EUSTIS ENGINEERING SINCE 1946

# LOG OF BORING AND TEST RESULTS

**Ducks Unlimited, Inc.**
**Pierce Marsh Beneficial Use**
**Marsh Creation**
**Phase 1**
**North of West Bay Near Galveston Island**
**Galveston County, Texas**

## Boring: B-1

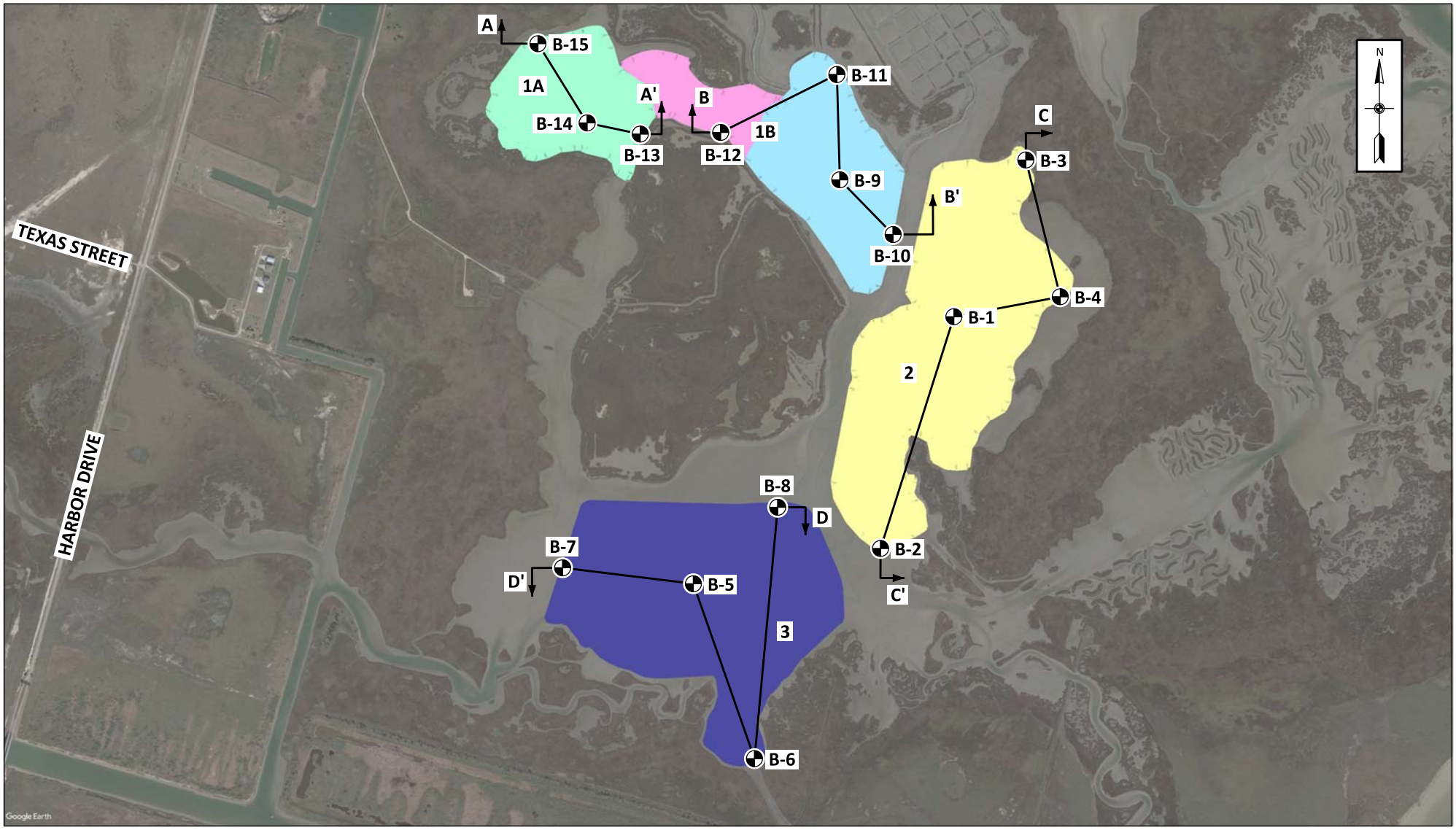
**Project No:** H0048
**Date:** 07/16/2022
**Latitude:** 29.31429°
**Longitude:** -94.96048°

