NOTES:
1. HORIZONTAL COORDINATES ARE REFERENCED TO THE TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD 83.
2. ELEVATIONS ARE REFERENCED TO NAV 83.
3. Underground utilities exist at the site and include but are not limited to: water, sewer, gas, electric, and possibly petroleum pipelines. Underground utilities in the work area shall be located by a private utility locating service prior to drilling.
### BORING LOG NO. 13-B1

**CLIENT:** Quaternary Resource Investigations  
Baton Rouge, Louisiana  

**PROJECT:** Cedar Bayou - Alternate 47

**BORING LOCATION:**  
N: 13824519  
E: 3256691  

**SITE:** New Placement Area  
Cedar Bayou, Texas

---

### Approx. Surface Elevation: 18.2 feet

**FAT CLAY**  
dark gray, light gray, and tan,  
medium stiff to stiff, high  
plasticity, uniform, moist  
- with scattered roots and  
calcareous nodules 0 to 6 feet

**LEAN CLAY**  
light gray and tan, stiff to very  
stiff, medium plasticity, moist,  
with silt pockets

**FAT CLAY**  
light gray, tan, and reddish  
brown, stiff to very stiff, moist  
- with silt pockets 16 to 20 feet  

- with ferrous stains below 38  
feet

Boring terminated at 40 feet.

---

**FREE WATER WAS NOT OBSERVED DURING DRY DRILLING OPERATIONS**

---

**WATER LEVEL OBSERVATIONS**

<table>
<thead>
<tr>
<th>Date</th>
<th>Free Water</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☑</td>
<td></td>
</tr>
<tr>
<td>☐</td>
<td>☑</td>
<td>☐</td>
</tr>
</tbody>
</table>

---

**DATE DRILLED**  
3/14/2013  

**PROJECT NUMBER**  
92135100

---

**EXHIBIT A-4**

---

**STRAINIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES. IN SITU, THE TRANSITION BETWEEN STRATA MAY BE MORE GRADUAL.**

---

**REMARKS:** Hollow stem to 40 feet.
**BORING LOG NO. 13-B2**

**CLIENT:** Quaternary Resource Investigations  
  Baton Rouge, Louisiana

**PROJECT:** Cedar Bayou - Alternate 47

**BORING LOCATION:**  
  N: 13824926  
  E: 3256579

**SITE:** New Placement Area  
  Cedar Bayou, Texas

---

### Graphic Log

**Approx. Surface Elevation:** 18.1 feet

### Description

**FAT CLAY**  
- gray, light gray, and tan, stiff to very stiff, high plasticity, moist  
- with scattered roots 0 to 6 feet

**LEAN CLAY**  
- light gray and tan, very stiff, medium plasticity, dry, with silt pockets  
- with ferrous stains 16 to 18 feet

Boring terminated at 20 feet.

---

### STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES. IN SITU, THE TRANSITION BETWEEN STRATA MAY BE MORE GRADUAL.

---

### WATER LEVEL OBSERVATIONS

FREE WATER WAS NOT OBSERVED DURING DRY DRILLING OPERATIONS

---

### REMARKS

Hollow stem to 20 feet.

---

### Date Drilled

3/17/2013

---

### Project Number

92135100

---

### Exhibit A-5

---

**PLATE NO. C-03**
**BORING LOG NO. 13-B3**

**CLIENT:** Quaternary Resource Investigations  
Baton Rouge, Louisiana  

**PROJECT:** Cedar Bayou - Alternate 47

**SITe:** Cedar Bayou, Texas

**TYPe**  | **DEPTH, FEET**
--- | ---
**FAT CLAY**  | 1
  - light gray, tan, and gray, stiff to hard, high plasticity, moist  
  - with calcareous nodules 6 to 8 feet  
  | 8.0

**LEAN CLAY**  | 10.0
  - light gray and tan, very stiff, medium plasticity, dry, with silt seams  
  | 12.0

**SILTY CLAY**  | 14.0
  - light gray and tan, very stiff, low plasticity, dry, with silt seams  
  | 16.0

**FAT CLAY**  | 19.0
  - light gray and tan, very stiff, high plasticity, moist  
  - with slickensides 32 to 34 feet  
  | 20.0

**LEAN CLAY**  | 20.0
  - light gray, tan, and reddish brown, very stiff, medium plasticity, dry, with silt pockets  
  | 21.0

**FAT CLAY**  | 21.0
  - reddish brown, light gray, and gray, stiff to very stiff, high plasticity, moist  
  - with peat seams 40 to 42 feet  
  - with organics 42 to 44 feet  
  - with ferrous stains 44 to 46 feet  
  - with calcareous nodules 46 to 48 feet  
  | 22.0

**STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES. IN SITU, THE TRANSITION BETWEEN STRATA MAY BE MORE GRADUAL.**

