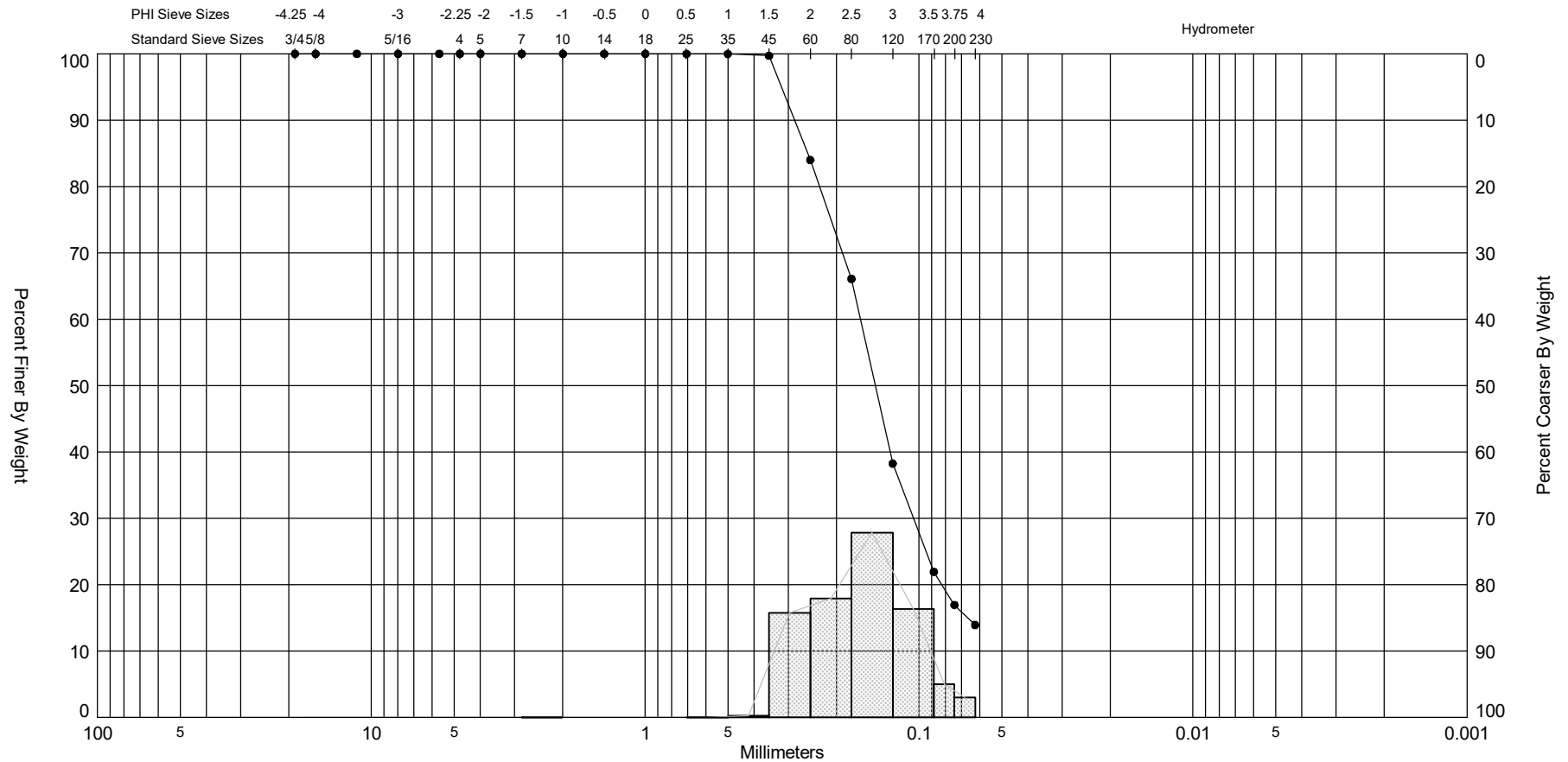


MCFADDIN_COMPOSITE_20181008.GPJ 11/19/18

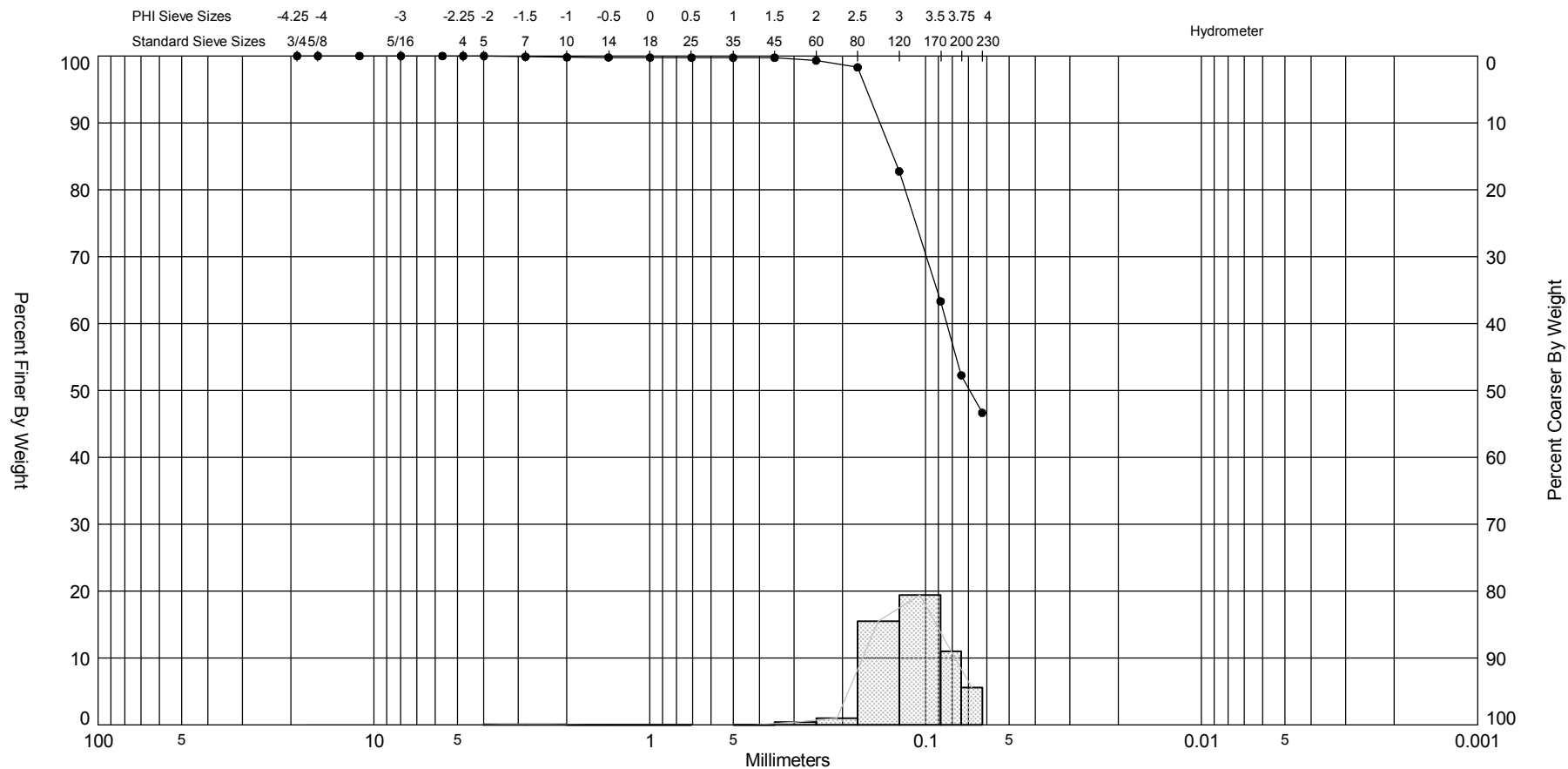


DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT McFaddin Sand Search Jefferson County, TX			9. SIZE AND TYPE OF BIT 3.0 In.	
2. BORING DESIGNATION JCVC-15-06			10. COORDINATE SYSTEM/DATUM Texas South Central	
3. DRILLING AGENCY American Vibracore Services, Inc.			11. MANUFACTURER'S DESIGNATION OF DRILL Alpine Pneumatic Vibracore	
4. NAME OF DRILLER Brian McCord			☐ AUTO HAMMER ☐ MANUAL HAMMER	
5. DIRECTION OF BORING ☒ VERTICAL ☐ INCLINED			12. TOTAL SAMPLES DISTURBED UNDISTURBED (UD)	
6. THICKNESS OF OVERBURDEN 0.0 Ft.			13. TOTAL NUMBER CORE BOXES	
7. DEPTH DRILLED INTO ROCK 0.0 Ft.			14. ELEVATION GROUND WATER	
8. TOTAL DEPTH OF BORING 20.0 Ft.			15. DATE BORING 01-26-15 10:44	
