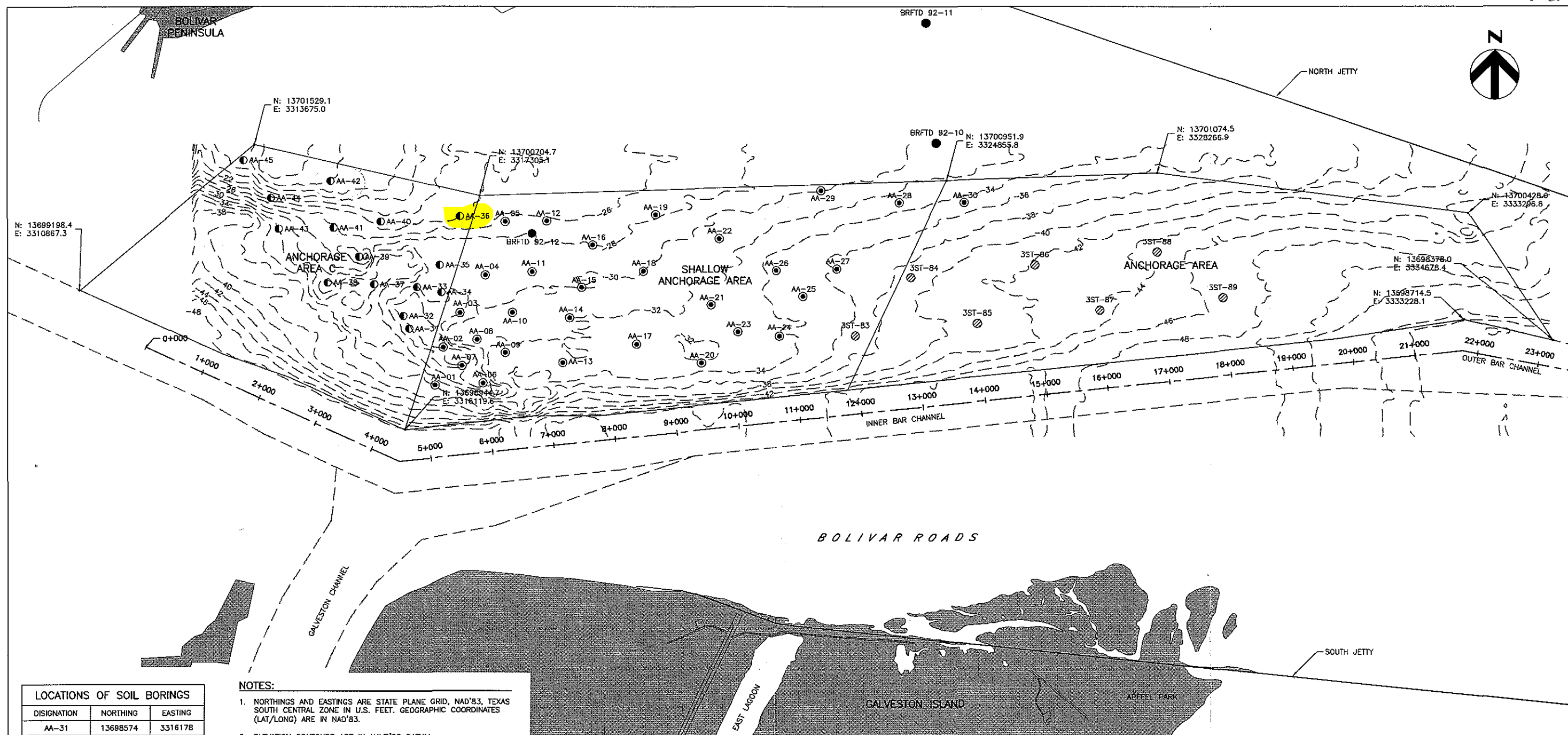


1391 Tech
Downers



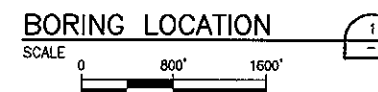
LOCATIONS OF SOIL BORINGS		
DISIGNATION	NORTHING	EASTING
AA-31	13698574	3316178
AA-32	13698778	3316085
AA-33	13699244	3316297
AA-34	13699156	3316692
AA-35	13699595	3316661
AA-36	13700379	3316989
AA-37	13699288	3315613
AA-38	13699316	3314867
AA-39	13699731	3315371
AA-40	13700296	3315711
AA-41	13700196	3314956
AA-42	13700944	3314910
AA-43	13700178	3314070
AA-44	13700672	3313951
AA-45	13701278	3313502

NOTES:

- NORTHINGS AND EASTINGS ARE STATE PLANE GRID, NAD'83, TEXAS SOUTH CENTRAL ZONE IN U.S. FEET. GEOGRAPHIC COORDINATES (LAT/LONG) ARE IN NAD'83.
- ELEVATION CONTOURS ARE IN NAVD'88 DATUM.
- ELEVATION CONTOURS BASED ON INFORMATION PROVIDED BY THE U.S. ARMY CORPS OF ENGINEERS, GALVESTON DISTRICT. SURVEY DATE WAS JUNE 2009. ELEVATIONS WERE CONVERTED FROM USACE MLT TO NAVD '88 USING THE FOLLOWING CORRELATION:
0 NAVD '88 = 1.42' MLT.
- VIBRACORES WERE PERFORMED BY ROCK ENGINEERING AND TESTING LABORATORY, INC (RETL) AND OCEAN SURVEYS, INC DURING MARCH 2009.
- SOIL BORINGS WERE PERFORMED BY RETL DURING OCTOBER 2009.

