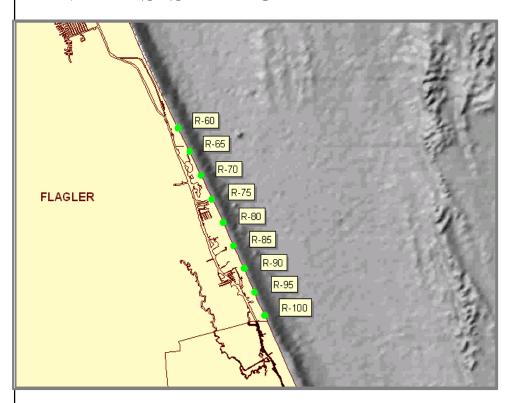
FLAGLER BEACH RECONNAISSANCE BEACH SAMPLE COLLECTION PHASE I SEDIMENT SAMPLE ANALYSIS REPORT



Prepared for Florida Department of Environmental Protection Bureau of Beaches and Coastal Systems 3900 Commonwealth Blvd. Tallahassee, FL 32399

September 18, 2008



URS Corporation 1625 Summit Lake Dr. Tallahassee, FL 32317 12804607

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SECTIONONE Introduction

Segments of Beverly Beach (R65.2-R70) and Flagler Beach (R76-R94.8) have been designated as critically eroded by the Florida Department of Environmental Protection (FDEP) and are eligible for beach erosion control funding assistance. Between 26 and 28 March 2008 the Bureau of Beaches and Coastal Systems (BBCS) collected forty-three (43) beach samples between FDEP Range Monuments R60 to R100 to characterize the existing beach in an effort to better understand geologic controls acting on this portion of Flagler County's beaches and the sediment distribution offshore of the critically eroded beaches. Sediment analyses were completed on a sub-set of these (18 samples) for grain size distribution, Munsell color and carbonate content.

The study area is located in Flagler County on segments of Beverly Beach and Flagler Beach between Florida Range Monuments R60 and R100 (Figure 1). The samples are labeled with the Range Monument used as the origination of the shore perpendicular transect from which they were taken (Figure 2). Samples were collected 6-12 inches below the surface at the toe of dune, berm, foreshore, top of swash zone and surf zone. For this study, only those samples from the berm and foreshore were analyzed. Samples are designated either berm (b following Range Monument number, i.e., R60b) or foreshore (fs following Range Monument number, i.e., R60fs).

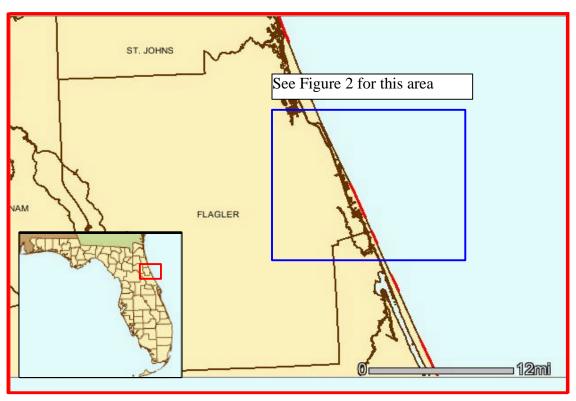


Figure 1: General Location Map of the Study Area

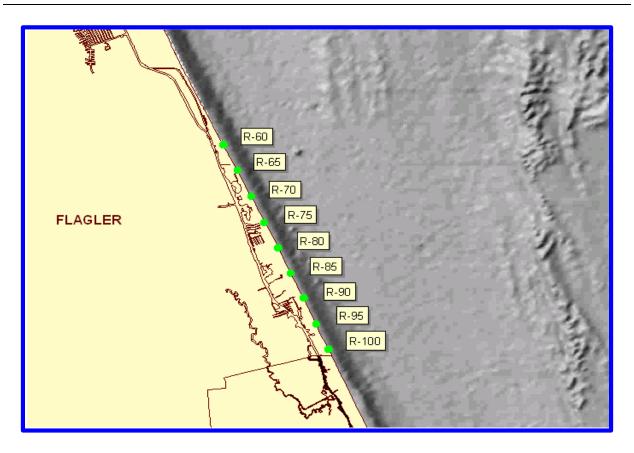


Figure 2: Sediment Sample Locations. Locations based off FDEP Range Monuments

Eighteen (18) of the sediment samples were analyzed to determine Munsell color and grain size distribution. Prior to sie ve analysis, any obvious uncharacteristically large fragments (such as whole shell or large shell fragments) were removed and the description (weight and size) of the material was noted. The wet, dry and washed Munsell colors were noted. Sieve analysis of the sediment samples was performed in accordance with the American Society for Testing and Materials (ASTM) Standard Methods Designation D 422-63 for particle size analysis of soils. This method covers the quantitative determination of the distribution of sand size particles. For sediment finer than the No. 230 sieve (4.0 phi) the ASTM Standard Test Method, Designation D 1140-00 was followed. The sieve stack used for mechanical analysis conformed to the BBCS guidelines provided in Table 1:

Weights retained on each sieve were recorded cumulatively. During sieve analysis the visually estimated percentage of shell retained on the ¾" sieve through the #7 sieves was noted. Grain size results were entered into the gINT® software program, which computes the mean and median grain size, sorting, silt/clay percentages for each sample using the moment method.

Sieve No.	Size (phi)	Size (mm)
3/4	-4.25	19.00
5/8	-4.0	16.00
7/16	-3.5	11.20
5/16	-3.0	8.00
3 1/2	-2.5	5.60
4	-2.25	4.75
5	-2.0	4.00
7	-1.5	2.80
10	-1.0	2.00
14	-0.5	1.40
18	0.0	1.00
25	0.5	0.71
35	1.0	0.50
45	1.5	0.36
60	2.0	0.25
80	2.5	0.18
120	3.0	0.13
170	3.5	0.09
200	3.75	0.08
230	4.0	0.06

Table 1. Mesh sizes to be used for granularmetric analysis.

Fourteen (14) of the eighteen (18) samples were tested for carbonate content. The four samples not tested for carbonate content are; R65b, R75fs, R85b and R95fs. Carbonate content was determined by percent weight using the acid leaching methodology described in Twenhofel, W.H. and Tyler, S.A., 1941. Methods of Study of Sediments. New York: McGraw-Hill, 183p.

Following carbonate testing, each of the fourteen (14) samples were resieved following the procedure described above, to determine the control that the carbonate fraction of each sample



has on the overall grain size distribution of the sample. These samples are designated by an 'AD' after the sample ID on their respective granulametric reports and grainsize distribution curves (Appendix 1). These files are also available on-line from the ROSS website (ROSS.urstally.com).



Appendix A Sample Data Analysis

Project Name: Flagler Beach Sample Analysis

Sample Name: R-60 Berm Crest

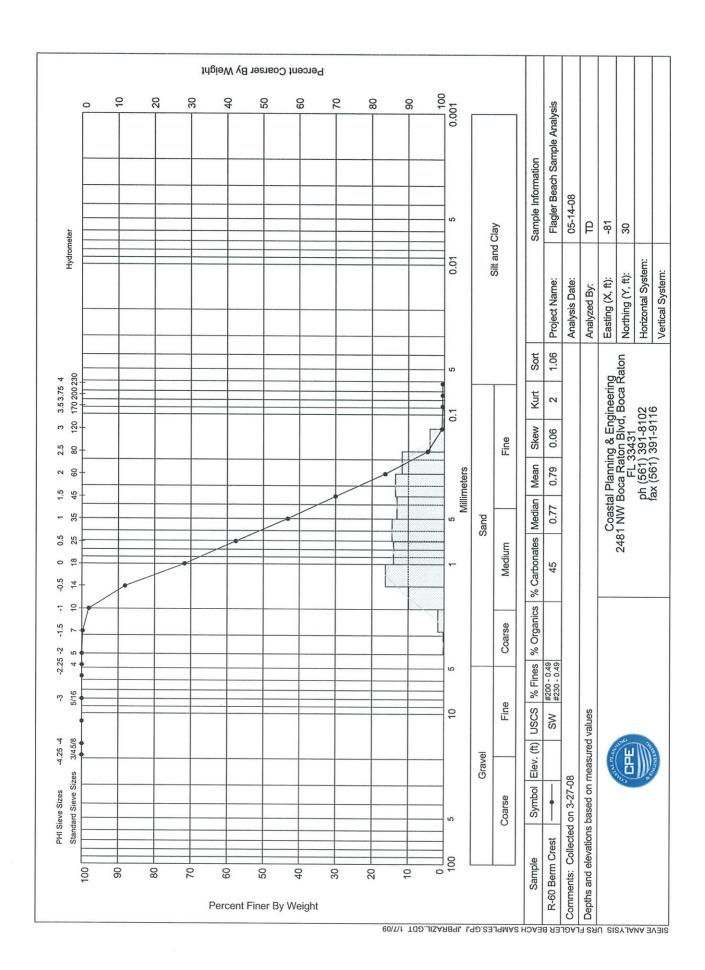
Analysis Date: 05-14-08



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

Analyzed By: T	Description of the state of the											
Easting (ft):		Northing ((ft):		Cod	ordinate System						
-81			30			Geographi	c (Latitude	/Longit	tude)			
USCS:	Muns		- 10YR-6/4 - 10YR-6/4	Comment	ts:							
Dry Weight (g):	Wash Weight		- 10YR-6/4 Pan Retained	(a):	Sieve Los	20 (9/):	_		3-27-08	Το .	. (0/)	Ta:
102.60							Fines (%): #200 - 0.		nics (%):		ates (%):	Shell Hash (%):
	102. Sieve		0.00 Sieve \$			0.00	#230 - 0.		C		45	0
Sieve Number	(Pr		(Millime		0.835	tained	% We Retair		Cum. Reta	ained	is C	. % Weight Retained
3/4"	-4.2	25	19.0	3		0.00	0.00	0	0.	.00		0.00
5/8"	-4.0	00	16.0	0		0.00	0.00	0	0.	.00		0.00
7/16"	-3.5	50	11.3	1		0.00	0.00	0	0.	.00		0.00
5/16"	-3.0	00	8.00)		0.00	0.00)	0.	.00		0.00
3.5	-2.5	50	5.66	3		0.00	0.00)	0.	.00		0.00
4	-2.2	25	4.76	3		0.00	0.00	0	0.	.00		0.00
5	-2.0	00	4.00)		0.00	0.00)	0.	.00		0.00
7	-1.5	50	2.83	3		0.25	0.24	4	0.	.25		0.24
10	-1.0	00	2.00)		1.75	1.7	1	2.	.00		1.95
14	-0.5	50	1.41		1	0.18	9.92	2	12.18			11.87
18	0.0	0	1.00)	1	6.79	16.36		28	28.97		28.23
25	0.5	0	0.71		1	4.46	14.0	09 4		43.43		42.32
35	1.0	0	0.50)	1	4.84	14.4	6	58.2			56.78
45	1.5	0	0.35	5	1	3.53	13.1	9	71	.80		69.97
60	2.0	0	0.25	5	1	3.96	13.6	1	85	.76		83.58
80	2.5	0	0.18	3	1	2.08	11.7	7	97	.84		95.35
35 45 60 80 120 170 200	3.0	0	0.13	3	-	4.06	3.96	3	101	1.90		99.31
170	3.5	0	0.09)	(0.19	0.19	9	102	2.09		99.50
	3.7	5	0.07	,	(0.01	0.0	1	102	2.10		99.51
230	4.0	0	0.06	6	(0.00	0.00)	102	2.10		99.51
Shell Hash calculated from	m visual estima	te of shell <	4.75mm and >2	.8mm.								
	Phi		Phi 2		Р	Phi 50 Phi 75 Phi 84						Phi 95
Phi 5 2.49 Moment Statistics	2.0	2	1.68	3	0.77 -0.10 -0.37 -0.85						-0.85	
Moment	Mea	n Phi	М	ean mr	n	Sor	ting	SI	kewness	6	K	Curtosis
Statistics	0.	79		0.58	8 1.06 0.06 2						2	

GRANULARMETRIC REPORT URS FLAGLER BEACH SAMPLES.GPJ JPBRAZIL.GDT 1/7/09



Project Name: Flagler Beach Sample Analysis

Sample Name: R-60 Berm Crest AD

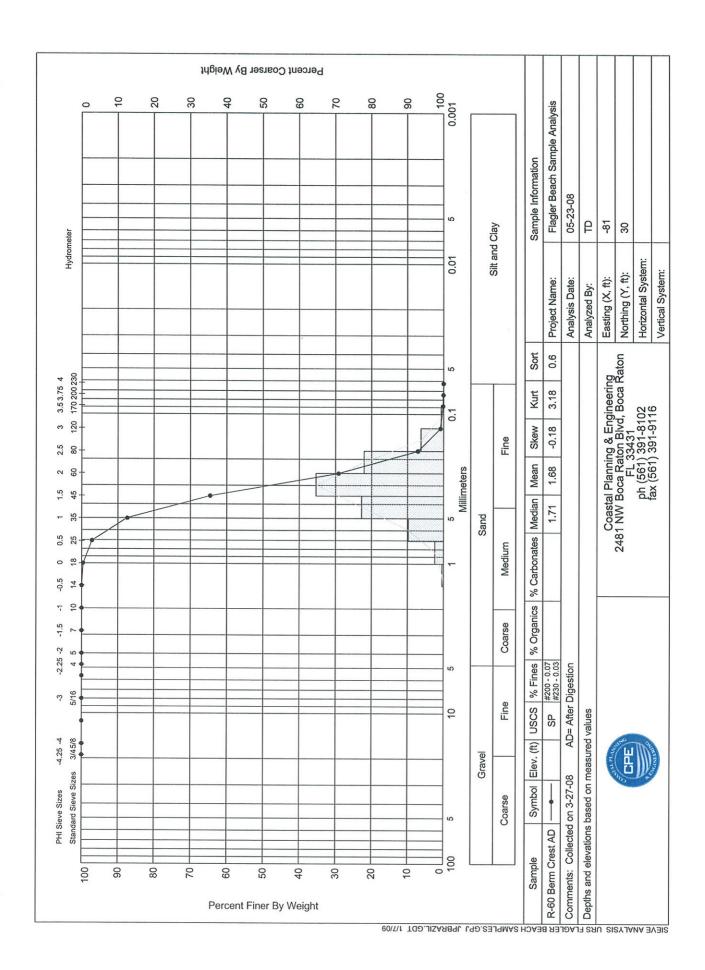
Analysis Date: 05-23-08



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

Analyzed By: T								pn (561) 391-8102 fax (561) 391-9116 Coordinate System: Elevation (ft):								
Easting (ft):			Northing	(ft):			Coore	dinate System	:			-	Elevation	n (ft):		
-81				3			G	eographi	c (Lat	itude/	Longi	tude)				
USCS:		Munsel				ments:										
SP Dry Weight (g):	Wash	Weight (- 2.5Y-8 Pan Retai		Sie	ve Loss	Collected				AD= A	After D	igestionates (%		nell Hash (%):
23.69		23.6	9		.01			.00		0.0 - 0.0 0 - 0.0					,. 0.	0
Sieve Number	Si	eve S (Phi	Size	Siev	e Size)	Gr	ams ained	%	6 Weig Retaine	ght		n. Gran			6 Weight etained
3/4"		-4.2	5	1	9.03		0	.00		0.00			0.00		-	0.00
5/8"		-4.00)	1	3.00		0	.00		0.00			0.00			0.00
7/16"		-3.50)	1	1.31		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		-2.2	5	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	.00		0.00			0.00			0.00
14		-0.50)	1	.41		0	.00		0.00			0.00			0.00
18		0.00)	1	.00		0	.09		0.38			0.09			0.38
25		0.50)	C	.71		0	.58		2.45			0.67		:	2.83
35		1.00)	C	.50		2	.32		9.79			2.99		1	12.62
45		1.50)	C	.35		5	.40		22.79	1		8.39		3	35.41
60		2.00)	C	.25		8	.39		35.42	!	1	6.78		7	70.83
35 45 60 80 120 170		2.50)	C	.18		5	.23		22.08		2	22.01		g	92.91
120		3.00)	C	.13		1	.47		6.21		2	23.48		9	99.12
170		3.50)	C	.09		0	.16		0.68		2	23.64		9	99.80
200		3.75	i	C	.07		0	.03		0.13		2	23.67		9	99.93
230		4.00)	C	.06		0	.01		0.04		2	23.68		9	99.97
Shell Hash calculated from	m visual	estimate	e of shell <													
Phi 5		Phi 1	6	Pl	ni 25		Ph	i 50		Phi 75	5	Р	hi 84		Р	hi 95
2.67		2.30		2	.09		1	.71		1.27			1.07		(0.61
Phi 5 2.67 Moment Statistics		Mear	n Phi		Mean	mm		Soi	rting		S	kewne	ss		Kurl	tosis
Statistics		1.6	88		0.3	1	0.6			-0.18			3.18			

GRANULARMETRIC REPORT URS FLAGLER BEACH SAMPLES.GPJ JPBRAZIL.GDT 1/7/09



Project Name: Flagler Beach Sample Analysis

Sample Name: R-60 Foreshore

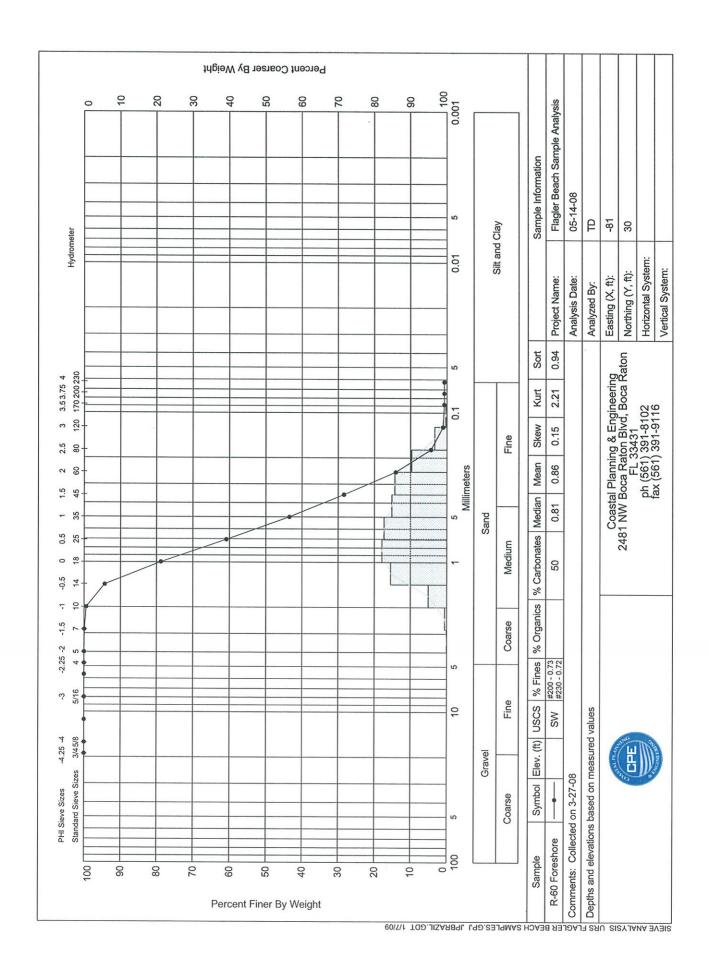
Analysis Date: 05-14-08



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

Analyzed By: T	D				ph (561) 391-8102 fax (561) 391-9116 Coordinate System: Elevation (ft):							
Easting (ft):		Northing (f	t):		Cod	ordinate System		iax			ft):	
-81			30			Geographi	c (Latitude	e/Lona	itude)			
USCS:	Munse		10YR-6/4 10YR-6/4	Comment		<u> </u>	(nuuo/			
SW		Washed -	10YR-6/4						3-27-08			
Dry Weight (g):	Wash Weight		Pan Retained (Sieve Lo		Fines (%): #200 - 0.	73 Org.	anics (%):	Carbona	ites (%):	Shell Hash (%):
101.13	100.		0.00			0.00	#230 - 0.		T -		50	0
Sieve Number	Sieve (Ph		Sieve S (Millime			Brams etained	% We Retai		100000000000000000000000000000000000000	Grams ained		. % Weight Retained
3/4"	-4.2	5	19.0	3		0.00	0.0	0	0.	.00		0.00
5/8"	-4.0	0	16.0	0		0.00	0.0	0	0.	.00		0.00
7/16"	-3.5	0	11.3	1		0.00	0.	.00		0.00		
5/16"	-3.0	0	8.00)		0.00	0.0	0	0.	.00		0.00
3.5	-2.5	0	5.66	3		0.00	0.0	0	0.	.00		0.00
4	-2.2	5	4.76	6		0.00	0.0	0	0.	.00		0.00
5	-2.0	0	4.00)		0.00	0.0	0	0.	.00		0.00
7	-1.5	0	2.83	3		0.05	0.05		0.05			0.05
10	-1.0	0	2.00)		0.57	0.50	6	0.	62		0.61
14	-0.5	0	1.41			5.15	5.09		5.	5.77		5.70
18	0.00	0	1.00)	1	5.68	15.5			21.45		21.20
25	0.50	0	0.71		1	8.14	17.9	4	39	39.59		39.14
35	1.00	0	0.50)	1	7.54	17.3	4	57	.13		56.48
45	1.50)	0.35	5	1	5.30	15.13		72.43			71.61
60	2.00)	0.25	5	1	4.48	14.3	2	86	.91		85.93
80	2.50)	0.18	3	,	9.81	9.70)	96	.72		95.63
120	3.00)	0.13	3	,	3.36	3.32	2	100	0.08		98.95
170	3.50)	0.09)	(0.30	0.30)	100	0.38		99.25
200	3.75	5	0.07	,		0.02	0.02	2	100	0.40		99.27
230	4.00)	0.06	5		0.01	0.0	1	100	0.41		99.28
Shell Hash calculated from	n visual estima	le of shell <4	.75mm and >2	.8mm.					-			
Phi 5	Phi 1		Phi 2	T	Р	Phi 50 Phi 75 Phi 84						Phi 95
2.47	1.93	3	1.62	!	(0.81	0.11	1	-0.	.17		-0.57
Moment	Mea	n Phi	M	ean mn	n	Sor	ting	S	kewness	5	K	urtosis
Statistics	0.8	86		0.55	0.0		94		0.15			2.21

