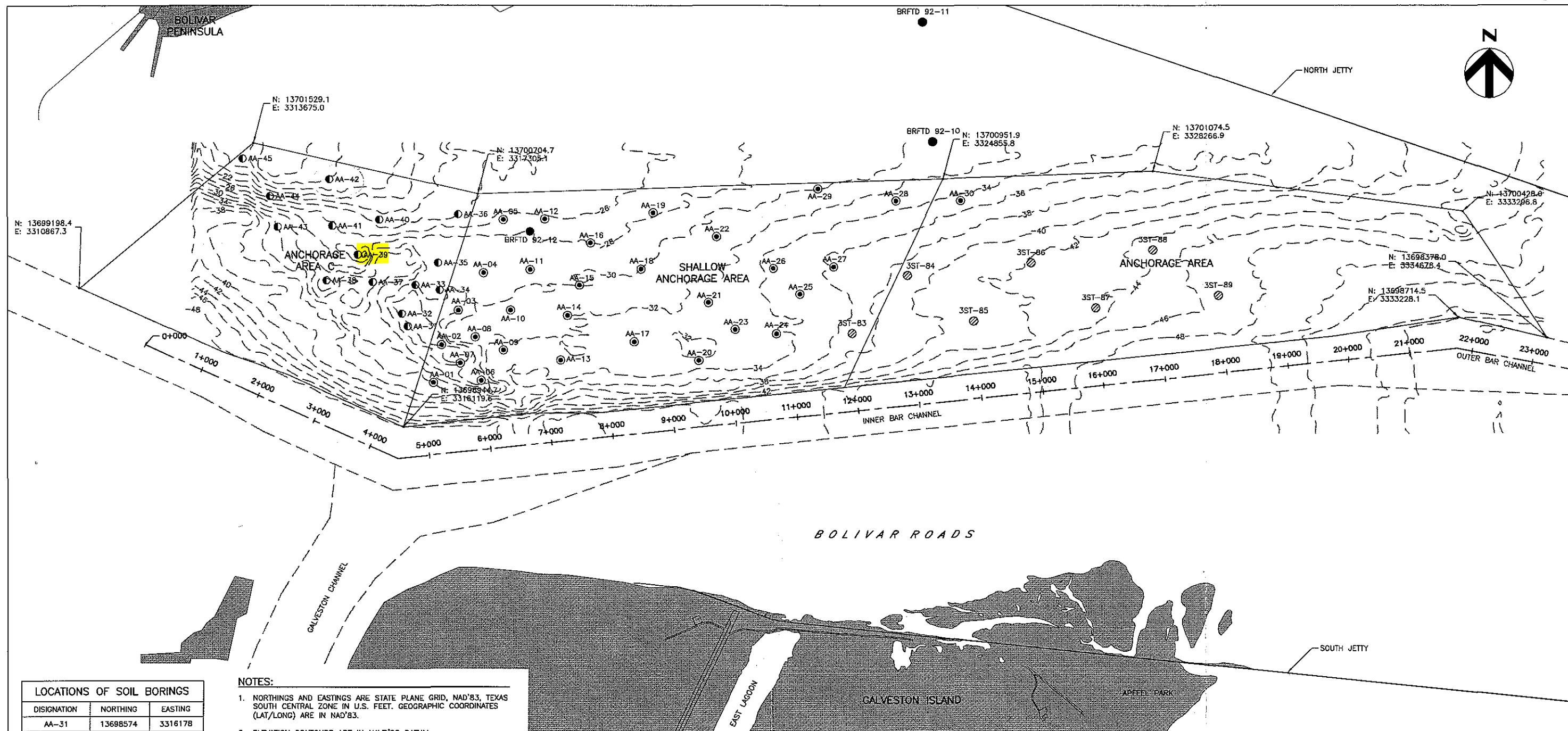


1391 Tech
Downers



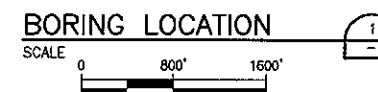
LOCATIONS OF SOIL BORINGS		
DISIGNATION	NORTHING	EASTING
AA-31	13698574	3316178
AA-32	13698778	3316085
AA-33	13699244	3316297
AA-34	13699156	3316692
AA-35	13699595	3316661
AA-36	13700379	3316989
AA-37	13699288	3315613
AA-38	13699316	3314867
AA-39	13699731	3315371
AA-40	13700296	3315711
AA-41	13700196	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.

