



- Geotechnical Engineering
- Construction Materials Testing

PROJECT NAME: Anchorage Basin Sand Source Investigation

CLIENT: HDR Engineering, Inc.

BORING ID.: AA-21

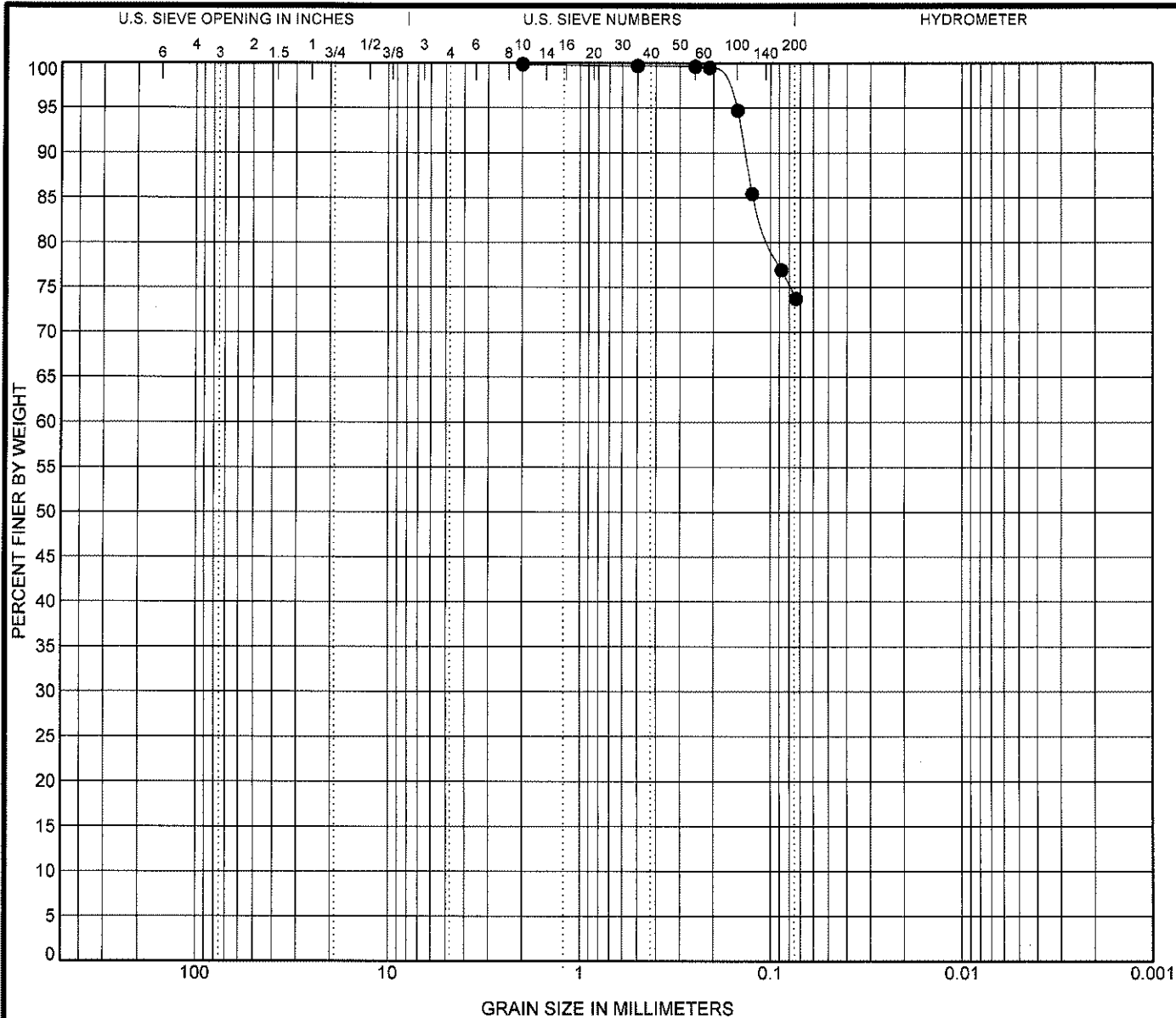
DESCRIPTION: Anchorage Basin Borrow Source Area