LEGEND:

- HISTORICAL BORING LOCATIONS FROM USACE (1966)
- VIBRACORE LOCATIONS (SEE NOTE 4)
- VIBRACORE LOCATION FROM RICE UNIVERSITY
- BORING LOCATIONS (SEE NOTE 5)



TEXAS GENERAL LAND OFFICE ANCHORAGE AREA C SAND SOURCE INVESTIGATION

BORING LOCATION PLAN - GALVESTON ANCHORAGE AREA

DATE	11/30/09
FIGURE	EX A



- Geotechnical Engineering
- Construction Materials Testing

PROJECT NAME: Galveston Anchorage Area C Sand Source Investigation

CLIENT: HDR Engineering, Inc.

BORING ID.: AA-36

DESCRIPTION: Anchorage Area C Borrow Source Area

PERCENT SHELL BY WEIGHT (BASED ON #10 SIEVE)		
-25.02' to -27.02' NAVD	-27.02' to -29.02' NAVD	-29.02' to -31.02' NAVD
0.00	0.01	0.20

ASTM MESH	% FINER BY WEIGHT AFTER REMOVING SHELL		
	-25.02' to -27.02' NAVD	-27.02' to -29.02' NAVD	-29.02' to -31.02' NAVD
#10	100.00	100.00	100.00
#18	100.00	99.70	99.60
#35	99.90	99.40	99.40
#60	99.60	96.00	98.10
#70	99.50	77.20	86.50
#100	97.20	48.40	44.60
#120	89.10	38.90	35.00
#170	76.30	31.90	28.70
#200	70.30	29.60	26.30
STATISTICS (EXCLUDING SHELL)			
MEDIAN GRAIN SIZE (mm)	N/A	0.17	0.17
MEAN GRAIN SIZE (mm)	N/A	N/A	N/A
SORTING (σ)	N/A	N/A	N/A