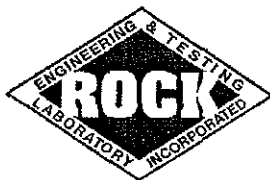
BORING ID.: AA-39

DESCRIPTION: Anchorage Area C Borrow Source Area

PERCENT SHELL BY WEIGHT (BASED ON #10 SIEVE)		
-27.82' to -29.82' NAVD	-31.82' to -33.82' NAVD	-33.82' to -35.82' NAVD
31.10	7.55	10.36

ASTM MESH	% FINER BY WEIGHT AFTER REMOVING SHELL		
	-27.82' to -29.82' NAVD	-31.82' to -33.82' NAVD	-33.82' to -35.82' NAVD
#10	100.00	100.00	100.00
#18	47.10	81.10	73.40
#35	32.59	65.30	51.80
#60	25.13	45.60	38.60
#70	21.29	35.80	30.10
#100	11.50	19.10	13.40
#120	7.70	14.60	7.60
#170	5.30	11.60	4.70
#200	4.70	10.70	4.20
STATISTICS (EXCLUDING SHELL)			
MEDIAN GRAIN SIZE (mm)	1.10	0.28	0.45
MEAN GRAIN SIZE (mm)	0.58	0.36	0.49
SORTING (σ)	1.15	N/A	1.29

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



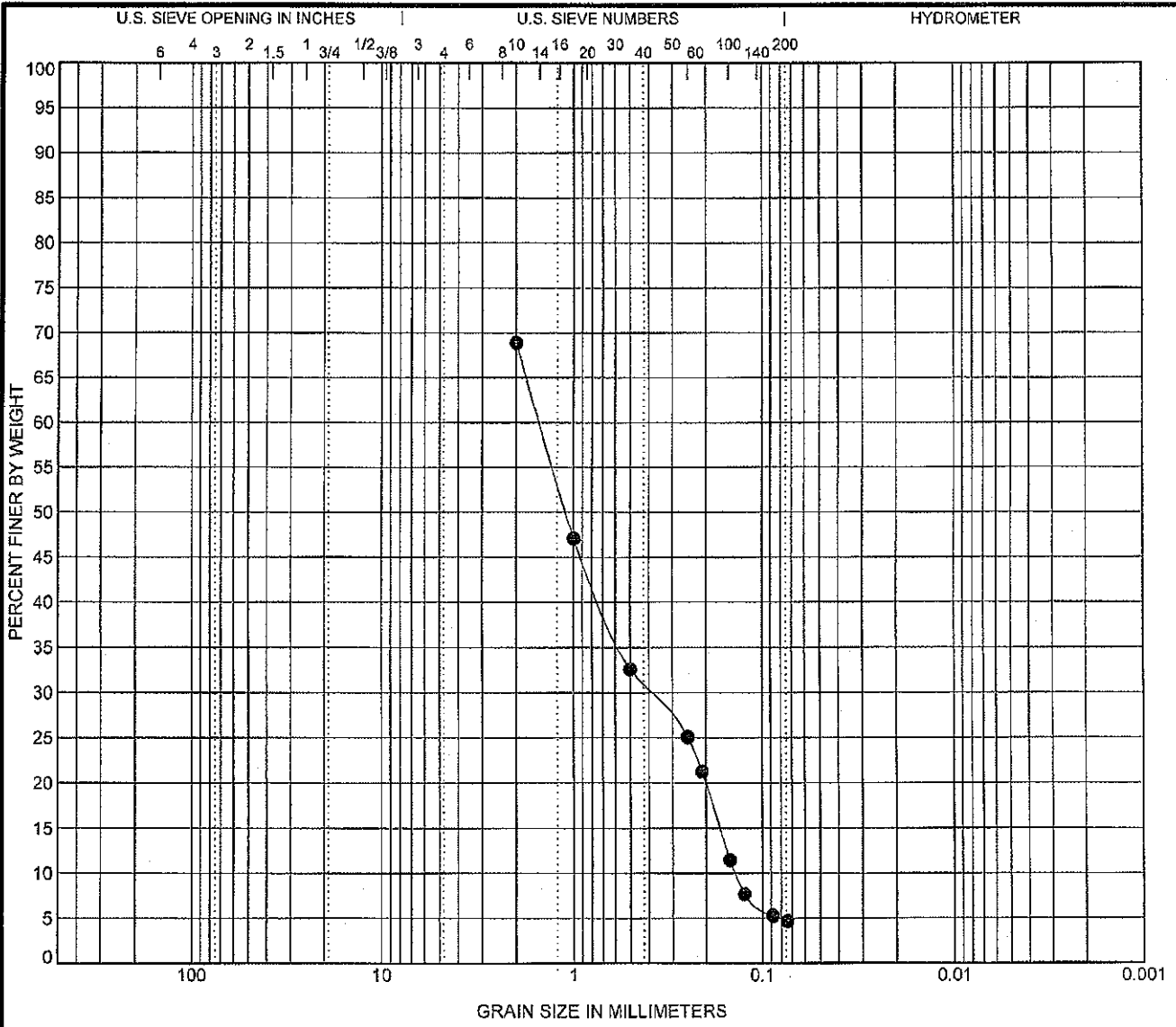
- Geotechnical Engineering
- Construction Materials Testing