			16. ELEVATION TOP OF BORING -27.6 Ft.	
			17. TOTAL RECOVERY FOR BORING 18.2 Ft.	
			18. SIGNATURE AND TITLE OF INSPECTOR KM	

ELEV. (ft)	DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS Depths and elevations based on measured values	% REC.	BOX OR SAMPLE	REMARKS
-27.6	0.0					
-29.0	1.4		CLAY, light yellowish brown (2.5Y-6/4), (CL).		T1	Sample #T1, Depth = 0.7' Ave. Field Vane (tsf): 0.52
-31.2	3.6		CLAY, trace sand, sand distributed in sandy pockets up to 0.25", light olive brown (2.5Y-5/4), (CL).		T2	Sample #T2, Depth = 2.5' Ave. Field Vane (tsf): 0.40
-34.2	6.6		Clayey SAND, fine grained, quartz, trace carbonate rock fragments, carbonate rock fragments up to 0.25", light yellowish brown (2.5Y-6/3), (CL).		1	Sample #1, Depth = 5.1' Mean (mm): 0.11, Phi Sorting: 0.52 Fines (230): 46.65% (CL)
-34.9	7.3		Clayey SAND, fine grained, quartz, light yellowish brown (2.5Y-6/3), (SC).		2	Sample #2, Depth = 6.9' Mean (mm): 0.15, Phi Sorting: 0.75 Fines (230): 38.88% (SC)
-36.7	9.1		SAND, fine grained, quartz, little silt, 2" silty pocket at 8.3', silty lamina at 9.1', light olive brown (2.5Y-5/4), (SM).		3	Sample #3, Depth = 7.9' Mean (mm): 0.19, Phi Sorting: 0.67 Fines (230): 15.38% (SM)
-41.0	13.4		SAND, fine grained, quartz, trace clay, trace organics, trace silt, clay distributed in clayey laminae, dark grayish brown (2.5Y-4/2), (SP-SM).		4	Sample #4, Depth = 11.1' Mean (mm): 0.15, Phi Sorting: 0.52 Fines (230): 7.70% (SP-SM)
-45.8	18.2		CLAY, trace sand, dark gray (2.5Y-4/1), (CL).		5	Sample #5, Depth = 16.0' Mean (mm): 0.09, Phi Sorting: 0.67 Fines (230): 97.64% (CL)
-47.6	20.0		No Recovery.			
			End of Boring			

