

<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>10. SIZE AND TYPE OF BIT</b> 3"		
<b>2. LOCATION</b> (Coordinates or Station) X=966,433 Y= 771,941		<b>11. DATUM FOR ELEVATION SHOWN</b> (TBM or MSL) NGVD		
<b>3. DRILLING AGENCY:</b> ALPINE SEISMIC		<b>12. MANUFACTURER'S DESIGNATION OF DRILL</b> ALPINE PNEUMATIC		
<b>4. HOLE NO.</b> (As shown on drawing title and file number) DB-99-9		<b>13. TOT NO. OF OVERBURDEN SAMPLES TAKEN</b> disturbed: 0.0 undisturbed: 0.0		
<b>5. NAME OF DRILLER</b> ROB SUSKO		<b>14. TOTAL NO. OF CORE BOXES</b> 1		
<b>6. DIRECTION OF HOLE</b> VERTICAL		<b>15. ELEVATION GROUND WATER</b>		
<b>7. THICKNESS OF BURDEN</b> 0.0 FT		<b>16. DATE HOLE</b> Started Completed 4/20/99 4/20/99		
<b>8. DEPTH DRILLED INTO ROCK</b> 0.0 FT		<b>17. ELEVATION TOP OF HOLE</b> -35.4 ft.		
<b>9. TOTAL DEPTH OF HOLE</b> 19.2' FT		<b>18. TOTAL CORE RECOVERY FOR BORING</b> 97%		
<b>19. SIGNATURE OF GEOLOGIST</b> IBRAHIM DREMALI				

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE REC %	SAMPLE NUMBER	REMARKS
-35.4	0					
-36.4	1		SAND, fine-grained, little shell hash, Gray (5Y-6/1) (SP)		1	SP Sample #1, Depth = 0.5' 0.25 mm, 0.90 phi sorting 1.16% silt
-36.9	2		medium-grained, little shell hash, Gray (5Y-6/1) (SP) from -36.4' to -36.9'		2	Sample #2, Depth = 1.2' 0.47 mm, 1.35 phi sorting 1.54% silt
	3				3	
	4		fine-grained, little shell hash, Gray (5Y-6/1) (SP) from -36.9' to -42.4'		4	Sample #3, Depth = 2.5' 0.28 mm, 0.88 phi sorting 0.92% silt Sample #4, Depth = 4.0' 0.31 mm, 0.84 phi sorting 0.86% silt
	5					
	6					
-42.4	7					
	8					
	9		fine-grained, trace shell hash, (5Y-6/1) (SP) from -42.4 to -46.9'		5	Sample #5, Depth = 9.0' 0.20 mm, 0.64 phi sorting 4.13% silt
	10					
-46.9	11					
	12					
	13		fine-grained, trace shell hash, Gray (5Y-6/1) (SP) from -46.9 to -50.9		6	Sample #6, Depth = 13.0' 0.35 mm, 0.88 phi sorting 0.85% silt
	14					
-50.9	15					
	16					
	17		fine-grained, little shell hash, Gray (5Y-6/1) (SP) from -50.9' to -54.6'		7	Sample #7, Depth = 16.5' 0.23 mm, 0.73 phi sorting 1.32% silt
	18					
-54.6	19					
	20		End of Boring			
	21					
	22					
	23					
	24					Note: Soils are classified in accordance with the Unified Soils Classification System.

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

SAMPLE NO.: DB99-9 S#1  
SAMPLE ELEV. (FT. NGVD):  
SAMPLE DEPTH (FT.): 0.5  
SAMPLE TYPE: CORE SAMPLE

USCS DESCRIPTION: SP

DRY SAMPLE WEIGHT (GRAMS): 170.55  
SAMPLE WEIGHT AFTER WASH (GRAMS): 168.62

SIEVE SIZE	PHI SIZE	MESH SIZE (mm)	RETAINED (GRAMS)	RETAINED (%)	PASSED (%)
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	0.25	0.15	99.85
7	-1.50	2.800	0.80	0.47	99.53
10	-1.00	2.000	2.05	1.20	98.80
14	-0.50	1.400	3.73	2.19	97.81
18	0.00	1.000	6.18	3.62	96.38
25	0.50	0.710	11.69	6.85	93.15
35	1.00	0.500	22.36	13.11	86.89
45	1.50	0.355	35.03	20.54	79.46
60	2.00	0.250	63.77	37.39	62.61
80	2.50	0.180	115.25	67.58	32.42
120	3.00	0.125	160.87	94.32	5.68
170	3.50	0.090	168.55	98.83	1.17
200	3.75	0.075	168.58	98.84	1.16
230	4.00	0.063	169.58	99.43	0.57
PAN			170.55	100.00	0.00

PHI(5): 0.21            PHI(16): 1.19            PHI(25): 1.63  
PHI(50): 2.21          PHI(75): 2.64            PHI(84): 2.81  
PHI(95): 3.08

SIEVE LOSS(g): 0.00                            SILT/CLAY: 1.16%  
SKEWNESS: -0.701                                KURTOSIS: 1.165

GRAPHIC METHOD

MEAN (PHI): 1.90                                SORTING: 0.81  
MEAN (mm) : 0.27                                MEDIAN (mm): 0.22  
NOTE: MEAN WAS CALCULATED USING 5 POINT METHOD

