

SAMPLE 35 KRFNND 13.5 + 15.0 FEET

CASE 1 - 14 FRACTIONS

NUMBER OF FRACTIONS OF GRAIN-SIZE COMPOSITION CURVE -14,

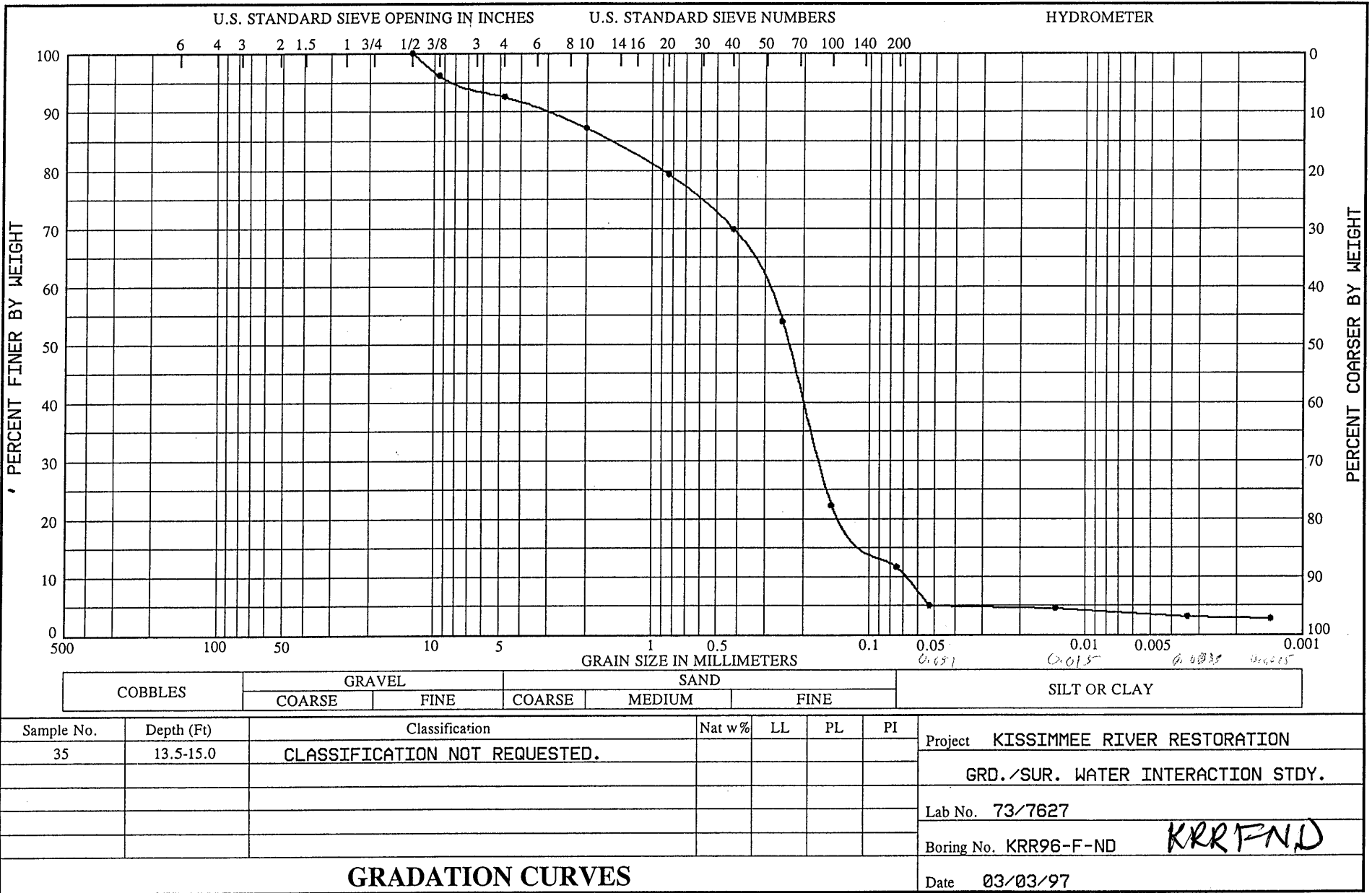
POROSITY $n = 0.35$

PERCENT (%)	GRAIN DIAMETER - D(mm)
0.00	0.0010
2.00	0.0015
3.00	0.0035
4.00	0.0150
5.00	0.0510
11.70	0.0740
16.90	0.1050
22.30	0.1490
53.90	0.2500
69.80	0.4200
79.31	0.8410
87.20	2.0000
92.60	4.7600
96.19	9.5100
100.00	12.7000