PERCENT SHELL BY WEIGHT (BASED ON #10 SIEVE)			
-33' to -34' NAVD	-35' to -36' NAVD	-37' to -38' NAVD	-40' to -41' NAVD
0.68	0.12	0.15	0.01

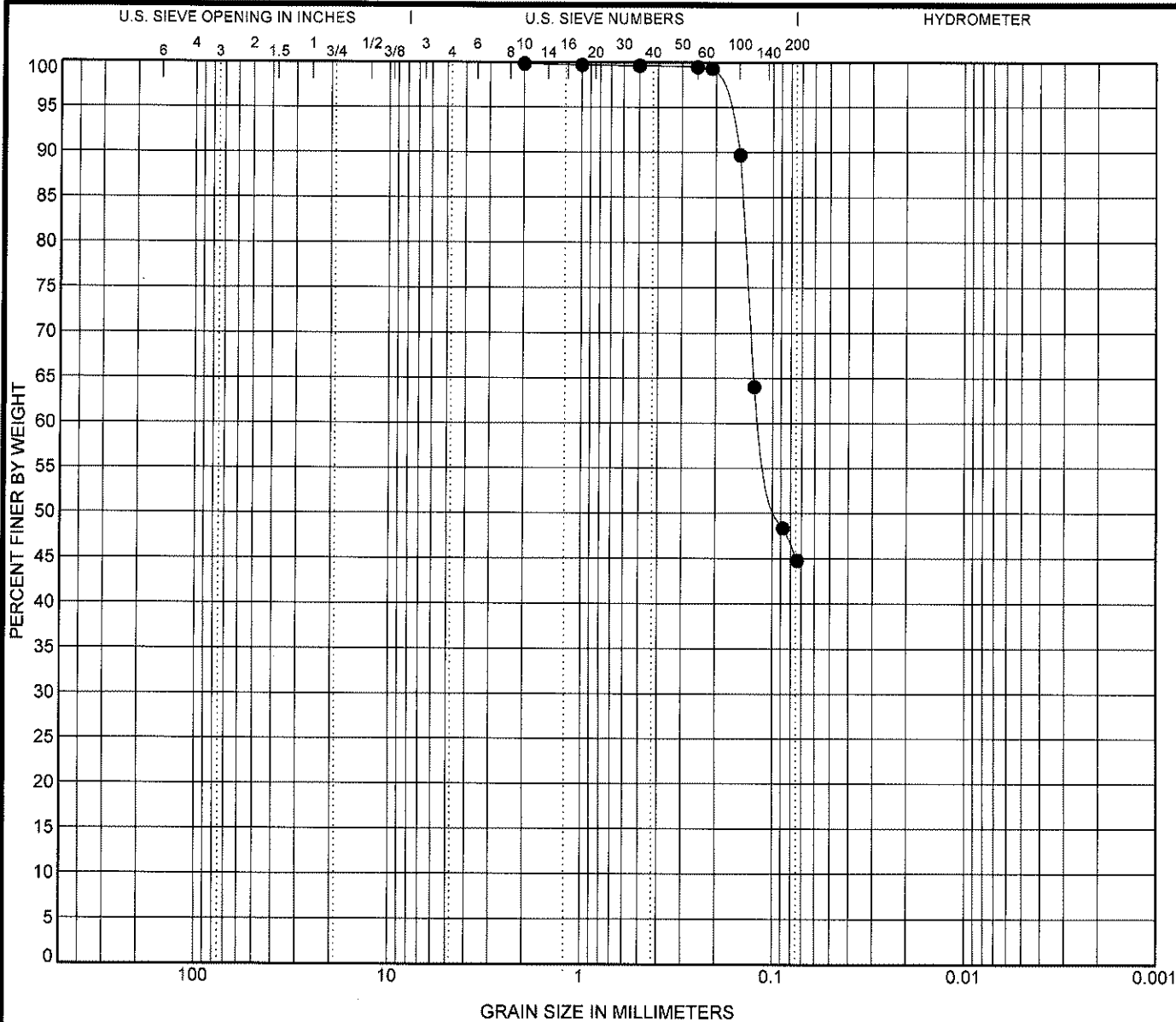
ASTM MESH	% FINER BY WEIGHT AFTER REMOVING SHELL			
	-33' to -34' NAVD	-35' to -36' NAVD	-37' to -38' NAVD	-40' to -41' NAVD
#10	100.00	100.00	100.00	100.00
#18	98.97	99.76	99.72	99.93
#35	98.48	99.70	99.64	99.88
#60	96.90	99.62	99.50	99.69
#70	93.79	99.50	99.32	99.43
#100	36.83	94.71	89.70	72.55
#120	15.94	85.45	64.04	43.10
#170	5.49	76.93	48.35	27.11
#200	3.50	73.73	44.78	22.77
STATISTICS (EXCLUDING SHELL)				
MEDIAN GRAIN SIZE (mm)	0.17	N/A	0.10	0.14
MEAN GRAIN SIZE (mm)	0.16	N/A	N/A	N/A
SORTING (σ)	0.33	N/A	N/A	N/A

