

|  |  |   |  |                     |
|--|--|---|--|---------------------|
| <b>DRILLING LOG</b>                            |  | <b>DIVISION:</b> South Atlantic                         | <b>INSTALLATION:</b> Jacksonville District | <b>SHEET</b> 1 of 1 |
| <b>1. PROJECT</b>                              |  | DELRAY BEACH  |  |                     |
| <b>2. LOCATION</b>                             |  | (Coordinates or Station)<br>X= 966064 Y= 770893         |  |                     |
| <b>3. DRILLING AGENCY:</b>                     |  | ALPINE SEISMIC  |  |                     |
| <b>4. HOLE NO.</b>                             |  | (As shown on drawing title and file number)<br>DB-99-22 |  |                     |
| <b>5. NAME OF DRILLER</b>                      |  | ROB SUSKO   |  |                     |
| <b>6. DIRECTION OF HOLE</b>                    |  | VERTICAL  |  |                     |
| <b>7. THICKNESS OF BURDEN</b>                  |  | 0.0 FT  |  |                     |
| <b>8. DEPTH DRILLED INTO ROCK</b>              |  | 0.0 FT  |  |                     |
| <b>9. TOTAL DEPTH OF HOLE</b>                  |  | 18.9' FT  |  |                     |
| <b>10. SIZE AND TYPE OF BIT</b>                |  | 3"  |  |                     |
| <b>11. DATUM FOR ELEVATION SHOWN</b>           |  | (TBM or MSL)<br>NGVD                                    |  |                     |
| <b>12. MANUFACTURER'S DESIGNATION OF DRILL</b> |  | ALPINE PNEUMATIC  |  |                     |
| <b>13. TOT NO. OF OVERBURDEN SAMPLES TAKEN</b> |  | disturbed: 0.0 undisturbed: 0.0                         |  |                     |
| <b>14. TOTAL NO. OF CORE BOXES</b>             |  | 1   |  |                     |
| <b>15. ELEVATION GROUND WATER</b>              |  |   |  |                     |
| <b>16. DATE HOLE</b>                           |  | Started Completed<br>4/20/99 4/20/99                    |  |                     |
| <b>17. ELEVATION TOP OF HOLE</b>               |  | -48.4 ft.   |  |                     |
| <b>18. TOTAL CORE RECOVERY FOR BORING</b>      |  | 96%   |  |                     |
| <b>19. SIGNATURE OF GEOLOGIST</b>              |  | IBRAHIM DREMALI   |  |                     |

| ELEV. | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS<br>(Description)                                | CORE<br>REC<br>% | SAMPLE<br>NUMBER | REMARKS   |
|-------|-------|--------|---|------------------|------------------|---|
| -48.4 | 0     |        |   |                  |                  | SP  |
| -50.1 | 1     |        | SAND, fine-grained, trace shell hash, Gray<br>(5Y-6/1) (SP)                 |                  | 1                | Sample #1, Depth = 0.60'<br>0.24 mm, 0.67 phi sorting<br>1.47% silt |
| -52.2 | 2     |        | fine-grained, trace shell hash, Gray (5Y-6/1)<br>(SP) from -50.1' to -52.2' |                  | 2                | Sample #2, Depth = 2.4'<br>0.38 mm, 1.24 phi sorting<br>0.9% silt   |
|       | 3     |        |   |                  |                  |   |
|       | 4     |        |   |                  |                  |   |
|       | 5     |        |   |                  |                  |   |
|       | 6     |        |   |                  | 3                | Sample #3, Depth = 6.0'<br>0.23 mm, 0.67 phi sorting<br>4.38% silt  |
|       | 7     |        |   |                  |                  |   |
|       | 8     |        |   |                  |                  |   |
|       | 9     |        |   |                  |                  |   |
|       | 10    |        |   |                  |                  |   |
|       | 11    |        | fine-grained, trace shell hash, Gray (5Y-6/1)<br>(SP) from -52.2 to -67.3   |                  | 4                | Sample #4, Depth = 11.0'<br>0.22 mm, 0.70 phi sorting<br>2.15% silt |
|       | 12    |        |   |                  |                  |   |
|       | 13    |        |   |                  |                  |   |
|       | 14    |        |   |                  |                  |   |
|       | 15    |        |   |                  |                  |   |
|       | 16    |        |   |                  | 5                | Sample #5, Depth = 16.0'<br>0.21 mm, 0.76 phi sorting<br>8.18% silt |
|       | 17    |        |   |                  |                  |   |
| -67.3 | 18    |        |   |                  |                  |   |
|       | 19    |        | End of Boring   |                  |                  |   |
|       | 20    |        |   |                  |                  |   |
|       | 21    |        |   |                  |                  |   |
|       | 22    |        |   |                  |                  |   |
|       | 23    |        |   |                  |                  |   |
|       | 24    |        |   |                  |                  |   |

Note: Soils are classified in  
accordance with the Unified  
Soils Classification System.