**WATER LEVEL OBSERVATIONS**

FREE WATER WAS NOT OBSERVED DURING DRY DRILLING OPERATIONS

**DATE DRILLED** 3/13/2013

**PROJECT NUMBER** 92135100

**EXHIBIT A-6**

**PLATE NO. C-04**
### BORING LOG NO. 13-B3

**CLIENT:** Quaternary Resource Investigations  
**PROJECT:** Cedar Bayou - Alternate 47  
**SITE:** New Placement Area  
**BORING LOCATION:** N: 13825398  
**E: 3257057**

#### DESCRIPTION

**Approx. Surface Elevation:** 18.0 feet

**FAT CLAY**
- reddish brown, light gray, and gray, stiff to very stiff, high plasticity, moist
- with ferrous stains 52 to 54 feet
- with calcareous nodules 56 to 58 feet

Boring terminated at 60 feet.

#### GRAPHIC LOG

<table>
<thead>
<tr>
<th>Depth, Feet</th>
<th>USCS Symbol</th>
<th>Type</th>
<th>Recovery, in</th>
<th>SPT Blows/ft</th>
<th>Calibrated Hand Penetrom. TSF</th>
<th>Moisture Content, %</th>
<th>Liquid Limit, %</th>
<th>Plastic Limit, %</th>
<th>Compressive Strength, TSF</th>
<th>Plasticity Index</th>
<th>Failure Strain, %</th>
<th>Confining Pressure, PSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>51.0</td>
<td>ST</td>
<td>15.5</td>
<td>2.25</td>
<td>43</td>
<td>76</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50.5</td>
<td>ST</td>
<td>19.5</td>
<td>2.25</td>
<td>41</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50.0</td>
<td>ST</td>
<td>12</td>
<td>2.25</td>
<td>31</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>49.5</td>
<td>ST</td>
<td>20.5</td>
<td>2.5</td>
<td>25</td>
<td>97</td>
<td>58</td>
<td>20</td>
<td>38</td>
<td>96</td>
<td>1.78</td>
<td>13</td>
<td>24</td>
</tr>
<tr>
<td>49.0</td>
<td>ST</td>
<td>17.5</td>
<td>2.5</td>
<td>27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**WATER LEVEL OBSERVATIONS**

<table>
<thead>
<tr>
<th>Water Level</th>
<th>Observed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**FREE WATER WAS NOT OBSERVED DURING DRY DRILLING OPERATIONS**

**REMARKS:** Hollow stem to 60 feet.

**DATE DRILLED:** 3/13/2013  
**PROJECT NUMBER:** 92135100  
**EXHIBIT A-6**

**PLATE NO. C-04**
### Graphic Log

#### Approx. Surface Elevation: 16.2 feet

<table>
<thead>
<tr>
<th>Depth, Feet</th>
<th>USCS Symbol</th>
<th>Type</th>
<th>Recovery, In</th>
<th>SPT, Blows/FT</th>
<th>Calibrated Hand Penetrometer, TSF</th>
<th>Moisture Content, %</th>
<th>Dry Density, PCF</th>
<th>Minus #200 Sieve, %</th>
<th>Torvane, TSF</th>
<th>Plasticity Index</th>
<th>Plastic Limit, %</th>
<th>Liquid Limit, %</th>
<th>Compressive Strength, TSF</th>
<th>Failure Strain, %</th>
<th>Confining Pressure, PSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>CH</td>
<td>ST 8</td>
<td>2.0</td>
<td>31</td>
<td>66</td>
<td>24</td>
<td>42</td>
<td>91</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ST 17</td>
<td>1.5</td>
<td>32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ST 12</td>
<td>2.0</td>
<td>26</td>
<td>95</td>
<td>74</td>
<td>19</td>
<td>55</td>
<td>97</td>
<td>4.02</td>
<td>8</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ST 9</td>
<td>4.5</td>
<td>25</td>
<td>99</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ST 9</td>
<td>3.0</td>
<td>24</td>
<td>65</td>
<td>21</td>
<td>44</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ST 10</td>
<td>3.0</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ST 18</td>
<td>1.5</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ST 12</td>
<td>3.5</td>
<td>23</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ST 11</td>
<td>3.75</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ST 13</td>
<td>2.0</td>
<td>34</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Remarks:
- Hollow stem to 20 feet.