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

US GRAIN SIZE G109112 PROP. ANCHORAGE BASIN SAND SOURCE GPJ US LAB.GDT 4/13/09



U.S. GRAIN SIZE G109112 PROP. ANCHORAGE BASIN SAND SOURCE GPJ US LAB.GDT. 4/13/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen ID	Depth	Classification	LL	PL	PI	Cc	Cu
● AA-21	(-37' to -38' NAVD)	Borrow Area (-37' to -38' NAVD)					

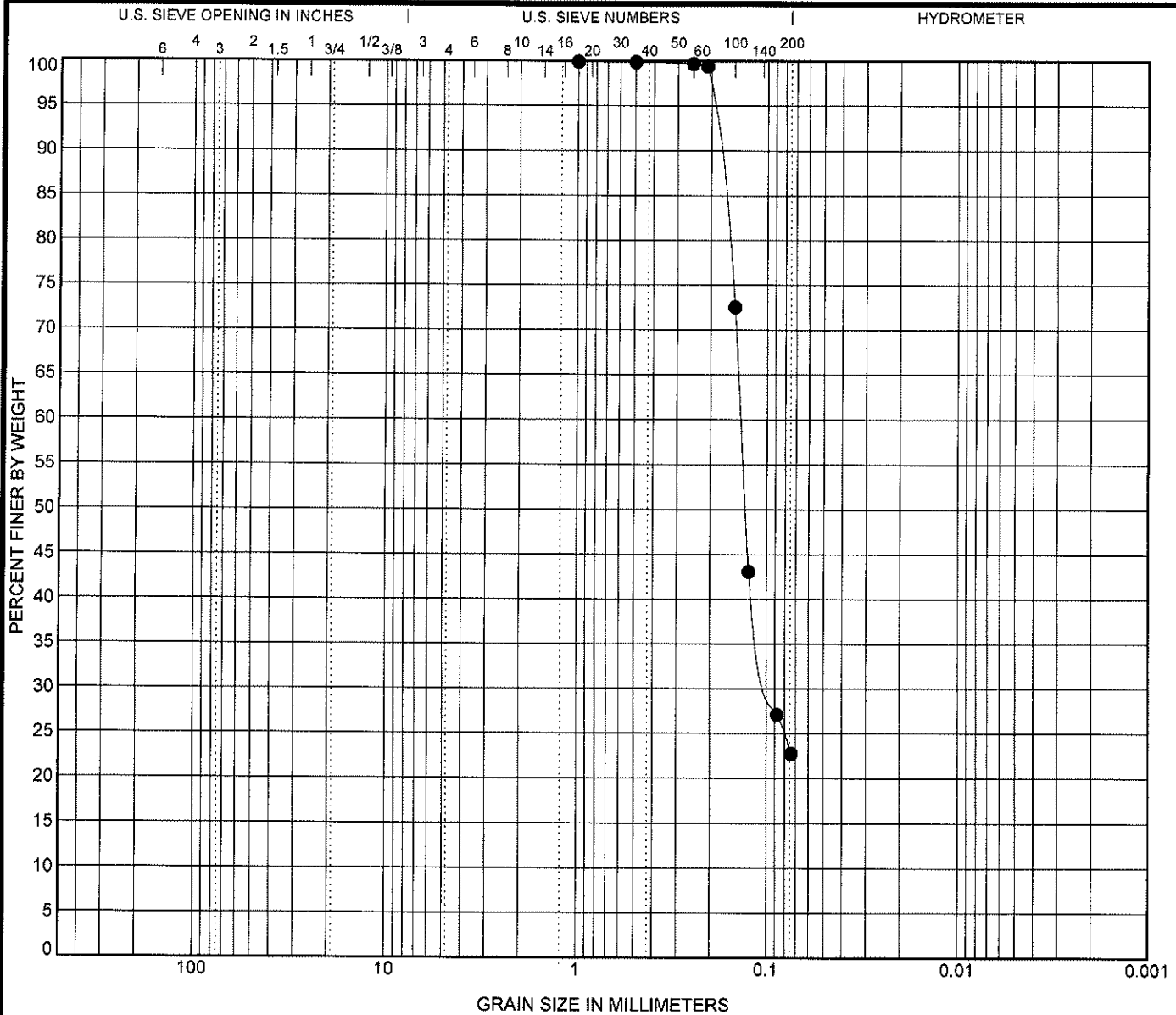
Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● AA-21	(-37' to -38' NAVD)	2	0.114			0.0			



