APPENDIX B

SOIL BORING LOGS
Sample Description

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- **ASPHALT**
  - Brown-gray f-c SAND, dry, sm. f-gravel, tr. silt, asphalt dense grade subbase (dry)

- **Gray-brown-black f-c SAND, sm. silt, tr. f-gravel (dry)**

- White crushed rock w/black silty sand, FILL, fiber material (geomat), tr. brick, tr. wood debris (moist)

- Gray-brown-black silty f-c SAND, tr. f-gravel (wet)

- **Gray-red silty f-SAND, sm. clay (wet)**

  - Red-brown CLAY and silt, tr. c-sand, tr. f-gravel, overlying layers of silt and clay (saturated)

- End of Boring @ 13.8'

Collect sample LSB-1-A from 2'-4' (slight odor)

Collect sample LSB-1-B from 5.5'-7.5' (slight odor)
ASPHALT
Brown-gray f-c SAND, sm. f-gravel, tr. silt, asphalt and dense grade subbase
(dry)
Gray-black f-c SAND, sm. silt, tr. f-gravel
(dry)
Red brick
Gray-black f-m SAND, sm. silt
(dry)
Gray-brown silty f-SAND (wet)

Brown-red silty CLAY (wet)
Brown-red CLAY and silt, tr. c-sand, tr. f-gravel, overlying layers of silt and clay
(wet)
Red-brown CLAY and silt, tr. c-sand, tr. f-gravel, overlying layers of silt and clay
(wet)
Red-brown CLAY and silt, tr. c-sand, tr. f-gravel, overlying layers of silt and clay

End of Boring @ 14.2'

Slight odor 1'-4'
Collect sample LSB-20-A from 2'-4' @ 14:05

Collect sample LSB-2-B from 10'-12' @ 14:15
## Log of Boring

**LSB-03**

### Project Information
- **Project No.:** 140091401
- **Location:** Niagara Falls, NY
- **Drilling Company:** SJB Drilling
- **Drilling Equipment:** Truck Mounted Geoprobe 6620 DT

### Boring Details
- **Size and Type of Bit:** N/A
- **Casing Diameter (in):** N/A
- **Casing Hammer:** N/A
- **Sampler:** 2" Macrocoring
- **Weight (lbs):** N/A
- **Sampler Hammer:** NA
- **Weight (lbs):** N/A
- **Drilling Foreman:** Dan Delude
- **Inspecting Engineer:** Kyle Zalaski

### Material and Description

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<td>573.3</td>
<td>ASPHALT (5&quot;)</td>
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<td>572.4</td>
<td>Dark brown f-c SAND, sm. f-gravel, sm. silt, tr. fill (brick, blue stone, asphalt) (loose) (dry)</td>
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<td>572.7</td>
<td>Brown-gray-dark gray f-SAND, sm. silt, tr. f-gravel, tr. fill (brick, metal) (dense) (dry)</td>
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<td>566.7</td>
<td>Gray f-GRANULAR, sm. f-c sand, sm. silt, tr. clay (wet)</td>
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<td>561.2</td>
<td>Gray to reddish brown CLAY, sm. f-gravel (dense) (wet)</td>
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### Geoprobe Hammer
- **Malfunctioned:** 12.5' deep

### Remarks
- Collect sample LSB-3-A from 1'-3' @ 10:15 (VOCs 1.5-2)
- Gravel @ 2.75-3.2 appears to be fractured cobble/boulder
- Gravel @ 4'-5.25' appears to be fractured cobble/boulder (heavy resistance while hammering)
- Collect sample LSB-3-B from 6'-8' @ 10:40 6'-8' (VOCs 6-6.5)
- Geoprobe hammer malfunctioned @ 12.5'

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**Log of Boring**

**LSB-04**

**Sheet 1** of 1

---

**Project**

FONF Expansion Sabre Park BCP

---

**Location**

Niagara Falls, NY

---

**Drilling Company**

SJB Drilling

---

**Drilling Equipment**

Truck Mounted Geoprobe 6620 DT

---

**Size and Type of Bit**

N/A

---

**Casing Diameter (in)**

N/A

---

**Casing Hammer**

N/A

---

**Sampler**

2" Macrocore

---

**Sampler Hammer**

NA/

---

**Drilling Foreman**

Dan Delude

---

**Inspecting Engineer**

Kyle Zalaski

---

**Completion Depth**

16 ft

---

**Rock Depth**

N/E

---

**Number of Samples**

4

---

**Disturbed**

0

---

**Undisturbed**

0

---

**Core**

0

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**Water Level (ft.)**

First

---

**Completion**

24 HR.

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**Remarks**

(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)

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**Sample Description**

**Depth**

**Sample Data**

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**Elev. (ft)**

**Sample Description**

**Sample Data**

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**Elev. (ft)**

**Sample Description**

**Sample Data**

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**Elev. (ft)**

**Sample Description**

**Sample Data**

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**End of Boring @ 16'**

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**Remarks**

Collect sample LSB-4-A from 4'-4.67' @ 12:00 (VOCs 4.4.5)

Collect samples LSB-4-B from 4.67'-6.6' @ 12:10 (VOCs 6.6.6)

---

**Other Information**

- **Project No.** 140091401
- **Date Started** 6/27/13
- **Date Finished** 6/27/13
### Log of Boring LSB-05

**Project**
- FONF Expansion Sabre Park BCP

**Location**
- Niagara Falls, NY

**Drilling Company**
- SJB Drilling

**Drilling Equipment**
- Truck Mounted Geoprobe 6620 DT

**Drilling Parameters**
- Size and Type of Bit: N/A
- Casing Diameter (in): N/A
- Casing Hammer: N/A
- Sampler: 2” Macrocore

**Drilling Details**
- Date Started: 6/27/13
- Date Finished: 6/27/13
- Completion Depth: 11.8 ft
- Rock Depth: 11.8 ft
- Water Level (ft.): N/A

**Remarks**
- Slight odor 2'-5', Collect sample LSB-5-B from 2'-4' @ 08:50
- Collect sample LSB-5-B from 10'-12' @ 09:00

### Sample Description

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<td>572.6</td>
<td>ASPHALT</td>
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</table>
- Gray-brown f-c sand, tr. silt, GRAVEL, sm. f-gravel, dense grade subbase |
| 570.9 | Black f-c SAND, sm. silt, woody debris and tr. brick (dry) |
|       | Gray silty f-c SAND, tr. black silt, tr. glass (dry) |
|       | Gray siltyf-c SAND, tr. black silt (moist) |
|       | Gray silty f-m SAND (wet) |
| 565.9 | Brown-red CLAY and silt, tr. c-sand, overlying silts and clays (wet) |
|       | Red-brown CLAY and silt, tr. c-sand, tr. f-gravel, overlying silts and clays (wet) |
| 561.1 | Weathered rock @ 11.8' |
|       | End of Boring @ 11.8' |
ASPHALT
Brown-gray m-c sand, f-gravel, tr. silt, sm. asphalt, and dense grade subbase (dry)
Gray-black f-c sand, fill, sm. silt, tr. f-gravel, brick/concrete, fibers, roots (moist)
Gray-brown silty f-m sand, tr. f-gravel (wet)
Red-brown clay and silt, tr. f-m sand, tr. f-gravel (wet)
Red-brown clay, sm. silt, tr. f-gravel, tr. c-sand
End of Boring @ 12'

Slight odor 3'-4', Collect sample LSB-6-A from 3'-5' @ 10:15
Slight odor 4'-5'
Collect sample LSB-6-B from 10'-12' @ 10:25
Hammer refusal @ 11.2'
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<td>Brown f-c sand, FILL, sm. silt, sm. f-gravel (dry)</td>
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<td>Gray clay, sm. silt, tr. FILL (brick)</td>
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<td>+568.5</td>
<td>Gray CLAY, tr. f-sand (moist)</td>
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<td>Reddish-brown CLAY, sm. f-c sand (dense) (moist)</td>
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<td>+562.0</td>
<td>Reddish-brown CLAY, sm. f-c sand (dense) (moist)</td>
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<td>End of Boring @ 10.5'</td>
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### Remarks

- Collect sample LSB-7-A from 3'-5' @ 9:37
- Collect sample LSB-7-B from 8'-10' @ 9:55
- No groundwater interface observed
ASPHALT
Brown-gray f-c sand, sm. f-gravel, tr. silt, asphalt and dense grade (dry)

Brown-gray-black f-c sand, sm. silt, sm. f-gravel, 2' of slag @ 1.7' (dry)
Brown-gray f-SAND, sm. silt, intrusions of black silt (dry)

Brown-gray silty f-SAND, tr. m-sand (wet)

Gray/brown-red CLAY and silt, overlying clay and silt layers (wet)
Gray/brown-red CLAY and silt, tr. m-sand, overlying clay and silt layers (wet)
Red-brown CLAY and silt, tr. c-sand, rock fragments @ 12.8'
End of Boring @ 12.8'

Slight odor 1.5'-4', Collect sample LSB-8-A from 1.5'-3.5' @ 15:40
Collect sample LSB-8-B from 6'-8' @ 15:50
**Sample Description**

- **ASPHALT**
  - Gray f-GRAVEL, sm. f-c sand, sm. asphalt, tr. silt (loose) (dry)
  - Gray f-GRAVEL, sm. f-c sand, tr. silt (dry)

- **Gray-brown CLAY**
  - Sm. silt, tr. f-sand (dense) (moist)
  - Brown-gray f-SAND, sm. silt, tr. clay (dense) (moist)

- **Reddish-brown-gray CLAY**
  - Sm. silt, tr. f-sand (dense) (moist)
  - Reddish-brown-gray CLAY, sm. silt, tr. f-sand (dense) (moist)

- Reddish-brown-gray CLAY, sm. silt, tr. f-sand (dense) (moist)

- Reddish-brown-gray CLAY, sm. silt, tr. f-sand (dense) (moist)

- Reddish-brown-gray CLAY, sm. silt, tr. f-sand (dense) (moist)

- Reddish-brown-gray CLAY, sm. f-gravel

**Remarks**

- Gravel @ 1.25-2.2 appears to be fractured cobbles/boulders

- Collect sample LSB-9-A from 4'-6' @ 14:45 (vocs 5.5-6)

- Collect sample LSB-9-B 8'-10' @ 15:00 (vocs 4.5-10)
### Log of Boring  
**LSB-10**  
**Sheet 1 of 1**

**Project**  
FONF Expansion Sabre Park BCP

**Project No.**  
140091401

**Location**  
Niagra Falls, NY

**Elevation and Datum**  
Approx. el. 572.97

**Drilling Company**  
SJBJ Drilling

**Date Started**  
6/27/13

**Date Finished**  
6/27/13

**Drilling Equipment**  
Truck Mounted Geoprobe 6620 DT

**Completion Depth**  
16 ft

**Rock Depth**  
N/E

**Size and Type of Bit**  
N/A

**Casing Diameter (in)**  
N/A

**Casing Depth (ft)**  
N/A

**Number of Samples**  
Disturbed: 4  
Undisturbed: 0  
Core: 0

**Water Level (ft.)**  
First: 4

**Completion**  
24 HR.

**Drilling Foreman**  
Dan Delude

**Inspecting Engineer**  
Kyle Zalaski

---

### Sample Description

**MATERIAL**  
**SYMBOL**

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<td>ASPHALT</td>
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<td>Black f-C SAND, sm. silt, tr. f-gravel, tr. fill (glass, brick) (moist)</td>
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<td>Gray f-SAND, sm. silt/clay, moderately dense (moist)</td>
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<td>Gray f-SAND, sm. silt, tr. clay (wet)</td>
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<td>Reddish-brown CLAY, tr. f-sand, tr. silt (very dense) (moist)</td>
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<td>Reddish-brown CLAY, sm. f-sand, sm. silt (dense) (wet)</td>
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<td>Reddish-brown CLAY, sm. silt, tr. f-c sand (dense) (wet)</td>
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<td>Reddish-brown CLAY, sm. f-gravel, tr. f-c sand (dense) (wet)</td>
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<td>557.0</td>
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<td>End of Boring @16'</td>
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**Remarks**  
(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)