PROJECT: Delray Beach

HOLE NUMBER:

GRADATION ANALYSIS REPORT  
DELRAY BEACH VIBRACORES 1999  
TESTED BY: RW ON: 8/99

SAMPLE NO.: DB99-22#1  
SAMPLE ELEV. (FT. NGVD):  
SAMPLE DEPTH (FT.): 0.60  
SAMPLE TYPE: CORE SAMPLE

USCS DESCRIPTION: SP

DRY SAMPLE WEIGHT (GRAMS): 102.64  
SAMPLE WEIGHT AFTER WASH (GRAMS): 101.16

| SIEVE<br>SIZE | PHI<br>SIZE | MESH SIZE<br>(mm) | RETAINED<br>(GRAMS) | RETAINED<br>(%) | PASSED<br>(%) |
|---------------|-------------|-------------------|---------------------|-----------------|---------------|
| 5/8           | -4.00       | 16.000            | 0.00                | 0.00            | 100.00        |
| 5/16          | -3.00       | 8.000             | 0.00                | 0.00            | 100.00        |
| 5             | -2.00       | 4.000             | 0.00                | 0.00            | 100.00        |
| 7             | -1.50       | 2.800             | 0.01                | 0.01            | 99.99         |
| 10            | -1.00       | 2.000             | 0.11                | 0.11            | 99.89         |
| 14            | -0.50       | 1.400             | 0.36                | 0.35            | 99.65         |
| 18            | 0.00        | 1.000             | 0.67                | 0.65            | 99.35         |
| 25            | 0.50        | 0.710             | 1.85                | 1.80            | 98.20         |
| 35            | 1.00        | 0.500             | 6.15                | 5.99            | 94.01         |
| 45            | 1.50        | 0.355             | 15.56               | 15.16           | 84.84         |
| 60            | 2.00        | 0.250             | 41.56               | 40.49           | 59.51         |
| 80            | 2.50        | 0.180             | 75.34               | 73.40           | 26.60         |
| 120           | 3.00        | 0.125             | 96.40               | 93.92           | 6.08          |
| 170           | 3.50        | 0.090             | 101.05              | 98.45           | 1.55          |
| 200           | 3.75        | 0.075             | 101.13              | 98.53           | 1.47          |
| 230           | 4.00        | 0.063             | 101.87              | 99.25           | 0.75          |
| PAN           |             |                   | 102.62              | 99.98           | 0.02          |

|               |               |               |
|---------------|---------------|---------------|
| PHI(5): 0.88  | PHI(16): 1.52 | PHI(25): 1.69 |
| PHI(50): 2.14 | PHI(75): 2.54 | PHI(84): 2.76 |
| PHI(95): 3.12 |               |               |

|                     |                  |
|---------------------|------------------|
| SIEVE LOSS(g): 0.02 | SILT/CLAY: 1.47% |
| SKEWNESS: -0.232    | KURTOSIS: 1.086  |

GRAPHIC METHOD

|  |                   |
|--|-------------------|
| MEAN (PHI): 2.08                               | SORTING: 0.62     |
| MEAN (mm): 0.24                                | MEDIAN (mm): 0.23 |
| NOTE: MEAN WAS CALCULATED USING 5 POINT METHOD |                   |

MOMENT METHOD

|                  |               |
|------------------|---------------|
| MEAN (PHI): 2.09 | SORTING: 0.67 |
| MEAN (mm): 0.24  |               |