EFFECTIVE GRAIN DIAMETERS

D10 = 0.0673 (mm) , D17 = 0.1057 (mm), D20 = .1284 (mm)
DKRUE = 0.039 (mm), DKOZ = 0.035 (mm), DZUN= 0.037 (mm), DZAM = 0.038 (mm)
D60 = 0.3051 (mm) , ETA = 4.53

EMPIRICAL METHOD	HYDRAULIC CONDUCTIVITY (ft/d)
HAZEN	K = 12.606
SLICHTER	K = 3.508
TERZAGHI	K = 5.992
BEYER	K = 11.747
SAUERBREI	K = 10.368
KRUEGER	K = 1.539
KOZENY	K = 2.578
ZUNKER	K = 1.465
ZAMARINU	K = 1.714
USBR	K = 9.119



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Sample No.	Depth (Ft)	Classification	Nat w%	LL	PL	PI	Project
35	13.5-15.0	CLASSIFICATION NOT REQUESTED.					KISSIMMEE RIVER RESTORATION
							GRD./SUR. WATER INTERACTION STDY.
							Lab No. 73/7627
							Boring No. KRR96-F-ND KRRFND
GRADATION CURVES							Date 03/03/97



SAMPLE 36 KRFNND 25.5 +27.0 FEET

CASE 2 - 14 FRACTIONS

NUMBER OF FRACTIONS OF GRAIN-SIZE COMPOSITION CURVE -14,

POROSITY $n = 0.35$

PERCENT (%)	GRAIN DIAMETER - D(mm)
0.00	0.0010
1.00	0.0015
2.00	0.0035
4.00	0.0150
5.00	0.0510
11.30	0.0740
16.10	0.1050
21.10	0.1490
45.20	0.2500
60.00	0.4200
63.81	0.8410
69.20	2.0000
83.40	4.7600
93.88	9.5100
100.00	12.7000