- Collect Sample LSB-10-A from 1.5'-4' @ 08:30 (vocs 2.5'-3')
- Collect Sample LSB-10-B from 4'-6' @ 9:45 (vocs 4'-4.5')
**Log of Boring**

**LSB-12**

**Sheet 1 of 1**

---

**Project No.:**
140091401

**Location:**
Niagra Falls, NY

**Drilling Company:**
SJB Drilling

**Drilling Equipment:**
Truck Mounted Geoprobe 6620 DT

**Size and Type of Bit:**
N/A

**Casing Diameter (in):**
N/A

**Completion Depth:**
11.5 ft

**Rock Depth:**
11.5 ft

**Number of Samples:**
Disturbed: 3
Undisturbed: 0
Core: 0

**End of Boring @ 11.5’**

---

**Sample Description**

**Elev. (ft):**

- **572.0:**
  - ASPHALT
    - Gray c-f SAND, sm. f-gravel, tr. silt, asphalt and dense grade, subbase (dry)

- **570.8:**
  - Gray f-c SAND, sm. silt, tr. f-gravel (dry)
  - Gray black f-c SAND, sm. silt, tr. f-gravel, tr. fill (brick, concrete, coarse ash) (dry)
  - Gray-brown silty f-m SAND (moist-wet)
  - Brown-gray silty f-m SAND, sm. silt (wet)
  - Black-gray silty f-SAND, tr. c-sand (wet)

- **567.8:**
  - Red-brown CLAY, sm. silt, tr. c-sand (wet)

- **560.0:**
  - Red-brown CLAY and silt, tr. c-sand, tr. f-gravel (wet)
  - Red-brown CLAY, sm. silt, tr. c-sand, tr. f-gravel (wet)

- **557.8:**
  - End of Boring @ 11.5’

---

**Remarks**

- Slight odor @ 11"-16"
- Slight odor @ 16"-27"
- Collect sample LSB-12-A from 2'-4' @ 09:10
- Slight odor @ 48"-52"
- Collect sample LSB-12-B from 6'-8' @ 09:20
- Hammer refusal @ 11.5’
Log of Boring  LSB-13  Sheet 1 of 1

Project  FONF Expansion Sabre Park BCP
Project No.  140091401
Location  Niagara Falls, NY
Elevation and Datum  Approx. el. 571.84
Date Started  6/26/13
Date Finished  6/26/13

Drilling Company  SJB Drilling
Drilling Equipment  Truck Mounted Geoprobe 6620 DT

Size and Type of Bit  N/A
Casing Diameter (in) N/A
Casing Depth (ft) N/A
Casing Hammer N/A
Weight (lbs) N/A
Drop (in) N/A

Number of Samples  Disturbed 3
Undisturbed 0
Core 0

Water Level (ft.) First 4
Completion 24 HR.

Drilling Foreman  Dan Delude
Inspecting Engineer  Kyle Zalaski
Sampler  2" Macrocore
Sampler Hammer N/A
Weight (lbs) N/A
Drop (in) N/A

MATERIAL  ELEV.  MATERIAL  SAMPLE DESCRIPTION
SYMBOL  (ft)  SYMB  SCALE  PENET.  RESIST.  BL/6IN  RECov. (IN)

ASPHALT  571.3  670.8
Brown f-c SAND, sm. silt, sm. f-gravel
{loose} (dry)
Brown f-c SAND, sm. f-gravel, sm. silt, sm. asphalt, tr. tar-like material
{loose} (dry)
Brown to dark gray f-SAND, sm. silt, sm. clay, tr. f-gravel
{dense} (moist)
Brown to gray silty f-SAND, sm. f-gravel, sm. clay
{dense} (wet)

Reddish-brown CLAY, sm. silty f-sand, sm. clay, sm. f-gravel
{dense} (wet)

Reddish-brown CLAY, sm. silty f-sand, sm. clay, sm. f-gravel
{dense} (wet)

Reddish-gray CLAY, sm. silt, tr. f-sand, sm. f-gravel

End of Boring @ 10.8'

Remarks
Collect environmental sample: LSB-13-A from 3'-4' @ 08:10

Refusal @ 10.8'

Sample Data

Depth Scale
10 20 30 40

Sample Data

Remarks
(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
**Log of Boring**  
**LSB-14**  
**Sheet 1 of 1**

**Project**  
FONF Expansion Sabre Park BCP

**Location**  
Niagara Falls, NY

**Drilling Company**  
SJB Drilling

**Drilling Equipment**  
Truck Mounted Geoprobe 6620 DT

**Size and Type of Bit**  
N/A

**Casing Diameter (in)**  
N/A

**Sample Description**

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Sample Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>572.0</td>
<td>ASPHALT</td>
</tr>
<tr>
<td>571.3</td>
<td>Gray c-f SAND, sm. f-gravel, tr. silt (loose) (dry)</td>
</tr>
<tr>
<td>570.1</td>
<td>Brown to gray f-c SAND, sm. f-gravel, sm. silt (moderately dense) (moist)</td>
</tr>
<tr>
<td>566.6</td>
<td>Layer of slag</td>
</tr>
<tr>
<td>566.2</td>
<td>Gray SILTY CLAY, sm. f-sand, tr. f-gravel (moist)</td>
</tr>
<tr>
<td>565.8</td>
<td>Gray SILTY CLAY, tr. f-sand (moist)</td>
</tr>
<tr>
<td>565.7</td>
<td>Brown to gray SILTY CLAY, sm. f-sand</td>
</tr>
<tr>
<td>565.5</td>
<td>Reddish brown CLAY, tr. silt, tr. f-sand (very dense) (moist)</td>
</tr>
<tr>
<td>565.3</td>
<td>Reddish brown CLAY, tr. silt, tr. f-sand (very dense) (wet)</td>
</tr>
<tr>
<td>565.1</td>
<td>Reddish brown CLAY, sm. silt, sm. f-sand, sm. f-gravel (dense) (wet)</td>
</tr>
<tr>
<td>564.9</td>
<td>Reddish brown CLAY, sm. silt, sm. f-gravel, sm. f-sand (dense) (wet)</td>
</tr>
</tbody>
</table>

**End of Boring @ 13.6'**

**Remarks**  
Collect sample LSB-14-A from 1'-3' @ 15:40 (vocs 1.5'-2')

Collect sample 4'-5.5' @ 16:00 (vocs 5'-5.5')

**Collect sample 4'-5.5' @ 16:00 (vocs 5'-5.5')**
**Log of Boring**

**LSB-15**

**Sheet 1 of 1**

---

**Project**

FONF Expansion Sabre Park BCP

**Project No.**

140091401

**Location**

Niagara Falls, NY

**Elevation and Datum**

Approx. el. 573.17

**Drilling Company**

SJB Drilling

**Date Started**

6/27/13

**Date Finished**

6/27/13

**Drilling Equipment**

Truck Mounted Geoprobe 6620 DT

**Completion Depth**

13.6 ft

**Rock Depth**

13.6 ft

---

**Sample Description**

- **ASPHALT**
  - Brown-gray f-c SAND, sm. f-gravel, tr. silt, asphalt subbase
  - Black-gray f-m SAND, sm. silt, tr. f-gravel, tr. fill (wood)
  - Gray-brown silty f-m SAND, tr. c-sand, tr. black silt intrusions
  - Gray-brown silty f-m SAND, wet @ 5', tr. c-sand (wet)

- **CLAY and silt**
  - Brown-gray-red CLAY and silt, tr. c-sand, tr. f-gravel
  - Brown-gray-red CLAY and silt, tr. c-sand, tr. f-gravel (wet)
  - Red-brown CLAY and silt, tr. m-c sand, tr. f-gravel (wet)
  - Red-brown CLAY and silt, tr. m-c sand, tr-f-gravel, weathered rock @ 13.6'

- **End of Boring @ 13.6'**

---

**Remarks**

- Slight odor @ 0'-4', Collect sample LSB-15-A from 1'-3' @ 10:50
- Collect sample LSB-15-B from 5'-7' @ 11:00
**Log of Boring**  
**LSB-16**  
**Sheet 1 of 1**

**Project**  
FONF Expansion Sabre Park BCP

**Location**  
Niagara Falls, NY

**Drilling Company**  
SJB Drilling

**Drilling Equipment**  
Truck Mounted Geoprobe 6620 DT

<table>
<thead>
<tr>
<th>SAMPLE DESCRIPTION</th>
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</thead>
<tbody>
<tr>
<td>ASPHALT</td>
</tr>
<tr>
<td>Brown-gray f-c sand, sm. f-gravel, tr. silt, fill, asphalt and dense grade subbase (dry)</td>
</tr>
<tr>
<td>Brown-black f-c SAND, sm. silt, tr. f-gravel (dry)</td>
</tr>
<tr>
<td>Black-gray silty f-c SAND, tr. f-gravel, tr. fill (wood debris, glass) (dry)</td>
</tr>
<tr>
<td>Black silty f-c SAND, tr. f-gravel, tr. fill (brick, glass) (moist)</td>
</tr>
<tr>
<td>Brown-grey f-c SAND, sm. f-gravel, c-f gravel (wet)</td>
</tr>
<tr>
<td>Brown-gray-black silty f-SAND tr. c-SAND, tr. f-gravel (wet)</td>
</tr>
<tr>
<td>Brown-gray-black silty f-SAND, tr. c-sand, tr. f-gravel</td>
</tr>
<tr>
<td>Brown-gray silty f-SAND, tr. m-c sand, tr. f-gravel</td>
</tr>
<tr>
<td>Brown-red CLAY and silt, cobbles/bedrock fracture @ 12.2</td>
</tr>
<tr>
<td>End of Boring @ 12.2'</td>
</tr>
</tbody>
</table>

### Remarks
- Slight odor 1.5'–4'
- Collect sample LSB-16-A from 2.5'–4.5' @ 09:50
- Slight odor 4'–5'
- Collect sample LSB-16-B from 6'–8' @ 10:00
- Slight odor 7'–8'
- Slight odor 8'–8.5'

**Sample Data**

<table>
<thead>
<tr>
<th>Depth Scale</th>
<th>Sample Data</th>
</tr>
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<tbody>
<tr>
<td>Elev. (ft)</td>
<td></td>
</tr>
<tr>
<td>572.2</td>
<td></td>
</tr>
<tr>
<td>571.0</td>
<td></td>
</tr>
<tr>
<td>560.5</td>
<td></td>
</tr>
<tr>
<td>560.3</td>
<td></td>
</tr>
</tbody>
</table>