PROJECT NAME: Galveston Anchorage Area C Sand Source Investigation
CLIENT: HDR Engineering, Inc.
BORING ID.: AA-39
DESCRIPTION: Anchorage Area C Borrow Source Area

PERCENT SHELL BY WEIGHT (BASED ON #10 SIEVE)		
-35.82' to -37.82' NAVD	-37.82' to -39.82' NAVD	-39.82' to -41.82' NAVD
7.93	6.09	0.62

ASTM MESH	% FINER BY WEIGHT AFTER REMOVING SHELL		
	-35.82' to -37.82' NAVD	-37.82' to -39.82' NAVD	-39.82' to -41.82' NAVD
#10	100.00	100.00	100.00
#18	78.00	84.63	96.70
#35	65.20	75.48	93.20
#60	56.80	70.89	91.20
#70	51.80	68.05	89.50
#100	24.50	25.22	32.20
#120	14.30	12.76	20.50
#170	7.90	6.61	14.10
#200	6.70	5.58	12.90
STATISTICS (EXCLUDING SHELL)			
MEDIAN GRAIN SIZE (mm)	0.20	0.19	0.18
MEAN GRAIN SIZE (mm)	0.35	0.30	0.15
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-39	27.8'	AA-39 (-27.8' to -29.8' NAVD)				0.74	10.84

Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● AA-39	27.8'	2	1.507	0.393	0.139	0.0			