Granularmetric Report Depths and elevations based on measured values				 APTIM 2481 NW Boca Raton Blvd. Boca Raton, FL 33431 ph (561) 391-8102											
Project Name: McFaddin NWR Beach Ridge Restoration															
Sample Name: JCVC-15-06 COMP															
Analysis Date: 10-05-18															
Analyzed By: BF															
Easting (ft): 3,477,880		Northing (ft): 13,785,455		Coordinate System: Texas South Central		Elevation (ft):									
USCS: SM		Munsell:		Comments: COMPOSITE											
Dry Weight (g): 100.00		Wash Weight (g): 100.00		Pan Retained (g): 13.82		Sieve Loss (%): 0.09		Fines (%): #200 - 16.94 #230 - 13.91		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		0.00		0.00		0.00		0.00			
7		-1.50		2.83		0.00		0.00		0.00		0.00			
10		-1.00		2.00		0.01		0.01		0.01		0.01			
14		-0.50		1.41		0.00		0.00		0.01		0.01			
18		0.00		1.00		0.00		0.00		0.01		0.01			
25		0.50		0.71		0.00		0.00		0.01		0.01			
35		1.00		0.50		0.01		0.01		0.02		0.02			
45		1.50		0.35		0.27		0.27		0.29		0.29			
60		2.00		0.25		15.71		15.71		16.00		16.00			
80		2.50		0.18		17.91		17.91		33.91		33.91			
120		3.00		0.13		27.85		27.85		61.76		61.76			
170		3.50		0.09		16.31		16.31		78.07		78.07			
200		3.75		0.07		4.99		4.99		83.06		83.06			
230		4.00		0.06		3.03		3.03		86.09		86.09			
Phi 5		Phi 16		Phi 25		Phi 50		Phi 75		Phi 84		Phi 95			
		3.83		3.41		2.79		2.25		2.00		1.65			
Moment		Mean Phi		Mean mm		Sorting		Skewness		Kurtosis					
Statistics		2.64		0.16		0.61		0.02		2.37					