**Remarks**

- Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
**Sample Description**

<table>
<thead>
<tr>
<th>Depth Scale</th>
<th>Sample Data</th>
<th>N-Value (Blows/ft)</th>
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</thead>
<tbody>
<tr>
<td>0</td>
<td>S-1</td>
<td>37</td>
</tr>
<tr>
<td>1</td>
<td>S-2</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>S-3</td>
<td>22</td>
</tr>
<tr>
<td>3</td>
<td>S-4</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
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<td>5</td>
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<td>6</td>
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<td>7</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
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</tbody>
</table>

**Remarks**

- Slight odor @ 2', Collect sample LSB-17-A from 2'-4' @ 08:05
- Slight odor @ 3'-4'
- Slight odor 4'-5'
- Collect sample LSB-17-B from 10'-12' @ 08:15
**Log of Boring**

**LSB-18**

**Sheet 1 of 1**

---

**Project:** FONF Expansion Sabre Park BCP

**Location:** Niagara Falls, NY

**Drilling Company:** SJB Drilling

**Drilling Equipment:** Truck Mounted Geoprobe 6620 DT

---

**Sample Description**

<table>
<thead>
<tr>
<th>MATERIAL SYMBOL</th>
<th>Sample Description</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>ASPHALT</td>
</tr>
<tr>
<td></td>
<td>Brown-gray c-f SAND, tr. silt, tr. f-gravel, dense grade subbase (dry)</td>
</tr>
<tr>
<td></td>
<td>Brown-gray silty f-sand, tr. intrusions of black silt (dry)</td>
</tr>
<tr>
<td></td>
<td>Brown silty f-SAND, tr. c-sand (moist-wet)</td>
</tr>
<tr>
<td></td>
<td>Brown silty f-SAND, tr. c-sand (moist-wet)</td>
</tr>
<tr>
<td></td>
<td>Brown-red CLAY, sm. silt, tr. c-sand (moist-wet)</td>
</tr>
<tr>
<td></td>
<td>Brown-red CLAY with sm. silt, tr. c-sand (moist-wet)</td>
</tr>
<tr>
<td></td>
<td>End of Boring @ 11.8'</td>
</tr>
</tbody>
</table>

---

**Date Started:** 6/26/13

**Date Finished:** 6/26/13

**Remarks:**

- Collect sample LSB-18-A from 1'-3' @ 08:05
- Collect sample LSB-18-B from 9.5'-11.5' @ 08:15
- Hammer refusal @ 11.8'

---

**Elevation and Datum:** Approx. el. 572.27

**Drill Bore Depth:** 11.8 ft

---

**Reach 1 (ft):**

- **Sample Description:**
  - **Sample Data:**
    - **Depth:** 0 - 1
      - **Type:** Core
      - **PID Reading:** 4.2
    - **Depth:** 2 - 3
      - **Type:** Core
      - **PID Reading:** 4.5
    - **Depth:** 4 - 5
      - **Type:** Core
      - **PID Reading:** 3.1
    - **Depth:** 6 - 7
      - **Type:** Core
      - **PID Reading:** N/A
ASPHALT
Brown-gray f-c SAND, sm. f-gravel, tr. silt, asphalt and dense grade subbase

Gray f-c SAND, sm. f-gravel, tr. silt,

Gray-black f-c SAND, tr. silt, tr. fill (brick, roots) tr. tar-like material

Brown-gray silty f-SAND, sm. intrusions of black silt and brick, tr. c-sand, (moist)

Brown-gray silty f-SAND, tr. m-sand (wet)

Brown-gray silty f-SAND, tr. c-sand (wet)

Brown-gray silty f-SAND, tr. clay intrusions (saturated)

Brown-gray silty f-SAND, tr. clay intrusions (saturated)

End of Boring @ 13.9'

+573.2

Slight odor @ 2'-4', Collect sample LSB-21-A from 2'-4' @ 18:40

Collect sample LSB-21-B from 4'-6' @ 18:50

Hammer Refusal @ 13.9'

FONF Expansion Sabre Park BCP
Niagara Falls, NY

SJB Drilling

Truck Mounted Geoprobe 6620 DT

2" Macrocore

N/A

S-1

MATERIAL/SYMBOL

572.9

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

Log of Boring LSB-21

Sample Description

572.2

573.2

Sample Data

Depth Scale

Number

Type

Sample Data

Elev. (ft)

PID Reading (ppm)

Remarks

(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)

S-1

MATERIAL/SYMBOL

567.2

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

Log of Boring LSB-21

Sample Description

569.9

573.2

Sample Data

Depth Scale

Number

Type

Sample Data

Elev. (ft)

PID Reading (ppm)

Remarks

(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)

S-2

MATERIAL/SYMBOL

573.2

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

Log of Boring LSB-21

Sample Description

573.9

573.2

Sample Data

Depth Scale

Number

Type

Sample Data

Elev. (ft)

PID Reading (ppm)

Remarks

(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)

S-3

MATERIAL/SYMBOL

573.2

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

Log of Boring LSB-21

Sample Description

573.2

573.2

Sample Data

Depth Scale

Number

Type

Sample Data

Elev. (ft)

PID Reading (ppm)

Remarks

(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)

S-4

MATERIAL/SYMBOL

573.2

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

Log of Boring LSB-21

Sample Description

573.2

573.2

Sample Data

Depth Scale

Number

Type

Sample Data

Elev. (ft)

PID Reading (ppm)

Remarks

(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
Sample Description

- **ASPHALT**
  - Brown-gray f-c SAND, sm. f-gravel, tr. silt, asphalt and dense grade subbase (dry)
  - Gray-brown f-c SAND, sm. silt, tr. f-gravel, tr. intrusions of green f-sandy material, tr. fill (brick) (dry)
  - Gray-black f-c SAND, sm. silt, tr. f-gravel, tr. fill (brick) (dry)
  - Gray-black f-c SAND, sm. silt, tr. f-gravel (dry)
  - Gray-brown silty f-m SAND, tr. c-sand, tr. f-gravel (wet)
  - Gray-brown silty-f-SAND, tr. m-c sand (wet)

- **CLAY and silt tr. c-sand** (saturated)

- **End of Boring @ 13'**

Remarks

- Collect sample LSB-22-A from 2'-4' @ 17:30
- Collect sample LSB-22-B from 5'-7' @ 17:40
- Hammer refusal @ 13'

**Sample Data**

- **Depth Scale**
  - 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

- **Sample Data**
  - **Sample Description**
  - **Elev. (ft)**
  - **Elev. (ft)**
  - **Sample Data**
  - **Sample Data**
  - **Sample Data**

- **Remarks**
  - (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
**Sample Description**

**Elev. (ft)**

- **573.8**
  - Asphalt
  - Gray f-gravel
  - Brown-dark gray f-c SAND, sm. f-gravel, sm. silt, tr. fill (brick, glass), tr. slag (moist)

- **573.0**
  - Gray f-gravel
  - Brown-gray SAND, tr. f-gravel, tr. slag, sm. silt (moderately dense) (dry)
  - Brown-gray-dar gray f-c SAND, tr. f-gravel, tr. organics (roots) (dry)
  - Tan-gray f-c SAND, sm. silt, sm. f-gravel (dense) (dry)
  - Brown-gray f-SAND, sm. silt, sm. clay (dense) (moist)

- **570.1**
  - Reddish-brown CLAY, sm. silt (dense) (moist)

- **566.6**
  - Reddish-brown CLAY, sm. intrusions of gray to black f-m sand, tr. f-gravel (moist)

- **559.8**
  - Gray f-gravel, sm. reddish-brown clay, tr. f-sand (moist)

**Remarks**
- Collect sample LSB-23-A from 2'-4' @ 18:40 (vocs 7.5'-8')
- Refusal @ 3', Slag encountered @ 3'-3.5'
- Yellow staining observed @ 3'-3.5'

- Collect sample LSB-23-B from 6'-8' @ 19:00 (vocs 7.5'-8')
- Refusal @ 15.6'

**End of Boring @ 15.6'**
**Sample Description**

<table>
<thead>
<tr>
<th>Depth</th>
<th>Sample Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>End of Boring @ 15.5'</td>
</tr>
<tr>
<td>1</td>
<td>Reddish-gray CLAY, sm. f-gravel (dense) (wet)</td>
</tr>
<tr>
<td>2</td>
<td>Gray-reddish-brown CLAY, sm. silt, tr. f-sand (dense) (wet)</td>
</tr>
<tr>
<td>3</td>
<td>Gray-reddish-brown CLAY, sm. silt, tr. f-sand (dense) (wet)</td>
</tr>
<tr>
<td>4</td>
<td>Gray f-SAND, sm. silt, tr. clay (dense) (wet)</td>
</tr>
<tr>
<td>5</td>
<td>Moist, wet</td>
</tr>
<tr>
<td>6</td>
<td>Gray f-SAND, sm. silt, tr. clay (dense) (wet)</td>
</tr>
<tr>
<td>7</td>
<td>Gray f-SAND, sm. silt, tr. f-sand (dense) (wet)</td>
</tr>
<tr>
<td>8</td>
<td>Dark gray-black CLAY, sm. silt, tr. f-sand (dense) (slightly moist)</td>
</tr>
<tr>
<td>9</td>
<td>Dark gray-black CLAY, sm. silt, tr. fill (bricks,wood), tr. f-gravel (dense) (slightly moist)</td>
</tr>
<tr>
<td>10</td>
<td>Brown-gray f-c SAND, sm. f-gravel, sm. silt (moderately dense) (dry)</td>
</tr>
<tr>
<td>11</td>
<td>Dark gray-black f-SAND, sm. silt, sm. clay, tr. fill (brick, wood), tr. f-gravel (dense) (slightly moist)</td>
</tr>
<tr>
<td>12</td>
<td>Dark gray-black CLAY, sm. silt, tr. fill (bricks,wood), sm. f-sand (dense) (moist)</td>
</tr>
<tr>
<td>13</td>
<td>Dark gray-black CLAY, sm. silt, tr. fill (bricks,wood), tr. organsics (roots), tr. f-sand (dense) (moist)</td>
</tr>
<tr>
<td>14</td>
<td>Reddish-gray CLAY, sm. silt (loose) (wet)</td>
</tr>
<tr>
<td>15</td>
<td>Refusal @ 15.5'</td>
</tr>
</tbody>
</table>

**Remarks**

- Collect sample: LSB-24-A from 3'-5' @ 17:25 (vocs 3.5'-4')
- Collect sample LSB-24-B from 5'-7' @ 17:45 (vocs 6.5'-7')

**Locations**

- **MATERIAL**
  - Asphalt
  - Brown-gray f-c SAND, sm. f-gravel, sm. silt (moderately dense) (dry)
  - Dark gray-black f-SAND, sm. silt, sm. clay, tr. fill (brick, wood), tr. f-gravel (dense) (slightly moist)
  - Dark gray-black CLAY, sm. silt, tr. fill (bricks,wood), sm. f-sand (dense) (moist)
  - Dark gray-black CLAY, sm. silt, tr. fill (bricks,wood), tr. organsics (roots), tr. f-sand (dense) (moist)
  - Gray f-SAND, sm. silt
  - Moist, wet
  - Gray f-SAND, sm. silt, tr. clay (dense) (wet)
  - Gray-reddish-brown CLAY, sm. silt, tr. f-sand (dense) (wet)
  - Reddish-gray CLAY, sm. silt (loose) (wet)
  - Reddish-gray CLAY, sm. f-gravel (dense) (wet)
  - End of Boring @ 15.5'

**Date and Time**

- Date Started: 6/26/13
- Date Finished: 6/26/13

**Drilling Company**

- SJB Drilling
- Truck Mounted Geoprobe 6620 DT

**Drilling Foreman**

- Dan Delude

**Remarks**

- Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.
MATERIAL SYMBOL

Elev. (ft) 573.2

Sample Description

ASPHALT

Brown-gray f-c SAND, sm. silt, asphalt, sm. f-gravel, dense grade subbase (dry)

Brown-gray f-c SAND, sm. silt, tr. f-gravel, tr. intrusions of black silt (dry)
Black silty f-SAND (dry)
Black-gray silty f-SAND (moist)

Brown-gray SILTY CLAY, sm. f-sand, tr. c-sand (wet)

Brown-gray SILTY CLAY, sm. f-sand, tr. c-sand

Brown-red CLAY and silt, tr. c-sand (wet)
Brown-red CLAY and silt, tr. c-sand, tr. f-gravel (saturated)

End of Boring @ 15.9'

Sample Data

Depth Scale

Number

Type

Penetr. resist

Recov. (in)

N-Value (Blows/ft)

Remarks

(Collectors Fluid Depth of Casing, Fluid Loss, Drilling Resistance, etc.)

