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|--|------------------|---|-----------------|---|---------------------|----------------------|-----------------|
| Granularmetric Report Depths and elevations based on measured values | | | |  Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431 ph (561) 391-8102 fax (561) 391-9116 | | | |
| Project Name: Manatee Co. Pipeline Sand Search | | | | | | | |
| Sample Name: AMVC-10-19 #1 | | | | | | | |
| Analysis Date: 04-14-10 | | | | | | | |
| Analyzed By: KG | | | | | | | |
| Easting (ft): | | Northing (ft): | | Coordinate System: | | Elevation (ft): | |
| 399,146 | | 1,167,358 | | Florida State Plane West | | -23.7 NAVD 88 | |
| USCS: | | Munsell: | | Comments: | | | |
| SP | | Wet - 2.5Y-8/1 Dry - 5Y-8/1 Washed - 5Y-8/1 | | | | | |
| Dry Weight (g): | Wash Weight (g): | Pan Retained (g): | Sieve Loss (%): | Fines (%): | Organics (%): | Carbonates (%): | Shell Hash (%): |
| 92.31 | 91.31 | 0.02 | 0.00 | #200 - 1.13 #230 - 1.11 | | 3 | 0 |
| 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 | 0.05 | 0.05 | 0.05 | 0.05 | |
| 14 | -0.50 | 1.41 | 0.13 | 0.14 | 0.18 | 0.19 | |
| 18 | 0.00 | 1.00 | 0.18 | 0.19 | 0.36 | 0.38 | |
| 25 | 0.50 | 0.71 | 0.23 | 0.25 | 0.59 | 0.63 | |
| 35 | 1.00 | 0.50 | 0.21 | 0.23 | 0.80 | 0.86 | |
| 45 | 1.50 | 0.35 | 0.34 | 0.37 | 1.14 | 1.23 | |
| 60 | 2.00 | 0.25 | 1.30 | 1.41 | 2.44 | 2.64 | |
| 80 | 2.50 | 0.18 | 17.43 | 18.88 | 19.87 | 21.52 | |
| 120 | 3.00 | 0.13 | 60.63 | 65.68 | 80.50 | 87.20 | |
| 170 | 3.50 | 0.09 | 10.53 | 11.41 | 91.03 | 98.61 | |
| 200 | 3.75 | 0.07 | 0.24 | 0.26 | 91.27 | 98.87 | |
| 230 | 4.00 | 0.06 | 0.02 | 0.02 | 91.29 | 98.89 | |
| 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 | |
| 3.34 | 2.98 | 2.91 | 2.72 | 2.53 | 2.35 | 2.06 | |
| Moment | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis | | |
| Statistics | 2.67 | 0.16 | 0.41 | -3.04 | 23.5 | | |

