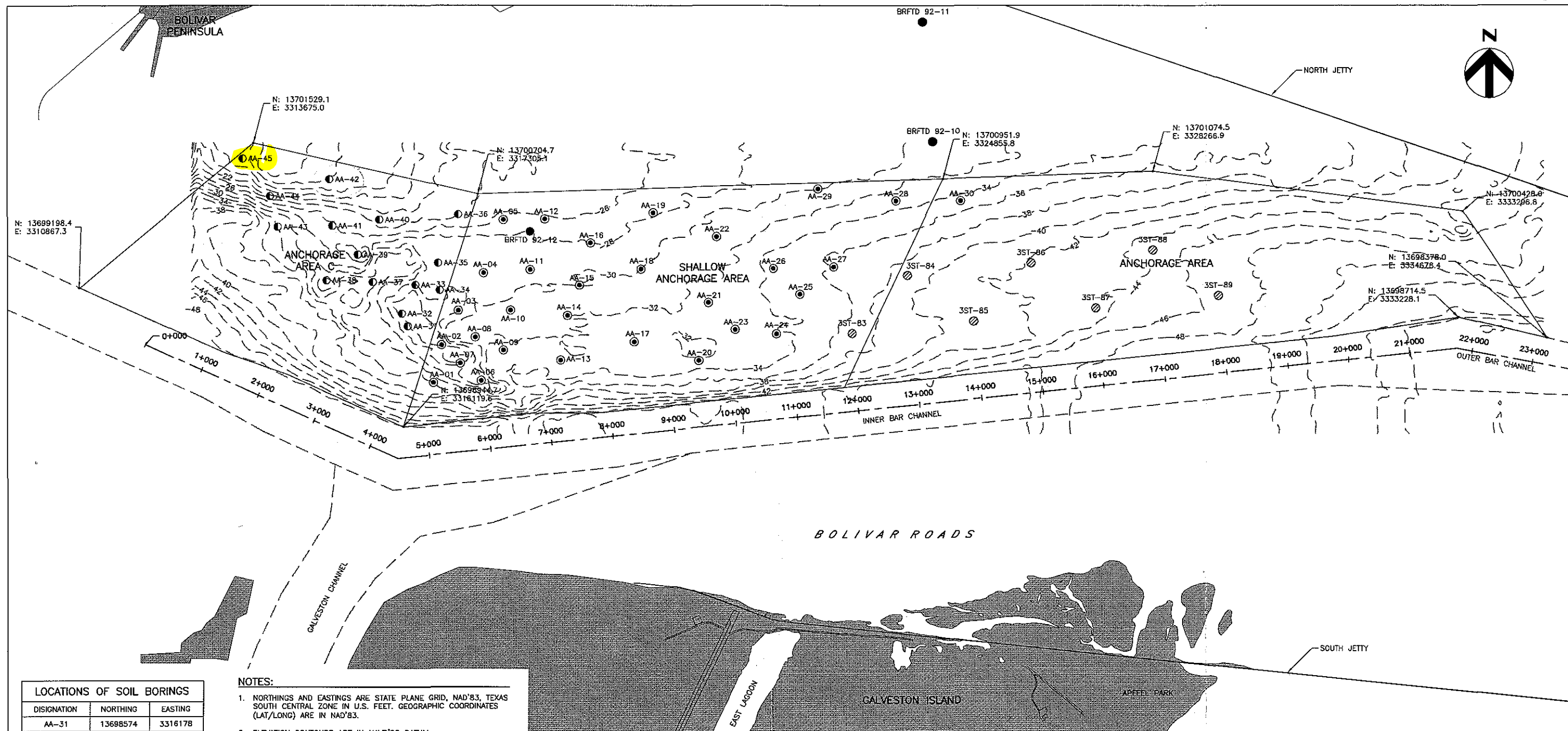


1391 Tech
Downers



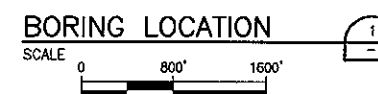
LOCATIONS OF SOIL BORINGS		
DISIGNATION	NORTHING	EASTING
AA-31	13698574	3316178
AA-32	13698778	3316085
AA-33	13699244	3316297
AA-34	13699156	3316692
AA-35	13699595	3316661
AA-36	13700379	3316989
AA-37	13699288	3315613
AA-38	13699316	3314867
AA-39	13699731	3315371
AA-40	13700296	3315711
AA-41	13700196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