McFADDIN_COMPOSITE_20181008.GPJ 11/19/18

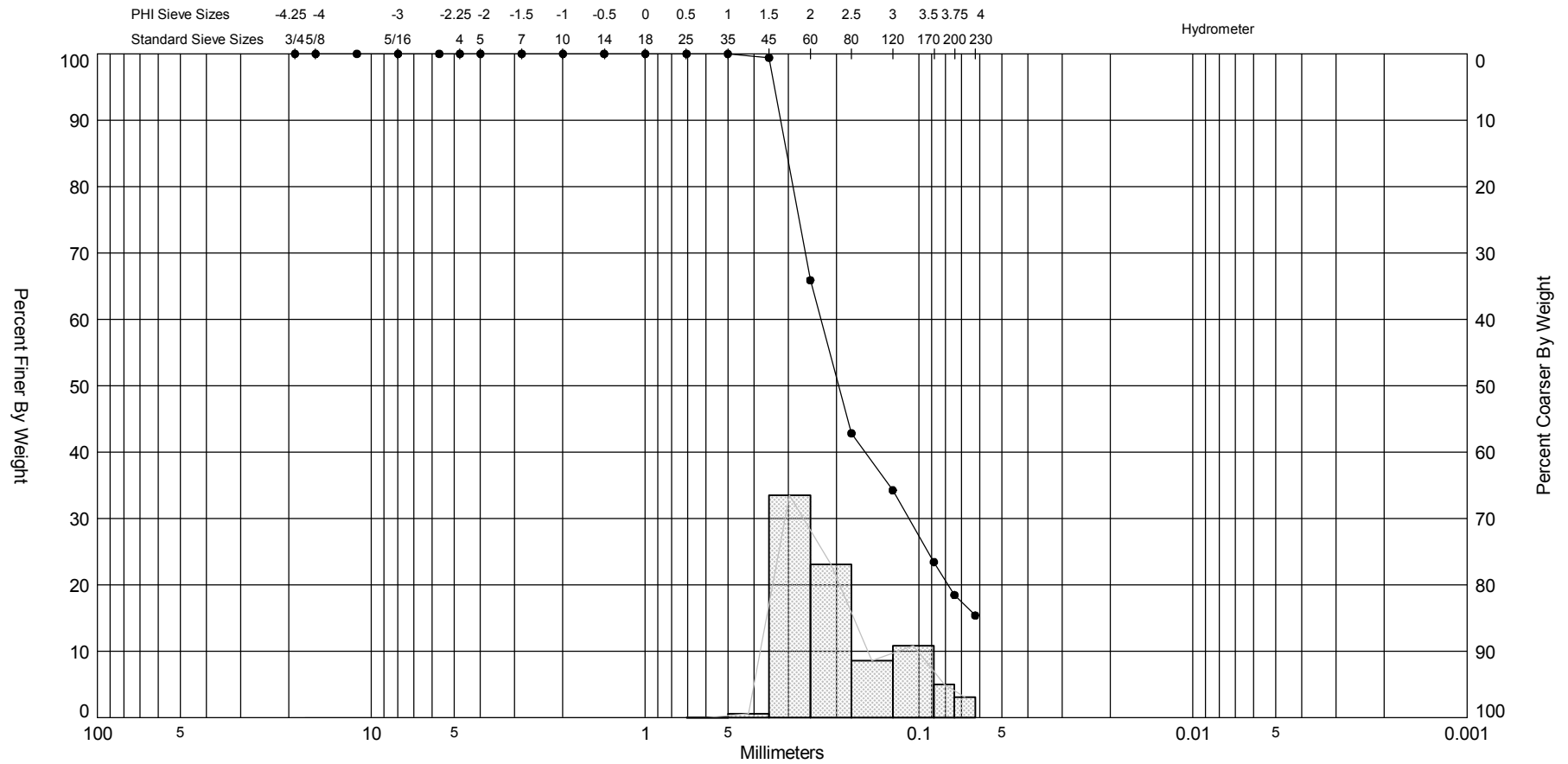


Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort	Sample Information	
JCVC-15-06 #1		-32.7	CL	#200 - 52.27 #230 - 46.65			3.85	3.2	-3.08	27.65	0.52	Project Name:	McFaddin Sand Search
Comments:												Analysis Date:	02-20-15
Depths and elevations based on measured values												Analyzed By:	GS
						CB&I Coastal Planning & Engineering, Inc. 2481 NW Boca Raton Blvd. Boca Raton, FL 33431 ph (561) 391 8102						Easting (X, ft):	3,477,880
												Northing (Y, ft):	13,785,455
												Horizontal System:	NAD 1983
												Vertical System:	NAVD 88