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|--|------------------|---|-----------------|---|---------------------|----------------------|-----------------|
| Granularmetric Report Depths and elevations based on measured values | | | |  Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431 ph (561) 391-8102 fax (561) 391-9116 | | | |
| Project Name: Manatee Co. Pipeline Sand Search | | | | | | | |
| Sample Name: AMVC-10-19 #2 | | | | | | | |
| Analysis Date: 04-13-10 | | | | | | | |
| Analyzed By: KG | | | | | | | |
| Easting (ft): | | Northing (ft): | | Coordinate System: | | Elevation (ft): | |
| 399,146 | | 1,167,358 | | Florida State Plane West | | -27.0 NAVD 88 | |
| USCS: | | Munsell: | | Comments: | | | |
| SP | | Wet - 2.5Y-7/1 Dry - 2.5Y-8/1 Washed - 2.5Y-8/1 | | | | | |
| Dry Weight (g): | Wash Weight (g): | Pan Retained (g): | Sieve Loss (%): | Fines (%): | Organics (%): | Carbonates (%): | Shell Hash (%): |
| 92.72 | 91.11 | 0.06 | 0.01 | #200 - 2.07 #230 - 1.81 | | 4 | 0 |
| 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 | 0.49 | 0.53 | 0.49 | 0.53 | |
| 4 | -2.25 | 4.76 | 0.00 | 0.00 | 0.49 | 0.53 | |
| 5 | -2.00 | 4.00 | 0.06 | 0.06 | 0.55 | 0.59 | |
| 7 | -1.50 | 2.83 | 0.07 | 0.08 | 0.62 | 0.67 | |
| 10 | -1.00 | 2.00 | 0.15 | 0.16 | 0.77 | 0.83 | |
| 14 | -0.50 | 1.41 | 0.14 | 0.15 | 0.91 | 0.98 | |
| 18 | 0.00 | 1.00 | 0.14 | 0.15 | 1.05 | 1.13 | |
| 25 | 0.50 | 0.71 | 0.23 | 0.25 | 1.28 | 1.38 | |
| 35 | 1.00 | 0.50 | 0.27 | 0.29 | 1.55 | 1.67 | |
| 45 | 1.50 | 0.35 | 0.35 | 0.38 | 1.90 | 2.05 | |
| 60 | 2.00 | 0.25 | 1.27 | 1.37 | 3.17 | 3.42 | |
| 80 | 2.50 | 0.18 | 15.60 | 16.82 | 18.77 | 20.24 | |
| 120 | 3.00 | 0.13 | 51.91 | 55.99 | 70.68 | 76.23 | |
| 170 | 3.50 | 0.09 | 18.88 | 20.36 | 89.56 | 96.59 | |
| 200 | 3.75 | 0.07 | 1.24 | 1.34 | 90.80 | 97.93 | |
| 230 | 4.00 | 0.06 | 0.24 | 0.26 | 91.04 | 98.19 | |
| 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 | 3.19 | 2.99 | 2.77 | 2.54 | 2.37 | 2.05 | |
| Moment | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis | | |
| Statistics | 2.7 | 0.15 | 0.64 | -4.83 | 37.86 | | |

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|--|------------------|---|-----------------|---|---------------------|----------------------|-----------------|
| Granularmetric Report Depths and elevations based on measured values | | | |  Coastal Planning & Engineering 2481 NW Boca Raton Blvd, Boca Raton FL 33431 ph (561) 391-8102 fax (561) 391-9116 | | | |
| Project Name: Manatee Co. Pipeline Sand Search | | | | | | | |
| Sample Name: AMVC-10-19 #3 | | | | | | | |
| Analysis Date: 04-13-10 | | | | | | | |
| Analyzed By: KG | | | | | | | |
| Easting (ft): | | Northing (ft): | | Coordinate System: | | Elevation (ft): | |
| 399,146 | | 1,167,358 | | Florida State Plane West | | -28.4 NAVD 88 | |
| USCS: | | Munsell: | | Comments: | | | |
| SP | | Wet - 5Y-7/1 Dry - 5Y-7/1 Washed - 5Y-7/1 | | | | | |
| Dry Weight (g): | Wash Weight (g): | Pan Retained (g): | Sieve Loss (%): | Fines (%): | Organics (%): | Carbonates (%): | Shell Hash (%): |
| 89.33 | 87.30 | 0.10 | 0.00 | #200 - 2.54 #230 - 2.38 | | 4 | 0 |
| 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 | 0.06 | 0.07 | 0.06 | 0.07 | |
| 14 | -0.50 | 1.41 | 0.12 | 0.13 | 0.18 | 0.20 | |
| 18 | 0.00 | 1.00 | 0.24 | 0.27 | 0.42 | 0.47 | |
| 25 | 0.50 | 0.71 | 0.22 | 0.25 | 0.64 | 0.72 | |
| 35 | 1.00 | 0.50 | 0.37 | 0.41 | 1.01 | 1.13 | |
| 45 | 1.50 | 0.35 | 0.29 | 0.32 | 1.30 | 1.45 | |
| 60 | 2.00 | 0.25 | 0.73 | 0.82 | 2.03 | 2.27 | |
| 80 | 2.50 | 0.18 | 6.01 | 6.73 | 8.04 | 9.00 | |
| 120 | 3.00 | 0.13 | 57.84 | 64.75 | 65.88 | 73.75 | |
| 170 | 3.50 | 0.09 | 20.23 | 22.65 | 86.11 | 96.40 | |
| 200 | 3.75 | 0.07 | 0.95 | 1.06 | 87.06 | 97.46 | |
| 230 | 4.00 | 0.06 | 0.14 | 0.16 | 87.20 | 97.62 | |
| 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 | |
| 3.47 | 3.23 | 3.03 | 2.82 | 2.62 | 2.55 | 2.20 | |
| Moment | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis | | |
| Statistics | 2.8 | 0.14 | 0.43 | -3.38 | 25.71 | | |