Collect sample LSB-25-A from 3'-5' @ 16:15
Slight odor @ 4'-5'

Collect sample LSB-25-B from 10'-12' @ 17:05

Hammer refusal @ 15.9'

End of Boring @ 15.9'
**Sample Description**

- **MATERIAL**
  - **SYMBOL**

<table>
<thead>
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<th>Depth (ft)</th>
<th>Sample Data</th>
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<td><strong>Sample</strong></td>
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<td>TOPSOIL, brown f-m sand, sm. silt, sm. roots, sm. organic material</td>
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<td>568.5</td>
<td>Brown f-m SAND, tr. silt (dry)</td>
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<td>566.5</td>
<td>Brown-gray f-c SAND, sm. silt, tr. f-gravel, tr. intrusions of black silt (dry)</td>
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<td>554.0</td>
<td>Brown-gray f-c SAND, sm. silt, tr. intrusions of black silt (moist)</td>
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<td>557.5</td>
<td>Brown-gray silty f-SAND, tr. intrusions of black silt (wet)</td>
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<td>557.5</td>
<td>Red CLAY, sm. silt, tr. m-sand (wet)</td>
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<td>554.0</td>
<td>Red CLAY sm. gray silt (wet)</td>
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<td>Brown-red CLAY, tr. c-sand, tr. f-gravel (wet)</td>
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<td>552.5</td>
<td>Red CLAY, tr. f-gravel (wet)</td>
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<tr>
<td>552.5</td>
<td>Red-brown silty CLAY, tr. f-gravel (wet)</td>
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</table>

**Remarks**
- Collect sample LSB-27-A from 2'-4' @ 18:10
- Slight odor @ 3.5'-4'
- Slight odor @ 4'-5'
- Collect sample LSB-27-B from 14'-16' @ 18:20
4" TOPSOIL
Brown-dark brown f-m SAND, sm. silt, tr. organics (dry)
Brown-gray f-SAND, sm. silt, tr. organics, tr. clay (moist)
Brown-gray f-SAND, tr. silt, tr. organics, tr. clay (moist)
Brown-gray CLAY, sm. silty f-sand, tr. clay (wet)
Brown-gray CLAY, sm. silty f-sand (wet)
Brown-gray CLAY, sm. silty f-sand (wet)
Brown-gray CLAY, little silt, tr. f-sand (wet)
Reddish brown CLAY, sm. silty f-sand, little m-c sand, little f-gravel, weathered rock @ 13.5' (wet)
End of boring @ 13.5'

**Sample Data**

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<tr>
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<th>Type</th>
<th>Penetr. resist</th>
<th>N-Value (Blows/ft)</th>
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<tbody>
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<td>Collect sample LSB-28-A from 1'-3' @ 17:20</td>
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<tr>
<td>Collect sample LSB-28-B from 4'-5.5' @ 17:30</td>
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**Remarks**
(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)

**Drilling Company**
SJB Drilling

**Drilling Equipment**
Truck Mounted Geoprobe 6620 DT

**Driller**
Dan Delude

**Inspecting Engineer**
Kyle Zalaski
Brown TOPSOIL, f-c sand, tr. organic matter (dry)

Brown-gray c-f SAND, tr. cobbles, tr. f-gravel
Brown silty f-SAND, tr. m-sand, tr. f-gravel

Gray-dark gray silty f-SAND, tr. m-sand, tr. f-gravel

Gray-brown silty f-SAND, tr. m-sand, tr. f-gravel (moist)
Brown-gray silty f-SAND, tr. m-sand, tr. f-gravel (wet)

Brown-gray silty f-SAND, tr. m-c sand, tr. f-gravel, @ 10' have 2" c-sand and f-gravel intrusion (saturated)

Brown c-SAND, tr. f-gravel (saturated)
Red-brown CLAY and silt, tr. c-sand, tr. f-gravel (wet)

Red-brown CLAY and silt, tr. c-sand

End of Boring @ 16'

Collect sample LSB-29-A from 2'-4' @ 11:15

Collect sample LSB-29-B from 10'-12' @ 11:55
LOG OF BORING

LSB-30

TOPSOIL
Brown-gray f-c SAND, sm. f-gravel, tr. silt, (dry)
Gray-black f-m SAND, sm. silt, tr. c-sand (dry)
Black, f-m SAND sm. silt, tr. f-gravel (moist)
Brown-gray silty f-SAND, tr. sand, tr. f-gravel (moist)
Brown-gray silty f-SAND, tr. c-sand (saturated)
Red-brown CLAY and silt, tr. sand, tr. f-gravel (saturated)
Red-brown CLAY and silt, tr. sand, tr. f-gravel (saturated)

End of boring @ 16'

Slight odor @ 4'-6', Collect sample LSB-30-A from 4'-6' @ 18:05
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<tr>
<td>ASPHALT</td>
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<tr>
<td>Gray, f-GRANULAR, sm. f-c sand, tr. silt (loose) (dry)</td>
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<tr>
<td>Brown-redish brown CLAY, little f-c sand, little f-gravel, tr. organs (roots)</td>
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<tr>
<td>(dense) (moist)</td>
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<tr>
<td>Gray-dark gray f-c SAND, little silt, little f-gravel, tr. clay</td>
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<tr>
<td>(moderately dense) (moist)</td>
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<tr>
<td>Bluish-gray-brown CLAY, sm. silt, tr. f-sand, tr. organics (roots)</td>
</tr>
<tr>
<td>(dense) (moist)</td>
</tr>
<tr>
<td>Brown-gray CLAY, little silt, tr. f-sand (dense) (moist)</td>
</tr>
<tr>
<td>Reddish-brown CLAY, tr. silt, tr. f-sand (dense) (wet)</td>
</tr>
<tr>
<td>Reddish-brown CLAY, tr. silt, tr. f-sand (dense) (wet)</td>
</tr>
<tr>
<td>Reddish-brown CLAY, little f-gravel, tr. f-c sand (dense) (wet)</td>
</tr>
</tbody>
</table>

Collect sample LSB-32-A
from 3'-5' @ 19:25

Collect sample LSB-32-B
from 6'-8' @ 19:35

Bottom of boring 16' 0"
ASPHALT
Brown f-c SAND, sm. silt, little f-gravel
(loose) (dry)
Gray f-c SAND, little f-gravel, little silt, Intrusion of
white f-material @ 25")
(moderately dense) (dry)
Gray-dark gray CLAY, little bluish-green f-c sand, tr.
f-sand (dense) (moist)
Gray-dark gray CLAY, tr. f-sand
(moderately dense) (dry)
Brown-gray f-SAND, sm. silt, little clay
(dense) (moist)
Gray-reddish brown CLAY, sm. f-sand
(dense) (moist)
Gray to reddish brown CLAY, tr. f-sand
(wet)

End of boring @16

Reddish-brown CLAY, sm. f-gravel
(dense) (wet)
Reddish-brown f-c SAND, sm. f-gravel, sm. clay
(dense) (wet)

Collect sample LSB-34-A from 3'-4.5' @ 11:35
Collect sample LSB-34-B from 6'-8' @ 12:05
Log of Boring

LSB-36

Sheet 1 of 1

Project
FONF Expansion Sabre Park BCP

Location
Niagara Falls, NY

Drilling Company
SJB Drilling

Drilling Equipment
Truck Mounted Geoprobe 6620 DT

Sample Description

ASPHALT
Brown-gray f-c SAND and silt, sm. f-gravel (dry)

Gray f-c SAND, sm. silt, sm. slag, tr. f-gravel, tr. green-blue and red material (dry)

Brown-gray silty f-c SAND, tr. f-gravel, tr. intrusions of black silt (moist)

Brown silty SAND, tr. f-c sand, tr. f-gravel (moist)

Brown silty SAND, tr. f-c sand, tr. f-gravel (moist)

Red-brown CLAY and silt, tr. c-sand, tr. f-gravel

Red-brown CLAY and silt, tr. organic, tr. f-gravel

End of boring @ 16'

Remarks
Collect sample LSB-36-A from 1'-3' @ 15:00

Collect sample LSB-36-B from 10'-12' @ 15:10
**Project:**
FONF Expansion Sabre Park BCP

**Location:**
Niagara Falls, NY

**Drilling Company:**
SJB Drilling

**Drilling Equipment:**
Truck Mounted Geoprobe 6620 DT

**Size and Type of Bit:**
N/A

**Casing Diameter (in):**
N/A

**Casing Drilled:**
N/A

**Weight (lbs):**
N/A

**Drop (in):**
N/A

**Drilling Foreman:**
Dan DeLude

**Inspecting Engineer:**
Kyle Zalaski

**Sampling:**

- **2" Macrocore**
  - **Sample Description:**
    - **ASPHALT**
      - Gray f-GRAVEL, little brown-gray f-c sand, tr. silt, tr. fill (brick)
      - Gray f-GRAVEL, tr. slag
    - Gray f-c SAND, sm. f-gravel (slag), little silt, little clay (dense) (dry)
    - Gray f-c SAND, sm. f-gravel (slag), little silt, little clay (moderately dense) (dry)
    - Brown-gray f-SAND, sm. silt (moderately dense) (dry)
    - Reddish-brown CLAY (dense) (wet)
    - Reddish-brown CLAY, little f-gravel (dense) (wet)
  - **Remarks:**
    - Collect sample LSB-40-A from 4'-6' @ 14:25
    - Collect sample LSB-40-B from 6'-8' @ 14:35
  - **End of boring @ 16'**

**Elevation and Datum:**
Approx. el.

**Date Started:**
6/26/13

**Date Finished:**
6/26/13

**Completion Depth:**
16 ft

**Rock Depth:**
N/E

**Number of Samples:**
5

**Disturbed:**
0

**Undisturbed:**
0

**Core:**
0

**Water Level (ft):**
N/A

**N-Value (Blows/ft):**
24 HR.

**Remarks:**
(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
Brown TOPSOIL, m-f sand, tr. silt (dry)

Brown f-c SAND, sm. silt, tr. f-gravel (dry)

Brown-black f-c SAND, sm. silt, tr. f-gravel, tr. fill (brick) (dry)

Brown-gray-black f-m SAND, sm. silt, tr. c-sand (moist)

Brown-gray silty f-SAND, tr. f-gravel (wet)

