96.57
170	3.50	0.09	1.43	1.43	98.00	98.00
200	3.75	0.07	0.48	0.48	98.48	98.48
230	4.00	0.06	0.20	0.20	98.68	98.68

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.95	2.61	2.42	2.04	1.01	0.34	-1.15
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	1.56	0.34	1.3	-1.51	5.23	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-84 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): 2,983,259	Northing (ft): 905,773	Coordinate System: North Carolina State Plane	Elevation (ft): -56.1 NAVD 88
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USCS: SP	Munsell:	Comments: COMPOSITE
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Dry Weight (g): 100.00	Wash Weight (g): 100.00	Pan Retained (g): 1.29	Sieve Loss (%): 0.12	Fines (%): #200 - 1.75 #230 - 1.41	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.04	0.04	0.04	0.04
10	-1.00	2.00	0.08	0.08	0.12	0.12
14	-0.50	1.41	0.15	0.15	0.27	0.27
18	0.00	1.00	0.15	0.15	0.42	0.42
25	0.50	0.71	0.33	0.33	0.75	0.75
35	1.00	0.50	0.46	0.46	1.21	1.21
45	1.50	0.35	2.94	2.94	4.15	4.15
60	2.00	0.25	12.78	12.78	16.93	16.93
80	2.50	0.18	41.81	41.81	58.74	58.74
120	3.00	0.13	34.40	34.40	93.14	93.14
170	3.50	0.09	3.84	3.84	96.98	96.98
200	3.75	0.07	1.27	1.27	98.25	98.25
230	4.00	0.06	0.34	0.34	98.59	98.59

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.24	2.87	2.74	2.40	2.10	1.96	1.53

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	2.37	0.19	0.52	-1.26	9.66

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15



# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-86 COMP

Analysis Date: 07-17-15

Analyzed By: ST

Easting (ft):

2,981,849

Northing (ft):

905,264

Coordinate System:

North Carolina State Plane

Elevation (ft):

-63.3 NAVD 88

USCS:

SW

Munsell:

Comments:

COMPOSITE

Dry Weight (g):

100.00

Wash Weight (g):

100.00

Pan Retained (g):

1.51

Sieve Loss (%):

0.08

Fines (%):

#200 - 1.94  
#230 - 1.59

Organics (%):

Carbonates (%):

Shell Hash (%):

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

0.03

0.03

0.03

0.03

7

-1.50

2.83

0.39

0.39

0.42

0.42

10

-1.00

2.00

0.73

0.73

1.15

1.15

14

-0.50

1.41

1.03

1.03

2.18

2.18

18

0.00

1.00

1.53

1.53

3.71

3.71

25

0.50

0.71

2.85

2.85

6.56

6.56

35

1.00

0.50

6.10

6.10

12.66

12.66

45

1.50

0.35

10.76

10.76

23.42

23.42

60

2.00

0.25

20.10

20.10

43.52

43.52

80

2.50

0.18

33.19

33.19

76.71

76.71

120

3.00

0.13

18.25

18.25

94.96

94.96

170

3.50

0.09

2.30

2.30

97.26

97.26

200

3.75

0.07

0.80

0.80

98.06

98.06

230

4.00

0.06

0.35

0.35

98.41

98.41

Phi 5

Phi 16

Phi 25

Phi 50

Phi 75

Phi 84

Phi 95

3.01

2.70

2.47

2.10

1.54

1.16

0.23

Moment

Mean Phi

Mean mm

Sorting

Skewness

Kurtosis

Statistics

1.91

0.27

0.86

-1.26

5.48

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-87 COMP

Analysis Date: 07-17-15

Analyzed By: ST

Easting (ft): <b>2,981,155</b>	Northing (ft): <b>905,266</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-59.4 NAVD 88</b>
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USCS: <b>SP</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>1.20</b>	Sieve Loss (%): <b>0.09</b>	Fines (%): <b>#200 - 1.44</b> <b>#230 - 1.29</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.27	0.27	0.27	0.27
4	-2.25	4.76	0.34	0.34	0.61	0.61
5	-2.00	4.00	0.02	0.02	0.63	0.63
7	-1.50	2.83	0.29	0.29	0.92	0.92
10	-1.00	2.00	0.36	0.36	1.28	1.28
14	-0.50	1.41	0.42	0.42	1.70	1.70
18	0.00	1.00	0.34	0.34	2.04	2.04
25	0.50	0.71	0.58	0.58	2.62	2.62
35	1.00	0.50	1.57	1.57	4.19	4.19
45	1.50	0.35	3.43	3.43	7.62	7.62
60	2.00	0.25	24.19	24.19	31.81	31.81
80	2.50	0.18	49.60	49.60	81.41	81.41
120	3.00	0.13	15.49	15.49	96.90	96.90
170	3.50	0.09	1.33	1.33	98.23	98.23
200	3.75	0.07	0.33	0.33	98.56	98.56
230	4.00	0.06	0.15	0.15	98.71	98.71