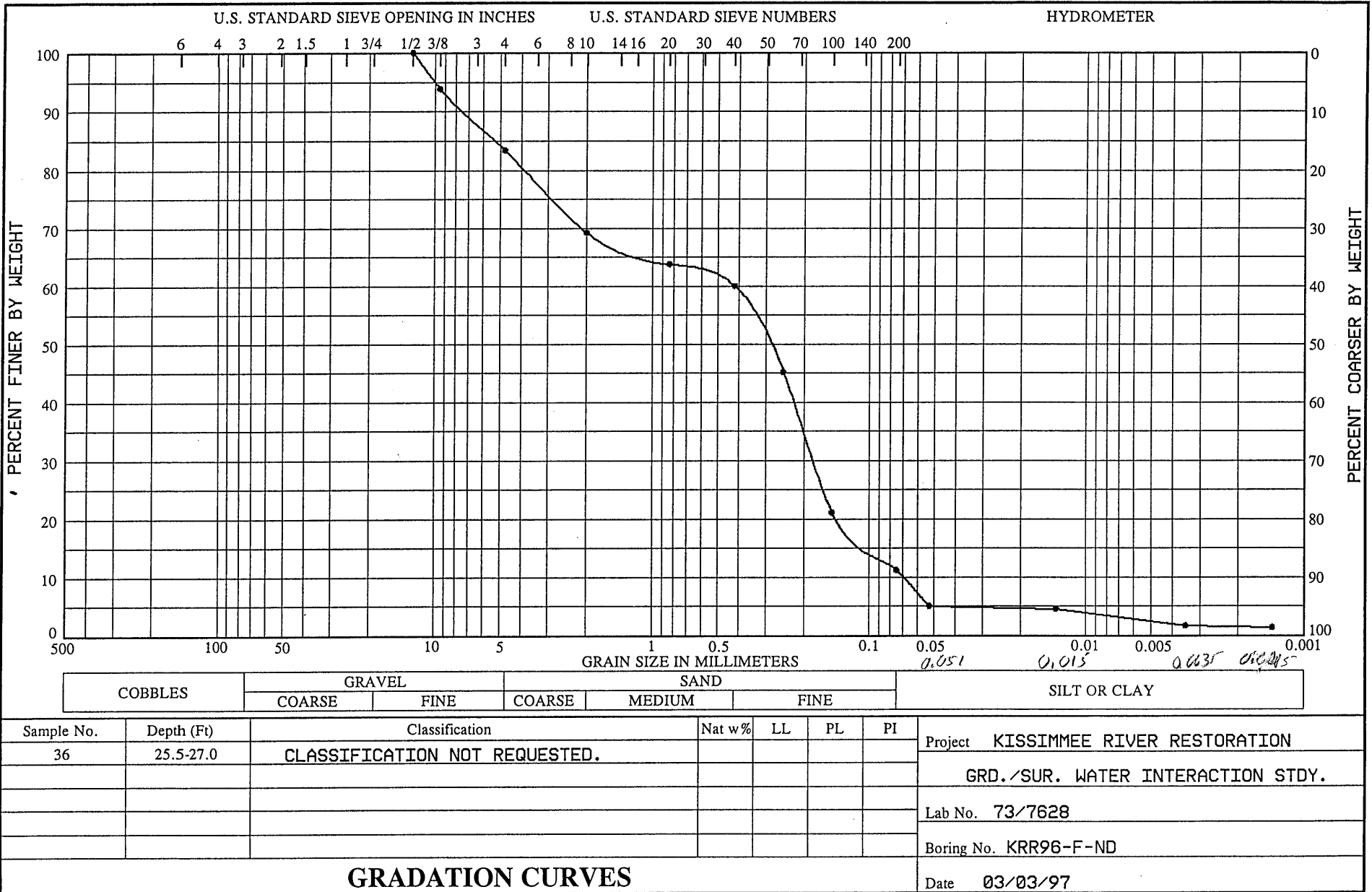
EFFECTIVE GRAIN DIAMETERS

D10 = 0.0685 (mm) , D17 = 0.1118 (mm) , D20 = .1380 (mm)
DKRUE = 0.055 (mm) , DKOZ = 0.048 (mm) , DZUN= 0.050 (mm) , DZAM = 0.053 (mm)
D60 = 0.4200 (mm) , ETA = 6.13

EMPIRICAL METHOD	HYDRAULIC CONDUCTIVITY (ft/d)
HAZEN	K = 13.059
SLICHTER	K = 3.634
TERZAGHI	K = 6.207
BEYER	K = 11.387
SAUERBREI	K = 11.608
KRUEGER	K = 3.076
KOZENY	K = 4.658
ZUNKER	K = 2.742
ZAMARINU	K = 3.326
USBR	K = 10.763

DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY
 CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30060

WORK ORDER: 8172
 REQUISITION: W32CS570312365



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Sample No.	Depth (Ft)	Classification	Nat w%	LL	PL	PI	Project
36	25.5-27.0	CLASSIFICATION NOT REQUESTED.					KISSIMMEE RIVER RESTORATION
							GRD./SUR. WATER INTERACTION STDY.
							Lab No. 73/7628
							Boring No. KRR96-F-ND

GRADATION CURVES

Date 03/03/97



SAMPLE # 8 KRFNND 27.0 TO 28.5 FEET

CASE 1 - 15 FRACTIONS

NUMBER OF FRACTIONS OF GRAIN-SIZE COMPOSITION CURVE -15,

POROSITY $n = 0.35$

PERCENT (%)	GRAIN DIAMETER - D(mm)
0.00	0.0010
5.00	0.0015
7.00	0.0035
12.00	0.0150
14.00	0.0510
15.62	0.0740
20.80	0.1050
26.10	0.1490
46.90	0.2500
63.50	0.4200
69.42	0.8410
86.00	2.0000
93.80	4.7600
97.49	9.5100
98.80	12.7000
100.00	19.1000