GRANULARMETRIC REPORT URS FLAGLER BEACH SAMPLES.GPJ JPBRAZIL.GDT 117/09



Project Name: Flagler Beach Sample Analysis

Sample Name: R-60 Foreshore AD

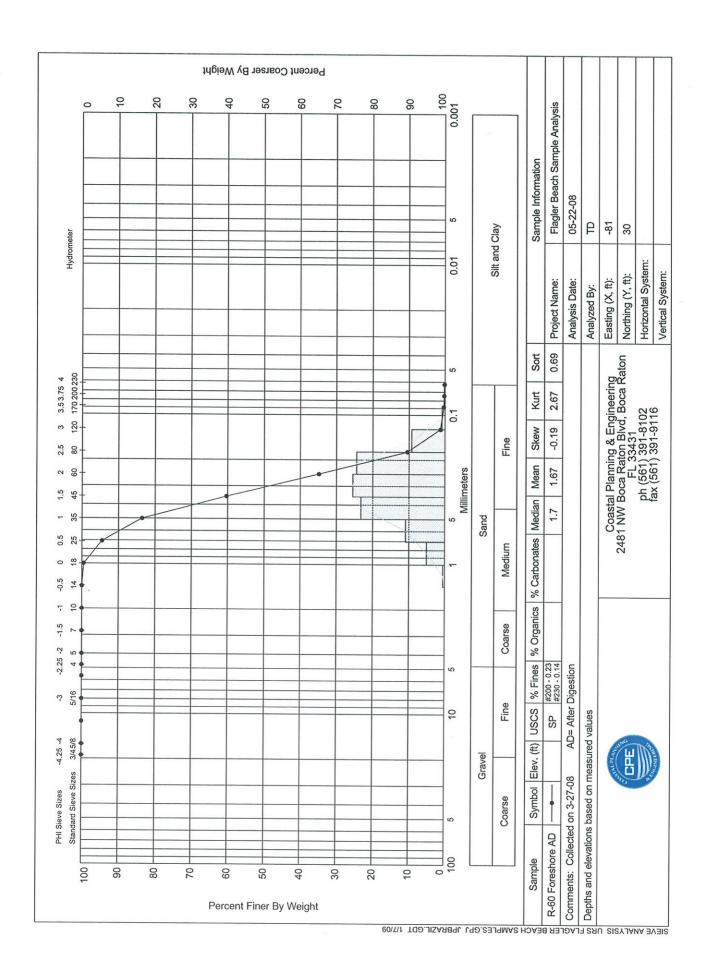
Analysis Date: 05-22-08



Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431

Analyzed By: T					ph (561) 391-8102 fax (561) 391-9116 Coordinate System: Elevation (ft):								
Easting (ft):		rthing (ft):			Cod	ordinate System	:	iax			ft):		
-81			30			Geographi	c (Latitude	e/Longi		,	,		
USCS:	Munsell:			Comments		zoograpiii	o (Lamado	or Long.	tuuo)				
SP			2.5Y-8/3			Collected			AD= Aft	er Dig	estion		
Dry Weight (g):	Wash Weight (g):	Par	n Retained (g):	Sieve Lo	ss (%):	Fines (%): #200 - 0.	23 Orga	nics (%):	Carbona	ates (%):	Shell Hash (%):	
21.20	21.20		0.03			0.00	#230 - 0.					0	
Sieve Number	Sieve Siz (Phi)	3355	Sieve S (Millimet			rams etained	% We Retai		Cum. Reta	Gram: ained		. % Weight Retained	
3/4"	-4.25		19.03	3		0.00	0.0	0.00				0.00	
5/8"	-4.00		16.00	0		0.00	0.0	0	0.	00		0.00	
7/16"	-3.50		11.3	1		0.00	0.0	0	0.	00		0.00	
5/16"	-3.00		8.00			0.00	0.0	0	0.	00		0.00	
3.5	-2.50		5.66			0.00	0.0	0	0.	00		0.00	
4	-2.25		4.76			0.00	0.0	0	0.	00		0.00	
5	-2.00		4.00			0.00	0.0	0	0.	00		0.00	
7	-1.50		2.83			0.00	0.00			00		0.00	
10	-1.00		2.00			0.00	0.0	0.0	00		0.00		
14	-0.50		1.41			0.00 0.00			0.0	00		0.00	
18	0.00		1.00			0.10	0.4	0.	10		0.47		
25	0.50		0.71			1.07 5.05			1.	17		5.52	
35	1.00		0.50			2.32	10.94		3.49			16.46	
45	1.50		0.35			4.92	23.2	21	8.4	41		39.67	
45 60 80 120 170	2.00		0.25			5.40	25.4	7	13.	.81		65.14	
80	2.50		0.18			5.17	24.3	9	18.	.98		89.53	
120	3.00		0.13			1.96	9.2	5	20.	.94		98.78	
170	3.50		0.09		(0.18	0.88	5	21.	12		99.63	
200	3.75		0.07		(0.03	0.14	4	21.	15		99.77	
200	4.00		0.06		(0.02	0.09	9	21.	17		99.86	
Shell Hash calculated from	m visual estimate of	shell <4.75	omm and >2.	8mm.									
	Phi 16		Phi 2		Р	hi 50	Phi 7	' 5	Phi	84		Phi 95	
2.80	2.39		2.20			1.70	1.18	3	0.9	98		0.45	
Phi 5 2.80 Moment Statistics	Mean P	hi	Me	ean mm	1	Sor	ting	S	kewness		K	urtosis	
Statistics	1.67			0.31	0		69		-0.19			2.67	

GRANULARMETRIC REPORT URS FLAGLER BEACH SAMPLES.GPJ JPBRAZIL.GDT 17709



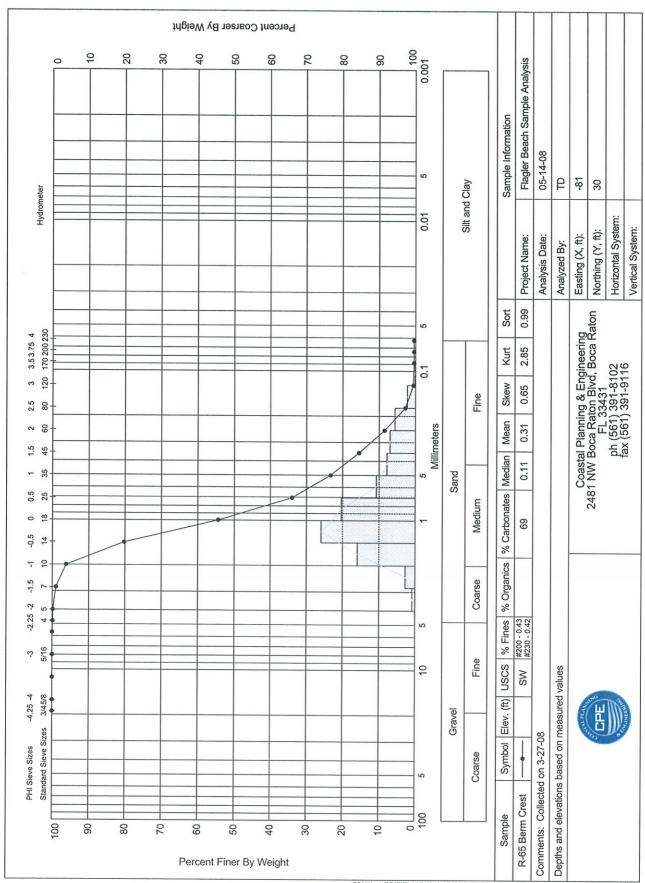
Project Name: Flagler Beach Sample Analysis

Sample Name: R-65 Berm Crest
Analysis Date: 05-14-08



Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431

	Analysis Date:							FL 334	131		
	Analyzed By: T	D.						ph (561) 39 fax (561) 39	91-8102		
	Easting (ft):		Northing	(ft):		Coordinate System	n:		Elevation (ft):		
	-81			30		Geograph	ic (Latitude/	(Longitude)			
	uscs:	Munse	Dry	- 10YR-6/4 - 10YR-6/6 - 10YR-6/5	Comments	:	Collecte	ed on 3-27-0	8		
	Dry Weight (g):	Wash Weight	(g):	Pan Retained	(g):	Sieve Loss (%):	Fines (%): #200 - 0.4		Carbonates (%): Shell H	lash (%):
	101.89	101.4	16	0.0	0	0.00	#230 - 0.4	2	69		1
	Sieve Number	Sieve S (Phi		Sieve : (Millime		Grams Retained	% Weig Retain		n. Grams etained	C. % W Retai	
	3/4"	-4.2	5	19.0	3	0.00	0.00		0.00	0.0	0
	5/8"	-4.0	0	16.0	0	0.00	0.00		0.00	0.0	00
	7/16"	-3.5	0	11.3	31	0.00	0.00		0.00	0.0	00
	5/16"	-3.0	0	8.00	0	0.00	0.00		0.00	0.0	0
	3.5	-2.5	0	5.60	6	0.00	0.00		0.00	0.0	0
	4	-2.2	5	4.70	6	0.09	0.09		0.09	0.0	9
	5	-2.0	0	4.00	0	0.09	0.09		0.18	0.18	
	7	-1.5	0	2.83	3	0.86	0.84		1.04	1.02	
	10	-1.0	0	2.00	0	2.80	2.75		3.84		7
	14	-0.5	0	1.4	1	16.25	15.95	5 2	20.09	19.7	72
	18	0.00)	1.00	0	26.39	25.90) 4	6.48	45.6	62
60	25	0.50)	0.7	1	20.76	20.37	7 6	7.24	65.9	99
T 1/7/09	35	1.00)	0.50	0	10.91	10.71	1 7	8.15	76.7	70
JPBRAZIL.GDT	45	1.50)	0.3	5	7.95	7.80	8	6.10	84.5	50
PBRA:	60	2.00)	0.2	5	7.11	6.98	9	3.21	91.48	
GPJ J	80	2.50)	0.18	3	5.81	5.70	9	9.02	97.	18
PLES.	120	3.00)	0.13	3	2.30	2.26	1	01.32	99.4	14
HSAM	170	3.50)	0.09	9	0.13	0.13	1	01.45	99.5	57
BEACI	200	3.75	5	0.0	7	0.00	0.00	1	01.45	99.5	57
GLER	230	4.00)	0.06	3	0.01	0.01	1	01.46	99.5	58
URS FLAGLER BEACH SAMPLES.GPJ	Shell Hash calculated from	m visual estimat	e of shell <	<4.75mm and >2	2.8mm.						
PORT	Phi 5	Phi 1	6	Phi 2	25	Phi 50	Phi 75	5 P	hi 84	Phi 9	95
GRANULARMETRIC REPORT	2.31	1.47	,	0.92	2	0.11	-0.40) _	0.62	-0.9	96
JLARME	Moment	Mear	n Phi	М	lean mn	n So	orting	Skewne	ss	Kurtos	is
GRANL	Statistics	0.0	31		0.81	0.99		0.65		2.85	



Granularmetric Report

Depths and elevations based on measured values

Project Name: Flagler Beach Sample Analysis

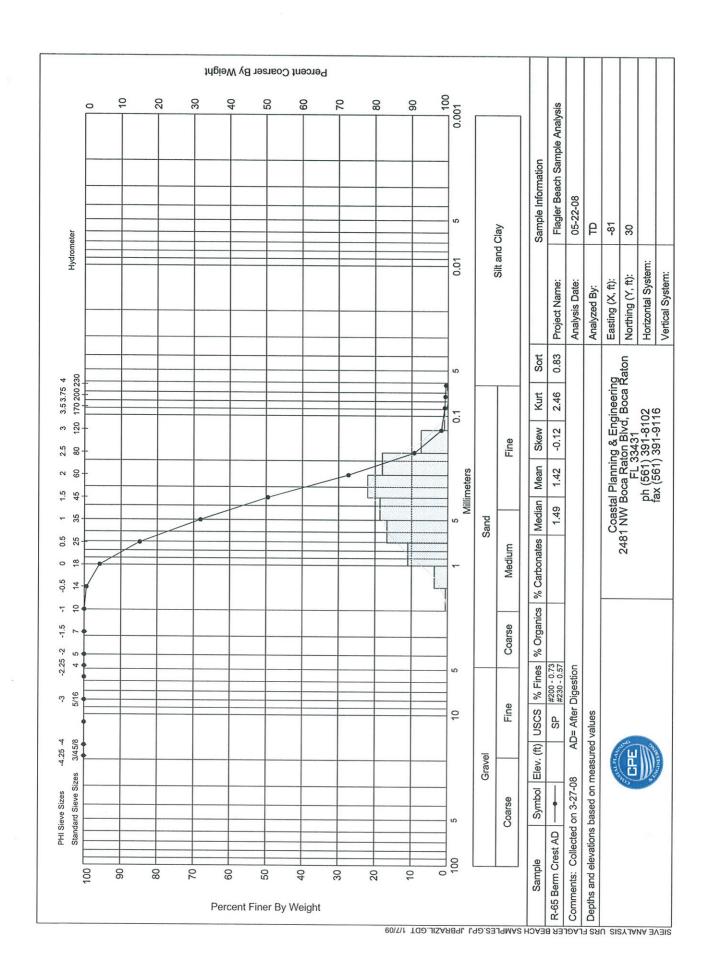
Sample Name: R-65 Berm Crest AD

Analysis Date: 05-22-08



Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431 ph (561) 391-8102 fax (561) 391-9116 Analyzed By: TD Easting (ft): Northing (ft): Coordinate System: Elevation (ft): -81 30 Geographic (Latitude/Longitude) USCS: Munsell: Comments: SP Collected on 3-27-08 Dry - 2.5Y-8/2 AD= After Digestion Dry Weight (g): Wash Weight (g): Pan Retained (g): Carbonates (%): Sieve Loss (%): Fines (%): #200 - 0.73 Organics (%): Shell Hash (%): 12.39 12.39 0.02 0.40 #230 - 0.57 0 Sieve Size Sieve Size Grams Cum. Grams % Weight C. % Weight Sieve Number (Phi) (Millimeters) Retained Retained Retained Retained 3/4" -4.2519.03 0.00 0.00 0.00 0.00 5/8" -4.0016.00 0.00 0.00 0.00 0.00 7/16" -3.5011.31 0.00 0.00 0.00 0.00 5/16" -3.008.00 0.00 0.00 0.00 0.00 3.5 -2.505.66 0.00 0.00 0.00 0.00 4 -2.254.76 0.00 0.00 0.00 0.00 5 -2.004.00 0.00 0.00 0.00 0.00 7 -1.502.83 0.00 0.00 0.00 0.00 10 -1.002.00 0.00 0.00 0.00 0.00 14 -0.501.41 0.07 0.56 0.07 0.56 18 0.00 1.00 0.45 3.63 0.52 4.19 25 0.50 0.71 1.36 10.98 1.88 15.17 35 1.00 0.50 2.07 16.71 3.95 31.88 45 1.50 0.35 2.31 18.64 6.26 50.52 60 2.00 0.25 2.74 22.11 9.00 72.63 80 2.50 0.18 2.24 18.08 11.24 90.71 120 3.00 0.13 0.92 7.43 12.16 98.14 170 3.50 0.09 0.12 0.97 12.28 99.11 200 3.75 0.07 0.02 0.16 12.30 99.27 230 4.00 0.06 0.02 0.16 12.32 99.43 Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm. Phi 5 Phi 16 Phi 25 Phi 50 Phi 75 Phi 84 Phi 95 2.79 2.31 2.07 1.49 0.79 0.52 0.04 Moment Mean Phi Mean mm Sorting Skewness Kurtosis Statistics 1.42 0.37 0.83 -0.122.46

JPBRAZIL.GDT URS FLAGLER BEACH SAMPLES.GPJ GRANULARMETRIC REPORT



Project Name: Flagler Beach Sample Analysis

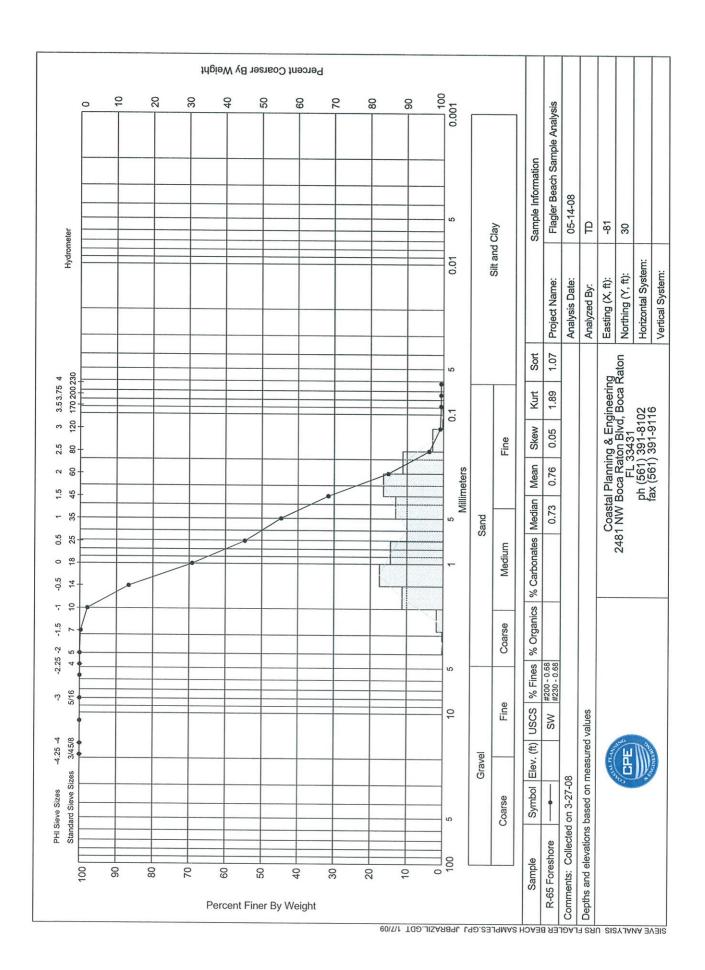
Sample Name: R-65 Foreshore

Analysis Date: 05-14-08

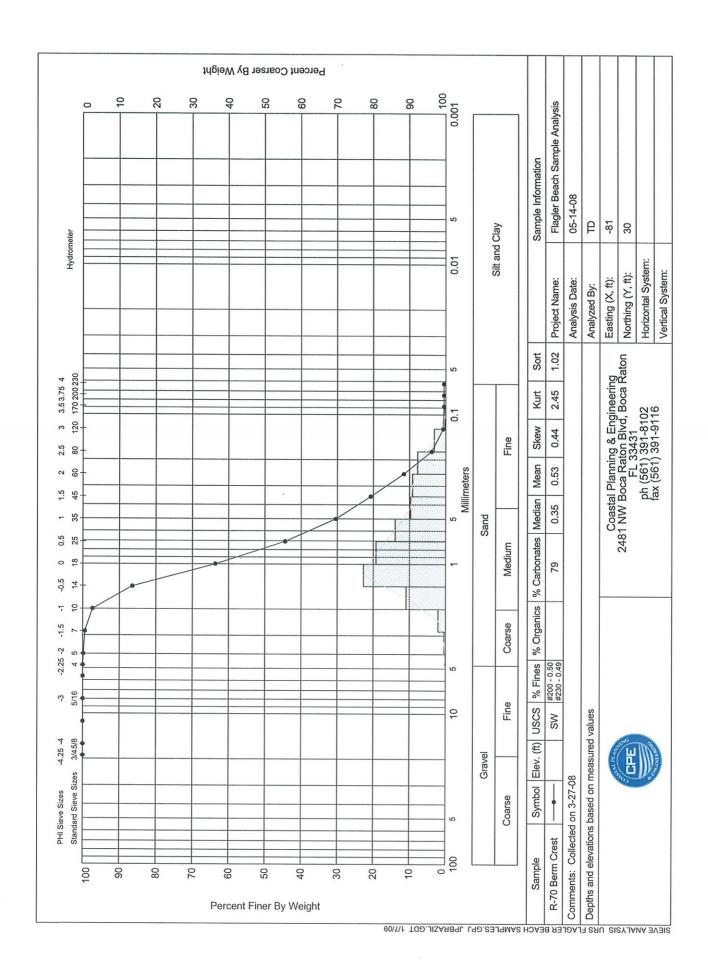


Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431 ph (561) 391-8102

Analyzed By: T	D	Pin (361) 391-8102 fax (561) 391-9116 Northing (ft): Coordinate System: Elevation (ft):										
Easting (ft):		Northing	(ft):		Coo	rdinate System:			E	Elevation (ft):	
-81			30	,	G	eographic	c (Latitude	/Longit	ude)			
USCS:	Mun		- 10YR-6/4 - 10YR-6/4	Comments	3:							
SW Dry Weight (g):	Wash Weigh		- 10YR-6/4 Pan Retained	(a):	Sieve Los	c (%):	Collecte		3-27-08 nics (%):	Carbonat	22 (9/):	Shell Hash (%):
		107				at Paragraph	Fines (%): #200 - 0.6		iiGS (%).	Carbonal	es (%):	
100.12	99. Sieve		0.02 Sieve S			0.00 rams	#230 - 0.6		Cum	Cromo		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Sieve Number	(P		(Millime			tained	% Wei Retair			Grams ained		. % Weight Retained
3/4"	-4.	25	19.0	3	(0.00	0.00)	0.	.00		0.00
5/8"	-4.	00	16.0	0	(0.00	0.00)	0.	.00		0.00
7/16"	-3.	50	11.3	1	(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	3	(0.00	0.00)	0.	.00		0.00
4	-2.	25	4.76	3	(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	3	(0.29	0.29)	0.	.29		0.29
10	-1.	00	2.00)		1.82	1.82	2	2.	.11		2.11
14	-0.	50	1.4	1	1	1.25	11.2	4	13	3.36		13.35
18	0.0	00	1.00)	1	7.48	17.4	6	30).84		30.81
25	0.8	50	0.7	1	1	4.51	14.4	9	45	5.35		45.30
35	1.0	00	0.50)	1	0.04	10.0	3	55	5.39		55.33
45	1.	50	0.3	5	1	3.09	13.0	7	68	3.48		68.40
60	2.0	00	0.2	5	1	6.48	16.4	6	84	1.96		84.86
80	2.5	50	0.18	3	1	1.20	11.1	9	96	6.16		96.05
120	3.0	00	0.13	3	(3.04	3.04	1	99	9.20		99.09
35 45 60 80 120 170 200	3.5	50	0.09	9	(0.22	0.22	2	99	9.42		99.31
200	3.7	75	0.0	7	(0.01	0.01	ı	99	9.43		99.32
230	4.0	00	0.06	3	(0.00	0.00)	99	9.43		99.32
Shell Hash calculated from Phi 5 2.45 Moment Statistics	m visual estin	nate of shell <	<4.75mm and >2	2.8mm.								
Phi 5	Phi	16	Phi 2	25	Phi 50 Phi 75 Phi 84 Phi 95						Phi 95	
2.45	1.9	97	1.70)	0.73 -0.17 -0.42 -0.87					-0.87		
Moment	Ме	an Phi	M	lean mn	an mm Sorting Skewness Kurtosis					Curtosis		
Statistics	().76		0.59	59 1.07 0.05 1.89						1.89	



