



Quaternary Resource Investigations, LLC  
13588 Florida Boulevard  
Baton Rouge, LA 70820  
Telephone: 225-292-1400  
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# BORING NUMBER 13-B145

PAGE 1 OF 3

**CLIENT** USACE-Galveston District **PROJECT NAME** Sabine Neches Placement Area 8  
**PROJECT NUMBER** W912HY-13-D-0001-DY05 **PROJECT LOCATION** Port Arthur, TX  
**DATE STARTED** 2/10/2014 8:00:00 AM **COMPLETED** 2/14/2014 3:45:00 PM **GROUND ELEVATION** 21.2993 ft **HOLE SIZE** 8.25 inches  
**DRILLING CONTRACTOR** QRI **NORTHING** 13881419.39 ft **EASTING** 3568851.231 ft  
**DRILLING METHOD** Hollow Stem Auger **DRILLING RIG MAKE/MODEL** Mobile B57 on Gemco Articulated Platform  
**LOGGED BY** Pete Herold **TOTAL DEPTH** 80 ft **GROUND WATER LEVEL** ▽ AT TIME OF DRILLING 18.80 ft / Elev 2.50 ft  
**WEATHER** cloudy to partly sunny, foggy, calm to windy, 50s to 70s **▽ 15 MINUTES AFTER DRILLING** 14.30 ft / Elev 7.00 ft

COPY OF PEGGY LAKE GEOTECH BH - PEGGY LAKE TEMPLATE.GDT - 7/15/14 13:09 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\SABINE NECHES PA 8 FINAL EDITED.GPJ

| GRAPHIC LOG | USCS SYMBOL | MATERIAL DESCRIPTION                                                          | DEPTH (ft) | SAMPLE TYPE | RECOVERY (in) | SPT BLOW COUNTS (N VALUE) | POCKET PEN. (tsf) | FIELD TORVANE (tsf) | DRY UNIT WT. (pcf) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PLASTICITY INDEX | MINUS #200 SIEVE CONTENT (%) | COMPRESSION STRENGTH (tsf) | FAILURE STRAIN (%) | CONFINING PRESSURE (psi) |
|-------------|-------------|-------------------------------------------------------------------------------|------------|-------------|---------------|---------------------------|-------------------|---------------------|--------------------|----------------------|--------------|---------------|------------------|------------------------------|----------------------------|--------------------|--------------------------|
|             | CH          | Fat CLAY, light brown, stiff, with a trace of shell fragments 0'-33' and sand | 0          | ST          | 15            |                           | 4.1               |                     | 82                 | 42                   | 88           | 29            | 59               | 97                           | 1.63                       | 5                  |                          |
|             |             | dark gray and light brown mottled, stiff                                      | 5          | ST          | 9             |                           | 3.25              |                     | 88                 | 31                   |              |               |                  |                              |                            |                    |                          |
|             |             | dark gray, soft                                                               |            | ST          | 8             |                           | 1.5               |                     |                    | 60                   |              |               |                  |                              |                            |                    |                          |
|             |             | firm                                                                          |            | ST          | 12            |                           | 2.0               |                     | 67                 | 55                   |              |               |                  | 95                           | 0.28                       | 2                  |                          |
|             |             |                                                                               | 10         | ST          | 12            |                           | 1.0               |                     |                    | 72                   |              |               |                  |                              |                            |                    |                          |
|             |             | with sand seams 13'-28', stiff                                                |            | NR          |               |                           |                   |                     |                    |                      |              |               |                  |                              |                            |                    |                          |
|             |             | ▽ firm                                                                        | 15         | ST          | 16            |                           | 1.75              |                     | 59                 | 68                   | 106          | 35            | 71               | 99                           |                            |                    |                          |
|             |             |                                                                               |            | NR          |               |                           |                   |                     |                    |                      |              |               |                  |                              |                            |                    |                          |
|             |             | firm                                                                          |            | ST          | 17            |                           | 1.4               |                     |                    | 66                   |              |               |                  |                              |                            |                    |                          |
|             |             |                                                                               | 20         | NR          |               |                           |                   |                     |                    |                      |              |               |                  |                              |                            |                    |                          |
|             | CL          | CLAY with SAND, very soft, dark gray                                          | 25         | ST          | 20            |                           | 1.3               |                     | 88                 | 30                   |              |               |                  | 99                           | 0.16                       | 11                 | 16                       |
|             | CH          | Fat CLAY, dark gray, very soft                                                |            | NR          |               |                           |                   |                     |                    |                      |              |               |                  |                              |                            |                    |                          |
|             |             | firm                                                                          | 30         | ST          | 20            |                           | 1.4               |                     | 69                 | 57                   |              |               |                  | 78                           |                            |                    |                          |
|             |             | greenish gray and light brown mottled, very stiff                             | 35         | ST          | 18            |                           | 3.2               |                     |                    | 23                   |              |               |                  |                              |                            |                    |                          |

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CLIENT USACE-Galveston District