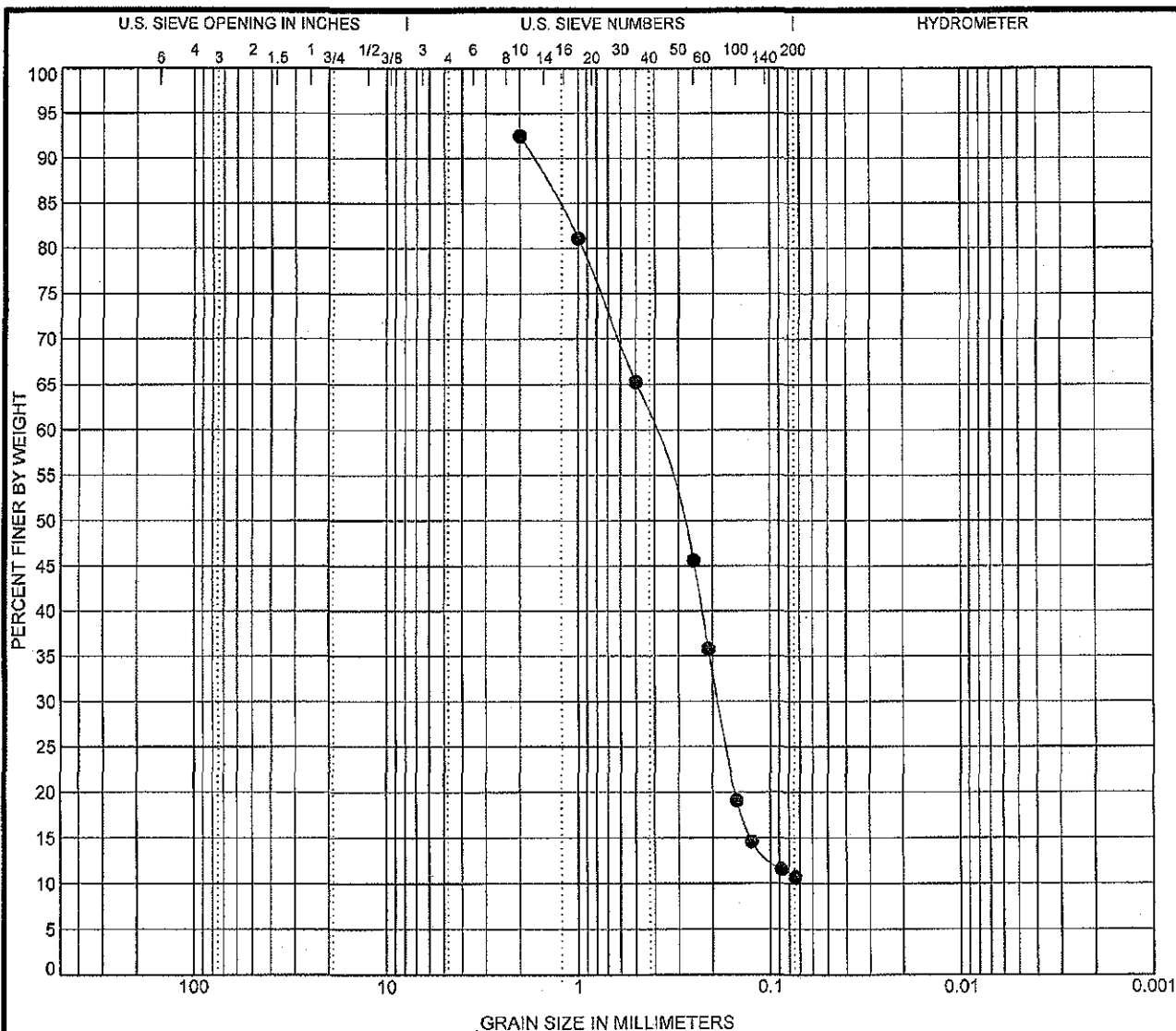


Rock Engineering & Testing Lab., Inc.
 6817 Leopard St.
 Corpus Christi, TX 78409
 Telephone: (361) 883-4555
 Fax: (361) 883-4711

GRAIN SIZE DISTRIBUTION

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

U.S. GRAIN SIZE G109233 ANCHORAGE BASIN C.G.P.J. US LAB.GDT 11/17/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen ID	Depth	Classification	LL	PL	PI	Cc	Cu
● AA-39	31.8'	AA-39 (-31.8' to -33.8' NAVD)				1.29	6.42