Project Name:	Flagler Beach S	ample Analysis	Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton						
Sample Name:	R-70 Berm Cres	st			Coastal 2481 NW B	oca Raton	Blvd, Boca	ng Rato	on
Analysis Date:						FL 3343 h (561) 39	31		
Analyzed By: T					fa	x (561) 39	1-9116		
Easting (ft):	Northing			ordinate System			Elevation (ft):		
-81	Munsell: Wet	30 - 10YR-6/4 Commen		3eograph	ic (Latitude/Lon	igitude)			
SW	Dry Washed	- 10YR-6/6 - 10YR-6/6			Collected o				
Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Lo	ss (%):	Fines (%): #200 - 0.50	rganics (%):	Carbonates ((%):	Shell Hash (%)
102.92	102.42	0.00		0.00	#230 - 0.49		79		1
Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)		Brams etained	% Weight Retained		Grams ained		% Weigh Retained
3/4"	-4.25	19.03		0.00	0.00	C	0.00		0.00
5/8"	-4.00	16.00		0.00	0.00	C	0.00		0.00
7/16"	-3.50	11.31		0.00	0.00	C	0.00		0.00
5/16"	-3.00	8.00		0.00	0.00	C	0.00		0.00
3.5	-2.50	5.66		0.00	0.00	C	0.00		0.00
4	-2.25	4.76		0.00	0.00	C	0.00		0.00
5	-2.00	4.00		0.17	0.17	C).17		0.17
7	-1.50	2.83		0.42	0.41	C	.59		0.58
10	-1.00	2.00		2.14	2.08	2	2.73		2.66
14	-0.50	1.41	1	11.20	10.88	1:	3.93		13.54
18	0.00	1.00	2	23.45	22.78	3.	7.38		36.32
25	0.50	0.71	1	19.83	19.27	5	7.21		55.59
35	1.00	0.50	1	14.37	13.96	7	1.58		69.55
45	1.50	0.35		9.98	9.70	8	1.56		79.25
60	2.00	0.25		9.42	9.15	90	0.98		88.40
80	2.50	0.18		7.95	7.72	98	8.93		96.12
120	3.00	0.13		3.23	3.14	10	2.16		99.26
170	3.50	0.09		0.24	0.23	10	2.40		99.49
200	3.75	0.07		0.01	0.01	10	2.41		99.50
230	4.00	0.06		0.01	0.01	10	2.42		99.51
						-		···	
Shell Hash calculated from Phi 5	m visual estimate of shell Phi 16	<4.75mm and >2.8mm. Phi 25	F	Phi 50	Phi 75	PI	ni 84		Phi 95
2.43	1.76	1.28		0.35	-0.25).45		-0.89
Moment	Mean Phi	Mean m	m	So	rting	Skewnes	ss	Κι	ırtosis
Statistics	0.53	0.69				2.45			



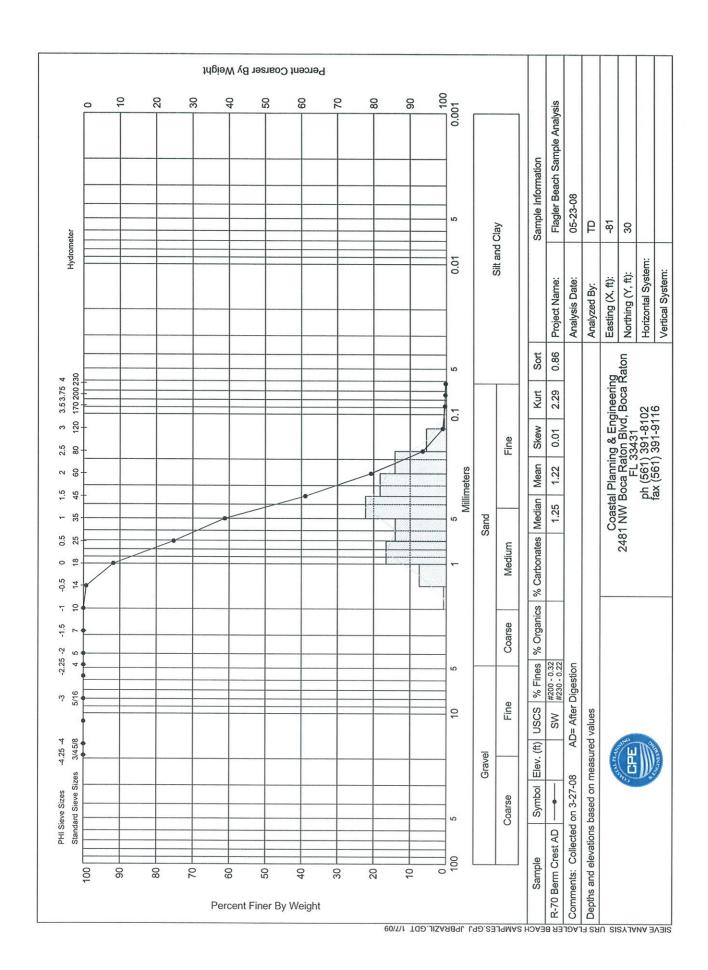
Project Name: Flagler Beach Sample Analysis

Sample Name: R-70 Berm Crest AD

Analysis Date: 05-23-08

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

Analyzed By: T	D							pn (fax ((561) 391 (561) 391	-8102 -9116		
Easting (ft):		Northing	(ft):		Coor	dinate System:			E	levation (ft)	:	
-81	Muns		30			eographi	c (Latitude/	Longi	tude)			
SW	Muns		0.577.070	Comments:		Salla eta d	0 07 00	\	AD A	Б:		
Dry Weight (g):	Wash Weigh		/ - 2.5Y-8/3 Pan Retained	(g): S	Sieve Loss		on 3-27-08 Fines (%): #200 - 0.3		AD= Aft	Carbonate		Shell Hash (%):
9.66	9.6	6	0.02	2	0	.00	#200 - 0.3					0
Sieve Number	Sieve (Pł		Sieve S (Millime			ams ained	% Weig Retain			Grams ained		. % Weight Retained
3/4"	-4.2	25	19.0	3	0	.00	0.00		0.	00		0.00
5/8"	-4.0	00	16.0	0	0	.00	0.00		0.	00		0.00
7/16"	-3.5	50	11.3	1	0	.00	0.00		0.	00		0.00
5/16"	-3.0	00	8.00)	0	.00	0.00		0.	00		0.00
3.5	-2.5	50	5.66	3	0	.00	0.00		0.	00		0.00
4	-2.2	25	4.76	3	0	.00	0.00		0.	00		0.00
5	-2.0	00	4.00)	0	.00	0.00		0.	00		0.00
7	-1.5	50	2.83	3	0	.00	0.00		0.	00		0.00
10	-1.0	00	2.00)	0	.00	0.00		0.	00		0.00
14	-0.5	50	1.4	1	0	.07	0.72		0.	07		0.72
18	0.0	0	1.00)	0	.72	7.45		0.	79		8.17
25	0.5	0	0.7	1	1	.60	16.56	3	2.	39		24.73
35	1.0	0	0.50)	1	.36	14.08	3	3.	75		38.81
45	1.5	0	0.35	5	2	.15	22.26	3	5.	90		61.07
60	2.0	0	0.25	5	1	.76	18.22	2	7.	66		79.29
80	2.5	0	0.18	3	1	.37	14.18	3	9.	03		93.47
120	3.0	0	0.13	3	0	.53	5.49		9.	56		98.96
170	3.5	0	0.09	9	0	.06	0.62		9.	62		99.58
200	3.7	5	0.07	7	0	.01	0.10		9.	63		99.68
230	4.0	0	0.06	3	0	.01	0.10		9.0	64		99.78
Shell Hash calculated fro	om visual estima	ate of shell	<4.75mm and >2	.8mm.								
Phi 5	25	Pł	ni 50	Phi 7	5	Phi	84		Phi 95			
2.64 2.17 1.88					1	.25	0.51		0.2	24		-0.21
Phi 5 Phi 16 Phi 25						Sor	ting	SI	kewness		K	urtosis
Statistics 1.22 0.4					43 0.86 0.01				2.29			



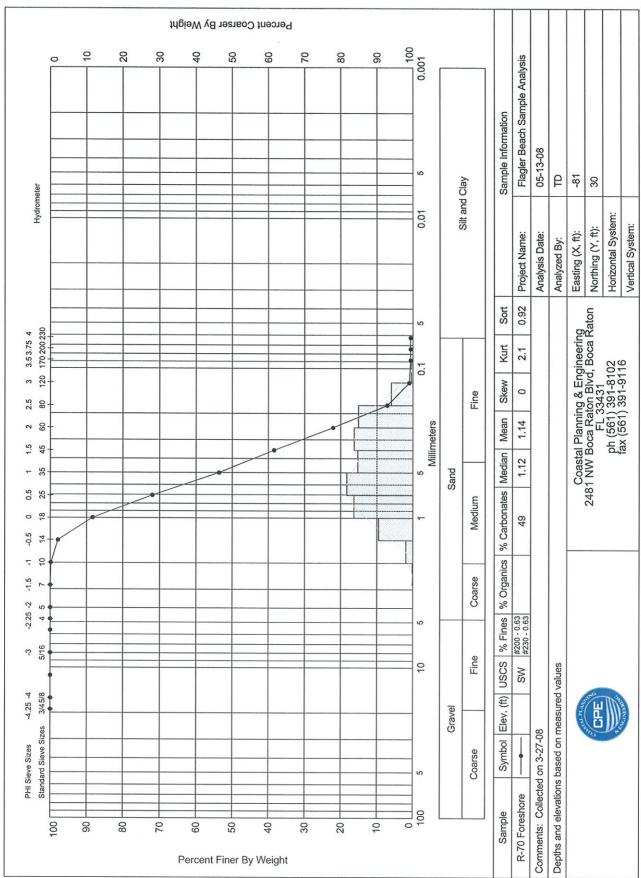
Project Name: Flagler Beach Sample Analysis

Sample Name: R-70 Foreshore

Analysis Date: 05-13-08

Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431

Analysis Date: (Analyzed By: T					ph (561) 391-8102 fax (561) 391-9116 Coordinate System: Elevation (ft):							
Easting (ft):		Northing ((ft):									
-81			30		Geograp	hic	: (Latitude/Lo	ngitude)				
uscs:		Dry - Vashed -	- 10YR-6/4 - 10YR-7/4 - 10YR-7/4	Comment	s:		Collected	on 3-27-	-08			
Dry Weight (g):	Wash Weight (g):	Pan Retained	(g):	Sieve Loss (%):		Fines (%): #200 - 0.63	Organics (%	: Carbonate	es (%):	Shell Hash (%):	
100.33	99.69		0.00		0.00		#230 - 0.63		49)	0	
Sieve Number	Sieve S (Phi		Sieve : (Millime		Grams Retained		% Weight Retained	m. Grams Retained		. % Weight Retained		
3/4"	-4.25	5	19.0	3	0.00		0.00		0.00		0.00	
5/8"	-4.00)	16.0	0	0.00		0.00		0.00		0.00	
7/16"	-3.50)	11.3	1	0.00		0.00		0.00		0.00	
5/16"	-3.00)	8.00	0	0.00		0.00		0.00		0.00	
3.5	-2.50)	5.60	6	0.00		0.00		0.00		0.00	
4	-2.25	5	4.70	6	0.00		0.00		0.00		0.00	
5	-2.00)	4.00	0	0.00		0.00		0.00		0.00	
7	-1.50)	2.83	3	0.01		0.01		0.01	0.01		
10	-1.00)	2.00	0	0.14	0.14			0.15		0.15	
14	-0.50)	1.4	1	1.96		1.95		2.11		2.10	
18	0.00		1.00	0	9.57				11.68		11.64	
25	0.50		0.7	1	16.38		16.33		28.06		27.97	
35	1.00		0.50	0	18.42		18.36		46.48		46.33	
45	1.50		0.3	5	15.31		15.26		61.79		61.59	
60	2.00		0.25	5	16.33		16.28		78.12		77.87	
80	2.50		0.18	3	15.10		15.05		93.22		92.92	
45 60 80 120 170 200	3.00		0.13	3	6.06		6.04		99.28		98.96	
170	3.50		0.09	9	0.40		0.40		99.68		99.36	
200	3.75		0.07	7	0.01		0.01		99.69		99.37	
230	4.00		0.06	3	0.00		0.00		99.69		99.37	
Shell Hash calculated from	m visual estimate	e of shell <	4.75mm and >2	2.8mm.								
Phi 5	Phi 1	6	Phi 2	Phi 50		Phi 75		Phi 84		Phi 95		
Phi 5 2.67 Moment Statistics	2.20		1.9	1	1.12		0.41		0.13		-0.35	
Moment	Mear	Phi	М	ean mr	n S	Sort	ing	Skewr	ess	K	urtosis	
Statistics	1.1	4		0.45	0.92			0			2.1	



Project Name: Flagler Beach Sample Analysis

Sample Name: R-70 Foreshore AD

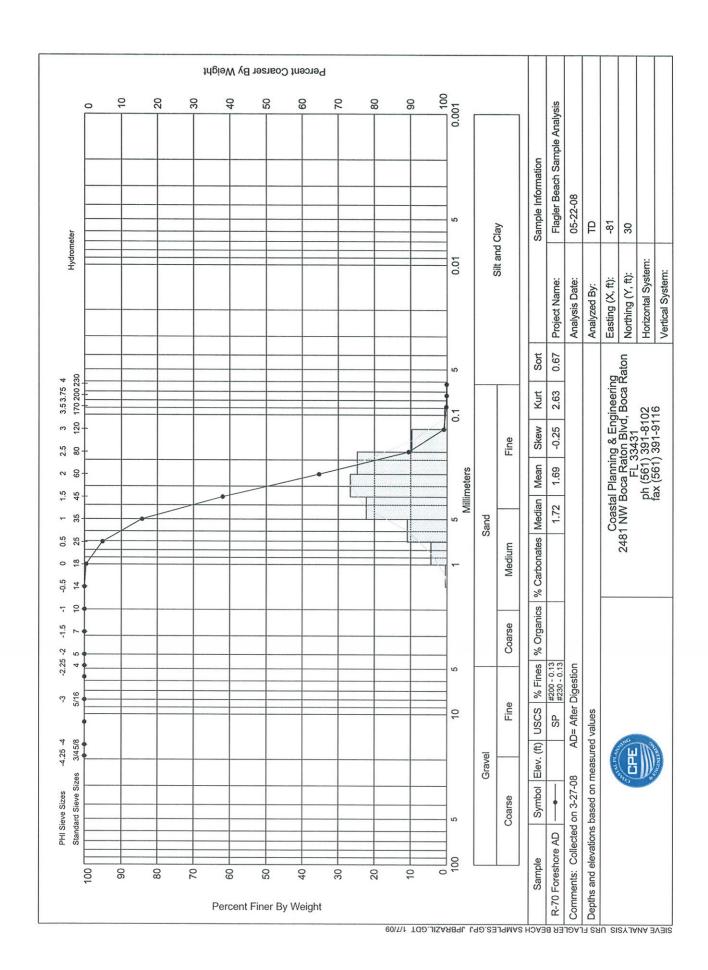
Analysis Date: 05-22-08



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

Allalysis Date.								ph (561) 391	-8102			
Analyzed By: T	D	North Con			ph (561) 391-8102 fax (561) 391-9116 Coordinate System: Elevation (ft): Geographic (Latitude/Longitude)								
Easting (ft):		Northing (ft)			Geographic (Latitude/Longitude)								
-81	Munse	ell:	30	Comment		Geographi	c (Latitude	e/Longi	tude)				
SP			2.5Y-8/3			Collected	on 3-27-0	0	۸D- ۸4	tor Dia			
Dry Weight (g):	Wash Weight		an Retained (g):	Sieve Lo		Fines (%): #200 - 0.		AD= Aff		ates (%):	Shell Hash (%):	
20.65	20.6	55	0.01			0.10	#200 - 0. #230 - 0.	13				0	
Sieve Number	Sieve : (Ph		Sieve S (Millime			rams etained	% We Retair	ight ned	Cum. Reta	Gram	s C	. % Weight Retained	
3/4"	-4.2	5	19.03			0.00	0.00			.00		0.00	
5/8"	-4.0	0	16.0)		0.00	0.0	0	0.	.00		0.00	
7/16"	-3.5	0	11.3	1		0.00	0.0	0	0.	00		0.00	
5/16"	-3.0	0	8.00			0.00	0.0	0	0.	00		0.00	
3.5	-2.5	0	5.66			0.00	0.0	0	0.	00		0.00	
4	-2.2	5	4.76			0.00	0.00	0	0.	00		0.00	
5	-2.0	0	4.00			0.00	0.00	0	0.	00		0.00	
7	-1.5	0	2.83			0.00	0.00		0.00			0.00	
10	-1.0	0	2.00			0.00	0.00		0.	00		0.00	
14	-0.5	0	1.41			0.00	0.00)	0.	00		0.00	
18	0.00)	1.00		0.09		0.44	4	0.	09		0.44	
25	0.50)	0.71		0.91		4.4	1	1.	00		4.85	
35	1.00)	0.50		:	2.25	10.9	0	3.25			15.75	
45	1.50)	0.35			4.60	22.2	8 7.85		85		38.03	
60	2.00)	0.25		;	5.50	26.6	3	13	.35		64.66	
80	2.50)	0.18		:	5.12	24.7	9	18	.47		89.45	
120	3.00)	0.13			1.99	9.64	1	20.	.46		99.09	
170	3.50)	0.09		(0.14	0.68	3	20.	.60		99.77	
200	3.75	5	0.07		(0.02	0.10)	20.	.62		99.87	
230	4.00)	0.06		(0.00	0.00)	20.	.62		99.87	
Shell Hash calculated from	n visual estimat	e of shell <4.7	75mm and >2.	8mm.									
Phi 5	Phi 1		Phi 2	T	Р	hi 50	Phi 7	75	Phi	84		Phi 95	
2.79	2.39)	2.21			1.72	1.21		1.0	01		0.51	
Moment	Mear	n Phi	Mean mm			Sor	ting	SI	kewness	,	K	urtosis	
Statistics	1.6	69		0.31		0.67		-0.25				2.63	

GRANULARMETRIC REPORT URS FLAGLER BEACH SAMPLES.GPJ JPBRAZIL.GDT 1/7/09



Project Name: Flagler Beach Sample Analysis

Sample Name: R-75 Berm Crest

Analysis Date: 05-14-08

Analyzed By: TD

Easting (ft):

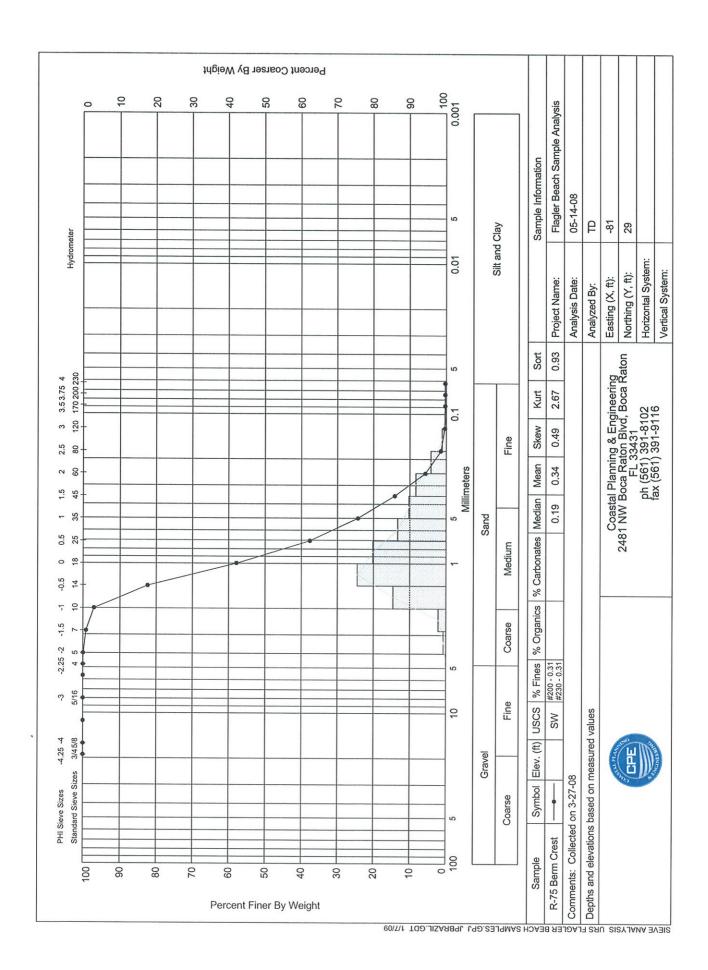
Northing (ft): Coordinate System:

Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431 ph (561) 391-8102 fax (561) 391-9116 Elevation (ft):

-81 29 Geographic (Latitude/Longitude)

USCS:	Munsell: Wet -			oograpiii	o (Latitado	Longi	(440)				
SW	001100000 0110 21 00										
Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Lo		Fines (%): #200 - 0.			ates (%):	Shell Hash (%):		
102.70	102.38	0.00		0.00	#230 - 0.		Γ.	<u></u>		1	
Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters)		tained	% Weight Retained		Cum. Grams Retained		s C	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		0.05	0.05		0.05			0.05	
7	-1.50	2.83		0.80	0.78		0.85			0.83	
10	-1.00	2.00		2.22	2.16		3.07			2.99	
14	-0.50	1.41	1	4.99	14.60		18.06			17.59	
18	0.00	1.00	2	25.20	24.54		43.26			42.13	
25	0.50	0.71	2	20.75	20.20		64.01			62.33	
35	1.00	0.50	1	3.68	13.3	13.32		77.69		75.65	
45	1.50	0.35	1	0.50	10.22		88.19			85.87	
60	2.00	0 0.25		8.59	8.36		96.78			94.23	
80	2.50	0.18		4.34	4.23		101.12			98.46	
120	3.00	0.13	1.18		1.15		102.30			99.61	
170	3.50	0.09	0.07		0.07		102.37			99.68	
200	3.75	0.07	0.01		0.01		102.38			99.69	
230	4.00	0.06	0.00		0.00		102.38			99.69	
Shell Hash calculated fro	om visual estimate of shell <	4.75mm and >2.8mm.									
Phi 5	Phi 16	Phi 25	Р	hi 50	Phi 7	'5	Phi 84		Phi 95		
2.09	1.41	0.98		0.19	-0.3	-0.55		.55	-0.93		
Moment	Mean Phi	Phi Mean m		Sor	ting	SI	Skewness		Kurtosis		
Statistics	0.34	0.79		0.	93	0.49			2.67		

GRANULARMETRIC REPORT URS FLAGLER BEACH SAMPLES.GPJ JPBRAZIL.GDT 1/7/09



Granularmetric Report

Depths and elevations based on measured values

Project Name: Flagler Beach Sample Analysis

Sample Name: R-75 Foreshore

Analysis Date: 05-14-08

Analyzed By: TD

Easting (ft):

Northing (ft): Coordinate System:

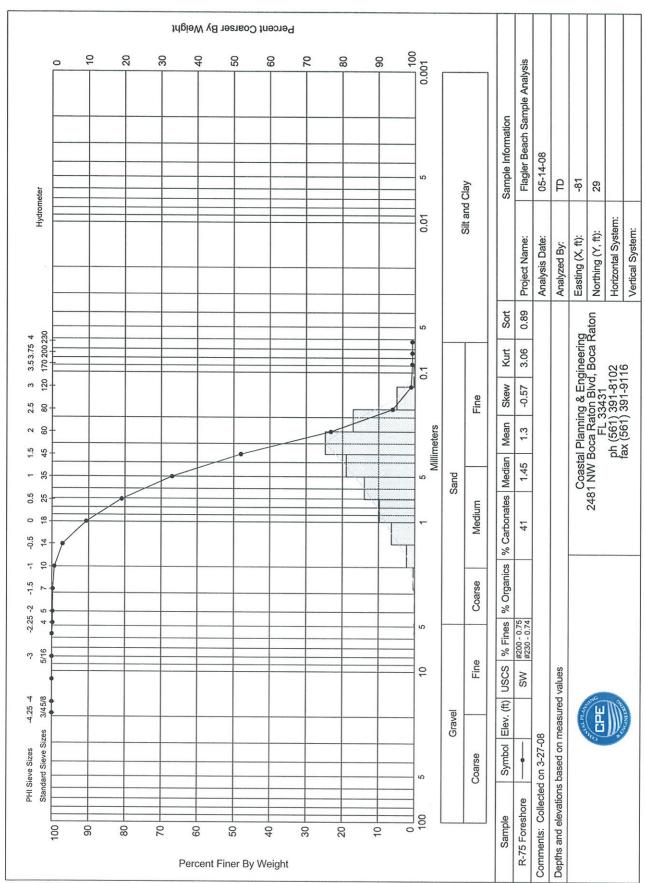
Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431 ph (561) 391-8102 fax (561) 391-9116

Elevation (ft):

-81 Geographic (Latitude/Longitude) USCS: Munsell: Wet - 10YR-7/3 Comments: Dry - 10YR-7/3 SW Collected on 3-27-08 Washed - 10YR-7/3 Pan Retained (g): Dry Weight (g): Wash Weight (g): Sieve Loss (%): Fines (%): #200 - 0.75 Organics (%): Carbonates (%): Shell Hash (%): 98.06 97.35 0.00 #230 - 0.74 0.01 41 0 Sieve Size Sieve Size C. % Weight Grams % Weight Cum. Grams Sieve Number (Phi) (Millimeters) Retained Retained Retained Retained 3/4" -4.2519.03 0.00 0.00 0.00 0.00 5/8" -4.0016.00 0.00 0.00 0.00 0.00 7/16" -3.5011.31 0.00 0.00 0.00 0.00 5/16" -3.008.00 0.00 0.00 0.00 0.00 3.5 -2.505.66 0.00 0.00 0.00 0.00 4 -2.254.76 0.16 0.16 0.16 0.16 5 -2.004.00 0.02 0.02 0.18 0.18 7 -1.502.83 0.05 0.05 0.23 0.23 10 -1.002.00 0.41 0.42 0.64 0.65 14 -0.502.23 1.41 2.27 2.92 2.87 18 0.00 1.00 6.28 6.40 9.15 9.32 25 0.50 0.71 9.58 9.77 18.73 19.09 35 1.00 0.50 13.65 13.92 32.38 33.01 45 1.50 0.35 18.60 18.97 50.98 51.98 60 2.00 0.25 24.28 24.76 75.26 76.74 80 2.50 0.18 16.79 17.12 92.05 93.86 120 3.00 0.13 4.94 5.04 96.99 98.90 170 3.50 0.09 0.31 0.32 97.30 99.22 200 3.75 0.07 0.03 0.03 99.25 97.33 230 4.00 0.06 0.01 0.01 97.34 99.26 Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm. Phi 5 Phi 16 Phi 25 Phi 50 Phi 75 Phi 84 Phi 95 2.61 2.21 1.96 1.45 0.71 0.34 -0.34Mean Phi Moment Mean mm Sorting Skewness Kurtosis **Statistics** 1.3 0.41 0.89 -0.573.06

FLAGLER GRANULARMETRIC REPORT

GDT.



Project Name: Flagler Beach Sample Analysis

Sample Name: R-75 Foreshore AD

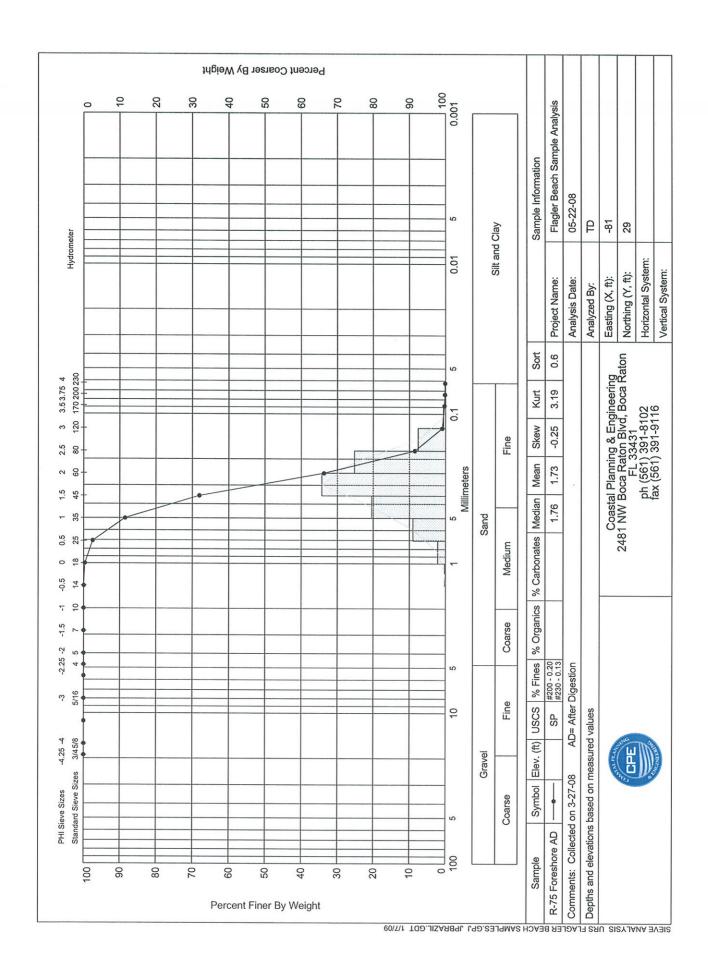
Analysis Date: 05-22-08



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

Analyzed By: TD						- ph (561) 391-8102 fax (561) 391-9116							
Easting (ft): Northing (ft):					Co	Coordinate System: Elevation (ft):							
-81 29						Geographic (Latitude/Longitude)							
USCS:	М	lunsell:		Commen	ts:								
SP Dry Weight (g):	Wash We		- 2.5Y-8/2 Pan Retained	a).	Sieve Lo	Collected on 3-27-08 (e Loss (%): Fines (%): Organ			AD= Af			Tot. 1111 1 100	
27.89		7.89	0.03			0.04	#200 - 0.20 Property #230 - 0.13		nics (%): Carbonates		nates (%):	Shell Hash (%):	
	Siovo Sizo			Sieve Size		Grams	% Weight		Cum. Grams)s C	0. % Weight	
Sieve Number	(Phi)		(Millimeters)			etained	Retained		Retained			Retained	
3/4"	-4	4.25	19.03		0.00		0.00		0.00			0.00	
5/8"	-4	4.00	16.0	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	0.0	0 0		.00		0.00	
3.5	-2	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	2.00	4.00			0.00	0.00		0.00			0.00	
7	-1	1.50	2.83	3		0.00	0.00		0.00			0.00	
10	-1	1.00	2.00			0.00	0.00		0.00			0.00	
14	-(0.50	1.41			0.01	0.04		0.01			0.04	
18	0	0.00	1.00		0.08		0.29		0.09			0.33	
25	0	0.50	0.71			0.60	2.15		0.69			2.48	
35	1	.00	0.50		2.52		9.04		3.21			11.52	
45	1	.50	0.35		5.69		20.40		8.90			31.92	
60	2	2.00	0.25	0.25		9.58	34.35		18.48			66.27	
80	2	2.50	0.18		7.03		25.21		25.51			91.48	
120	3	3.00	0.13		2.11		7.57		27.62			99.05	
170	3	5.50	0.09		0.17		0.61		27.79			99.66	
200	3	.75	0.07			0.04	0.14		27.83			99.80	
230	4	.00	0.06			0.02	0.07		27.85			99.87	
Shell Hash calculated from	n visual est	imate of shell <	4.75mm and >2	8mm.									
Phi 5		ni 16	Phi 2		Р	hi 50	Phi 7	' 5	Phi 84		Phi 95		
2.73	2	.35	2.17			1.76	1.33	3 1.		11		0.64	
Moment	Me	ean Phi	М	ean mi	n	Sor	ting	Skewnes		Kurtosis		urtosis	
Statistics		1.73		0.30		0.6		-0.25			3.19		

GRANULARMETRIC REPORT URS FLAGLER BEACH SAMPLES.GPJ JPBRAZIL.GDT 117/09



Granularmetric Report

Depths and elevations based on measured values

Project Name: Flagler Beach Sample Analysis

Sample Name: R-80 Berm Crest

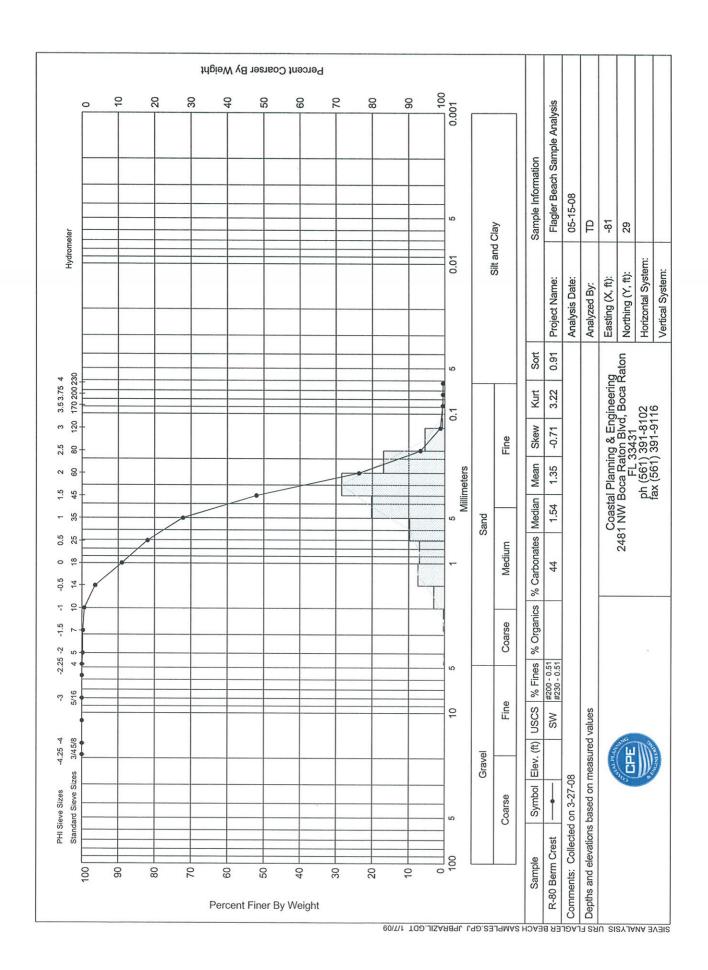
Analysis Date: 05-15-08



Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton

FL 33431 ph (561) 391-8102 fax (561) 391-9116 Analyzed By: TD Easting (ft): Northing (ft): Coordinate System: -81 29 Geographic (Latitude/Longitude) USCS: Wet - 10YR-6/2 Comments: Dry - 10YR-6/3 SW Washed - 10YR-6/3 Collected on 3-27-08 Dry Weight (g): Pan Retained (g): Wash Weight (g): Sieve Loss (%): Fines (%): #200 - 0.51 Carbonates (%): Organics (%): Shell Hash (%): 101.20 100.68 0.00 0.00 #230 - 0.51 44 0 Sieve Size Sieve Size Grams % Weight Cum. Grams C. % Weight Sieve Number (Phi) (Millimeters) Retained Retained Retained Retained 3/4" -4.2519.03 0.00 0.00 0.00 0.00 5/8" -4.0016.00 0.00 0.00 0.00 0.00 7/16" -3.5011.31 0.00 0.00 0.00 0.00 5/16" -3.008.00 0.00 0.00 0.00 0.00 3.5 -2.505.66 0.00 0.00 0.00 0.00 4 -2.254.76 0.00 0.00 0.00 0.00 5 -2.004.00 0.23 0.23 0.23 0.23 7 -1.502.83 0.06 0.06 0.29 0.29 10 -1.002.00 0.35 0.35 0.64 0.64 14 -0.501.41 3.06 3.02 3.70 3.66 18 0.00 1.00 7.47 7.38 11.17 11.04 25 0.50 0.71 7.08 7.00 18.25 18.04 1/7/09 35 1.00 0.50 9.85 9.73 28.10 27.77 GDT 45 1.50 0.35 20.41 20.17 48.51 47.94 60 2.00 0.25 28.73 28.39 77.24 76.33 80 2.50 0.18 17.14 16.94 94.38 93.27 120 3.00 0.13 5.59 5.52 99.97 98.79 170 3.50 0.09 0.67 0.66 100.64 99.45 200 3.75 0.07 0.04 0.04 100.68 99.49 230 4.00 0.06 0.00 0.00 100.68 99.49 Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm. Phi 5 Phi 16 Phi 25 Phi 50 Phi 75 Phi 84 Phi 95 2.66 2.23 1.98 1.54 0.86 0.35 -0.41Moment Mean Phi Mean mm Sorting Skewness Kurtosis **Statistics** 1.35 0.39 0.91 -0.713.22

JPBRAZIL. FLAGLER BEACH SAMPLES.GPJ URS SRANULARMETRIC REPORT



Project Name: Flagler Beach Sample Analysis

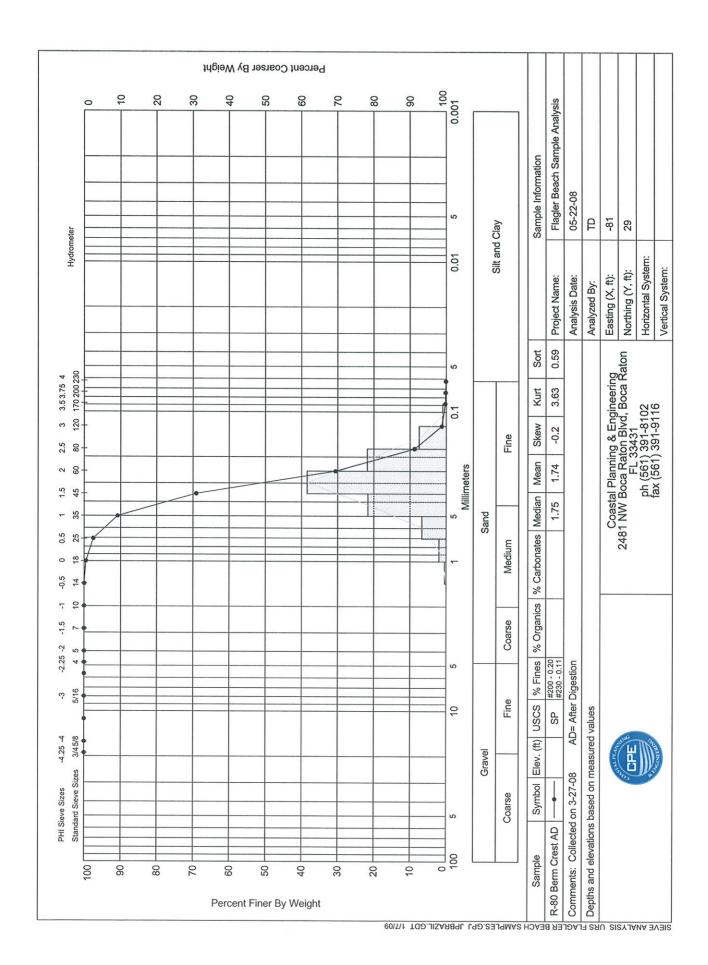
Sample Name: R-80 Berm Crest AD

Analysis Date: 05-22-08

Analyzed By: TD



Analyzed By: T			fax (561) 391-9116 Coordinate System: Elevation (ft):						
Easting (ft):	Nort	hing (ft):		Coordinate System: Elevation (ft): Geographic (Latitude/Longitude)					
-81		29		Geographi	c (Latitude	/Longitude)			
USCS:	Munsell:	- Institution	Comments:		_				
SP Dry Weight (g):	Wash Weight (g):	Dry - 2.5Y-7/2 Pan Retained (g): Sie	Collected	on 3-27-08		After Diges		Shell Hash (%):
23.51	23.51	0.0		0.09	Fines (%): #200 - 0.2 #230 - 0.		Su. Donatos	(70).	0
Sieve Number	Sieve Size (Phi)		Size	Grams Retained	% Wei Retair	ght Cum	n. Grams etained		% Weight Retained
3/4"	-4.25	19.0	3	0.00	0.00)	0.00		0.00
5/8"	-4.00	16.0	0	0.00	0.00)	0.00	0.00	
7/16"	-3.50	11.3	1	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	3	0.00	0.00)	0.00		0.00
4	-2.25	4.76	3	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	3	0.00	0.00)	0.00		0.00
10	-1.00	2.00)	0.00	0.00)	0.00		0.00
14	-0.50	1.41		0.01	0.04		0.01		0.04
18	0.00	1.00)	0.10	0.43	3	0.11		0.47
25	0.50	0.71		0.47	2.00)	0.58		2.47
35	1.00	0.50)	1.58	6.72	2	2.16		9.19
45 60	1.50	0.35	5	5.09	21.6	5	7.25		30.84
60	2.00	0.25	5	9.06	38.5	4 1	6.31		69.38
	2.50	0.18	3	5.14	21.8	6 2	21.45		91.24
120	3.00	0.13	3	1.76	7.49) 2	23.21		98.73
170	3.50	0.09)	0.23	0.98	3 2	23.44		99.71
120 170 200	3.75	0.07	'	0.02	0.09) 2	3.46		99.80
	4.00	0.06	3	0.02	0.09	2	3.48		99.89
Shell Hash calculated from	n visual estimate of sl	hell <4.75mm and >2	.8mm.						
Phi 5	Phi 16	Phi 2	5	Phi 50	Phi 7	5 P	hi 84		Phi 95
Phi 5 2.75 Moment Statistics	2.33	2.13	3	1.75	1.37		1.16		0.69
Moment	Mean Ph	ni M	ean mm	Sor	ting	Skewne	ss	Κι	ırtosis
Statistics	1.74		0.30	0.	59	-0.2		3	3.63