DATA FILE NAME: DB99-22#1.TAB

GRADATION ANALYSIS REPORT  
DELRAY BEACH VIBRACORES 1999  
TESTED BY: RW ON: 8/99

SAMPLE NO.: DB99-22#2  
SAMPLE ELEV. (FT. NGVD):  
SAMPLE DEPTH (FT.): 2.4  
SAMPLE TYPE: CORE SAMPLE

USCS DESCRIPTION: SP

DRY SAMPLE WEIGHT (GRAMS): 107.08  
SAMPLE WEIGHT AFTER WASH (GRAMS): 106.16

| SIEVE<br>SIZE | PHI<br>SIZE | MESH SIZE<br>(mm) | RETAINED<br>(GRAMS) | RETAINED<br>(%) | PASSED<br>(%) |
|---------------|-------------|-------------------|---------------------|-----------------|---------------|
| 5/8           | -4.00       | 16.000            | 0.00                | 0.00            | 100.00        |
| 5/16          | -3.00       | 8.000             | 1.15                | 1.07            | 98.93         |
| 5             | -2.00       | 4.000             | 3.47                | 3.24            | 96.76         |
| 7             | -1.50       | 2.800             | 4.16                | 3.88            | 96.12         |
| 10            | -1.00       | 2.000             | 5.81                | 5.43            | 94.57         |
| 14            | -0.50       | 1.400             | 8.25                | 7.70            | 92.30         |
| 18            | 0.00        | 1.000             | 11.43               | 10.67           | 89.33         |
| 25            | 0.50        | 0.710             | 17.96               | 16.77           | 83.23         |
| 35            | 1.00        | 0.500             | 29.01               | 27.09           | 72.91         |
| 45            | 1.50        | 0.355             | 43.35               | 40.48           | 59.52         |
| 60            | 2.00        | 0.250             | 68.96               | 64.40           | 35.60         |
| 80            | 2.50        | 0.180             | 93.96               | 87.75           | 12.25         |
| 120           | 3.00        | 0.125             | 104.84              | 97.91           | 2.09          |
| 170           | 3.50        | 0.090             | 106.10              | 99.08           | 0.92          |
| 200           | 3.75        | 0.075             | 106.12              | 99.10           | 0.90          |
| 230           | 4.00        | 0.063             | 106.59              | 99.54           | 0.46          |
| PAN           |             |                   | 107.07              | 99.99           | 0.01          |

PHI(5): -1.14 PHI(16): 0.44 PHI(25): 0.90  
PHI(50): 1.70 PHI(75): 2.23 PHI(84): 2.42  
PHI(95): 2.86

SIEVE LOSS(g): 0.01 SILT/CLAY: 0.90%  
SKEWNESS: -0.847 KURTOSIS: 1.233

GRAPHIC METHOD

MEAN (PHI): 1.25 SORTING: 0.99  
MEAN (mm): 0.42 MEDIAN (mm): 0.31  
NOTE: MEAN WAS CALCULATED USING 5 POINT METHOD

MOMENT METHOD

MEAN (PHI): 1.40 SORTING: 1.24  
MEAN (mm): 0.38

DATA FILE NAME: DB99-22#2.TAB

GRADATION ANALYSIS REPORT  
DELRAY BEACH VIBRACORES 1999  
TESTED BY: RW ON: 8/99

SAMPLE NO.: DB99-22#3  
SAMPLE ELEV. (FT. NGVD):  
SAMPLE DEPTH (FT.): 6.0  
SAMPLE TYPE: CORE SAMPLE

USCS DESCRIPTION: SP

DRY SAMPLE WEIGHT (GRAMS): 104.83  
SAMPLE WEIGHT AFTER WASH (GRAMS): 100.27

| SIEVE<br>SIZE | PHI<br>SIZE | MESH SIZE<br>(mm) | RETAINED<br>(GRAMS) | RETAINED<br>(%) | PASSED<br>(%) |
|---------------|-------------|-------------------|---------------------|-----------------|---------------|
| 5/8           | -4.00       | 16.000            | 0.00                | 0.00            | 100.00        |
| 5/16          | -3.00       | 8.000             | 0.00                | 0.00            | 100.00        |
| 5             | -2.00       | 4.000             | 0.00                | 0.00            | 100.00        |
| 7             | -1.50       | 2.800             | 0.07                | 0.07            | 99.93         |
| 10            | -1.00       | 2.000             | 0.29                | 0.28            | 99.72         |
| 14            | -0.50       | 1.400             | 0.59                | 0.56            | 99.44         |
| 18            | 0.00        | 1.000             | 1.11                | 1.06            | 98.94         |
| 25            | 0.50        | 0.710             | 2.10                | 2.00            | 98.00         |
| 35            | 1.00        | 0.500             | 5.20                | 4.96            | 95.04         |
| 45            | 1.50        | 0.355             | 12.58               | 12.00           | 88.00         |
| 60            | 2.00        | 0.250             | 39.96               | 38.12           | 61.88         |
| 80            | 2.50        | 0.180             | 77.84               | 74.25           | 25.75         |
| 120           | 3.00        | 0.125             | 98.08               | 93.56           | 6.44          |
| 170           | 3.50        | 0.090             | 100.20              | 95.58           | 4.42          |
| 200           | 3.75        | 0.075             | 100.24              | 95.62           | 4.38          |
| 230           | 4.00        | 0.063             | 102.55              | 97.83           | 2.17          |
| PAN           |             |                   | 104.83              | 100.00          | 0.00          |