### BORING LOG NO. 13-B4

**CLIENT:** Quaternary Resource Investigations
**Location:** Baton Rouge, Louisiana

**PROJECT:** Cedar Bayou - Alternate 47
**Site:** New Placement Area
**Location:** Cedar Bayou, Texas

**Boring Location:**
- N: 13825643
- E: 3257568

**Date Drilled:** 3/12/2013
**Project Number:** 92135100

**Exhibit A-7**

**Remarks:** Hollow stem to 20 feet.

**WATER LEVEL OBSERVATIONS**
- **Observations:**
  - Water level observed during dry drilling operations.
  - Free water was not observed during dry drilling operations.
**Boring Log No. 13-B5**

**Client:** Quaternary Resource Investigations  
**Location:** Baton Rouge, Louisiana

**Site:** New Placement Area  
**Location:** Cedar Bayou, Texas

---

### Boring Log

#### Description

**Approx. Surface Elevation:** 14.6 feet

**Fat Clay**
- Gray, reddish brown, and tan, stiff to very stiff, high plasticity, dry
- With calcareous nodules 4 to 6 feet

**Fat Clay w/ Sand**
- Light gray and tan, very stiff, high plasticity, moist, with silt pockets

**Fat Clay**
- Light gray, tan, and reddish brown, stiff to very stiff, high plasticity, moist
- With silt pockets and calcareous nodules 12 to 14 feet

- With ferrous stains 30 to 32 feet

- With calcareous nodules 48 to 50 feet

---

### Laboratory Tests

<table>
<thead>
<tr>
<th>Depth, Feet</th>
<th>USCS Symbol</th>
<th>Recovery, In</th>
<th>SPT Blows/Ft</th>
<th>Moisture Content, %</th>
<th>Dry Density, PCF</th>
<th>Plastic Limit, %</th>
<th>Liquid Limit, %</th>
<th>Compressive Strength, TSF</th>
<th>Failure Strain, %</th>
<th>Plasticty Index</th>
<th>Confining Pressure, PSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>CH ST 13.5</td>
<td>2.75</td>
<td>27 92</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.5</td>
<td>CH ST 13</td>
<td>2.5</td>
<td>30 91 70 24</td>
<td>46 96 1.69 6 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.6</td>
<td>CH ST 12.5</td>
<td>4.5</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.0</td>
<td>CH ST 11</td>
<td>4.25</td>
<td>24 101</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.0</td>
<td>CH ST 13</td>
<td>2.25</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.0</td>
<td>CH ST 12</td>
<td>2.75</td>
<td>22 105 52 17</td>
<td>35 81</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.0</td>
<td>CH ST 10</td>
<td>2.75</td>
<td>21</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.0</td>
<td>CH ST 9</td>
<td>2.0</td>
<td>32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.0</td>
<td>CH ST 13</td>
<td>2.0</td>
<td>28 95 77 22</td>
<td>55 100 1.47 3 7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20.0</td>
<td>CH ST 11</td>
<td>1.5</td>
<td>42</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.0</td>
<td>CH ST 13</td>
<td>2.0</td>
<td>34 89 83 25</td>
<td>58 100 1.57 2 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24.0</td>
<td>CH ST 16</td>
<td>2.75</td>
<td>34</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.0</td>
<td>CH ST 17.5</td>
<td>2.25</td>
<td>38 84</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28.0</td>
<td>CH ST 10</td>
<td>3.0</td>
<td>33</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30.0</td>
<td>CH ST 15</td>
<td>3.0</td>
<td>32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32.0</td>
<td>CH ST 18</td>
<td>2.75</td>
<td>39</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34.0</td>
<td>CH ST 20.5</td>
<td>2.5</td>
<td>39 82 102 27</td>
<td>75 100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36.0</td>
<td>CH ST 18</td>
<td>2.75</td>
<td>41</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>38.0</td>
<td>CH ST 19</td>
<td>2.5</td>
<td>41 81</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40.0</td>
<td>CH ST 20</td>
<td>2.0</td>
<td>45 77</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>42.0</td>
<td>CH ST 14.5</td>
<td>2.5</td>
<td>37</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>44.0</td>
<td>CH ST 19</td>
<td>2.25</td>
<td>41</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>46.0</td>
<td>CH ST 20</td>
<td>2.25</td>
<td>39 81 95 30</td>
<td>65 92 1.39 4 19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>48.0</td>
<td>CH ST 15</td>
<td>1.75</td>
<td>41</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50.0</td>
<td>CH ST 19</td>
<td>1.75</td>
<td>41</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Remarks:** Hollow stem to 60 feet.

---

### Water Level Observations

- Free water was not observed during dry drilling operations.

---

**Date Drilled:** 3/14/2013  
**Project Number:** 92135100  
**Exhibit A-8**

**Page 1 of 2**

---

**Plate No. C-06**
### BORING LOG NO. 13-B5

**CLIENT:** Quaternary Resource Investigations  
Baton Rouge, Louisiana

**PROJECT:** Cedar Bayou - Alternate 47

**BORING LOCATION:**  
N: 13826062  
E: 3257978

**SITE:** New Placement Area  
Cedar Bayou, Texas

---

#### DESCRIPTION

**Approx. Surface Elevation:** 14.6 feet

**FAT CLAY**

light gray, tan, and reddish brown, stiff to very stiff, high plasticity, moist  
- with calcareous nodules below 56 feet

Boring terminated at 60 feet.