Brown silty f-c SAND, tr. f-gravel (saturated)

Red-brown CLAY and silt, tr. c-sand, tr. f-gravel

End of boring @ 16'

Collect sample LSB-41-A from 3'-5' @ 12:40
Slight odor @ 3.5-4'

Slight odor @ 4-5.5'

Collect sample LSB-41-B from 10'-12' @ 12:50
**Log of Boring**

**LSB-42**

**Sheet 1 of 1**

---

**Project:** FONF Expansion Sabre Park BCP  
**Project No.:** 140091401

**Location:** Niagara Falls, NY  
**Elevation and Datum:** Approx. el. 573.99

**Drilling Company:** SJB Drilling  
**Date Started:** 6/26/13  
**Date Finished:** 6/26/13

**Drilling Equipment:** Truck Mounted Geoprobe 6620 DT

---

### Sample Description

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<th>Sample Data</th>
<th>Remarks</th>
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<td>TOPSOIL</td>
<td>Collect sample LSB-42-A from 3'-5' @ 13:50</td>
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<td>Brown f-c SAND, organic matter, sm. silt, tr. tar-like material</td>
<td>Slight odor @ 4'-6'</td>
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<td></td>
<td>FILL (brick, woody debris) (dry)</td>
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<td>Grey-black f-m SAND, sm. silt, tr. c-sand (dry)</td>
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<td>Gray-brown f-m SAND, sm. silt, tr. f-gravel, instrusions of black silt (moist)</td>
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<tr>
<td>+568.0</td>
<td>Gray silty f-SAND, tr. c-sand (wet)</td>
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<td>Gray silty f-SAND, tr. c-sand (wet)</td>
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<tr>
<td>+564.0</td>
<td>Red-brown CLAY and silt, tr. c-sand, tr. f-gravel (wet)</td>
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<td>Red-brown CLAY and silt, tr. c-sand, tr. f-gravel</td>
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<tr>
<td>+568.0</td>
<td>End of boring @ 16'</td>
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**Drilling Equipment:** Truck Mounted Geoprobe 6620 DT  
**Completion Depth:** 16 ft  
**Rock Depth:** N/E

---

**Sample Data**

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<th>Depth</th>
<th>Sample Data</th>
<th>Remarks</th>
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<tbody>
<tr>
<td>+573.7</td>
<td>TOPSOIL</td>
<td>Collect sample LSB-42-A from 3'-5' @ 13:50</td>
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<tr>
<td></td>
<td>Brown f-c SAND, organic matter, sm. silt, tr. tar-like material</td>
<td>Slight odor @ 4'-6'</td>
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<td>FILL (brick, woody debris) (dry)</td>
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<td>Grey-black f-m SAND, sm. silt, tr. c-sand (dry)</td>
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<td>Gray-brown f-m SAND, sm. silt, tr. f-gravel, instrusions of black silt (moist)</td>
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<td>Gray silty f-SAND, tr. c-sand (wet)</td>
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<td>+564.0</td>
<td>Red-brown CLAY and silt, tr. c-sand, tr. f-gravel (wet)</td>
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<td>Red-brown CLAY and silt, tr. c-sand, tr. f-gravel</td>
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<tr>
<td>+568.0</td>
<td>End of boring @ 16'</td>
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**Drilling Foreman:** Art  
**Inspecting Engineer:** Justin Hall
**Sample Description**

**TOPSOIL**
- Brown-dark brown f-c SAND, sm. f-gravel, little silt, little fill (brick, asphalt) (dense) (dry)

**Brown-gray f-SAND, sm. silt, sm. clay (dense) (wet)**

**Reddish-brown CLAY**
- Reddish-brown CLAY, tr. f-gravel (dense) (wet)

End of boring @ 16’

**Remarks**
- Collect sample LSB-46 A from 2'-4' @ 15:35
- Collect sample LSB-46-B from 4'-6' @ 15:50
**Gray f-GRAVEL, little f-c sand, tr. silt (loose) (dry)**

**Brown f-c SAND, little silt, tr. f-gravel, tr. clay (dry)**

**Gray FILL, silt, sm. brown f-c sand, tr. f-gravel, tr. silt (dry)**

**Brown f-SAND, sm. f-gravel, little silt, tr. clay (dry)**

**Brownish-gray-gray CLAY, tr. silt, tr. f-sand, tr. fill (fibrous materials, wood) (moist)**

**Blush-gray-gray-brown CLAY, tr. silt, tr. f-sand, tr. fill (fibrous material) (moist)**

**Gray-brown f-SAND, little silt, tr. clay (moist)**

**Gray-brown CLAY, little silt, tr. f-sand (moist)**

**Reddish-brown to gray CLAY, tr. silt, tr. f-sand (moist)**

---

End of boring @ 16'
**Log of Boring**  
**LSB-49**  
**Sheet 1 of 1**

<table>
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<th>ELEV (ft)</th>
<th>MATERIAL</th>
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<td>+574.6</td>
<td>TOPSOIL, brown f-c sand, sm. silt, organic matter</td>
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<td>+569.6</td>
<td>Brown-black f-c SAND, sm. silt, tr. f-gravel, slag layer @ 0.5'-0.8' brick, concrete and black silt throughout</td>
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<td>+566.6</td>
<td>Black SILTY f-sand, tr. brick</td>
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<td>Gray-brown SILTY f-sand</td>
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<td>Gray-brown SILTY f-sand, sm. clay</td>
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<td>+559.1</td>
<td>Red-brown CLAY and silt overlying clay and silt layers throughout</td>
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<td>+557.1</td>
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### Sample Data

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**Remarks**

Collect sample LSB-49-A from 1.5'-3.5' @ 16:30, voc sample: 1.5'-2', black silt has slight odor.

Collect sample LSB-49-B from 4'-6' @ 16:40, voc sample: 4'-4.5', black silt has slight odor.
TOPSOIL, brown f-c sand, sm. silt, organic matter (dry)
Brown f-c SAND, sm. silt, tr. f-gravel, tr. brick (dry)
Brown f-c SAND, sm. silt, tr. f-gravel, tr. brick (dry)
Brown-black f-m SAND, sm. silt, black silt, tr. brick
Black silty f-SAND, tr. f-gravel, tr. c-sand, woody debris, tr. slag, tr. brick (wet)
Black-gray silty f-SAND (wet)
Black-gray silty f-SAND (wet)
Brown-red CLAY and silt, tr. m-sand, clay and silt in overlying layers throughout (wet)
Brown-red CLAY and silt, tr. c-sand, overlying layers of clay and silt throughout
End of Boring @ 16'

Collect sample LSB-57-A from 2'-4' @ 18:00, voc sample: 3.5'-4'
Black silt has slight odor
Collect sample LSB-57-B from 5'-7' @ 18:10, voc sample: 5-5.5, black silt has slight odor
**Project**
FONF Expansion Sabre Park BCP

**Location**
Niagara Falls, NY

**Drilling Company**
SJB Drilling

**Drilling Equipment**
Truck Mounted Geoprobe 6620 DT

**Size and Type of Bit**
Macrocore

<table>
<thead>
<tr>
<th>Casing Diameter (in)</th>
<th>Casing Depth (ft)</th>
<th>Casing Hammer</th>
<th>Weight (lbs)</th>
<th>Drop (in)</th>
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<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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**Number of Samples**

<table>
<thead>
<tr>
<th>Material</th>
<th>Undisturbed</th>
<th>Disturbed</th>
<th>Core</th>
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<tbody>
<tr>
<td>ASPHALT</td>
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<td>4</td>
<td>0</td>
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</table>

**Remarks**

- Collect sample LSB-64-A from 1'-3' @ 08:30
- Collect sample LSB-64-B from 4'-6' @ 08:40

**Sample Description**

- **ASPHALT**
  - Brown-gray f-c SAND, sm. f-gravel, tr. silt, dense grade sub-base (wet)
  - Brown, f-c SAND, sm. silt, sm. fill (roots, woody debris) (moist)
  - Brown-gray f-m silty SAND (wet)

- **Brown-gray f-m silty SAND, tr. c-sand** (saturated)

- **Gray-brown f-m silty SAND** (saturated)
  - Red-brown CLAY and silt, weathered rock @ 12.3' (saturated)

- **End of boring at 12.3'**
<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Material</th>
<th>Sample Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>ASPHALT</td>
<td>Gray f-c SAND, sm. f-gravel, tr. silt</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td>(moist)</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td>Brown-gray f-SAND, little silt</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td>(moist)</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td>Gray CLAY, tr. f-sand</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td>(dense) (moist)</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td>Brown-gray f-SAND, little silt, tr. clay</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td>(moderately dense) (moist)</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td>Brown-gray f-SAND, little silt, little clay</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td>(moderately dense) (moist)</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td>Brown-gray CLAY, little f-sand, tr. silt</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td>(moist)</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td>Brown-gray f-SAND, little silt, tr. clay</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td>(moist)</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td>Brown-gray f-SAND, little silt, tr. clay</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td>(wet)</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td>Brown-gray CLAY, sm. silt, f-sand</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td>(dense) (wet)</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td>Brown f-c SAND, sm. silt, little clay</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td>(wet)</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td>Reddish-brown f-SAND, little silt, little clay, sm. f-gravel</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td>(very dense) (wet)</td>
</tr>
</tbody>
</table>

**Remarks**

- Collect sample LSB-65-A from 1'-3' @ 09:15
- Collect sample LSB-65-B from 5.75'-7.75' @ 09:25
- Refusal @ 12.9'
### Sample Description

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Sample Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>571.7</td>
<td>ASPHALT Brown-gray f-c SAND, tr. silt, dense grade sub-base (dry)</td>
</tr>
<tr>
<td>571.0</td>
<td>Brown-gray f-c SAND, sm. silt, sm. fill (fibrous material) (dry)</td>
</tr>
<tr>
<td>568.0</td>
<td>Gray silty CLAY, sm. f-sand, sm. fill (fibrous material) (moist)</td>
</tr>
<tr>
<td>562.0</td>
<td>Brown-gray silty f-SAND, sm. fill (fibrous material) (wet)</td>
</tr>
<tr>
<td>560.5</td>
<td>Brown-gray silty f-SAND, tr. c-gravel (wet)</td>
</tr>
<tr>
<td>560.0</td>
<td>Brown-red, CLAY and silt, sm. f-gravel, tr. c-sand</td>
</tr>
<tr>
<td>560.5</td>
<td>End of boring @11.5</td>
</tr>
</tbody>
</table>

### Remarks

- Collect sample LSB-66-A from 1'-3' @ 09:40
- Collect sample LSB-66-B from 10'-12' @ 09:50
Log of Boring

LSB-67

Sheet 1 of 1

Project
FONF Expansion Sabre Park BCP

Project No.
140091401

Location
Niagara Falls, NY

Elevation and Datum
Approx. el. 571.87

Drilling Company
SJB Drilling

Date Started
6/28/13

Drilling Equipment
Truck Mounted Geoprobe 6620 DT

Date Finished
6/28/13

Completion Depth
10.8 ft

Rock Depth
10.8 ft

End of boring @ 10.8'

Sample Description

APHALT

Brown-gray f-c SAND, sm. f-gravel, tr. silt, geo-fabric @ 1" under asphalt, dense grade sub-base (dry)

Black-gray f-c SAND, sm. silt, sm. fill (woody debris), tr. f-gravel, (dry)

Brown-gray f-SAND, sm. silt (moist)

