

LOG OF BORING AA-40

SHEET 1 of 1



Rock Engineering & Testing Lab., Inc.
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Telephone: (361) 883-4555
Fax: (361) 883-4711

CLIENT: HDR Engineering, Inc.

PROJECT: Galveston Anchorage Area C Sand Source Inv.

LOCATION: Anchorage Area C, Galveston, Texas

NUMBER: G109233

DATE(S) DRILLED: 10/16/09 - 10/16/09

DRILLING METHOD(S):

Hollow Stem Auger

GROUNDWATER INFORMATION:

SURFACE ELEVATION: -23.32' NAVD.

DESCRIPTION OF STRATUM

3233 ANCHORAGE BASIN C.G.P.J. ROCK ETL GDT 11/20/09

LOG OF BORING

SOIL SYMBOL	FIELD DATA					LABORATORY DATA						
	Elevation, Ft. [NAVD]	SAMPLE NUMBER	SAMPLES	N: BLOWS/FT P: TONS/SQ FT T: TONS/SQ FT PERCENT RECOVERY/ ROCK QUALITY DESIGNATION	MOISTURE CONTENT (%)	ATTERBERG LIMITS			DRY DENSITY POUNDS/CU.FT	COMPRESSIVE STRENGTH (TONS/SQ FT)	MINUS NO. 200 SIEVE (%)	
						LL LIQUID LIMIT	PL PLASTIC LIMIT	PI PLASTICITY INDEX				
	5											
	10											
	15											
	20											
	25	SS S-1	X	N= 0							61	SANDY CLAY , dark bluish gray, very soft.
	25	SS S-2	X	N= 1							13	SILTY CLAYEY SAND , with shell fragments, gray, very loose.
	25	SS S-3	X	N= 5							9	POORLY GRADED SAND , with clay and shell fragments, gray, loose.
	30	SS S-4	X	N= 5							19	SILTY CLAYEY SAND , with shell fragments, bluish gray, loose.
	30	SS S-5	X	N= WOH								Same as above, very loose.
	35	SS S-6	X	N= 1								Same as above.
	35	SS S-7	X	N= 3							20	SILTY CLAYEY SAND , with shell fragments, bluish gray, very loose.
	35	SS S-8	X	N= 4								SANDY CLAY , with shell fragments, bluish gray, firm.
												Boring was extended to an elevation of -39.3-feet NAVD during the drilling operations.

N - STANDARD PENETRATION TEST RESISTANCE
P - POCKET PENETROMETER RESISTANCE
T - POCKET TORVANE SHEAR STRENGTH

REMARKS:

Boring depth and location was determined by HDR Engineering, Inc. Boring operations were performed by RETL at GPS Coord. N. 29.35311 W. 94.76981.
WOH = Weigh of Hammer



- Geotechnical Engineering
- Construction Materials Testing

PROJECT NAME: Galveston Anchorage Area C Sand Source Investigation

CLIENT: HDR Engineering, Inc.