MOMENT METHOD

MEAN (PHI): 2.01                                SORTING: 0.90  
MEAN (mm) : 0.25

DATA FILE NAME: DB99-9#1.TAB

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

SAMPLE NO.: DB99-9 S#2  
SAMPLE ELEV. (FT. NGVD):  
SAMPLE DEPTH (FT.): 1.2  
SAMPLE TYPE: CORE SAMPLE

USCS DESCRIPTION: SP

DRY SAMPLE WEIGHT (GRAMS): 160.52  
SAMPLE WEIGHT AFTER WASH (GRAMS): 158.15

SIEVE SIZE	PHI SIZE	MESH SIZE (mm)	RETAINED (GRAMS)	RETAINED (%)	PASSED (%)
5/8	-4.00	16.000	0.00	0.00	100.00
5/16	-3.00	8.000	3.59	2.24	97.76
5	-2.00	4.000	4.30	2.68	97.32
7	-1.50	2.800	5.57	3.47	96.53
10	-1.00	2.000	9.36	5.83	94.17
14	-0.50	1.400	17.10	10.65	89.35
18	0.00	1.000	28.63	17.84	82.16
25	0.50	0.710	45.65	28.44	71.56
35	1.00	0.500	71.89	44.79	55.21
45	1.50	0.355	93.39	58.18	41.82
60	2.00	0.250	113.41	70.65	29.35
80	2.50	0.180	136.94	85.31	14.69
120	3.00	0.125	155.57	96.92	3.08
170	3.50	0.090	157.90	98.37	1.63
200	3.75	0.075	158.04	98.46	1.54
230	4.00	0.063	159.33	99.26	0.74
PAN			160.52	100.00	0.00

PHI(5): -1.18                      PHI(16): -0.13                      PHI(25): 0.34  
PHI(50): 1.19                      PHI(75): 2.15                      PHI(84): 2.46  
PHI(95): 2.92

SIEVE LOSS(g): 0.00                      SILT/CLAY: 1.54%  
SKEWNESS: -0.251                      KURTOSIS: 0.927

GRAPHIC METHOD

MEAN (PHI): 1.05                      SORTING: 1.29  
MEAN (mm) : 0.48                      MEDIAN (mm): 0.44  
NOTE: MEAN WAS CALCULATED USING 5 POINT METHOD

MOMENT METHOD

MEAN (PHI): 1.09                      SORTING: 1.35  
MEAN (mm) : 0.47

DATA FILE NAME: DB99-9#2.TAB

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

SAMPLE NO.: DB99-9 S#3  
SAMPLE ELEV. (FT. NGVD):  
SAMPLE DEPTH (FT.): 2.5  
SAMPLE TYPE: CORE SAMPLE

USCS DESCRIPTION: SP

DRY SAMPLE WEIGHT (GRAMS): 153.80  
SAMPLE WEIGHT AFTER WASH (GRAMS): 152.43

SIEVE SIZE	PHI SIZE	MESH SIZE (mm)	RETAINED (GRAMS)	RETAINED (%)	PASSED (%)
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	0.18	0.12	99.88
7	-1.50	2.800	0.61	0.40	99.60
10	-1.00	2.000	1.61	1.05	98.95
14	-0.50	1.400	3.53	2.30	97.70
18	0.00	1.000	6.40	4.16	95.84
25	0.50	0.710	12.13	7.89	92.11
35	1.00	0.500	23.16	15.06	84.94
45	1.50	0.355	39.06	25.40	74.60
60	2.00	0.250	74.74	48.60	51.40
80	2.50	0.180	121.81	79.20	20.80
120	3.00	0.125	148.51	96.56	3.44
170	3.50	0.090	152.32	99.04	0.96
200	3.75	0.075	152.39	99.08	0.92
230	4.00	0.063	153.08	99.53	0.47
PAN			153.78	99.99	0.01

PHI(5): 0.11                      PHI(16): 1.05                      PHI(25): 1.48  
PHI(50): 2.02                      PHI(75): 2.43                      PHI(84): 2.64  
PHI(95): 2.96

SIEVE LOSS(g): 0.02                      SILT/CLAY: 0.92%  
SKEWNESS: -0.614                      KURTOSIS: 1.226

GRAPHIC METHOD

MEAN (PHI): 1.75                      SORTING: 0.80  
MEAN (mm) : 0.30                      MEDIAN (mm): 0.25  
NOTE: MEAN WAS CALCULATED USING 5 POINT METHOD

MOMENT METHOD

MEAN (PHI): 1.84                      SORTING: 0.88  
MEAN (mm) : 0.28

DATA FILE NAME: DB99-9#3.TAB

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

SAMPLE NO.: DB99-9 S#4  
SAMPLE ELEV. (FT. NGVD):  
SAMPLE DEPTH (FT.): 4.0  
SAMPLE TYPE: CORE SAMPLE

USCS DESCRIPTION: SP

DRY SAMPLE WEIGHT (GRAMS): 150.38  
SAMPLE WEIGHT AFTER WASH (GRAMS): 149.13

SIEVE SIZE	PHI SIZE	MESH SIZE (mm)	RETAINED (GRAMS)	RETAINED (%)	PASSED (%)
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	0.09	99.91
7	-1.50	2.800	0.72	0.48	99.52
10	-1.00	2.000	1.51	1.00	99.00
14	-0.50	1.400	3.10	2.06	97.94
18	0.00	1.000	6.13	4.08	95.92
25	0.50	0.710	11.66	7.75	92.25
35	1.00	0.500	26.47	17.60	82.40
45	1.50	0.355	53.17	35.36	64.64
60	2.00	0.250	92.54	61.54	38.46
80	2.50	0.180	128.96	85.76	14.24
120	3.00	0.125	147.26	97.93	2.07
170	3.50	0.090	149.05	99.12	0.88
200	3.75	0.075	149.09	99.14	0.86
230	4.00	0.063	149.74	99.58	0.42
PAN			150.37	99.99	0.01