Brown-gray f-SAND, sm. silt (wet)

Brown-gray silty f-SAND (wet)

Brown-gray silty f-SAND, tr. f-gravel, tr. clay (wet)

End of boring @ 10.8'

Remarks

Slight odor @ 1-2.5', Collect sample LSB-67-A from 1'-3' @ 10:50

Collect sample LSB-67-B from 5'-7' @ 11:00

Hammer refusal @ 10.8'

Sample Data

Depth Scale

Sample Data

N-Value
(Blows/ft)

10 20 30 40

Remarks
(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)

Art
Justin Hall
**Log of Boring**  
**LSB-68**  
**Sheet 1 of 1**

---

**Project:** FONF Expansion Sabre Park BCP  
**Project No.:** 140091401

**Location:** Niagara Falls, NY  
**Elevation and Datum:** Approx. el. 572.09

**Drilling Company:** SJB Drilling  
**Date Started:** 6/28/13  
**Date Finished:** 6/28/13

**Drilling Equipment:** Truck Mounted Geoprobe 6620 DT

---

**Sample Description**

<table>
<thead>
<tr>
<th>Material</th>
<th>Symbol</th>
<th>Depth (ft)</th>
<th>Sample Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASPHALT</td>
<td>dry</td>
<td>+572.1</td>
<td></td>
</tr>
<tr>
<td>Gray f-GRAVEL, sm. f-sand, tr. silt, Geo-fabric @ 1' (loose) (dry)</td>
<td>loose</td>
<td>+571.1</td>
<td></td>
</tr>
<tr>
<td>Gray-black f-SAND, little f-gravel, little fill (brick, wood, fibrous material), little silt (moist)</td>
<td></td>
<td>+569.6</td>
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</tr>
<tr>
<td>Gray f-SAND, little silt, tr. clay, tr. white shells (moderately dense) (moist)</td>
<td></td>
<td>+567.6</td>
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<tr>
<td>Gray f-SAND, little silt, tr. clay, tr. white shells (moderately dense) (wet)</td>
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<td>+565.1</td>
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<tr>
<td>Gray f-SAND, little silt, tr. white shells, tr. c-sand (wet)</td>
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<td>+562.5</td>
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<tr>
<td>Gray brown f-SAND, little silt, tr. clay, dense, tr. white shells (dense) (moist)</td>
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<td>+561.8</td>
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<td>Gray brown f-SAND, little silt, tr. clay, dense, tr. white shells (dense) (moist)</td>
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<td>Gray f-GRAVEL, little f-sand (moist)</td>
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<td>+558.6</td>
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</table>

---

**Remarks**

Collect sample LSB-68-A from 1'-2' @ 10:25  
Collect sample LSB-68-B from 2'-4' @ 10:55  
Refusal @ 10.3'
Log of Boring LSB-69

Project No. 140091401

Location: Niagara Falls, NY

Drilling Company: SJB Drilling

Drilling Equipment: Truck Mounted Geoprobe 6620 DT

Size and Type of Bit: N/A

Casing Diameter (in): N/A

Casing Hammer: N/A

Casing Depth (ft): N/A

Number of Samples: Disturbed 3, Undisturbed 0, Core 0

Weight (lbs): N/A

Drop (in): N/A

Drilling Foreman: Art

Inspecting Engineer: Justin Hall

Sample Description:

- ASPHALT
  - Brown-gray f-c SAND, sm. f-gravel, tr. silt, asphalt and dense grade sub-base (dry)
  - Gray-black f-m SAND, sm. silt, tr. f-gravel, sm. fill (concrete, woody debris), tr. c-sand, tr. brick (dry)
  - Gray-black f-c SAND and silt, sm. f-gravel
  - Gray silty f-SAND (wet)
  - Gray silty f-SAND (saturated)
  - Red-brown CLAY, tr. f-m sand (saturated)
  - End of boring @ 10.3

Sample Data:

- Remarks:
  - Slight odor 1-4', Collect sample LSB-69-A from 1'-3' @ 17:05
  - Slight odor @ 4-7'
  - Collect sample LSB-69-B from 5-7' @ 17:15
  - Hammer refusal @ 10.3
**Log of Boring**

**LSB-70**

**Sheet 1 of 1**

**Project**
FONF Expansion Sabre Park BCP

**Project No.**
140091401

**Location**
Niagara Falls, NY

**Elevation and Datum**
Approx. el. 572

**Drilling Company**
SJB Drilling

**Date Started**
6/27/13

**Date Finished**
6/27/13

**Drilling Equipment**
Truck Mounted Geoprobe 6620 DT

**Completion Depth**
10.5 ft

**Rock Depth**
10.5 ft

**Size and Type of Bit**
N/A

**Number of Samples**
Disturbed 3

**Weight (lbs)**
N/A

**Undisturbed 0**

**Core 0**

**Casing Diameter (in)**
N/A

**Water Level (ft.)**
First 4

**Casing Depth (ft)**
N/A

**Completion** N/A

**Core**

**N-Value (Blows/ft)**

**Drilling Foreman**
Dan DeLude

**Inspecting Engineer**
Kyle Zalaski

**Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.**

**Remarks**

Collect sample LSB-70-A from 0.42'-1.25' @ 18:40

Collect sample LSB-70-B from 2'-4' @ 18:50

Refusal @ 10.5'

**Sample Description**

- ASPHALT (dry)
- Gray f-c SAND, sm. greenish f-gravel, tr. silt, tr. slag (dry)
- Brown-gray f-SAND, sm. silt, tr. clay (dense) (moist)
- Brown-gray f-SAND, little silt, little clay (dense) (wet)
- Brown-gray CLAY, little silt, tr. f-sand (dense) (wet)
- Gray CLAY, sm. silt, little f-sand (wet)
- Reddish-brown-gray f-SAND, sm. silt, little clay, little f-gravel (dense) (wet)

**Sample Data**

- **Elev. (ft)**
  - 671.5
  - 671.0
  - 668.5
  - 665.0
  - 662.0
  - 561.5

- **Sample Description**
  - ASPHALT (dry)
  - Gray f-c SAND, sm. greenish f-gravel, tr. silt, tr. slag (dry)
  - Brown-gray f-SAND, sm. silt, tr. clay (dense) (moist)
  - Brown-gray f-SAND, little silt, little clay (dense) (wet)
  - Brown-gray CLAY, little silt, tr. f-sand (dense) (wet)
  - Gray CLAY, sm. silt, little f-sand (wet)
  - Reddish-brown-gray f-SAND, sm. silt, little clay, little f-gravel (dense) (wet)

- **Remarks**
  - Collect sample LSB-70-A from 0.42'-1.25' @ 18:40
  - Collect sample LSB-70-B from 2'-4' @ 18:50
  - Refusal @ 10.5'
## Log of Boring LSB-71

**Project**

FONF Expansion Sabre Park BCP

**Project No.**

140091401

**Location**

Niagara Falls, NY

**Elevation and Datum**

Approx. el. 571.91

**Drilling Company**

SJJB Drilling

**Drilling Equipment**

Truck Mounted Geoprobe 6620 DT

**Date Started**

6/27/13

**Date Finished**

6/27/13

**Completion Depth**

10.5 ft

**Rock Depth**

10.5 ft

**Size and Type of Bit**

N/A

**Number of Samples**

Disturbed

3

Undisturbed

0

Core

0

**Casing Diameter (in)**

N/A

**Casing Depth (ft)**

N/A

**Water Level (ft.)**

First

N/E

Completion

N/A

**24 HR. Water Level (ft.)**

N/A

**Drilling Foreman**

Dan DeLude

**Inspecting Engineer**

Kyle Zalaski

**Sampler**

2" Macrocore

**Sampler Hammer**

N/A

**Weight (lbs)**

N/A

**Drop (in)**

N/A

### MATERIAL

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<th>Elev. (ft)</th>
<th>Symbol</th>
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</thead>
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<td>+571.4</td>
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<td>ASPHALT</td>
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<td>+571.2</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Gray f-GRAVEL, little f-c sand, tr. silt (loose) (dry)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Brown-gray f-CAND, sm. fill (asphalt, tar-like material), tr. blueish-gray f-gravel (loose) (dry)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gray-dark gray CLAY, tr. silt, tr. f-c sand (dense) (moist)</td>
</tr>
<tr>
<td>+565.5</td>
<td></td>
<td>Reddish-gray CLAY</td>
</tr>
<tr>
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<tr>
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<td>Gray CLAY, little silt, tr. f-sand, tr. fill (brick, fibrous strings, wood) (dense) (moist)</td>
</tr>
<tr>
<td>+561.4</td>
<td></td>
<td>Reddish-brown CLAY</td>
</tr>
<tr>
<td></td>
<td></td>
<td>End of boring @ 10.5</td>
</tr>
</tbody>
</table>

**Remarks**

- Collect sample LSB-71-A from 2'-2.75' @ 17:30
- Collect sample LSB-71-B from 4.75'-5.8' @ 17:40
- Refusal @ 10.5'
Sample Description

**ASPHALT**
Brown-gray f-c SAND, sm. f-gravel, tr. silt, asphalt, dense grade sub-base (dry)

Gray-black f-SAND, sm. silt, tr. fill (fibrous material, woody debris) (moist)

Gray-brown, f-m SAND, sm. silt, tr. infusions of black silt (wet)

Gray-brown silty f-c SAND, tr. f-gravel, intrusions of black silt (wet)

Brown-red CLAY and silt, tr. c-sand, tr. f-gravel, overlying layers of silt and clay (wet)

Red-brown CLAY and silt, tr. sand, tr. f-gravel, overlying layers silts and clay (wet)

End of boring @ 11.3'

Black sand and clay have slight odor @ 1-2.5', Collect sample LSB-72-A from 1'-3' @ 18:10

Collect sample LSB-72-B from 9'-11' @ 18:25

Hammer refusal @ 11.3'
Sample Description

**ASPHALT**
- Brown-gray f-c SAND, tr. silt, tr. fill (fibrous material under sub-base (geo-fabric)), asphalt and dense grade sub-base (dry)
- Brown-gray f-m SAND, sm. silt, tr. intrusions of black silt (dry)

**Brown-gray silty f-SAND**
- (moist)
- Gray-brown silty f-SAND (wet)

**Gray-brown silty f-m SAND**
- (saturated)
- Gray silt CLAY, tr. f-m sand, tr. intrusions of coarse sand @ 10' (saturated)
- Red-brown CLAY and silt, weathered rock @ 11.8' (saturated)

**End of boring at 11.8’**

Collect sample LSB-73-A from 1’-3’ @ 20:10

Slight odor @ 3’

Collect sample LSB-73-B from 6’-8’ @ 20:15

Hammer refusal @ 11.8’
**MATERIAL** | **SYMBOL** | **Sample Description**
---|---|---
ASPHALT | | Brown to gray f-c SAND, sm. f-gravel, sm. coal (asphalt), sm. silt, dense (moist)
| | Brown to gray f-c SAND, sm. f-gravel, tr. silt, loose (moist)
| | Brown to gray CLAY, sm. f-c sand, tr. f-gravel, moderately dense (moist)
| | Gray to dark gray CLAY, sm. f-gravel, tr. brick (wet)
| | Gray CLAY, tr. f-gravel, tr. silt (wet)
| | Gray CLAY, tr. f-sand (wet)
| | Gray to reddish-brown CLAY, sm. f-c sand, tr. silt (wet)
| | Reddish-brown CLAY, sm. f-gravel (wet)
| | Gray f-GRavel, sm. reddish-brown clay (wet)
| | End of Boring @ 13.5'