PHI(5): 1.00 PHI(16): 1.58 PHI(25): 1.75  
PHI(50): 2.16 PHI(75): 2.52 PHI(84): 2.75  
PHI(95): 3.36

SIEVE LOSS(g): 0.00 SILT/CLAY: 4.38%  
SKEWNESS: 0.025 KURTOSIS: 1.252

GRAPHIC METHOD

MEAN (PHI): 2.17 SORTING: 0.59  
MEAN (mm): 0.22 MEDIAN (mm): 0.22  
NOTE: MEAN WAS CALCULATED USING 5 POINT METHOD

MOMENT METHOD

MEAN (PHI): 2.10 SORTING: 0.67  
MEAN (mm): 0.23

DATA FILE NAME: DB99-22#3.TAB

GRADATION ANALYSIS REPORT  
DELRAY BEACH VIBRACORES 1999  
TESTED BY: RW ON: 8/99

SAMPLE NO.: DB99-22#4  
SAMPLE ELEV. (FT. NGVD):  
SAMPLE DEPTH (FT.): 11.0  
SAMPLE TYPE: CORE SAMPLE

USCS DESCRIPTION: SP

DRY SAMPLE WEIGHT (GRAMS): 95.83  
SAMPLE WEIGHT AFTER WASH (GRAMS): 93.83

| SIEVE<br>SIZE | PHI<br>SIZE | MESH SIZE<br>(mm) | RETAINED<br>(GRAMS) | RETAINED<br>(%) | PASSED<br>(%) |
|---------------|-------------|-------------------|---------------------|-----------------|---------------|
| 5/8           | -4.00       | 16.000            | 0.00                | 0.00            | 100.00        |
| 5/16          | -3.00       | 8.000             | 0.00                | 0.00            | 100.00        |
| 5             | -2.00       | 4.000             | 0.14                | 0.15            | 99.85         |
| 7             | -1.50       | 2.800             | 0.19                | 0.20            | 99.80         |
| 10            | -1.00       | 2.000             | 0.42                | 0.44            | 99.56         |
| 14            | -0.50       | 1.400             | 0.76                | 0.79            | 99.21         |
| 18            | 0.00        | 1.000             | 1.12                | 1.17            | 98.83         |
| 25            | 0.50        | 0.710             | 1.93                | 2.01            | 97.99         |
| 35            | 1.00        | 0.500             | 4.14                | 4.32            | 95.68         |
| 45            | 1.50        | 0.355             | 10.16               | 10.60           | 89.40         |
| 60            | 2.00        | 0.250             | 30.71               | 32.05           | 67.95         |
| 80            | 2.50        | 0.180             | 62.11               | 64.81           | 35.19         |
| 120           | 3.00        | 0.125             | 88.30               | 92.14           | 7.86          |
| 170           | 3.50        | 0.090             | 93.71               | 97.79           | 2.21          |
| 200           | 3.75        | 0.075             | 93.77               | 97.85           | 2.15          |
| 230           | 4.00        | 0.063             | 94.81               | 98.94           | 1.06          |
| PAN           |             |                   | 95.82               | 99.99           | 0.01          |