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



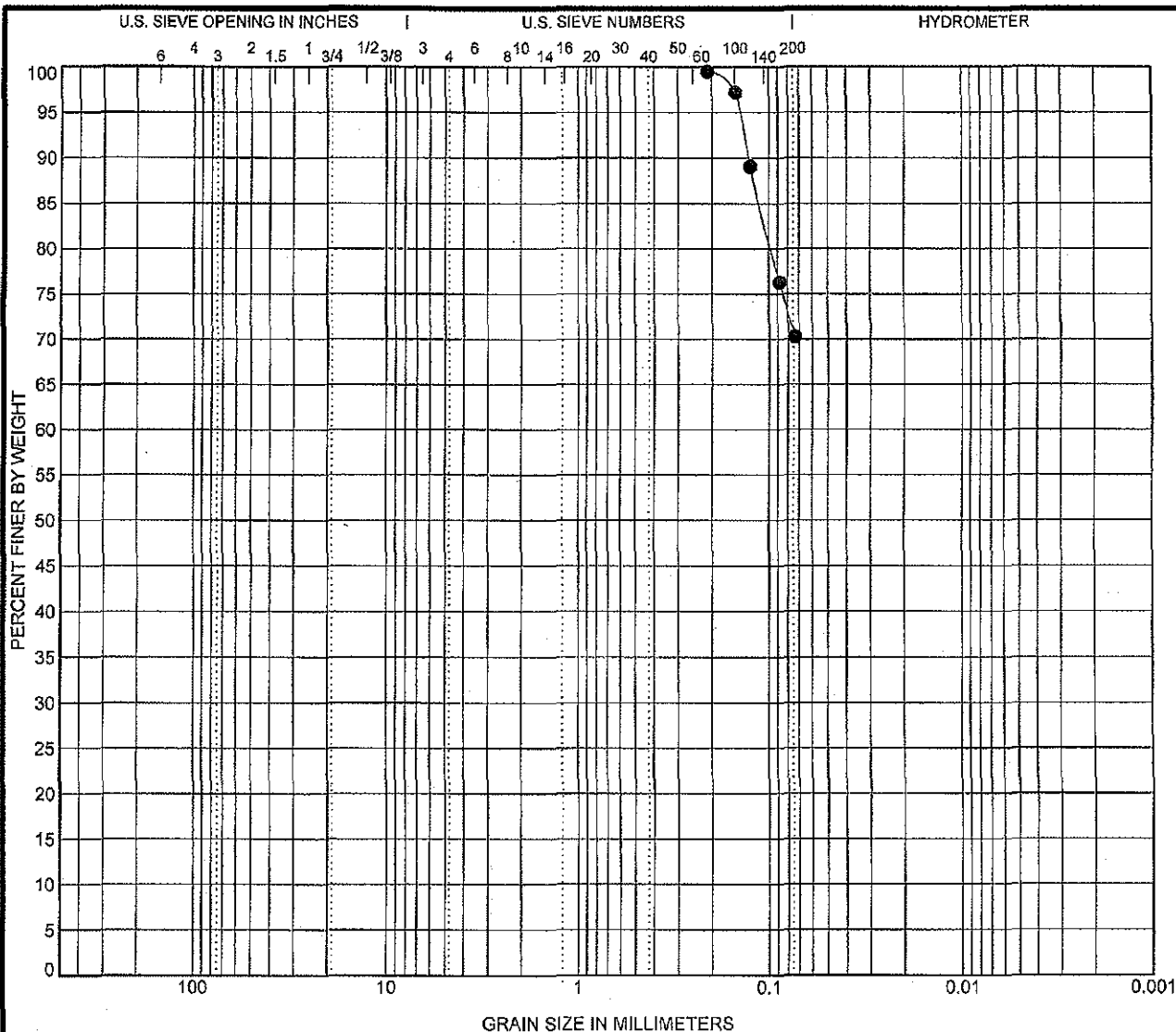
- Geotechnical Engineering
- Construction Materials Testing

PROJECT NAME: Galveston Anchorage Area C Sand Source Investigation
CLIENT: HDR Engineering, Inc.
BORING ID.: AA-36
DESCRIPTION: Anchorage Area C Borrow Source Area