PHI(5): 0.13                      PHI(16): 0.92                      PHI(25): 1.21  
PHI(50): 1.78                      PHI(75): 2.28                      PHI(84): 2.46  
PHI(95): 2.88

SIEVE LOSS(g): 0.01                      SILT/CLAY: 0.86%  
SKEWNESS: -0.359                      KURTOSIS: 1.055

GRAPHIC METHOD

MEAN (PHI): 1.63                      SORTING: 0.77  
MEAN (mm): 0.32                      MEDIAN (mm): 0.29

NOTE: MEAN WAS CALCULATED USING 5 POINT METHOD

MOMENT METHOD

MEAN (PHI): 1.68                      SORTING: 0.84  
MEAN (mm): 0.31

DATA FILE NAME: DB99-9#4.TAB

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

SAMPLE NO.: DB99-9 S#5  
SAMPLE ELEV. (FT. NGVD):  
SAMPLE DEPTH (FT.): 9.0  
SAMPLE TYPE: CORE SAMPLE

USCS DESCRIPTION: SP

DRY SAMPLE WEIGHT (GRAMS): 163.72  
SAMPLE WEIGHT AFTER WASH (GRAMS): 157.00

SIEVE SIZE	PHI SIZE	MESH SIZE (mm)	RETAINED (GRAMS)	RETAINED (%)	PASSED (%)
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	0.03	0.02	99.98
10	-1.00	2.000	0.18	0.11	99.89
14	-0.50	1.400	0.48	0.29	99.71
18	0.00	1.000	0.87	0.53	99.47
25	0.50	0.710	2.00	1.22	98.78
35	1.00	0.500	5.22	3.19	96.81
45	1.50	0.355	12.89	7.87	92.13
60	2.00	0.250	42.82	26.15	73.85
80	2.50	0.180	99.80	60.96	39.04
120	3.00	0.125	146.71	89.61	10.39
170	3.50	0.090	156.79	95.77	4.23
200	3.75	0.075	156.96	95.87	4.13
230	4.00	0.063	160.34	97.94	2.06
PAN			163.71	99.99	0.01

PHI (5): 1.19                      PHI (16): 1.72                      PHI (25): 1.97  
PHI (50): 2.34                      PHI (75): 2.75                      PHI (84): 2.90  
PHI (95): 3.44

SIEVE LOSS(g): 0.01                      SILT/CLAY: 4.13%  
SKEWNESS: -0.046                      KURTOSIS: 1.184

GRAPHIC METHOD

MEAN (PHI): 2.32                      SORTING: 0.59  
MEAN (mm) : 0.20                      MEDIAN (mm): 0.20

NOTE: MEAN WAS CALCULATED USING 5 POINT METHOD

MOMENT METHOD

MEAN (PHI): 2.29                      SORTING: 0.64  
MEAN (mm) : 0.20

DATA FILE NAME: DB99-9#5.TAB

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

SAMPLE NO.: DB99-9 S#6  
SAMPLE ELEV. (FT. NGVD):  
SAMPLE DEPTH (FT.): 13.0  
SAMPLE TYPE: CORE SAMPLE

USCS DESCRIPTION: SP

DRY SAMPLE WEIGHT (GRAMS): 182.47  
SAMPLE WEIGHT AFTER WASH (GRAMS): 180.93

SIEVE SIZE	PHI SIZE	MESH SIZE (mm)	RETAINED (GRAMS)	RETAINED (%)	PASSED (%)
5/8	-4.00	16.000	0.00	0.00	100.00
5/16	-3.00	8.000	0.35	0.19	99.81
5	-2.00	4.000	0.71	0.39	99.61
7	-1.50	2.800	1.08	0.59	99.41
10	-1.00	2.000	2.75	1.51	98.49
14	-0.50	1.400	5.74	3.15	96.85
18	0.00	1.000	10.51	5.76	94.24
25	0.50	0.710	19.38	10.62	89.38
35	1.00	0.500	41.01	22.47	77.53
45	1.50	0.355	77.31	42.37	57.63
60	2.00	0.250	130.49	71.51	28.49
80	2.50	0.180	168.21	92.19	7.81
120	3.00	0.125	179.97	98.63	1.37
170	3.50	0.090	180.90	99.14	0.86
200	3.75	0.075	180.91	99.15	0.85
230	4.00	0.063	181.69	99.57	0.43
PAN			182.47	100.00	0.00

PHI(5): -0.15      PHI(16): 0.73      PHI(25): 1.06  
PHI(50): 1.63      PHI(75): 2.08      PHI(84): 2.30  
PHI(95): 2.72

SIEVE LOSS(g): 0.00      SILT/CLAY: 0.85%  
SKEWNESS: -0.437      KURTOSIS: 1.150

GRAPHIC METHOD

MEAN (PHI): 1.45      SORTING: 0.79  
MEAN (mm) : 0.37      MEDIAN (mm): 0.32  
NOTE: MEAN WAS CALCULATED USING 5 POINT METHOD