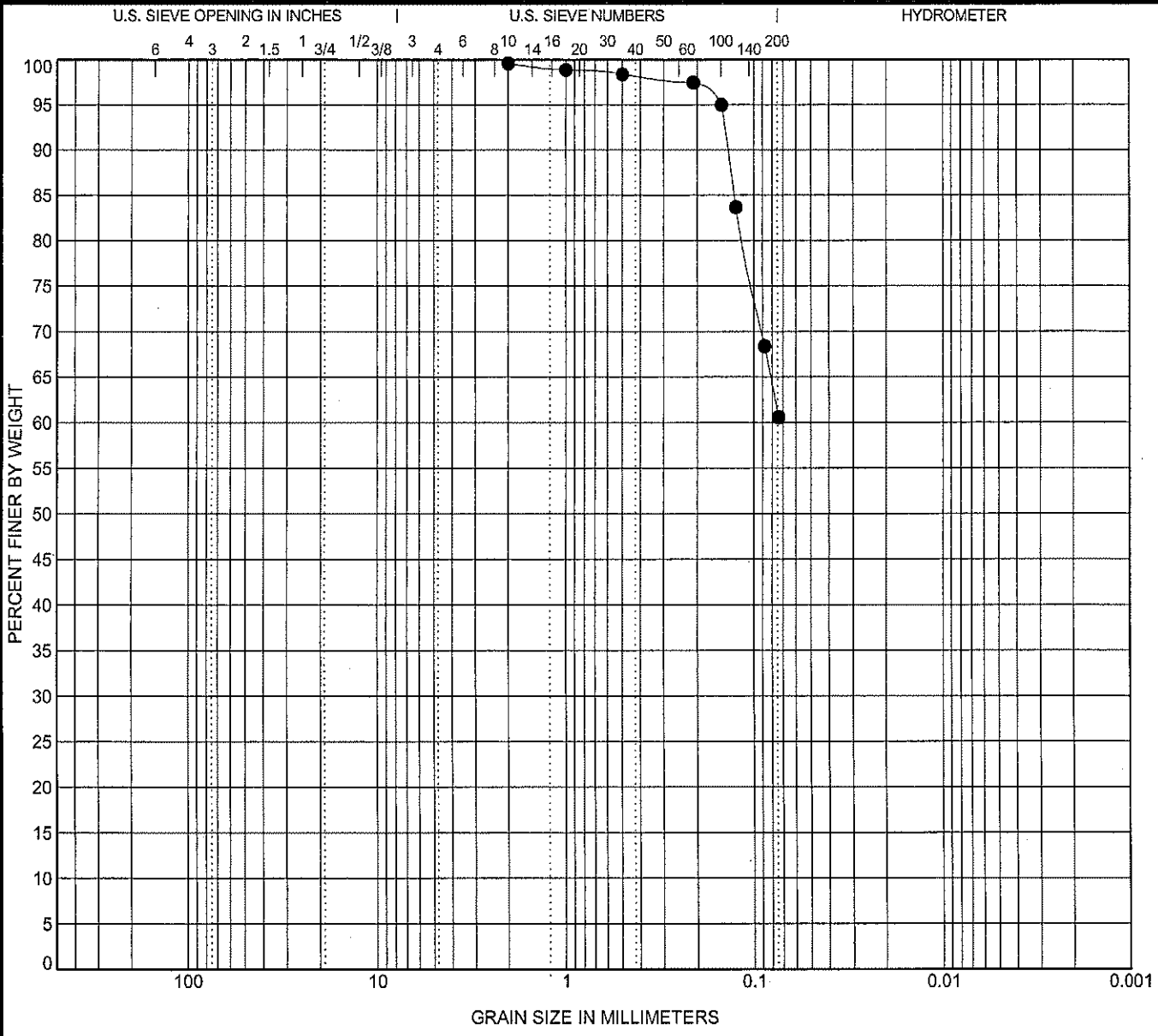
BORING ID.: AA-40

DESCRIPTION: Anchorage Area C Borrow Source Area

PERCENT SHELL BY WEIGHT (BASED ON #10 SIEVE)				
-23.32' to -25.32' NAVD	-25.32' to -27.32' NAVD	-27.32' to -29.32' NAVD	-29.32' to -31.32' NAVD	-35.32' to -37.32' NAVD
0.40	13.31	7.28	0.24	0.54

ASTM MESH	% FINER BY WEIGHT AFTER REMOVING SHELL				
	-23.32' to -25.32' NAVD	-25.32' to -27.32' NAVD	-27.32' to -29.32' NAVD	-29.32' to -31.32' NAVD	-35.32' to -37.32' NAVD
#10	100.00	100.00	100.00	100.00	100.00
#18	98.90	67.90	80.83	99.50	99.17
#35	98.40	56.20	72.41	99.00	98.96
#60	97.90	48.50	66.27	98.38	97.84
#70	97.50	43.10	61.42	97.59	93.14
#100	95.00	29.50	37.92	59.78	40.86
#120	83.70	19.90	20.71	36.01	29.34
#170	68.40	14.00	11.04	22.18	22.10
#200	60.60	12.60	9.03	18.80	20.06
STATISTICS (EXCLUDING SHELL)					
MEDIAN GRAIN SIZE (mm)	N/A	0.27	0.18	0.14	0.17
MEAN GRAIN SIZE (mm)	N/A	0.39	0.30	N/A	N/A
SORTING (σ)	N/A	N/A	N/A	N/A	N/A

*The -#10 material was utilized as the total sample for Grain Size Distribution Curve calculations.