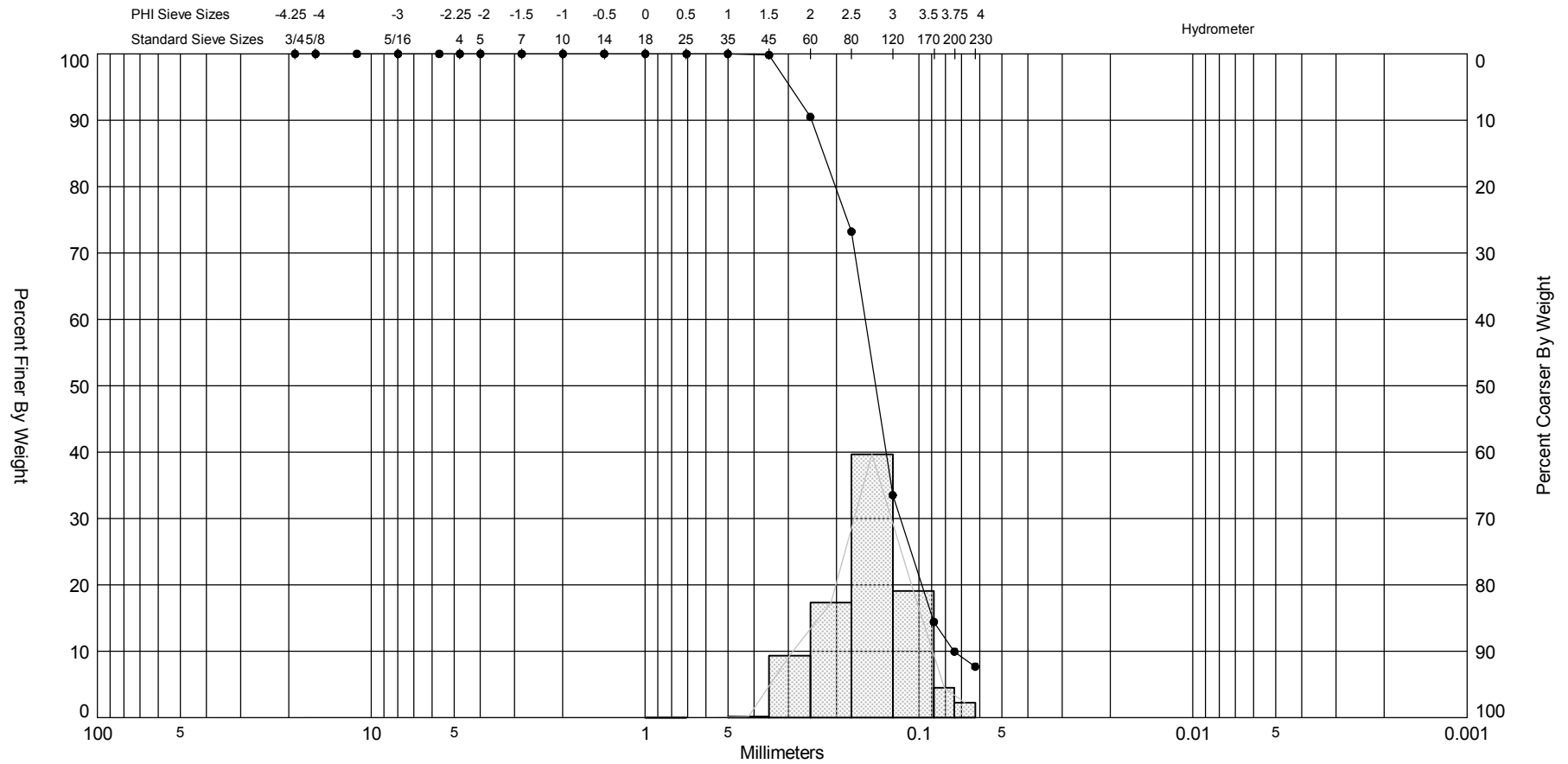
Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort	Sample Information	
JCVC-15-06 #2		-34.5	SC	#200 - 45.85 #230 - 38.88			3.59	2.74	0.04	1.64	0.75	Project Name:	McFaddin Sand Search
Comments:												Analysis Date:	02-19-15
Depths and elevations based on measured values												Analyzed By:	GS
						CB&I Coastal Planning & Engineering, Inc. 2481 NW Boca Raton Blvd. Boca Raton, FL 33431 ph (561) 391 8102						Easting (X, ft):	3,477,880
												Northing (Y, ft):	13,785,455
												Horizontal System:	NAD 1983
												Vertical System:	NAVD 88



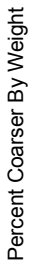
Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort	Sample Information	
JCVC-15-06 #3	—●—	-35.5	SM	#200 - 18.46 #230 - 15.38			2.34	2.36	0.77	2.37	0.67	Project Name:	McFaddin Sand Search
Comments:												Analysis Date:	02-19-15
Depths and elevations based on measured values												Analyzed By:	GS
						CB&I Coastal Planning & Engineering, Inc. 2481 NW Boca Raton Blvd. Boca Raton, FL 33431 ph (561) 391 8102						Easting (X, ft):	3,477,880
												Northing (Y, ft):	13,785,455
												Horizontal System:	NAD 1983
												Vertical System:	NAVD 88



Gravel		Sand			Silt and Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample	Symbol	Elev. (ft)	USCS	% Fines	% Organics	% Carbonates	Median	Mean	Skew	Kurt	Sort	Sample Information	
JCVC-15-06 #4	—●—	-38.7	SP-SM	#200 - 9.95 #230 - 7.70			2.79	2.73	-0.14	2.76	0.52	Project Name:	McFaddin Sand Search
Comments:												Analysis Date:	02-20-15
Depths and elevations based on measured values												Analyzed By:	GS
						CB&I Coastal Planning & Engineering, Inc. 2481 NW Boca Raton Blvd. Boca Raton, FL 33431 ph (561) 391 8102						Easting (X, ft):	3,477,880
												Northing (Y, ft):	13,785,455
												Horizontal System:	NAD 1983
												Vertical System:	NAVD 88