Project Name: Flagler Beach Sample Analysis

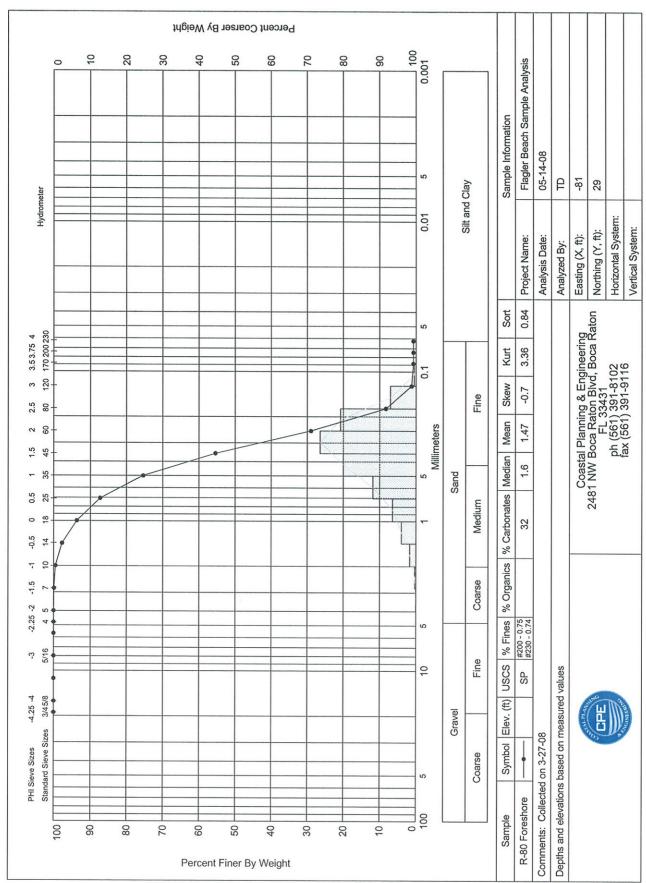
Sample Name: R-80 Foreshore

Analysis Date: 05-14-08



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

Analyzed By: T	1611 (661) 661 6116											
Easting (ft):		Northing (ft):		Cod	ordinate System:				levation (f	t):	
-81			29			Geographi	c (Latitude	/Longit	tude)			
USCS:	Munse		10YR-6/3 10YR-7/4	Comments	3:							
SP Dry Weight (g):	Wash Weight	Washed -	10YR-7/4 Pan Retained (a): T	Sieve Lo	00 (0/).			3-27-08	I		T.
97.68	97.0						Fines (%): #200 - 0.		nics (%):	Carbona		Shell Hash (%):
	Sieve		0.00 Sieve S			0.04 Grams	#230 - 0.		C		2	0
Sieve Number	(Ph	200	(Millime			etained	% We Retair		Cum. Reta	Grams ained		. % Weight Retained
3/4"	-4.2	:5	19.0	3		0.00	0.0	0	0.	00		0.00
5/8"	-4.0	0	16.0	0		0.00	0.0	0	0.	00		0.00
7/16"	-3.5	0	11.3	1		0.00	0.0	0	0.	00		0.00
5/16"	-3.0	0	8.00)		0.00	0.0	0	0.	00		0.00
3.5	-2.5	0	5.66	3		0.00	0.0	0	0.	00		0.00
4	-2.2	5	4.76	3		0.00	0.00	0	0.	00		0.00
5	-2.0	0	4.00)		0.00	0.00	0	0.0	00		0.00
7	-1.5	0	2.83	3		0.12	0.12	2	0.	12		0.12
10	-1.0	0	2.00)		0.36	0.3	7	0.4	48		0.49
14	-0.5	0	1.41			1.74	1.78	3	2.:	22		2.27
18	0.00	0	1.00)		3.92	4.0	1	6.	14		6.28
25	0.50	C	0.71			6.28	6.43	3	12.	.42		12.71
35	1.00	0	0.50)	1	1.59	11.8	7	24.	.01		24.58
45	1.50	0	0.35	5	1	9.51	19.9	7	43.	.52		44.55
60	2.00)	0.25	5	2	5.84	26.4	5	69.	.36		71.00
80	2.50)	0.18	3	2	0.23	20.7	1	89.	.59		91.71
120	3.00)	0.13		(6.88	7.04	1	96.	.47		98.75
170	3.50)	0.09		(0.46	0.47	7	96.	.93		99.22
45 60 80 120 170 200	3.75	5	0.07		(0.03	0.03	3	96.	.96		99.25
	4.00)	0.06		(0.01	0.0	1	96.	.97		99.26
230 Shell Hash calculated from	m visual estima	te of shell <4	1.75mm and >2	8mm.								
	Phi 1		Phi 2		Р	hi 50	Phi 7	5	Phi	84		Phi 95
2.73	2.3	1	2.10			1.60	1.01		0.6	64		-0.16
Phi 5 2.73 Moment Statistics	Mea	n Phi	M	ean mm	1	Sor	ting	Sł	cewness		K	urtosis
Statistics	1.4	47		0.36		0.8	34		-0.7			3.36



Granularmetric Report

Depths and elevations based on measured values

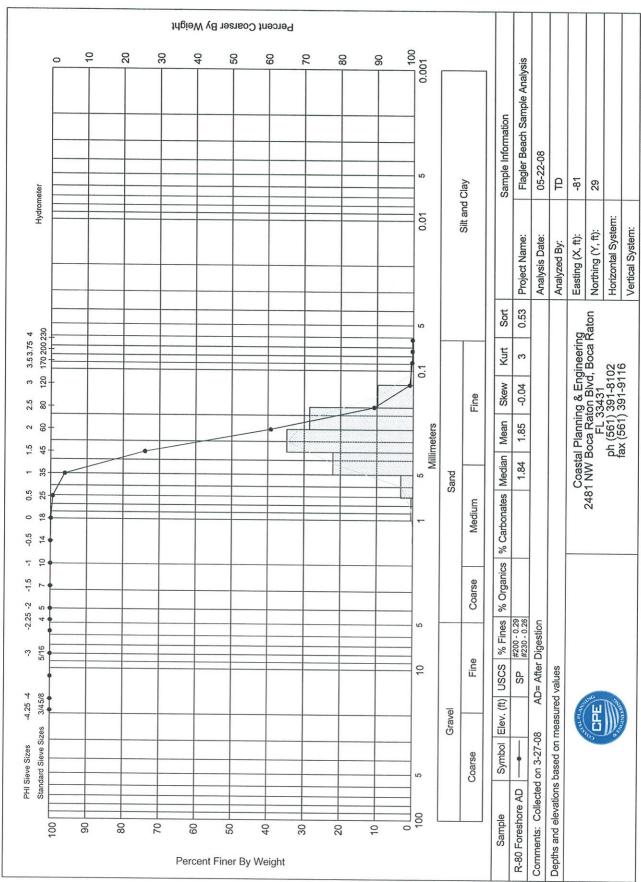
Project Name: Flagler Beach Sample Analysis

Sample Name: R-80 Foreshore AD

Analysis Date: 05-22-08



Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431 ph (561) 391-8102 fax (561) 391-9116 Analyzed By: TD Easting (ft): Northing (ft): Coordinate System: -81 29 Geographic (Latitude/Longitude) USCS: Munsell: Comments: SP Collected on 3-27-08 AD= After Digestion Dry - 2.5Y-8/3 Dry Weight (g): Wash Weight (g): Sieve Loss (%): Pan Retained (g): Carbonates (%): Organics (%): Shell Hash (%): Fines (%): #200 - 0.29 30.65 30.65 0.01 0.23 #230 - 0.26 0 Sieve Size Sieve Size Cum. Grams C. % Weight Grams % Weight Sieve Number (Phi) (Millimeters) Retained Retained Retained Retained 3/4" -4.2519.03 0.00 0.00 0.00 0.00 5/8" -4.0016.00 0.00 0.00 0.00 0.00 7/16" -3.5011.31 0.00 0.00 0.00 0.00 5/16" -3.008.00 0.00 0.00 0.00 0.00 3.5 -2.505.66 0.00 0.00 0.00 0.00 4 -2.254.76 0.00 0.00 0.00 0.00 5 -2.004.00 0.00 0.00 0.00 0.00 7 -1.502.83 0.00 0.00 0.00 0.00 10 -1.002.00 0.00 0.00 0.00 0.00 14 -0.501.41 0.00 0.00 0.00 0.00 18 0.00 1.00 0.03 0.10 0.03 0.10 25 0.50 0.71 0.15 0.49 0.18 0.59 35 1.00 0.50 1.01 3.30 1.19 3.89 GDT 45 1.50 0.35 6.78 22.12 7.97 26.01 60 2.00 0.25 10.66 34.78 18.63 60.79 80 2.50 0.18 8.73 28.48 27.36 89.27 120 3.00 0.13 2.98 9.72 30.34 98.99 170 3.50 0.09 0.20 0.65 30.54 99.64 BEACH 200 3.75 0.07 0.02 0.07 30.56 99.71 230 4.00 0.06 0.01 0.03 30.57 99.74 Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm. SRANULARMETRIC REPORT Phi 5 Phi 16 Phi 25 Phi 50 Phi 75 Phi 84 Phi 95 2.79 2.41 2.25 1.84 1.48 1.27 1.03 Moment Mean Phi Mean mm Sorting Skewness **Kurtosis** Statistics 1.85 0.28 0.53 -0.043

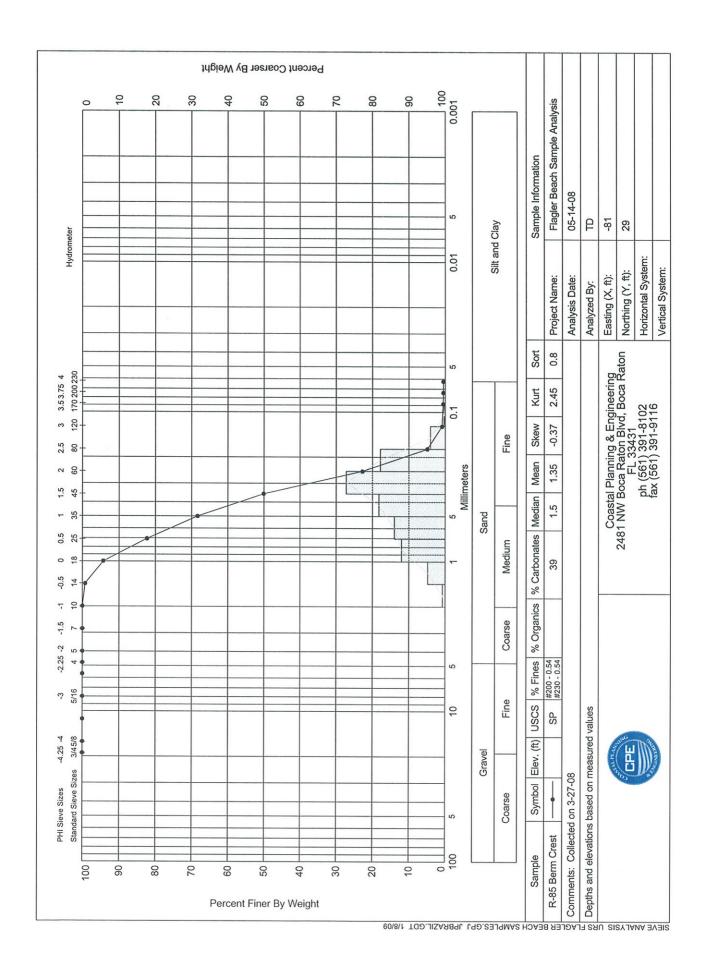


Project Name: Flagler Beach Sample Analysis

Sample Name: R-85 Berm Crest

Analysis Date: 05-14-08

Analyzed By: TD					ph (561) 391-8102 fax (561) 391-9116						
Analyzed By: T	D Northing	(ft):		Con	rdinate System		fax (-9116 Elevation (ft)		
-81	Troiting						/I opai		Lievation (it)		
USCS:	Munsell: Wet	29 - 10YR-6/3	Comment		eographi	c (Latitude	Longi	lude)	***************************************		
SP	Washed	- 10YR-7/4 - 10YR-7/3				Collecte					
Dry Weight (g):	Wash Weight (g):	Pan Retained (Sieve Los		Fines (%): #200 - 0.5		nics (%):	Carbonate	es (%):	Shell Hash (%):
101.27	100.74	0.02			0.00	#230 - 0.5			39		0
Sieve Number	Sieve Size (Phi)	Sieve S (Millime			rams tained	% Wei Retain		1	Grams ained		. % Weight Retained
3/4"	-4.25	19.0	3	(0.00	0.00)	0.	.00		0.00
5/8"	-4.00	16.0	0	(0.00	0.00)	0.00			0.00
7/16"	-3.50	11.3	1	(0.00	0.00)	0.	0.00		0.00
5/16"	-3.00	8.00)	(0.00	0.00)	0.	.00	0.00	
3.5	-2.50	5.66	3	(0.00	0.00)	0.	.00		0.00
4	-2.25	4.76	3	(0.00	0.00)	0.	.00	0.00	
5	-2.00	4.00	0	(0.00	0.00) .	0.	0.00		0.00
7	-1.50	2.83	3	(0.00	0.00)	0.00			0.00
10	-1.00	2.00)	(0.02	0.02	2	0.	0.02		0.02
14	-0.50	1.4	1	(0.76	0.75	5	0.	0.78		0.77
18	0.00	1.00)	4	1.92	4.86	3	5.	.70		5.63
25	0.50	0.7	1	1	2.19	12.0	4	17	'.89		17.67
35	1.00	0.50)	1	4.14	13.9	6	32	2.03		31.63
45	1.50	0.3	5	1	8.50	18.2	7	50).53		49.90
60	2.00	0.2	5	2	7.63	27.2	8	78	3.16		77.18
80	2.50	0.18	3	1	8.10	17.8	7	96	5.26		95.05
120	3.00	0.13	3	4	1.12	4.07	7	100	0.38		99.12
170	3.50	0.09	9	(0.32	0.32	2	100	0.70		99.44
200	3.75	0.0	7	(0.02	0.02	2	100	0.72		99.46
230	4.00	0.06	3	(0.00	0.00)	100	0.72		99.46
Shell Hash calculated fro	m visual estimate of shell	<4.75mm and >2	2.8mm.								
Phi 5	Phi 16	Phi 2	25	Р	hi 50	Phi 7	5	Ph	i 84		Phi 95
2.50	2.19	1.96	3		1.50	0.76	3	0.	.43		-0.06
35 45 60 80 120 170 200 230 Shell Hash calculated fro Phi 5 2.50 Moment Statistics	Mean Phi	N	lean mi	m	So	rting	S	kewness	s	k	Kurtosis
Statistics	1.35		0.39		().8		-0.37			2.45



Project Name: Flagler Beach Sample Analysis

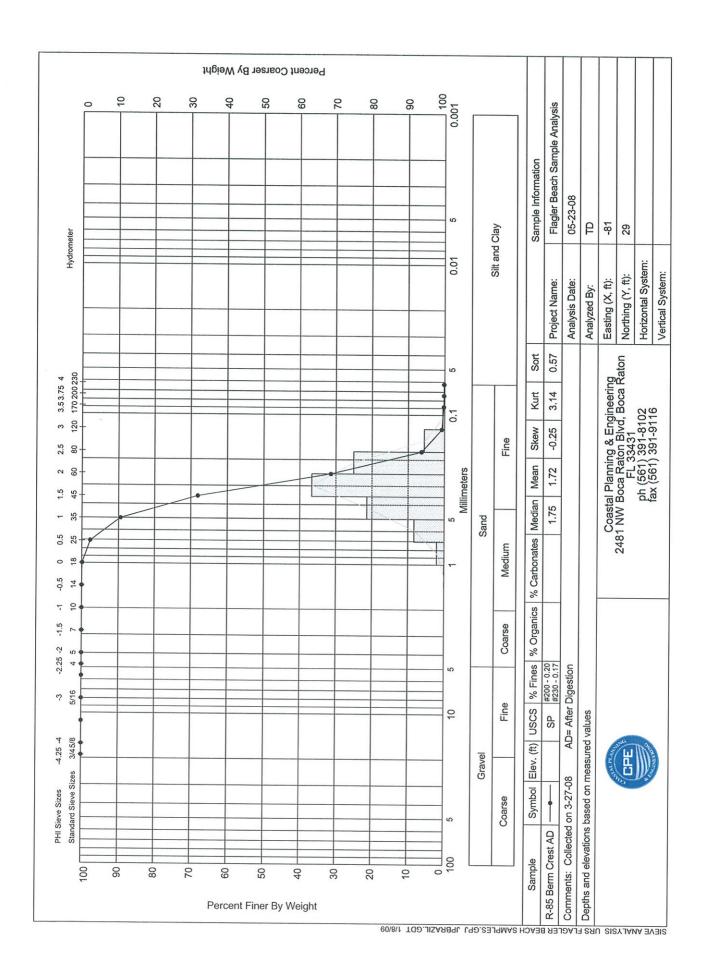
Sample Name: R-85 Berm Crest AD

Analysis Date: 05-23-08

Analyzed By: TD



Analyzed By: T			fax (561) 391-9116						
Easting (ft):	Northin	ng (ft):		Coordinate System:			Elevation (f	1):	
-81		29		Geographi	c (Latitude/	Longitude)			
USCS:	Munsell:		Comments:						
SP . Dry Weight (g):	Wash Weight (g):	Pan Retained	(a): Siev	Collected	on 3-27-08		After Dig		Shell Hash (%
30.82	30.82	0.0		0.10	Fines (%): #200 - 0.2 #230 - 0.1	20	Carbona	163 (76).	0
Sieve Number	Sieve Size (Phi)	Sieve (Millime	Size	Grams Retained	% Weig	ght Cui	m. Grams tetained		. % Weigh Retained
3/4"	-4.25	19.0	3	0.00	0.00		0.00		0.00
5/8"	-4.00	16.0	00	0.00	0.00		0.00	_	0.00
7/16"	-3.50	11.3	31	0.00	0.00		0.00	0.00	
5/16"	-3.00	8.0	0	0.00	0.00		0.00		0.00
3.5	-2.50	5.6	6	0.00	0.00		0.00		0.00
4	-2.25	4.7	6	0.00	0.00		0.00		0.00
5	-2.00	4.0	0	0.00	0.00		0.00	0.00	
7	-1.50	2.8	3	0.00	0.00		0.00		0.00
10	-1.00	2.0	0	0.00	0.00		0.00		0.00
14	-0.50	1.4	1	0.00	0.00		0.00		0.00
18	0.00	1.0	0	0.03	0.10		0.03		0.10
25	0.50	0.7	1	0.65	2.11		0.68		2.21
35	1.00	0.5	0	2.57	8.34		3.25		10.55
45	1.50	0.3	5	6.59	21.38	3	9.84		31.93
60	2.00	0.2	5	11.30	36.66	3	21.14		68.59
80	2.50	0.1	3	7.73	25.08	3	28.87		93.67
120	3.00	0.13	3	1.71	5.55		30.58		99.22
170	3.50	0.0	9	0.16	0.52		30.74		99.74
200	3.75	0.0	7	0.02	0.06		30.76		99.80
230	4.00	0.0	6	0.01	0.03		30.77		99.83
Shell Hash calculated from	m visual estimate of she	II <4.75mm and >	2.8mm.						
Phi 5	Phi 16	Phi 2	25	Phi 50	Phi 7	5	Phi 84		Phi 95
2.62	2.31	2.13	3	1.75	1.34		1.13		0.67
Moment	Mean Phi	N	lean mm	Sor	ting	Skewne	ess	K	urtosis
Statistics	1.72		0.30	0.	57	-0.25	-0.25		3.14



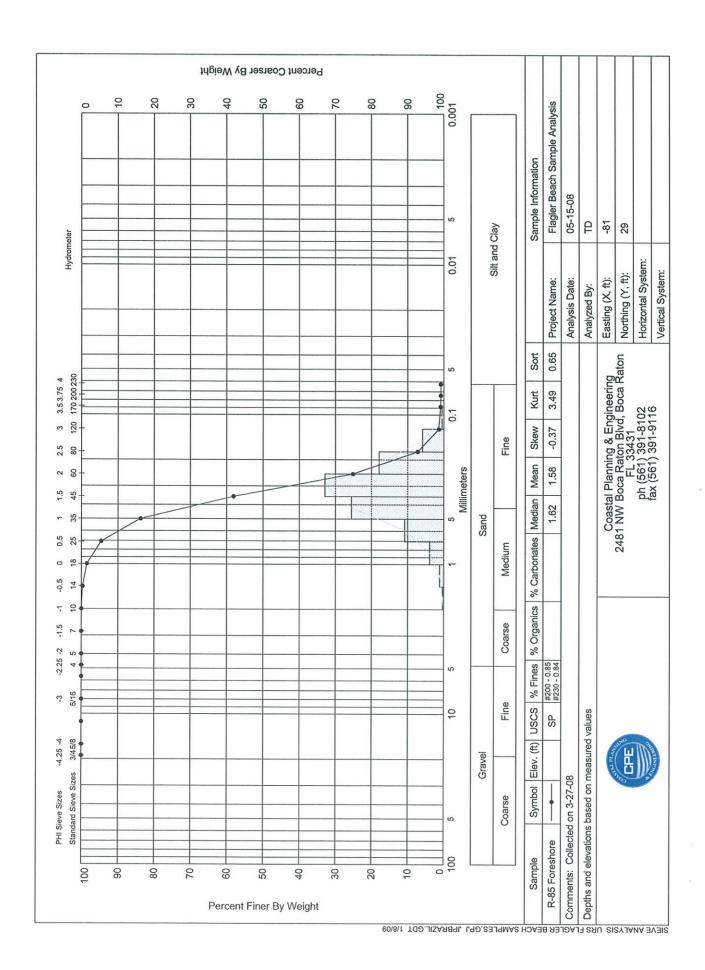
Project Name: Flagler Beach Sample Analysis