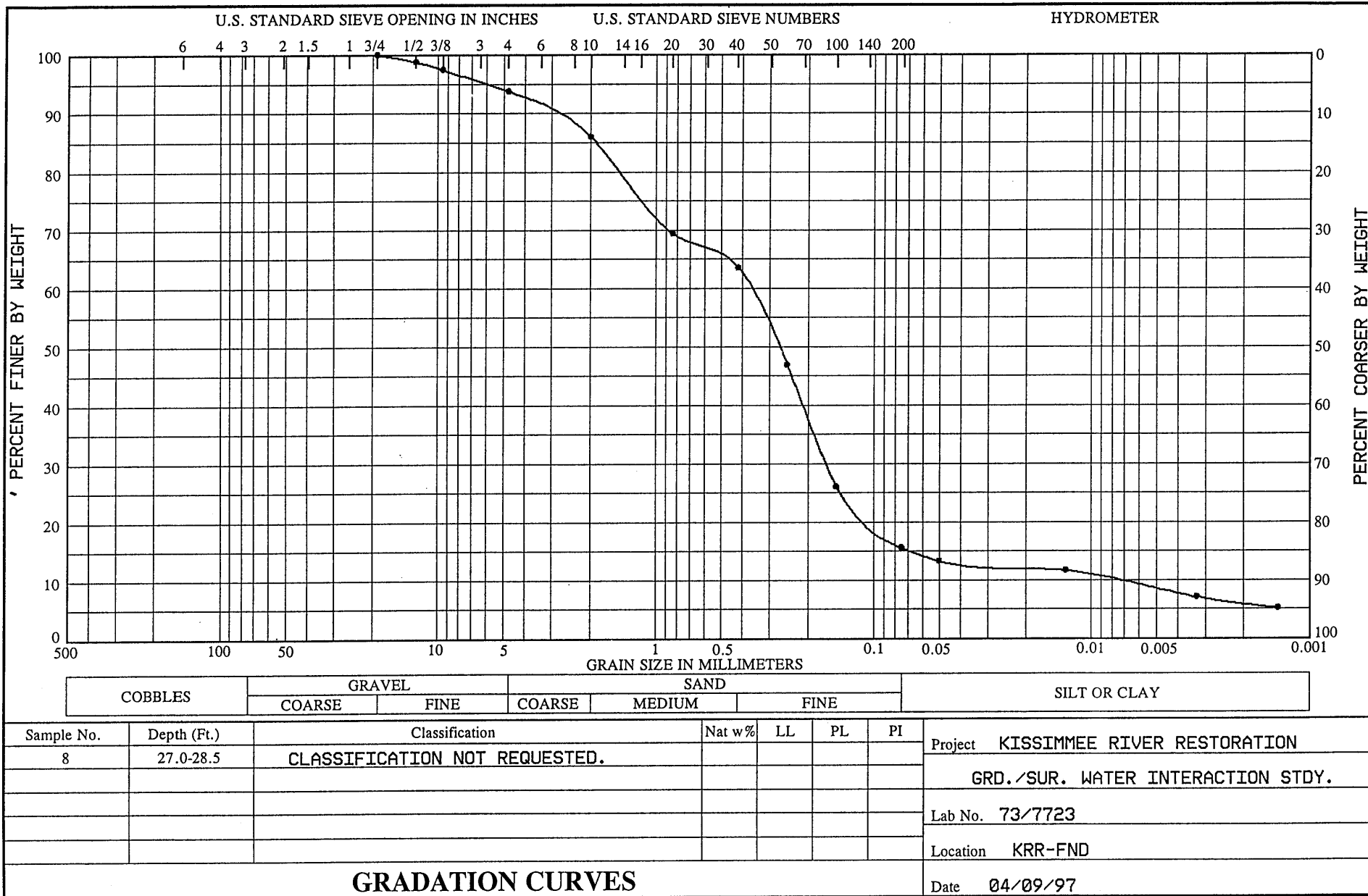
EFFECTIVE GRAIN DIAMETERS

D10 = 0.0084 (mm) , D17 = 0.0812 (mm), D20 = .0995 (mm)
DKRUE = 0.018 (mm), DKOZ = 0.016 (mm), DZUN= 0.016 (mm), DZAM = 0.017 (mm)
D60 = 0.3765 (mm) , ETA = 44.92

EMPIRICAL METHOD	HYDRAULIC CONDUCTIVITY
HAZEN	K = 0.195
SLICHTER	K = 0.054
TERZAGHI	K = 0.093
BEYER	K = 0.093
SAUERBREI	K = 6.125
KRUEGER	K = 0.314
KOZENY	K = 0.500
ZUNKER	K = 0.289
ZAMARINU	K = 0.345
USBR	K = 5.073