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen ID	Depth	Classification	LL	PL	PI	Cc	Cu
● AA-40 (-23.32' to -25.32' NAVD)		AA-40 (-23.32' to -25.32' NAVD)					

Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● AA-40 (-23.32' to -25.32' NAVD)		2				0.0			

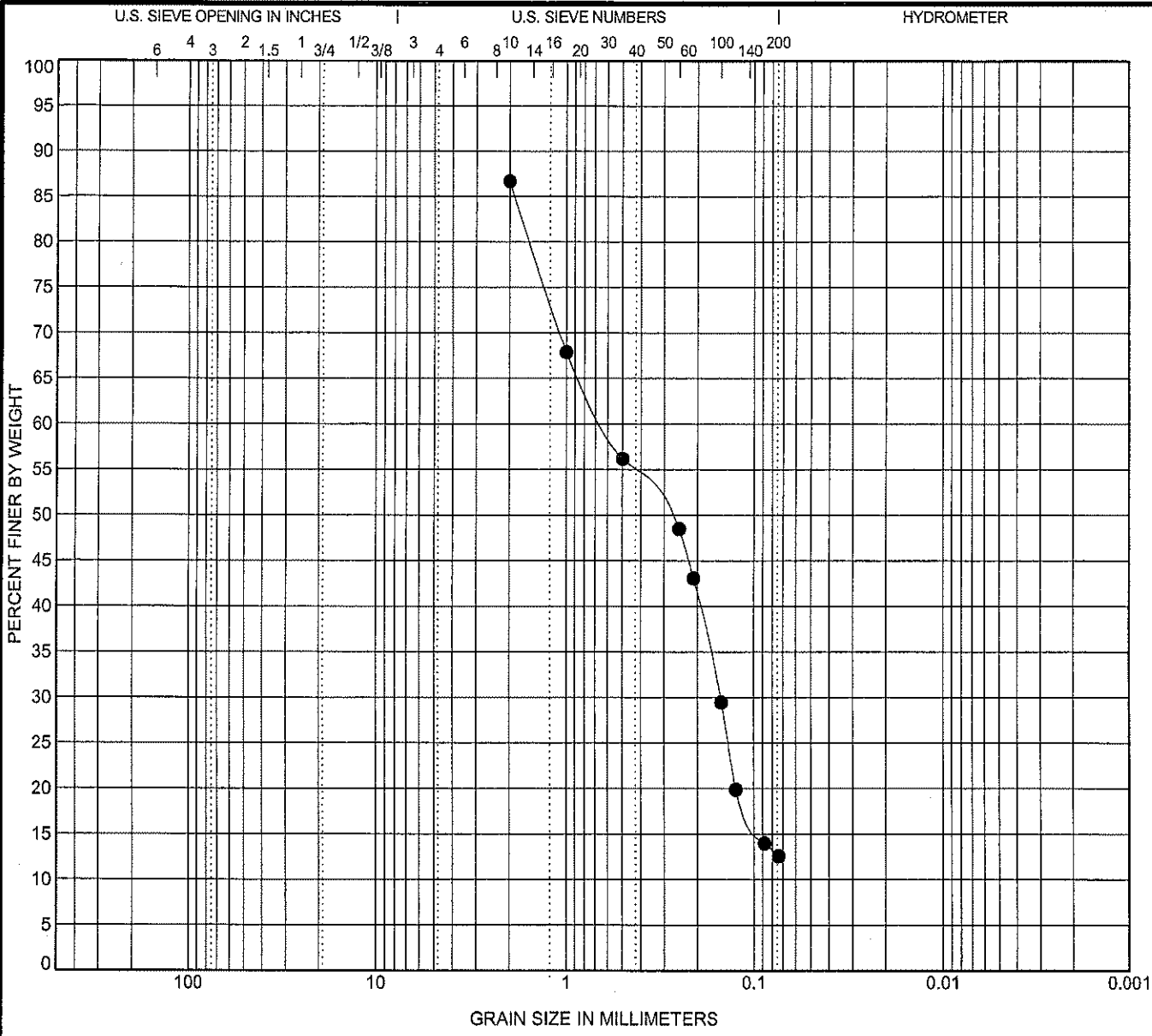


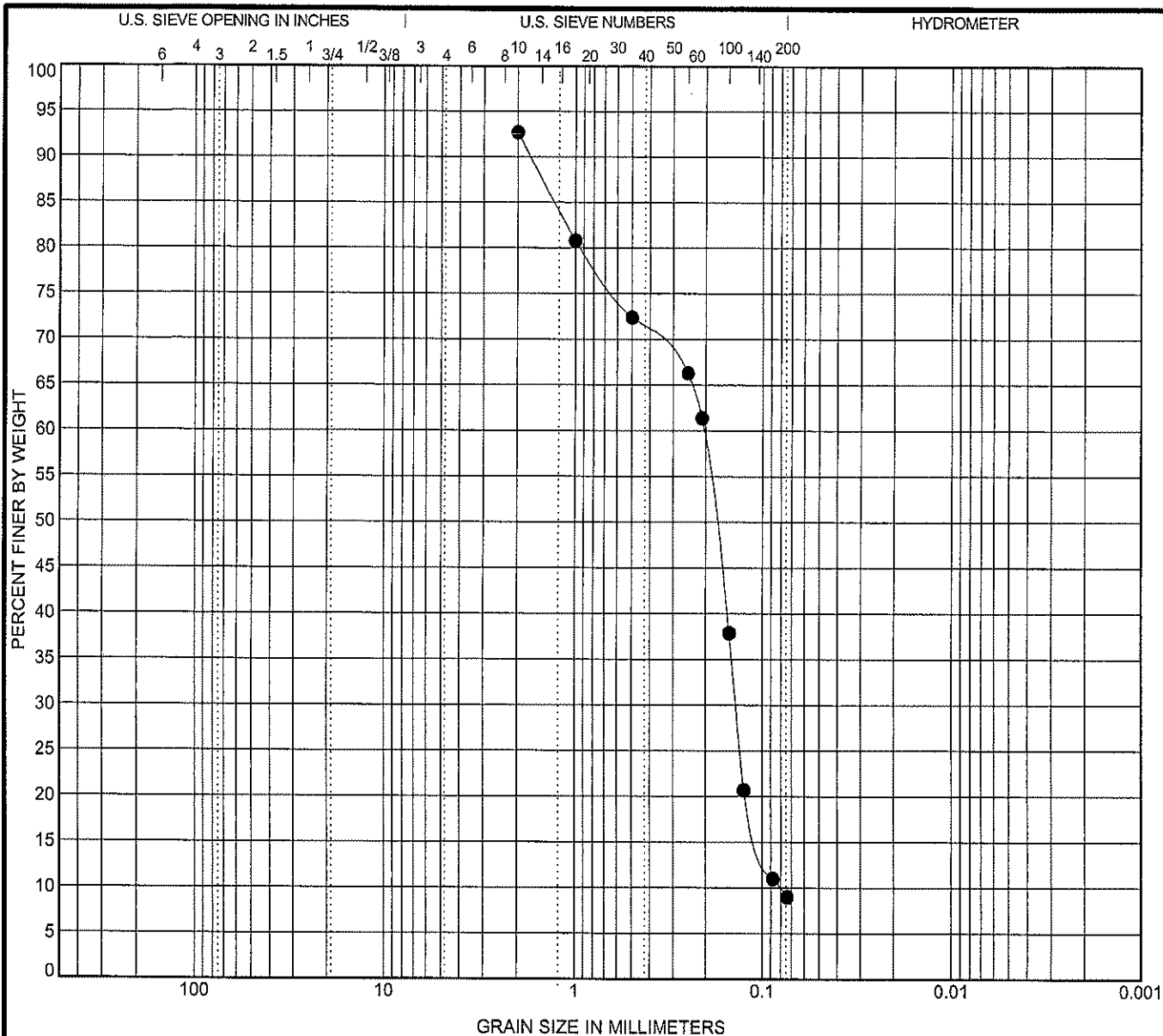
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GRAIN SIZE DISTRIBUTION