PHI(5): 1.05 PHI(16): 1.63 PHI(25): 1.84  
PHI(50): 2.27 PHI(75): 2.69 PHI(84): 2.85  
PHI(95): 3.25

SIEVE LOSS(g): 0.01 SILT/CLAY: 2.15%  
SKEWNESS: -0.196 KURTOSIS: 1.059

GRAPHIC METHOD

MEAN (PHI): 2.21 SORTING: 0.61  
MEAN (mm): 0.22 MEDIAN (mm): 0.21  
NOTE: MEAN WAS CALCULATED USING 5 POINT METHOD

MOMENT METHOD

MEAN (PHI): 2.20 SORTING: 0.70  
MEAN (mm): 0.22

DATA FILE NAME: DB99-22#4.TAB

GRADATION ANALYSIS REPORT  
DELRAY BEACH VIBRACORES 1999  
TESTED BY: RW ON: 8/99

SAMPLE NO.: DB99-22#5  
SAMPLE ELEV. (FT. NGVD):  
SAMPLE DEPTH (FT.): 16.0  
SAMPLE TYPE: CORE SAMPLE

USCS DESCRIPTION: SP-SM

DRY SAMPLE WEIGHT (GRAMS): 105.84  
SAMPLE WEIGHT AFTER WASH (GRAMS): 97.27

| SIEVE<br>SIZE | PHI<br>SIZE | MESH SIZE<br>(mm) | RETAINED<br>(GRAMS) | RETAINED<br>(%) | PASSED<br>(%) |
|---------------|-------------|-------------------|---------------------|-----------------|---------------|
| 5/8           | -4.00       | 16.000            | 0.00                | 0.00            | 100.00        |
| 5/16          | -3.00       | 8.000             | 0.00                | 0.00            | 100.00        |
| 5             | -2.00       | 4.000             | 0.16                | 0.15            | 99.85         |
| 7             | -1.50       | 2.800             | 0.28                | 0.26            | 99.74         |
| 10            | -1.00       | 2.000             | 0.59                | 0.56            | 99.44         |
| 14            | -0.50       | 1.400             | 0.86                | 0.81            | 99.19         |
| 18            | 0.00        | 1.000             | 1.26                | 1.19            | 98.81         |
| 25            | 0.50        | 0.710             | 2.22                | 2.10            | 97.90         |
| 35            | 1.00        | 0.500             | 4.71                | 4.45            | 95.55         |
| 45            | 1.50        | 0.355             | 10.49               | 9.91            | 90.09         |
| 60            | 2.00        | 0.250             | 29.90               | 28.25           | 71.75         |
| 80            | 2.50        | 0.180             | 62.32               | 58.88           | 41.12         |
| 120           | 3.00        | 0.125             | 92.16               | 87.07           | 12.93         |
| 170           | 3.50        | 0.090             | 97.07               | 91.71           | 8.29          |
| 200           | 3.75        | 0.075             | 97.18               | 91.82           | 8.18          |
| 230           | 4.00        | 0.063             | 101.51              | 95.90           | 4.10          |
| PAN           |             |                   | 105.82              | 99.98           | 0.02          |

PHI(5): 1.05 PHI(16): 1.67 PHI(25): 1.91  
PHI(50): 2.36 PHI(75): 2.79 PHI(84): 2.95  
PHI(95): 3.94

SIEVE LOSS(g): 0.02 SILT/CLAY: 8.18%  
SKEWNESS: 0.223 KURTOSIS: 1.356

GRAPHIC METHOD

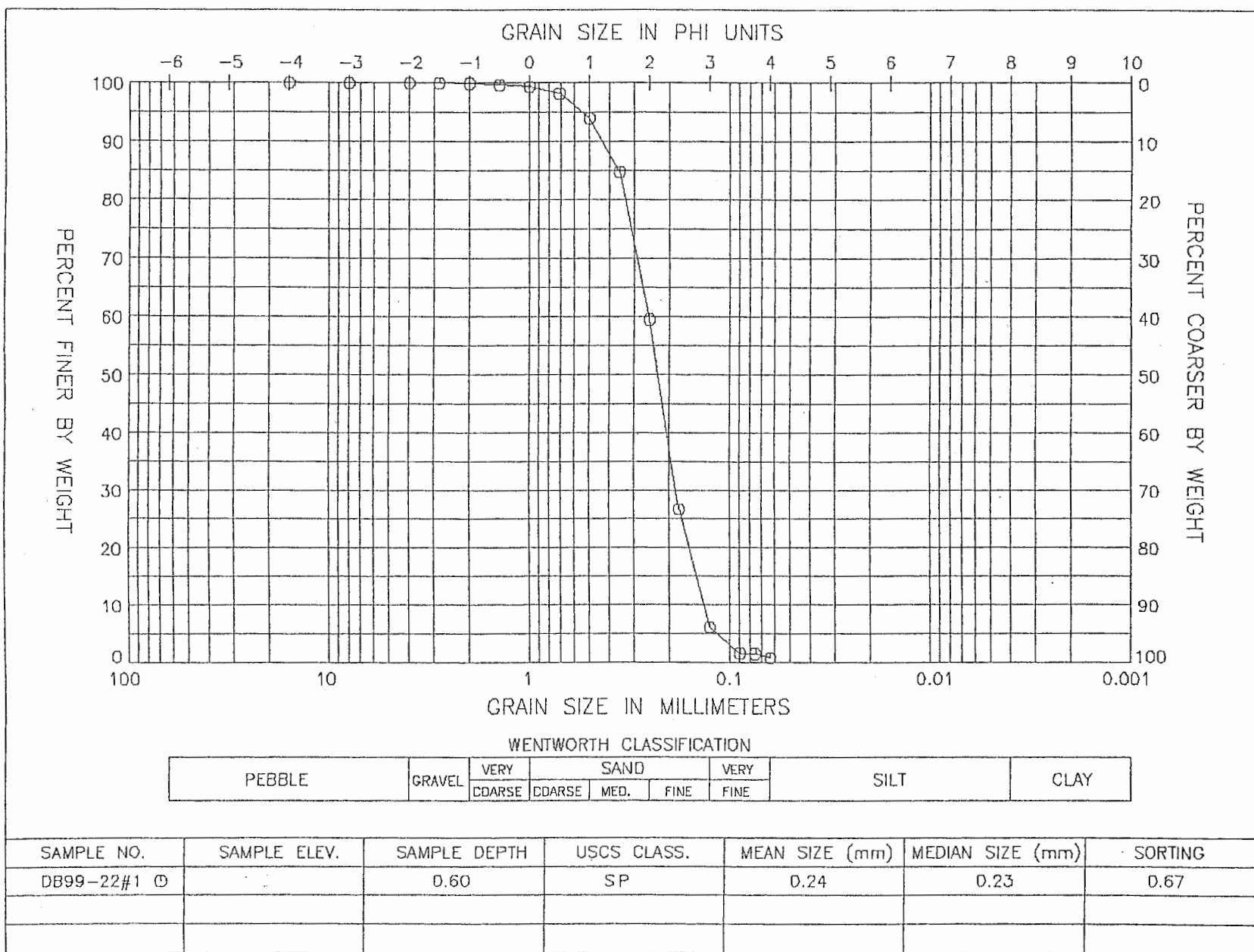
MEAN (PHI): 2.39 SORTING: 0.64  
MEAN (mm): 0.19 MEDIAN (mm): 0.20  
NOTE: MEAN WAS CALCULATED USING 5 POINT METHOD