**Water Depth:** See Text
**Total Depth:** 40.0 ft

| Scale in Feet | PP | SPT | SPLR | Symbol | Visual Classification | USC | Sample Number | Depth in Feet | Water Content % | Density Dry pcf | Density Wet pcf | Shear Tests Type | Shear Tests ϕ | Shear Tests C psf | Atterberg Limits LL | Atterberg Limits PL | Atterberg Limits PI | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0.25 | | | | Moist, soft tan & gray FAT CLAY | CH | 1A | 0 | 41 | | | | | | | | | |
| | | | | | | | 1B | 1 | 51 | 71 | 107 | OB | 0 | 201 | | | | |
| | 0.25 | | | | w/trace of fine sand pockets | | 2A | 2 | 53 | | | | | | | | | |
| | | | | | | | 2B | 3 | 53 | | | | | | | | | |
| | | | | | | | 3A | 4 | 50 | | | | | | | | | |
| 5 | 0.25 | | | | | | 3B | 5 | 48 | | | | | | 72 | 18 | 54 | |
| | | | | | Moist, medium stiff to stiff tan & gray FAT CLAY w/trace of fine sand pockets | CH | 4A | 6 | 35 | | | | | | | | | |
| | 0.50 | | | | | | 4B | 7 | 33 | 89 | 118 | OB | 0 | 701 | | | | |
| | | | | | | | 5A | 8 | 34 | | | | | | | | | |
| | 2.00 | | | | | | 5B | 9 | 29 | | | | | | | | | |
| 10 | | | | | | | 6A | 10 | 40 | | | | | | | | | |
| | 1.00 | | | | | | 6B | 11 | 34 | 89 | 119 | OB | 0 | 215 | | | | |
| | | | | | | | 7A | 12 | 42 | | | | | | | | | |
| | 1.00 | | | | | | 7B | 13 | 30 | | | | | | | | | |
| | | | | | | | 8A | 14 | 46 | | | | | | | | | |
| 15 | 0.50 | | | | Moist, soft to medium stiff reddish-tan & reddish-brown FAT CLAY | CH | 8B | 15 | 51 | | | | | | 77 | 22 | 55 | |
| | | | | | | | 9A | 16 | 32 | 90 | 119 | OB | 0 | 423 | | | | |
| | 0.50 | | | | | | 9B | 17 | 23 | | | | | | | | | |
| | | | | | Moist, stiff reddish-tan & gray fine SANDY LEAN CLAY | CL | 10A | 18 | 28 | | | | | | | | | |
| | 1.00 | | | | | | 10B | 19 | 28 | | | | | | | | | |
| 20 | | | | | Moist, stiff reddish-tan & reddish-brown FAT CLAY w/trace of fine sand pockets | CH | | | | | | | | | | | | |
| | | | | | | | 11A | 23 | 29 | | | | | | | | | |
| | 1.00 | | | | | | 11B | 24 | 29 | 94 | 121 | | | | | | | |
| 25 | | | | | | | | | | | | | | | | | | |
| | | | | | | | 12A | 28 | 31 | | | | | | | | | |
| | 1.00 | | | | | | 12B | 29 | 30 | | | | | | 73 | 19 | 54 | |
| 30 | | | | | Moist, stiff gray, reddish-tan, & brown LEAN CLAY w/trace of fine sand pockets | CL | | | | | | | | | | | | |
| | | | | | | | 13A | 33 | 24 | | | | | | | | | |
| | 1.00 | | | | | | 13B | 34 | 24 | 102 | 127 | | | | | | | |
| 35 | | | | | | | | | | | | | | | | | | |
| | | | | | | | 14A | 38 | 32 | | | | | | | | | |
| | 1.00 | | | | | | 14B | 39 | 25 | | | | | | | | | |
| 40 | | | | | | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | | | | |
| 50 | | | | | | | | | | | | | | | | | | |

EUSTIS_GINT_LIBRARY_4-18-2022.GLB EE STANDARD BORING LOG H0048.GPJ 8/18/22

**NOTES: Boring B-1 was drilled in 6 in. of water.**




SATELLITE IMAGERY DATED: JANUARY 2022

**NOT TO SCALE**

◓ DENOTES APPROXIMATE LOCATIONS OF SOIL BORINGS DRILLED BETWEEN 11 AND 18 JULY 2022

BORING LOCATION PLAN

PHASE 1
DUCKS UNLIMITED, INC.
PIERCE MARSH BENEFICIAL USE MARSH CREATION
NORTH OF WEST BAY NEAR GALVESTON ISLAND
GALVESTON COUNTY, TEXAS
DU CONTRACT NO. TX-0-2
DU PROJECT NO. TX-194-4
DU TASK ORDER NO. 1