MOMENT METHOD

MEAN (PHI): 1.50      SORTING: 0.88  
MEAN (mm) : 0.35

DATA FILE NAME: DB99-9#6.TAB

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

SAMPLE NO.: DB99-9 S#7  
SAMPLE ELEV. (FT. NGVD):  
SAMPLE DEPTH (FT.): 16.5  
SAMPLE TYPE: CORE SAMPLE

USCS DESCRIPTION: SP

DRY SAMPLE WEIGHT (GRAMS): 194.76  
SAMPLE WEIGHT AFTER WASH (GRAMS): 192.21

SIEVE SIZE	PHI SIZE	MESH SIZE (mm)	RETAINED (GRAMS)	RETAINED (%)	PASSED (%)
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	0.49	0.25	99.75
7	-1.50	2.800	0.59	0.30	99.70
10	-1.00	2.000	1.59	0.82	99.18
14	-0.50	1.400	2.48	1.27	98.73
18	0.00	1.000	3.67	1.88	98.12
25	0.50	0.710	6.02	3.09	96.91
35	1.00	0.500	11.49	5.90	94.10
45	1.50	0.355	22.60	11.60	88.40
60	2.00	0.250	64.74	33.24	66.76
80	2.50	0.180	138.64	71.19	28.81
120	3.00	0.125	186.19	95.60	4.40
170	3.50	0.090	192.15	98.66	1.34
200	3.75	0.075	192.18	98.68	1.32
230	4.00	0.063	193.49	99.35	0.65
PAN			194.76	100.00	0.00

PHI(5): 0.84                      PHI(16): 1.60                      PHI(25): 1.81  
PHI(50): 2.22                      PHI(75): 2.58                      PHI(84): 2.76  
PHI(95): 2.99

SIEVE LOSS(g): 0.00                      SILT/CLAY: 1.32%  
SKEWNESS: -0.529                      KURTOSIS: 1.145

GRAPHIC METHOD

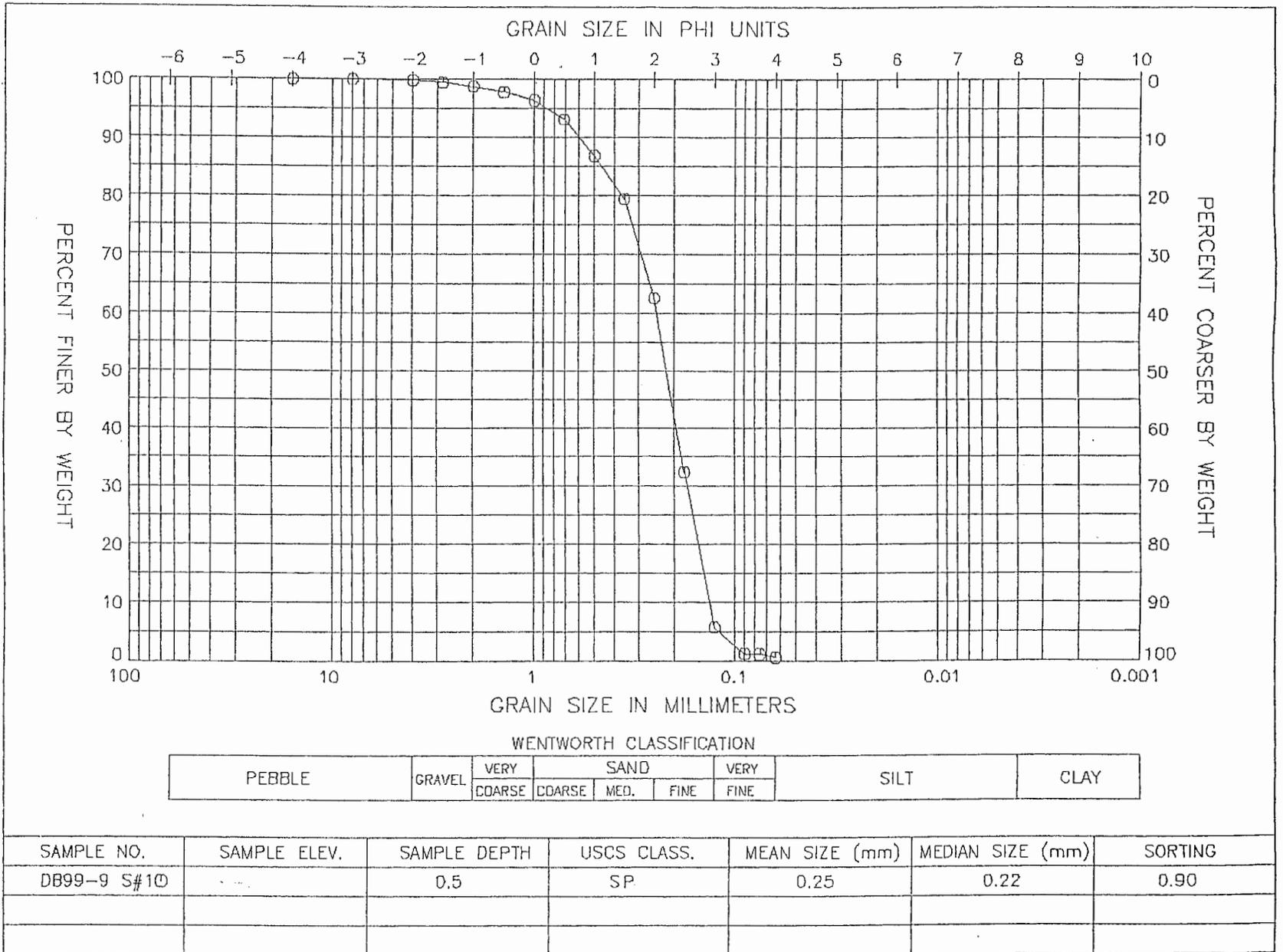
MEAN (PHI): 2.08                      SORTING: 0.58  
MEAN (mm) : 0.24                      MEDIAN (mm): 0.21  
NOTE: MEAN WAS CALCULATED USING 5 POINT METHOD