---

#### TESTS

<table>
<thead>
<tr>
<th>DEPTH, FEET</th>
<th>USCS SYMBOL</th>
<th>TYPE</th>
<th>RECOVERY, IN</th>
<th>SPT, BLOWS/FT</th>
<th>CALIBRATED HAND PENETROM., TSF</th>
<th>MOISTURE CONTENT, %</th>
<th>DRY DENSITY, PCF</th>
<th>LIQUID LIMIT, %</th>
<th>PLASTIC LIMIT, %</th>
<th>COMPRESSIVE STRENGTH, TSF</th>
<th>FAILURE STRAIN, %</th>
<th>CONFINING PRESSURE, PSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.5</td>
<td>ST</td>
<td>14.5</td>
<td>2.25</td>
<td>37</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>ST</td>
<td>17</td>
<td>2.25</td>
<td>26</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.5</td>
<td>ST</td>
<td>14.5</td>
<td>3.0</td>
<td>33</td>
<td>87</td>
<td>69</td>
<td>25</td>
<td>44</td>
<td>97</td>
<td>1.00</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>ST</td>
<td>18</td>
<td>2.5</td>
<td>33</td>
<td>88</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>ST</td>
<td>11</td>
<td>2.5</td>
<td>32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**FREE WATER WAS NOT OBSERVED DURING DRY DRILLING OPERATIONS**

---

**WATER LEVEL OBSERVATIONS**

<table>
<thead>
<tr>
<th>DATE DRILLED</th>
<th>PROJECT NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/14/2013</td>
<td>92135100</td>
</tr>
</tbody>
</table>

---

**EXHIBIT A-8**

---

**REMARKS:** Hollow stem to 60 feet.
### Graphic Log

**Approx. Surface Elevation:** 13.0 feet

**FILL: FAT CLAY**
- light gray and tan, stiff to very stiff, high plasticity, moist
- with scattered roots 0 to 4 feet
- 7.0 feet

**FILL: SILTY SAND**
- light gray and tan, non-plastic, fine-grained, wet, with clay seams
- 5.0 feet

**FAT CLAY**
- light gray and tan, medium stiff to stiff, high plasticity, moist
- with ferrous stains 12 to 14 feet
- 3.0 feet

**FAT CLAY w/ SAND**
- light gray and tan, medium stiff, high plasticity, moist
- 5.0 feet

**LEAN CLAY w/ SAND**
- light gray and tan, stiff, medium plasticity, moist, with silt pockets and ferrous stains
- 11.0 feet

**SANDY LEAN CLAY**
- light gray and tan, stiff, medium plasticity, moist, with silt pockets
- 3.0 feet

**FAT CLAY**
- reddish brown, light gray, and gray, stiff to very stiff, high plasticity, moist
- with ferrous stains 42 to 44 feet
- 33.0 feet

**SANDY LEAN CLAY**
- gray, stiff, medium plasticity, wet, with silt pockets
- 35.0 feet

**CONTINUED NEXT PAGE**

---

**WATER LEVEL OBSERVATIONS**

<table>
<thead>
<tr>
<th>Location</th>
<th>Depth (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WD</td>
<td>55</td>
</tr>
</tbody>
</table>

**SITE:**

- New Placement Area
- Cedar Bayou, Texas

---

**DATE DRILLED**

- 3/15/2013

**PROJECT NUMBER**

- 92135100

**EXHIBIT A-9**

---

**Plate No. C-07**
Boring terminated at 60 feet.
### BORING LOG NO. 13-B7

**CLIENT:** Quaternary Resource Investigations  
**PROJECT:** Cedar Bayou - Alternate 47  
**BORING LOCATION:**  
N: 13826140  
E: 3259178  
**SITE:** New Placement Area  
**DATE DRILLED:** 3/16/2013

#### DESCRIPTION

**Approx. Surface Elevation:** 12.6 feet

- **FILL: LEAN CLAY**
  - light gray and tan, stiff, medium plasticity, moist
  - with scattered roots and gravel
  - 0 to 2 feet
  - with silt pockets 2 to 4 feet

- **FAT CLAY**
  - light gray and tan, medium stiff to very stiff, high plasticity, moist
  - with silt pockets 8 to 12 feet

- **SANDY LEAN CLAY**
  - light gray, tan, and reddish brown, stiff to very stiff, medium plasticity, moist
  - 0.4

- **FAT CLAY**
  - light gray and tan, very stiff, high plasticity, moist
  - 13.0

- **FAT CLAY**
  - light gray and tan, very stiff, high plasticity, moist
  - 18.0

- **FAT CLAY**
  - with ferrous stains 18 to 20 feet

- **SILTY CLAYEY SAND**
  - light gray and tan, loose to medium dense, low plasticity, fine-grained, uniform, wet
  - 26.0

- **FAT CLAY**
  - light gray, tan, and reddish brown, medium stiff to very stiff, high plasticity, moist
  - 26 feet

- **FAT CLAY**
  - with sand pockets 46 to 50 feet

### WATER LEVEL OBSERVATIONS

- 61 ft WD
- 2 ft CD

### Remarks

- Hollow stem to 80 feet.