MOMENT METHOD

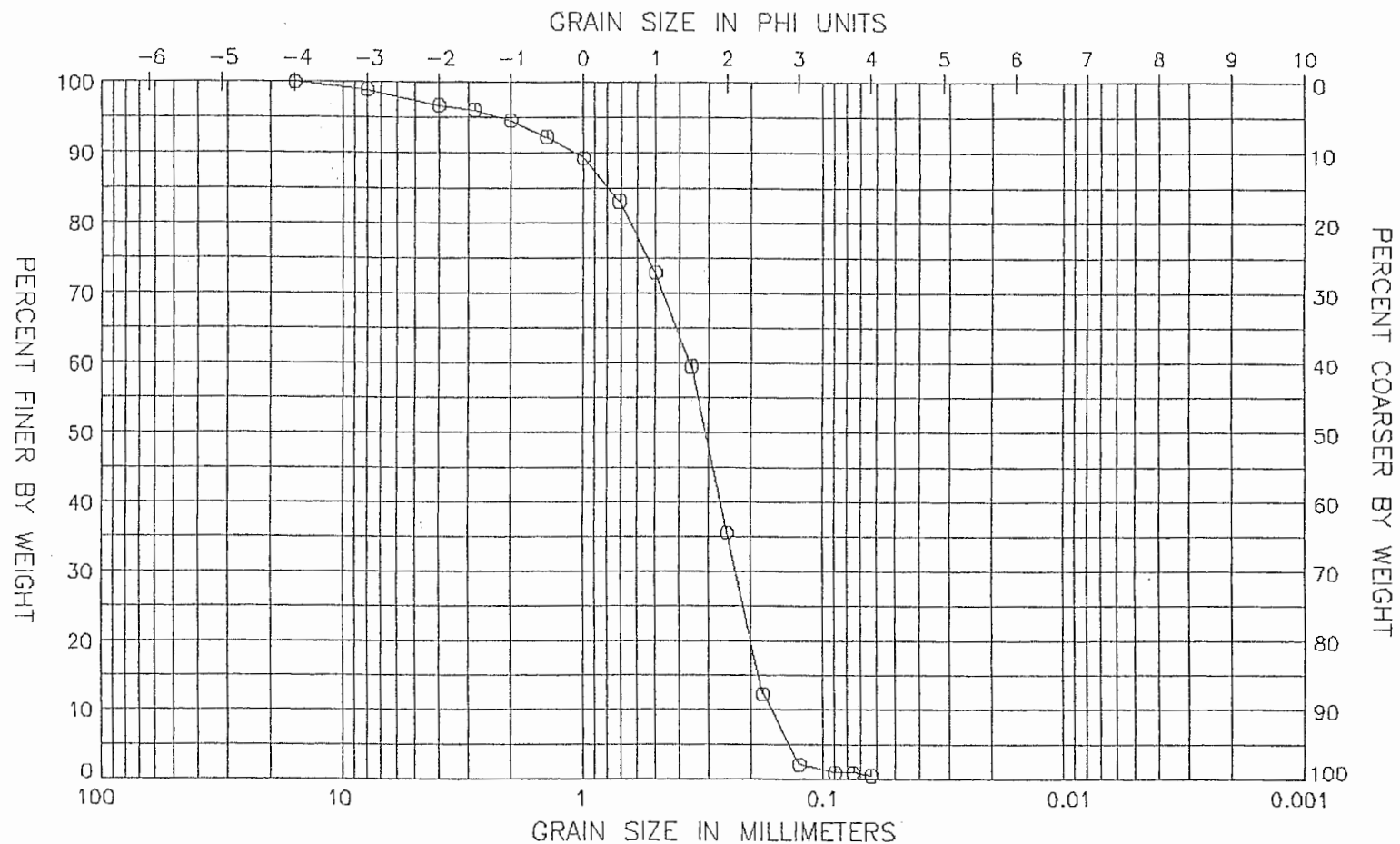
MEAN (PHI): 2.27 SORTING: 0.76  
MEAN (mm): 0.21