MOMENT METHOD

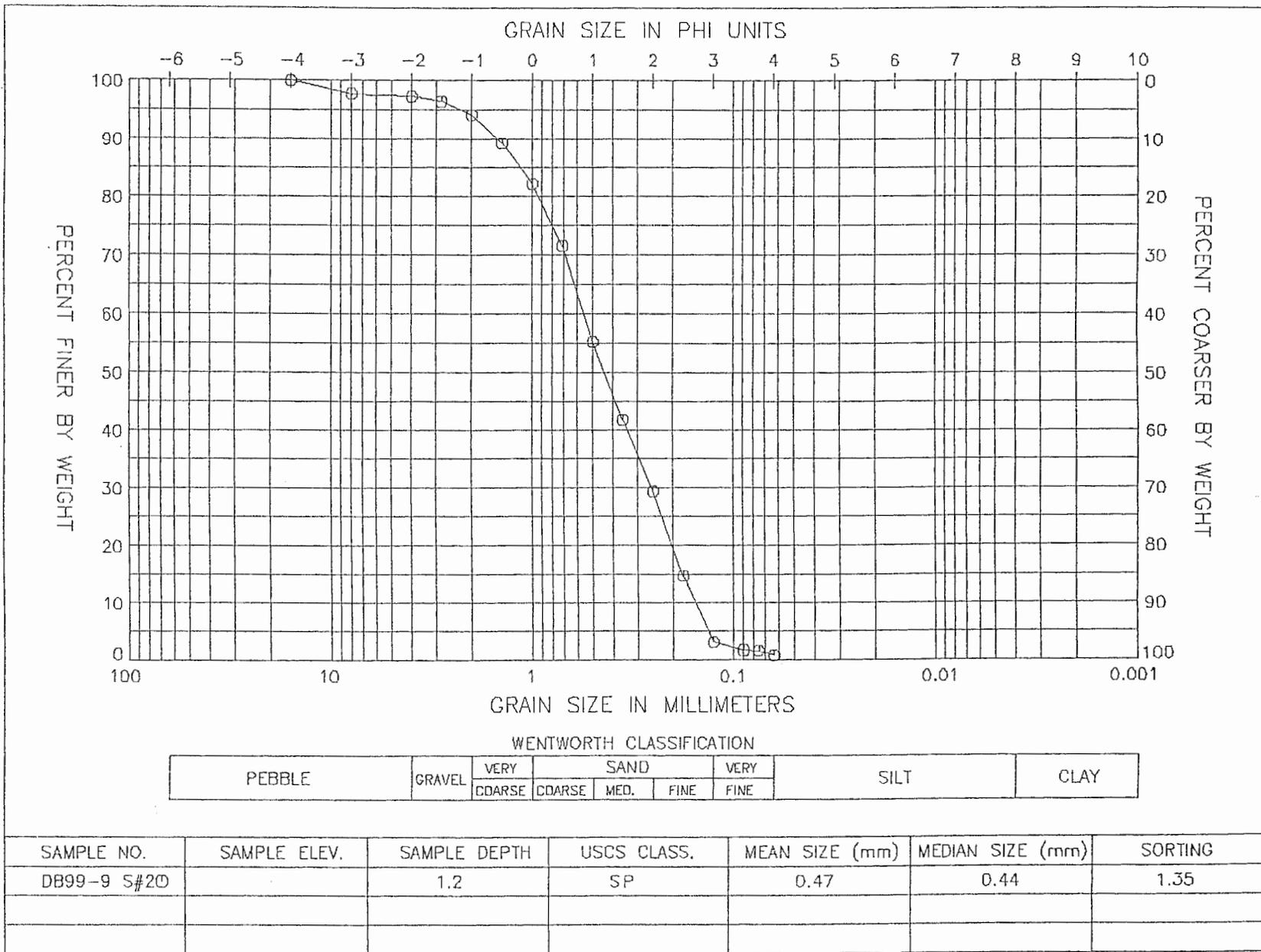
MEAN (PHI): 2.12                      SORTING: 0.73  
MEAN (mm) : 0.23