---

**SITE:** Cedar Bayou, Louisiana

---

**WATER LEVEL OBSERVATIONS**

- 61 ft WD
- 2 ft CD

---

**DATE DRILLED**

3/16/2013

---

**EXHIBIT A-10**

---

**PLATE NO. C-08**
FAT CLAY w/ SAND
gray, medium stiff, high plasticity, moist

FAT CLAY
gray, stiff, high plasticity, moist
- with calcareous nodules 58 to 60 feet

SANDY LEAN CLAY
gray, stiff, medium plasticity, wet
POORLY GRADED SAND w/ SILT
gray and light gray, very dense, non-plastic, fine-grained, uniform, wet

POORLY GRADED SAND
light gray, medium dense to very dense, non-plastic, fine-grained, uniform, wet

Boring terminated at 80 feet.

---

**WATER LEVEL OBSERVATIONS**

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>WD</th>
<th>DS</th>
</tr>
</thead>
<tbody>
<tr>
<td>61</td>
<td></td>
<td></td>
</tr>
<tr>
<td>80</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS:**
Hollow stem to 80 feet.
### Fat Clay
- Dark gray, light gray, and tan, stiff to very stiff, high plasticity, moist, with scattered roots
- Approx. Surface Elevation: 15.0 feet

<table>
<thead>
<tr>
<th>Depth, Feet</th>
<th>Type</th>
<th>Recovery, In</th>
<th>SPT Blows/ft</th>
<th>Calibrated Hand Penetration, TSF</th>
<th>Moisture Content, %</th>
<th>Torvane TSF</th>
<th>Moisture Limit, %</th>
<th>Plasticity Limit, %</th>
<th>Compressive Strength, TSF</th>
<th>Plasticity Index</th>
<th>Failure Strain, %</th>
<th>Confining Pressure, PSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>CH</td>
<td>2.5</td>
<td>36</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.0</td>
<td>CH</td>
<td>2.5</td>
<td>26 93 66 20 46 92 1.32 8 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.0</td>
<td>CL</td>
<td>4.5</td>
<td>14 114</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.0</td>
<td>CL</td>
<td>4.5</td>
<td>15 110</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.0</td>
<td>CH</td>
<td>4.25</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Lean Clay
- Light gray, tan, and reddish brown, stiff to very stiff, medium plasticity, dry, with silt pockets

<table>
<thead>
<tr>
<th>Depth, Feet</th>
<th>Type</th>
<th>Recovery, In</th>
<th>SPT Blows/ft</th>
<th>Calibrated Hand Penetration, TSF</th>
<th>Moisture Content, %</th>
<th>Torvane TSF</th>
<th>Moisture Limit, %</th>
<th>Plasticity Limit, %</th>
<th>Compressive Strength, TSF</th>
<th>Plasticity Index</th>
<th>Failure Strain, %</th>
<th>Confining Pressure, PSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.0</td>
<td>CL</td>
<td>4.5</td>
<td>14 114</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.0</td>
<td>CL</td>
<td>4.5</td>
<td>15 110</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.0</td>
<td>CH</td>
<td>4.25</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Fat Clay
- Light gray and tan, medium stiff to very stiff, high plasticity, damp, with ferrous stains
- With calcareous nodules and silt pockets 8 to 10 feet
- With slickensides 10 to 12 feet

<table>
<thead>
<tr>
<th>Depth, Feet</th>
<th>Type</th>
<th>Recovery, In</th>
<th>SPT Blows/ft</th>
<th>Calibrated Hand Penetration, TSF</th>
<th>Moisture Content, %</th>
<th>Torvane TSF</th>
<th>Moisture Limit, %</th>
<th>Plasticity Limit, %</th>
<th>Compressive Strength, TSF</th>
<th>Plasticity Index</th>
<th>Failure Strain, %</th>
<th>Confining Pressure, PSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.0</td>
<td>CH</td>
<td>4.25</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.0</td>
<td>CH</td>
<td>4.25</td>
<td>28 91</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.0</td>
<td>CH</td>
<td>4.25</td>
<td>30 93</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.0</td>
<td>CH</td>
<td>4.25</td>
<td>30 93</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Lean Clay
- Light gray and tan, very stiff, medium plasticity, damp, with silt pockets

<table>
<thead>
<tr>
<th>Depth, Feet</th>
<th>Type</th>
<th>Recovery, In</th>
<th>SPT Blows/ft</th>
<th>Calibrated Hand Penetration, TSF</th>
<th>Moisture Content, %</th>
<th>Torvane TSF</th>
<th>Moisture Limit, %</th>
<th>Plasticity Limit, %</th>
<th>Compressive Strength, TSF</th>
<th>Plasticity Index</th>
<th>Failure Strain, %</th>
<th>Confining Pressure, PSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.0</td>
<td>CL</td>
<td>2.5</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.0</td>
<td>CL</td>
<td>2.5</td>
<td>34 86</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.0</td>
<td>CL</td>
<td>2.5</td>
<td>38</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.0</td>
<td>CL</td>
<td>2.5</td>
<td>40 82</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.0</td>
<td>CL</td>
<td>2.5</td>
<td>39</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Fat Clay
- Light gray, tan, and reddish brown, stiff to very stiff, high plasticity, damp
- With calcareous nodules 48 to 50 feet