Sample Name: R-85 Foreshore

Analysis Date: 05-15-08

Analyzed By: TD

Analyzeu by. T	D				Tax (561) 391-9116					
Easting (ft):		Northing (ft): Coordinate System: Elevation (ft):								
-81			29		Geograph	ic (Latitude/	Longitude)			
USCS:	Munsel	⊪ Wet - Dry -	10YR-6/3 10YR-6/3	Comments:						
SP Dry Weight (g):	Wash Weight (Vashed -	Pan Retained ((a):	eve Loss (%):		ed on 3-27-0		(a) Ta	
98.64	97.8		0.02		30.00	Fines (%): #200 - 0.8	organics (%):	Carbonates	(%): 5	hell Hash (
	Sieve S		Sieve S		0.00 Grams	#230 - 0.8 % Weig		n. Grams		0
Sieve Number	(Phi		(Millime		Retained	Retain		etained		% Weig etained
3/4"	-4.2	5	19.0	3	0.00	0.00		0.00		0.00
5/8"	-4.00	0	16.0	0	0.00	0.00		0.00	0.0	
7/16"	-3.50)	11.3	1	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	0	5.66	3	0.00	0.00		0.00		0.00
4	-2.2	5	4.76	3	0.00	0.00		0.00		0.00
5	-2.00	0	4.00		0.00	0.00		0.00		0.00
7	-1.50	0	2.83	3	0.00	0.00		0.00	0	
10	-1.00)	2.00)	0.02	0.02		0.02		0.02
14	-0.50)	1.4	1	0.32	0.32		0.34		0.34
18	0.00)	1.00)	1.16	1.18		1.50		1.52
25	0.50)	0.7	1	3.86	3.91		5.36		5.43
35	1.00)	0.50)	10.70	10.85	5 1	6.06		16.28
45	1.50)	0.35	5	25.27	25.62	2 4	1.33	4	11.90
60	2.00)	0.25	5	32.48	32.93	3 7	'3.81		74.83
80	2.50)	0.18	3	17.66	17.90) 9	1.47	(92.73
120	3.00)	0.13	3	5.80	5.88	9	7.27	(98.61
170	3.50)	0.09	9	0.49	0.50	9	7.76	(99.11
200	3.75	5	0.07	7	0.04	0.04	9	7.80	(99.15
230	4.00)	0.06	3	0.01	0.01	9	7.81	(99.16
Shell Hash calculated from	n visual estimat	e of shall <	4.75mm and >2	8mm					Haran Marian Para Para Para Para Para Para Para Pa	
Phi 5	Phi 1		Phi 2		Phi 50	Phi 7	5 P	hi 84	F	Phi 95
2.69	2.26	,	2.00)	1.62	1.17		0.99		0.45
Moment	Mear	n Phi	М	ean mm	So	rting	Skewne	ss	Kur	tosis
Statistics	1.5	58		0.33	0	.65	-0.37		3	.49



Project Name: Flagler Beach Sample Analysis

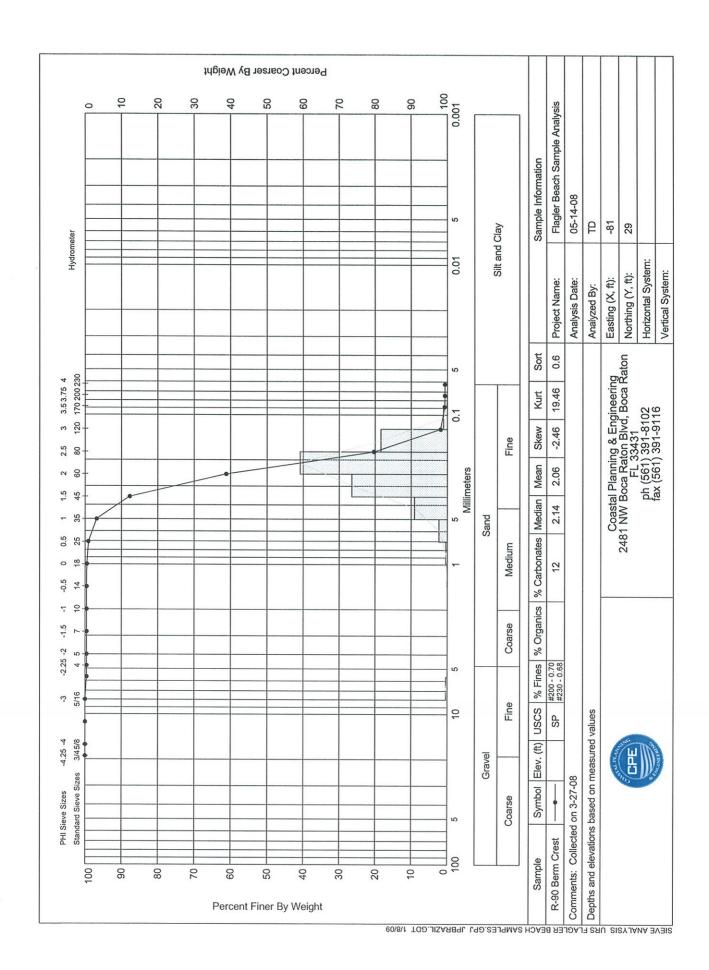
Sample Name: R-90 Berm Crest

Analysis Date: 05-14-08



Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431

Analysis Date:				_			ph (561) 391	-8102	,	
Analyzed By: T Easting (ft):	Northing	g (ft):		Coo	rdinate System	:	tax (561) 391	-9116 Elevation (f	ft):	
-81		29				c (Latitude	/l onait			,	
uscs:	Dn	t - 10YR-6/2 / - 10YR-7/1 I - 10YR-7/2	Comment		ocograpiii			3-27-08			
Dry Weight (g):	Wash Weight (g):	Pan Retained	(g):	Sieve Los	ss (%):	Fines (%): #200 - 0.		nics (%):	Carbona	ites (%):	Shell Hash (%):
96.96	96.31	0.00)		0.00	#230 - 0.			1	12	0
Sieve Number	Sieve Size (Phi)	Sieve S (Millime		100000000000000000000000000000000000000	rams tained	% We Retair		Cum. Reta	Grams ained		. % Weight Retained
3/4"	-4.25	19.0	3		0.00	0.00	C	0.	00		0.00
5/8"	-4.00	16.0	0		0.00	0.00)	0.	00		0.00
7/16"	-3.50	11.3	1		0.00	0.00)	0.	00		0.00
5/16"	-3.00	8.00)		0.00	0.00)	0.	0.00		0.00
3.5	-2.50	5.66	3		0.42	0.43	3	0.42		0.43	
4	-2.25	4.76	3	(0.00	00 0.00 0.4		42		0.43	
5	-2.00	4.00)		0.00	0.00	0.00 0.42		42		0.43
7	-1.50	2.83	3	(0.00	0.00)	0.42			0.43
10	-1.00	2.00)	(0.00	0.00)	0.42			0.43
14	-0.50	1.4	1	(0.00	0.00)	0.	42		0.43
18	0.00	1.00)	(0.05	0.0	5	0.	47		0.48
25	0.50	0.7	1	(0.39	0.40)	0.	86		0.88
35	1.00	0.50)	:	2.24	2.3	1	3.	10		3.19
45	1.50	0.35	5	,	8.82	9.10)	11	.92		12.29
60	2.00	0.25	5	2	5.72	26.5	3	37	.64		38.82
80	2.50	0.18	3	3	9.60	40.8	4	77	.24		79.66
120	3.00	0.13	3	1	7.89	18.4	5	95	.13		98.11
170	3.50	0.09)	1.	1.08	1.1	1	96	.21		99.22
200	3.75	0.07	7	(0.08	0.08	3	96	.29		99.30
230	4.00	0.06	3	(0.02	. 0.02	2	96	.31		99.32
35 45 60 80 120 170 200 230 Shell Hash calculated fro Phi 5 2.92 Moment Statistics	m visual estimate of shel	<4.75mm and >2	.8mm.								
Phi 5	Phi 16	Phi 2	25	Р	hi 50	Phi 7	' 5	Phi	i 84		Phi 95
2.92	2.62	2.44	1	2	2.14	1.74	1	1.	57		1.10
Moment	Mean Phi	М	ean mi	m	So	rting	Sł	kewness	6	K	Curtosis
Statistics	2.06		0.24		0	.6					19.46



Project Name: Flagler Beach Sample Analysis

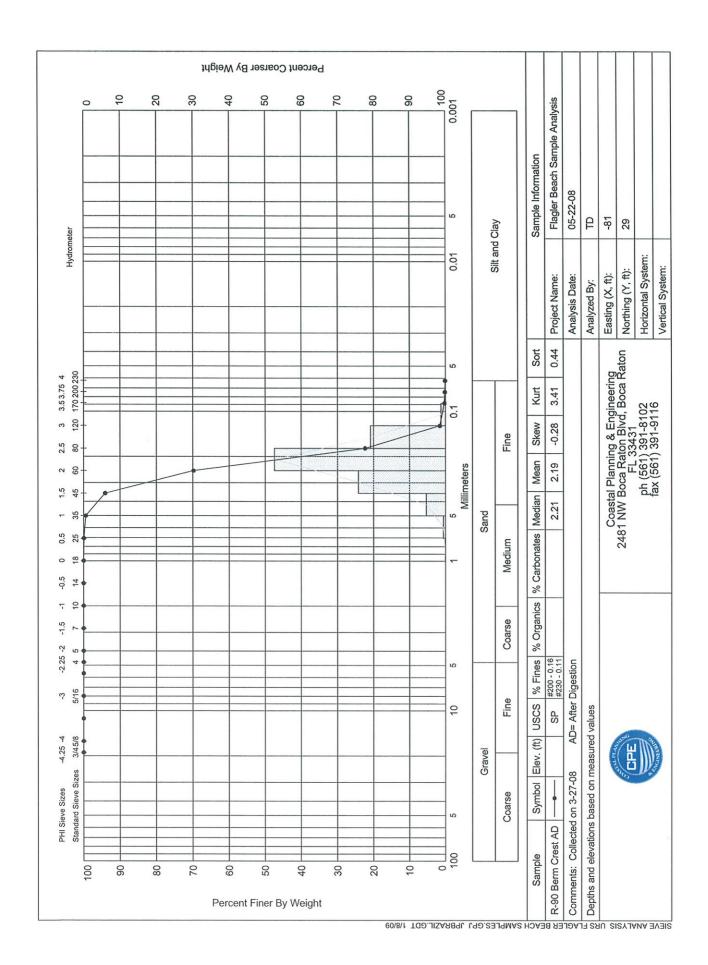
Sample Name: R-90 Berm Crest AD

Analysis Date: 05-22-08



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

Analyzed By: TD Easting (ft): Northing (ft):					pn (561) 391-8102 fax (561) 391-9116							
Easting (ft):	N	orthing (ft):			Coo	rdinate System:			E	levation (ft):		
-81			29			Seographic	c (Latitude	/Longit	ude)			
USCS:	Munsell:	_		Comments		0 "		•				
SP Dry Weight (g):	Wash Weight (g):		5Y-8/1 n Retained (g):	Sieve Los		on 3-27-08 Fines (%):		AD= Aft	Carbonate		Shell Hash (%):
43.65	43.65		0.02	2	(0.07	Fines (%): #200 - 0.1 #230 - 0.1					0
Sieve Number	Sieve Siz (Phi)		Sieve S (Millime	Size	G	rams tained	% Wei Retair	ght		Grams ained		. % Weight Retained
3/4"	-4.25		19.0	3	(0.00	0.00)	0.	00		0.00
5/8"	-4.00		16.0	0	(0.00	0.00)	0.	00		0.00
7/16"	-3.50		11.3	1	(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	3	(0.00	0.00)	0.	00		0.00
4	-2.25		4.76	3	(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	3	(0.00	0.00)	0.	00		0.00
10	-1.00		2.00)	(0.00	0.00)	0.	00		0.00
14	-0.50		1.41		(0.00	0.00)	0.	00		0.00
18	0.00		1.00)	(0.00	0.00)	0.	00		0.00
25	0.50		0.71		(0.02	0.05	5	0.	02		0.05
35	1.00		0.50)	(0.24	0.55	5	0.	26		0.60
45	1.50		0.35	5	2	2.32	5.32	2	2.	58		5.92
45 60 80 120 170 200	2.00		0.25	5	1	0.60	24.2	8	13	.18		30.20
80	2.50		0.18	3	2	0.70	47.4	2	33	.88		77.62
120	3.00		0.13	3	Ś	9.08	20.8	0	42	.96		98.42
170	3.50		0.09)	(0.56	1.28	3	43	.52		99.70
200	3.75		0.07	,	(0.06	0.14	ļ	43	.58		99.84
230	4.00		0.06	3	(0.02	0.05	5	43	.60		99.89
Shell Hash calculated from	m visual estimate o	f shell <4.75	5mm and >2	.8mm.								
Phi 5	Phi 16		Phi 2	5	Р	hi 50	Phi 7	5	Phi	i 84		Phi 95
Phi 5 2.92 Moment Statistics	2.65		2.47		2	2.21	1.89)	1.	71		1.41
Moment	Mean I	⊃hi	М	ean mn	n	Sor	ting	SI	kewness	3	K	urtosis
Statistics	2.19			0.22		0.4	44		-0.28			3.41



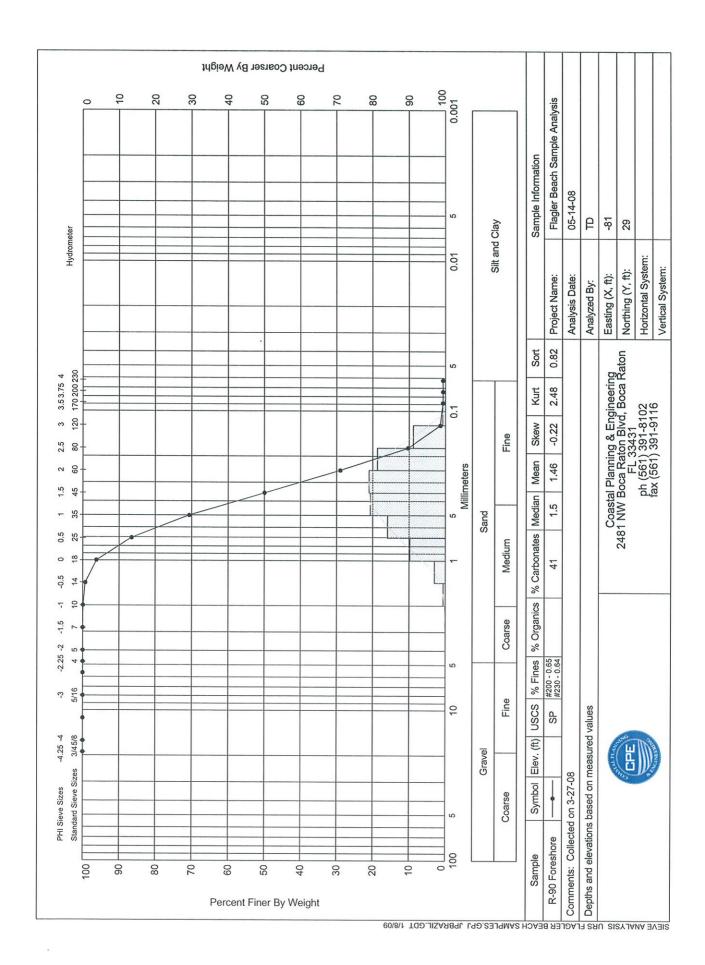
Project Name: Flagler Beach Sample Analysis

Sample Name: R-90 Foreshore

Analysis Date: 05-14-08



Analyzed By: TD Easting (ft): Northing (ft):					ph (561) 391-8102 fax (561) 391-9116								
Easting (ft):		Northing	(ft):		Coordinate System: Elevation (ft): Geographic (Latitude/Longitude)								
-81			29		G	eographi	c (Latitude/L	ongitude)					
USCS:	Muns		- 10YR-6/4 - 10YR-7/3	Comments	:								
SP Dry Weight (g):	Wash Weight		- 10YR-7/3 Pan Retained	(a):	Sieve Loss	(9/).		on 3-27-0		(0/)	To		
97.46							Fines (%): #200 - 0.65	Organics (%):		i (%):	Shell Hash (%		
Sieve Number	96.8 Sieve (Ph	Size	0.0 Sieve 3 (Millime	Size	Gr	.00 ams ained	#230 - 0.64 % Weigh Retaine	nt Cui	m. Grams etained		0. % Weigh Retained		
3/4"	-4.2		19.0			.00	0.00		0.00	\vdash	0.00		
5/8"	-4.0		16.0			.00	0.00		0.00		0.00		
7/16"	-3.5		11.3			.00	0.00		0.00		0.00		
5/16"	-3.0	00	8.00			.00	0.00		0.00	\vdash	0.00		
3.5	-2.5	50	5.60			.00	0.00		0.00				
4	-2.2	25	4.70	6	0	.00	0.00		0.00		0.00		
5	-2.0	00	4.00	0	0	.00	0.00		0.00		0.00		0.00
7	-1.5	50	2.83	3	0	.00	0.00		0.00		0.00		
10	-1.0	00	2.00	0	0	.07	0.07		0.07	0.07			
14	-0.5	50	1.4	1	0	.60	0.62		0.67		0.69		
18	0.0	0	1.00	0	2	.96	3.04		3.63		3.73		
25	0.5	0	0.7	1	9	.47	9.72		13.10		13.45		
35	1.0	0	0.50	0	15	5.52	15.92		28.62		29.37		
45	1.5	0	0.3	5	20).16	20.69		48.78		50.06		
60	2.0	0	0.2	5	20).44	20.97		69.22		71.03		
80	2.5	0	0.18	3	18	3.21	18.68		87.43		89.71		
120	3.0	0	0.13	3	8	.64	8.87		96.07		98.58		
170	3.5	0	0.09	9	0	.70	0.72		96.77		99.30		
200	3.7	5	0.07	7	0	.05	0.05		96.82		99.35		
230	4.0	0	0.06	3	0	.01	0.01		96.83		99.36		
Shell Hash calculated fro	m visual estima	ite of shell <	<4.75mm and >2	2.8mm.									
Phi 5	Phi	16	Phi 2	25	Ph	i 50	Phi 75		Phi 84		Phi 95		
2.80	2.3	5	2.1	1	1	.50	0.86	6 0.58			0.07		
Moment	Mea	n Phi	M	lean mn	n	Sor	rting	Skewn	ess	K	urtosis		
Statistics	1	46		0.36		0.	82	-0.22	2		2.48		



Project Name: Flagler Beach Sample Analysis

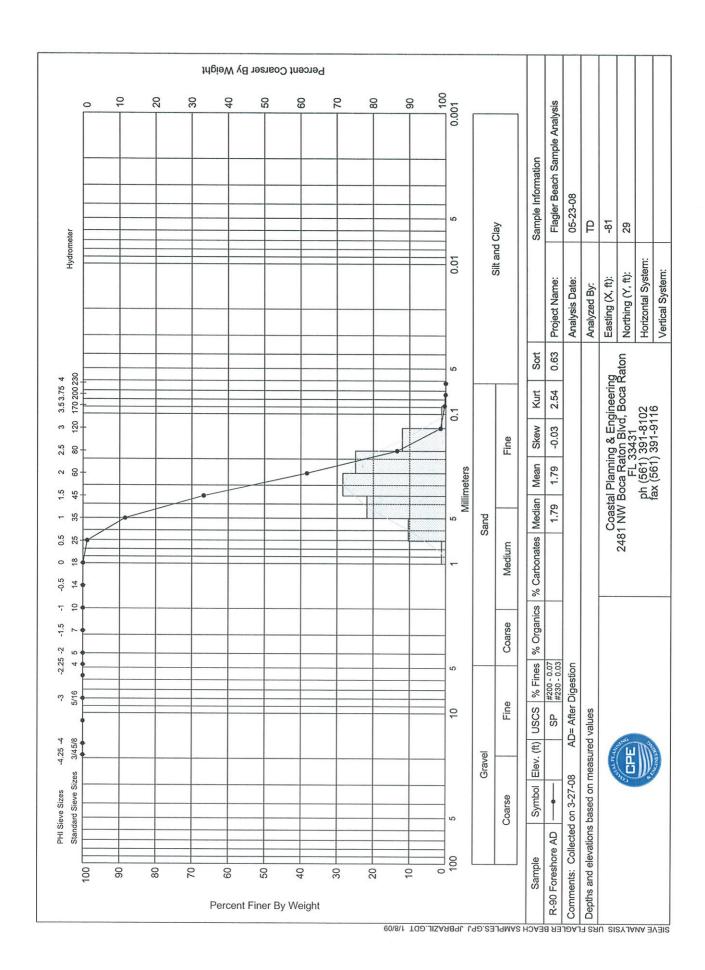
Sample Name: R-90 Foreshore AD

Analysis Date: 05-23-08



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

7 triaryolo Dato.							ph (561) 391-8102 fax (561) 391-9116					
Analyzed By: T	D							fax				
Easting (ft):		Northing (ft				ordinate System				Elevation (f	t):	
-81	Munse	11:	29	Commen		Seographi	c (Latitude	/Longi	tude)			
SP			- 2.5Y-8/3	Common		Collected	on 3-27-08	0	AD= Af	tor Dia	aatian	
Dry Weight (g):	Wash Weight		Pan Retained (g):	Sieve Lo		Fines (%): #200 - 0.0		nics (%):	Carbona		Shell Hash (%):
27.43	27.4	3	0.01			0.00	#200 - 0.0	03				0
Sieve Number	Sieve S (Phi		Sieve S (Millime			rams tained	% Wei Retain			Grams		. % Weight Retained
3/4"	-4.2	5	19.0	3		0.00	0.00)	0.	.00		0.00
5/8"	-4.0	0	16.0	0		0.00	0.00)	0.	.00		0.00
7/16"	-3.5	0	11.3	1		0.00	0.00)	0.	.00		0.00
5/16"	-3.0	0	8.00)		0.00	0.00)	0.	.00		0.00
3.5	-2.5	0	5.66	3		0.00	0.00)	0.	.00		0.00
4	-2.2	5	4.76	3		0.00	0.00)	0.	.00		0.00
5	-2.0	0	4.00)		0.00	0.00)	0.	.00		0.00
7	-1.50	0	2.83	3		0.00	0.00)	0.	.00		0.00
10	-1.00)	2.00)		0.00	0.00)	0.00			0.00
14	-0.50)	1.41			0.00	0.00)	0.	.00		0.00
18	0.00)	1.00)		0.01	0.04		0.	.01		0.04
25	0.50)	0.71			0.31	1.13	1	0.	32		1.17
35	1.00)	0.50)	:	2.83	10.3	2	3.	15		11.49
45	1.50)	0.35	5		5.97	21.70	6	9.	12		33.25
60	2.00)	0.25	i		7.79	28.40	0	16	.91		61.65
80	2.50)	0.18	3	(5.83	24.90	0	23	.74		86.55
120	3.00)	0.13	3	;	3.29	11.99	9	27	.03		98.54
170	3.50		0.09)	(0.31	1.13		27	.34		99.67
200	3.75		0.07	,	(0.07	0.26		27	.41		99.93
230	4.00		0.06	5	(0.01	0.04		27	.42		99.97
Shell Hash calculated from	m visual estimat	e of shell <4.	.75mm and >2	.8mm.								
Phi 5	Phi 1		Phi 2		Р	hi 50	Phi 7	5	Ph	i 84		Phi 95
2.85	2.45		2.27			1.79	1.31		1.	10		0.69
Moment	Mear	n Phi	М	ean mr	m	Sor	ting	SI	kewness	3	K	urtosis
Statistics	1.7	79		0.29		0.	63		-0.03 2.54			