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.94	2.58	2.44	2.18	1.86	1.67	1.12
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	2.08	0.24	0.7	-3.17	19.37	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-90 COMP

Analysis Date: 07-17-15

Analyzed By: ST

Easting (ft): <b>2,981,916</b>	Northing (ft): <b>904,295</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-61.4 NAVD 88</b>
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USCS: <b>SW</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>1.39</b>	Sieve Loss (%): <b>0.00</b>	Fines (%): <b>#200 - 1.71</b> <b>#230 - 1.39</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.54	0.54	0.54	0.54
4	-2.25	4.76	0.15	0.15	0.69	0.69
5	-2.00	4.00	0.04	0.04	0.73	0.73
7	-1.50	2.83	0.68	0.68	1.41	1.41
10	-1.00	2.00	0.64	0.64	2.05	2.05
14	-0.50	1.41	1.31	1.31	3.36	3.36
18	0.00	1.00	1.82	1.82	5.18	5.18
25	0.50	0.71	2.79	2.79	7.97	7.97
35	1.00	0.50	4.73	4.73	12.70	12.70
45	1.50	0.35	6.75	6.75	19.45	19.45
60	2.00	0.25	12.81	12.81	32.26	32.26
80	2.50	0.18	32.97	32.97	65.23	65.23
120	3.00	0.13	29.47	29.47	94.70	94.70
170	3.50	0.09	2.79	2.79	97.49	97.49
200	3.75	0.07	0.80	0.80	98.29	98.29
230	4.00	0.06	0.32	0.32	98.61	98.61

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.05	2.82	2.67	2.27	1.72	1.24	-0.05

Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
	2.01	0.25	1	-1.9	7.63

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-91 COMP

Analysis Date: 07-17-15

Analyzed By: ST

Easting (ft): <b>2,983,623</b>	Northing (ft): <b>904,310</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-63.5 NAVD 88</b>
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USCS: <b>SP</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>2.13</b>	Sieve Loss (%): <b>0.00</b>	Fines (%): <b>#200 - 2.72</b> <b>#230 - 2.13</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.15	0.15	0.15	0.15
4	-2.25	4.76	0.12	0.12	0.27	0.27
5	-2.00	4.00	0.08	0.08	0.35	0.35
7	-1.50	2.83	0.50	0.50	0.85	0.85
10	-1.00	2.00	0.59	0.59	1.44	1.44
14	-0.50	1.41	0.67	0.67	2.11	2.11
18	0.00	1.00	0.63	0.63	2.74	2.74
25	0.50	0.71	0.68	0.68	3.42	3.42
35	1.00	0.50	1.36	1.36	4.78	4.78
45	1.50	0.35	3.68	3.68	8.46	8.46
60	2.00	0.25	9.21	9.21	17.67	17.67
80	2.50	0.18	31.90	31.90	49.57	49.57
120	3.00	0.13	41.15	41.15	90.72	90.72
170	3.50	0.09	4.98	4.98	95.70	95.70
200	3.75	0.07	1.58	1.58	97.28	97.28
230	4.00	0.06	0.59	0.59	97.87	97.87

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.43	2.92	2.81	2.51	2.11	1.91	1.03
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	2.33	0.20	0.81	-2.62	13.21	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-92 COMP

Analysis Date: 07-17-15

Analyzed By: ST

Easting (ft): <b>2,981,969</b>	Northing (ft): <b>903,289</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-61.4 NAVD 88</b>
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USCS: <b>SP</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>1.66</b>	Sieve Loss (%): <b>0.00</b>	Fines (%): <b>#200 - 2.22</b> <b>#230 - 1.66</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.09	0.09	0.09	0.09
4	-2.25	4.76	0.41	0.41	0.50	0.50
5	-2.00	4.00	0.17	0.17	0.67	0.67
7	-1.50	2.83	0.29	0.29	0.96	0.96
10	-1.00	2.00	0.37	0.37	1.33	1.33
14	-0.50	1.41	0.49	0.49	1.82	1.82
18	0.00	1.00	0.78	0.78	2.60	2.60
25	0.50	0.71	1.06	1.06	3.66	3.66
35	1.00	0.50	3.35	3.35	7.01	7.01
45	1.50	0.35	5.25	5.25	12.26	12.26
60	2.00	0.25	10.00	10.00	22.26	22.26
80	2.50	0.18	33.46	33.46	55.72	55.72
120	3.00	0.13	33.80	33.80	89.52	89.52
170	3.50	0.09	6.70	6.70	96.22	96.22
200	3.75	0.07	1.56	1.56	97.78	97.78
230	4.00	0.06	0.56	0.56	98.34	98.34