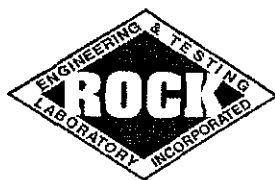
BORING ID.: AA-45

DESCRIPTION: Anchorage Area C Borrow Source Area

PERCENT SHELL BY WEIGHT (BASED ON #10 SIEVE)		
-13.60' to -15.60' NAVD	-19.60' to -21.60' NAVD	-23.60' to -25.60' NAVD
17.12	1.98	6.34

ASTM MESH	% FINER BY WEIGHT AFTER REMOVING SHELL		
	-13.60' to -15.60' NAVD	-19.60' to -21.60' NAVD	-23.60' to -25.60' NAVD
#10	100.00	100.00	100.00
#18	70.92	96.75	89.45
#35	64.53	96.04	87.00
#60	62.19	95.51	85.61
#70	61.05	94.91	84.04
#100	51.35	84.05	67.90
#120	43.83	54.77	45.27
#170	36.36	24.62	26.18
#200	31.08	13.76	17.47
STATISTICS (EXCLUDING SHELL)			
MEDIAN GRAIN SIZE (mm)	0.14	0.12	0.13
MEAN GRAIN SIZE (mm)	N/A	0.12	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-45
DESCRIPTION: Anchorage Area C Borrow Source Area

PERCENT SHELL BY WEIGHT (BASED ON #10 SIEVE)		
-27.60' to -29.60' NAVD	-31.60' to -33.60' NAVD	-33.60' to -35.60' NAVD
0.14	14.53	14.23

ASTM MESH	% FINER BY WEIGHT AFTER REMOVING SHELL		
	-27.60' to -29.60' NAVD	-31.60' to -33.60' NAVD	-33.60' to -35.60' NAVD
#10	100.00	100.00	100.00
#18	99.60	74.18	71.11
#35	99.30	64.54	56.43
#60	98.90	60.08	47.66
#70	98.00	58.16	45.02
#100	70.60	45.43	31.11
#120	37.50	34.31	18.95
#170	10.10	25.86	8.84
#200	0.90	23.67	6.50
STATISTICS (EXCLUDING SHELL)			
MEDIAN GRAIN SIZE (mm)	0.14	0.18	0.30
MEAN GRAIN SIZE (mm)	0.14	N/A	0.41
SORTING (σ)	0.38	N/A	N/A

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

BORING LOG					Boring No.: AA-45	
Date: 10-16-09					Location:	
Project Location:					Type: HSA	
Depth Feet	Symbol	Sample	Blows Per Foot	MATERIAL DESCRIPTION	H ₂ O on Red	H ₂ O Upon Comp. Cave Upon Comp.
1.0 18		1	10/10	Shell frag M.S.	GPS 29.35603	94.77663
2.5 20				Grey silt		
3.5 20		2				
5.0 22						
6.0 22		3	10/10	Shell frag (small sample)		
7.5 24						
8.5 24		4	2 1/2	Grey - ity sand		
10.0 26						
11.0 26		5	4 1/1	Same		
12.5 28						
13.5 28		6	1 1/4	Same		
15.0 30						
16.5 30		7	4 3/15	Same		
20.0 32						
23.5 32		8	10/15	Same		
25.0 34						
28.5 34		9	12 3/1	Same Shells on bottom (no picture)		
30.0 36						
33.5 36		10	10/24	Shell frag		
35.0 38						
38.5 38		11	4 1/2	Same		
40.0 40						
43.5		12				
45.0						
48.5		13				
50.0						