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GRADATION CURVES



SAMPLE # 9 KRFNND 21.0 TO 22.5 FEET

CASE 2 - 15 FRACTIONS

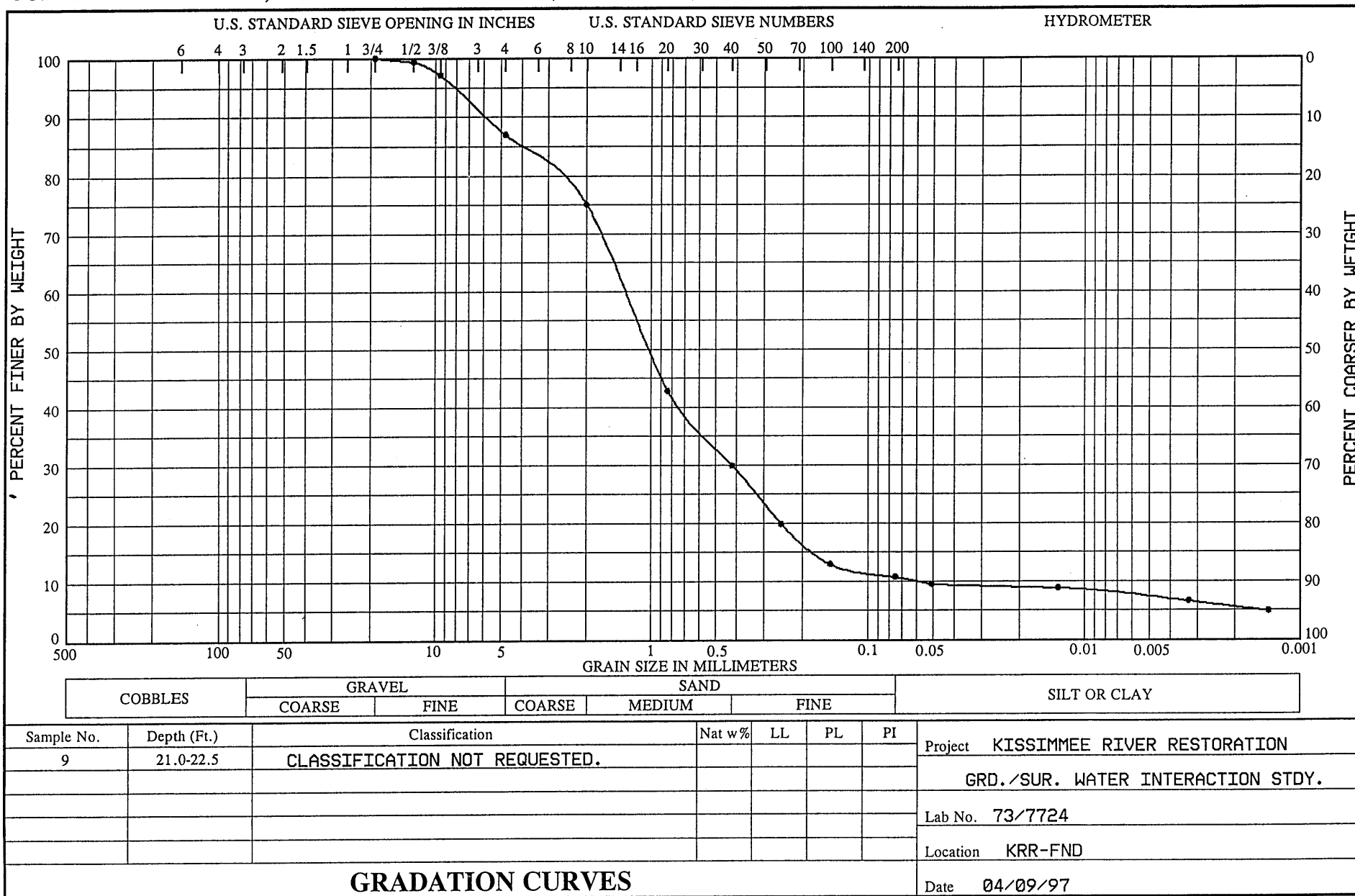
NUMBER OF FRACTIONS OF GRAIN-SIZE COMPOSITION CURVE -15,
POROSITY $n = 0.35$

PERCENT (%)	GRAIN DIAMETER - D(mm)
0.00	0.0010
5.00	0.0015
6.00	0.0035
8.00	0.0150
9.00	0.0510
10.80	0.0740
11.88	0.1050
13.00	0.1490
19.90	0.2500
29.90	0.4200
42.84	0.8410
75.00	2.0000
87.00	4.7600
97.08	9.5100
99.40	12.7000
100.00	19.1000

EFFECTIVE GRAIN DIAMETERS

D10 = 0.0627 (mm) , D17 = 0.2011 (mm) , D20 = .2513 (mm)
DKRUE = 0.021 (mm) , DKOZ = 0.019 (mm) , DZUN= 0.020 (mm) , DZAM = 0.020 (mm)
D60 = 1.3352 (mm) , ETA = 21.29

EMPIRICAL METHOD	HYDRAULIC CONDUCTIVITY
HAZEN	K = 10.938
SLICHTER	K = 3.044
TERZAGHI	K = 5.198
BEYER	K = 6.839
SAUERBREI	K = 37.552
KRUEGER	K = 0.441
KOZENY	K = 0.755
ZUNKER	K = 0.426
ZAMARINU	K = 0.495
USBR	K = 42.752



GRADATION CURVES