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
3.41	2.92	2.79	2.41	2.04	1.69	0.70
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	2.25	0.21	0.85	-2.21	10.78	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-95 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): <b>3,019,320</b>	Northing (ft): <b>854,268</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-58.1 NAVD 88</b>
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USCS: <b>SP</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>0.86</b>	Sieve Loss (%): <b>0.01</b>	Fines (%): <b>#200 - 0.91</b> <b>#230 - 0.86</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.07	0.07	0.07	0.07
4	-2.25	4.76	0.02	0.02	0.08	0.09
5	-2.00	4.00	0.12	0.12	0.20	0.21
7	-1.50	2.83	0.13	0.13	0.33	0.34
10	-1.00	2.00	0.19	0.19	0.52	0.53
14	-0.50	1.41	0.27	0.27	0.80	0.80
18	0.00	1.00	0.41	0.41	1.21	1.21
25	0.50	0.71	0.87	0.87	2.08	2.08
35	1.00	0.50	2.72	2.72	4.79	4.80
45	1.50	0.35	10.42	10.42	15.21	15.22
60	2.00	0.25	37.30	37.30	52.51	52.52
80	2.50	0.18	39.07	39.07	91.58	91.59
120	3.00	0.13	6.66	6.66	98.24	98.25
170	3.50	0.09	0.76	0.76	99.00	99.01
200	3.75	0.07	0.08	0.08	99.08	99.09
230	4.00	0.06	0.05	0.05	99.13	99.14

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.76	2.40	2.29	1.97	1.63	1.51	1.01
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	1.9	0.27	0.58	-2.03	13.34	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-96 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): <b>3,017,679</b>	Northing (ft): <b>852,814</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-58.5 NAVD 88</b>
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USCS: <b>SP</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>0.77</b>	Sieve Loss (%): <b>0.16</b>	Fines (%): <b>#200 - 0.96</b> <b>#230 - 0.93</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.04	0.04	0.04	0.04
3.5	-2.50	5.66	0.26	0.26	0.30	0.30
4	-2.25	4.76	0.08	0.08	0.38	0.38
5	-2.00	4.00	0.18	0.18	0.56	0.56
7	-1.50	2.83	0.24	0.24	0.80	0.80
10	-1.00	2.00	0.39	0.39	1.19	1.19
14	-0.50	1.41	0.78	0.78	1.97	1.97
18	0.00	1.00	1.62	1.62	3.59	3.59
25	0.50	0.71	2.80	2.80	6.39	6.39
35	1.00	0.50	6.19	6.19	12.58	12.58
45	1.50	0.35	13.31	13.31	25.89	25.89
60	2.00	0.25	30.09	30.09	55.98	55.98
80	2.50	0.18	34.53	34.53	90.51	90.51
120	3.00	0.13	7.07	7.07	97.58	97.58
170	3.50	0.09	1.26	1.26	98.84	98.84
200	3.75	0.07	0.20	0.20	99.04	99.04
230	4.00	0.06	0.03	0.03	99.07	99.07

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.82	2.41	2.28	1.90	1.47	1.13	0.25
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	1.75	0.30	0.8	-1.79	8.88	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-97 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): <b>3,019,065</b>	Northing (ft): <b>852,820</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-60.0 NAVD 88</b>
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USCS: <b>SW</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>0.72</b>	Sieve Loss (%): <b>0.07</b>	Fines (%): <b>#200 - 0.83</b> <b>#230 - 0.78</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.44	0.44	0.44	0.44
5/16"	-3.00	8.00	1.04	1.04	1.48	1.48
3.5	-2.50	5.66	1.11	1.11	2.59	2.59
4	-2.25	4.76	0.12	0.12	2.70	2.71
5	-2.00	4.00	0.48	0.48	3.18	3.19
7	-1.50	2.83	0.98	0.98	4.16	4.17
10	-1.00	2.00	1.73	1.73	5.89	5.90
14	-0.50	1.41	2.78	2.78	8.67	8.68
18	0.00	1.00	3.93	3.93	12.60	12.61
25	0.50	0.71	6.29	6.29	18.89	18.90
35	1.00	0.50	11.92	11.92	30.81	30.82
45	1.50	0.35	20.20	20.20	51.01	51.02
60	2.00	0.25	26.80	26.80	77.81	77.82
80	2.50	0.18	17.45	17.45	95.26	95.27
120	3.00	0.13	3.13	3.13	98.40	98.40
170	3.50	0.09	0.66	0.66	99.06	99.06
200	3.75	0.07	0.11	0.11	99.16	99.17
230	4.00	0.06	0.05	0.05	99.21	99.22