**Remarks**
Collect sample LSB-74-A from 1'-3' (voc's 2.5'-3') @ 19:55
Poor recovery from 4'-8'
Macrocore from 4'-8' very wet
Poor recovery from 8'-12'
Refusal @ 13.5' (bottom of boring)
Log of Boring

LSB-75

Elevation and Datum

Approx. el. 572.36

Date Started
6/27/13

Date Finished
6/27/13

Rock Depth
13.8 ft

End of boring 13.8'

Remarks
Collect sample LSB-75-A from 1'-3' @ 19:10

Slight odor @ 1.5'

Collect sample LSB-75-B from 10'-12' @ 19:20

Sample Data

Sample Description

- ASPHALT
- Brown to gray f-c SAND, sm. f-gravel, tr. silt, asphalt and dense grade sub-base (dry)
- Black f-m SAND, sm. silt
- Brown-gray silty f-SAND, tr. m-sand (wet)
- Brown-gray silty f-SAND, tr. m-sand (wet)
- Brown-gray silty f-SAND, tr. m-sand, tr. c-sand (wet)
- Gray-brown silty f-m SAND, tr. intrusion of c-sand (wet)
- Brown-red CLAY and silt, tr. c-sand, tr. f-gravel, weathered rock @ 13.8' (wet)
- End of boring 13.8'

PID Reading (ppm)

P N-Value (Blows/ft)

10 20 30 40

Reporting (ppm)

0 1 2 3 4 5 6 7 8 9 10

Sample Description

MATERIAL

SYMBOL

ELEV. (ft)

572.1

571.4

570.4

Type

Sample Data

Number

Scale

0 1 2 3 4 5 6 7 8 9 10

2-5

44

S-1

2-5

27

S-2

2-5

47

S-3

2-5

1.5

S-4

Remarks

(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)

Collect sample LSB-75-A from 1'-3' @ 19:10

Slight odor @ 1.5'

Collect sample LSB-75-B from 10'-12' @ 19:20
<table>
<thead>
<tr>
<th>Depth</th>
<th>Sample Description</th>
<th>Number of Samples</th>
<th>N-Value (Blows/ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Slight odor @ 2', Collect sample LSB-76-A from 2'-4' @ 11:20</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>6</td>
<td>Collect sample LSB-76-B from 4'-6' @ 11:30</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>14.6</td>
<td>End of boring @ 14.6</td>
<td>0</td>
<td>20</td>
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</tbody>
</table>

**Remarks**

(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
### MATERIAL

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>SCALE</th>
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<tbody>
<tr>
<td>ASPHALT</td>
<td>Gray f-c SAND, sm. f-gravel, tr. silt (dry)</td>
</tr>
<tr>
<td>Gray f-m SAND, sm. silt (dry)</td>
<td></td>
</tr>
<tr>
<td>Gray-brown f-SAND, sm. silt (moist)</td>
<td></td>
</tr>
<tr>
<td>Brown-gray f-c SAND, sm. silt (moist)</td>
<td></td>
</tr>
<tr>
<td>Brown silty f-SAND (moist)</td>
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</tr>
<tr>
<td>Brown-red silty f-SAND, sm. clay (moist)</td>
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</tr>
<tr>
<td>Brown-red silty f SAND, sm. clay (moist)</td>
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</tr>
<tr>
<td>Red-gray silty f-c SAND, sm. clay, tr. f-gravel (moist)</td>
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<tr>
<td>Red-gray silty f-c SAND, sm. clay, tr. f-gravel (wet)</td>
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<tr>
<td>End of Boring @ 12.5'</td>
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### Sample Data

<table>
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<tr>
<th>Location</th>
<th>Project No.</th>
<th>Approx. el.</th>
<th>Elev. (ft)</th>
<th>Sample Description</th>
<th>Depth (ft)</th>
<th>Type</th>
<th>N-Value (Blows/ft)</th>
<th>Remarks</th>
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<tbody>
<tr>
<td>Niagra Falls, NY</td>
<td>140091401</td>
<td>572.8</td>
<td>572.5</td>
<td>ASPHALT</td>
<td>0</td>
<td>S-1</td>
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<tr>
<td>Gray f-c SAND, sm. f-gravel, tr. silt (dry)</td>
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<td>Gray f-m SAND, sm. silt (dry)</td>
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<td>Gray-brown f-SAND, sm. silt (moist)</td>
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<tr>
<td>Brown-gray f-c SAND, sm. silt (moist)</td>
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<td>Brown-red silty f-SAND, sm. clay (moist)</td>
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<td>Brown-red silty f SAND, sm. clay (moist)</td>
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<tr>
<td>Red-gray silty f-c SAND, sm. clay, tr. f-gravel (moist)</td>
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<tr>
<td>Red-gray silty f-c SAND, sm. clay, tr. f-gravel (wet)</td>
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</tbody>
</table>

#### Log of Boring

- **Project:** FONF Expansion Sabre Park BCP
- **Location:** Niagra Falls, NY
- **Date Started:** 6/24/13
- **Date Finished:** 6/24/13
- **Drilling Equipment:** Truck Mounted Geoprobe 6620 DT
- **Size and Type of Bit:** 4 1/4'' Hollow Stem Auger
- **Casing Diameter (in):** N/A
- **Weight (lbs):** N/A
- **Drop (in):** N/A

#### Remarks

- Collect sample LSB 11-A from 1'-3' @ 10:50
- 4'-4.5' CO-295 ppm, Collect sample LSB 11-B from 4'-6' @ 11:35
- Hammer refusal @ 12.2' Auger refusal @ 12.5, LMW-1 installed @ 12.5
<table>
<thead>
<tr>
<th>MATERIAL SYMBOL</th>
<th>ELEV. (ft)</th>
<th>SCALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot; ASPHALT</td>
<td>572.3</td>
<td>0</td>
</tr>
</tbody>
</table>

**Sample Description**

- 4'' ASPHALT
- F-GRAVEL, sm. brown f-c sand, tr. silt (dry)
- Dark gray- black SILT, sm. clay, little f-gravel, tr. f-c sand, tr. f-c sand, tr. organics (moist)
- Dark gray-black SILT, sm. clay, tr. f-c sand, tr. organics (moist)
- Brown-gray SILT, sm. clay, tr. f-c sand, moderately dense (moist)
- Brown-gray CLAY, sm. silt, tr. f-sand (moderately dense) (moist)
- Brown f-c SAND (wet)
- Brown-gray CLAY, sm. f-c sand (wet)
- Brown-gray CLAY, sm. silt, tr. f-sand (wet)
- Brown f-c SAND, sm. silt, little f. gravel (wet)
- Reddish-brown CLAY, sm. silt, tr. f-gravel, tr. f-c sand (wet)
- End of Boring @ 12''

**Remarks**

- Collect sample LSB-19-A from 1'-3' @ 11:15
- Collect sample LSB-19-B from 4'-6' @ 11:40
**Sample Description**

- **Depth Scale**
  - **Sample Data**
  - **Remarks**

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>SYMBOL</th>
<th>Elevation (ft)</th>
<th>Sample Description</th>
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<tbody>
<tr>
<td><strong>4' TOPSOIL</strong></td>
<td></td>
<td>+572.4</td>
<td>Brown f-c SAND, sm. silt, tr. f-gravel (dry)</td>
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<tr>
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<td></td>
<td>+569.9</td>
<td>Dark brown-black f-SAND, sm. silt tr. organics (dry)</td>
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<tr>
<td></td>
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<td>+569.9</td>
<td>Gray CLAY, little f-sand (dry)</td>
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<tr>
<td></td>
<td></td>
<td>+566.9</td>
<td>Gray CLAY, sm. f-SAND (dry)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>+566.9</td>
<td>Reddish-brown f-c SAND, tr. silt, tr. clay (dry)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>+566.9</td>
<td>Reddish-brown f-c SAND, tr. silt, tr. f-gravel (dry)</td>
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<tr>
<td></td>
<td></td>
<td>+566.9</td>
<td>Reddish-brown f-SAND, sm. silt, tr. f-gravel, (wet)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>+560.9</td>
<td>Reddish-brown f-c SAND, tr. f-gravel (wet)</td>
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<td></td>
<td></td>
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<td>End of Boring @ 12'</td>
</tr>
</tbody>
</table>

**Collect sample LSB-20-A from 2'-4' @ 13:20**

**Collect sample LSB-20-B from 6'-8' @ 13:30**
**Log of Boring**  
**LSB-26/LMW-4**  
**Sheet 1 of 1**

**Project No.**  
140091401

**Project**  
FONF Expansion Sabre Park BCP

**Location**  
Niagara Falls, NY

**Drilling Company**  
SJB Drilling

**Drilling Equipment**  
Truck Mounted Geoprobe 6620 DT

**Size and Type of Bit**  
4 1/4" Hollow Stem Auger

**Casing Diameter (in)**  
N/A

**Casing Hammer**  
N/A

**Casing Diameter (in)**  
N/A

**Sample**  
2" Macrocore

**Sample Hammer**  
NA/

**Weight (lbs)**  
N/A

**Drop (in)**  
N/A

**Drilling Foreman**  
Art

**Inspecting Engineer**  
Justin Hall

---

**MATERIAL**  
**SYMBOL**

<table>
<thead>
<tr>
<th>Elev. (ft)</th>
<th>Depth Scale</th>
<th>Sample Data</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>573.3</td>
<td></td>
<td></td>
<td>Slight odor @ 3.5'-4', Collect sample LSB-26-A from 4'-6' @ 10:35</td>
</tr>
<tr>
<td>572.1</td>
<td></td>
<td></td>
<td>Slight odor @ 4'-6'</td>
</tr>
<tr>
<td>564.1</td>
<td></td>
<td></td>
<td>Slight odor @ 8'-9.5'</td>
</tr>
<tr>
<td>561.6</td>
<td></td>
<td></td>
<td>Collect sample LSB-26-B from 10'-12' @ 10:55</td>
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<tr>
<td>560.1</td>
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**Remarks**  
(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)

---

**End of boring @ 12'**
### Sample Description

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Sample Description</th>
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<tbody>
<tr>
<td>4.0</td>
<td>4&quot; ASPHALT</td>
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<tr>
<td>4.9</td>
<td>Dark brown f-c SAND, sm. f-gravel, little silt (dry)</td>
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<tr>
<td>5.1</td>
<td>Brown-gray f-c SAND, little f-gravel, tr. silt, tr. clay (dry)</td>
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<tr>
<td>5.5</td>
<td>Gray f-c SAND, sm. clay, little f-gravel (moist)</td>
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<tr>
<td>5.7</td>
<td>Brown-gray CLAY, sm. f-c sand, tr. f-gravel (moist)</td>
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<tr>
<td>5.9</td>
<td>Brown-gray CLAY, sm. f-c sand, tr. f-gravel (moist)</td>
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<tr>
<td>6.5</td>
<td>Brown-gray CLAY (wet)</td>
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<tr>
<td>6.8</td>
<td>Brown-gray CLAY, tr. f-c sand (wet)</td>
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<tr>
<td>7.4</td>
<td>Reddish-brown-gray CLAY, tr. f-sand (wet)</td>
</tr>
<tr>
<td>12.0</td>
<td>Bottom of Boring @ 12'</td>
</tr>
</tbody>
</table>