<table>
<thead>
<tr>
<th>Depth, Feet</th>
<th>Type</th>
<th>Recovery, In</th>
<th>SPT Blows/ft</th>
<th>Calibrated Hand Penetration, TSF</th>
<th>Moisture Content, %</th>
<th>Torvane TSF</th>
<th>Moisture Limit, %</th>
<th>Plasticity Limit, %</th>
<th>Compressive Strength, TSF</th>
<th>Plasticity Index</th>
<th>Failure Strain, %</th>
<th>Confining Pressure, PSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.0</td>
<td>CH</td>
<td>2.25</td>
<td>30 91 62 21 41 99</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23.0</td>
<td>CH</td>
<td>2.25</td>
<td>34 86</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24.0</td>
<td>CH</td>
<td>2.25</td>
<td>38</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.0</td>
<td>CH</td>
<td>2.25</td>
<td>40 82</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.0</td>
<td>CH</td>
<td>2.25</td>
<td>39</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Remarks:
- Hollow stem to 60 feet.
## BORING LOG NO. 13-B8

**CLIENT:** Quaternary Resource Investigations  
Baton Rouge, Louisiana

**PROJECT:** Cedar Bayou - Alternate 47

**BORING LOCATION:**  
N: 13825760  
E: 3259559

**SITE:**  
New Placement Area  
Cedar Bayou, Texas

#### Graphic Log

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>DEPTH, FEET</th>
<th>USCS SYMBOL</th>
<th>TYPE</th>
<th>RECOVERY, IN</th>
<th>SPT, BLOWS/FT</th>
<th>MOISTURE CONTENT, %</th>
<th>DRY DENSITY, PCF</th>
<th>MINUS #200 SIEVE, %</th>
<th>LIQUID LIMIT, %</th>
<th>PLASTIC LIMIT, %</th>
<th>COMPRESSIVE STRENGTH, TSF</th>
<th>PLASTICITY INDEX</th>
<th>CONFINING PRESSURE, PSI</th>
<th>FAILURE STRAIN, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAT CLAY</td>
<td>-41.0</td>
<td>51</td>
<td>ST</td>
<td>10</td>
<td>3.0</td>
<td>25</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>16</td>
<td>2.75</td>
<td>27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12</td>
<td>2.25</td>
<td>22</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FAT CLAY w/ SAND</td>
<td>-45.0</td>
<td>57</td>
<td>CH</td>
<td>13</td>
<td>2.75</td>
<td>22</td>
<td>102</td>
<td>82</td>
<td>1.33</td>
<td>14</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10.5</td>
<td>3.0</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Boring terminated at 60 feet.

**STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES. IN SITU, THE TRANSITION BETWEEN STRATA MAY BE MORE GRADUAL.**

**REMARKS:** Hollow stem to 60 feet.
**BORING LOG NO. 13-B9**

**Client:** Quaternary Resource Investigations  
**Project:** Cedar Bayou - Alternate 47  
**Location:** N: 13825129  
**E: 3258916**  
**Site:** New Placement Area

**Description:** Approx. Surface Elevation: 18.9 feet

**Fat Clay**
- Light gray, tan, and reddish brown, medium stiff to very stiff, high plasticity, damp
- With scattered roots 0 to 2 feet
- With calcareous nodules 2 to 6 feet
- With ferrous stains 14 to 16 feet
- With slickensides 28 to 30 feet

Boring terminated at 40 feet.

**Remarks:** Hollow stem to 40 feet.

**Water Level Observations:**  
Free water was not observed during dry drilling operations.

**Date Drilled:** 3/18/2013  
**Project Number:** 92135100  
**Exhibit A-12**

**Stratification Lines Represent Approximate Boundaries Between Soil Types. In Situ, the Transition Between Strata May Be More Gradual.**
**BORING LOG NO. 13-B10**

**CLIENT:** Quaternary Resource Investigations  
Baton Rouge, Louisiana  

**PROJECT:** Cedar Bayou - Alternate 47

**BORING LOCATION:**
- **N:** 13824876  
- **E:** 3258432

**SITE:** New Placement Area  
Cedar Bayou, Texas

---

**DESCRIPTION:**
- **Approx. Surface Elevation:** 18.4 feet

- **FAT CLAY**
  - dark gray, light gray, and tan, stiff to very stiff, high plasticity, damp
  - with scattered roots 0 to 2 feet
  - with calcareous nodules 4 to 10 feet
  - with silt pockets 14 to 18 feet
  - with calcareous nodules below 18 feet

- Boring terminated at 20 feet.