PROJECT NAME Sabine Neches Placement Area 8

PROJECT NUMBER W912HY-13-D-0001-DY05

PROJECT LOCATION Port Arthur, TX

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| GRAPHIC LOG | USCS SYMBOL | MATERIAL DESCRIPTION                                                              | DEPTH (ft) | SAMPLE TYPE | RECOVERY (in) | SPT BLOW COUNTS (N VALUE) | POCKET PEN. (tsf) | FIELD TORVANE (tsf) | DRY UNIT WT. (pcf) | MOISTURE CONTENT (%) | LIQUID LIMIT | PLASTIC LIMIT | PLASTICITY INDEX | MINUS #200 SIEVE CONTENT (%) | COMPRESSIVE STRENGTH (tsf) | FAILURE STRAIN (%) | CONFINING PRESSURE (psi) |
|-------------|-------------|-----------------------------------------------------------------------------------|------------|-------------|---------------|---------------------------|-------------------|---------------------|--------------------|----------------------|--------------|---------------|------------------|------------------------------|----------------------------|--------------------|--------------------------|
|             | CH          | Fat CLAY, dark gray, very soft (continued)                                        | 35         | ○ NR        |               |                           |                   |                     |                    |                      |              |               |                  |                              |                            |                    |                          |
|             | CL          | Lean CLAY, greenish gray and light brown mottled, firm                            | 40         | ■ ST        | 17            |                           | 3.1               |                     | 108                | 22                   | 36           | 17            | 19               | 91                           | 0.83                       | 3                  | 22                       |
|             |             | light brown and greenish gray mottled, with sand seams 43'-45' and cracks 43'-45' | 45         | ■ ST        | 18            |                           | 3.2               |                     |                    | 29                   |              |               |                  |                              |                            |                    |                          |
|             |             |                                                                                   |            | ○ NR        |               |                           |                   |                     |                    |                      |              |               |                  |                              |                            |                    |                          |
|             |             | very stiff                                                                        | 50         | ■ ST        | 18            |                           | 2.2               |                     | 92                 | 30                   |              |               |                  | 99                           | 0.76                       | 4                  |                          |
|             |             |                                                                                   |            | ○ NR        |               |                           |                   |                     |                    |                      |              |               |                  |                              |                            |                    |                          |
|             |             | very stiff                                                                        | 55         | ■ ST        | 20            |                           | 3.0               |                     |                    | 32                   |              |               |                  |                              |                            |                    |                          |
|             |             |                                                                                   |            | ○ NR        |               |                           |                   |                     |                    |                      |              |               |                  |                              |                            |                    |                          |
|             |             | Fat CLAY, dark gray, stiff                                                        | 60         | ■ ST        | 20            |                           | 2.7               |                     | 78                 | 43                   | 84           | 26            | 58               | 100                          |                            |                    |                          |
|             |             |                                                                                   |            | ■ ST        | 20            |                           | 2.5               |                     |                    | 46                   |              |               |                  |                              |                            |                    |                          |
|             | CH          | very stiff                                                                        | 65         | ■ ST        | 19            |                           | 3.2               |                     |                    | 49                   |              |               |                  |                              |                            |                    |                          |
|             |             |                                                                                   |            | ○ NR        |               |                           |                   |                     |                    |                      |              |               |                  |                              |                            |                    |                          |
|             |             | stiff                                                                             | 70         | ■ ST        | 17            |                           | 2.75              |                     | 92                 | 31                   |              |               |                  |                              |                            |                    |                          |
|             |             |                                                                                   |            | ○ NR        |               |                           |                   |                     |                    |                      |              |               |                  |                              |                            |                    |                          |
|             |             |                                                                                   | 75         | ■ ST        | 18            |                           | 2.7               |                     |                    | 25                   |              |               |                  |                              |                            |                    |                          |

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| GRAPHIC LOG                                                                       | USCS SYMBOL | MATERIAL DESCRIPTION                                    | DEPTH (ft) | SAMPLE TYPE | RECOVERY (in) | SPT BLOW COUNTS (N VALUE) | POCKET PEN. (tsf) | FIELD TORVANE (tsf) | DRY UNIT WT. (pcf) | MOISTURE CONTENT (%) | ATTERBERG LIMITS |               |                  |  | MINUS #200 SIEVE CONTENT (%) | COMPRESSIVE STRENGTH (tsf) | FAILURE STRAIN (%) | CONFINING PRESSURE (psi) |
|-----------------------------------------------------------------------------------|-------------|---------------------------------------------------------|------------|-------------|---------------|---------------------------|-------------------|---------------------|--------------------|----------------------|------------------|---------------|------------------|--|------------------------------|----------------------------|--------------------|--------------------------|
|                                                                                   |             |                                                         |            |             |               |                           |                   |                     |                    |                      | LIQUID LIMIT     | PLASTIC LIMIT | PLASTICITY INDEX |  |                              |                            |                    |                          |
|  | CH          | Fat CLAY, dark gray, stiff <i>(continued)</i>           | 75         | ○ NR        |               |                           |                   |                     |                    |                      |                  |               |                  |  |                              |                            |                    |                          |
|                                                                                   |             | light greenish gray and light brown mottled, very stiff | 80         | ■ ST        | 20            |                           | 3.5               |                     |                    | 31                   |                  |               |                  |  |                              |                            |                    |                          |

Bottom of borehole at 80.0 feet.