Silt and Clay



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

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: McFaddin Sand Search							
Sample Name: JCVC-15-06 #1							
Analysis Date: 02-20-15							
Analyzed By: GS							
Easting (ft): 3,477,880		Northing (ft): 13,785,455		Coordinate System: Texas South Central		Elevation (ft): -32.7 NAVD 88	
USCS: CL		Munsell: Wet - 2.5Y-6/3 Dry - 2.5Y-7/4 Washed - 2.5Y-8/2		Comments:			
Dry Weight (g): 93.26	Wash Weight (g): 51.93	Pan Retained (g): 2.00	Sieve Loss (%): 0.19	Fines (%): #200 - 52.27 #230 - 46.65	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	0.00	0.00	0.00	0.00	
7	-1.50	2.83	0.10	0.11	0.10	0.11	
10	-1.00	2.00	0.07	0.08	0.17	0.19	
14	-0.50	1.41	0.02	0.02	0.19	0.21	
18	0.00	1.00	0.02	0.02	0.21	0.23	
25	0.50	0.71	0.01	0.01	0.22	0.24	
35	1.00	0.50	0.00	0.00	0.22	0.24	
45	1.50	0.35	0.01	0.01	0.23	0.25	
60	2.00	0.25	0.40	0.43	0.63	0.68	
80	2.50	0.18	0.95	1.02	1.58	1.70	
120	3.00	0.13	14.49	15.54	16.07	17.24	
170	3.50	0.09	18.14	19.45	34.21	36.69	
200	3.75	0.07	10.30	11.04	44.51	47.73	
230	4.00	0.06	5.24	5.62	49.75	53.35	
Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.							
Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95	
			3.85	3.20	2.96	2.61	
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis		
Statistics	3.2	0.11	0.52	-3.08	27.65		

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: McFaddin Sand Search							
Sample Name: JCVC-15-06 #2							
Analysis Date: 02-19-15							
Analyzed By: GS							
Easting (ft): 3,477,880		Northing (ft): 13,785,455		Coordinate System: Texas South Central		Elevation (ft): -34.5 NAVD 88	
USCS: SC		Munsell: Wet - 2.5Y-6/3 Dry - 2.5Y-7/3 Washed - 2.5Y-8/2		Comments:			
Dry Weight (g): 98.04	Wash Weight (g): 62.88	Pan Retained (g): 2.79	Sieve Loss (%): 0.17	Fines (%): #200 - 45.85 #230 - 38.88	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	0.00	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	0.00	0.00	0.00	0.00	
35	1.00	0.50	0.01	0.01	0.01	0.01	
45	1.50	0.35	0.25	0.25	0.26	0.26	
60	2.00	0.25	13.28	13.55	13.54	13.81	
80	2.50	0.18	12.98	13.24	26.52	27.05	
120	3.00	0.13	8.03	8.19	34.55	35.24	
170	3.50	0.09	12.15	12.39	46.70	47.63	
200	3.75	0.07	6.39	6.52	53.09	54.15	
230	4.00	0.06	6.83	6.97	59.92	61.12	
Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.							
Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95	
			3.59	2.42	2.08	1.67	
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis		
Statistics	2.74	0.15	0.75	0.04	1.64		

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: McFaddin Sand Search							
Sample Name: JCVC-15-06 #3							
Analysis Date: 02-19-15							
Analyzed By: GS							
Easting (ft): 3,477,880		Northing (ft): 13,785,455		Coordinate System: Texas South Central		Elevation (ft): -35.5 NAVD 88	
USCS: SM		Munsell: Wet - 2.5Y-5/4 Dry - 2.5Y-6/3 Washed - 2.5Y-7/2		Comments:			
Dry Weight (g): 96.07	Wash Weight (g): 82.78	Pan Retained (g): 1.41	Sieve Loss (%): 0.08	Fines (%): #200 - 18.46 #230 - 15.38	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	0.00	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	0.00	0.00	0.00	0.00	
35	1.00	0.50	0.01	0.01	0.01	0.01	
45	1.50	0.35	0.57	0.59	0.58	0.60	
60	2.00	0.25	32.20	33.52	32.78	34.12	
80	2.50	0.18	22.14	23.05	54.92	57.17	
120	3.00	0.13	8.24	8.58	63.16	65.75	
170	3.50	0.09	10.38	10.80	73.54	76.55	
200	3.75	0.07	4.79	4.99	78.33	81.54	
230	4.00	0.06	2.96	3.08	81.29	84.62	
Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.							
Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95	
	3.95	3.43	2.34	1.86	1.73	1.57	
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis		
Statistics	2.36	0.19	0.67	0.77	2.37		