---

**STRAINATION LINES REPRESENT APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES. IN SITU, THE TRANSITION BETWEEN STRATA MAY BE MORE GRADUAL.**

**FREE WATER WAS NOT OBSERVED DURING DRY DRILLING OPERATIONS**

**WATER LEVEL OBSERVATIONS**

<table>
<thead>
<tr>
<th>DATE DRILLED</th>
<th>PROJECT NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/19/2013</td>
<td>92135100</td>
</tr>
</tbody>
</table>

**EXHIBIT A-13**

---

**STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES. IN SITU, THE TRANSITION BETWEEN STRATA MAY BE MORE GRADUAL.**

**FREE WATER WAS NOT OBSERVED DURING DRY DRILLING OPERATIONS**

---

**REMARKS:** Hollow stem to 20 feet.
### Boring Log No. 13-B11

**Client:** Quaternary Resource Investigations  
**Location:** Baton Rouge, Louisiana

**Site:** New Placement Area  
**Location:** Cedar Bayou, Texas

**Date Drilled:** 3/17/2013  
**Project Number:** 92135100

---

### Description

Approx. Surface Elevation: 19.7 feet

#### Fat Clay

- Light gray, tan, and reddish brown, stiff to very stiff, high plasticity, moist
- With calcareous nodules and ferrous stains 4 to 12 feet
- With silt pockets 12 to 20 feet
- With calcareous nodules 18 to 22 feet
- With ferrous stains 20 to 22 feet
- With ferrous stains 28 to 34 feet

---

### Tests

<table>
<thead>
<tr>
<th>Depth, Feet</th>
<th>U.S.C.S. Symbol</th>
<th>Recovery, In</th>
<th>S.P.T. Blows/Ft</th>
<th>Calibrated Hand Penetrometer, TSF</th>
<th>Moisture Content, %</th>
<th>Dry Density, PCF</th>
<th>Compressive Strength, TSF</th>
<th>Plasticity Index</th>
<th>Failure Strain, %</th>
<th>Confining Pressure, PSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CH ST 13</td>
<td>3.5</td>
<td>32</td>
<td>86</td>
<td>99</td>
<td>1.08</td>
<td>2</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>38</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>39</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Boring terminated at 40 feet.

---

### Remarks

Hollow stem to 40 feet.

---

### Water Level Observations

- Free water was not observed during dry drilling operations.

---

### Plate No.

Plate No. C-12

---

**Exhibit A-14**
**BORING LOG NO. 13-B12**

**CLIENT:** Quaternary Resource Investigations  
**PROJECT:** Cedar Bayou - Alternate 47

**BORING LOCATION:** N: 13824194  
**SITE:** New Placement Area  
**E: 3257515**  
**Cedar Bayou, Texas**

**DESCRIPTION**

Approx. Surface Elevation: 19.0 feet

**FAT CLAY**
- dark gray, light gray, and tan, very stiff, high plasticity, moist
- with scattered roots 0 to 6 feet
- with ferrous stains 8 to 12 feet

| DEPTH, FEET | 7.0 | 12.0 |
| USCS SYMBOL | CH | CL |
| SAMPLES | ST 5 ST 10 ST 10 ST 15 ST 9 ST 12 ST 18 ST 10 ST 18 ST 16 |
| TYPE | CH | CL |
| RECOVERY, % | 2.5 | 2.5 | 2.5 | 4.0 | 4.0 | 2.75 | 3.0 | 2.75 | 2.75 |
| SPT, BLOWS/FT | 34 | 35 | 29 | 82 | 87 | 30 | 94 | 98 | 2.40 |
| CALIBRATED HAND PENETROMETER, TSF | 34 | 35 | 29 | 82 | 87 | 30 | 94 | 98 | 2.40 |
| MOISTURE CONTENT, % | | | | | | | | | |
| DRY DENSITY, PCF | | | | | | | | | |
| LIQUID LIMIT, % | | | | | | | | | |
| PLASTIC LIMIT, % | | | | | | | | | |
| COMPRESSIVE STRENGTH, TSF | | | | | | | | | |
| PLASTICITY INDEX | | | | | | | | | |
| FAILURE STRAIN, % | | | | | | | | | |
| CONFINING PRESSURE, PSI | | | | | | | | | |

**LEAN CLAY**
- light gray and tan, very stiff, medium plasticity, damp, with silt pockets

**FAT CLAY**
- light gray and tan, very stiff, high plasticity, damp, with ferrous stains and silt pockets
- with silt seams 14 to 16 feet
- Boring terminated at 20 feet.

