## PRELIMINARY INVESTIGATIONS OF SUBMERGED AREAS

Delivery Order Number 024 Date 11/10/04
Project Aransas Wildlife Refuge

Location ID Number J-33
Coordinates: X 2633032
Y 13233444
Water Depth 3.8
Pipe Length 15

Tide Staff Readings:

| | Time | Reading |
|---|---|---|
| Morning | | |
| Mid-Day | | |
| Evening | | |

**Push No. 1** Time 3:55
Weight of Pipe Penetration (WOP) 4.3 Comment SA CL soft
One-Hand Push (40-lb) Depth 5.1 Comments
soft CL
One-Hand Push (70-lb) Depth 6.3 Comments
soft CL shell frag.
Two-Hand Push to Refusal – Depth 7.4 Comments soft firm CL
Jig 9.2 Shell Bottom

**Push No. 2** Time 4:09
Weight of Pipe Penetration (WOP) 4.4 Comment soft CL
One-Hand Push (40-lb) Depth 5.0 Comments
One-Hand Push (70-lb) Depth 6.5 Comments soft to firm CL
Two-Hand Push to Refusal – Depth 8.0 Comments firm CL
Jig 9.7 Shell Bottom

Hand Proving Ring Penetrometer Test? yes
Hand Vane Shear Test?

Technician (Probe Handler) mike A. Recorder Gary L.

## HAND CONE PENETRATION TEST (CPT)

Delivery Order Number 024 Date 11/10/04
Project Aransas Wildlife Refuge

Location ID Number J-33 Weight of Proving Ring
Time 4:24 Weight of Rod Section

Weight of Rod Penetration 6.7 Number of Rods 4
Comments

| End Depth | Dial | No. Rods | Comment | End Depth | Dial | No. Rods | Comment |
|---|---|---|---|---|---|---|---|
| 7.0 | 68 | | soft CL | | | | |
| 7.3 | 39 | | " " | | | | |
| 7.6 | 44 | | " " | | | | |
| 7.9 | 83 | | " " | | | | |
| 8.0 | 74 | | " " | | | | |
| 8.3 | 112 | | soft/firm CL | | | | |
| 8.6 | 131 | | " " | | | | |
| 8.9 | 210 | | firm CL shell | | | | |
| 9.0 | 231 | | shell | | | | |

Comments

A83

877

**Hand Cone Penetrometer Test and Analysis:** RTB 12/07/04

**Project:** Aransas National Wildlife Ref. - BUS Site "J"
**Location:** Dunham Bay located outside of Rockport, TX
**Delivery Order #:** 0024
**Date of Testing:** 11/10/04 - 11/11/04

| Probing Results | | | | | |
|---|---|---|---|---|---|
| Resistance | Depth ' | Depth ' | MLT1' | MLT2' | Average |
| Weight of Pipe | 4.3 | 4.4 | -2.2 | -2.3 | -2.3 |
| 1 HP (40lbs) | 5.1 | 5.0 | -3.0 | -2.9 | -3.0 |
| 1 HP (70lbs) | 6.3 | 6.5 | -4.2 | -4.4 | -4.3 |
| 2 Hand Refusal | 7.4 | 8.0 | -5.3 | -5.9 | -5.6 |

| HCPT ID | ~ Bay Bottom (MLT in ft) | Water Depth (ft) | # of Rods | Rod End-depth (ft) | Thickness Soil Layer (ft) | Total Unit Wt. of Soil (pcf) | $N_k$ factor | Total Stress (psf) | Dial Reading | Dial Conv. X(lb) | Capacity $q_c$ (psi) | shear str. $S_u$ (psf) | Below Mudline (ft) | ~ Elev. MLT in ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J33 | -1.7 | 3.8 | 4 | 6.7 | 2.9 | 90 | 9 | 261.0 | 0 | 0.7 | 3.2 | 22 | 2.9 | -4.6 |
| | -1.7 | 3.8 | 4 | 7.0 | 3.2 | 105 | 12 | 597.0 | 68 | 22.1 | 24.5 | 245 | 3.2 | -4.9 |
| | -1.7 | 3.8 | 4 | 7.3 | 0.3 | 100 | 11 | 627.0 | 39 | 13.0 | 15.4 | 145 | 3.5 | -5.2 |
| | -1.7 | 3.8 | 4 | 7.6 | 0.3 | 105 | 12 | 658.5 | 44 | 14.5 | 17.0 | 149 | 3.8 | -5.5 |
| | -1.7 | 3.8 | 4 | 7.9 | 0.3 | 110 | 13 | 691.5 | 83 | 26.8 | 29.3 | 271 | 4.1 | -5.8 |
| | -1.7 | 3.8 | 4 | 8.0 | 0.1 | 105 | 12 | 702.0 | 74 | 24.0 | 26.4 | 259 | 4.2 | -5.9 |
| | -1.7 | 3.8 | 4 | 8.3 | 0.3 | 110 | 13 | 735.0 | 112 | 35.9 | 38.4 | 368 | 4.5 | -6.2 |
| | -1.7 | 3.8 | 4 | 8.6 | 0.3 | 110 | 13 | 768.0 | 131 | 41.9 | 44.3 | 432 | 4.8 | -6.5 |
| | -1.7 | 3.8 | 4 | 8.9 | 0.3 | 110 | 13 | 801.0 | 210 | 66.7 | 69.2 | 705 | 5.1 | -6.8 |
| | -1.7 | 3.8 | 4 | 9.0 | 0.1 | 110 | 13 | 812.0 | 231 | 73.3 | 75.8 | 777 | 5.2 | -6.9 |