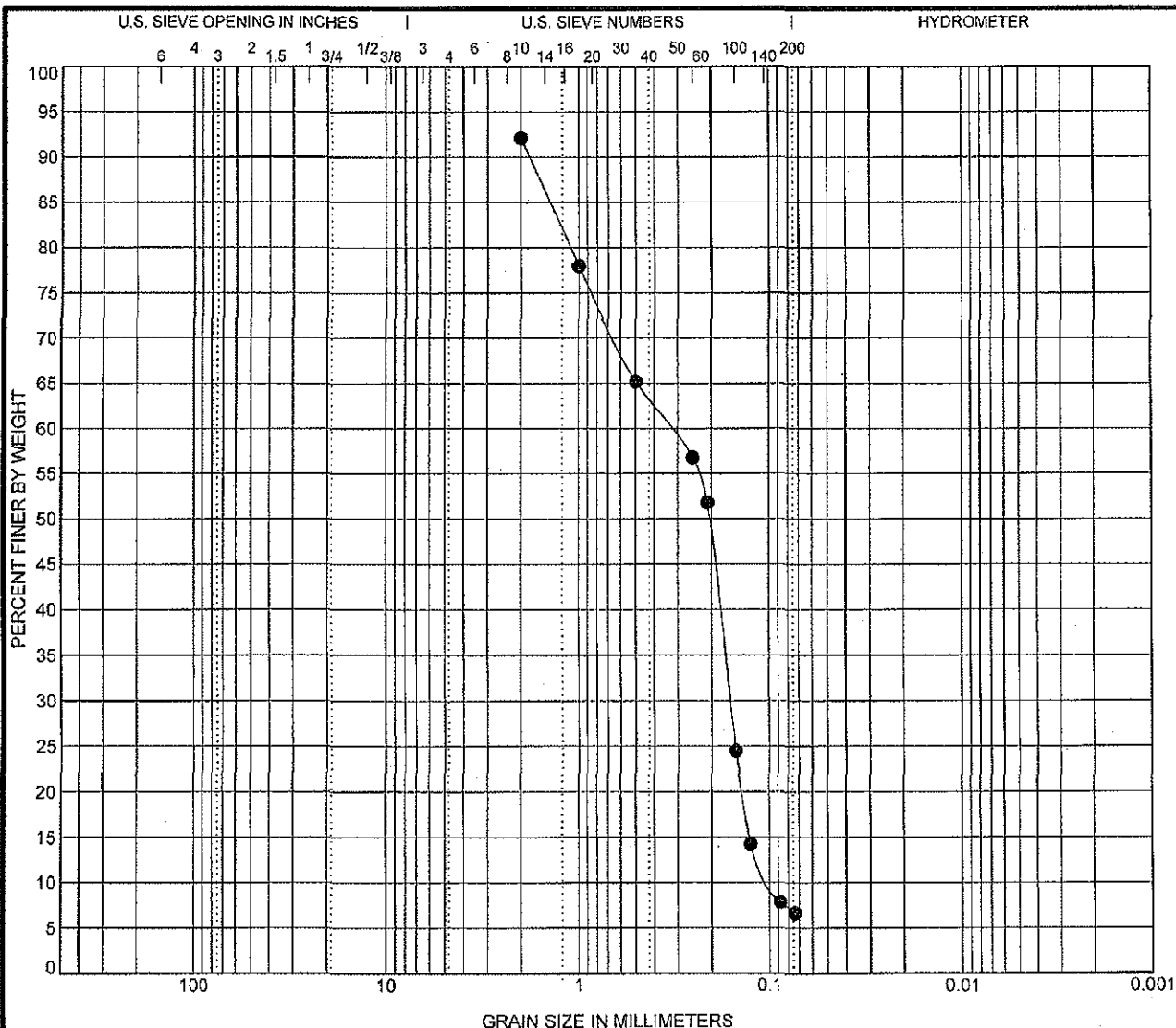
Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● AA-39	31.8'	2	0.415	0.186		0.0			



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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-39	35.7'	AA-39 (-35.8' to -37.8' NAVD)				0.79	3.30