Granularmetric Report

Depths and elevations based on measured values



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

Project Name: Manatee Co. Pipeline Sand Search

Sample Name: AMVC-10-19 #4

Analysis Date: 04-29-10

Analyzed By: TD

| | | | |
|---------------------------------|------------------------------------|---|---|
| Easting (ft): 399,146 | Northing (ft): 1,167,358 | Coordinate System: Florida State Plane West | Elevation (ft): -29.9 NAVD 88 |
|---------------------------------|------------------------------------|---|---|

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|--------------------|--|-----------|
| USCS: SP | Munsell: Wet - 5Y-6/1 Dry - 5Y-7/1 Washed - 5Y-7/1 | Comments: |
|--------------------|--|-----------|

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|---------------------------------|----------------------------------|----------------------------------|--------------------------------|--|---------------|-----------------|-----------------------------|
| Dry Weight (g): 98.58 | Wash Weight (g): 94.96 | Pan Retained (g): 0.18 | Sieve Loss (%): 0.00 | Fines (%): #200 - 4.16 #230 - 3.87 | Organics (%): | Carbonates (%): | Shell Hash (%): 0 |
|---------------------------------|----------------------------------|----------------------------------|--------------------------------|--|---------------|-----------------|-----------------------------|

| 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 | 0.07 | 0.07 | 0.07 | 0.07 |
| 5 | -2.00 | 4.00 | 0.02 | 0.02 | 0.09 | 0.09 |
| 7 | -1.50 | 2.83 | 0.13 | 0.13 | 0.22 | 0.22 |
| 10 | -1.00 | 2.00 | 0.18 | 0.18 | 0.40 | 0.40 |
| 14 | -0.50 | 1.41 | 0.17 | 0.17 | 0.57 | 0.57 |
| 18 | 0.00 | 1.00 | 0.19 | 0.19 | 0.76 | 0.76 |
| 25 | 0.50 | 0.71 | 0.22 | 0.22 | 0.98 | 0.98 |
| 35 | 1.00 | 0.50 | 0.30 | 0.30 | 1.28 | 1.28 |
| 45 | 1.50 | 0.35 | 0.17 | 0.17 | 1.45 | 1.45 |
| 60 | 2.00 | 0.25 | 1.22 | 1.24 | 2.67 | 2.69 |
| 80 | 2.50 | 0.18 | 3.40 | 3.45 | 6.07 | 6.14 |
| 120 | 3.00 | 0.13 | 49.85 | 50.57 | 55.92 | 56.71 |
| 170 | 3.50 | 0.09 | 36.78 | 37.31 | 92.70 | 94.02 |
| 200 | 3.75 | 0.07 | 1.79 | 1.82 | 94.49 | 95.84 |
| 230 | 4.00 | 0.06 | 0.29 | 0.29 | 94.78 | 96.13 |

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 |
| 3.63 | 3.37 | 3.25 | 2.93 | 2.69 | 2.60 | 2.33 |
| Moment | Mean Phi | Mean mm | Sorting | Skewness | Kurtosis | |
| Statistics | 2.89 | 0.13 | 0.52 | -4.48 | 35.57 | |

GRANULARMETRIC REPORT 2010_AMVC_PIPELINE_ROUTE.GPJ JPBRAZIL.GDT 5/26/10