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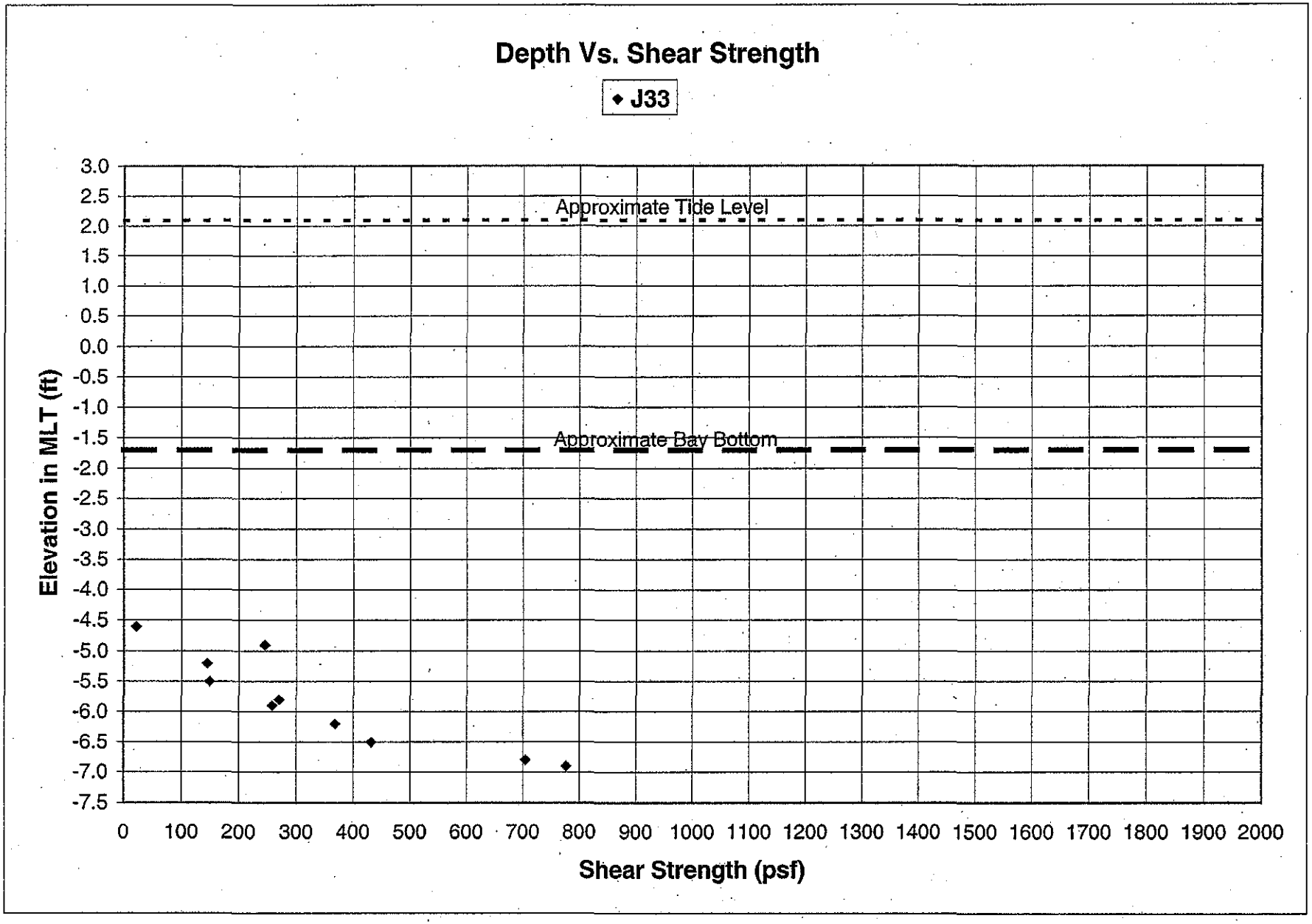
Depth Vs. Shear Strength
J33
Approximate Tide Level
Approximate Bay Bottom
Elevation in MLT (ft)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-4.5
-5.0
-5.5
-6.0
-6.5
-7.0
-7.5
0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000
Shear Strength (psf)