DATA FILE NAME: DB99-9#7.TAB

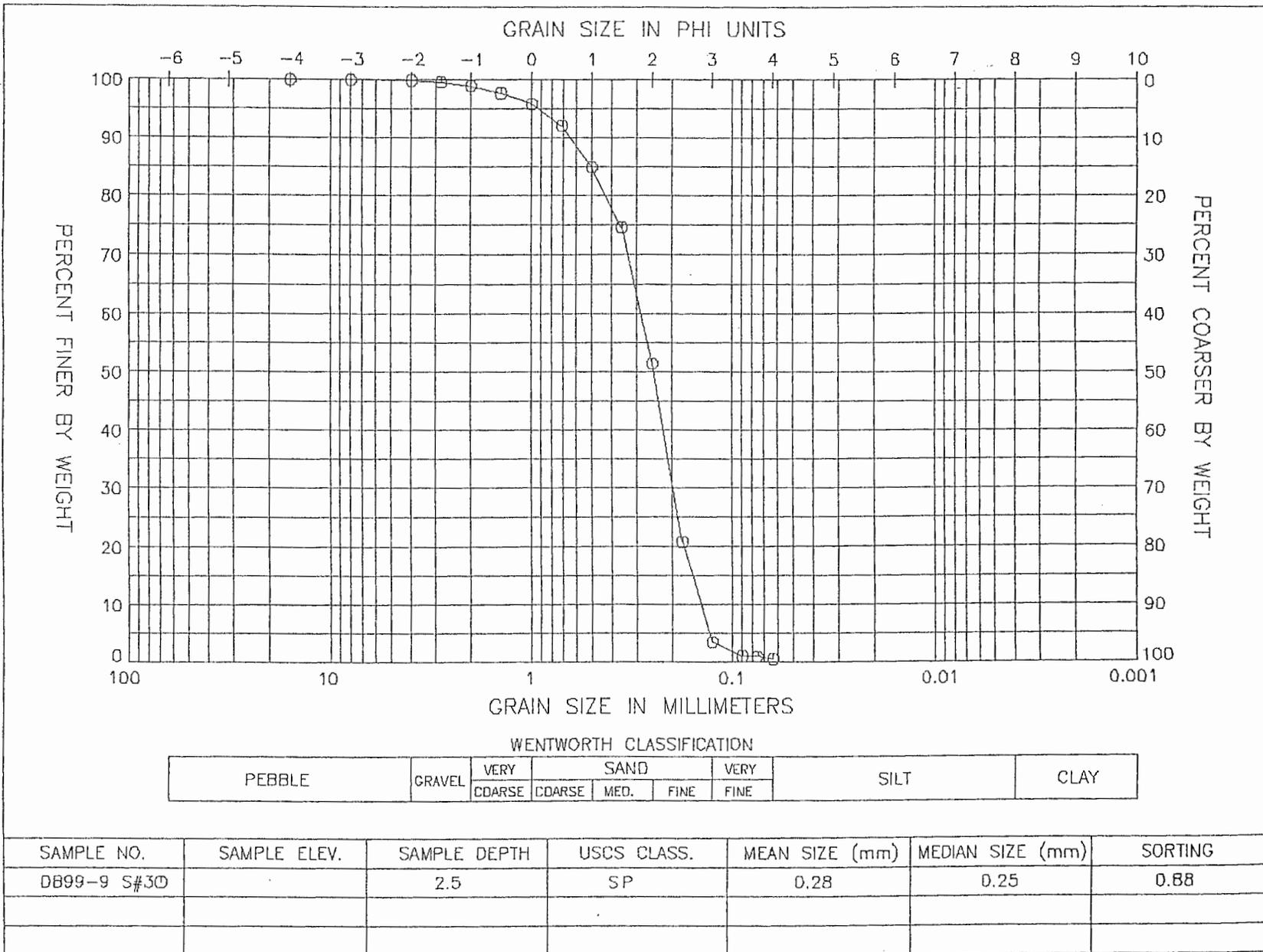
GRAIN SIZE DISTRIBUTION CURVE  
 DELRAY BEACH VIBRACORES 1999



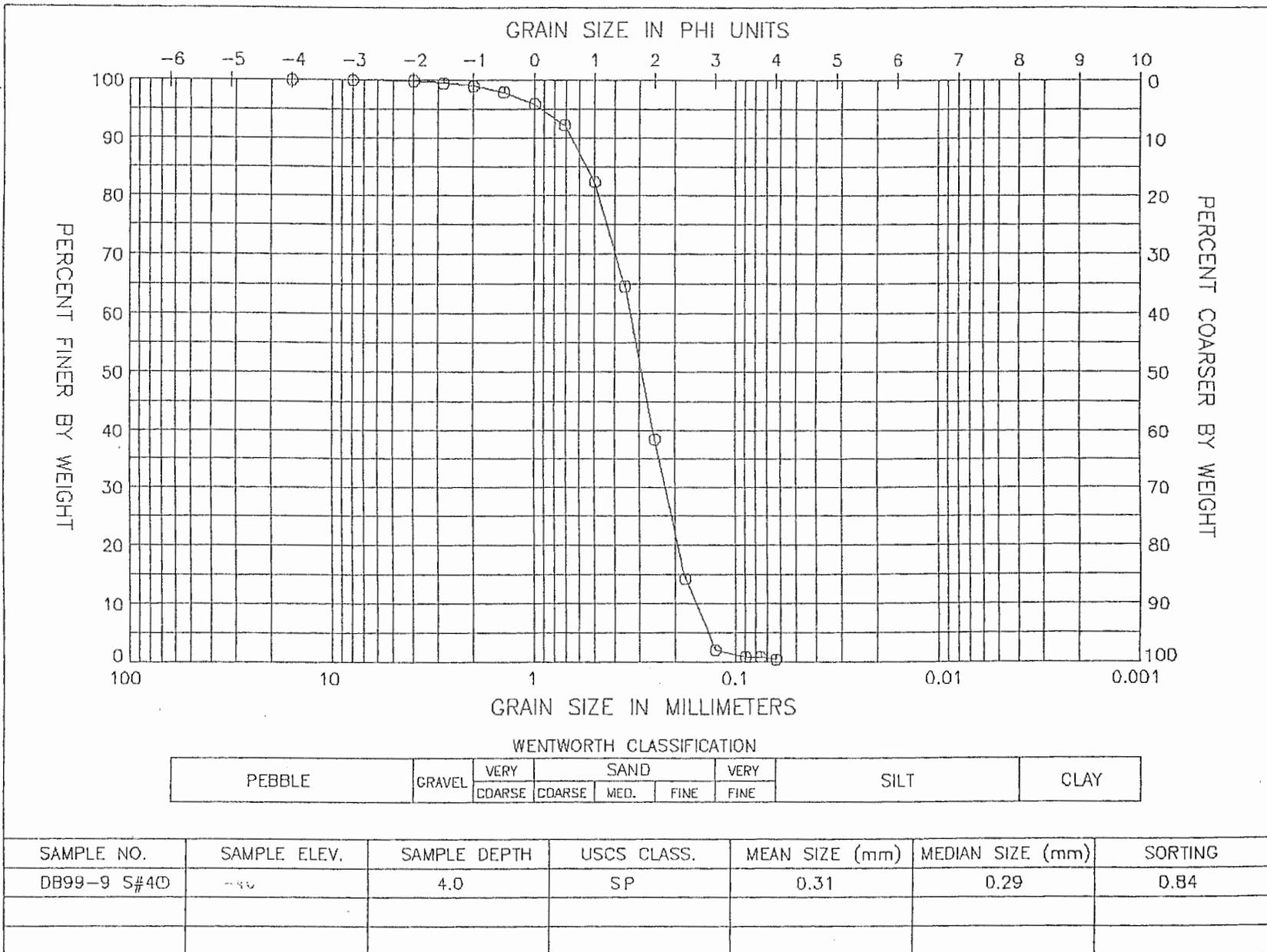
GRAIN SIZE DISTRIBUTION CURVE  