### Remarks

- Collect environmental sample LSB-35-A from 2'-4' @ 10:35
- Collect environmental sample LSB-35-B from 4'-5.5' @ 11:05
- Monitoring Well LMW-5 completed at this location
**Log of Boring**

**LSB-43/LMW-6**

**Sheet 1 of 1**

**Project No:** 140091401

**Location:** Niagara Falls, NY

**Drilling Company:** SJB Drilling

**Drilling Equipment:** Truck Mounted Geoprobe 6620 DT

**Size and Type of Bit:** 4 1/4" Hollow Stem Auger

**Casing Diameter (in):** N/A

**Casing Hammer:** N/A

**Casing Weight:** N/A

**Casing Diameter:** N/A

**Casing Hammer Weight:** N/A

**Sampling:**

- **6'' Asphalt:** Brown-gray f-c sand, sm. silt, sm. f-gravel (dry)
- **Gray f-c SAND, sm. f-gravel, little silt (dry):**
- **Gray f-c SAND, sm. black coal, little silt, tr. f-gravel (dry):**
- **Brown-gray CLAY, tr. f-c sand (dry):**
- **Brown-gray CLAY, tr. f-sand (moist):**
- **Reddish-brown-gray CLAY (moist):**
- **Reddish-brown-gray CLAY, sm. intrusion of f-sand (wet):**
- **Reddish-brown-gray CLAY, tr. f-c SAND (wet):**

**End of boring @ 16'**

**Remarks:**

- Collect environmental sample LSB-43-A from 2'-4' @ 14:35
- Collect environmental sample LSB-43-B from 6'-8' @ 14:45

**Collecting Engineer:** Kyle Zalaski

**Inspecting Engineer:** Dan Delude

**Drilling Foreman:** Kyle Zalaski

**Date Started:** 6/25/13

**Depth Scale:**

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Number</th>
<th>Type</th>
<th>PID Reading (ppm)</th>
<th>Remarks</th>
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<tr>
<td>6'074.2</td>
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<td></td>
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<tr>
<td>6'073.2</td>
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<td>6'070.7</td>
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<tr>
<td>6'058.2</td>
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<tr>
<td>6'057.2</td>
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**PID Reading (ppm):**

- +573.7
- +573.2
- +570.7
- +558.2

**Water Level (ft.):**

- First 8
- Completion 24 HR.

**Drilling Fluid:**

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<tr>
<th>Rock Depth</th>
<th>N/E</th>
<th>Core</th>
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</table>

**Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.):**

- LMW-6 installed @ 16'
**MATERIAL SYMBOL**

**Depth Scale**

<table>
<thead>
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**Remarks**

- Collect sample LSB-47-A from 2'-4' @ 16:00
- Slight odor @ 4.5
- Collect sample LSB-47-B from 10'-12' @ 16:10
- LMW-7 instaled @ 16'
### Log of Boring

**Project No.** 140091401  
**Location** Niagara Falls, NY  
**Drilling Company** SJB Drilling  
**Drilling Equipment** Truck Mounted Geoprobe 6620 DT

#### Sample Description

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Sample Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>574.3</td>
<td>ASPHALT Brown f-c SAND sm. f-gravel, tr. silt, dense grade sub base (dry)</td>
</tr>
<tr>
<td>573.1</td>
<td>Gray f-c SAND sm. silt, sm. f-gravel (dry)</td>
</tr>
<tr>
<td>559.6</td>
<td>Gray f-c SAND sm. silt, tr. f-gravel (dry)</td>
</tr>
<tr>
<td>560.6</td>
<td>Gray f-c SAND, sm. silt, sm. f-gravel, chunks of coal/tar (moist)</td>
</tr>
<tr>
<td>561.6</td>
<td>Brown-gray silty f-SAND, tr. c-sand (wet)</td>
</tr>
<tr>
<td>568.6</td>
<td>Red-gray CLAY silty f-sand (wet)</td>
</tr>
<tr>
<td>571.6</td>
<td>Brown silty f-c SAND, tr. f-gravel (wet)</td>
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<tr>
<td>16</td>
<td>End of Boring @ 16'</td>
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#### Sample Data

<table>
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<tr>
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<th>Sample Type</th>
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<th>N-Value (Blows/ft)</th>
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<td>LSB-61-A</td>
<td>MACROCORE</td>
<td>N/E</td>
<td>32</td>
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</table>

#### Remarks

- Collect sample LSB-61-A from 1.5'-3.5' @ 14:30
- Collect sample LSB-61-B from 6'-8' @ 14:40
**Log of Boring**

**LTP-01**

**Sheet 1 of 1**

**Project:**
FONF Expansion Sabre Park BCP

**Project No.:**
140091401

**Location:**
Niagara Falls, NY

**Elevation and Datum:**
Approx. el. 572.46

**Date Started:**
6/28/13

**Date Finished:**
6/28/13

**Drilling Company:**
SJB Drilling

**Drilling Equipment:**
Truck Mounted Geoprobe 6620 DT

**Casing Diameter (in):**
N/A

**Casing Depth (ft):**
N/A

**Number of Samples:**
4

**Disturbed:**
4

**Undisturbed:**
0

**Core:**
0

**Water Level (ft.):**
First

24 HR.

**Completion:**
N/A

**Drilling Foreman:**
Art

**Inspecting Engineer:**
Justin Hall

**Sampler:**
2" Macrocore

**Sampler Hammer:**
N/A

**Weight (lbs):**
N/A

**Drop (in):**
N/A

**Sample Description:**

- ASPHALT
- Brown-gray f-c SAND, sm. f-gravel, tr. silt, asphalt, dense grade sub base
  (dry)
- Brown-gray silty f-c SAND, tr. gravel
  (dry)
- Brown-gray silty f-SAND
  (dry)
- Brown-gray silty f-SAND
  (dry)
- Brown-gray f-c SAND, sm. f-gravel
  (dry)
- Brown-red CLAY and silt, tr. c-sand, sm. f-gravel
End of boring 13'

**Remarks:**
Collect sample LTP-1-A from 1'-3' @ 14:15
### Log of Boring LTP-02

**Project**: FONF Expansion Sabre Park BCP  
**Project No.**: 140091401  
**Location**: Niagara Falls, NY  
**Drilling Company**: SJB Drilling  
**Drilling Equipment**: Truck Mounted Geoprobe 6620 DT

#### Geology

<table>
<thead>
<tr>
<th>Depth</th>
<th>Sample Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>722.0</td>
<td>ASPHALT Brown-gray f-c GRAVEL, sm. f-gravel, tr. silt, asphalt and dense grade sub-base (dry)</td>
</tr>
<tr>
<td>721.3</td>
<td>Brown f-c SAND, sm. silt, tr. f-gravel (dry)</td>
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<tr>
<td>720.6</td>
<td>Brown-gray SAND, sm. silt, tr. c-sand, tr. f-gravel (wet)</td>
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<tr>
<td>720.3</td>
<td>Brown-gray silty f-SAND (wet)</td>
</tr>
<tr>
<td>719.5</td>
<td>Gray-brown CLAY, sm. silty f-sand, tr. c-sand, tr. f-gravel (saturated)</td>
</tr>
<tr>
<td>567.3</td>
<td>Brown-red CLAY and silt, sm. c-sand, sm f-gravel (saturated)</td>
</tr>
<tr>
<td>566.4</td>
<td>Red-brown CLAY and silt, sm. f-gravel, weathered rock @ 12.9' (saturated)</td>
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<tr>
<td>566.0</td>
<td>End of boring @ 12.9'</td>
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#### Sample Data

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<th>Sample Data</th>
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#### Remarks

- Collect sample LTP-2-A from 1'-3' @ 13:30
- Collect sample LTP-2-B from 4'-6' @ 13:40

#### Dates
- **Date Started**: 6/28/13  
- **Date Finished**: 6/28/13

**Elevation and Datum**: Approx. el. 572.28
Log of Boring  LTP-03  Sheet 1 of 1

Project  FONF Expansion Sabre Park BCP

Location  Niagara Falls, NY

Drilling Company  SJB Drilling

Drilling Equipment  Truck Mounted Geoprobe 6620 DT

Drill Type  Macrocore

Casing Diameter (in)  N/A

Casing Depth (ft)  N/A

Casing Hammer  N/A

Sampler Hammer  N/A

Sample Description

MATERIAL  SYMBOL  ELEV. (ft)  SCALE  TYPE  PENET. SCALE  DESCR.

ASPHALT
572.4

Brown-gray f-c SAND, tr. silt, dense grade sub-base (dry)

Brown silty f-SAND, tr. f-gravel (dry)
Black silty f-SAND (dry)
Brown-gray silty f-SAND (moist)
Brown-gray silty f-SAND, tr. c-sand

Brown-gray silty f-SAND, tr. c-sand (wet)

Brown-gray CLAY and silt, tr. c-sand, tr. f-gravel (wet)

Brown-red CLAY and silt, sm. f-gravel, tr. c-sand, weathered rock @ 13.5' (wet)

End of boring @ 13.5'

Collect sample LTP-3-A from 1'-3' @ 14:45
Slight odor @ 2'-3'

Remarks
(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
Sample Description:

- **Asphalt**
  - Brown-gray f-c SAND, sm. f-gravel, tr. silt, asphalt and dense grade sub-base (dry)
  - Gray-black f-m SAND, sm. silt, tr. intrusions of black (dry)
  - Gray-black silty f-SAND, tr. c-sand, tr. intrusions of black (moist)
  - Brown-gray silty SAND, tr. f-gravel (wet)

- **Red-brown Clay and Silt**
  - Red-brown CLAY and silt, tr. c-sand, tr. f-gravel (wet)
  - Red-brown CLAY and silt, tr. f-gravel, overlying silts and clays consistently (wet)

- **Red-brown Clay**
  - Red-brown CLAY and silt, tr. c-sand, tr. f-gravel, weathered rock @ 14’ (saturated)

End of boring @ 14.3’

Remarks:

- Slight odor @ 2.5-3’
  - Collect sample LTP-13-A from 3’-5’ @ 16:55

- Slight odor @ 4.5’

- Collect sample LTP-13-B from 12’-14’ @ 17:05

Hammer refusal @ 14.3
Sample Description

1. TOPSOIL, f-c sand, sm. silt, organic matter
2. Brown f-c SAND, tr. silt, white slag, sm. f-gravel, tr. fill (brick)
3. Brown f-c SAND, sm. silt, tr. f-gravel, tr. fill (brick, slag)
4. Red FILL sm. m-c sand, sm. f-gravel, tr. silt
5. Black CLAY sm. silt, tr. f-sand
6. Brown-gray f-GRAVEL, sm. silt
7. Gray to red CLAY, sm. f-sand, tr. silt, tr. f-gravel
8. Gray-brown SILTY clay, tr. f-m sand
9. Gray-brown SILTY clay, tr. f-m sand
10. End of Test Pit @ 8.8'
11. Gray-brown SILTY clay, tr. f-m sand
12. Brown-red CLAY and silt, overlying layers of clay and silt
13. End of Test Pit @ 16'

Remarks
Collect sample LTP-45-A from 1.5'-3.5' @ 15:40
Sample A: 1.5'-3.5', voc sample: 3.0'-3.5'

Collect sample LTP-45-B from 6'-8' @ 15:50
Sample B: 6'-8', voc sample 6'-8.5'