**FREE WATER WAS NOT OBSERVED DURING DRY DRILLING OPERATIONS**

**WATER LEVEL OBSERVATIONS**

**DATE DRILLED:** 3/19/2013  
**PROJECT NUMBER:** 92135100

**HOLLOW STEM TO 20 FEET.**

**EXHIBIT A-15**

**PLATE NO. C-13**
### BORING LOG NO. 13-B13

#### SITE:
New Placement Area  
Cedar Bayou, Texas

#### BORING LOCATION:
N: 13824816  
E: 3257327

#### CLIENT:
Quaternary Resource Investigations  
Baton Rouge, Louisiana

#### PROJECT:
Cedar Bayou - Alternate 47

---

#### DESCRIPTION

**Approx. Surface Elevation:** 18.0 feet

<table>
<thead>
<tr>
<th>Depth, Feet</th>
<th>Type</th>
<th>Sample Number</th>
<th>Recovery, IN</th>
<th>SPT, Blows/FT</th>
<th>Calibrated Hand Penetrom., TSF</th>
<th>Moisture Content, %</th>
<th>Dry Density, PCF</th>
<th>Minus #200 Sieve, %</th>
<th>Liquid Limit, %</th>
<th>Plastic Limit, %</th>
<th>Compressive Strength, TSF</th>
<th>Plasticity Index</th>
<th>Failure Strain, %</th>
<th>Confining Pressure, PSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 2</td>
<td>CH</td>
<td>ST 6</td>
<td>2.0</td>
<td>38</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 - 3</td>
<td>CH</td>
<td>ST 10</td>
<td>1.5</td>
<td>40, 77, 87</td>
<td>26</td>
<td>61</td>
<td>98</td>
<td>0,63</td>
<td>3</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 - 4</td>
<td>CH</td>
<td>ST 15</td>
<td>1.5</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 - 5</td>
<td>CH</td>
<td>ST 12</td>
<td>1.5</td>
<td>29, 94</td>
<td>96</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 - 6</td>
<td>CH</td>
<td>ST 9</td>
<td>4.5</td>
<td>23</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 - 7</td>
<td>CH</td>
<td>ST 12</td>
<td>4.0</td>
<td>22</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 - 8</td>
<td>CH</td>
<td>ST 15</td>
<td>3.0</td>
<td>21, 41</td>
<td>17</td>
<td>24</td>
<td>97</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 - 9</td>
<td>CH</td>
<td>ST 10</td>
<td>3.25</td>
<td>23</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 - 10</td>
<td>CH</td>
<td>ST 16</td>
<td>3.75</td>
<td>29</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 - 11</td>
<td>CH</td>
<td>ST 10</td>
<td>2.5</td>
<td>32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Remarks:** Hollow stem to 20 feet.

---

**WATER LEVEL OBSERVATIONS**

<table>
<thead>
<tr>
<th>Datum</th>
<th>Water Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Datum 1</td>
<td></td>
</tr>
<tr>
<td>Datum 2</td>
<td></td>
</tr>
</tbody>
</table>

**FREE WATER WAS NOT OBSERVED DURING DRY DRILLING OPERATIONS**

---

**EXHIBIT A-16**

**DATE DRILLED:** 3/12/2013  
**PROJECT NUMBER:** 92135100

---

**STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES. IN SITU, THE TRANSITION BETWEEN STRATA MAY BE MORE GRADUAL.**
**CLIENT:** Quaternary Resource Investigations  
**BORING LOCATION:** N: 13825706 E: 3258325  
**PROJECT:** Cedar Bayou - Alternate 47  
**SITE:** New Placement Area  
Cedar Bayou, Texas

### DESCRIPTION

**Approx. Surface Elevation:** 13.7 feet

<table>
<thead>
<tr>
<th>Depth, Feet</th>
<th>Type</th>
<th>Soil Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.0</td>
<td><strong>FAT CLAY w/ SAND</strong></td>
<td>dark gray, very stiff, high plasticity, moist; with scattered roots 0 to 2 feet</td>
</tr>
<tr>
<td>8.0</td>
<td><strong>LEAN CLAY</strong></td>
<td>light gray and tan, medium stiff to very stiff, medium plasticity, dry, with calcareous nodules; with sand seams 6 to 8 feet</td>
</tr>
<tr>
<td>10.0</td>
<td><strong>SILTY SAND</strong></td>
<td>tan, non-plastic, fine-grained, uniform, dry</td>
</tr>
<tr>
<td>12.0</td>
<td><strong>SANDY LEAN CLAY</strong></td>
<td>light gray, tan, and reddish brown, very stiff, medium plasticity, damp</td>
</tr>
<tr>
<td>16.0</td>
<td><strong>LEAN CLAY</strong></td>
<td>light gray, tan, and reddish brown, very stiff, medium plasticity, damp</td>
</tr>
<tr>
<td>20.0</td>
<td><strong>FAT CLAY</strong></td>
<td>light gray, tan, and reddish brown, very stiff, high plasticity, damp</td>
</tr>
</tbody>
</table>

Boring terminated at 20 feet.

---

### FREE WATER OBSERVATIONS

- Free water was not observed during dry drilling operations.

---

### DATE DRILLED

3/12/2013

---

### REMARKS

- Hollow stem to 20 feet.