PERCENT SHELL BY WEIGHT (BASED ON #10 SIEVE)		
-33.02' to -35.02' NAVD	-35.02' to -37.02' NAVD	-37.02' to -39.02' NAVD
0.50	0.10	0.00

ASTM MESH	% FINER BY WEIGHT AFTER REMOVING SHELL		
	-33.02' to -35.02' NAVD	-35.02' to -37.02' NAVD	-37.02' to -39.02' NAVD
#10	100.00	100.00	100.00
#18	98.20	99.80	99.90
#35	97.60	99.70	99.80
#60	93.60	99.40	99.50
#70	75.80	98.40	98.90
#100	37.40	91.70	95.00
#120	24.90	78.70	86.80
#170	16.90	57.30	76.20
#200	14.90	50.10	73.10
STATISTICS (EXCLUDING SHELL)			
MEDIAN GRAIN SIZE (mm)	0.18	N/A	N/A
MEAN GRAIN SIZE (mm)	0.15	N/A	N/A
SORTING (σ)	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-36	25.0'	AA-36 (-25.0' to -27.0' NAVD)					

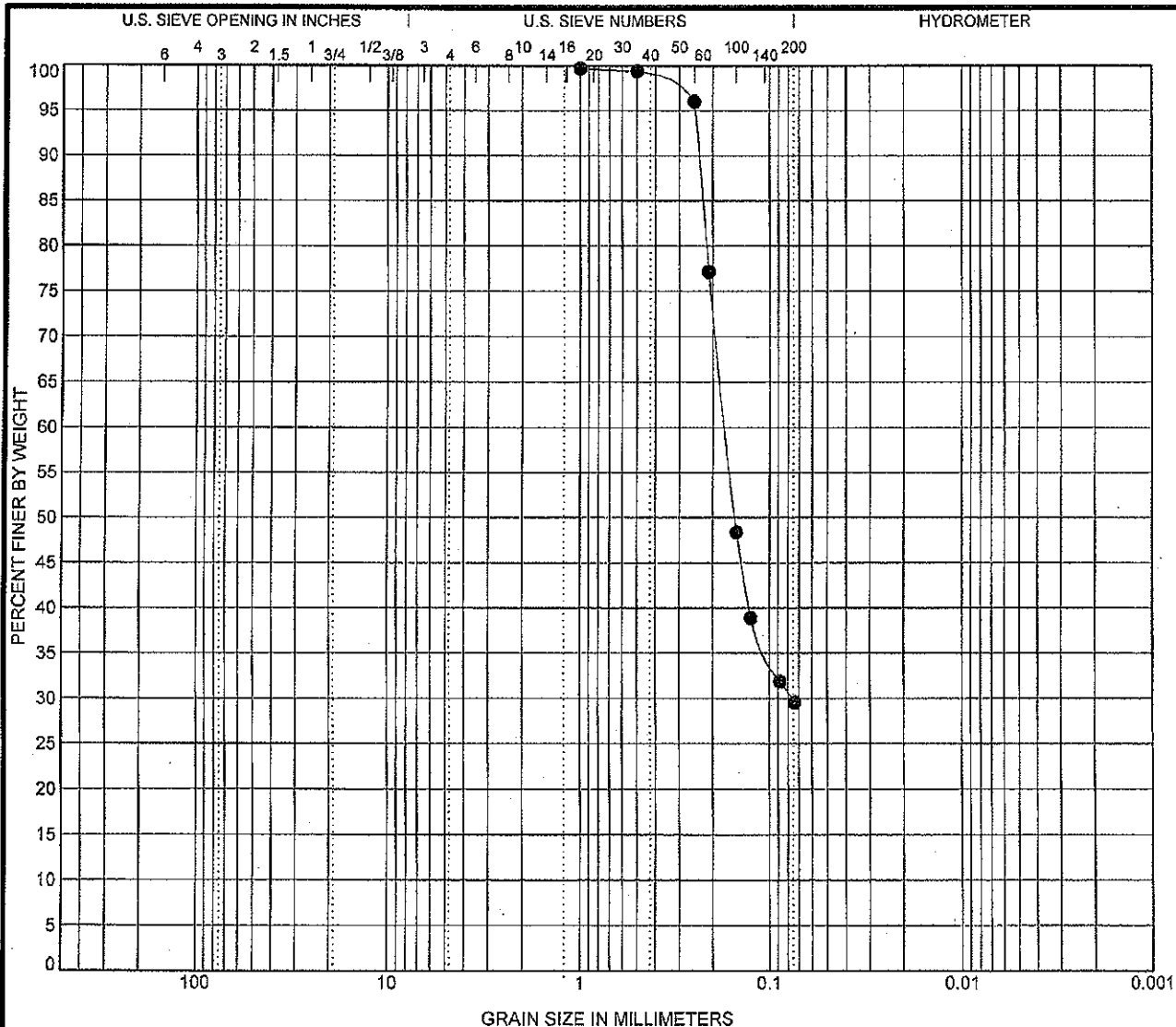
Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● AA-36	25.0'	0.21				0.0			