DATA FILE NAME: DB99-22#5.TAB

GRAIN SIZE DISTRIBUTION CURVE  
 DELRAY BEACH VIBRACORES 1999



GRAIN SIZE DISTRIBUTION CURVE  
 DELRAY BEACH VIBRACORES 1999



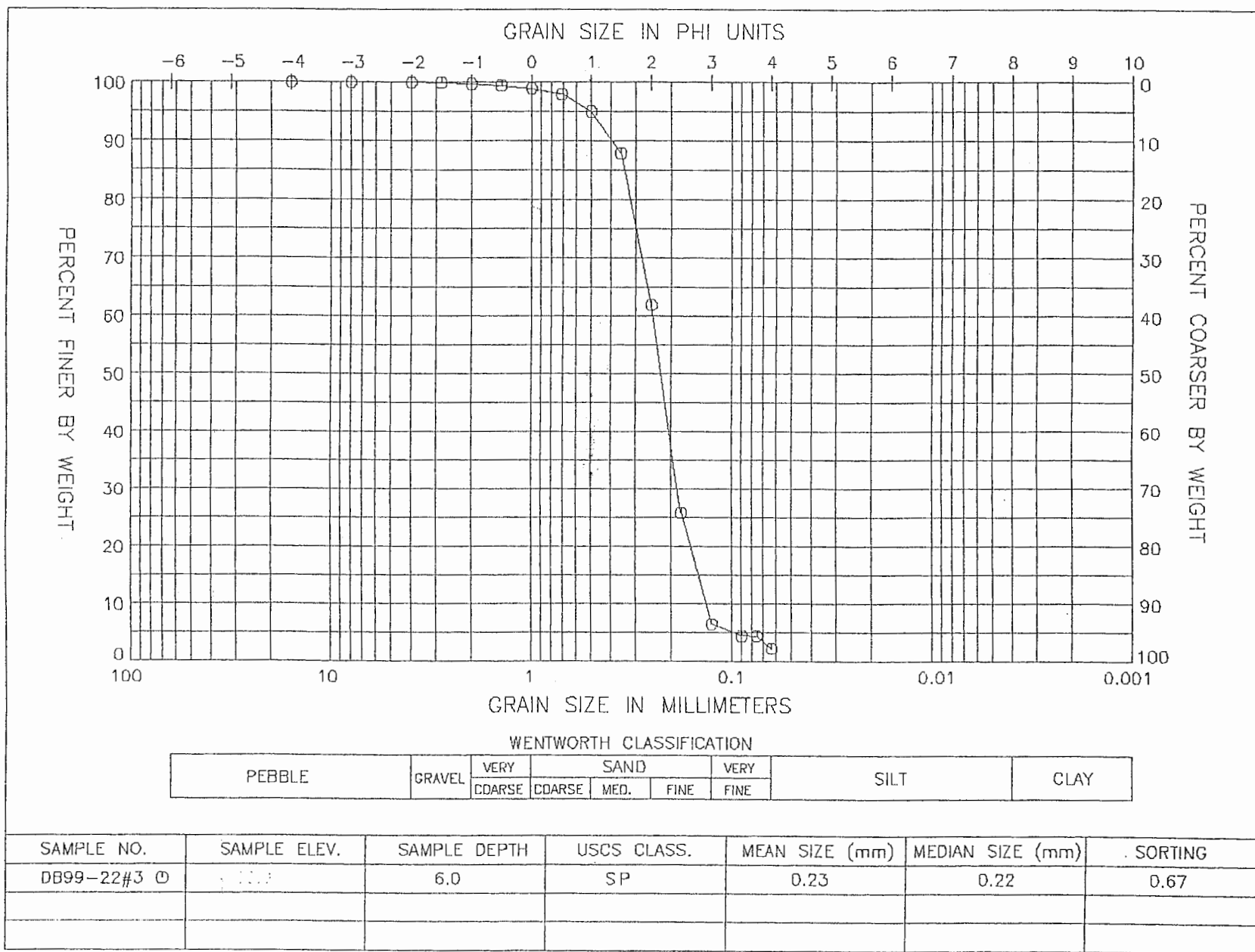
WENTWORTH CLASSIFICATION

|        |        |        |        |      |      |      |      |      |
|--------|--------|--------|--------|------|------|------|------|------|
| PEBBLE | GRAVEL | VERY   | SAND   |      |      | VERY | SILT | CLAY |
|        |        | COARSE | COARSE | MED. | FINE | FINE |      |      |