Project: Galveston Anchorage Area C Sand Source Inv.
 Location: Anchorage Area C, Galveston, Texas
 Number: G109233

U.S. GRAIN SIZE G109233 ANCHORAGE BASIN C.G.P.J. U.S. LAB. GDT 12/1/09





COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen ID	Depth	Classification	LL	PL	PI	Cc	Cu
● AA-40	(-27.32' to -29.32' NAVD)	AA-40 (-27.32' to -29.32' NAVD)				1.14	2.55

Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● AA-40	(-27.32' to -29.32' NAVD)	2	0.206	0.137	0.081	0.0			



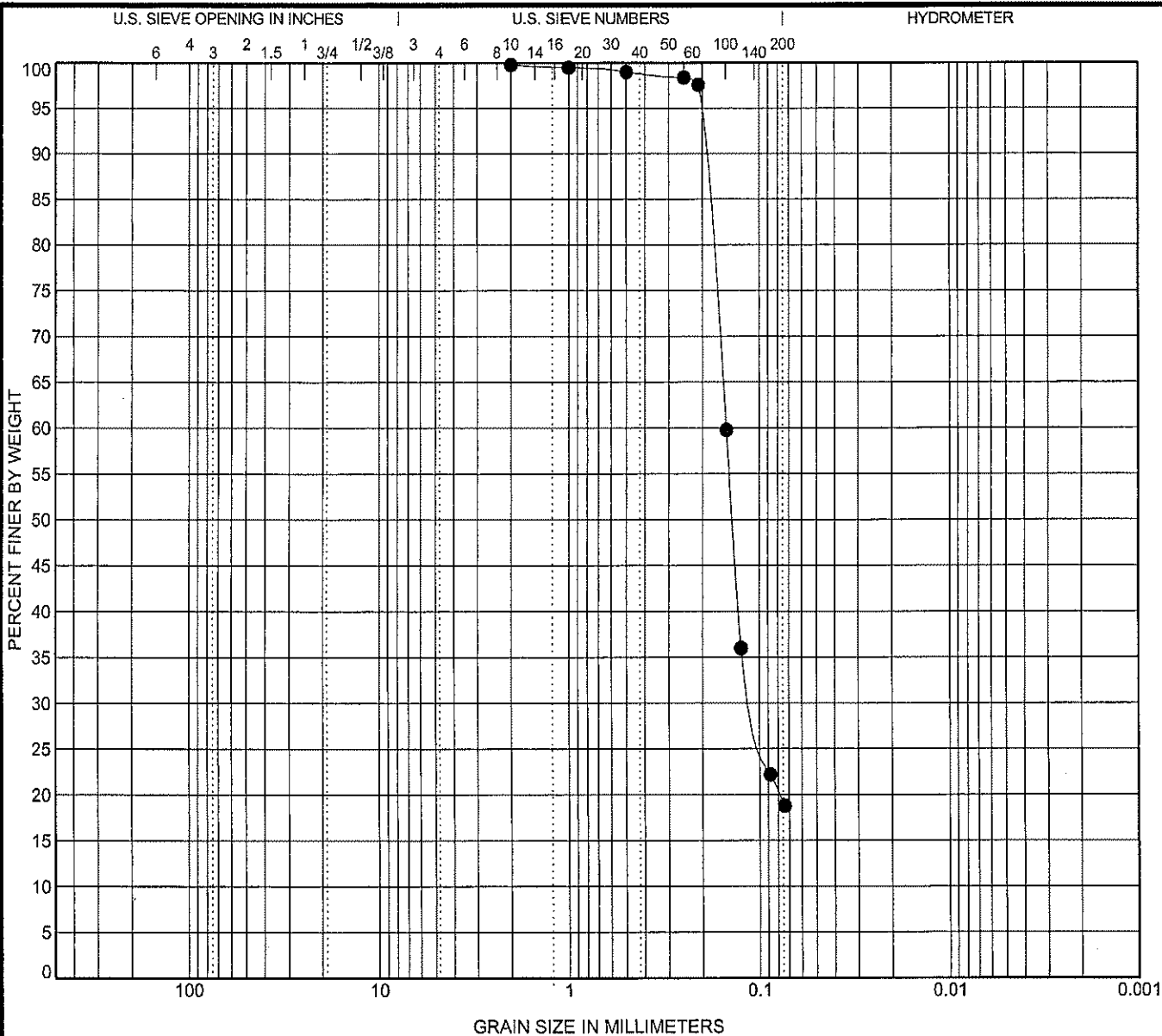
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COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen ID	Depth	Classification	LL	PL	PI	Cc	Cu
● AA-40 (-29.32' to -31.32' NAVD)		AA-40 (-29.32' to -31.32' NAVD)					

Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● AA-40 (-29.32' to -31.32' NAVD)		2	0.149	0.107		0.0			

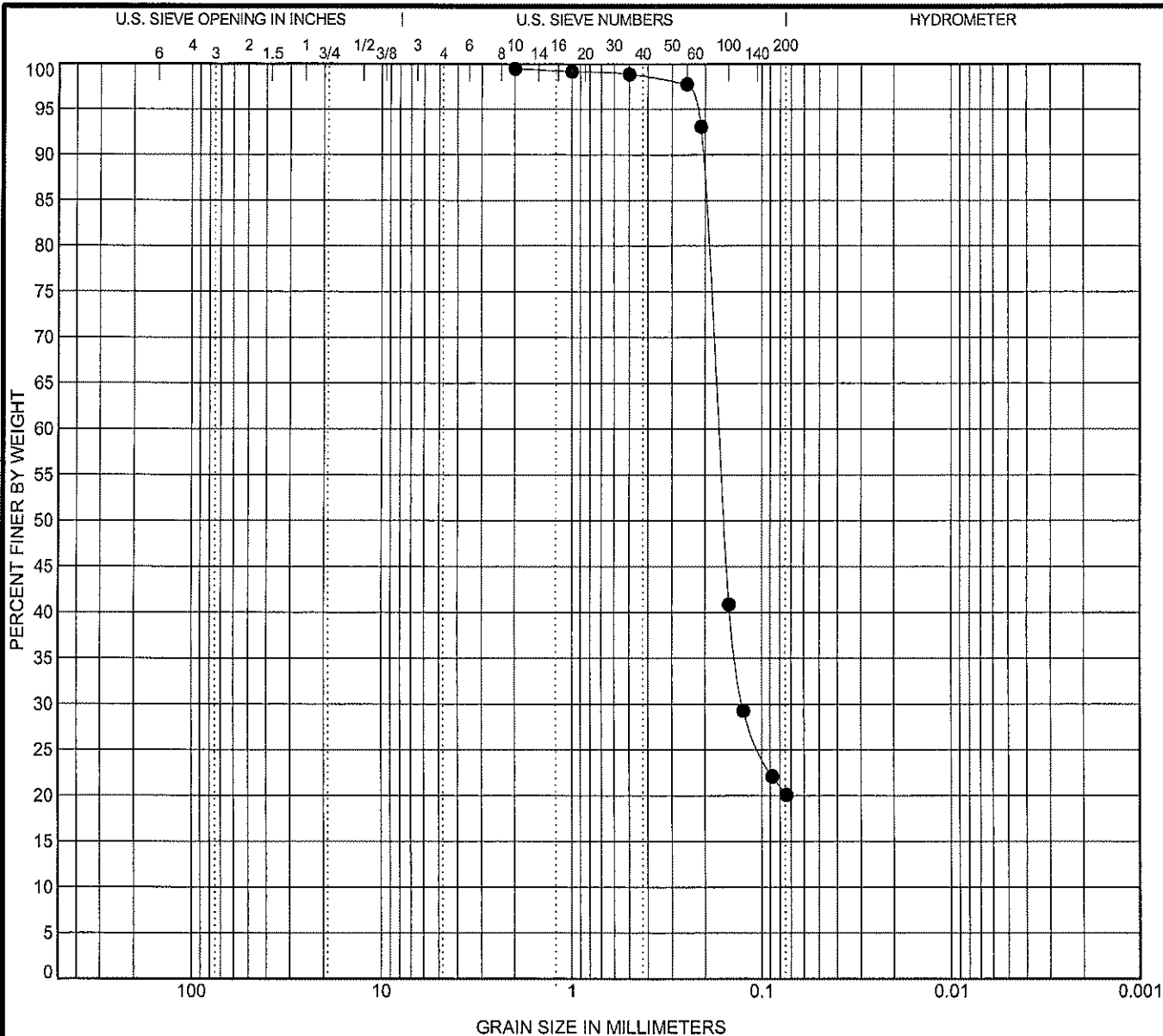


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U.S. GRAIN SIZE G109233 ANCHORAGE BASIN C.G.P.J. U.S. LAB. GDT. 12/1/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen ID	Depth	Classification	LL	PL	PI	Cc	Cu
● AA-40	(-35.32' to -37.32' NAVD)	AA-40 (-35.32' to -37.32' NAVD)					

Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● AA-40	(-35.32' to -37.32' NAVD)	2	0.169	0.126		0.0			