Project Name: Flagler Beach Sample Analysis

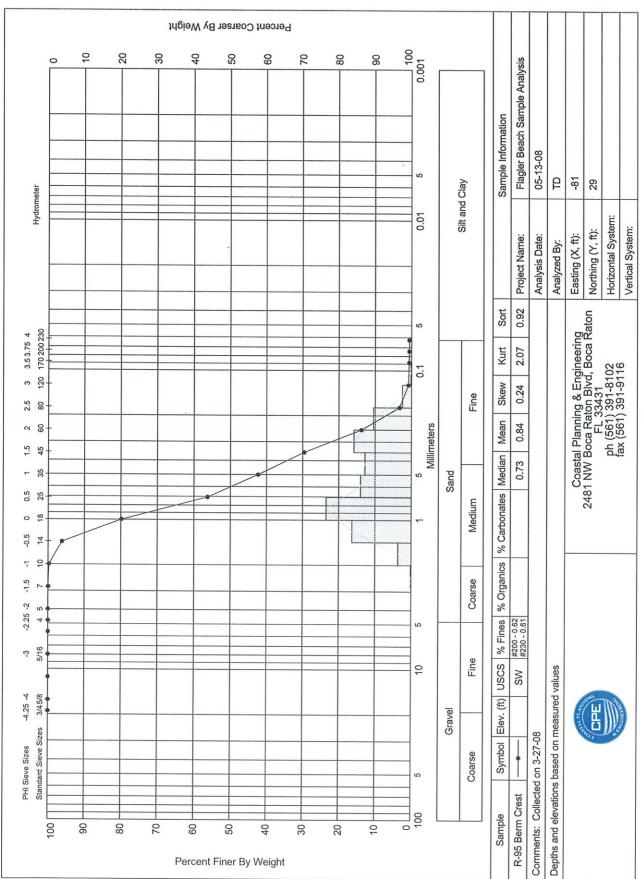
Sample Name: R-95 Berm Crest

Analysis Date: 05-13-08



Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431

Analysis Date.						ph	ph (561) 391-8102 fax (561) 391-9116				
Analyzed By: T		ing (ft):		ordinate Sustan	··	fax			41.		
-81	140/1/1			ordinate System		,		Elevation (f	t):		
USCS:		29 Tet - 10YR-6/4 Com Pry - 10YR-7/4	ments:	eograph	ic (Latitude	e/Long	itude)				
SW	Wash	ed - 10YR-7/4					3-27-08				
Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Lo	oss (%):	Fines (%): #200 - 0.		anics (%):	Carbona	tes (%):	Shell Hash (%):	
102.65	102.04	0.00		0.00	#230 - 0.					0	
Sieve Number	Sieve Size (Phi)	Sieve Size (Millimeters		Brams etained	% We Retai		Cum. Reta	Grams ained	200	. % Weight Retained	
3/4"	-4.25	19.03		0.00	0.0	0	0.00			0.00	
5/8"	-4.00	16.00		0.00	0.0	0	0.00			0.00	
7/16"	-3.50	11.31		0.00	0.0	0	0.00			0.00	
5/16"	-3.00	8.00		0.00	0.0	0	0.	.00		0.00	
3.5	-2.50	5.66		0.00	0.0	0	0.	0.00		0.00	
4	-2.25	4.76		0.00	0.0	0.00		00		0.00	
5	-2.00	4.00		0.00	0.0	0	0.00			0.00	
7	-1.50	2.83		0.03	0.0	3	0.03			0.03	
10	-1.00	2.00		0.21	0.2	0	0.24			0.23	
14	-0.50	1.41		3.73	3.6	3	3.	97		3.86	
18	0.00	1.00		16.73	16.3	30	20	.70		20.16	
25	0.50	0.71	- 2	24.14	23.5	52	44	44.84		43.68	
35	1.00	0.50		14.38	14.01		59	.22		57.69	
45	1.50	0.35		13.06	12.72		72.28			70.41	
45 60 80 120 170	2.00	0.25		16.29	15.8	37	88	.57		86.28	
80	2.50	0.18		10.70	10.4	2	99	.27		96.70	
120	3.00	0.13		2.54	2.4	7	101	1.81		99.17	
170	3.50	0.09		0.20	0.19	9	102	2.01		99.36	
200	3.75	0.07		0.02	0.02	2	102	2.03		99.38	
230	4.00	0.06		0.01	0.0	1	102	2.04		99.39	
Shell Hash calculated from	n visual estimate of she	ell <4.75mm and >2.8mm			•		•				
Phi 5	Phi 16	Phi 25		hi 50	Phi 7	75	Phi	84		Phi 95	
2.42	1.93	1.64		0.73	0.10)	-0.	13		-0.47	
Moment	Mean Phi	Mean	mm	So	rting	S	kewness	;	K	urtosis	
Statistics	0.84	0.5	6	0.	.92		0.24 2.07			2.07	



Project Name: Flagler Beach Sample Analysis

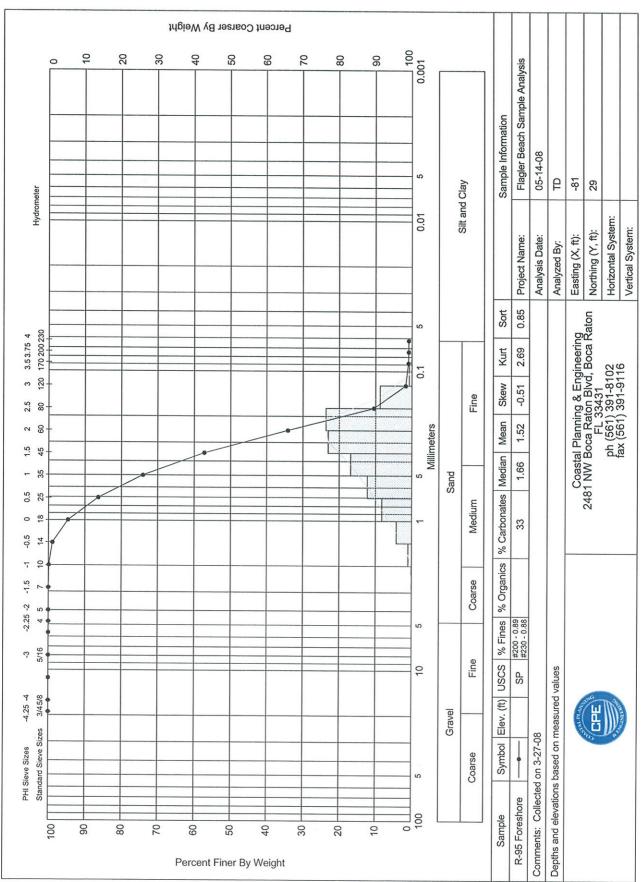
Sample Name: R-95 Foreshore

Analysis Date: 05-14-08



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

Analyzed By: T					-			ph (561) 391	-8102						
Easting (ft):		Northing (ft):			Coo	rdinate System	:	tax (561) 391	Elevation ('ft):					
-81			29			Geographi	c (Latitude	/L ongi			191					
uscs:	Munsell:)YR-6/3)YR-7/3	Comments		roograpin			3-27-08							
Dry Weight (g):	Wash Weight (g		n Retained (g):	Sieve Los	s (%):	Fines (%): #200 - 0.		nics (%):	Carbona	ates (%):	Shell Hash (%):				
95.90	95.07	7	0.00)	(0.01	#230 - 0.			(33	0				
Sieve Number	Sieve S (Phi)		Sieve S (Millime			rams tained	% Wei Retair		Cum. Reta	Gram ained		. % Weight Retained				
3/4"	-4.25	,	19.0	3	(0.00	0.00)	0.	.00		0.00				
5/8"	-4.00		16.0	0	(0.00	0.00)	0.	.00		0.00				
7/16"	-3.50	1	11.3	1	(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	3	(0.00	0.00)	0.	.00	0.00					
4	-2.25		4.76	3	(0.00	0.00)	0.	0.00		0.00				
5	-2.00		4.00)	(0.00	0.00)	0.	0.00		0.00		0.00		0.00
7	-1.50		2.83	3	(0.00	0.00)	0.00			0.00				
10	-1.00		2.00)	(0.11	0.1	1	0.	0.00		0.11				
14	-0.50		1.41		(0.93	0.97	7	1.	.04		1.08				
18	0.00		1.00)	4	1.11	4.29)	5.	.15		5.37				
25	0.50		0.71		-	7.93	8.27	7	13	8.08		13.64				
35	1.00		0.50)	1	1.77	12.2	7	24	.85		25.91				
45	1.50		0.35	5	1	6.17	16.8	6	41	.02		42.77				
35 45 60 80 120 170 200 230	2.00		0.25	5	2	2.14	23.0	9	63	.16		65.86				
80	2.50		0.18	3	2	2.70	23.6	7	85	.86		89.53				
120	3.00		0.13	3	3	3.40	8.76	3	94	.26		98.29				
170	3.50		0.09)	().72	0.75	5	94	.98		99.04				
200	3.75		0.07		(0.07	0.07	7	95	.05		99.11				
230	4.00		0.06	5	(0.01	0.01	1	95	.06		99.12				
Shell Hash calculated from	m visual estimate	of shell <4.75	5mm and >2.	.8mm.												
Phi 5	Phi 16	3	Phi 2	5	Р	hi 50	Phi 7	5	Ph	i 84		Phi 95				
Phi 5 2.81 Moment Statistics	2.38		2.19		1	.66	0.96	3	0.	60		-0.04				
Moment	Mean	Phi	Me	ean mn	n	Sor	ting	SI	kewness	5	K	urtosis				
Statistics	1.5	2		0.35		0.	85		-0.51			2.69				



Project Name: Flagler Beach Sample Analysis

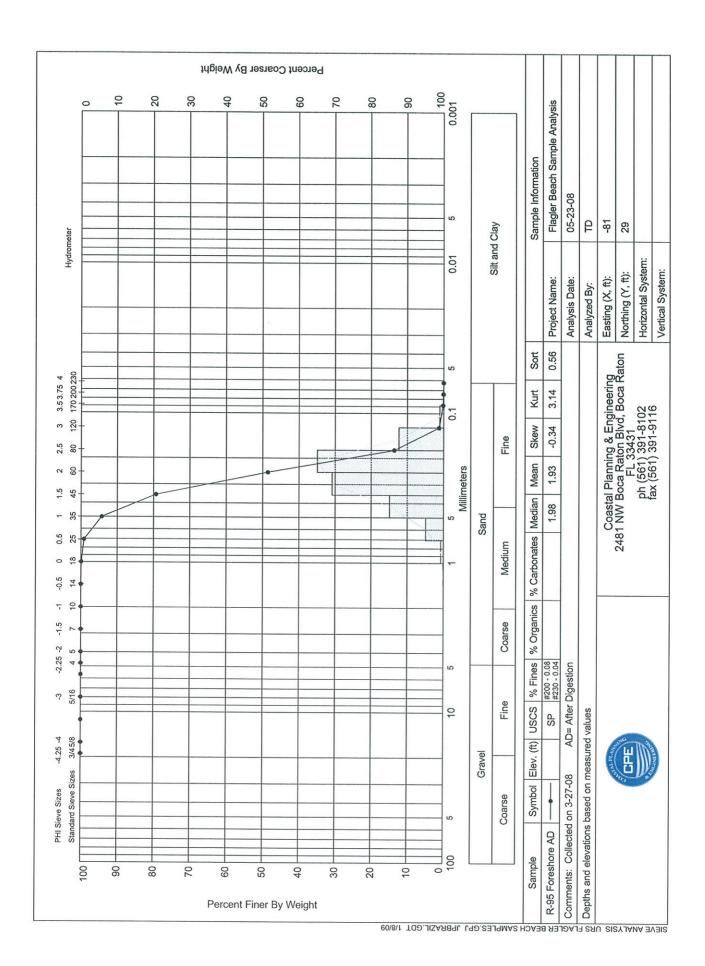
Sample Name: R-95 Foreshore AD

Analysis Date: 05-23-08

Analyzed By: TD



Analyzed By: TD fax (561) 391-9116									
Easting (ft):	No	orthing (ft	:):		Coordinate System:			Elevation (ft):	
-81			29		Geographic	c (Latitude/Lo	ngitude)		
USCS:	Munsell:			Comments:					
SP Dry Weight (g):	Wash Weight (g):		- 2.5Y-8/2 Pan Retained (-).		on 3-27-08		fter Digest	
27.33	27.33		0.01		eve Loss (%):	Fines (%): #200 - 0.08	Organics (%):	Carbonates (
Sieve Number	Sieve Siz (Phi)	ze	Sieve S (Millime	Size	0.00 Grams Retained	#230 - 0.04 % Weight Retained		Grams ained	C. % Weight Retained
3/4"	-4.25	_	19.0		0.00	0.00		.00	
5/8"	-4.00		16.0						0.00
7/16"					0.00	0.00		.00	0.00
	-3.50	_	11.3		0.00	0.00		.00	0.00
5/16"	-3.00		8.00		0.00	0.00		.00	0.00
3.5	-2.50		5.66		0.00	0.00		.00	0.00
4	-2.25		4.76	5	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	3	0.00	0.00	0	.00	0.00
10	-1.00		2.00)	0.00	0.00	0	.00	0.00
14	-0.50		1.41		0.00	0.00	0	.00	0.00
18	0.00		1.00)	0.02	0.07	0	.02	0.07
25	0.50		0.71		0.20	0.73	0	.22	0.80
35	1.00		0.50)	1.35	4.94	1	.57	5.74
45	1.50		0.35	;	4.07	14.89	5	.64	20.63
60	2.00		0.25	,	8.42	30.81	14	1.06	51.44
80	2.50		0.18		9.55	34.94	23	3.61	86.38
120	3.00		0.13		3.37	12.33	26	5.98	98.71
170	3.50		0.09		0.30	1.10	27	7.28	99.81
200	3.75		0.07		0.03	0.11		7.31	99.92
230	4.00		0.06		0.01	0.04		7.32	99.96
Shell Hash calculated from	m visual estimate of	shell <4	.75mm and >2	8mm	*				
Phi 5	Phi 16		Phi 2		Phi 50	Phi 75	Ph	ni 84	Phi 95
2.85	2.47		2.34		1.98	1.57	1	.34	0.93
Moment	Mean F	Phi	Me	ean mm	Sor	ting	Skewnes	s	Kurtosis
Statistics	1.93			0.26	0.9	56	-0.34		3.14



Project Name: Flagler Beach Sample Analysis

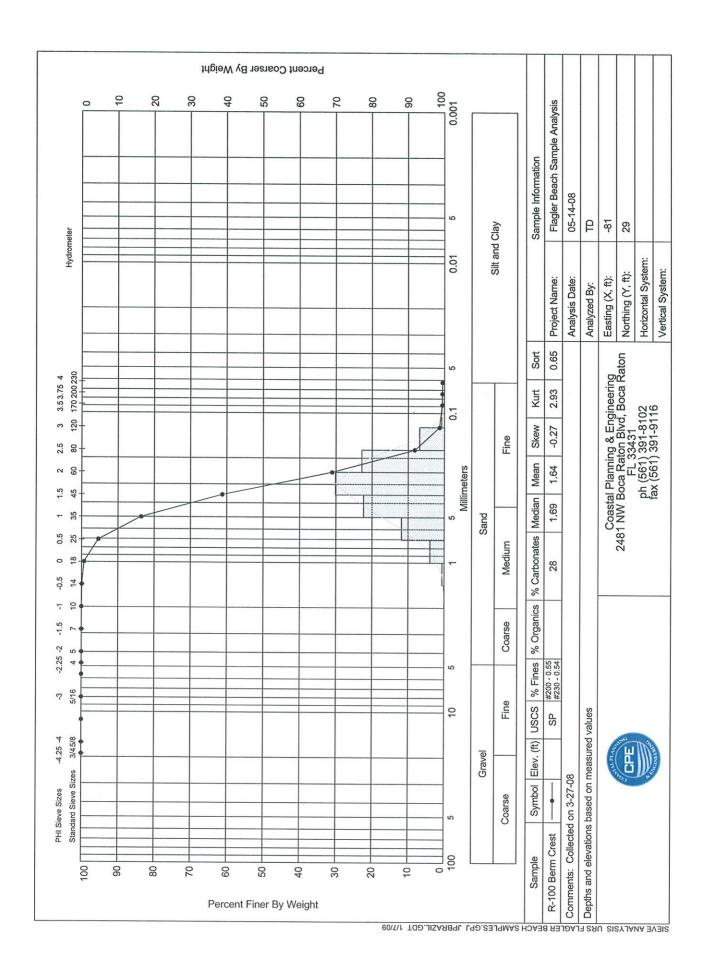
Sample Name: R-100 Berm Crest

Analysis Date: 05-14-08

Analyzed By: TD



	Analyzed By: T	D							fax (561) 391	-9116			
	Easting (ft):		Northing ((ft):		Cod	rdinate System	:		E	88			
	-81			29			eographi	c (Latitude	/Longit	ude)				
	uscs:	Munsell	Dry -	- 10YR-6/3 - 10YR-7/2 - 10YR-7/2	Comment	s:		Collect	ed on 3	3-27-08				
	Dry Weight (g):	Wash Weight (g	j) :	Pan Retained	(g):	Sieve Los	ss (%):	Fines (%): #200 - 0.	55 Organ	nics (%):	Carbonate	s (%):	Shell Hash (%):	
	105.48	104.9	1	0.0	0		0.02	#230 - 0.	54		28	<u> </u>	0	
	Sieve Number	Sieve S (Phi)		Sieve (Millime			rams tained	% Wei					. % Weight Retained	
	3/4"	-4.25	5	19.0)3		0.00	0.00	0	0.	00		0.00	
	5/8"	-4.00)	16.0	00		0.00	0.00	0	0.	00		0.00	
	7/16"	-3.50)	11.3	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		0.00		0.00		0.00			0.00	
	14	-0.50		1.41		0.11		0.10		0.11			0.10	
	18	0.00		1.00		0.63		0.60		0.74			0.70	
60	25	0.50		0.71			4.12	3.9	1	4.	86		4.61	
1/7/I	35	1.00		0.50		1	2.46	11.8	1	17	.32		16.42	
IL.GD	45	1.50		0.35		2	3.57	22.3	5	40	.89		38.77	
PBRAZ	60	2.00		0.25		31.83		30.1	8	72.72			68.95	
3PJ JI	80	2.50		0.18		24.11		22.86		96.83			91.81	
PLES.	120	3.00		0.13		7.21		6.84		104.04			98.65	
SAMI	170	3.50		0.09		0.78		0.74		104.82			99.39	
BEACH SAMPLES.GPJ JPBRAZIL.GDT 1/7/09	200	3.75		0.0	7		0.06	0.06	6	104	1.88		99.45	
3LER E	230	4.00		0.0	6		0.01	0.0	1	104	1.89		99.46	
URS FLAGLER	Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.													
	Phi 5	Phi 16		Phi 25		Р	hi 50	Phi 75		Phi 84			Phi 95	
GRANULARMETRIC REPORT	2.73	2.33		2.13	3		1.69	1.19	9	0.9	98		0.52	
JLARME	Moment	Mean	Phi	N	1ean mr	m	Soi	rting	SI	kewness		K	urtosis	
GRANL	Statistics	1.6	34		0.32		0.	65		-0.27			2.93	