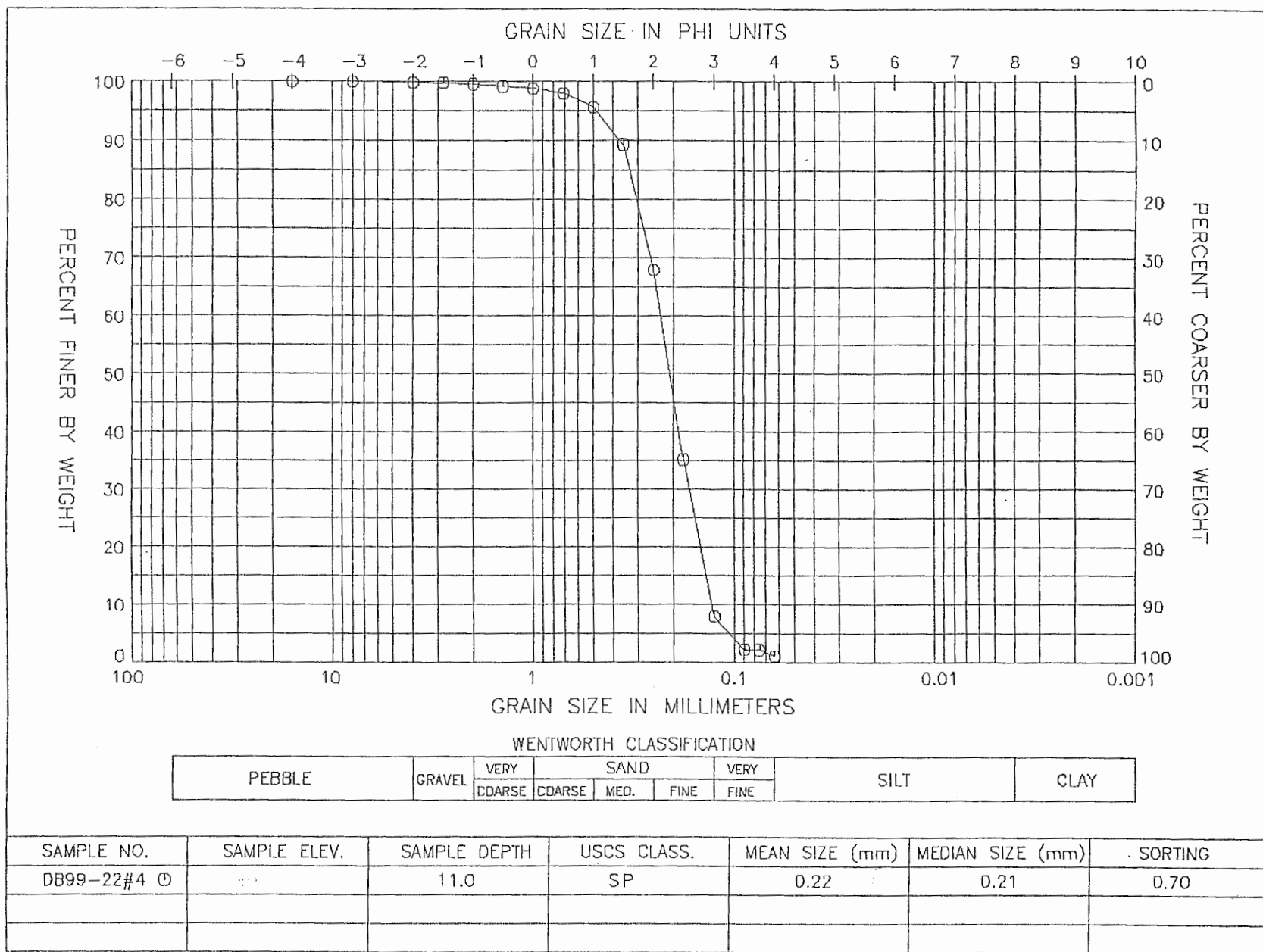
| SAMPLE NO.  | SAMPLE ELEV. | SAMPLE DEPTH | USCS CLASS. | MEAN SIZE (mm) | MEDIAN SIZE (mm) | SORTING |
|-------------|--------------|--------------|-------------|----------------|------------------|---------|
| DB99-22#2 ① |              | 2.4          | SP          | 0.38           | 0.31             | 1.24    |
|             |              |              |             |                |                  |         |
|             |              |              |             |                |                  |         |



GRAIN SIZE DISTRIBUTION CURVE  
 DELRAY BEACH VIBRACORES 1999



GRAIN SIZE DISTRIBUTION CURVE  
 DELRAY BEACH VIBRACORES 1999



GRAIN SIZE DISTRIBUTION CURVE  
 DELRAY BEACH VIBRACORES 1999