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Figure 55: AA-39; Sample 7

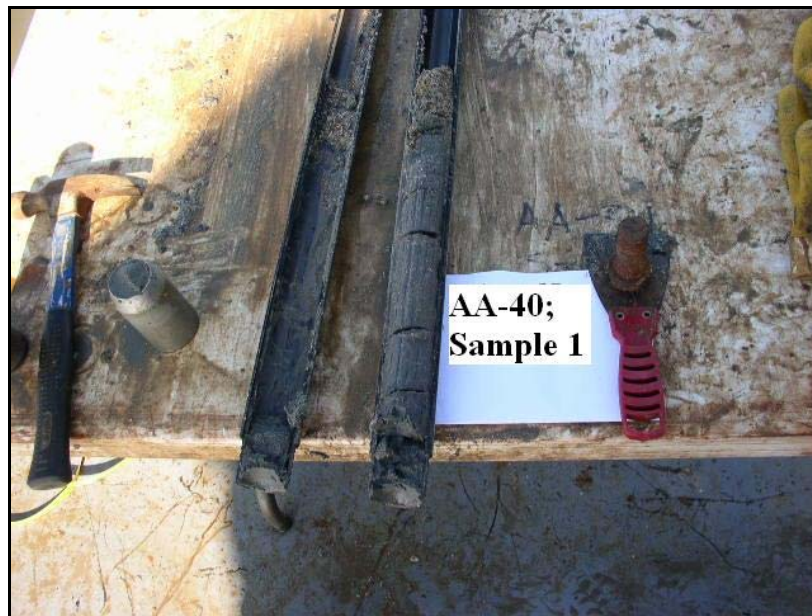


Figure 56: AA-40; Sample 1

December 8, 2009
Attn.: Ms. Lauren Augustin
RETL Job No.: G109233

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Figure 57: AA-40; Sample 3

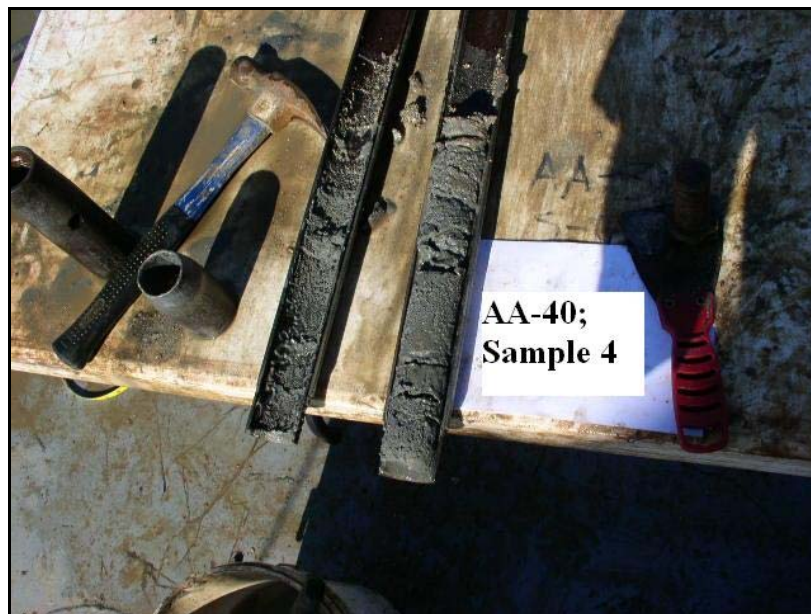


Figure 58: AA-40; Sample 4