 DELRAY BEACH VIBRACORES 1999



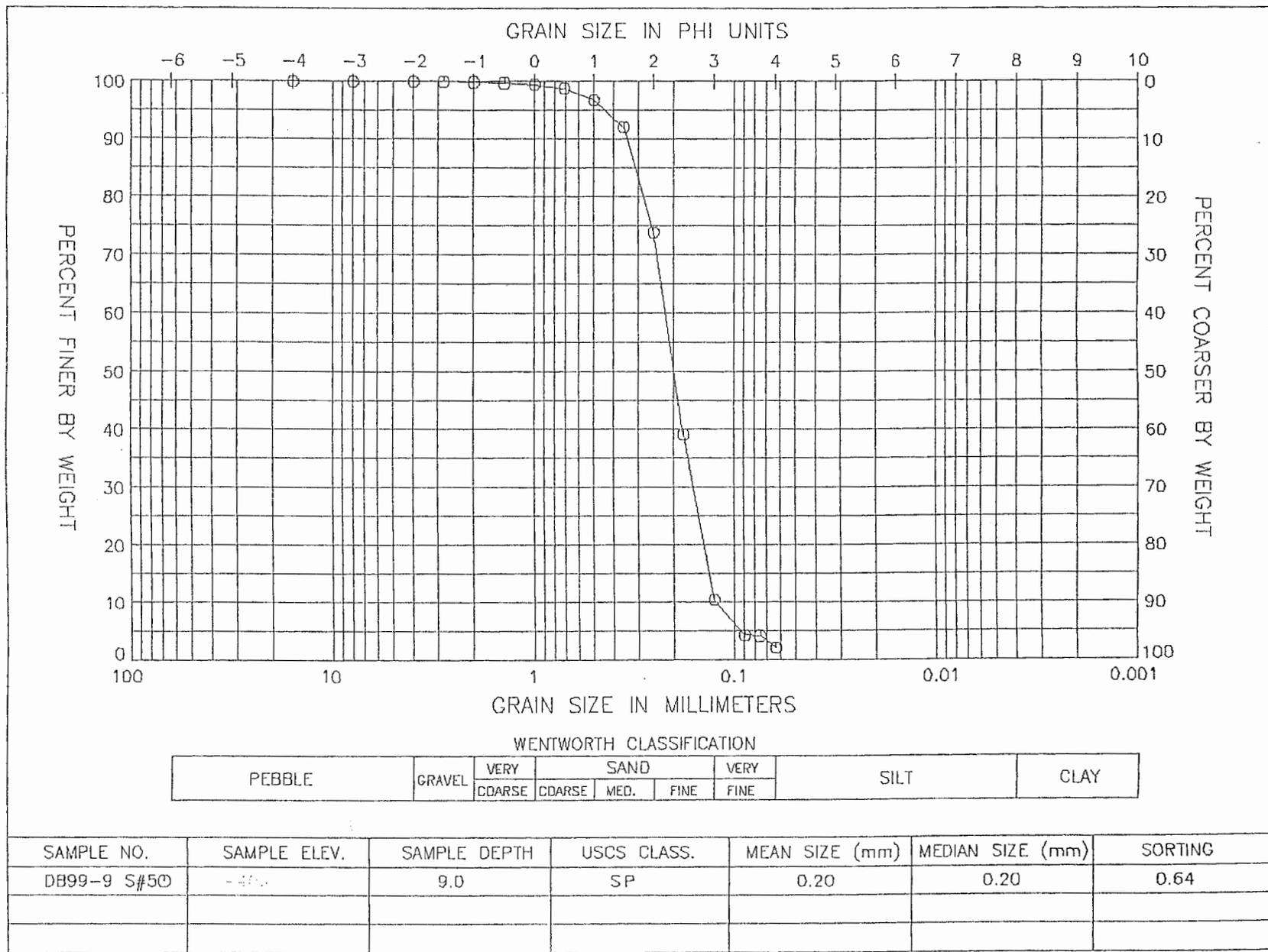
GRAIN SIZE DISTRIBUTION CURVE  
 DELRAY BEACH VIBRACORES 1999



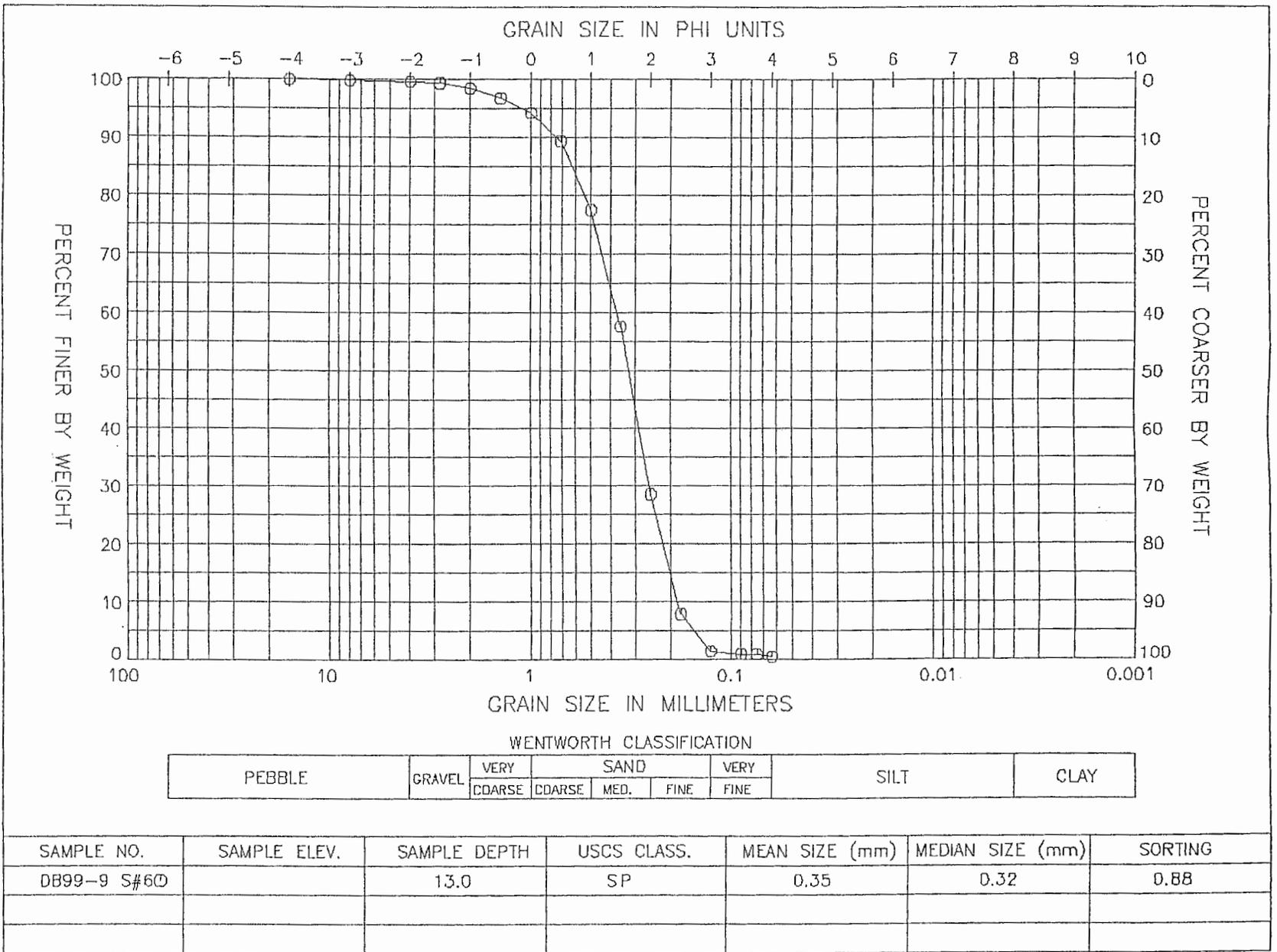
GRAIN SIZE DISTRIBUTION CURVE  
DELRAY BEACH VIBRACORES 1999



GRAIN SIZE DISTRIBUTION CURVE  
 DELRAY BEACH VIBRACORES 1999



GRAIN SIZE DISTRIBUTION CURVE  
 DELRAY BEACH VIBRACORES 1999



GRAIN SIZE DISTRIBUTION CURVE  
 DELRAY BEACH VIBRACORES 1999