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

GRAIN SIZE DISTRIBUTION

Project: Anchorage Basin Sand Source Investigation
 Location: Anchorage Basin; Galveston, Texas
 Number: G109112



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen ID	Depth	Classification	LL	PL	PI	Cc	Cu
● AA-21	(-40' to -41' NAVD)	Borrow Area (-40' to -41' NAVD)					

Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● AA-21	(-40' to -41' NAVD)	1	0.138	0.094		0.0			



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GRAIN SIZE DISTRIBUTION

Project: Anchorage Basin Sand Source Investigation

Location: Anchorage Basin; Galveston, Texas

Number: G109112

LOG OF BORING AA-21

SHEET 1 OF 2



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CLIENT: HDR Engineering, Inc.
PROJECT: Anchorage Basin Sand Source Investigation
LOCATION: Anchorage Basin; Galveston, Texas
NUMBER: G109112

DATE(S) DRILLED: 03/11/09 - 03/11/09

FIELD DATA										LABORATORY DATA					DRILLING METHOD(S):
SOIL SYMBOL	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 (%)	GROUNDWATER INFORMATION:			
						LL	PL	PI							
												SURFACE ELEVATION: -33' NAVD			
												DESCRIPTION OF STRATUM			
	21														
	22														
	23														
	24														
	25														
	26														
	27														
	28														
	29														
	30														
	31														
	32														
	33														
	34	S-1									4	<u>POORLY GRADED SAND</u> , gray.			
	35	S-2										<u>SANDY CLAY</u> , gray.			
	36	S-3									74	Same as above, dark gray.			
	37	S-4										Same as above.			
	38	S-5									45	<u>CLAYEY SAND</u> , dark gray.			
	39	S-6										Same as above.			
	40	S-7										Same as above.			
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 Ocean Surveys, Inc. GPS Coord. N. 13,698,958' E. 3,321,049'			

LOG OF BORING G109112 PROP ANCHORAGE BASIN SAND SOURCE GPJ ROCK ETL GDT 4/28/09

LOG OF BORING AA-21

SHEET 2 OF 2



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 PROJECT: Anchorage Basin Sand Source Investigation
 LOCATION: Anchorage Basin; Galveston, Texas
 NUMBER: G109112

DATE(S) DRILLED: 03/11/09 - 03/11/09

DRILLING METHOD(S):

Vibracore

GROUNDWATER INFORMATION:

SURFACE ELEVATION: -33' NAVD

DESCRIPTION OF STRATUM

SILTY CLAYEY SAND, dark gray.

Boring was extended to an elevation of -41-feet NAVD during the drilling operations.

FIELD DATA

LABORATORY DATA

SOIL SYMBOL	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	PL	PI			
	41	S-8									23

N - STANDARD PENETRATION TEST RESISTANCE
 P - POCKET PENETROMETER RESISTANCE
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REMARKS:

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