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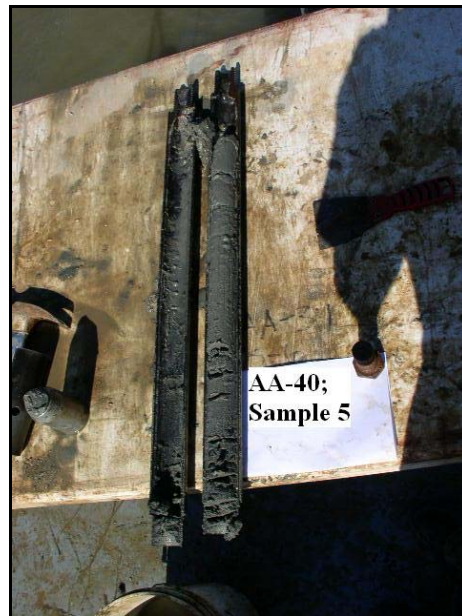


Figure 59: AA-40; Sample 5



Figure 60: AA-40; Sample 6

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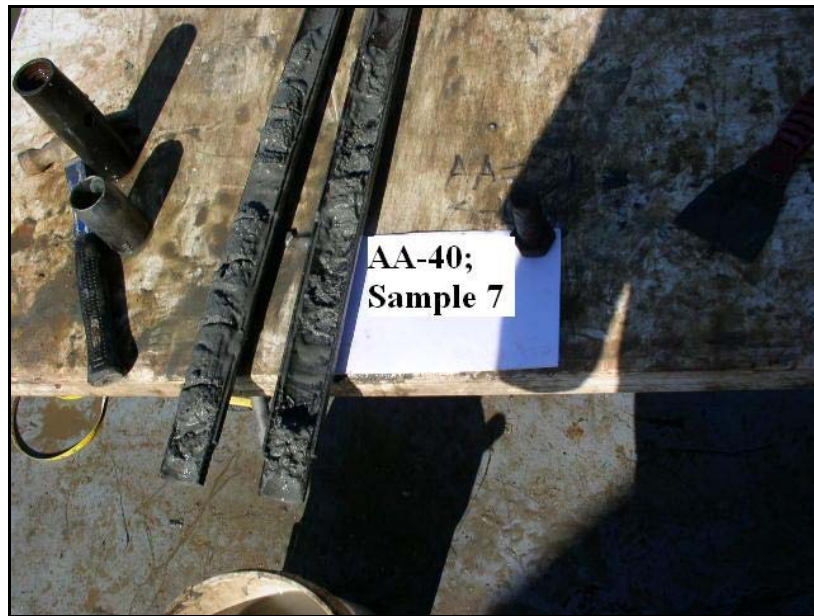


Figure 61: AA-40; Sample 7



Figure 62: AA-40; Sample 8

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