Granularmetric Report

Depths and elevations based on measured values

Project Name: Flagler Beach Sample Analysis

Sample Name: R-100 Berm Crest AD

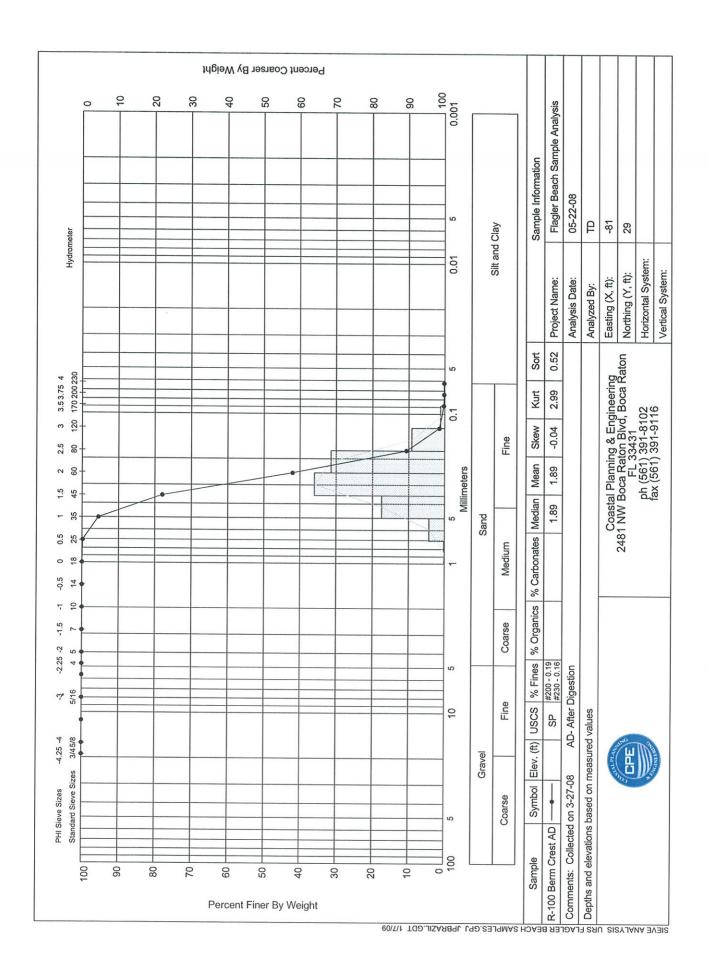
Analysis Date: 05-22-08



Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431 ph (561) 391-8102 fax (561) 391-9116

Analyzed By: TD Easting (ft): Northing (ft): Coordinate System: Elevation (ft): -81 29 Geographic (Latitude/Longitude) USCS: Munsell: Comments: SP Collected on 3-27-08 Dry - 2.5Y-8/1 AD- After Digestion Dry Weight (g): Wash Weight (g): Pan Retained (g): Sieve Loss (%): Fines (%): #200 - 0.19 Organics (%): Carbonates (%): Shell Hash (%): 31.65 31.65 0.01 #230 - 0.16 0.13 0 Sieve Size Sieve Size Grams % Weight Cum. Grams C. % Weight Sieve Number (Phi) (Millimeters) Retained Retained Retained Retained 3/4" -4.2519.03 0.00 0.00 0.00 0.00 5/8" -4.0016.00 0.00 0.00 0.00 0.00 7/16" -3.5011.31 0.00 0.00 0.00 0.00 5/16" -3.008.00 0.00 0.00 0.00 0.00 3.5 -2.505.66 0.00 0.00 0.00 0.00 4 -2.254.76 0.00 0.00 0.00 0.00 5 -2.004.00 0.00 0.00 0.00 0.00 7 -1.502.83 0.00 0.00 0.00 0.00 10 -1.002.00 0.00 0.00 0.00 0.00 14 -0.501.41 0.00 0.00 0.00 0.00 18 0.00 1.00 0.00 0.00 0.00 0.00 25 0.50 0.71 0.06 0.19 0.06 0.19 1/7/09 35 1.00 0.50 1.36 4.30 1.42 4.49 GDT. 45 1.50 0.35 5.54 17.50 6.96 21.99 JPBRAZIL. 60 2.00 0.25 11.38 35.96 18.34 57.95 80 2.50 0.18 9.94 31.41 28.28 89.36 120 3.00 0.13 2.90 9.16 31.18 98.52 170 3.50 0.09 0.38 1.20 31.56 99.72 200 3.75 0.07 0.03 0.09 31.59 99.81 230 4.00 0.06 0.01 0.03 31.60 99.84 Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm. Phi 5 Phi 16 Phi 25 Phi 50 Phi 75 Phi 84 Phi 95 2.81 2.41 2.27 1.89 1.54 1.33 1.01 Moment Mean Phi Mean mm Sorting Skewness Kurtosis Statistics 1.89 0.27 0.52 -0.042.99

URS FLAGLER BEACH SAMPLES.GPJ SRANULARMETRIC REPORT



Project Name: Flagler Beach Sample Analysis

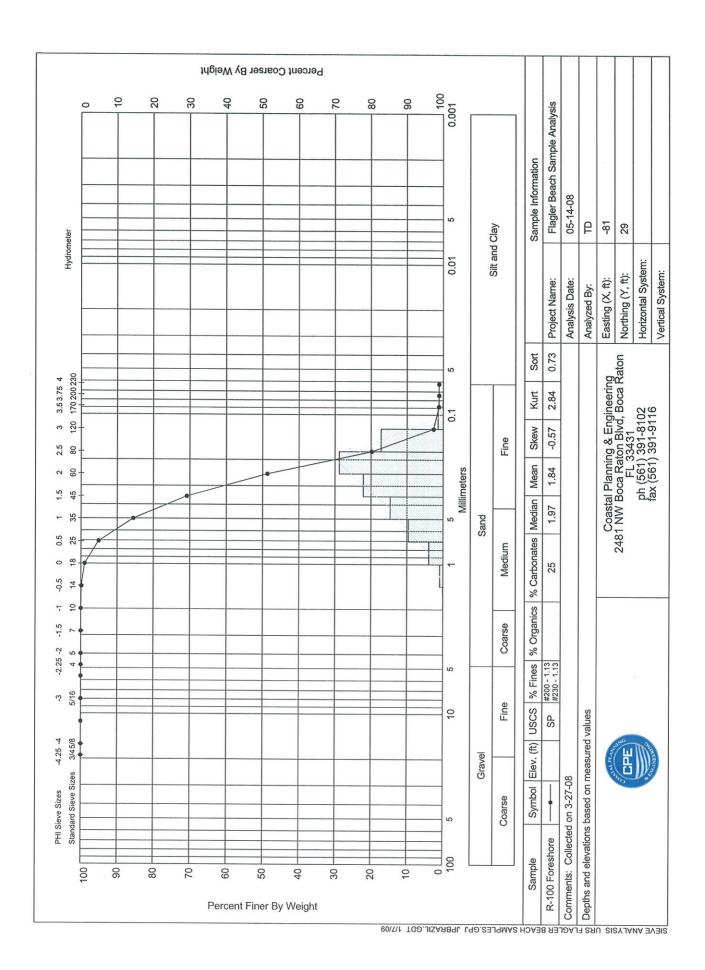
Sample Name: R-100 Foreshore

Analysis Date: 05-14-08



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

A 1 15 7	50 11 00							ph ((561) 391	-8102			
Analyzed By: T	D	Northing (ft\.		Coo	rdinata Cuatan		fax	(561) 391	-9116			
Easting (ft): Northing (ft): -81 29						Coordinate System: Elevation (ft): Geographic (Latitude/Longitude)							
USCS:	Munse	ell: Wet -	29 10YR-6/3	Commen		eograpn	ic (Latitude	/Longi	tude)				
SP			- 10YR-7/2 - 10YR-7/2				Collect	ed on	3-27-08				
Dry Weight (g):	Wash Weight	(g):	Pan Retained	(g):	Sieve Los	ss (%):	Fines (%): #200 - 1.	13 Orga	nics (%):	Carbonat	tes (%):	Shell Hash (%):	
96.50	95.4	17	0.0	1	(0.04	#230 - 1.	13	,	2	5	0	
Sieve Number	Sieve : (Ph		Sieve Size (Millimeters)			rams tained		% Weight C Retained		Cum. Grams Retained		. % Weight Retained	
3/4"	-4.2	:5	19.0	3	(0.00	0.00)	0.	.00		0.00	
5/8"	-4.0	0	16.00		(0.00	0.00	0.00		0.00		0.00	
7/16"	-3.5	0	11.3	11.31		0.00	0.00		0.00				
5/16"	-3.0	0	8.00)	(0.00	0.00)	0.	.00		0.00	
3.5	-2.5	0	5.66	3	(0.00	0.00)	0.	.00		0.00	
4	-2.2	:5	4.76	3	(0.00	0.00)	0.	.00		0.00	
5			4.00		(0.00	0.00		0.	0.00		0.00	
7	-1.5	0	2.83	3	(0.00	0.00)	0.	.00		0.00	
10			2.00		(0.00	0.00		0.	0.00 0.12		0.00	
14					(0.12	0.12	0.12				0.12	
18	0.0	0	1.00)	(0.87	0.90)	0.	.99		1.02	
25	0.50		0.71		3.74		3.88		4.73			4.90	
35	1.00	0	0.50)	Ç	9.23	9.56	3	13	.96		14.46	
45	1.50	0	0.35	5	1	4.19	14.7	14.70		28.15		29.16	
60	2.00	0	0.25	5	2	1.38	22.1	6	49.53			51.32	
80	2.50	0	0.18	3	2	7.83	28.8	4	77	.36		80.16	
120	3.00	0	0.13	3	1	6.61	17.2	1	93	.97		97.37	
170	3.50	0	0.09)	1.39		1.44		95.36			98.81	
200	3.75	5	0.07	7	(0.06	0.06	3	95	.42		98.87	
230	4.00	0	0.06	3	(0.00	0.00)	95	.42		98.87	
Shell Hash calculated fro	m visual estima	te of shell s	4 75mm and >2	8mm									
Phi 5	Hash calculated from visual estimate of shell <4.75mm and >2.8m				Phi 50 1.97		Phi 75		Phi 84 1.05			Phi 95	
2.93			1								0.51		
Moment	Mea	n Phi	М	Mean mm		So	rting	ting S		Skewness		Kurtosis	
Statistics	Statistics 1.84			0.28		0	73		-0.57		2.84		



Project Name: Flagler Beach Sample Analysis

Sample Name: R-100 Foreshore AD

Analysis Date: 05-22-08

Analyzed By: TD



Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431 ph (561) 391-8102 fax (561) 391-9116

28.25 28.25 0.01 0.00 #230 - 0.08	maryzod by. TE	10		recent Louis for the		lax (301) 3	0116-16		
Dry Dry Dry 2 5 7 8 2 Collected on 3-27-08 AD= After Digston Dry 2 5 7 8 2 Collected on 3-27-08 AD= After Digston Dry Collected on 3-27-08 AD= After Digston Dry Dry Collected on 3-27-08 AD= After Digston Dry Dry Collected on 3-27-08 AD= After Digston Dry Dry	isting (ft):	Northing	(ft):	Coordi	nate System:		Elevation (ft):		
SP Dry - 2.5 Y-8/2 Collected on 3-27-08 AD= After Digestion Dry Weight (g): 28.25 28.25 Pan Retained (g): 28.25 Seve Loss (%): 4200°-0.08 Conditionates (%): 28.20°-0.08 Conformation (%): 28.20°-0.08 Conformation (%): 28.20°-0.08 Cum. Grams Retained (g): 28.20°-0.00 Cum. Grams Guiter (g): 28.20°-0.00 Cum. Grams Retained (g)					ographic (Latitud	e/Longitude)			
Dry Weight (g): Wash Weight (g): Pan Retained (g): Sleve Loss (%): #820 (°°) 0.08 (°°) 0.08 (°°) 0.00 (°°) (°°) 0.00 (°°) Carbonities (%): Browning (%): Carbonities (%): Browning (%): Carbonities (%): <td></td> <td></td> <td></td> <td>ents:</td> <td></td> <td></td> <td></td> <td></td>				ents:					
Sieve Number Sieve Size (Phi) Sieve Size (Millimeters) Sieve Size (Phi) Sieve Size (Millimeters) Sieve Size (Phi) Sieve Size (Phi)									
Chi					#200 - 0	180.0	Carbonates	s (%): Shell Hash (
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 0.00 0.00 0.00 0.00 14 -0.50 1.41 0.00 0.00 0.00 0.00 18 0.00 1.00 0.00 0.00 0.00 0.00 25 0.50 0.71 0.07 0.25 0.07 0 35 1.00 0.50 0.62 2.19 0.69 <t< td=""><td>Sieve Number</td><td></td><td></td><td></td><td></td><td></td><td></td><td>C. % Weig</td></t<>	Sieve Number							C. % Weig	
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 0.00 0.00 0.00 0.00 14 -0.50 1.41 0.00 0.00 0.00 0.00 18 0.00 1.00 0.00 0.00 0.00 0.00 25 0.50 0.71 0.07 0.25 0.07 0 35 1.00 0.50 0.62 2.19 0.69 2 45 1.50 0.35 3.54 12.53 4.23 14 </td <td>3/4"</td> <td>-4.25</td> <td>19.03</td> <td>0.0</td> <td>0.0</td> <td>00</td> <td>0.00</td> <td>0.00</td>	3/4"	-4.25	19.03	0.0	0.0	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 10 -1.50 2.83 0.00 0.00 0.00 0.00 10 -1.00 2.00 0.00 0.00 0.00 0.00 14 -0.50 1.41 0.00 0.00 0.00 0.00 18 0.00 1.00 0.00 0.00 0.00 0.00 25 0.50 0.71 0.07 0.25 0.07 0 35 1.00 0.50 0.62 2.19 0.69 2 45 1.50 0.35 3.54 12.53 4.23 14 60 2.00 0.25 7.26 25.70 11.49 40	5/8"	-4.00	16.00	0.0	0.0	00	0.00	0.00	
3.5	7/16"	-3.50	11.31	0.0	0.00 0.00		0.00	0.00	
4 -2.25	5/16"	-3.00	8.00	0.0	0.0	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 0.00 0.00 0.00 0.00 14 -0.50 1.41 0.00 0.00 0.00 0.00 18 0.00 1.00 0.00 0.00 0.00 0.00 25 0.50 0.71 0.07 0.25 0.07 0 35 1.00 0.50 0.62 2.19 0.69 2 45 1.50 0.35 3.54 12.53 4.23 14 60 2.00 0.25 7.26 25.70 11.49 40 80 2.50 0.18 10.39 36.78 21.88 77 170 3.50 0.09 0.47 1.66 28.19 96 200 3.75 0.07 0.04 0.14 28.23 98 </td <td>3.5</td> <td>-2.50</td> <td>5.66</td> <td>0.0</td> <td>0.0</td> <td>00</td> <td>0.00</td> <td>0.00</td>	3.5	-2.50	5.66	0.0	0.0	00	0.00	0.00	
7	4	-2.25	4.76	0.0	0.00 0.00		0.00	0.00	
10	5	-2.00	4.00	0.0	0.0	00	0.00	0.00	
14 -0.50 1.41 0.00 0.00 0.00 0.00 18 0.00 1.00 0.00 0.00 0.00 0.00 25 0.50 0.71 0.07 0.25 0.07 0 35 1.00 0.50 0.62 2.19 0.69 2 45 1.50 0.35 3.54 12.53 4.23 12 60 2.00 0.25 7.26 25.70 11.49 40 80 2.50 0.18 10.39 36.78 21.88 77 120 3.00 0.13 5.84 20.67 27.72 98 170 3.50 0.09 0.47 1.66 28.19 96 200 3.75 0.07 0.04 0.14 28.23 96 230 4.00 0.06 0.01 0.04 28.24 96 Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm. Phi 5 Phi	7	-1.50	2.83	0.0	0.0	00	0.00	0.00	
18 0.00 1.00 0.00 0.00 0.00 0.00 25 0.50 0.71 0.07 0.25 0.07 0 35 1.00 0.50 0.62 2.19 0.69 2 45 1.50 0.35 3.54 12.53 4.23 14 60 2.00 0.25 7.26 25.70 11.49 40 80 2.50 0.18 10.39 36.78 21.88 77 120 3.00 0.13 5.84 20.67 27.72 98 170 3.50 0.09 0.47 1.66 28.19 98 200 3.75 0.07 0.04 0.14 28.23 98 230 4.00 0.06 0.01 0.04 28.24 98 Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm. Phi 50 Phi 75 Phi 84 Ph 2.92 2.66 2.47 2.13	10	-1.00	2.00	0.0	0.00		0.00	0.00	
25 0.50 0.71 0.07 0.25 0.07 0 35 1.00 0.50 0.62 2.19 0.69 2 45 1.50 0.35 3.54 12.53 4.23 12 60 2.00 0.25 7.26 25.70 11.49 40 80 2.50 0.18 10.39 36.78 21.88 77 120 3.00 0.13 5.84 20.67 27.72 98 170 3.50 0.09 0.47 1.66 28.19 96 200 3.75 0.07 0.04 0.14 28.23 96 230 4.00 0.06 0.01 0.04 28.24 96 Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm. Phi 5 Phi 16 Phi 25 Phi 50 Phi 75 Phi 84 Ph 2.92 2.66 2.47 2.13 1.70 1.52 1 Moment	14	14 -0.50		0.0	0.0	00	0.00		
35	18	0.00	1.00	0.0	0.0	00	0.00	0.00	
45	25	0.50	0.71	0.0	0.2	25	0.07	0.25	
60 2.00 0.25 7.26 25.70 11.49 40 80 2.50 0.18 10.39 36.78 21.88 77 120 3.00 0.13 5.84 20.67 27.72 98 170 3.50 0.09 0.47 1.66 28.19 99 200 3.75 0.07 0.04 0.14 28.23 99 230 4.00 0.06 0.01 0.04 28.24 99 Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm. Phi 5 Phi 16 Phi 25 Phi 50 Phi 75 Phi 84 Ph 2.92 2.66 2.47 2.13 1.70 1.52 1 Moment Mean Phi Mean mm Sorting Skewness Kurto	35	1.00	0.50	0.6	52 2.1	19	0.69	2.44	
80 2.50 0.18 10.39 36.78 21.88 77 120 3.00 0.13 5.84 20.67 27.72 98 170 3.50 0.09 0.47 1.66 28.19 99 200 3.75 0.07 0.04 0.14 28.23 99 230 4.00 0.06 0.01 0.04 28.24 99 Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm. Phi 5 Phi 16 Phi 25 Phi 50 Phi 75 Phi 84 Ph 2.92 2.66 2.47 2.13 1.70 1.52 1 Moment Mean Phi Mean mm Sorting Skewness Kurto	45	1.50	0.35	3.5	54 12.	53	4.23	14.97	
120 3.00 0.13 5.84 20.67 27.72 98 170 3.50 0.09 0.47 1.66 28.19 99 200 3.75 0.07 0.04 0.14 28.23 99 230 4.00 0.06 0.01 0.04 28.24 99 Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm. Phi 5 Phi 16 Phi 25 Phi 50 Phi 75 Phi 84 Ph 2.92 2.66 2.47 2.13 1.70 1.52 1 Moment Mean Phi Mean mm Sorting Skewness Kurton	60	2.00	0.25	7.2	26 25.	70	11.49	40.67	
170 3.50 0.09 0.47 1.66 28.19 98 200 3.75 0.07 0.04 0.14 28.23 98 230 4.00 0.06 0.01 0.04 28.24 98 Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm. Phi 5 Phi 16 Phi 25 Phi 50 Phi 75 Phi 84 Ph 2.92 2.66 2.47 2.13 1.70 1.52 1 Moment Mean Phi Mean mm Sorting Skewness Kurton	80	2.50	0.18	10.	39 36.	78 :	21.88	77.45	
200 3.75 0.07 0.04 0.14 28.23 99 230 4.00 0.06 0.01 0.04 28.24 99 Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm. Phi 5 Phi 16 Phi 25 Phi 50 Phi 75 Phi 84 Ph 2.92 2.66 2.47 2.13 1.70 1.52 1 Moment Mean Phi Mean mm Sorting Skewness Kurto	120	3.00	0.13	5.8	34 20.0	67	27.72	98.12	
230 4.00 0.06 0.01 0.04 28.24 96 Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm. Phi 5 Phi 16 Phi 25 Phi 50 Phi 75 Phi 84 Phi 2.92 2.66 2.47 2.13 1.70 1.52 1 Moment Mean Phi Mean mm Sorting Skewness Kurto	170	3.50	0.09	0.4	17 1.6	66 2	28.19	99.78	
Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm. Phi 5 Phi 16 Phi 25 Phi 50 Phi 75 Phi 84 Phi 25 2.92 2.66 2.47 2.13 1.70 1.52 1 Moment Mean Phi Mean mm Sorting Skewness Kurton	200	3.75	0.07	0.0	0.1	4	28.23	99.92	
Phi 5 Phi 16 Phi 25 Phi 50 Phi 75 Phi 84 Phi 25 2.92 2.66 2.47 2.13 1.70 1.52 1 Moment Mean Phi Mean mm Sorting Skewness Kurton	230 4.00		0.06	0.0	0.0)4	28.24	99.96	
Phi 5 Phi 16 Phi 25 Phi 50 Phi 75 Phi 84 Phi 25 2.92 2.66 2.47 2.13 1.70 1.52 1 Moment Mean Phi Mean mm Sorting Skewness Kurton	ell Hash calculated from	from visual estimate of shell	<4.75mm and >2.8mm.						
Moment Mean Phi Mean mm Sorting Skewness Kurto	Phi 5	Phi 16	Phi 25	Phi	50 Phi	75 F	Phi 84	Phi 95	
Thanks Thanks	2.92	2.66	2.47	2.1	3 1.7	0	1.52	1.10	
	Moment	Mean Phi	Mean r	mm	Sorting	Skewne	ess	Kurtosis	
Statistics 2.08 0.24 0.54 -0.32 2.8	Statistics 2.08		0.24	1	0.54	-0.32		2.86	