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.49	2.18	1.95	1.47	0.76	0.27	-1.26
Moment Statistics	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
	1.18	0.44	1.19	-1.64	6.36	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15



## Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-98 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft):	Northing (ft):	Coordinate System:	Elevation (ft):
3,017,465	851,326	North Carolina State Plane	-57.6 NAVD 88

USCS:	Munsell:	Comments:
SP		COMPOSITE

Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%): #200 - 0.75 #230 - 0.69	Organics (%):	Carbonates (%):	Shell Hash (%):
100.00	100.00	0.65	0.02				

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	0.05	0.05	0.05	0.05
5	-2.00	4.00	0.14	0.14	0.18	0.19
7	-1.50	2.83	0.09	0.09	0.28	0.28
10	-1.00	2.00	0.15	0.15	0.42	0.43
14	-0.50	1.41	0.44	0.44	0.86	0.87
18	0.00	1.00	0.93	0.93	1.80	1.80
25	0.50	0.71	2.54	2.54	4.34	4.34
35	1.00	0.50	7.25	7.25	11.59	11.59
45	1.50	0.35	16.34	16.34	27.94	27.93
60	2.00	0.25	33.05	33.05	60.99	60.98
80	2.50	0.18	30.71	30.71	91.70	91.69
120	3.00	0.13	6.47	6.47	98.18	98.16
170	3.50	0.09	0.91	0.91	99.08	99.07
200	3.75	0.07	0.18	0.18	99.26	99.25
230	4.00	0.06	0.06	0.06	99.33	99.31

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.76	2.37	2.23	1.83	1.41	1.13	0.55

Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis
Statistics	1.75	0.30	0.68	-1.16	6.58

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15

# Granularmetric Report

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

Project Name: OBX Cooperative Sand Search

Sample Name: DCVC-14-99 COMP

Analysis Date: 10-17-14

Analyzed By: LC

Easting (ft): <b>3,019,562</b>	Northing (ft): <b>850,579</b>	Coordinate System: <b>North Carolina State Plane</b>	Elevation (ft): <b>-55.0 NAVD 88</b>
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USCS: <b>SP</b>	Munsell:	Comments: <b>COMPOSITE</b>
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Dry Weight (g): <b>100.00</b>	Wash Weight (g): <b>100.00</b>	Pan Retained (g): <b>0.76</b>	Sieve Loss (%): <b>0.03</b>	Fines (%): <b>#200 - 0.81</b> <b>#230 - 0.80</b>	Organics (%):	Carbonates (%):	Shell Hash (%):
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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	0.04	0.04	0.04	0.04
7	-1.50	2.83	0.03	0.03	0.08	0.07
10	-1.00	2.00	0.13	0.13	0.20	0.20
14	-0.50	1.41	0.25	0.25	0.45	0.45
18	0.00	1.00	0.68	0.68	1.13	1.13
25	0.50	0.71	1.91	1.91	3.04	3.04
35	1.00	0.50	5.23	5.23	8.27	8.27
45	1.50	0.35	17.32	17.32	25.59	25.59
60	2.00	0.25	38.38	38.38	63.98	63.97
80	2.50	0.18	29.33	29.33	93.30	93.30
120	3.00	0.13	4.87	4.87	98.18	98.17
170	3.50	0.09	0.89	0.89	99.07	99.06
200	3.75	0.07	0.13	0.13	99.20	99.19
230	4.00	0.06	0.01	0.01	99.21	99.20

Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95
2.67	2.34	2.19	1.82	1.48	1.22	0.69
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis	
Statistics	1.77	0.29	0.59	-0.95	6.13	

GRANULARMETRIC REPORT OBX\_COMPOSITE\_2015.GPJ JPBRAZIL.GDT 7/20/15