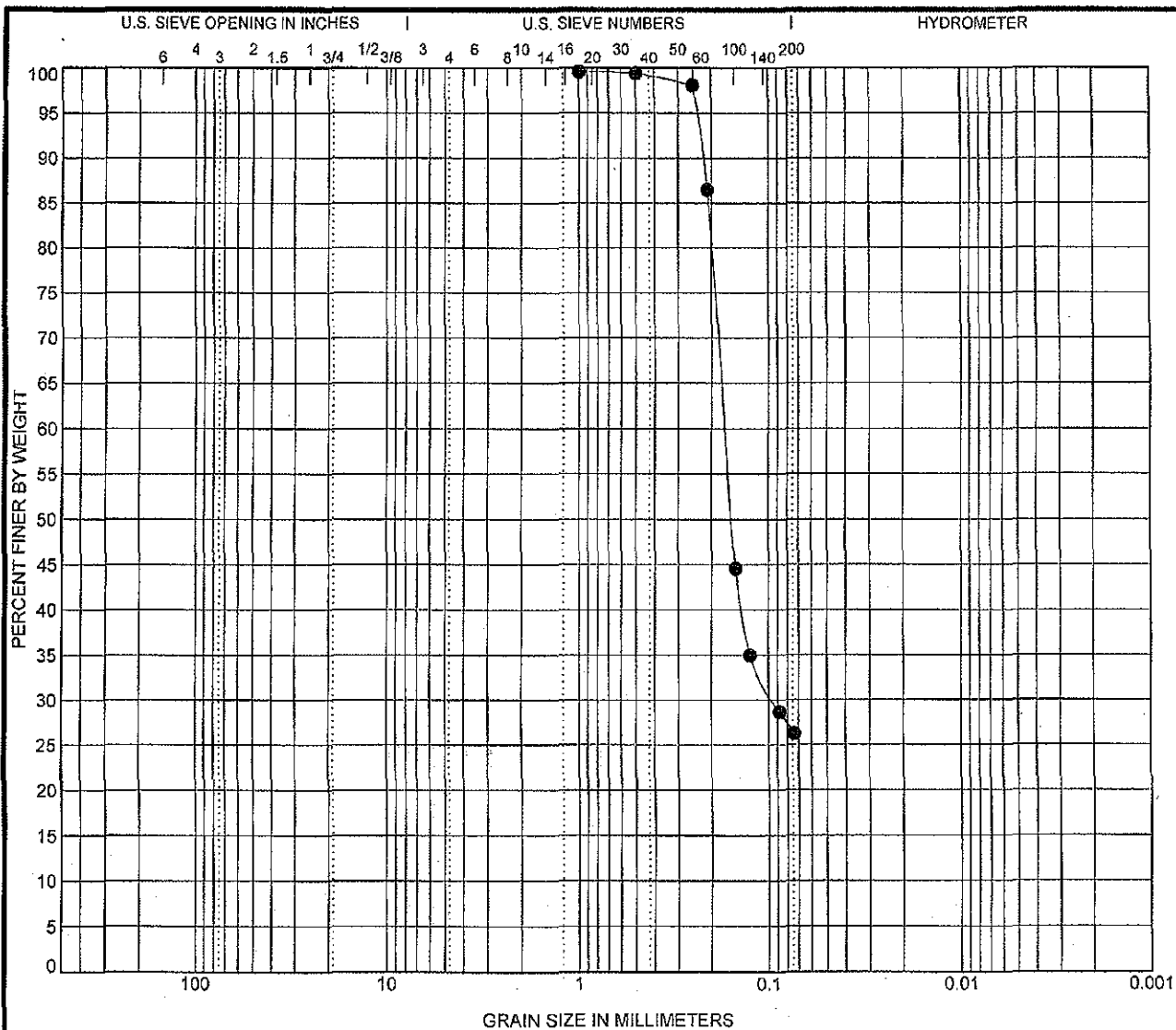


Rock Engineering & Testing Lab., Inc.
6817 Leopard St.
Corpus Christi, TX 78409
Telephone: (361) 883-4555
Fax: (361) 883-4711

GRAIN SIZE DISTRIBUTION

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





COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen ID	Depth	Classification	LL	PL	PI	Cc	Cu
● AA-36	29.0'	AA-36 (-29.0' to -31.0' NAVD)					

[illegible]

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GRAIN SIZE DISTRIBUTION

Project: Prop. Anchorage Area "C" Sand Source Inv.