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: McFaddin Sand Search							
Sample Name: JCVC-15-06 #4							
Analysis Date: 02-20-15							
Analyzed By: GS							
Easting (ft):		Northing (ft):		Coordinate System:		Elevation (ft):	
3,477,880		13,785,455		Texas South Central		-38.7 NAVD 88	
USCS:		Munsell:		Comments:			
SP-SM		Wet - 2.5Y-4/2 Dry - 2.5Y-6/2 Washed - 2.5Y-7/2					
Dry Weight (g):	Wash Weight (g):	Pan Retained (g):	Sieve Loss (%):	Fines (%):	Organics (%):	Carbonates (%):	Shell Hash (%):
89.00	82.59	0.38	0.07	#200 - 9.95 #230 - 7.70			
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	0.00	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	0.01	0.01	0.01	0.01	
35	1.00	0.50	0.00	0.00	0.01	0.01	
45	1.50	0.35	0.14	0.16	0.15	0.17	
60	2.00	0.25	8.29	9.31	8.44	9.48	
80	2.50	0.18	15.40	17.30	23.84	26.78	
120	3.00	0.13	35.33	39.70	59.17	66.48	
170	3.50	0.09	17.01	19.11	76.18	85.59	
200	3.75	0.07	3.97	4.46	80.15	90.05	
230	4.00	0.06	2.00	2.25	82.15	92.30	
Shell Hash calculated from visual estimate of shell <4.75mm and >2.8mm.							
Phi 5	Phi 16	Phi 25	Phi 50	Phi 75	Phi 84	Phi 95	
	3.46	3.22	2.79	2.45	2.19	1.76	
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis		
Statistics	2.73	0.15	0.52	-0.14	2.76		

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: McFaddin Sand Search							
Sample Name: JCVC-15-06 #5							
Analysis Date: 02-23-15							
Analyzed By: GS							
Easting (ft): 3,477,880		Northing (ft): 13,785,455		Coordinate System: Texas South Central		Elevation (ft): -43.6 NAVD 88	
USCS: CL		Munsell: Wet - 2.5Y-4/1 Dry - 2.5Y-5/1 Washed - 2.5Y-6/1		Comments:			
Dry Weight (g): 75.45	Wash Weight (g): 2.02	Pan Retained (g): 0.22	Sieve Loss (%): 0.04	Fines (%): #200 - 98.89 #230 - 97.64	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	0.00	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	0.02	0.03	0.02	0.03	
35	1.00	0.50	0.01	0.01	0.03	0.04	
45	1.50	0.35	0.02	0.03	0.05	0.07	
60	2.00	0.25	0.03	0.04	0.08	0.11	
80	2.50	0.18	0.06	0.08	0.14	0.19	
120	3.00	0.13	0.14	0.19	0.28	0.38	
170	3.50	0.09	0.22	0.29	0.50	0.67	
200	3.75	0.07	0.33	0.44	0.83	1.11	
230	4.00	0.06	0.94	1.25	1.77	2.36	
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	
Moment	Mean Phi	Mean mm	Sorting	Skewness	Kurtosis		
Statistics	3.48	0.09	0.67	-2.53	10.18		



MCFADDIN
JEFFERSON COUNTY
JCVC - 15 - 06
0.0 - 2.0



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JCVC - 15 - 06
2.0 - 4.0



MCFADDIN
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JCVC - 15 - 06
4.0 - 6.0



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JCVC - 15 - 06
6.0 - 8.0