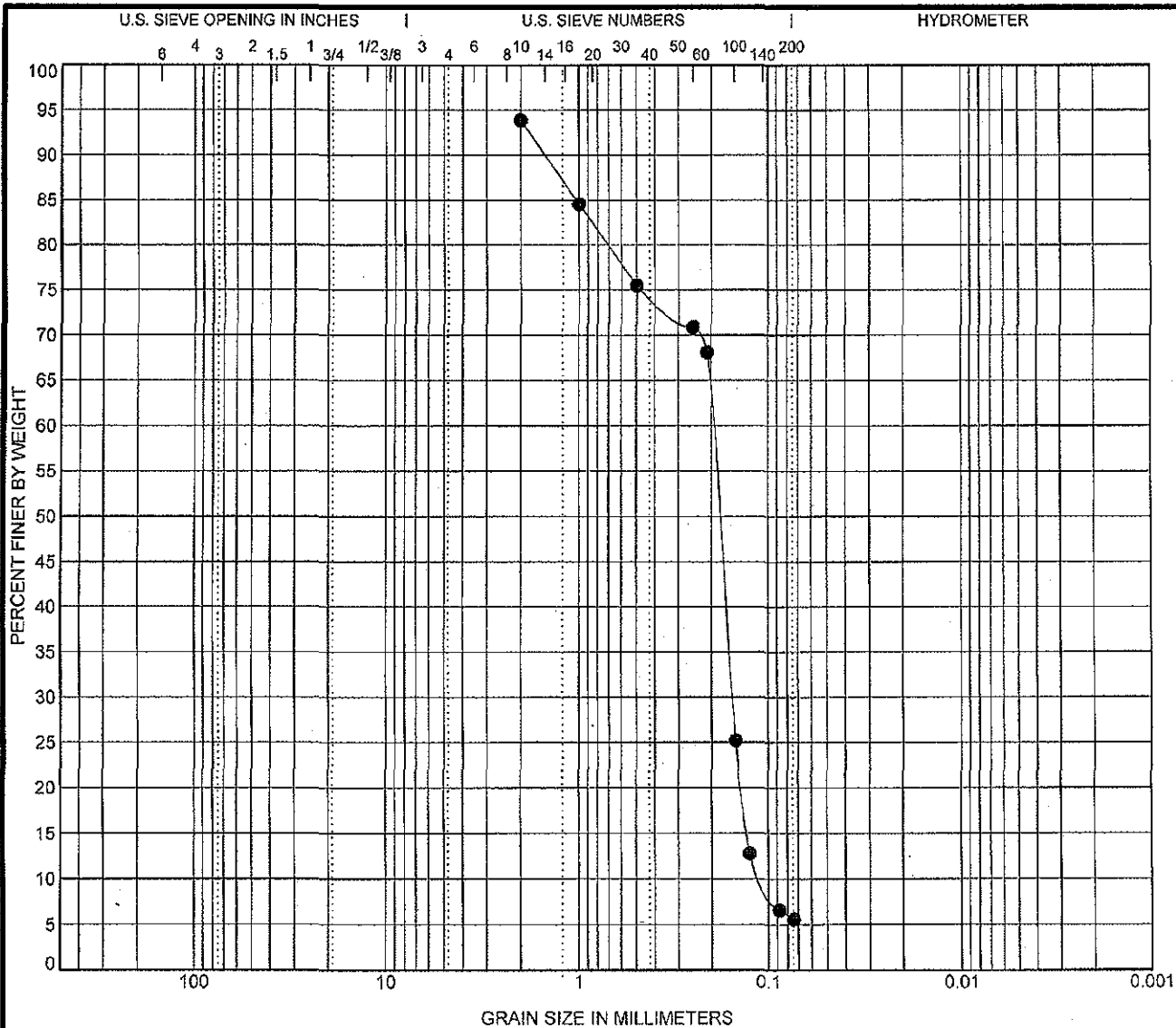
Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
AA-39	35.7'	2	0.326	0.16	0.099	0.0			



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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	