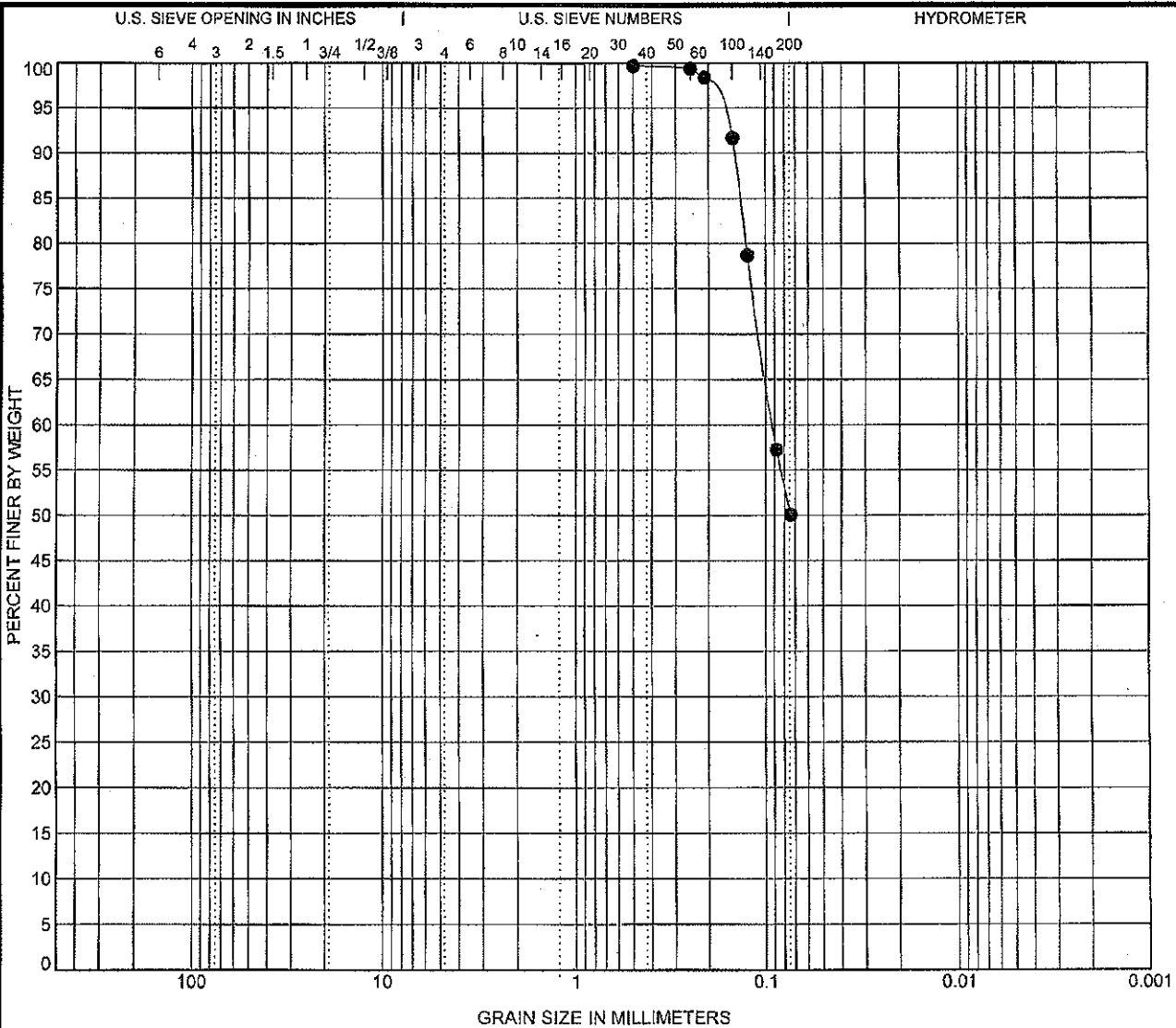
Location: Galveston Island, Texas

Number: G109233

[illegible]

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Telephone: (361) 883-4555
Fax: (361) 883-4711

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



BORING LOG

Date: 10-15-09

Project Location: GALESTON

Type: HSA

Boring No.: A-36

Location:

Depth Feet	Symbol	Sample	N-Blows Per Foot	MATERIAL DESCRIPTION	H ₂ O on Red	H ₂ O Upon Comp.	Gave Upon Comp.
1.0 25		1	WH	Shell. frag (No picture) Small sample	GPS	29.35321	94.76579
2.5 27		2	WH	Grey silty sand			
3.5 27		3	1/1 1/2	Same (more sandy)			
5.0 29		4	1/0 2/10	grey fine sand			
6.0 29		5	1/2 3/1	Same Some Silt			
7.5 31		6	1/2 1/1	Same			
8.5 31		7	1/1 1/0	grey sandy silt			
10.0 33		8	1/1 1/1	Same			
11.0 33		9					
12.5 33		10					
13.5 35		11					
15.0 37		12					
16.0 37		13					
18.5 37							
20.0 39							
23.5 39							
25.0 41							
28.5							
30.0							
33.5							
35.0							
38.5							
40.0							
43.5							
45.0							
48.5							
50.0							

LOG OF BORING AA-36

SHEET 1 of 1



Rock Engineering & Testing Lab., Inc.
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Corpus Christi, TX 78409
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: 10/15/09 - 10/15/09

DRILLING METHOD(S):

Hollow Stem Auger

GROUNDWATER INFORMATION:

SURFACE ELEVATION: -23.02' NAVD

DESCRIPTION OF STRATUM

poor

POORLY GRADED SAND, with shell fragments, gray and brown, very loose.

SANDY CLAY, dark gray, very soft.

CLAYEY SAND, gray, soft.

SILTY CLAYEY SAND, bluish gray, very loose.

Same as above, loose.

Same as above, dark gray and gray, very loose.

SANDY CLAY, with shell fragments, dark gray, very soft.

Same as above, soft.

Boring was extended to an elevation of -39.0-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. 29.35321 W. 94.78579.
WOH = Weight of Hammer

LOG OF BORING G109233 ANCHORAGE BASIN C.G.P.J. ROCK ETL GDT 11/30/09