EUSTIS ENGINEERING L.L.C. SINCE 1946

| | |
|---|---|
| DRAWN BY: S.T.S. | JOB NO.: H0048 |
| CHECKED BY: H.C.W. | DATE: 15 AUG 2022 |
| CADD FILE: LOCATION PLAN.DGN | FIGURE 2 |

C

B-3
G.S.E. -0.41
16 JUL 2022

B-4
G.S.E. 1.06
16 JUL 2022

B-1
G.S.E. -0.77
16 JUL 2022

B-2
G.S.E. -1.12
17 JUL 2022

C'

ELEVATION IN FEET (NAVD 88)

10
0
-10
-20
-30
-40
-50
-60

BORING MATERIAL GRAPHICS

FAT CLAY

LEAN CLAY

NOTE:

1. G.S.E. = GROUND SURFACE ELEVATION

SUBSURFACE SOIL PROFILE
MCA-2
PHASE 1
DUCKS UNLIMITED, INC.
PIERCE MARSH BENEFICIAL USE MARSH CREATION
NORTH OF WEST BAY NEAR GALVESTON ISLAND
GALVESTON COUNTY, TEXAS
DU CONTRACT NO. TX-0-2
DU PROJECT NO. TX-194-4
DU TASK ORDER NO. 1

EUSTIS ENGINEERING L.L.C. SINCE 1946

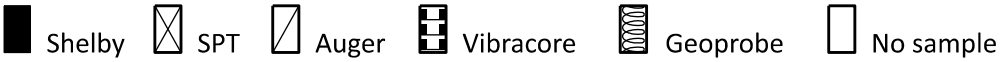
| | |
|---|---|
| DRAWN BY: S.T.S. | JOB NO.: H0048 |
| CHECKED BY: H.C.W. | DATE: 23 AUG 2022 |
| CADD FILE: PROFILE.DGN | FIGURE 3 (SHEET 3 OF 4) |

EUSTIS ENGINEERING SINCE 1946

# LEGEND AND NOTES FOR LOG OF BORING AND TEST RESULTS

PP Pocket penetrometer: Resistance in tons per square foot

SPT Standard Penetration Test: Number of blows of a 140-lb hammer dropped 30 inches required to drive 2-in. O.D., 1.4-in. I.D. sampler a distance of 1 foot into the soil after first seating it 6 inches. Values shown have not been corrected.

SPLR Type of Sampling  Shelby, SPT, Auger, Vibracore, Geoprobe, No sample

SYMBOL Clay, Silt, Sand, Peat/Humus, Shells, Stone/Gravel

Predominant type shown heavy; modifying type shown light

USC Unified Soil Classification

DENSITY Unit weight in pounds per cubic foot

SHEAR TESTS

TYPE

- UC Unconfined compression shear
- OB Unconsolidated undrained triaxial compression shear on one specimen confined at the approximate overburden pressure
- UU Unconsolidated undrained triaxial compression shear
- $\phi$ Angle of internal friction in degrees
- c Cohesion in pounds per square foot

ATTERBERG LIMITS

- LL Liquid Limit
- PL Plastic Limit
- PI Plasticity Index

OTHER TESTS

- CON Consolidation
- -#200 Percent passing a U.S. No. 200 sieve
- SV Particle size distribution (sieve only)
- PD Particle size distribution (sieve and hydrometer)
- k Coefficient of permeability in centimeters per second
- SP Swelling pressure in pounds per square foot

Other laboratory test results reported on separate figures

GENERAL NOTES

(1) If a ground water depth is shown on the boring log, these observations were made at the time of drilling and were measured below the existing ground surface. These observations are shown on the boring logs. However, ground water levels may vary due to seasonal fluctuations and other factors. If important to construction, the depth to ground water should be determined by those persons responsible for construction immediately prior to beginning work.

(2) While the individual logs of borings are considered to be representative of subsurface conditions at their respective locations on the dates shown, it is not warranted that they are representative of subsurface conditions at other locations and times.