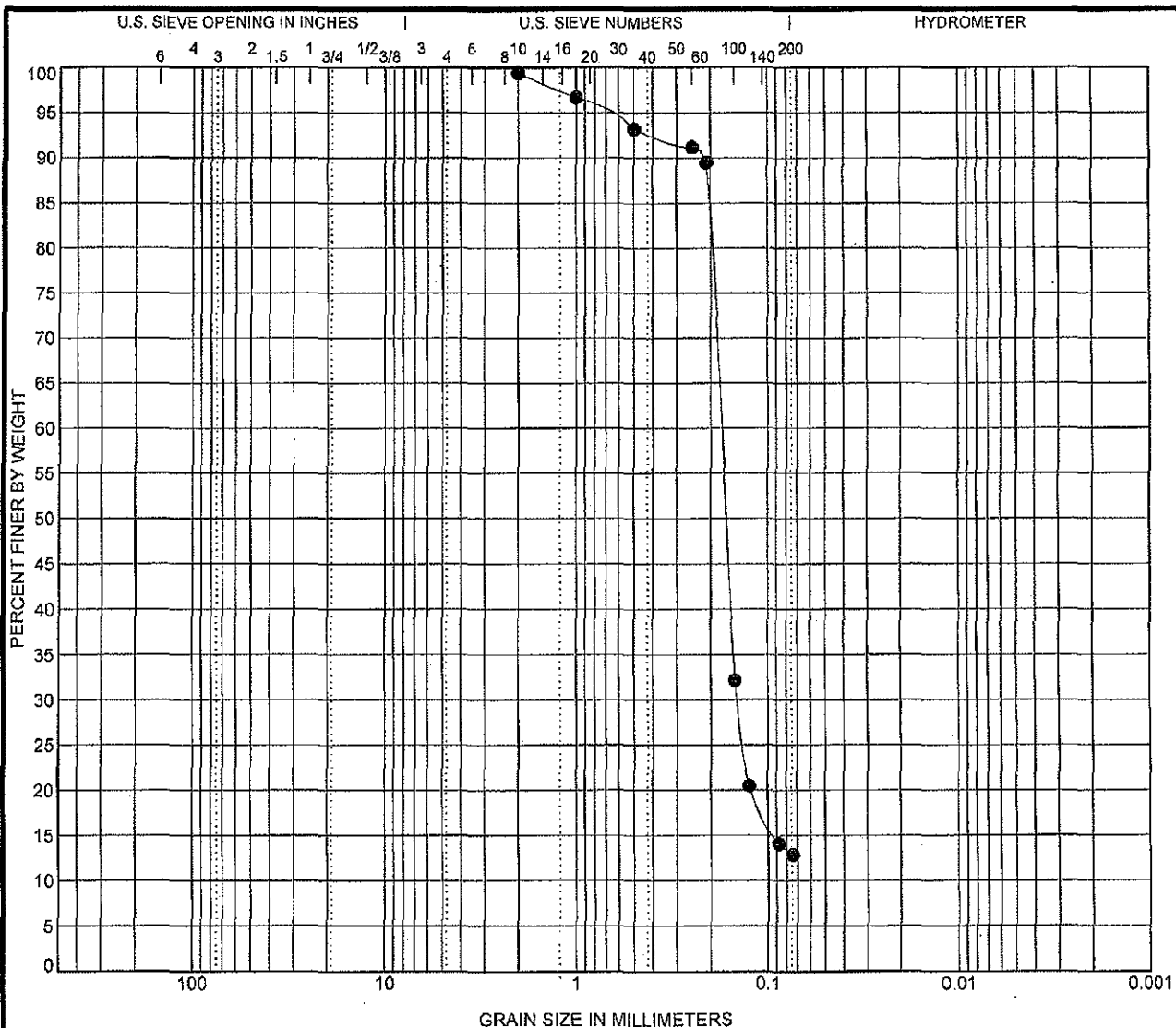
Specimen ID	Depth	Classification				LL	PL	PI	Cc	Cu
● AA-39	37.8'	AA-39 (-37.8' to -39.8' NAVD)							1.14	1.85
Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay	
● AA-39	37.8'	2	0.197	0.155	0.107	0.0				



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GRAIN SIZE DISTRIBUTION

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



Date: 10-16-09

Project Location:

BORING LOG
GALLISTON

Type: HSA

Boring No.: AA-39

Location:

Depth Feet	Symbol	Sample	N-Blows Per Foot	MATERIAL DESCRIPTION	H ₂ O on Rod H ₂ O Upon Comp. Cave Upon Comp.
1.0 2.5 29		1	1/1	Shell frag.	GPS 29.35159 94.77094
3.5 5.0 29		2	1/2	Same	"
6.0 7.5 31		3	1/2	Same Some Sand	DDW 27
8.5 10.0 33		4	1/2	Same	
11.0 12.5 35		5	1/2	grey silty sand w shell frag	
13.5 15.0 37		6	1/2	Same	
16.0 17.5 39		7	1/2	Grey fine toned sand	38 S
18.5 20.0 41		8			
21.0 22.5 43		9			
23.5 25.0 45		10			
26.0 27.5 47		11			
28.5 30.0 49		12			
31.0 32.5 51		13			

LOG OF BORING AA-39

SHEET 1 of 1



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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: 10/16/09 - 10/16/09

DRILLING METHOD(S):

Hollow Stem Auger

GROUNDWATER INFORMATION:

SURFACE ELEVATION: -27.82' NAVD

DESCRIPTION OF STRATUM

14' of material

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

Same as above.

Same as above, gray, loose.

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

Same as above, with clay.

Same as above, medium.

SILTY CLAYEY SAND, with shell fragments, gray, loose.

Boring was extended to an elevation of -41.8-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. 29.35159 W. 94.77094.

LOG OF BORING G109233 ANCHORAGE BASIN C.GPJ ROCK ETL GDT 11/30/09